

Detailed Site Investigation (Contamination) – Omaroro Reservoir

Mount Cook, Wellington

Prepared for Wellington Water Ltd
Prepared by Beca Limited

7 August 2019



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Revision History

Revision N°	Prepared By	Description	Date
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Executive Summary

Wellington Water Ltd has commissioned Beca Ltd (Beca) to undertake a Detailed Site Investigation (DSI) for the Prince of Wales Playing Fields in Mt Cook, Wellington for works associated with the construction of the Omāroro Reservoir.

The project relates to the construction, operation, and maintenance of a 35,000m³ reservoir within the Wellington Town Belt in the Prince of Wales Park, Mount Cook. The proposed construction works include utilising the Prince of Wales Playing Fields for material storage and stockpiling followed by reinstatement of the fields for recreation purposes.

A DSI was undertaken to characterise contamination present in materials beneath the playing fields as a result of current and historical activities. This DSI has been prepared following two Preliminary Site Investigation (PSI) reports, one for the upper field (prepared by CH2M Beca Ltd, dated Oct 2012) and one for the lower field (prepared by Beca Ltd, dated October 2017). The PSI reports identified that the sites have generally been used for recreational purposes since being incorporated within the Wellington Town Belt in the early 1890's. The following findings and MfE Hazardous Activities and Industries List (HAIL) activities were identified for the site (as having occurred or potentially occurred at a 'more likely than not' level of certainty):

- A10 persistent pesticide use associated with the maintenance of the sports turf.
- The PSI for the upper playing field reported that the site may have been the location of a clay brick manufacturing facility or was potentially used for the disposal of waste material or products associated with the operation. The HAIL codes for the upper playing field have therefore been identified as A10 and G5 (waste disposal to land).

While the PSI for the lower field does not identify any historic works prior to the 1890's (when the site was incorporated within the Town Belt), it is assumed that the site has been subject to earthworks in the past to form the current flat topography. The results of the ground investigation work indicate that the risk of contaminants from any previous earthworks is low; however, it should be noted that the source and depth of any materials imported to the site are unknown. As the current investigation only extends as deep as two metres below ground level, there is a possibility deeper fill material or material in areas not directly sampled by this investigation contain contaminants inconsistent with the results of this investigation

Ground investigation works were undertaken in February 2019 and comprised 14 test pits which were excavated to a maximum extent of 2m bgl, from which 29 samples (plus two duplicate samples) were taken.

Soil analytical results showed low levels of heavy metals, PAH and organochlorine pesticides in a number of samples across the site at varying depths. However, no contaminant concentrations exceeded the NESCS criteria for 'commercial / industrial outdoor worker (unpaved)', or 'recreational' criteria based upon the site's continued future use as a sports turf, nor did they exceed the adopted environmental protection criteria. There was evidence of a weathered orange brick within one of the upper field test pits along with further fragments of brick in this test pit.

Soil analytical results do not indicate that the site has been significantly impacted as a consequence of historical landuse activities, such as pesticide application and potentially disposal of clay works products, and the human health and environmental risk is considered low. Overall, recorded soil contaminant conditions should not prohibit the proposed development of the site for the use of material stockpiling associated with the construction of the reservoir.

The exposure pathway assessment has identified no potentially complete exposure pathways. A CSMP may still be required to mitigate any movement of land to surface water.

Due to low level concentrations of heavy metals, PAH and organochlorine pesticides above published background concentrations it is likely that the classification of managed fill will apply. It is recommended that acceptance of soil should be confirmed with the disposal site operators prior to the commencement of any future earthworks.

Based on the results of this investigation, the proposed works **will require a controlled activity resource consent under Regulation 9 of the NESCS**. The low level of contaminants mean that the land disturbance works will not trigger the requirement for consent under the contaminated land provisions in the Greater Wellington Proposed Natural Resources Plan.

1 Introduction

Beca Ltd (Beca) has been commissioned by Wellington Water Limited to undertake a Detailed Site Investigation - Contamination (DSI) at the Prince of Wales Playing Fields in Mt Cook, Wellington for work being undertaken for the construction of the Omāroro Reservoir.

The project relates to the construction, operation, and maintenance of a 35,000m³ reservoir within the Wellington Town Belt in the Prince of Wales Park, Mount Cook.

This DSI will be used to support a consent application under the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011.

1.1 Background

The Prince of Wales Playing Fields (which are the subject of this application) form part of the Omāroro Reservoir project site.

The Omāroro Reservoir project relates to the construction, operation, and maintenance of a 35,000 m³ public water supply reservoir within the Wellington Town Belt in the Prince of Wales Park, Mount Cook. The reservoir is required to service the Wellington Low Level Water Supply Zone, which includes the Wellington Central Business District (CBD), Thorndon, Newtown, Mount Cook, Hataitai, Kilbirnie, Miramar, Strathmore, and Seatoun and serves around 70,000 residents and businesses.

The Omāroro Reservoir will significantly expand water supply within the Low Level Zone to provide for:

- Network management and maintenance
- Operational resilience
- Disaster resilience
- Growth and well-being

These functions are critical to supporting Wellington's economy, the health of its communities, its ability to withstand temporary water supply disruption, and its ability to recover from significant events, such as a large earthquake.

The proposed Omāroro Reservoir site is within the Prince of Wales Park, which is located in the Wellington Town Belt in the Brooklyn Hills. The proposed reservoir will sit in a spur that generally slopes down from Dorking Road to a rounded knoll at the reservoir site and down again to the Prince of Wales Park playing fields.

There are two playing fields that have been levelled along the toe of the spur, which are the subject of this DSI; the upper field which is accessed off Rolleston and Hargreaves Streets, and the lower field which is accessed from Salisbury Terrace. The proposed construction works include utilising the playing fields for material storage and stockpiling, and the preliminary design scope also allows for the permanent raising of the fields following construction, using the material excavated from the reservoir.

1.2 Purpose and Scope

The purpose of this DSI is to identify and characterise potential contamination present in materials beneath the playing fields as a result of current or historical activities in order to:

- Identify areas of soil contamination which may require management with respect to risks to human health and the environment

- Confirm contaminated land consent requirements for the proposed works under the following legislation
- Provide advice regarding disposal of waste or surplus soil during earthworks.

The scope of works included a desk-based review of historical background information, plus a ground investigation to provide an indication of potential contaminant sources. The scope of the investigation is as follows:

- Review of the following information sources:
 - i. Information held by Wellington City Council and Greater Wellington Regional Council, including Selected Land Use Register (SLUR) review
 - ii. Previous Preliminary Site Investigation reports for both the upper and lower fields
 - iii. Publicly available Retrolens and Google Earth historical aerial photographs
 - iv. Local geology and hydrogeology
- A site walkover and interview with persons knowledgeable about the site

The ground investigation comprised the following:

- Excavation of 14 test pits to a maximum depth of 2m below ground level
- Collection of 29 soil samples (2 to 3 samples per test pit), and 2 quality assurance samples
- Screening analysis of samples for:
 - i. Heavy metals (arsenic, cadmium, chromium, copper, mercury, lead, nickel and zinc),
 - ii. Polycyclic aromatic hydrocarbons (PAH)
 - iii. Organochlorine pesticides (OCP), organonitrogen and organophosphorus pesticides (ONOP).
- Preparation of a report presenting and assessing the results of the investigation.

This assessment has been undertaken and reported in general accordance with the *Ministry for the Environment (MfE) Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand (2011) and MfE Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis (2011)*.

The sampling, testing, or assessment of any potential risk from Asbestos Containing Materials (ACMs) on the site is outside the scope of this investigation.

2 Site Description

2.1 Site Location and Area

The site is known as the 'Prince of Wales Playing Fields'. In total, the two playing fields occupy an area of approximately 16,900m². Both fields fall under the legal description Part Lot 2 DP 10337. The location of the property is shown in Figure 1 below.

The upper playing field was formed by cutting into the ridgeline that runs along the side of Rolleston Street to above Asquith Terrace/Dorking Street. Pedestrian and maintenance access to the field is from the top of Rolleston Street and there is an additional pedestrian access at the top of Hargreaves Street. The lower playing field was cut into the east facing side of the ridgeline. The lower field is accessed from Salisbury Terrace along the eastern side of the field, which continues south to a carpark and the Wellington Scottish Athletics and Ponake Kyokushin Karate Dojo clubrooms. A sports pavilion at the north end of the field can be accessed by a steep drive off Salisbury Terrace. There is also a track connecting the upper and lower fields.

The sports fields are used for both organised/formal and casual/informal recreation activities. Both fields are managed by Wellington City Council Parks, Sports and Recreation team as tier two fields and are intensively used during the summer months but have lower use in winter.



Figure 1: Location of the Prince of Wales Playing Fields. Area under investigation outlined in red. (Source: WCC Webmap)

2.2 Proposed Works

The primary purpose of the investigation is to identify areas of soil contamination which may require management with respect to risks to human health and the environment at the Prince of Wales playing fields for work being undertaken for the construction of the Omāroro Reservoir.

The proposed reservoir and associated works have received consent under the Wellington Town Belt Act (the Town Belt Consent) and the Resource Management Act (Designation reference SR394052). Consent has also been received from Greater Wellington Regional Council for groundwater take, earthworks and discharge of stormwater associated with the reservoir construction (ref WGN 180065).

In summary, the consented works comprise:

- The Omāroro reservoir structure and pipe tunnel
- Access to the reservoir and pipe tunnel
- Associated connections to the bulk water supply, local water supply, and local stormwater networks
- Construction activities associated with the proposed raising and reinstatement of the upper and lower Prince of Wales playing fields.

With regard to the playing fields specifically, the consented scheme allows for the use of both upper and lower fields for material storage and stockpiling during construction followed by reinstatement of the fields following completion of the reservoir.

Prior to the placement of any material on the playing fields, it is intended to strip the topsoil to a depth of approximately 0.3m. The storage of materials associated with the reservoir construction will then take place.

Following completion of the reservoir the playing fields will be bought back into recreational use.

3 Environmental Setting

3.1 Current Land Use

The sites are owned by Wellington City Council (WCC) and are used by local sports teams training and matches, and for general recreational use. Changing room facilities are located at the northern end of the lower playing field. A chain-link perimeter fence separates the upper playing field from surrounding residential properties along the northern and western boundary and a similar fence separates the lower playing field from Salisbury Terrace and residential properties on the western side of the site.

3.2 Surrounding Land Use

Land to the north and east of the site is residential. To the south and west of the site is Wellington's Town Belt; an open space used for recreational purposes. Approximately 320m to the north east of the site is Massey University and further to the east, in the suburb of Newtown is Wellington Regional Hospital.

3.3 Topography

The upper and lower playing fields are both flat and grassed. The land to the east of the upper playing field falls steeply to the residential properties on Papawai Terrace and Wright Street. Conversely, the land to the west of the upper and lower playing fields rises steeply to the open space of the town belt. There is an elevation difference of approximately 10 metres between the upper and lower playing field. It is anticipated that the current flat topography of the playing fields has been formed by historic earthworks, although no details of these works are available within the historic records viewed as part of this investigation.

Elevation contours for the site are shown in **Figure 2** below.



Figure 2: Site contours (m asl) (Source: WCC Webmap)

3.4 Sensitive Receptors/Hydrology

The Papawai Stream is a perennial stream which flows in a northerly, then easterly direction adjacent to the lower playing field along its western edge and exits the site into the city stormwater at the top of Papawai Terrace. The stream is separated from the lower field by an earth bund, constructed some years ago to prevent on-going flooding of the field.

A tributary of the Waitangi Stream, known as the Waitangi Tributary, flows down a gully to the west of the site and exits the site into the stormwater network at the top of Rolleston Road. This unnamed tributary is perennial in its lower reaches near the upper playing field but reduces to intermittent pools upstream and eventually becomes ephemeral close to the southern end of the proposed designation.

Both identified streams have perennial flows and aquatic fauna (the Papawai stream being the most diverse habitat of the two streams) containing native fish (banded Kōkopu). The Waitangi Tributary is one of the last remaining fragments of the original Waitangi Stream, as the bulk of the Waitangi Stream is now diverted and culverted beneath Wellington City and the surrounding suburbs. The ultimate receiving environment for all discharges to Papawai Stream is Wellington Harbour some 2km north of the site.

3.5 Geology and Hydrogeology

The Geological Map of New Zealand¹ shows the site to be underlain by grey sandstone-mudstone sequences and poorly bedded sandstone with minor coloured mudstone, conglomerate, basalt chert and rare limestone of the late Triassic/early Jurassic Rakaia Terrane.

There are no wells/bores within 100m of the site boundary. The nearest is Bore BQ3 1/0040 which is located 300m to the east of the lower playing field, on Hanson Street.

¹ Begg, J.G.; Johnston, M.R. (compilers) 2000: Geology of the Wellington area: scale 1:250,000. Lower Hutt: Institute of Geological & Nuclear Sciences. Institute of Geological & Nuclear Sciences 1:250,000 geological map 10. 64 p. + 1 folded map

4 Information Search

4.1 Certificate of Title

The Certificate of Title (CT) was obtained for the site and is included in **Appendix A**.

Wellington City Council have been the only registered owners of Part Lot 2 DP 10337. There have been no obviously contaminating activities outlined in the certificate of title.

4.2 Historical Aerial Photographs

Historical aerial photographs for the site have been sourced from Retrolens for the years 1938, 1941, 1945, 1954, 1959, 1961, 1969, 1980, 1986, 1988 and later aerials for 2002 - 2018 have been sourced from Google Earth. The aerial photographs have been reviewed to identify any changes in land use activities on the site and surrounding properties, with the following observations summarised in the table below:

Table 1 – Review of Historical Aerial Photography

Year	Key Observations		
	Top Field	Bottom Field	Surrounding Area
1938	<ul style="list-style-type: none"> Visible in present-day form although use is unclear from the reviewed photograph. 	<ul style="list-style-type: none"> Visible in present-day form although use is unclear from the reviewed photograph. Previous correspondence in Section 4.6 indicates that the site was in use as a sports field at this date. 	<ul style="list-style-type: none"> Steep banks to the south of both fields appear to be bare land. Residential development is evident to the north, east and west of both fields Area known as the town belt is bare grassland with little to no tree cover.
1941	No significant change observed.		
1945	<ul style="list-style-type: none"> No significant change observed. 	<ul style="list-style-type: none"> Addition of 2 or 3 small buildings in the south western corner of the bottom playing field, the use of which is unclear. 	<ul style="list-style-type: none"> Patches of grass have been made bare south of the top field. Emergence of vegetation cover within the area known as the Town Belt.
1954	No significant changes observed		<ul style="list-style-type: none"> Further growth of vegetation associated with Town Belt.
1959	<ul style="list-style-type: none"> No significant changes observed. 	<ul style="list-style-type: none"> L shaped building developed in the northern portion of the bottom playing field. 	<ul style="list-style-type: none"> Two rectangular buildings are visible to the south of the bottom playing field
1961	No significant changes observed		
1969	No significant changes observed		<ul style="list-style-type: none"> Development of tracks in between the top and bottom fields. No other significant changes observed.
1980	No significant changes observed		<ul style="list-style-type: none"> 2 – 3 buildings constructed south of the bottom field.

Year	Key Observations		Surrounding Area
	Top Field	Bottom Field	
1986	No significant changes observed		<ul style="list-style-type: none"> Clearing of significant area of vegetation between the two fields.
1988	No significant changes observed		<ul style="list-style-type: none"> Two residential properties demolished approximately 50 m north-east of the bottom field.
2002	No significant changes observed		<ul style="list-style-type: none"> Residential property and associated structures removed south of the bottom field.
2004-2011	No significant changes observed		
2012	No significant changes observed		<ul style="list-style-type: none"> Active construction site (approximately 2,280 m²) observed east of the top field on the other side of a tree line.
2013	No significant changes observed		<ul style="list-style-type: none"> Construction work mentioned in 2012 historical aerial photograph is complete.
2013 - 2018	No significant changes observed		

With the exception of noticeable seasonal changes to the playing field grass and pitch markings indicating different sports, both fields have remained relatively unchanged since 1938.

Historical aerial images are provided in **Appendix B**.

4.3 Regional Council Information

4.3.1 Selected Land Use Register

Wellington City Council’s Selected Land Use Register (SLUR) was accessed online via the GIS Webmap on 1 March 2019. The SLUR indicates whether land uses that appear on the Ministry for the Environment’s (MfE) Hazardous Activities and Industries List (HAIL) are known to currently or historically have taken place on site.

The upper and lower playing fields are not currently recorded on the SLUR. The nearest recorded SLUR site is located approximately 50 m east of the upper playing field at 26 Wright Street (SLUR # SN/05/596/02) with an assigned HAIL code of:

- **A17:** Storage tanks or drums for fuel, chemicals or liquid waste
- **B3:** Electronics including the commercial manufacturing, reconditioning or recycling of computers, televisions and other electrical devices.

The site has been assigned a classification of ‘contamination acceptable – managed/remediated’.

The next nearest SLUR site is located approximately 100 m north-east of the top playing field at 43 Rolleston Street (SLUR # SN/05/102/02) with an assigned HAIL code of:

- **A2:** Chemical manufacture, formulation or bulk storage

Information from the SLUR indicates that for the site at 43 Rolleston Street the Greater Wellington Regional Council does not hold “any information on what, if any, contamination is present.”



Figure 3 Investigation sites (red) and nearby HAIL sites (yellow). (Source: GWRC GIS Webmap)

4.3.2 Discharge Consents

Information on discharge consents was provided by Greater Wellington Regional Council Web Map Viewer on 23 April 2019 and is summarised in Table 2 below.

Table 2 – Summary of consent information from GWRC Web Map Viewer

Discharge Consents			
Consent ref	Commencement date	Expiry date	Purpose
WGN180065	16/02/2018	16/02/2023	Discharge Permit to discharge stormwater runoff from areas of bulk earthworks and de-watered groundwater both treated with chemical flocculants, to land, the stormwater network or directly to water related to the construction of the Omaroro Reservoir.
WGN1902240	03/04/2019	03/04/2024	Remediation and maintenance of an existing structure within the bed of the Papawai Stream where it may result in the discharge of contaminants to water.

None of the consented activities were undertaken on either of the playing fields which make up the investigation sites.

4.4 Wellington City Council Information

The electronic property file for the site was viewed by Beca on 6 May 2019. Information relevant to the site history and potential contamination sources has been retrieved and reviewed below.

A summary of the consents granted in proximity to the playing fields is set out below:

Table 3 - Summary of Historic Building Consents

Historic Building Consents				
Item ref	Date	Address	Detail	Notes
1885	1955	Sports Pavilion	Construction of sports pavilion	Adjacent to the site: It is assumed this is the existing sports pavilion on the lower field
42993	1998	Hutchison Road [also described as 1A Westland Road in the description]	Demolition of dwelling and two sheds	To the south of the lower field: This site is located 65m to the south of the lower playing field.

Historic Building Consents				
Item ref	Date	Address	Detail	Notes
64106	2000	Hutchison Road (assumed to be the same site as above)	Build small concrete wall and stormwater connection to WCC stormwater	To the south of the lower field: This site is located 65m to the south of the lower playing field
145496	2006	1A Westland Road	Demolition of garage	To the south of the lower field: This site is located 65m to the south of the lower playing field
256538	2012	1A Westland Road	Demolition of existing concrete retaining wall	To the south of the lower field: This site is located 65m to the south of the lower playing field

Of the consents listed above, none is located within the playing fields themselves. The sports pavilion is located immediately to the north of the lower playing field, and no. 1A Westland Road is approximately 65m to the south of the southern end of the lower playing field.

4.4.1 Correspondence relating to the site

The Preliminary Site Investigation (PSI) for the lower playing field (refer to section 4.6) included a review of the historic correspondence associated with the site. The electronic property file for the lower playing field was viewed by Beca on 15 September 2017 and the relevant files are included at **Appendix C** of this report.

The relevant correspondence is as follows:

- A map prepared by Thomas Ward (Authorised Surveyor) on January 1894 shows that this site was part of the Town Belt.
- A memo addressed to the Reserves Committee dated 16 March 1920 from the Director regarding the Salisbury Terrace Recreation Grounds details how approximately 10 years earlier, P. Hutson Limited was granted permission to excavate clay for pipe making on the site (the exact location on the wider site is unknown). These interests were transferred to Enoch Tonks. The proposed works were terminated by Council. The letter states that a large mound of rock had been left on the site which was subsequently removed from the site and shifted to an unspecified location. This letter also states that a stormwater drain was also installed within the gully to the north west of the playing area (the specific location was not specified). Earthworks described in the letter included the alteration of the grade of the playing area to be one in 45 to one in 75 to allow for football. At the time, the flat area was 78 by 77 yards, and the Director recommended that this be increased by another 50 yards to the south to create a full size sports playing field. The letter stated that this extra 50 yards would contribute to a total of 18,000 yards of clay.
- A letter addressed to the Deputy Mayor dated 24 March 1920 from the Director of Parks and Reserves regarding the Salisbury Terrace Recreation Ground details the cost of carrying out works to furnish one full sized football ground.
- An untitled survey map on 1937 shows that the site was part of the Town Belt.

- A plan prepared by Roberts and Mercer Architects and Structural Engineers dated 30 November 1954 showed details of a Sports Pavilion in the Prince of Wales Park for the Wellington City Corporation. The plans show a building to be located to the west of Salisbury Terrace, to the north of Area A.
- In April 1998, the Wellington City Council applied for a consent to demolish a dwelling and two sheds located at 1A Westland Road. These structures were located to the south east of Area A and were not on the proposed works site.
- A building consent to demolish a single garage located at 1A Westland Road was granted by Wellington City Council in 2006. This shed was located directly south east of Area A over within a small paved area.

4.5 Site Walkover

A site walkover was conducted on 30 January 2019 by a Beca Environmental Scientist, accompanied by Lauren Harkeress (WCC – Customer Liaison Officer, Sportsfields) and Joel De Boer (WCC Recreation and Parks Planner) and the following observations were made:

- The playing fields are well maintained with a healthy grass cover
- The access road to the lower playing field and car parking area is unsealed
- No visible surface contamination (staining, pooling or sheens) was observed
- A small stream was observed to be flowing in an easterly direction along the southern boundary of the lower playing field
- The Papawai Stream was observed flowing in a north easterly direction just to the west of the lower playing field. The stream was located behind an earth bund; constructed to prevent the sports field from flooding during high rainfall events.

4.6 Previous Investigation

A Preliminary Site Investigation (PSI) of the upper playing field was carried out in October 2012 by CH2M² Beca. The report states that it is believed that the area may previously have been the site of a clay brick manufacturing facility, based on the historic correspondence reviewed. Brickworks usually require kilns to fire the bricks, which produce ash and clinker requiring disposal - often on site. Ash and clinker can contain heavy metals and products of combustion such as polycyclic aromatic hydrocarbons (PAH). The use of the area as a sports turf also indicated the possibility of pesticides and herbicides. During a geotechnical investigation in September 2012 soil samples were collected for analysis for environmental contaminants. A total of 11 soil samples were collected from depths between 0-0.15m down to 2.9-3.1m bgl. Samples were analysed by RJ Hill Laboratories for heavy metals, organochlorine and organonitro & phosphate pesticides and polycyclic aromatic hydrocarbons (PAH).

The results showed the presence of low levels of organochlorine pesticides, DDT and heavy metals (cadmium, lead and nickel). Low levels of PAH were also detected. There were no results which exceeded the NESCS (Soil) criteria.

The report recommended that a Detailed Site Investigation (DSI) in accordance with the MfE Guidelines be undertaken.

² Hospital Prince of Wales Reservoir, Upper Playing Field, Preliminary Contamination Investigation – CH2M Beca, October 2012

4.7 Summary of Information Search

A review of the certificate of title indicated that Wellington City Council have been the only registered owners of the site. No obviously contaminating activities were identified in the certificate of title.

A review of historical aerial photographs from 1938 up until 2018 has indicated that the two Prince of Wales playing fields have remained largely unchanged since 1938, and have been used as sports fields since the earliest photograph reviewed. It is assumed that the site has been subject to earthworks in the past (prior to 1938) to form the current flat topography; however no historic records of these earthworks are available (as part of the records reviewed for this assessment).

The area surrounding the Prince of Wales playing fields has had few significant changes observed other than vegetation growth and clearance associated with the Wellington town belt.

Review of Wellington City Council's Selected Land Use Register identified two HAIL sites in relatively close proximity to the site. Activities relating to storage tanks or drums for fuel, chemicals or liquid waste and manufacturing of electrical components were identified approximately 50m east of the top playing field. Activities pertaining to chemical manufacture, formulation or bulk storage were identified approximately 100m north-east of the top playing field.

Discharge consent information was obtained from the Greater Wellington Regional Council Web Map Viewer revealing that no consents have been recorded on either of the playing fields which make up the investigation site.

The information received from Wellington City Council indicates that no buildings have been constructed on the playing fields themselves. The nearest building is the sports pavilion, constructed in 1955, which is adjacent to the northern end of the lower field.

The consents relating to 1A Westland Road are specific to a building which is located 65m to the south of the lower playing field, and which is currently used by a karate club.

A site walkover conducted by a Beca Environmental Scientist and two Wellington City Council representatives reported no visible surface contamination (staining, pooling or sheens) on site. The presence of a small stream and the Papawai stream were also noted.

PSIs for the upper and lower fields have previously been undertaken (dated October 2012 and October 2017 respectively). The PSI for the upper playing field reported that the site may have been the location of a clay brick manufacturing facility or was potentially used for the disposal of waste material or products associated with the operation.

5 Site Investigation Scope and Rationale

5.1 Contaminants of Potential Concern and Investigation Rationale

Review of the site historical information has identified land use activities which may have resulted in the contamination of soil and/or groundwater at the site, summarised in Table 4. Previous investigations indicated that the land may have previously been the site of a clay brick manufacturing facility. The use of the area as a sports turf also indicated the possibility of pesticides and herbicides.

Contaminants of potential concern associated with these activities have also been identified.

Table 4 Contaminants of Potential Concern

Activity	HAIL Code	Contaminants of Potential Concern
<ul style="list-style-type: none"> ■ Sports turf and playing fields 	<ul style="list-style-type: none"> ■ A10 – Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glasshouses or spray sheds 	<ul style="list-style-type: none"> ■ Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines
<ul style="list-style-type: none"> ■ Uncontrolled waste disposal to land 	<ul style="list-style-type: none"> ■ G5 – Waste disposal to land 	<ul style="list-style-type: none"> ■ Heavy metals, PAH, semi-volatile organic compounds

It should also be noted that it is assumed that the site has been subject to earthworks in the past to form the current flat topography. It is not known if there was any external material brought to the site or if the formation of the fields was a cut to fill balance, if material was brought to site the source of this materials is unknown.

5.2 Soil Sampling Methodology

5.2.1 Summary of Field Work

The soil investigation was undertaken during 18-20 February 2019 and soil samples were collected from 14 test pit locations. The planned excavation of an additional four test pits was abandoned due to the presence of multiple underground services in the vicinity. Test pits were excavated using a 6-ton excavator operated by Coastal Digger Services Limited.

Soil samples were collected from a range of depths across the soil profile ranging from 0.1m to 2.0m bgl. Two to three samples were collected at each location. Two quality samples (duplicates) were collected for results quality assurance.

Soil samples were collected directly by hand from excavated materials in the centre of the excavator bucket. A clean pair of nitrile gloves was worn for each sample to prevent cross-contamination. Samples were placed in laboratory supplied plastic or glass jars as appropriate and chilled prior to dispatch to R J Hill Laboratories Ltd (Hill Laboratories).

The soil profile was logged for each location and the logs are provided in **Appendix D**.

Field sampling and relevant sampling management procedures were undertaken in general accordance with the MfE *Contaminated Land Management Guidelines No.5 – Site Investigation and Analysis (2011)*.

All chemical laboratory analyses were undertaken by Hill Laboratories. All samples were accompanied with a Chain of Custody form which detail the required handling and testing instructions. A copy of the Hill Laboratories reports are included in **Appendix E**.

Selected soil samples were analysed for heavy metals, polycyclic aromatic hydrocarbons (PAH) and organochlorine and organonitro and organophosphate pesticides. Soil samples not selected for analysis were held cold at the laboratory. A data summary sheet of the results is presented in **Appendix F**.

6 Assessment Criteria

6.1 Assessment of Human Health Risk

The adopted assessment criteria for the investigation have been selected in accordance with the hierarchy defined by *Ministry for the Environment (MfE) Contaminated Land Management Guidelines No.2* (MfE, 2002) and are summarised below. Assessment criteria for 'parks/recreation' land use scenario have been adopted.

- *Resource Management (National Environment Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Soil Contaminant Standards for recreation land use*
- *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (MfE, 1999). Values applicable to recreation*
- *Regional Screening Levels, US Environmental Protection Agency (USEPA, 2012). Values applicable to recreation land use.*

6.2 Assessment of Environmental Risk

The Greater Wellington Proposed Natural Resources Plan (PNRP) does not specify any threshold levels for contaminants in relation to environmental risk. In the absence of any environmental threshold concentrations for the contaminants of concerns, the following criteria were adopted:

- *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Canadian Council of Ministers of the Environment, 2012) (CCME)*

CCME guidelines document soil assessment criteria for several different land uses, potential exposure pathways, soil types and depths of contamination. The selection of assessment criteria used for this investigation was based on an adopted landuse of 'recreation'.

6.3 Background Concentrations

The background concentrations have been taken from the following article:

- *URS (2003) Determination of Common Pollutant Background Soil Concentrations for the Wellington Region*
- *Land Resource Information Systems (LRIS) Portal – Predicted Background Soil Concentrations, New Zealand <https://iris.scinfo.org.nz/layer/48470/>*

7 Results

7.1 Fieldwork Observations

A total of fourteen test pits were excavated, nine on the lower field and five on the upper field. Test pit location plans are provided at Appendix G.

Soil observations were logged (logs provided in **Appendix D**), and are summarised as follows. Within the lower field test pits, TP1 and TP2 comprised an organic clay topsoil underlain by clay and coarse gravel. TP3, TP4, TP6, TP7, TP8 and TP9 comprised organic silt topsoil on top of greywacke. TP5 comprised organic silt topsoil on top of clay.

Within the upper field test pits, TP10, TP13 and TP14 comprised organic silt topsoil overlaying greywacke while TP11 and TP12 comprised organic silt over clay.

There was evidence of an entire weathered orange brick in TP11 at approximately 1m bgl, along with further fragments of brick, indicating the presence of building material fill in this test pit.

Groundwater was not encountered within any test pit although a minor amount of seepage was encountered in TP1 at a depth of approximately 1m bgl.

The weather at the time of the site investigation was hot, dry and sunny.

Test pit logs are provided in **Appendix D**. A site plan showing locations of test pits is provided in **Appendix G**.

7.2 Summary of Soil Analytical Results

7.2.1 Heavy Metals

A total of 29 soil samples were analysed for heavy metals. In summary:

- The adopted assessment criteria for human health risk and/or environmental risk were not exceeded in any soil sample analysed.
- The adopted background concentration for lead (38.55 mg/kg) was exceeded in nine soil samples (ranging from 40 mg/kg to 103 mg/kg).

7.2.2 Total Petroleum Hydrocarbons (TPH)

A total of 29 soil samples were analysed for total petroleum hydrocarbons (TPH). In summary:

- Detectable concentrations of TPH were present in two samples (TP3 0.1 and TP4 0.1) in the C₁₅ – C₃₆ range (42 mg/kg and 40 mg/kg respectively).
- We note that a duplicate sample (TP12 0.1 Dup) recorded a value of 49 mg/kg, whilst the 'original' sample did not have TPH detected.
- The adopted assessment criteria for human health or the environment were not exceeded in any samples.

7.2.3 Polycyclic Aromatic Hydrocarbons (PAH)

A total of 29 soil samples were analysed for polycyclic aromatic hydrocarbons (PAH). In summary:

- Seventeen soil samples had detectable concentrations of several PAH compounds.
- The adopted assessment criteria for human health or the environment were not exceeded in any sample.

7.2.4 Organochlorine Pesticides (OCP)/Organonitrogen/Organophosphorus Pesticides (ONP)

A total of 29 soil samples were analysed for organochlorine (OCP) and organonitrogen / organophosphorous pesticides (ONP). In summary:

- Detectable concentrations of organochlorine pesticides were recorded in ten soil samples.
 - i. 4,4'-DDD (dichlorodiphenyldichloroethane) was detected in sample TP1 0.1m (0.013 mg/kg).
 - ii. 4,4'-DDE (dichlorodiphenyldichloroethylene) was detected in ten samples, ranging from 0.013 mg/kg to 0.110 mg/kg.
 - iii. 4,4'-DDT (dichlorodiphenyltrichloroethane) was detected in nine samples, ranging from (0.015 mg/kg to 0.075 mg/kg.
- Organonitrogen / organophosphorous pesticides (ONP) were not detected in any soil samples analysed.
- The adopted assessment criteria for human health and/or the environment were not exceeded in any samples for OCP or ONP analyses.

7.3 Quality Assurance and Quality Control

Two duplicate soil samples were analysed as part of the investigation. The relative percentage difference (RPD) between the primary and duplicate samples has been calculated. The RPD ranged from 0 to 22%. These results indicate a high level of accuracy in the sampling and analytical methods used in this investigation.

It is considered that the analytical results are considered appropriate and suitable for the purpose of this investigation.

8 Discussion and Risk Assessment

8.1 Discussion

The proposed soil disturbance at the site will comprise the removal of topsoil to a depth of approximately 0.3m. All test pits were undertaken to a minimum depth of 1m (with the majority being 2m deep) so that the testing included samples from depths greater than the proposed works.

Soil analytical results showed low levels of heavy metals, PAH and organochlorine pesticides in a number of samples across the site at varying depths. However, no contaminant concentrations exceeded the NESCS criteria for 'commercial / industrial outdoor worker (unpaved)', or 'recreational' criteria based upon the site's continued future use as a sports turf; nor did they exceed the adopted environmental protection criteria.

As such, results do not indicate that the site has been significantly impacted as a consequence of historical landuse activities, including pesticide application and potentially disposal of clay works products and earthworks, therefore the human health and environmental risk is considered low. Overall, recorded soil contaminant conditions should not prohibit the proposed development of the site for the use of material stockpiling associated with the construction of the reservoir.

Due to low level concentrations of heavy metals, PAH and organochlorine pesticides above published background concentrations it is likely that the classification of managed fill will apply. It is recommended that acceptance of soil should be confirmed with the disposal site operators prior to the commencement of any future earthworks.

8.2 Risk Assessment from Soil Contamination

8.2.1 Heavy Metals

The adopted criteria for human health and environmental risk were not exceeded in any soil sample analysed. The adopted background criteria for lead was exceeded in nine samples analysed.

The samples that exceeded of the background concentrations are within an order of magnitude and significantly below all guideline values. It is therefore considered that human health and environmental risk from heavy metals is low.

8.2.2 TPH

Low concentrations of TPH (C₁₅ – C₃₆) were detected in two samples (TP3 0.1 and TP4 0.1). Both samples were below the adopted human health risk criteria. All other samples were below the laboratory detection limit. Therefore, concentrations of TPH in samples analysed are considered a low risk to construction workers and future site users based on a recreational land use scenario.

8.2.3 PAH

Seventeen soil samples had low concentrations of one or more of the following PAH compounds:

- Perylene
- Benzo[a]pyrene
- Anthracene
- Benzo[a]anthracene
- Benzo[b]fluoranthene + Benzo[j]fluoranthene
- Benzo[e]pyrene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenzo[a,h]anthracene
- Fluoranthene
- Indeno(1,2,3-c,d)pyrene
- Phenanthrene
- Pyrene

All of the above PAH compounds occur naturally in coal, crude oil and petroleum products and are present in products made from fossil fuels, such as coal-tar, creosote and asphalt. They are also made through combustion activities - wherever substances are burned, and the less efficient the burning process (low heat) the more PAHs are generated.

8.2.4 Organochlorine Pesticides (OCP)/Organonitrogen/Organophosphorus Pesticides (ONP)

Low concentrations of organochlorine pesticides were detected in ten soil samples; primarily from surface soils and at depth (~1.0-1.5m), which suggests that potentially soils previously in contact with ONP/OCPs were reused or buried on site. All organochlorines detected were DDT isomers. No other organochlorine pesticides were detected. The presence of DDT and its degradation products (DDD and DDE) in soils at the site, can be attributed to the historical use of pesticides to control insect growth in the sports turf of the playing fields. Although pesticides such as DDT and dieldrin are unlikely to still be used on the site, the compounds are persistent organic pollutants (POPs) and will likely remain within the soil.

Organonitrogen / organophosphorous pesticides (ONP) were not detected in any soil samples analysed.

Overall, based on the observed results, the risk posed by OCP and ONP to construction workers and future site users is considered low.

8.3 Assessment of Soils for Disposal

Using the results from the chemical analysis, the soils are classified to determine the requirements for disposal. Soils can be classified as cleanfill, managed fill or contaminated fill, guided by the following definitions:

8.3.1 Cleanfill

Cleanfill is defined in the Greater Wellington regional Plan as follows:

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

- (a) Combustible, putrescible, degradable or leachable compounds, and*
- (b) **Hazardous substances**³, and*
- (c) Products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices, and*
- (d) Materials that may present a risk to human health, and*
- (e) Liquid waste”.*

The MfE document ‘A Guide to the Management of Cleanfills, 2002, uses the same cleanfill definition as that outlined above.

In the GWRC NRRP, hazardous waste is defined as:

- (a) “...any substance with one or more of the following intrinsic properties:*
 - (i) explosiveness*

- (ii) flammability
 - (iii) a capacity to oxidise
 - (iv) corrosiveness
 - (v) toxicity (including chronic toxicity)
 - (vi) ecotoxicity, with or without bioaccumulation; or
- (b) Which on contact with air or water (other than air or water where the temperature or pressure has been artificially increased or decreased) generates a substance with any one or more of the properties specified in paragraph (a).

Essentially, inert soils are suitable as cleanfill if potential contaminants have been determined to be below published background concentrations. Due to the presence of low levels of heavy metals, PAH and organochlorine pesticides, soils are unlikely to be suitable for disposal as cleanfill.

The soils do not exceed Class A landfill.

8.3.2 Managed Fill

Managed fill is soil containing contaminants that are below the Maximum Admissible Concentrations (MAC) for managed fill at local landfill sites, but above published background concentrations.

8.3.3 Contaminated Fill

Contaminated fill is soil containing concentrations above the MAC for managed fill at local landfill sites.

8.3.4 Soil Disposal Recommendations

Due to the presence of low levels of heavy metals, PAH and organochlorine pesticides, soils are unlikely to be suitable for disposal as cleanfill. Disposal should therefore be restricted to appropriately licensed landfills.

It is recommended that the results of this investigation are presented to licensed operators at the disposal sites for them to determine whether they can accept the materials in line with their consent conditions.

Acceptance of materials should be confirmed with landfill operators prior to commencement of earthworks as landfill operators may require further testing before accepting excavated materials in accordance with their resource consent.

8.4 Exposure Pathway Assessment

The Conceptual Site Model (CSM) (see Table 5 below) was developed to describe the relationship between sources of contamination on site, the human and environmental receptors that may be exposed to those contaminants in the context of the commercial and recreational use of the site, and the pathways by which those receptors may be exposed. The CSM is based on the observed results on site, and their limitations.

Table 5: Conceptual Site Model (CSM)

Source	Receptor	Pathway	Completeness of Pathway
<ul style="list-style-type: none"> ■ Low level detects of heavy metals 	Construction and maintenance workers	Exposure of workers to contaminants in soils and groundwater during site redevelopment – dermal contact, ingestion or inhalation of dust/vapours.	Incomplete Pathway - concentrations of contaminants below outdoor worker criteria

Source	Receptor	Pathway	Completeness of Pathway
<ul style="list-style-type: none"> ■ Low level detects of PAH ■ Pesticides from application for sports turf management 	Future site users	Exposure of future site users to contaminants in soils – dermal contact, ingestion or inhalation of dust/vapours.	Incomplete Pathway – concentrations of contaminants below commercial/industrial criteria and below recreational user criteria
	General public	Exposure of general public to contaminants in soils– dermal contact, ingestion or inhalation of dust/vapours.	Incomplete Pathway – concentrations of contaminants below recreational user criteria
	Groundwater resources for public consumption	Leaching and migration of soil contaminants into groundwater	Incomplete Pathway - No groundwater abstraction wells identified near the site.
	Surface water	Sediment and runoff directly into the Papawai Stream and the Waitangi Tributary.	Incomplete Pathway – All results were less than environmental discharge levels. The nearest surface water receptors are immediately adjacent the lower playing field. The exposure pathway can be managed through management plan controls.
Migration of soil contaminants into surface water through shallow groundwater		Incomplete Pathway. No shallow groundwater identified at the site.	

8.5 Limitations of Site Characterisation

Characterisation of subsurface conditions is dependent on the number of sample locations, methods of sampling and the uniformity of subsurface conditions. The accuracy of this characterisation is therefore limited by the Scope of Works undertaken in accordance with the MfE Guidelines. There is the possibility that contamination present on the site has not been described. Whilst contaminant concentrations may be estimated at chosen sample locations, conditions at any location removed from the specific points of sampling can only be inferred on the basis of geological and hydrogeological conditions and the nature and the extent of identified contamination. Subsurface conditions can vary, resulting in uneven distribution of contaminants across a site which cannot be defined by these investigations. In addition, with time, the site conditions and environmental guidelines could change so that the reported assessments and conclusions are no longer valid. The conclusions of this report are made on the basis that the site conditions revealed by the investigation are representative of the actual conditions across the site at the time of sampling.

9 Development Implications

9.1 Consents

9.1.1 National Environmental Standard

The *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NESCS) applies to land as per clause 5(7):

“Land covered:

- (7) *The piece of land is a piece of land that is described by 1 of the following:*
- a) *an activity or industry described in the HAIL is being undertaken on it;*
 - b) *an activity or industry described in the HAIL has been undertaken on it;*
 - c) *it is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it.”*

Based on the findings of the investigation, the following HAIL activities have been identified for this site:

- A10: Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds
- G5: Waste disposal to land (excluding where biosolids have been used as soil conditioners)

The NESCS applies to certain activities taking place on HAIL land. The following activities are triggered for this site:

- Soil disturbance

As part of the earthworks required for the construction of the new reservoir, the surface soil from the upper and lower playing fields will be removed. The total earthwork volumes for this work have not yet been determined, however are expected to be large.

Under Regulation 8(3) of the NESCS, soil disturbance of up to 25m³ per 500m² and disposal of up to 5m³ per 500m² is allowed as a Permitted Activity. For this site 16,900m² has been identified as potentially contaminated. The total volume of soil disturbance is therefore 845m³, of which 169m³ can be disposed of offsite, as a Permitted Activity. The proposed works are assumed to include stripping topsoil, which is likely to involve 1,000m³ of soil disturbance. This is in excess of the 845m³ threshold, and therefore does not meet the Permitted Activity requirements.

The remaining criteria under Regulation 8(3) of the NESCS are as follows:

- Controls to minimise the exposure of humans to mobilised contaminants must—
 - (i) Be in place when the activity begins:
 - (ii) Be effective while the activity is done
 - (iii) Be effective until the soil is reinstated to an erosion-resistant state:
- The soil must be reinstated to an erosion-resistant state within 1 month after the serving of the purpose for which the activity was done:
- Soil must not be taken away in the course of the activity, except that,—
 - (i) For the purpose of laboratory analysis, any amount of soil may be taken away as samples;
 - (ii) For all other purposes combined, a maximum of 5m³ per 500m² of soil may be taken away per year:
- Soil taken away in the course of the activity must be disposed of at a facility authorised to receive soil of that kind:
- **The duration of the activity must be no longer than 2 months:**

- The integrity of a structure designed to contain contaminated soil or other contaminated materials must not be compromised.

Accordingly, the volume threshold criteria in Regulation 8(3)(c) and (d) of the NESCS is not met. In addition, the activity is likely to be longer than 2 months duration, therefore clause 8(3)(f) cannot be complied with.

The definition of Controlled Activities under Regulation 9(1) of the NESCS is as follows:

- Removing or replacing fuel storage system, sampling soil, or disturbing soil
 - 1) If a requirement described in any of regulation 8(1) to (3) is not met, the activity is a controlled activity while the following requirements are met:
 - a) a detailed site investigation of the piece of land must exist;
 - b) the report on the detailed site investigation must state that the soil contamination does not exceed the applicable standard in regulation 7;
 - c) the consent authority must have the report;
 - d) conditions arising from the application of subclause (2), if there are any, must be complied with.

Criteria a) is met through the preparation this report, which contains the details required in subclause (2) (in accordance with part d) and will be provided to the consenting authority as required by part c).

As demonstrated within this report, the low levels of heavy metals, PAH and pesticides were encountered at the site, which exceeded the background levels, but did not exceed the NESCS criteria for 'commercial / industrial outdoor worker (unpaved)', or 'recreational' criteria based upon the site's continued future use as a sports turf. It is therefore concluded that a resource **consent for a Controlled Activity under Regulation 9 of the NESCS is required.**

9.1.2 Greater Wellington Regional Council

The Greater Wellington Proposed Natural Resources Plan (PNRP) defines contaminated land as:

“Land that has a hazardous substance in or on it that -

- (a) has significant adverse effects on the environment; or*
- (b) is reasonably likely to have significant adverse effects on the environment”*

Low levels of heavy metals, PAH and organochlorine pesticides were encountered at the site. These low levels are not considered reasonably likely to 'have significant adverse effects on the environment' and as such the site is not considered to be 'contaminated' as per the definition in the Wellington Region Natural Resources Plan.

No consent is therefore required from Greater Wellington Regional Council.

9.2 Contaminated Soil Management Plan (CSMP)

As the works trigger a controlled activity consent under Regulation 9 of the NESCS a CSMP will be required to support an application for consent.

The exposure pathway assessment identified one potentially complete exposure pathways which could be mitigated and managed through the implementation of specialist controls (via the implementation of management plans) during proposed land and soil disturbance works. Specialist controls can be implemented through the development of a CSMP and include:

- A summary of human health controls for health and safety planning/training requirements, personal protective equipment, and personal monitoring.

- A summary of responsible parties to the land disposal works.
- A summary of environmental controls for odour, dust, noise, spoil stockpiling, spoil disposal, groundwater disposal.
- Procedures for encountering unknown contamination.

9.3 Disposal Options

Wherever possible spoil generated during the land disturbance activities can be re-used at the site (i.e., cut to fill). Where the materials are not considered to be geotechnically suitable for re-use spoil materials may be disposed of off-site to an authorised facility authorised to accept such materials.

Based on the results of the soil investigation excess spoil generally meets the definition of managed fill (minor recorded concentrations of PAH compounds and organochlorine pesticides). There are a number of authorised facilities in the Wellington region which have site specific acceptance criteria based on the requirements of their resource consents. It is recommended that a copy of the soil analytical results be provided to the nominated disposal facilities for review.

10 Conclusions

A site historical review has shown that the site has been used for recreational purposes as sports/playing fields since at least the late 1930s. Key land use activities on the site, and in the immediate vicinity that have been identified that may have resulted in soil contamination were an historical clay brickworks and application of pesticides to sports turfs for control and management of grass pests. Also of relevance are the original earthworks which are assumed to have taken place prior to 1938 to form the playing fields – although no historic records of these works were available as part of the information reviewed for this assessment.

The soil investigation focussed on the collection of soil samples in a systematic fashion across the proposed land disturbance area on both the upper and lower playing fields. Fourteen test pits were excavated to a maximum extent of 2.0 m bgl (well below the 0.3m depth of the proposed earthworks within the investigation area). Several soil samples were collected from each test pit based on visual observations and significant geological changes.

Soil analytical results show that no contaminant concentrations exceeded the NESCS criteria for 'commercial / industrial outdoor worker (unpaved)', or 'recreational' criteria based upon the site's continued future use as a sports turf; therefore, the presence of the identified contaminants are considered a low risk to human health and the environment. Low, but detectable, concentrations of heavy metals, PAH and organochlorine pesticides were encountered across the site at varying depths.

Soil analytical results do not indicate that the site has been significantly impacted as a consequence of historical landuse activities, such as pesticide application. Overall, recorded soil contaminant conditions should not prohibit the proposed development of the site.

The exposure pathway assessment has identified one potentially complete exposure pathway (surface water), which could be mitigated and managed through the implementation of a CSMP.

Due to low level concentrations of heavy metals, PAH and organochlorine pesticides above published background concentrations it is likely that the classification of managed fill will apply. It is recommended that acceptance of soil should be confirmed with the disposal site operators prior to the commencement of any future earthworks.

Based on the results of this investigation, the proposed works will require a **Controlled Activity resource consent under Regulation 9 of the NESCS**. The land disturbance works will not trigger the requirement for consent under the contaminated land provisions in the Greater Wellington Proposed Natural Resources Plan.

11 Limitations

This report has been prepared by Beca Ltd (Beca) solely for Wellington Water Limited (Client). Beca has been requested by the Client to provide a Detailed Site Investigation at the Prince of Wales Playing Fields in Mt Cook, Wellington for work being undertaken for the construction of the Omāroro Reservoir. This report is prepared solely for the purpose of the assessment of potential soil contamination. The contents of this report may not be used by Wellington Water Ltd for any purpose other than in accordance with the stated Scope.

This report is confidential and is prepared solely for the Client. Beca accepts no liability to any other person for their use of or reliance on this report, and any such use or reliance will be solely at their own risk.

In preparing this report Beca has relied on key information including the following: publicly available property file, historical aerial photographs and Council information.

This report contains information obtained by inspection, sampling, testing or other means of investigation. Unless specifically stated otherwise in this report, Beca has relied on the accuracy, completeness, currency and sufficiency of all information provided to it by, or on behalf of, the Client or any third party, including the information listed above, and has not independently verified the information provided. Beca accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the information provided. Publicly available records are frequently inaccurate or incomplete.

The contents of this report are based upon our understanding and interpretation of current legislation and guidelines (“Standards”) as consulting professionals and should not be construed as legal opinions or advice. Unless special arrangements are made, this report will not be updated to take account of subsequent changes to any such Standards.

This report should be read in full, having regard to all stated assumptions, limitations and disclaimers.



Appendix A – Certificate of Title



**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**



Search Copy

Identifier 742981
Land Registration District Wellington
Date Issued 05 July 2016

Prior References

WN46D/917

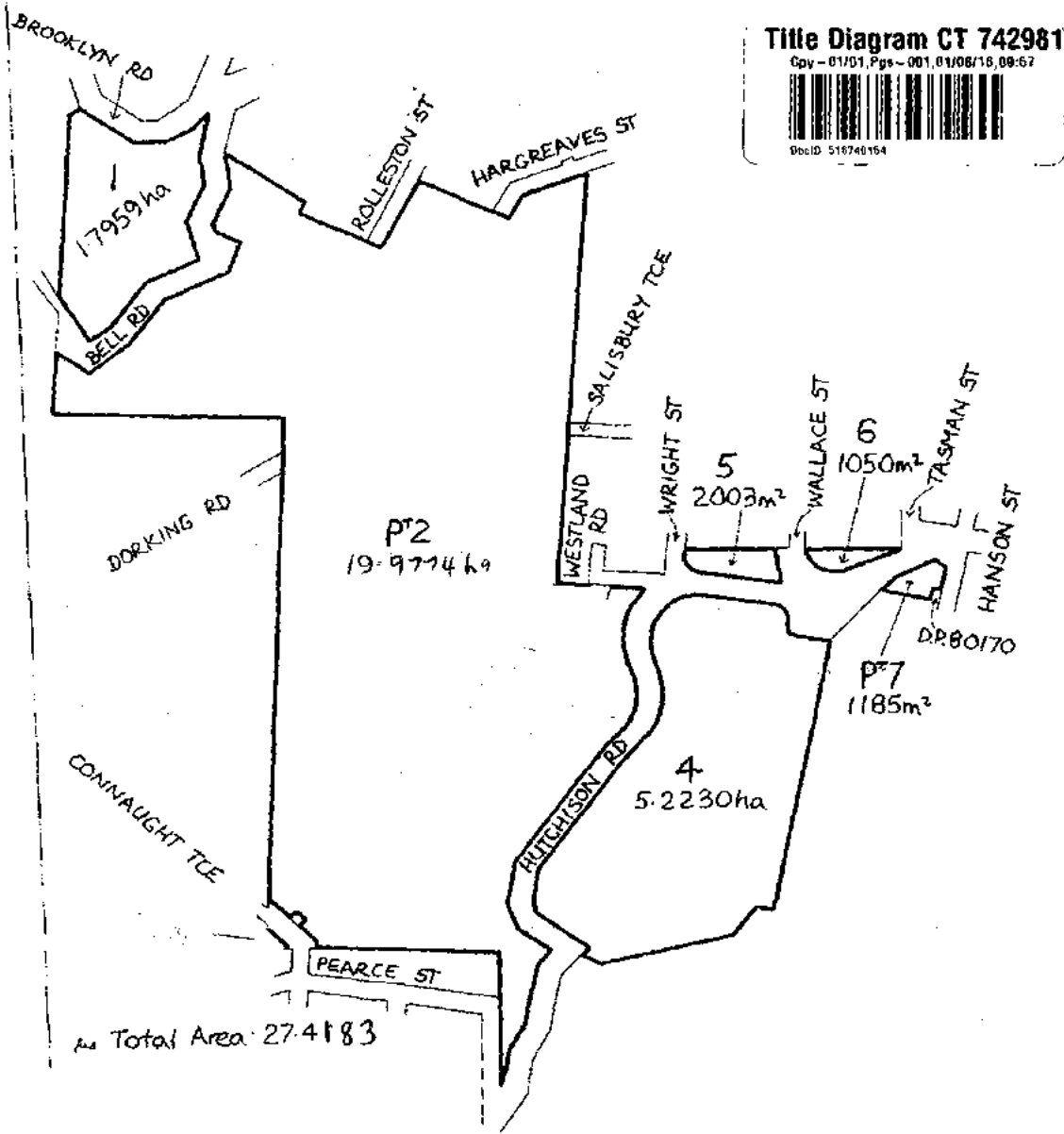
Estate Fee Simple
Area 27.3164 hectares more or less
Legal Description Lot 1 Deposited Plan 10337 and Part Lot 2
 Deposited Plan 10337 and Lot 4-6
 Deposited Plan 10337 and Part Lot 7
 Deposited Plan 10337
Purpose Wellington Town Belt

Proprietors

Wellington City Council

Interests

495095.1 Lease of Lot 4 DP 10337 to The New Zealand Schools of Dance and Drama Premises Management Trust Board Term 21 years computed from 1.1.1981 and extended to 15.4.2018 - 10.6.1982 at 9:17 am
 Subject to a electricity right (in gross) over part Lot 2 marked E, F,G & H on DP 78790 in favour of (now) Vector Wellington Electricity Network Limited created by Transfer B426233.2 - 31.3.1995 at 10:40 am
 Subject to electricity rights (in gross) over part Lot 7 marked A on DP 80170 in favour of Vector Wellington Electricity Network Limited created by Transfer B534111.2 - 14.8.1996 at 2.52 pm
 B618500.4 Variation of Lease 495095.1 extending the term to 15.4.2018 - 17.10.1997 at 9.00 am (Affects Lot 4 DP 10337)
 B682420.1 Mortgage of Lease 495095.1 to Bank of New Zealand - 1.9.1998 at 3:00 pm (Affects Lot 4 DP 10337)
 9282664.1 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - 17.1.2013 at 4:13 pm (Affects Part Lot 2 DP 10337)
 Subject to a right to convey electricity, telecommunications and computer media (in gross) over part Lot 2 marked C, D, E, F & G on DP 481194 in favour of Wellington Electricity Lines Limited created by Easement Instrument 10034296.1 - 13.7.2015 at 4:45 pm



REGISTER

(Land and Deeds) - 101

PRINCE OF WALES

NEW ZEALAND



Land Transfer (Compulsory Registration of Titles) Act, 1952.

Reference

Deeds Index Vol. 1 Folio 9A
Application No. G.8369

Register-book,

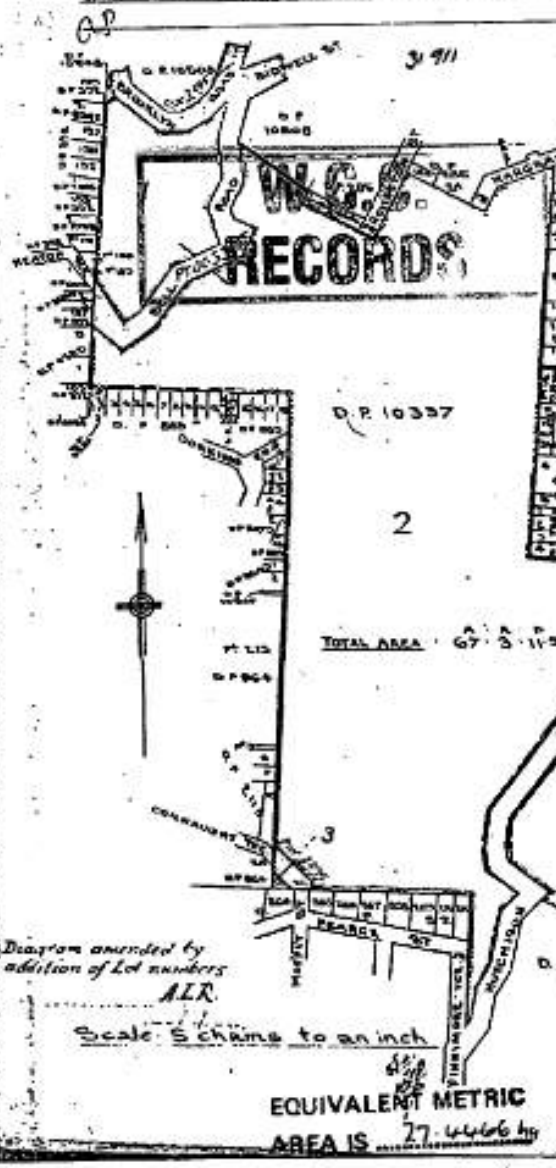
Vol. 427 of 148
WELLINGTON CITY COUNCIL
BCLS

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT 1952 LIMITED AS TO USE

RECEIVED
WAKEFIELD ST. WELLINGTON

This Certificate, dated the 11th day of April one thousand nine hundred and thirty seven under the hand and seal of the District Land Registrar of the Land Registration District of WELLINGTON Witness that THE MAYOR COUNCILLORS AND MEMBERS OF THE CITY OF WELLINGTON ARE SEIZED OF AN ESTATE IN FEE SIMPLE UPON TRUST AS A PUBLIC RECREATION GROUND FOR THE INHABITANTS OF THE CITY OF WELLINGTON

in and to the estate in fee simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial order written or endorsed hereon, subject also to any existing rights of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon hereof GREEN by the several addressesments a little more or less, that is to say: All that parcelled land containing together SIXTY THREE ACRES THREE RODS FIFTY AND FIFTY ONE ONE HUNDREDTHS SQUARE MORE OR LESS SITUATE IN THE CITY OF WELLINGTON BEING PARTS OF THE TOWN BELT ON THE PUBLIC MAP OF THE TOWN OF WELLINGTON AND A CLOSED STREET AS THE SAID MAP MORE PARTICULARLY SHOWS BOUNDARY GREEN IN OUTLINE ON DEPOSITED PLAN NO. 10337.



J. D. Duke
District Land Registrar

This certificate of title is held upon the trust and subject to the powers set forth in Deed No. 40240 (6/1/11) Karadung
Inclination 375 preclaiming as street Bell
and including part of urban lot 10337
Date 11/5/1960
11/5/1960
11/5/1960
pursuant to Sec 3
Wellington City & Suburban
Ground Act 1959 this
Mayor, Councillors, and
Members of the City of
Wellington & the Wellington
House Association (Incorporated)
10/20/21 years from 11/1960
with right of renewal
granted 11/5/1960 at U.A.G.
J. D. Duke
d/t 895/55 record.

CONTINUED

EQUIVALENT METRIC
AREA IS 27.4466 ha

427/148

Lease 845935 to The Scottish Harriers and
Amateur Athletic Club Incorporated
Term 21 years from 1.10.1970 produced
22.10.1970 at 11.02 am

B.426233.2 Transfer grant of Electricity
Rights (in gross) over the part of Lot 2
DP 10337 marked "E" and "G" and Lot 1 DP
31911 marked "F" and "H" on DP 78790 in
favour of Capital Power Limited
31.3.1995 at 10.45 a.m.

Mortgage 845936 of lease 845935 to Wellington
District Savings Bank - 23.10.1970
at 4.28 am

B.527010.1 OCT) CANCELLED and CT 47A/347
4.7.1996) issued for Lot 1 DP 80376
and CT 47A/348 issued for
the balance of the within
land

PRODUCTION (ON A REDUCED SCALE)
OF A TRUE COPY OF THE
ORIGINAL REGISTER FOR THE PURPOSES OF
SECTION 215A LAND TRANSFER ACT 1952.
J. Shields A.L.R.

Lease 485387.1 to The Wellington Show
Association (Incorporated). Term 21
years from 1.1.1981 produced 20.4.1982
at 2.11 p.m. REJECTED

DUPLICATE DESTROYED

Lease 495095.1 of Lot 4 on Plan 10337 to
The Wellington Show Association
(Incorporated). Term 21 years computed
from 1.1.1981 produced 10.6.1982 at
9.17 a.m.

B.426233.1
DISCHARGED
Mortgage 495095.2 of Lease 495095.1 to
Bank of New Zealand - 10.6.1982 at
11.02 a.m.

B.426233.3
DISCHARGED

B.037211.1 Mortgage of Lease 495095.1 to
The Wellington City Council - 11.10.1989
at 9.18 a.m.

B.045215.1 Mortgage of Lease 495095.1 to
Trust Bank Wellington Limited -
15.11.1989 at 2.11 p.m.

B.142876.4 Mortgage to the Wellington City
Council - 7.2.1991 at 9.50 a.m.

B.426233.2 Transfer grant of
Electricity Rights over the part herein
marked "E, G, F & H" on DP 78790 in favour
of Capital Power Limited
31.3.1995 at 10.40 a.m.



B

Appendix B – Historic Aerial Images



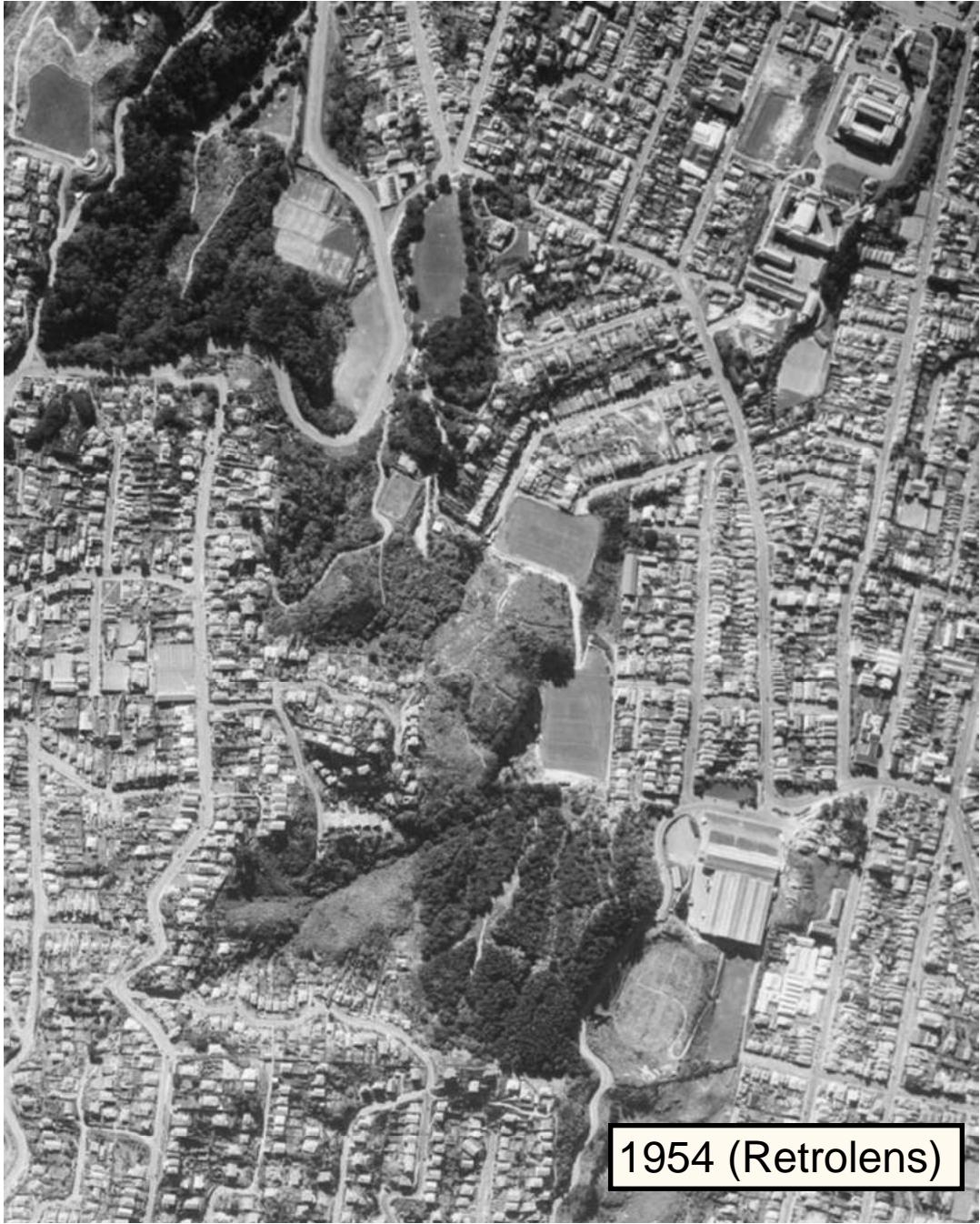
1938 (Retrolens)



1941 (Retrolens)



1945 (Retrolens)



1954 (Retrolens)



1959 (Retrolens)



1961 (Retrolens)



1969 (Retrolens)



1980 (Retrolens)



1986 (Retrolens)



1988 (Retrolens)



2002 (Google Earth)



2012 (Google Earth)



2013 (Google Earth)



2018 (Google Earth)

C

Appendix C – WCC Property File

Wellington City Council

Building Consent Search Item List



Request: AC130050
Property or Summary: Prince of Wales Park files and consents.

This is a selected list of building permits/completed building consents and correspondence files for the above location.

Archive Series	Item Name	Additional Notes
00001 Town Clerk's files, 1926-1998	31/121/1; Reserve - Prince of Wales Park, buildings - 1938-1955	(Contract 1885)
00001 Town Clerk's files, 1926-1998	31/121/3; Reserve - Prince of Wales Park, lease of land for erection of building, Waterside Association Football Club - 1965-1966	
00001 Town Clerk's files, 1926-1998	31/121; Reserve - Prince of Wales Park - 1929-1985	
00001 Town Clerk's files, 1926-1998	31/135; Reserve - Prince of Wales, No. 2 - 1919-1948	
00002 Deeds, 1857-2017	13566(T); Site 2057 Prince of Wales Park, Wellington Town Belt - Deed of Lease	City Records Reference Number 13566, Certificate of Title: WN46D/917, Legal Description: Lot 1, Lot 3-6, Part Lot 2 & Part Lot 7 DP 10337, Related File Number: [Series 00726] WCC Class File 0480-75-2057
00009 City Engineer's files, 1890-2008	31/69; Prince of Wales Park - 1932-1986	

Wellington City Council

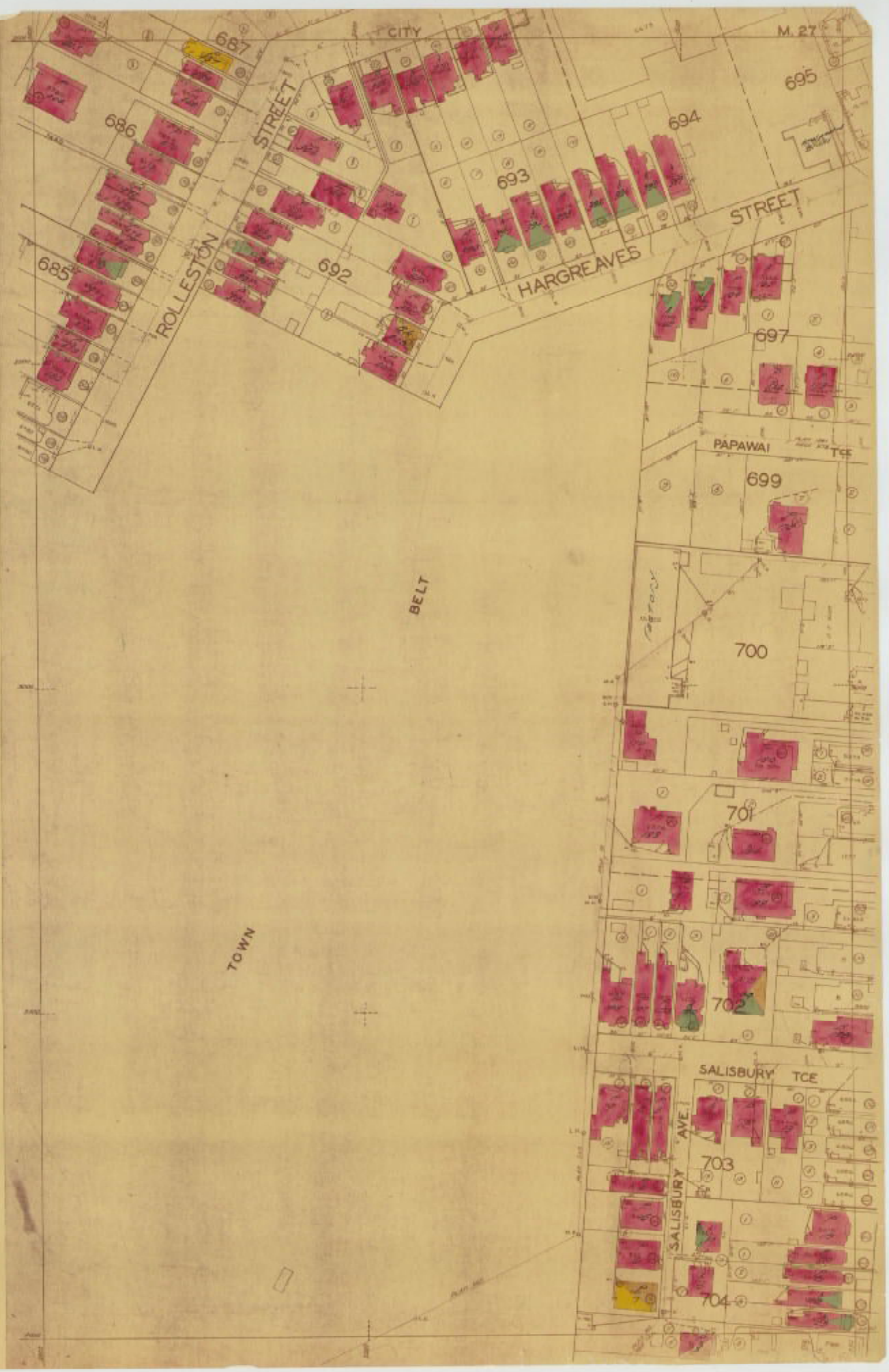
Building Consent Search Item List



Request: AC130050
 Property or Summary: Prince of Wales Park files and consents.

This is a selected list of building permits/completed building consents and correspondence files for the above location.

Archive Series	Item Name	Additional Notes
00078 Teamwork SR requests - Earthworks, Vehicle Access and Building Consents, 1995-2013	145496; 1A Westland Road, demolish garage - 2006	Owner: Wellington City Council. Applicant: Wellington City Council. Legal description: Pt Lot 2 DP 10337. Application value: \$2,412. Note: Located on Prince of Wales Park.
00078 Teamwork SR requests - Earthworks, Vehicle Access and Building Consents, 1995-2013	256538; 1A Westland Road, Prince of Wales Park- Demolition of existing concrete retaining wall. Construction of new timber pole retaining wall - 2012	Legal description: Part Lot 2 DP 10337. Owner: Wellington City Council. Applicant: CHP Consulting Engineers. Project value: \$75,000.
00078 Teamwork SR requests - Earthworks, Vehicle Access and Building Consents, 1995-2013	42993; Hutchison Road [1a Westland Road], demolition of dwelling and two sheds - 1998	Owner: Wellington City Council [WCC]. Applicant: Wellington City Council [WCC]. Legal Description: Lot 2 DP 10337. Application Value: \$5,000.
00078 Teamwork SR requests - Earthworks, Vehicle Access and Building Consents, 1995-2013	64106; Hutchinson Road, Prince of Wales Park - build small concrete wall and stormwater connection to WCC stormwater - 2000	
00205 City Engineer's Department contracts, 1902-1994	1885; Construction of Sports Pavilion, Prince of Wales Park - 1955	31/121/1



TOWN

BELT

CITY

M. 27

ROLLESTON STREET

STREET

HARGREAVES STREET

STREET

PAPAWAI TCE

SALISBURY TCE

SALISBURY AVE

685

686

687

692

693

694

695

697

699

700

701

702

703

704

[000 78:1264:42993] Sm 8/6/98

CONSENT NO.

SITE ADDRESS

A299

SR42993

HUTCHISON ROAD

OR

1A WESTLAND ROAD

MT COOK.

Building demolished
site cleared

28/6/99

**WORK
COMPLETED**

ISSUE DATE

8/6/98

WELLINGTON CITY COUNCIL
ENVIRONMENT
- 2 JUN 1998
RECEIVED
WAKEFIELD ST. WELLINGTON

"DEMOLITION"

HUTCHISON ROAD
OR

1A WESTLAND ROAD

MT COOK.

SR42993

SCANNED DOCUMENT
Cover Sheet - [Please use black pen]

scanned

Scanning Code (see below) APP

Service Request No: 42993

Document Name (if not a code) Bldg Cons < 500K

Document Type IN CORRESP etc. (refer PC-DOCS Profile screen)

Section Title Prop., Urban etc (refer WCC Classifications)

File Series 0600 0600, 1040 etc

File No./Link No 725587 Property Link No or File No (Refer WCC Classification)

Description Hutchison Rd.

PC DOCS No. 128065 Date: 3/6/98

No. of pages: 24 Allocate to:

Extra Notes: _____

Scanning Codes for Document Name

Code	Default Value	Document type	Code	Default Value	Document type
APP	APPLICATION	IN CORRESP	LETF	LETTER FROM	IN CORRESP
ATT	ATTACHMENT	IN CORRESP	LIMA	LIM ATTACHMENT	LIM
BC	BUILDING CONSENT	CONSENT	MEMT	MEMO TO	OUT CORRESP
BSR	BUILDING STATUS REPORT	REPORT	MEMF	MEMO FROM	IN CORRESP
WOF	BLDG WARRANT OF FITNESS	IN CORRESP	NOD	NOTICE OF DECISION	CONSENT
CT	CERTIFICATE OF TITLE	LEGAL	PLIM	PARTIAL LIM	LIM
EMT	E MAIL TO	ELECTRONIC MAIL	PLINA	PARTIAL LIM ATTACHMENT	LIM
EMF	E MAIL FROM	ELECTRONIC MAIL	PIM	PROJECT INFO MEMORANDUM	PIM
FAXT	FAX TO	OUT CORRESP	PIMA	PIM ATTACHMENT	PIM
FAXF	FAX FROM	IN CORRESP	PH	PHOTOGRAPHS	REPORT
FN	FILE NOTE	FILE NOTE	PF	PLUMBING FOLDER	REGISTER
FPA	FOOD PREMISES EVALUATION	FORM	REC	RECEIPT	IN CORRESP
RPE	FOOD RISK FACTOR / PREMISES EVALUATION	FORM	RFA	RISK FACTOR ASSESSMENT	FORM
LIM	LAND INFORMATION MEMORANDUM	LIM	SS	SEALED SURVEY PLAN	PLAN
LT	LAND TRANSFER PLAN	PLAN	SIF	SITE INSPECTION FORM	FORM
LETT	LETTER TO	OUT CORRESP	SUB	SUBMISSION	IN CORRESP
			VP	VALUATION PLAN	PLAN

Purchase order No 4003103.

APPLICATION FOR A PIM &/OR BUILDING CONSENT

Section 3 & 33(2), Building Act 1991

PART A - Complete in all cases

Send or deliver your application to the Environmental Control Business Unit,
PO Box 2199, ground floor 101 Wakefield Street, Wellington. For enquiries,
phone 801 3542.

SR No. 42993
Cust. ID No. 1151584

This application is for a PIM Building Consent

Project Location

Address: 1A Westland Road

Suburb: Prince of Wales Park, Mount Cook

Legal description: Lot 2 DP 10337 Property link No: _____ (if known)

Description of work

Demolition of dwelling + 2 sheds

Ensure that certificate of title/s is included with your application.

Owner &/or applicant details

Owner (if also applicant, tick box
Name: Wellington City Council
Attn M. Silbery
Address: PO Box 2199
Suburb: Wellington
Phone (day): 801-3230
Cellphone: _____
Fax: 801-3002

Applicant
Business name: _____
Name: _____
Address: _____
Suburb: _____
Phone (day): _____
Cellphone: _____
Fax: _____



Correspondence/refunds to owner or applicant

Project details

Project type: New Building Alteration Relocation Demolition
Intended life: Specified as _____ years Indefinite but not less than 50 years
Intended use: Ancillary Commercial Communal residential
 Industrial Housing Communal non-residential Outbuildings

Project value (GST inclusive) : \$ 5,000.00

Does the building or site have any cultural heritage significance, or is it on a marae? (refer to District Plan) Yes No

I believe that the information contained in this application is true and correct.

Signed for and on behalf of the owner by the applicant

OR Signed by the owner

X Signature: M Silbery
Name: Michelle Silbery
Property Manager, WCC
Date: 3-4-98

X Signature: _____
Name: _____
Date: _____

APPLICATION FOR DEMOLITION OR RELOCATION
ENVIRONMENTAL CONTROL BUSINESS UNIT



This form must be included with the completed building consent application form

Send or deliver your application to the Environmental Control Business Unit, PO Box 2199, ground floor 101 Wakefield Street, Wellington. For enquiries, phone 801-3542 or fax 801-3013.

Project details

Address: 1A Westland Road, Prince of Wales Park
Suburb: Mount Cook
Name of building (if applicable):



Contractor details

Name of demolition contractor / firm: Miles Contracting Ltd
Address: 3 Ashleigh Cres, Miramar
Phone (day): 3886544 Cellphone: 025 420028 Fax: 3886533
Name of site supervisor: John (Digger) Miles
Name of demolition sub-contractors / firms:
Address:
Phone (day): Cellphone: Fax:

Demolition

X Proposed tipping location (address / landfill): Happy Valley
X Proposed days and times of cartage: 7 days (7am - 5pm)

Relocated building

Destination address:
Transportation details - also provide to Council's Transportation and Traffic Department:

Technical details

X Access to site - street name: Westland Road
X Vehicle crossing type: existing temporary new permanent
X Means of barricading site access: temporary hoarding gates (which swing inwards)

Other (specify):

X Proposed dates (start): (finish):

X Will existing services on-site be disconnected / sealed?
 gas power telephone / cable water sewer / stormwater
 trolley wires fuel tanks

Are you or anyone else, intending to rebuild on this site? Yes No do not know

Note

Any drains laid prior to 1959 do not comply with Drainage Regulations 1978, and will need to be re-laid for new buildings. Contact the relevant service authorities, and advise them of the extent of your work, and obtain their written approval. A copy of written approvals must accompany this application.

Attach with your application:

- Site plan of premises to be demolished, including street name/s and numbers and site outline.
- Details about the building and relevance to the demolition work, such as type of materials, number of storeys, verandahs etc.

You are required to obtain written approval from the relevant service authorities (refer to "Service Authorities" sheet). A copy of these approvals must accompany this application.

427/148

Lease 845935 to the Scottish Harriers and
Amateur Athletic Club Incorporated
Term 21 years from 1.10.1970 produced
at 11.0 a.m.

[Signature]
A.L.R.

Mortgage 845936 of lease 845935 to Wellington
Dobrick Savings Bank - 22.10.1970
at 11.0 a.m.

[Signature]
A.L.R.

PRODUCTION (ON A REDUCED SCALE)
SHOULD BE A TRUE COPY OF THE
ORIGINAL REGISTER FOR THE PURPOSES OF
SECTION 215A LAND TRANSFER ACT 1952.
[Signature] A.L.R.

Lease 485387.1 to The Wellington Show
Association (Incorporated). Term 21
years from 1.1.1981 produced 20.4.1982
at 2.11 p.m.

REJECTED

A.L.R.

Lease 495095.1 of Lot 4 on Plan 10337 to
The Wellington Show Association
(Incorporated). Term 21 years computed
from 1.1.1981 produced 10.6.1982 at
9.17 a.m.

[Signature]
A.L.R.

DISCHARGED

Mortgage 495095.2 of Lease 495095.1 to
Bank of New Zealand - 10.6.1982 at
9.17 a.m.

[Signature]
A.L.R.

DISCHARGED

B.037211.1 Mortgage of Lease 495095.1 to
The Wellington City Council - 11.10.1989
at 9.18 a.m.

[Signature]
A.L.R.

DISCHARGED

B.045215.1 Mortgage of Lease 495095.1 to
Trust Bank Wellington Limited -
15.11.1989 at 9.18 a.m.

[Signature]
A.L.R.

B.142876.4 Mortgage to The Wellington City
Council - 7.2.1991 at 9.50 a.m.

[Signature]
A.L.R.

WELLINGTON CITY COUNCIL
ENVIRONMENT
02 JUN 1998
RECEIVED
WAKEFIELD ST., WELLINGTON

Price of whole 45/7/5

Search Copy REGISTER

DATE 27 OCT 1998
NEW ZEALAND.



WELLINGTON CITY COUNCIL
ENVIRONMENT
2 JUN 1998
Vol. 427 Folio 148
RECEIVED
WATERFIELD ST., WELLINGTON

Land Transfer (Compulsory
Registration of Titles)
Act, 1924.
References: Deeds Index, Vol. 1 Folio 5A
Application No. C.8369

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT. LIMITED AS TO ~~THE~~

This Certificate, dated the 27th day of April, one thousand nine hundred and thirty-seven
under the hand and seal of the District Land Registrar of the Land Registration District of WELLINGTON (Witnessed) that
THE MAYOR COUNCILLORS AND CITIZENS OF THE CITY OF WELLINGTON are seized of an estate in fee simple
held trust as a Public Recreation Ground for the Inhabitants of the City of Wellington

in and over the land hereinafter described (subject to such reservations, restrictions, covenances, liens, and interests as are notified by memorial order written
or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly
of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements
a little more or less, that is to say: All ¹¹⁰⁰⁰that parcel land containing sixty seven acres three roods eleven and fifty
one and nine hundredths square more or less situated in the City of Wellington being parts of the Town Belt on
the Public Map of the town of Wellington and a closed street as the same are more particularly shown bordered
green in outline on Deposited Plan No. 10137.

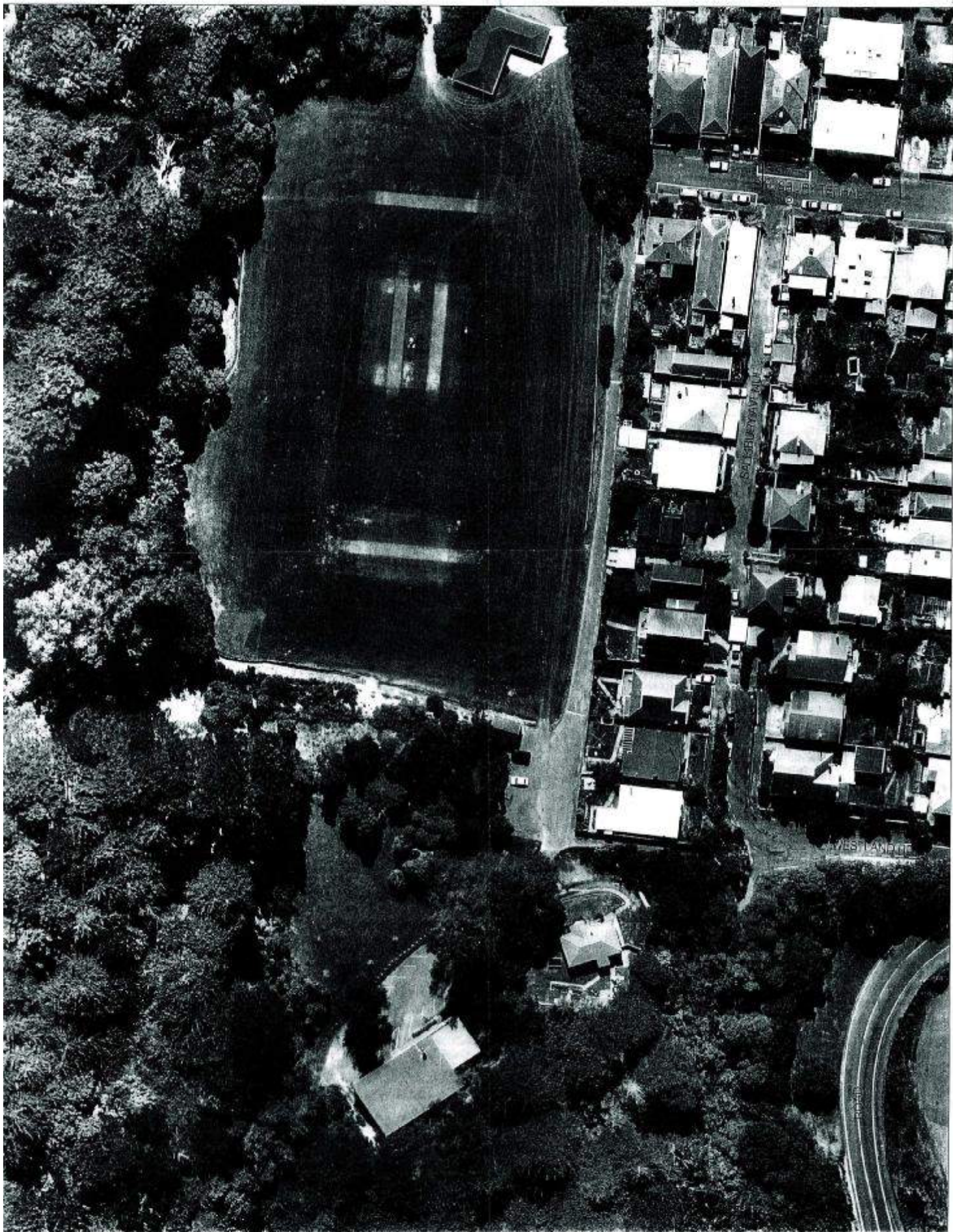


J. D. Duke
District Land Registrar

This certificate of title is held upon the
trusts and subject to the powers set forth
in Deed No. 20220 (67/266) *James*
proclamation 3776 proclaiming as street Bell
and, including part of town land, is situated
at the end of road 1304 *James*
pursuant to Sec 3
Wellington City Exhibition
Grounds Act 1959 this
Mayor, Councillors, and
Citizens of the City of
Wellington to the Wellington
Museum Association (Incorporated)
Voluntary from 1.1.1960
with right of easement
granted 1.5.1960 at N.A.G.
1/5 895/58 *James*

Diagram amended by
addition of lot numbers
ALL
Scale 5 chains to an inch

CONTINUED



Building Consent Allocation Sheet (PC Doc's No 102117)

Date: 4/6/98 Address: 1A WESTLAND ROAD SR Number: 42993

Project Description: DEMOLITION OF HOUSE # 2 SHEETS No of Sets: 2

PIM	Consent		Signed	Approval given	In Bin	Out of Bin
	Yes	No				
Structural	Yes	<input checked="" type="radio"/> No	DAC.			5/6/98.
Building	Yes	<input checked="" type="radio"/> No	[Signature]			
D Goods	Yes	<input checked="" type="radio"/> No	[Signature]			
Vehicle	Yes	<input checked="" type="radio"/> No	[Signature]			
Health	<input checked="" type="radio"/> Yes	No	[Signature]		E4-6	
Resource	Yes	<input checked="" type="radio"/> No	[Signature]			
Plumbing	Yes	<input checked="" type="radio"/> No	[Signature]	AB		Complete
Drainage	Yes	<input checked="" type="radio"/> No	[Signature]			
Trade Waste	Yes	<input checked="" type="radio"/> No	[Signature]			
Water	Yes	<input checked="" type="radio"/> No	[Signature]			

Conditions of approval:

8 June, 1998

Wellington City Council
P O Box 2199
Te Aro
Wellington

Service Request No. 42993
Link No. 0600 725587

Dear Sir/Madam

RE: APPROVAL OF BUILDING CONSENT 42993

Service Request Type:	Building Consent for less than \$500,000
Site Address:	Hutchison Rd
Project Description:	Demolition of dwelling and two sheds
Intended Life:	0years
Value of Work:	\$ 5000

For booking appointments please read note 6

This is to confirm that:

- 1) The proposed work may be undertaken, subject to any conditions set out below or subject to any authorisations set out below being obtained.
- 2) This consent has been processed and issued based on the information submitted. Issuing of this consent will not preclude Council from taking enforcement actions if field inspections demonstrate that the material submitted for the consent is inaccurate or incorrect.
- 3) This consent does not detail all matters which may or could affect this building consent. Please refer to the PIM which has been issued prior to, or in conjunction with this building consent.
- 4) This consent does not constitute authority to undertake the work if you are not the owner of the land and/or building(s) [such as a lessee]. You are still obliged to seek any approvals necessary.
- 5) A portion of the processing fee (please see attached invoice) covers field inspections of work contained within the building consent, based on a field inspection charge out rate of \$70 per hour inclusive of GST. If because of the way you progress construction

8 June, 1998

Wellington City Council
P O Box 2199
Te Aro
Wellington

Service Request No: 42993
Link No: 0600 725587

PROJECT INFORMATION MEMORANDUM No.42993

Service Request Type: Building Consent for less than \$500,000
Site Address: Hutchison Rd
Project Description: Demolition of dwelling and two sheds
Intended Life: 0years

This Project Information Memorandum is confirmation that the proposed building work may be undertaken, subject to the provisions of the Building Act 1991 and any requirements of the corresponding Building Consent:

No.42993 attached

This Project Information Memorandum includes any relevant:

- A. Information identifying special features of the land. (Please refer to general note No. 4)
- B. Information about the land or building notified to the Council by any statutory organization having the power to classify land and buildings.
- C. Details of existing Stormwater or Wastewater utility systems. (Please refer to general note No. 4)
- D. Details of authorizations other than the Building Consent which must be obtained from the Wellington City Council before the proposed building work may be undertaken. (Please refer to general note No. 5)

HEALTH:

I advise there are no objections to the demolition of the above structure provided the Environmental Health conditions detailed in the Building Consent are observed.
A Building Consent will be needed for this operation to occur.

Catherine Penberthy

Permissions Team

Phone: 801 3859

General Notes

1. This Project Information Memorandum is issued pursuant to Section 31, Building Act, 1991 and Clause 5, Building Regulations, 1992.
2. This Project Information Memorandum will lapse if the corresponding Building Consent is not obtained within 2 years of the date of issue of this Project Information Memorandum. (Regulations 5(3))
3. If the owner or a person undertaking building work believes that this Project Information Memorandum is incorrect, the owner or the person shall immediately advise the WCC, in writing, giving relevant details.
(Regulations 5(6))
4. The information supplied reflects only what is known by the Council to exist and is considered relevant to the proposed project. Some special features or drain may exist on/near the site unbeknown to the Council.
5. This Project Information Memorandum does not attempt to identify:
I)Authorizations that may be required from other organizations for this project, e.g., approval to connect/alter water, gas, power or telecommunication services, Resource Consents relating to water use, etc
6. This Project Information Memorandum does not imply the submitted design meets the requirements of the Building Code. Compliance with the Building Code will be addressed during processing of the Building Consent.
7. The owner is responsible for ensuring that the Consent documents are drafted in full accordance with the Resource Management Act (District Plan) and the Local Government Act (Bylaws) requirements, or obtain the relevant approvals.
Note: If the Building requires an evacuation scheme, contact the New Zealand Fire Service to check if a warning device is required.
8. Any earthworks which exceeds 600mm in depth (measured vertically) or exceeds 10m³ in volume, will require a separate Earthworks Consent under the WCC Bylaw. This must be approved and uplifted from Council before any work is permitted to commence.

Issued by, for and behalf of Wellington City Council.



Rob Baumgren
Environmental Control Business Unit
Wellington City Council
Telephone 3826

REGISTERED VALUERS AND PROPERTY CONSULTANTS

3RD FLOOR AUCKLAND BLDG. SOC. BLDG
354 LAMBTON QUAY
WELLINGTON 1
NEW ZEALAND

P. O. BOX 10715 THE TERRACE
TELEPHONE (04) 499-1333
FAX (04) 499-1333

JOHN N. B. WALL
DALE S. WALL
RICHARD S. ARUDGE
GWENDOLINE P. L. JANSEN
GERALD H. SMITH

PROPERTY ADDRESS 1a Westland Road, Mount Cook, Prince of Wales Park

DATE OF VALUATION June 1994

TENANT Bruce Tunncliffe

DESCRIPTION OF PROPERTY:

1. General

Three bedroom bungalow on the hill above Prince of Wales Park with views to the north having a single car garage remote from the dwelling.

2. Style and Construction

A relatively modern bungalow with construction of concrete foundation wall, asbestos sheet sheathing, corrugated iron roof.

3. Number of Rooms and Facilities

One double bedroom - with double wardrobe.

One twin bedroom - with double wardrobe.

One single bedroom - with single wardrobe.

Lounge - wood burner in brick surround.

Internal hall - carpeted

Kitchen/Dining area - vinyl flooring, electric cooker, stainless steel sink bench, good cupboards.

Bathroom - vinyl flooring, built in bath with shower over, toilet, hand basin, expelair fan.

Laundry - vinyl flooring, stainless steel built in tub with TG&V wall lining.



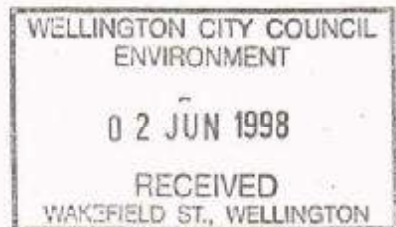
SR42993

4. Condition
 - (a) Exterior - Average
 - (b) Interior - Average
5. Garage/Carport/Parking
Garage at park level with drive up to the house and single carpark.
6. Other Buildings
Shed
7. Grounds and Surround
Defined section.
8. Special Feature Affecting Rent
Carpeted by landlord
9. Current Market Rent
\$230 per week

Valuer:
John N.B. Wall

John N.B. Wall

.....





WELLINGTON CITY COUNCIL

PO Box 2199, 101 Wakefield Street, Wellington, New Zealand. Ph 64-4-499 4444

Fax Message**To:** Michelle Silbery**Fax No:** 801 3002**From:** Catherine Penberthy

Wellington City Council

Ph No: 801 3859**Fax No:** 801 3012**Date/Time:** April 6, 1998**No of pages:** (incl. cover sheet) **One****Subject:** Demolition: 1A Westland Road, Mt Cook

The information contained in this fax is privileged and confidential and intended for the addressee only. If you are not the intended recipient, you are asked to respect that confidentiality and not disclose, copy or make use of its contents. If received in error you are asked to destroy this fax and contact the sender immediately. Your assistance is appreciated.

I advise there are no objections to the demolition of the above structure provided the following Environmental Health conditions are observed;

1. The contractor shall maintain a signboard on the site for the duration of the works. This signboard is to be easily read and contain the contractors name and contact telephone numbers in the case of complaint or emergency.
2. All demolition operations must be carried out in such a way to minimise the effect of noise and dust on adjacent properties. NZS 6803P The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work will be used as a guide as to a reasonable level of noise.
3. Consultation with surrounding uses likely to be affected by the demolition works is to be undertaken. Works are to be carried out at times that will cause least annoyance.
4. If demolition work is likely to result in noise effects to residential areas no work with noisy equipment and vehicles is to commence before 7.30am and to finish by 6.00pm. In addition no work with noisy equipment will be permitted on Sundays or Public Holidays.
5. After the building is vacated and securely sealed, but before removal commences the Contractor shall lay rat poison throughout the building. This Section can provide appropriate advice if required.
6. The building should be examined prior to demolition to ensure the site is free from hazardous material such as asbestos. Where hazardous materials are present these shall be removed prior to the demolition in accordance with OSH requirements and in a manner that will prevent environmental contamination.
7. The contractor will be required to comply with any direction from an Environmental Health Officer or Council Noise Control Officer forthwith.

A Building Consent will be needed for this operation to occur.

Yours sincerely

Catherine Penberthy
Catherine Penberthy
 Environmental Health Officer
 E-mail: Penber1C@wcc.govt.nz



Network Records
Hughmonkton Trust Building
73 Rostrevor Street
Hamilton

Telephone: 0-7-834 5843
Facsimile 0800 422 3329

14 April, 1998

Wellington City Council
Property Services
Box 2199
WELLINGTON

Attention: Michelle Silbery

Dear Madam

RE: DEMOLITION : 1a Westland Road Mt Cook Wellington

Telecom New Zealand Limited has no objections to this proposal.

Please ring free-phone 123 to arrange for the removal of any Telecom overhead/
underground service lines within the demolition area.

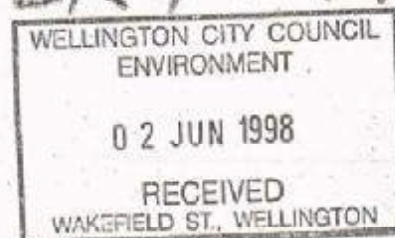
A plan showing Telecom plant in the vicinity of your proposal is enclosed

Yours faithfully



Lloyd Evans
NETWORK RECORDS

SR42993



15 April 1998

File Ref: 12/108

RECEIVED
- 1 MAY 1998
PROPERTY DEPT

Ms Michelle Silbery,
Property Manager
Wellington City Council

Dear Ms Silbery,

CLEARANCE FOR DEMOLITION – 1A WESTLAND ROAD, MT COOK

Thank you for your fax of 6 April 1998, seeking my comments on your proposal.

Records indicate that there are no public drains on the site of your proposed demolition, or likely to be affected by it. However, should you encounter any public drainage services not recorded on our plans, please contact Public Drainage, Environmental Control Business Unit, for further advice.

It will be necessary for all private drainage connections from the building being demolished to be disconnected and capped off at the junction to the Public Mains. All such work must be carried out by a licenced drainlayer in accordance with the requirements of a Demolition Permit to be issued by the Environmental Control Business Unit.

For a clearance in regard to water services you are advised to contact the Wellington Regional Council.

Yours faithfully



Stuart Gunn
Public Drainage

ENVIRONMENTAL CONTROL BUSINESS UNIT

Phone: 801 3673

Fax: 801 3013

WELLINGTON CITY COUNCIL
ENVIRONMENT
02 JUN 1998
RECEIVED
WAKEFIELD ST., WELLINGTON

WELLINGTON CITY COUNCIL

PO Box 2199, 101 Wakefield Street, Wellington, New Zealand. Ph 64-4-499 4444



28 April 1998

Michelle Silbery
Property Services
WCC

Dear Sir/Madam

FILE REFERENCE: 12/108
REMOVAL OF BULDING - 1A WESTLAND RD

Thank you for your fax dated 24 April, 1998.

We have no objections to your proposal to remove the house on the above site, providing our services remain undisturbed and protected by adequate cover. However, should you encounter any drainage services not recorded on our plans, please contact the Drainage and Water Supply Department for further advise.

For a clearance in regard to water services you are advised to contact the Wellington Regional Council.

Yours faithfully

Theodore Chrysoulis
Assistant Engineer
Public Drainage
Phone: 801 3657
Fax: 801 3012





FACSIMILE TRANSMISSION

DATE: 8/4/98

TO: Michelle Silbery

FAX: 801-3002

FROM: Dave Goodwin

RE: ^{Demolition} Proposed ~~Encroachment~~ :1A Westland Road, Mt Cook, Wellington

The information contained in this facsimile is CONFIDENTIAL and may also be legally privileged, intended only for the individual or entity named below. If you are not the intended recipient you are hereby notified that any use, review, dissemination, distribution or copying of this document is strictly prohibited. If you have received this document in error, please immediately notify us by telephone (call to the person and number below) and destroy the original message. Thank You

Dear Sir/ Madam

I am writing with reference to the ^{Demolition} ~~Encroachment License~~ at the above property.

Accordingly, Saturn has no objections to your proposal.

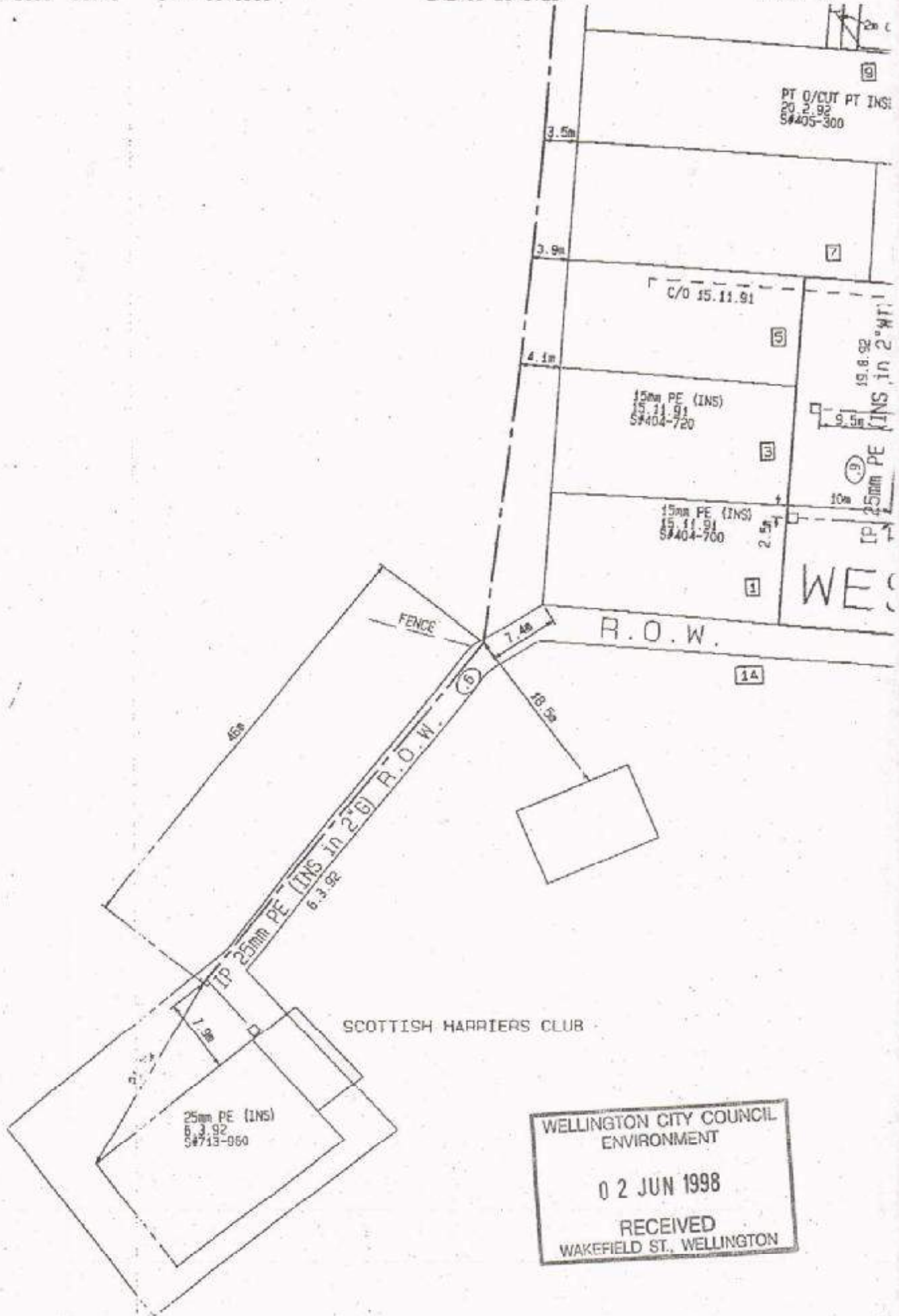
If you have any further questions, please do not hesitate to contact me on Ph. (04) 568-6116 or you can fax me on (04) 568-6145

Yours Sincerely

Dave Goodwin
Field Engineer



SATURN COMMUNICATIONS
Construction Division
21 - 27 Udy Street, Petone
Ph 568-6116 Fax 568-6145



WELLINGTON CITY COUNCIL
 ENVIRONMENT
 02 JUN 1998
 RECEIVED
 WAKEFIELD ST., WELLINGTON

WARNING

1. Please be aware that if you cause damage to Telecom's plant, you may be liable for any loss that Telecom suffered as a result.

2. Plant position is subject to reasonable tolerance. Depth of cover may have changed since installation. It is your responsibility to pothole and verify position and depth of plant before excavating with machinery. Residential lead-ins are not shown on the plan.

If plant is not in the position shown on the plan, or you require help, call 124 and Telecom will provide free assistance.

3. If plans are more than two weeks old, check with 124 as new cable may have been laid since the date of issue.

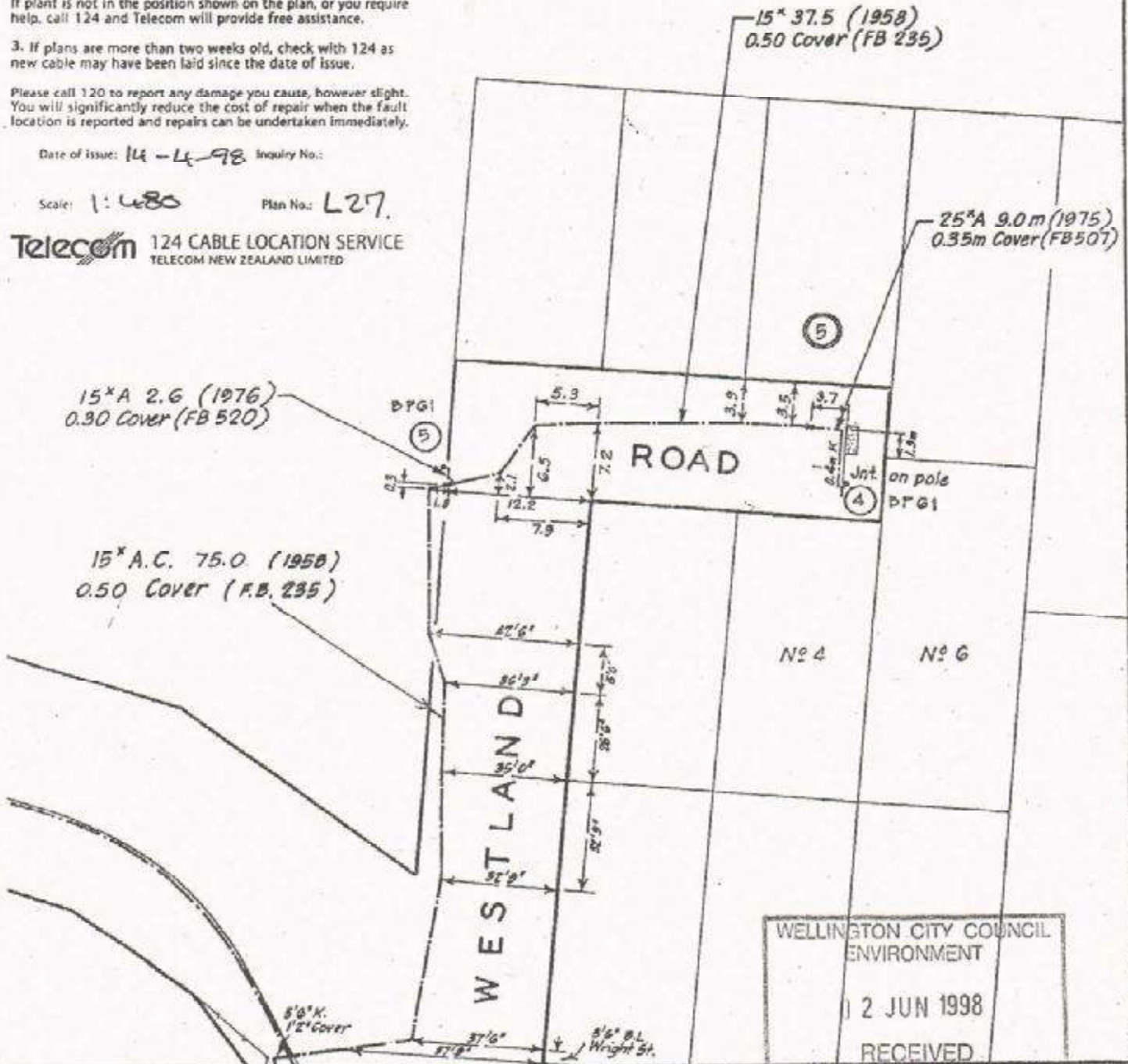
Please call 120 to report any damage you cause, however slight. You will significantly reduce the cost of repair when the fault location is reported and repairs can be undertaken immediately.

Date of issue: 14-4-98 Inquiry No.:

Scale: 1:480

Plan No: L27.

Telecom 124 CABLE LOCATION SERVICE
TELECOM NEW ZEALAND LIMITED



WELLINGTON CITY COUNCIL
ENVIRONMENT
2 JUN 1998
RECEIVED

NEW ZEALAND POST OFFICE, REGIONAL ENGINEER - WELLINGTON, LINGTON

CARE TO BE EXERCISED WHEN WORKING IN THE VICINITY OF THE INDICATED POSITION OF CABLE THE MEASUREMENTS INDICATED ARE SUBJECT TO REASONABLE ALLOWANCE FOR DIVERGENCE

ORIGIN	D.E. WN	CHKD.	<i>gls. 3.9.1.</i>
DRAWN	<i>hvj</i>	APPD.	<i>ls</i>
TRACED	<i>hvj</i>	DATE	6-11-98

W.4000 L.27



WELLINGTON CITY COUNCIL

PO Box 2199, 101 Wakefield Street, Wellington, New Zealand. Ph 64-4-499 4444



13 January, 1999

Wellington City Council
P O Box 2199
Te Aro
Wellington

Service Request No. 42993
Link No. 0600 725587

Dear Sir/Madam

CODE COMPLIANCE CERTIFICATE NO.1, PURSUANT TO SECTION 43(2) OF THE BUILDING ACT 1991

Service Request Type: Building Consent for less than \$500,000
Site Address: Hutchison Rd
Project Description: Demolition of dwelling and two sheds

Please accept this letter as a final Code Compliance Certificate in respect of all building works under Building Consent no.42993.

This Code Compliance Certificate excludes any energy work covered by G9 Electricity and G11 Gas.

Signed for and on behalf of the Wellington City Council.

R Gibson
Environmental Control Business Unit
Wellington City Council
Telephone 801-3813

Purchase order No A003103

APPLICATION FOR A PIM &/OR BUILDING CONSENT

Section 3 & 33(2), Building Act 1991

PART A - Complete in all cases

Send or deliver your application to the Environmental Control Business Unit,
PO Box 2199, ground floor 101 Wakefield Street, Wellington. For enquiries,
phone 801 3542.

SR No. 42993
Cust. ID No. 1151584

This application is for a PIM Building Consent

Project Location

Address: 1A Westland Road
Suburb: Prince of Wales Park, Mount Cook
Legal description: Lot 2 DP 10337 Property link No: _____ (if known)

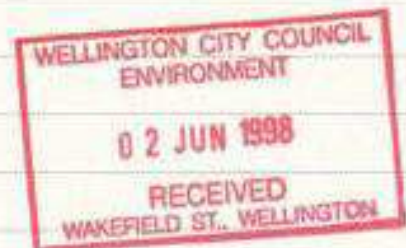
Description of work: Demolition of dwelling + 2 sheds

Ensure that certificate of title/s is included with your application.

Owner &/or applicant details

Owner (if also applicant, tick box
Name: Wellington City Council
Address: 11A Mt. Silbery
PO Box 2199
Suburb: Wellington
Phone (day): 801-3230
Cellphone: _____
Fax: 801-3002

Applicant
Business name: _____
Name: _____
Address: _____
Suburb: _____
Phone (day): _____
Cellphone: _____



Correspondence/refunds to owner or applicant

Project details

Project type: New Building Alteration Relocation Demolition
Intended life: Specified as _____ years Indefinite but not less than 50 years
Intended use: Ancillary Commercial Communal residential
 Industrial Housing Communal non-residential Outbuildings

Project value (GST inclusive): \$ 5,000.00

Does the building or site have any cultural heritage significance, or is it on a marae? (refer to District Plan) Yes No

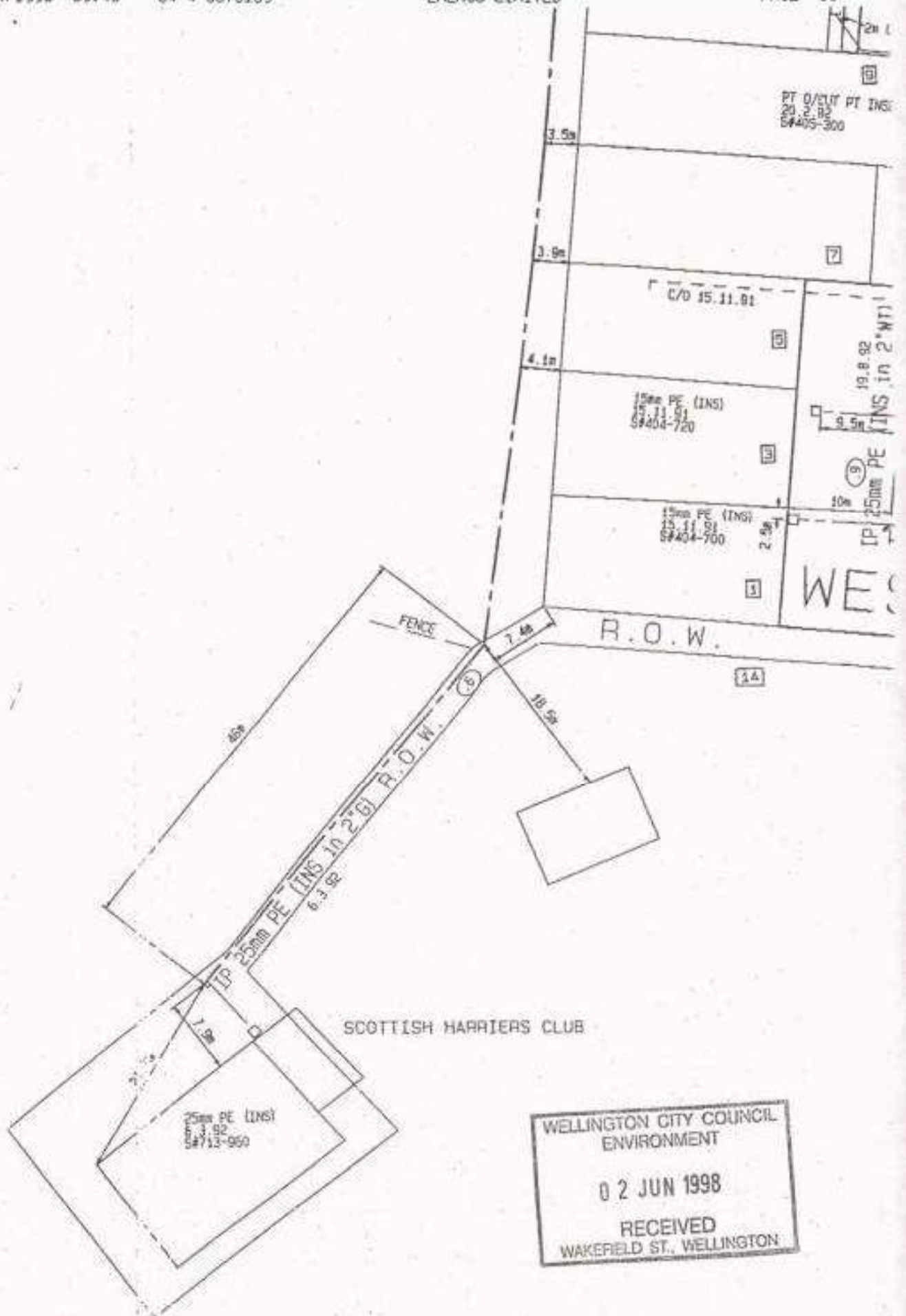
I believe that the information contained in this application is true and correct.

Signed for and on behalf of the owner by the applicant

OR Signed by the owner

X Signature: M. Silbery
Name: Michelle Silbery
Property Manager, WCC
Date: 3-4-98

X Signature: _____
Name: _____
Date: _____





WELLINGTON CITY COUNCIL

PO Box 2199, 101 Wakefield Street, Wellington, New Zealand. Ph 64-4-499 4444

28 April 1998

Michelle Silbery
Property Services
WCC

Dear Sir/Madam

FILE REFERENCE: 12/108
REMOVAL OF BULDING - 1A WESTLAND RD

Thank you for your fax dated 24 April, 1998.

We have no objections to your proposal to remove the house on the above site, providing our services remain undisturbed and protected by adequate cover. However, should you encounter any drainage services not recorded on our plans, please contact the Drainage and Water Supply Department for further advise.

For a clearance in regard to water services you are advised to contact the Wellington Regional Council.

Yours faithfully

A handwritten signature in black ink, appearing to read "Theodore Chrysoulis", written over a horizontal line.

Theodore Chrysoulis
Assistant Engineer
Public Drainage
Phone: 801 3637
Fax: 801 3012



WELLINGTON CITY COUNCIL
 8CLS
 23 APR 2006
 RECEIVED
 ME HEKE KAI PŌNEKE
 WELLINGTON CITY COUNCIL
 WAKEFIELD ST, WELLINGTON

**Absolutely
 POSITIVELY
 Wellington**

\$384.25
 EFTPOS

Application for a Building Consent and/or Project Information Memorandum

Section 33 or section 45, Building Act 2004
 Send or deliver your application to: Building Consents & Licensing Services, Wellington
 City Council, PO Box 2199, 101 Wakefield Street, Wellington. For enquiries, phone 801 3542.

Council Use Only:

Application #
 145496

Property ID
 1057983

Application

I request that you issue a Project Information Memorandum Building Consent for the building work described in this application.
 Consent/Project Information Memorandum to be Mailed Collected

The Building

{Project Location}

Street address of building:
 1 Westland Road
 Mt Cook
 (Prince of Wales Park)

Legal description of land where building is located:
 [state legal description as at the date of application and, if subdivision is proposed include details of relevant lot numbers and subdivision consent]
 PTLot 2 DP 10337

Building name: [if applicable]

Location of building within site: [include nearest street access]
 N/A

Number of levels: [include ground level and any levels below ground]
 one

Level/Unit Number: [if applicable]

Area:
 Existing floor area: 6 x 4 m²
 New floor area: 0
 Total floor area: 2

Current, lawfully established, use: [include number of occupants per level and per use if more than 1 level]
 N/A

Year first constructed: [insert year, approximate date is acceptable e.g. c 1920s or 1960-1970]
 13/8/1996

The Project

Description of the building work [provide sufficient description of building work to enable scope of work to be fully understood]
 Demolish single garage.

Will the building work result in a change of use of the building?
 Yes No N/A

Estimated value of the building work on which the building levy will be calculated (including goods and services tax):
 [state estimated value as defined in section 7 of the Building Act 2004]
 \$ ~~None~~ to demolish
 2412.00

If yes, provide details of the new use:

List building consents previously issued for this project (if any):
 [list who issued the consent, the date of issue and the consent number]

Intended life of the building if less than 50 years:

Does the building or site have any cultural heritage significance, or is it a marae?
 [refer to District Plan] Yes No

Prince of Wales Park Shed

Power	No
Water	No
Reinstate to	To grass. This will be done internally by our Sportsfield Team



Right side view

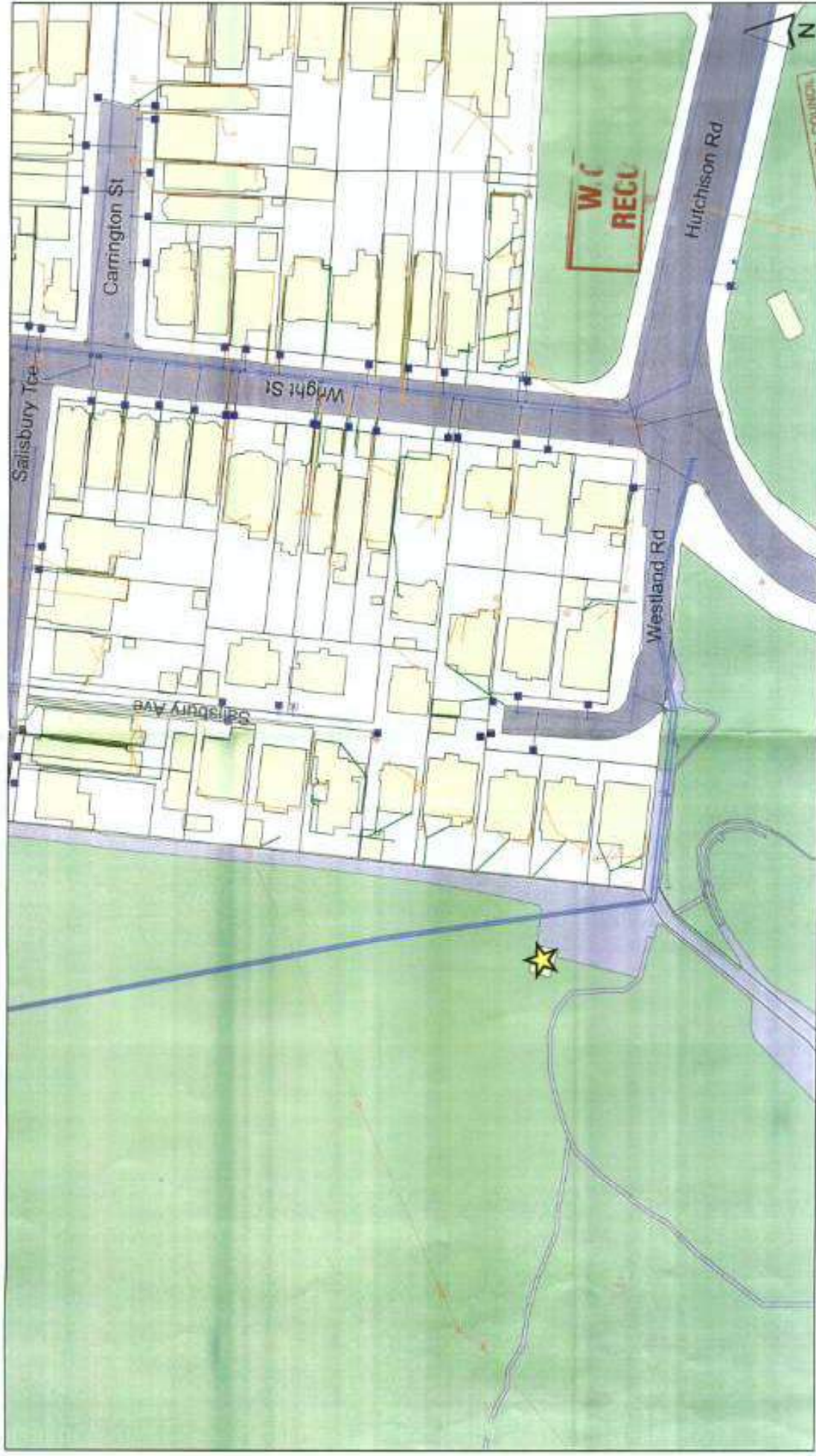


Side/rear view



Left side view





WELLINGTON CITY COUNCIL
 9001
 Absentee
 1:750 A.P.L. POSITIVELY
 RECEIVED Wellington
 WAKEFIELD ST. WELL

Prince of Wales Park Building for Removal



★ building to be removed

Site: 1000/1001
 Project: Prince of Wales Park
 Location: Wellington
 Date: 10/10/2020
 Author: [illegible]
 Version: 1.0
 Scale: 1:750
 Date: 10/10/2020

1919

C. Bennett

RECEIVED

APR 10 1919

1919

Recreation ground
Salesbury Terrace.

Reserves Committee 22.5.19.

Director of Parks: Reserves together with
City Engineer to report on to what is
required to put ground in order

J.P.

Director Reserves

Please confer with City Engineer & report
accordingly

J.P. 22/5/19

PUBLIC GARDENS, RESERVES, AND
BATHS COMMITTEE, 16.3.20.

Committee to visit ground

Reserves Committee, 23.3.20.

Committee visited & decided to recommend Council
to have the work placed on next years estimates
for the sum of two thousand pounds, £2000.

£26
2/15/20.

Council 25.3.20

Referred to Reserves Committee for report

J.P.

Reserves Committee

£2000 telephoned on Estimates
1920

FILE

COUNCIL REPORT ADOPTED Res 30/14 14/3/20

24/3/20.

Memo for the Deputy Mayor.

Salisbury Terrace Recreation Ground.

As requested by the Reserves Committee, I beg to report, that I have gone into the question of the cost of completing the above grounds which will furnish one full sized football ground and also 2 Tennis courts.

I estimate the cost of completing the above fit for play at £2,000. I strongly recommend that this work be carried out at an early date.

If a steam shovel was available for the work, I am of opinion that it could be done both quicker and cheaper.

J. G. Mackenzie

DIRECTOR OF PARKS AND RESERVES.

*referred to
24/3/20*

BOTANICAL GARDENS

WELLINGTON,

16th March, 1920.

Memo for the

Reserves Committee.

Re Salisbury Terrace Recreation Grounds

Nine or ten years ago, P. Hutson, Limited was granted permission to excavate clay for pipe making here, and some few years later his interests in the excavating were transferred to the late Enoch Tonks. This work which had been at a standstill for some time was formally terminated by the Council some months ago, leaving a very ugly looking clay face/ A large heap of rotten rock was also left in the centre of the ground, being of no use for brickmaking. This heap has been shifted lately by one of the street gangs under Mr. Rabe, when the cement shortage was on, at a cost of about £300. A stormwater drain was also laid down the gully to the North West of the playing area. Within the last few weeks I have had the fence shifted well back to allow for planting, and to keep the horse back from the face. The grade on the playing area during the recent work was altered from one in 45 to one in 75 to allow for Football. At present we have a flat of about 78 yards by 77; to get the required length for a Football field, we will have to go back about another 50 yards to the South. This will mean moving about 18,000 yards of clay. I estimate a very good sports ground with plenty of room for one Football Ground, could be completed for £2,000. There is also plenty of room for several Tennis Courts on a lower level. This site is very

handy to a densely populated part of the Town at present without a recreation ground, and being low lying it is well sheltered from the prevailing winds. The hill to the North West leads up on a gentle slope making a natural grandstand for the spectators.

It is only 300 yards from the Wallace Street Tram Terminus, say 5 minutes walk, and taking all these facts into consideration, I would strongly recommend that the formation of the ground be pushed on ready for sowing down in the Spring. It having been in an unfinished state for so long, I would respectfully suggest that the Committee visit the ground at an early date.

DIRECTOR.

Wellington City Council.

Notice of Motion.

19

I HEREBY GIVE NOTICE that at the next meeting of the Council I will move

That in view of the early erection of a Technical
Colleges at Mount Cook and the imperative necessity
of providing a Recreation ground for the Pupils and
other children in the vicinity. It be recommended
to the Reserve Committee that the land now being
excavated off ^{Salisbury} ~~Parliament~~ Square be earmarked
for that purpose, and that soil be spread and
grass sown thereon on that portion now breid.
During the present season of Protractable

J. N. Bennett

Councillor.

W. & T. Ltd. C4836

WELLINGTON CITY COUNCIL
BCLS
16 MAR 2010
RECEIVED
WAKEFIELD ST. WELLINGTON

**Absolutely
POSITIVELY**
ME HEKE KI PŌNEKE
WELLINGTON CITY COUNCIL **Wellington**

Application for Amendment to Building Consent

Send or deliver your application to: Building Consents & Licensing Services, Wellington City Council, PO Box 2199, 101 Wakefield Street, Wellington. For enquiries, phone 801 3542.

Note: this application must be accompanied by two of the relevant drawings from the issued building consent set and two copies of the documents with the proposed amendments clearly highlighted on both copies.

*pd -
visa
& 197.50.*

Council Use Only:

Building Officer _____

Amended plan # (if required) _____

Existing consent number
202712

The Building [Project Location]

Street address of building

10 Westland Road
Maent Cook
(Prince of Wales Park)

The Project

Description of amended work [refer to notes overleaf]

Deletion of works in part of building ~~etc~~ destroyed by fire. - see attached drawing AOS

Value of amendment (GST inclusive)

Does the amendment alter the Project value Yes \$ _____ (new value) No

Are there any amendments to systems for which a compliance schedule has been issued? Yes No

The Owner

Owner & Agent details [note: owner details required in all cases]

Owner [if also agent, tick box

Business: **Wgtn Scottish Athletic Club**

Address: **PO Box 6239**

Suburb: **Wellington**

Phone (day): _____

Cell phone: _____

Fax: _____

Correspondence to owner or agent

Agent

Business name: _____

Contact person: **David Cooke**

Address: **PO Box 3375**

Suburb: **Wellington 6140**

Phone (day): **472 7083**

Cell phone: **027 2483583**

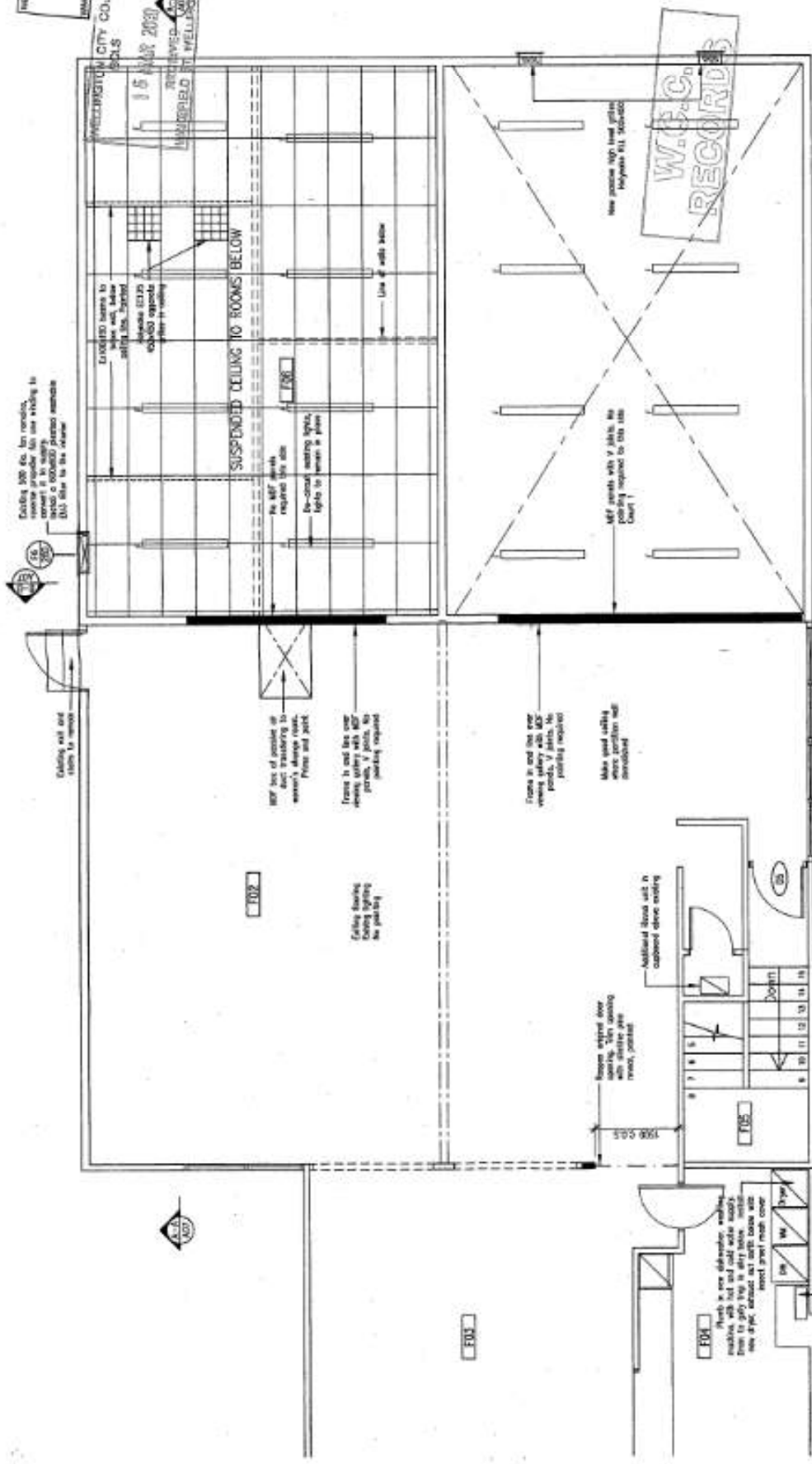
Fax: **472 7084**

WELLINGTON CITY COUNCIL
Interact
 CONSULTING ENGINEERS & ARCHITECTS
 DESIGNERS

15 MAR 2020
 RECEIVED
 WELLINGTON CITY COUNCIL

PO Box 27 817, Merton Square
 Level 3, 75 Chesham St, Wellington, NZ
 T 04 473 7124 F 04 473 7152
 info@interact.co.nz

<p>All drawings to be checked as per the following schedule:</p>	<p>Rev # Description</p>
<p>Project SCOTTISH HARRIERS CLUB ROOM ALTERATIONS</p>	<p>Title FIRST FLOOR PROPOSED</p>
<p>Folder: 20042</p>	<p>Design: Wellington City Council Drawn: [Name] Date: October 09 Scale: As shown Drawing No: Rev A05</p>



ELECTRICAL KEY

- 1. 100mm concrete slab to remain
- 2. 100mm concrete slab to be cast over existing slab
- 3. 100mm concrete slab to be cast over existing slab
- 4. 100mm concrete slab to be cast over existing slab
- 5. 100mm concrete slab to be cast over existing slab
- 6. 100mm concrete slab to be cast over existing slab
- 7. 100mm concrete slab to be cast over existing slab
- 8. 100mm concrete slab to be cast over existing slab
- 9. 100mm concrete slab to be cast over existing slab
- 10. 100mm concrete slab to be cast over existing slab
- 11. 100mm concrete slab to be cast over existing slab
- 12. 100mm concrete slab to be cast over existing slab

Mechanical Key

- 1. 100mm concrete slab to remain
- 2. 100mm concrete slab to be cast over existing slab
- 3. 100mm concrete slab to be cast over existing slab
- 4. 100mm concrete slab to be cast over existing slab
- 5. 100mm concrete slab to be cast over existing slab
- 6. 100mm concrete slab to be cast over existing slab
- 7. 100mm concrete slab to be cast over existing slab
- 8. 100mm concrete slab to be cast over existing slab
- 9. 100mm concrete slab to be cast over existing slab
- 10. 100mm concrete slab to be cast over existing slab
- 11. 100mm concrete slab to be cast over existing slab
- 12. 100mm concrete slab to be cast over existing slab

W.C. RECORDS

WELLINGTON CITY COUNCIL
 SERVICE REQUEST NO. #202712
 AMENDED PLANS

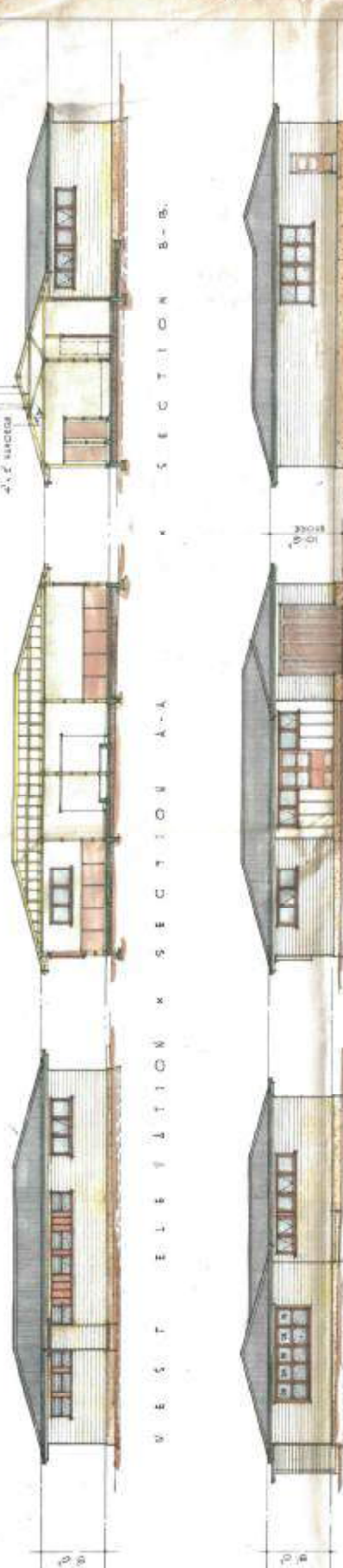
PROPOSED FIRST FLOOR PLAN
 1:50 Shuning Deirdred & Kuchanand

Before the building permit is issued, the applicant must submit a copy of this plan to the Council for approval.

SCALE IN METRES @ 1:50

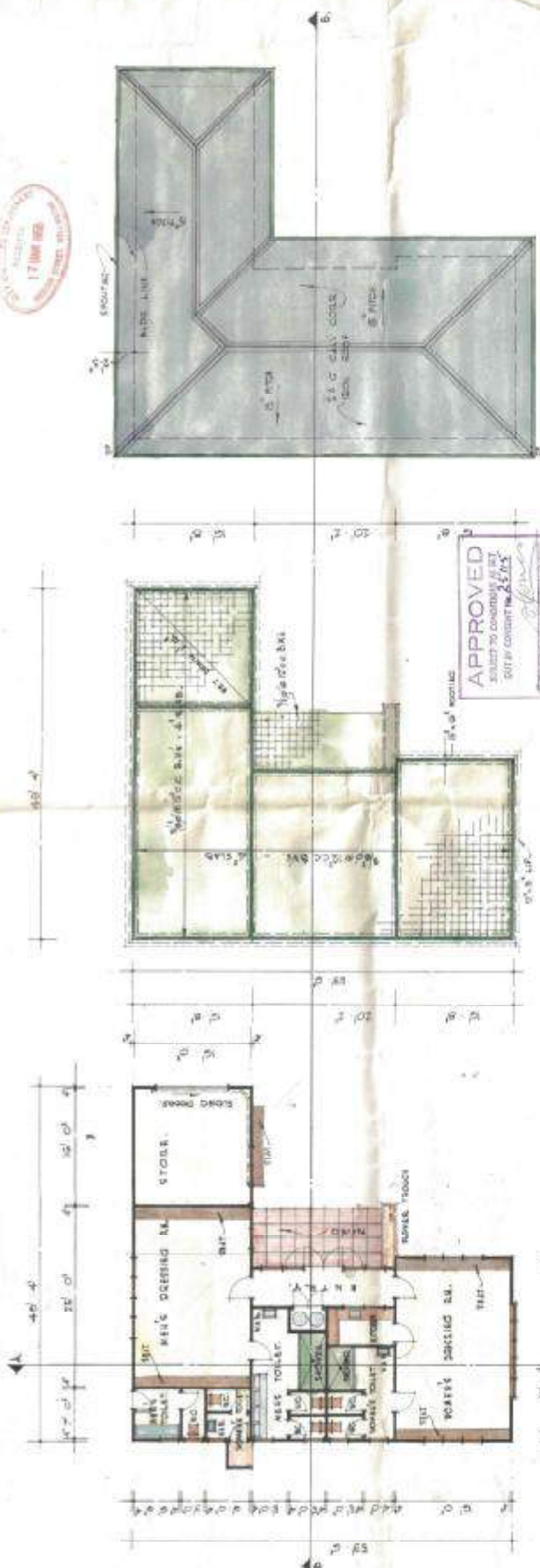
0 1 2 3 4 5

4" x 4" SLATINGS
 2" x 4" CEILING
 2" x 4" STUDS
 2" x 4" BRACKETS
 2" x 4" LATHING



V E S T E L E V A T I O N X S E C T I O N A - A X S E C T I O N B - B

S O U T H E L E V A T I O N E A S T E L E V A T I O N N O R T H E L E V A T I O N



F L O O R P L A N F O U N D A T I O N P L A N R O O F P L A N

APPROVED
 SUBJECT TO COMPANY'S
 CONTRACT NO. 25/105
 J. J. [Signature]



SHEET 1
 ROBERTS &
 POLLOCK &
 COOK ARCHT.
 W. L. L. L. C.

S P O R T S P A V I L I O N P R I N C E O F W A L E S P A R K f o r t h e W G T N C I T Y C O R P O R A T I O N

CONTRACT 644844
 DATE 10/10/34
 SCALE 3/8" = 1'-0"

94 LISBURY TCE



SPORTS GROUND

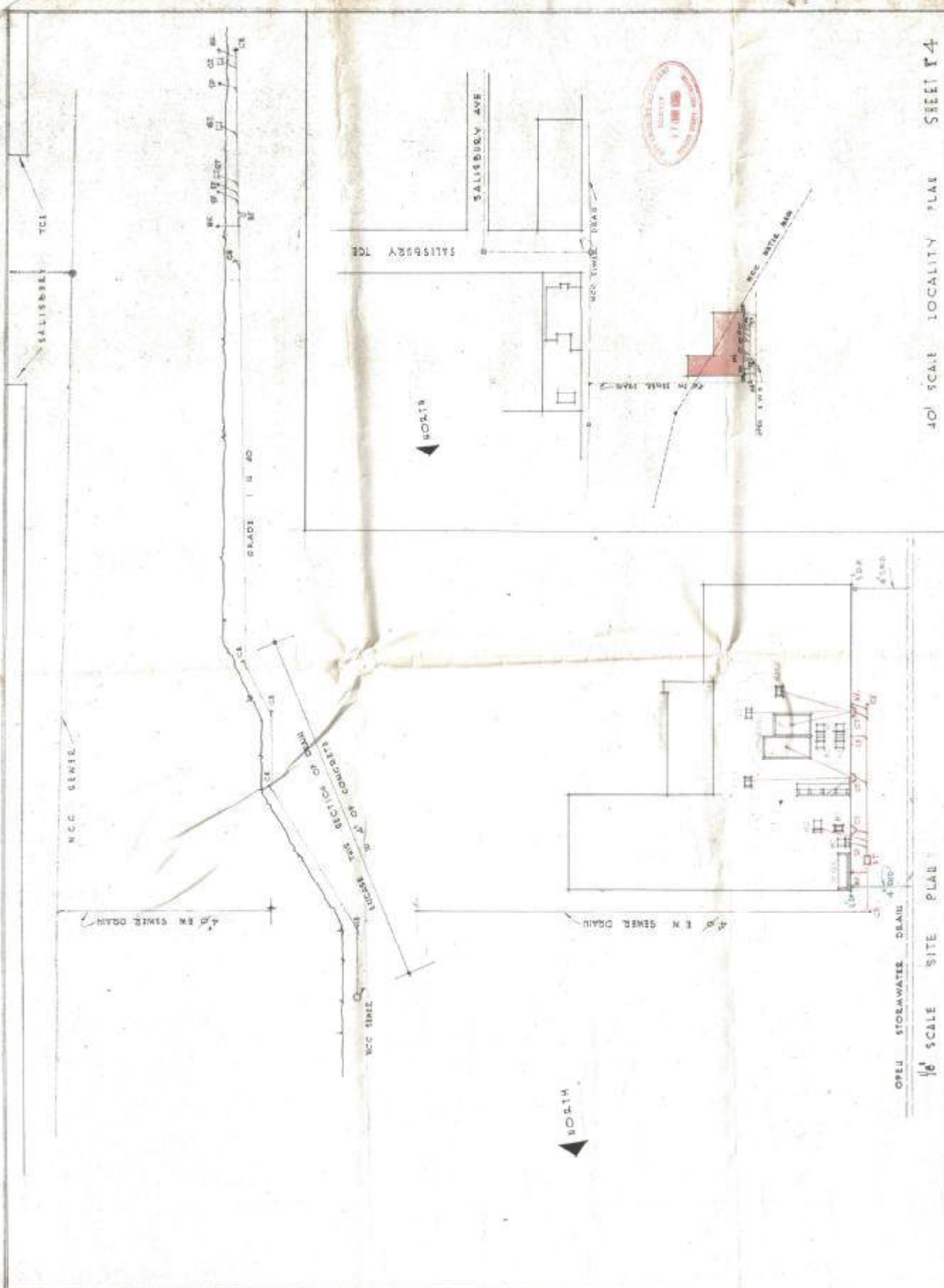


SHEET # 3

SOBLES + HERGER
ARCHTCT & ENGRS
CROWB RIDGS - CHAS W
WILLINGTOE

SPORTS PAVILION PRINCE OF WALES PARK for the WGTN CITY CORPORATION

1896
COURT & ACT 14-18-14
DATE 10/15/14
SCALE 1/8" = 1'-0"



CONTRACT # 45678
 DATED NOVEMBER 54
 SCALES AS SHOWN

SPORTS PAVILION PRINCE OF WALES PARK for the WGTN CITY CORPORATION

CONTRACT # 45678
 DATED NOVEMBER 54
 SCALES AS SHOWN

1/8" SCALE SITE PLAN

1/4" SCALE LOCALITY PLAN

SHEET # 4

ROBERTS & MERRICK
 ARCHITECTS & ENGRS.
 1700 BROADWAY
 WASHINGTON, D.C.

D

Appendix D – Soil Profile Logs

TEST PIT LOG

PROJECT: Omaroro Reservoir Detailed Site Investigation JOB NUMBER: 3262332
 SITE LOCATION: Prince of Wales Playing Fields, Mount Cook CLIENT: Wellington Water

CIRCUIT: NZTM 2000 TEST PIT LOCATION: See site plan
 COORDINATES: N 5,425,680.195 m R L: 60 m
 E 1,748,326.099 m DATUM: MSL

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scale	SV	γ (kPa)	SAMPLES	R L (m)
0.0 - 0.5			D		ORGANIC CLAY; dark greyish brown; high plasticity. Organics: Rootlets. (TOPSOIL).					0.1	59.5
0.5 - 1.0			D		ORGANIC CLAY; dark brownish black; high plasticity.					1.0	59.0
1.0 - 1.5			D		Coarse GRAVEL, minor clay; light reddish orange; non plastic. Gravel: 5-20cm.						58.5
1.5 - 1.7			S		CLAY; light grey; high plasticity.					1.7	
1.7 - 2.0					END OF LOG @ 1.7 m						58.0

DATE EXCAVATED: 18/1/19 CONTRACTOR: Coastal Digger Services Lid
 LOGGED BY: HJ EQUIPMENT: Excavator
 SHEAR VANE No: N/A METHOD: N/A

COMMENTS:
 Samples taken at: 0-0.1m, 0.9-1.0m, 1.6-1.7m. Test pit terminated at target depth.

TEST_PIT_P:32623323.3.0_TEN ENVIRONMENTAL SITE INVESTIGATION TEST PIT LOGS OMARORO RESERVOIR SOIL LOGS.GPJ BECA.GDT 13/3/19

TEST PIT LOG

PROJECT: Omaroro Reservoir Detailed Site Investigation JOB NUMBER: 3262332
 SITE LOCATION: Prince of Wales Playing Fields, Mount Cook CLIENT: Wellington Water

CIRCUIT: NZTM 2000 TEST PIT LOCATION: See site plan
 COORDINATES: N 5,425,945.462 m R L: 65 m
 E 1,748,283.82 m DATUM: MSL

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scale	SV	γ (kPa)	SAMPLES	R L (m)
0.5					ORGANIC SILT; dark greyish brown; dry, non plastic. rootlets. (TOPSOIL).					0.1	64.5
1.0					CLAY, some medium gravel; light reddish brown; moist, high plasticity. Gravel: 1-20cm. Well weathered brick fragments and whole bricks in fair condition. (FILL).					1.0	64.0
1.5											63.5
2.0					END OF LOG @ 2 m					2.0	63.0

DATE EXCAVATED: 20/1/19 CONTRACTOR: Coastal Digger Services Lid
 LOGGED BY: HJ EQUIPMENT: Excavator
 SHEAR VANE No: N/A METHOD: N/A

COMMENTS:
 Samples taken at: 0-0.1m, 0.9-1.0m, 1.9-2.0m,. Test pit terminated at target depth.

TEST_PIT_P:326132623323.0 TEN ENVIRONMENTAL SITE INVESTIGATION TEST PIT LOGS OMARORO RESERVOIR SOIL LOGS.GPJ BECA.GDT 13/3/19

TEST PIT LOG

PROJECT: Omaroro Reservoir Detailed Site Investigation JOB NUMBER: 3262332
 SITE LOCATION: Prince of Wales Playing Fields, Mount Cook CLIENT: Wellington Water

CIRCUIT: NZTM 2000 TEST PIT LOCATION: See site plan
 COORDINATES: N 5,425,950.515 m R L: 65 m
 E 1,748,338.597 m DATUM: MSL

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scale	SV	γ (kPa)	SAMPLES	R L (m)
0.5					ORGANIC SILT; dark greyish brown; dry, non plastic. Organics: Rootlets. (TOPSOIL).					0.1	64.5
1.0					Moderately weathered; reddish brown; stained orange; homogenous GREYWACKE; very weak					1.0	64.0
1.5										1.8	63.5
2.0					END OF LOG @ 1.8 m						63.0

DATE EXCAVATED: 19/1/19 CONTRACTOR: Coastal Digger Services Lid
 LOGGED BY: HJ EQUIPMENT: Excavator
 SHEAR VANE No: N/A METHOD: N/A

COMMENTS:
 Samples taken at: 0-0.1m, 0.9-1.0m, 1.7-1.8m. Test pit terminated at target depth.



Appendix E – Hill Laboratory COC and Results Certificate



Hill Laboratories

TRIED, TESTED AND TRUSTED

ANALYSIS REQUEST

Quote No _____

Primary Contact Hannah Juchnowicz

Submitted By Hannah Juchnowicz

Client Name Beca Limited

Address 85 Molesworth St

Thorndon WATN Postcode 6011

Phone _____ Mobile 021483079

Email hannah.juchnowicz@gmail

Charge To _____ beca.com

Client Reference 19:024

Order No _____

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

- Email Primary Contact
 Email Submitter
 Email Client
 Email Other
 Other

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

Job No: _____ Date Recv: 20-Feb-19 13:30

212 8029

Received by: Cassandra Brown



3121280295

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories Date & Time: 20/2/19

Name: Hannah J
 Tick if you require COC to be emailed back
 Signature: Hannah J

Received at _____ Date & Time: _____

Name: _____
 Signature: _____

Condition
 Room Temp
 Chilled
 Frozen
 Temp: 13.2 ^(CB) _(WLG)

Sample and Analysis details checked
 Signature: _____

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

Requested Reporting Date: _____

ADDITIONAL INFORMATION

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	19:024 TP1 0.1	18/2/19		Soil	Hold Cold
2	19:024 TP1 1.0				
3	19:024 TP1 2.0				
4	19:024 TP2 0.1				
5	19:024 TP2 1.0				
6	19:024 TP2 1.7				
7	19:024 TP3 0.1				
8	19:024 TP3 1.2				
9	19:024 TP3 2.0				
10	19:024 TP4 0.1				
11	19:024 TP5 0.1	19/2/19			
12	19:024 TP5 1.0				

Continued on next page

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
13	19:024 TP5 2.0	19/2/19		Soil	Hold Cold
14	19:024 TP6 0.1	18/2/19			
15	19:024 TP6 1.2				
16	19:024 TP6 2.0				
17	19:024 TP7 0.1				
18	19:024 TP8 0.1				
19	19:024 TP8 1.1				
20	19:024 TP8 2.0				
21	19:024 TP9 0.1				
22	19:024 TP9 1.7				
23	19:024 TP10 0.1	19/2/19			
24	19:024 TP10 1.0				
25	19:024 TP10 1.9				
26	19:024 TP11 0.1	20/2/19			
27	19:024 TP11 1.0				
28	19:024 TP11 2.0				
29	19:024 TP12 0.1	20/2/19			
30	19:024 TP12 1.0				
31	19:024 TP12 2.0				
32	19:024 TP12 0.1 Dup				
33	19:024 TP12 1.0 Dup				
34	19:024 TP12 2.0 Dup				
35	19:024 TP13 0.1	19/2/19			
36	19:024 TP13 1.0				
37	19:024 TP13 1.8				
38	19:024 TP14 0.1				
39	19:024 TP14 1.0				
40	19:024				

Job No: Date Recv: 20-Feb-19 13:30

212 8029

Received by: Cassandra Brown



3121280295



Job Information Summary

Page 1 of 3

Client:	Beca Limited	Lab No:	2128029
Contact:	Catherine Daniel C/- Beca Limited PO Box 3942 Wellington 6140	Date Registered:	22-Feb-2019 10:26 am
		Priority:	High
		Quote No:	72192
		Order No:	19:024
		Client Reference:	
		Add. Client Ref:	
		Submitted By:	Hannah Juchnowicz
		Charge To:	Beca Limited
		Target Date:	28-Feb-2019 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	19:024 TP1 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
2	19:024 TP1 1.0 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
3	19:024 TP1 2.0 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
4	19:024 TP2 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
5	19:024 TP2 1.0 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
6	19:024 TP2 1.7 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
7	19:024 TP3 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
8	19:024 TP3 1.2 18-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
9	19:024 TP3 2.0 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
10	19:024 TP4 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
11	19:024 TP5 0.1 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
12	19:024 TP5 1.0 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
13	19:024 TP5 2.0 19-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
14	19:024 TP6 1.0 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
15	19:024 TP6 1.2 18-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
16	19:024 TP6 2.0 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
17	19:024 TP7 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
18	19:024 TP8 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
19	19:024 TP8 1.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
20	19:024 TP8 2.0 18-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
21	19:024 TP9 0.1 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
22	19:024 TP9 1.7 18-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
23	19:024 TP10 0.1 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
24	19:024 TP10 1.0 19-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
25	19:024 TP10 1.9 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
26	19:024 TP11 0.1 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
27	19:024 TP11 1.0 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
28	19:024 TP11 2.0 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
29	19:024 TP12 0.1 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
30	19:024 TP12 1.0 20-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
31	19:024 TP12 2.0 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
32	19:024 TP12 0.1 Dup 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
33	19:024 TP12 1.0 Dup 20-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold
34	19:024 TP12 2.0 Dup 20-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
35	19:024 TP13 0.1 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS

Samples				
No	Sample Name	Sample Type	Containers	Tests Requested
36	19:024 TP13 1.0 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
37	19:024 TP13 1.8 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
38	19:024 TP14 0.1 19-Feb-2019	Soil	GSoil300, PSoil250	Heavy Metals with Mercury, Screen Level; TPH Oil Industry Profile + PAHscreen; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
39	19:024 TP14 1.0 19-Feb-2019	Soil	GSoil300, PSoil250	Hold Cold

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 clean 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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
TPH Oil Industry Profile + PAHscreen	Sonication in DCM extraction, SPE cleanup, GC-FID & GC-MS analysis. Tested on as received sample. US EPA 8015B/MfE Petroleum Industry Guidelines [KBIs:5786,2805,10734;2695]	-	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Heavy Metals with Mercury, 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	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS	Sonication extraction, Dilution cleanup, GC-MS analysis. Tested on as received sample	-	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	BaP Potency Equivalence calculated from Benz(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.002 mg/kg dry wt	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Benzo[a]pyrene Toxic Equivalence (TEF)	BaP Toxic Equivalence calculated from Benzo(a)anthracene x 0.1 + BaP x 1 + Benzo(b)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.1 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.002 mg/kg dry wt	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Total of Reported PAHs in Soil	Sonication extraction, SPE cleanup, GC-MS SIM analysis.	0.3 mg/kg	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38



Certificate of Analysis

Client:	Beca Limited	Lab No:	2128029	SPV1
Contact:	Catherine Daniel C/- Beca Limited PO Box 3942 Wellington 6140	Date Received:	20-Feb-2019	
		Date Reported:	01-Mar-2019	
		Quote No:	72192	
		Order No:	19:024	
		Client Reference:		
		Submitted By:	Hannah Juchnowicz	

Sample Type: Soil

Sample Name:	19:024 TP1 0.1 18-Feb-2019	19:024 TP1 1.0 18-Feb-2019	19:024 TP1 2.0 18-Feb-2019	19:024 TP2 0.1 18-Feb-2019	19:024 TP2 1.0 18-Feb-2019
Lab Number:	2128029.1	2128029.2	2128029.3	2128029.4	2128029.5

Individual Tests

Dry Matter	g/100g as rcvd	85	82	84	86	87
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Heavy Metals with Mercury, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	4	4	3	4	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.11	< 0.10	< 0.10	0.12	< 0.10
Total Recoverable Chromium	mg/kg dry wt	11	10	13	12	15
Total Recoverable Copper	mg/kg dry wt	40	10	12	13	10
Total Recoverable Lead	mg/kg dry wt	103	15.9	12.6	54	14.3
Total Recoverable Mercury	mg/kg dry wt	0.10	< 0.10	< 0.10	0.13	< 0.10
Total Recoverable Nickel	mg/kg dry wt	8	5	10	7	10
Total Recoverable Zinc	mg/kg dry wt	63	34	62	74	55

Organochlorine Pesticides Screening in Soil

Aldrin	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
alpha-BHC	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
beta-BHC	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
delta-BHC	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
4,4'-DDD	mg/kg dry wt	0.013	< 0.013	< 0.012	< 0.012	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
4,4'-DDE	mg/kg dry wt	0.061	< 0.013	< 0.012	0.071	< 0.012
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
4,4'-DDT	mg/kg dry wt	0.053	< 0.013	< 0.012	0.075	< 0.012
Total DDT Isomers	mg/kg dry wt	0.13	< 0.08	< 0.08	0.15	< 0.07
Dieldrin	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Endosulfan I	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Endosulfan II	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Endrin	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Endrin ketone	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Heptachlor	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Methoxychlor	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012



Sample Type: Soil						
Sample Name:	19:024 TP1 0.1 18-Feb-2019	19:024 TP1 1.0 18-Feb-2019	19:024 TP1 2.0 18-Feb-2019	19:024 TP2 0.1 18-Feb-2019	19:024 TP2 1.0 18-Feb-2019	
Lab Number:	2128029.1	2128029.2	2128029.3	2128029.4	2128029.5	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desisopropyl	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Azaconazole	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Azinphos-methyl	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Benalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Bitertanol	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Bromacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromopropylate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Butachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Captan	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Carbaryl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Carbofuran	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorfluazuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorothalonil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlortoluron	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Cyanazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cyfluthrin	mg/kg	< 0.07	< 0.08	< 0.07	< 0.07	< 0.07
Cyhalothrin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cypermethrin	mg/kg	< 0.14	< 0.15	< 0.14	< 0.14	< 0.14
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Diazinon	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlofluanid	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Dimethoate	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Diphenylamine	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Diuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fenpropimorph	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluazifop-butyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluometuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Flusilazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluvalinate	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Furalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Haloxypop-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexaconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexazinone	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Kresoxim-methyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Linuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Malathion	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Methamidophos	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Molinate	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Myclobutanil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Naled	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Norflurazon	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11

Sample Type: Soil

Sample Name:	19:024 TP1 0.1 18-Feb-2019	19:024 TP1 1.0 18-Feb-2019	19:024 TP1 2.0 18-Feb-2019	19:024 TP2 0.1 18-Feb-2019	19:024 TP2 1.0 18-Feb-2019
Lab Number:	2128029.1	2128029.2	2128029.3	2128029.4	2128029.5

Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Oxadiazon	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Oxyfluorfen	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Paclobutrazol	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pendimethalin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pirimiphos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prochloraz	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Procymidone	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prometryn	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propiconazole	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyriproxyfen	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Quizalofop-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simetryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulfentrazone	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Tebuconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbufos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbumeton	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbuthylazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Terbuthylazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbutryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Thiabendazole	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Thiobencarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Tolyfluanid	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Triazophos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Trifluralin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Vinclozolin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06

Polycyclic Aromatic Hydrocarbons Screening in Soil						
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Perylene	mg/kg dry wt	0.026	< 0.013	< 0.012	0.045	< 0.012
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	0.19	< 0.03	< 0.03	0.31	< 0.03
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	0.19	< 0.04	< 0.03	0.31	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.013	< 0.012	0.017	< 0.012
Acenaphthene	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Anthracene	mg/kg dry wt	0.014	< 0.013	< 0.012	0.031	< 0.012
Benzo[a]anthracene	mg/kg dry wt	0.106	< 0.013	< 0.012	0.190	< 0.012
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.127	< 0.013	< 0.012	0.22	< 0.012
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	0.139	< 0.013	< 0.012	0.21	< 0.012
Benzo[e]pyrene	mg/kg dry wt	0.076	< 0.013	< 0.012	0.119	< 0.012
Benzo[g,h,i]perylene	mg/kg dry wt	0.086	< 0.013	< 0.012	0.136	< 0.012
Benzo[k]fluoranthene	mg/kg dry wt	0.051	< 0.013	< 0.012	0.085	< 0.012
Chrysene	mg/kg dry wt	0.102	< 0.013	< 0.012	0.174	< 0.012
Dibenzo[a,h]anthracene	mg/kg dry wt	0.017	< 0.013	< 0.012	0.026	< 0.012

Sample Type: Soil						
Sample Name:	19:024 TP1 0.1 18-Feb-2019	19:024 TP1 1.0 18-Feb-2019	19:024 TP1 2.0 18-Feb-2019	19:024 TP2 0.1 18-Feb-2019	19:024 TP2 1.0 18-Feb-2019	
Lab Number:	2128029.1	2128029.2	2128029.3	2128029.4	2128029.5	
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Fluoranthene	mg/kg dry wt	0.22	< 0.013	< 0.012	0.38	< 0.012
Fluorene	mg/kg dry wt	< 0.012	< 0.013	< 0.012	< 0.012	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.103	< 0.013	< 0.012	0.170	< 0.012
Naphthalene	mg/kg dry wt	< 0.06	< 0.07	< 0.06	< 0.06	< 0.06
Phenanthrene	mg/kg dry wt	0.081	< 0.013	< 0.012	0.170	< 0.012
Pyrene	mg/kg dry wt	0.21	< 0.013	< 0.012	0.39	< 0.012
Total of Reported PAHs in Soil*	mg/kg	1.4	< 0.3	< 0.3	2.4	< 0.3
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	19:024 TP2 1.7 18-Feb-2019	19:024 TP3 0.1 18-Feb-2019	19:024 TP3 2.0 18-Feb-2019	19:024 TP4 0.1 18-Feb-2019	19:024 TP5 0.1 19-Feb-2019	
Lab Number:	2128029.6	2128029.7	2128029.9	2128029.10	2128029.11	
Individual Tests						
Dry Matter	g/100g as rcvd	81	84	83	89	87
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	4	7	4	4
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.13	< 0.10	0.12	< 0.10
Total Recoverable Chromium	mg/kg dry wt	9	13	17	14	13
Total Recoverable Copper	mg/kg dry wt	6	13	15	25	12
Total Recoverable Lead	mg/kg dry wt	10.8	40	25	52	76
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Total Recoverable Nickel	mg/kg dry wt	6	8	13	11	7
Total Recoverable Zinc	mg/kg dry wt	25	81	70	80	52
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
alpha-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
beta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
delta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
4,4'-DDE	mg/kg dry wt	< 0.012	0.017	< 0.012	0.016	0.024
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
4,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	0.034
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.07	< 0.07	< 0.07	< 0.07
Dieldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Endosulfan I	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Endosulfan II	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Endrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Endrin ketone	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Heptachlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Methoxychlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012

Sample Type: Soil						
Sample Name:	19:024 TP2 1.7 18-Feb-2019	19:024 TP3 0.1 18-Feb-2019	19:024 TP3 2.0 18-Feb-2019	19:024 TP4 0.1 18-Feb-2019	19:024 TP5 0.1 19-Feb-2019	
Lab Number:	2128029.6	2128029.7	2128029.9	2128029.10	2128029.11	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desisopropyl	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Azaconazole	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Azinphos-methyl	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Benalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Bitertanol	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Bromacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromopropylate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Butachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Captan	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Carbaryl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Carbofuran	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorfluazuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorothalonil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlortoluron	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Cyanazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cyfluthrin	mg/kg	< 0.08	< 0.07	< 0.07	< 0.07	< 0.07
Cyhalothrin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cypermethrin	mg/kg	< 0.15	< 0.14	< 0.14	< 0.13	< 0.14
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Diazinon	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlofluanid	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Dimethoate	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Diphenylamine	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Diuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fenpropimorph	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluazifop-butyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluometuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Flusilazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluvalinate	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Furalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Haloxypop-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexaconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexazinone	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Kresoxim-methyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Linuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Malathion	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Methamidophos	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Molinate	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Myclobutanil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Naled	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Norflurazon	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11

Sample Type: Soil

Sample Name:	19:024 TP2 1.7 18-Feb-2019	19:024 TP3 0.1 18-Feb-2019	19:024 TP3 2.0 18-Feb-2019	19:024 TP4 0.1 18-Feb-2019	19:024 TP5 0.1 19-Feb-2019
Lab Number:	2128029.6	2128029.7	2128029.9	2128029.10	2128029.11

Organonitro&phosphorus Pesticides Screen in Soil by GCMS

Oxadiazon	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Oxyfluorfen	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Paclobutrazol	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pendimethalin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pirimiphos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prochloraz	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Procymidone	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prometryn	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propiconazole	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyriproxyfen	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Quizalofop-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simetryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulfentrazone	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Tebuconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbufos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbumeton	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbuthylazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Terbuthylazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbutryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Thiabendazole	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Thiobencarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Tolyfluanid	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Triazophos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Trifluralin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Vinclozolin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06

Polycyclic Aromatic Hydrocarbons Screening in Soil

1-Methylnaphthalene	mg/kg dry wt	< 0.012	0.015	< 0.012	< 0.011	0.012
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.011	< 0.012
Perylene	mg/kg dry wt	0.71	0.112	< 0.012	0.156	0.049
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	< 0.03	0.85	< 0.03	1.16	0.34
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	< 0.03	0.85	< 0.03	1.15	0.34
Acenaphthylene	mg/kg dry wt	< 0.012	0.049	< 0.012	0.055	0.016
Acenaphthene	mg/kg dry wt	< 0.012	0.024	< 0.012	0.024	0.012
Anthracene	mg/kg dry wt	< 0.012	0.096	< 0.012	0.110	0.032
Benzo[a]anthracene	mg/kg dry wt	< 0.012	0.53	< 0.012	0.72	0.21
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.012	0.58	< 0.012	0.79	0.24
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.012	0.63	< 0.012	0.86	0.25
Benzo[e]pyrene	mg/kg dry wt	< 0.012	0.34	< 0.012	0.48	0.141
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	0.38	< 0.012	0.53	0.141
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	0.22	< 0.012	0.32	0.093
Chrysene	mg/kg dry wt	< 0.012	0.45	< 0.012	0.61	0.20
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	0.067	< 0.012	0.086	0.027

Sample Type: Soil						
Sample Name:	19:024 TP2 1.7 18-Feb-2019	19:024 TP3 0.1 18-Feb-2019	19:024 TP3 2.0 18-Feb-2019	19:024 TP4 0.1 18-Feb-2019	19:024 TP5 0.1 19-Feb-2019	
Lab Number:	2128029.6	2128029.7	2128029.9	2128029.10	2128029.11	
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Fluoranthene	mg/kg dry wt	< 0.012	1.13	0.022	1.51	0.44
Fluorene	mg/kg dry wt	< 0.012	0.035	< 0.012	0.029	0.011
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.012	0.49	< 0.012	0.66	0.174
Naphthalene	mg/kg dry wt	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Phenanthrene	mg/kg dry wt	< 0.012	0.61	< 0.012	0.69	0.20
Pyrene	mg/kg dry wt	< 0.012	1.15	0.018	1.58	0.45
Total of Reported PAHs in Soil*	mg/kg	0.7	7.0	< 0.3	9.2	2.7
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	42	< 40	40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	19:024 TP5 1.0 19-Feb-2019	19:024 TP6 1.0 18-Feb-2019	19:024 TP6 2.0 18-Feb-2019	19:024 TP7 0.1 18-Feb-2019	19:024 TP8 0.1 18-Feb-2019	
Lab Number:	2128029.12	2128029.14	2128029.16	2128029.17	2128029.18	
Individual Tests						
Dry Matter	g/100g as rcvd	83	87	81	86	87
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	< 2	4	3
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.11	< 0.10	0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	12	12	12	14	13
Total Recoverable Copper	mg/kg dry wt	11	10	11	11	10
Total Recoverable Lead	mg/kg dry wt	26	48	16.3	28	32
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	13	6	9	9	7
Total Recoverable Zinc	mg/kg dry wt	65	50	43	64	51
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
alpha-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
beta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
delta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
4,4'-DDE	mg/kg dry wt	< 0.012	0.071	< 0.012	0.013	< 0.012
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
4,4'-DDT	mg/kg dry wt	< 0.012	0.063	< 0.012	< 0.012	< 0.012
Total DDT Isomers	mg/kg dry wt	< 0.08	0.13	< 0.08	< 0.07	< 0.07
Dieldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endosulfan I	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endosulfan II	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endrin ketone	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Heptachlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Methoxychlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012

Sample Type: Soil						
Sample Name:	19:024 TP5 1.0 19-Feb-2019	19:024 TP6 1.0 18-Feb-2019	19:024 TP6 2.0 18-Feb-2019	19:024 TP7 0.1 18-Feb-2019	19:024 TP8 0.1 18-Feb-2019	
Lab Number:	2128029.12	2128029.14	2128029.16	2128029.17	2128029.18	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desisopropyl	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Azaconazole	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Azinphos-methyl	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Benalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Bitertanol	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Bromacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromopropylate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Butachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Captan	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Carbaryl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Carbofuran	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorfluazuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorothalonil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlortoluron	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Cyanazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cyfluthrin	mg/kg	< 0.07	< 0.07	< 0.08	< 0.07	< 0.07
Cyhalothrin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cypermethrin	mg/kg	< 0.14	< 0.14	< 0.15	< 0.14	< 0.14
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Diazinon	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlofluanid	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Dimethoate	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Diphenylamine	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Diuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fenpropimorph	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluazifop-butyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluometuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Flusilazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluvalinate	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Furalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Haloxypop-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexaconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexazinone	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Kresoxim-methyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Linuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Malathion	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Methamidophos	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Molinate	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Myclobutanil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Naled	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Norflurazon	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11

Sample Type: Soil

Sample Name:	19:024 TP5 1.0 19-Feb-2019	19:024 TP6 1.0 18-Feb-2019	19:024 TP6 2.0 18-Feb-2019	19:024 TP7 0.1 18-Feb-2019	19:024 TP8 0.1 18-Feb-2019
Lab Number:	2128029.12	2128029.14	2128029.16	2128029.17	2128029.18

Organonitro&phosphorus Pesticides Screen in Soil by GCMS

Oxadiazon	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Oxyfluorfen	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Paclobutrazol	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pendimethalin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pirimiphos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prochloraz	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Procymidone	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prometryn	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propiconazole	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyriproxyfen	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Quizalofop-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simetryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulfentrazone	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.12	< 0.11	< 0.12	< 0.11	< 0.11
Tebuconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbufos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbumeton	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbuthylazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Terbuthylazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbutryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Thiabendazole	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Thiobencarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Tolyfluanid	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Triazophos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Trifluralin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Vinclozolin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06

Polycyclic Aromatic Hydrocarbons Screening in Soil

1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Perylene	mg/kg dry wt	< 0.012	0.050	< 0.012	0.019	0.018
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	< 0.03	0.36	< 0.03	0.13	0.12
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	< 0.03	0.36	< 0.03	0.13	0.12
Acenaphthylene	mg/kg dry wt	< 0.012	0.021	< 0.012	< 0.012	0.011
Acenaphthene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Anthracene	mg/kg dry wt	< 0.012	0.033	< 0.012	0.013	0.014
Benzo[a]anthracene	mg/kg dry wt	< 0.012	0.178	< 0.012	0.081	0.059
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.012	0.25	< 0.012	0.089	0.086
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.012	0.24	< 0.012	0.089	0.074
Benzo[e]pyrene	mg/kg dry wt	< 0.012	0.133	< 0.012	0.052	0.044
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	0.167	< 0.012	0.057	0.047
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	0.093	< 0.012	0.036	0.030
Chrysene	mg/kg dry wt	< 0.012	0.193	< 0.012	0.074	0.065
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	0.034	< 0.012	0.012	0.012

Sample Type: Soil						
Sample Name:	19:024 TP5 1.0 19-Feb-2019	19:024 TP6 1.0 18-Feb-2019	19:024 TP6 2.0 18-Feb-2019	19:024 TP7 0.1 18-Feb-2019	19:024 TP8 0.1 18-Feb-2019	
Lab Number:	2128029.12	2128029.14	2128029.16	2128029.17	2128029.18	
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Fluoranthene	mg/kg dry wt	< 0.012	0.46	< 0.012	0.171	0.164
Fluorene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.012	0.183	< 0.012	0.068	0.053
Naphthalene	mg/kg dry wt	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Phenanthrene	mg/kg dry wt	< 0.012	0.171	< 0.012	0.073	0.067
Pyrene	mg/kg dry wt	< 0.012	0.46	< 0.012	0.166	0.157
Total of Reported PAHs in Soil*	mg/kg	< 0.3	2.7	< 0.3	1.0	0.9
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	19:024 TP8 1.1 18-Feb-2019	19:024 TP9 0.1 18-Feb-2019	19:024 TP9 1.7 18-Feb-2019	19:024 TP10 0.1 19-Feb-2019	19:024 TP10 1.9 19-Feb-2019	
Lab Number:	2128029.19	2128029.21	2128029.22	2128029.23	2128029.25	
Individual Tests						
Dry Matter	g/100g as rcvd	88	87	87	89	75
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	4	3	5	3
Total Recoverable Cadmium	mg/kg dry wt	0.12	0.12	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	14	12	17	97	18
Total Recoverable Copper	mg/kg dry wt	16	14	13	20	10
Total Recoverable Lead	mg/kg dry wt	26	50	23	5.1	17.3
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	0.21	< 0.10
Total Recoverable Nickel	mg/kg dry wt	19	7	15	13	10
Total Recoverable Zinc	mg/kg dry wt	81	71	69	22	43
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
alpha-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
beta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
delta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
4,4'-DDE	mg/kg dry wt	< 0.012	0.110	0.017	0.095	< 0.014
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
4,4'-DDT	mg/kg dry wt	< 0.012	0.060	< 0.012	0.049	< 0.014
Total DDT Isomers	mg/kg dry wt	< 0.07	0.17	< 0.07	0.14	< 0.08
Dieldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Endosulfan I	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Endosulfan II	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Endrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Endrin ketone	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Heptachlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Methoxychlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014

Sample Type: Soil

Sample Name:		19:024 TP8 1.1	19:024 TP9 0.1	19:024 TP9 1.7	19:024 TP10 0.1	19:024 TP10 1.9
		18-Feb-2019	18-Feb-2019	18-Feb-2019	19-Feb-2019	19-Feb-2019
Lab Number:		2128029.19	2128029.21	2128029.22	2128029.23	2128029.25
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Atrazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Atrazine-desisopropyl	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Azaconazole	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Azinphos-methyl	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Benalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Bitertanol	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Bromacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Bromopropylate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Butachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Captan	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Carbaryl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Carbofuran	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorfluazuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorothalonil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorpyrifos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorpyrifos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlortoluron	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Cyanazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Cyfluthrin	mg/kg	< 0.07	< 0.07	< 0.07	< 0.07	< 0.08
Cyhalothrin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Cypermethrin	mg/kg	< 0.14	< 0.14	< 0.14	< 0.13	< 0.16
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Diazinon	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Dichlofluanid	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Dimethoate	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Diphenylamine	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Diuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fenpropimorph	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fluazifop-butyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fluometuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Flusilazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fluvalinate	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Furalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Haloxypop-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Hexaconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Hexazinone	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Kresoxim-methyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Linuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Malathion	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Methamidophos	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Molinate	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Myclobutanil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Naled	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Norflurazon	mg/kg	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13

Sample Type: Soil

Sample Name:		19:024 TP8 1.1 18-Feb-2019	19:024 TP9 0.1 18-Feb-2019	19:024 TP9 1.7 18-Feb-2019	19:024 TP10 0.1 19-Feb-2019	19:024 TP10 1.9 19-Feb-2019
Lab Number:		2128029.19	2128029.21	2128029.22	2128029.23	2128029.25
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Oxadiazon	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Oxyfluorfen	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Paclobutrazol	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Parathion-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Parathion-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Pendimethalin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Pirimiphos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Prochloraz	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Procymidone	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Prometryn	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Propachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Propiconazole	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyriproxyfen	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Quizalofop-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Simazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Simetryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Sulfentrazone	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Tebuconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbufos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbumeton	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbutylazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Terbutylazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbutryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Thiabendazole	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Thiobencarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Tolyfluanid	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Triazophos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Trifluralin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Vinclozolin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Polycyclic Aromatic Hydrocarbons Screening in Soil						
1-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Perylene	mg/kg dry wt	< 0.012	0.062	< 0.012	0.016	< 0.014
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	< 0.03	0.43	0.06	0.11	< 0.04
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	< 0.03	0.43	0.06	0.11	< 0.04
Acenaphthylene	mg/kg dry wt	< 0.012	0.025	< 0.012	< 0.012	< 0.014
Acenaphthene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Anthracene	mg/kg dry wt	< 0.012	0.056	< 0.012	0.011	< 0.014
Benzo[a]anthracene	mg/kg dry wt	< 0.012	0.24	0.038	0.067	< 0.014
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.012	0.30	0.039	0.070	< 0.014
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	< 0.012	0.30	0.042	0.077	< 0.014
Benzo[e]pyrene	mg/kg dry wt	< 0.012	0.167	0.024	0.043	< 0.014
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	0.197	0.026	0.045	< 0.014
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	0.119	0.018	0.031	< 0.014
Chrysene	mg/kg dry wt	< 0.012	0.25	0.034	0.064	< 0.014
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	0.037	< 0.012	0.012	< 0.014

Sample Type: Soil						
Sample Name:	19:024 TP8 1.1 18-Feb-2019	19:024 TP9 0.1 18-Feb-2019	19:024 TP9 1.7 18-Feb-2019	19:024 TP10 0.1 19-Feb-2019	19:024 TP10 1.9 19-Feb-2019	
Lab Number:	2128029.19	2128029.21	2128029.22	2128029.23	2128029.25	
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Fluoranthene	mg/kg dry wt	< 0.012	0.63	0.088	0.155	< 0.014
Fluorene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.012	0.21	0.029	0.058	< 0.014
Naphthalene	mg/kg dry wt	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Phenanthrene	mg/kg dry wt	< 0.012	0.27	0.044	0.069	< 0.014
Pyrene	mg/kg dry wt	< 0.012	0.62	0.085	0.152	< 0.014
Total of Reported PAHs in Soil*	mg/kg	< 0.3	3.5	0.5	0.9	< 0.4
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	19:024 TP11 0.1 20-Feb-2019	19:024 TP11 1.0 20-Feb-2019	19:024 TP11 2.0 20-Feb-2019	19:024 TP12 0.1 20-Feb-2019	19:024 TP12 2.0 20-Feb-2019	
Lab Number:	2128029.26	2128029.27	2128029.28	2128029.29	2128029.31	
Individual Tests						
Dry Matter	g/100g as rcvd	83	86	84	89	78
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	4	5	3
Total Recoverable Cadmium	mg/kg dry wt	0.12	< 0.10	< 0.10	0.12	< 0.10
Total Recoverable Chromium	mg/kg dry wt	14	16	16	12	19
Total Recoverable Copper	mg/kg dry wt	17	14	16	12	10
Total Recoverable Lead	mg/kg dry wt	52	28	31	80	18.0
Total Recoverable Mercury	mg/kg dry wt	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	7	13	16	7	10
Total Recoverable Zinc	mg/kg dry wt	58	83	91	64	50
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
alpha-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
beta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
delta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
4,4'-DDE	mg/kg dry wt	0.069	< 0.012	< 0.012	0.038	< 0.013
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
4,4'-DDT	mg/kg dry wt	0.049	< 0.012	< 0.012	0.015	< 0.013
Total DDT Isomers	mg/kg dry wt	0.12	< 0.07	< 0.07	< 0.07	< 0.08
Dieldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Endosulfan I	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Endosulfan II	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Endrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Endrin ketone	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Heptachlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013
Methoxychlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013

Sample Type: Soil

Sample Name:		19:024 TP11 0.1	19:024 TP11 1.0	19:024 TP11 2.0	19:024 TP12 0.1	19:024 TP12 2.0
		20-Feb-2019	20-Feb-2019	20-Feb-2019	20-Feb-2019	20-Feb-2019
Lab Number:		2128029.26	2128029.27	2128029.28	2128029.29	2128029.31
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Atrazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Atrazine-desisopropyl	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Azaconazole	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Azinphos-methyl	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Benalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Bitertanol	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Bromacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Bromopropylate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Butachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Captan	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Carbaryl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Carbofuran	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorfluazuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorothalonil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.13
Chlorpyrifos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlorpyrifos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Chlortoluron	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Cyanazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Cyfluthrin	mg/kg	< 0.07	< 0.07	< 0.07	< 0.07	< 0.08
Cyhalothrin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Cypermethrin	mg/kg	< 0.14	< 0.14	< 0.14	< 0.13	< 0.15
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Diazinon	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Dichlofluanid	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Dimethoate	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Diphenylamine	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Diuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fenpropimorph	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fluazifop-butyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fluometuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Flusilazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Fluvalinate	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Furalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Haloxypop-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Hexaconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Hexazinone	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Kresoxim-methyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Linuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Malathion	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Methamidophos	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Molinate	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Myclobutanil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Naled	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Norflurazon	mg/kg	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13

Sample Type: Soil

Sample Name:		19:024 TP11 0.1	19:024 TP11 1.0	19:024 TP11 2.0	19:024 TP12 0.1	19:024 TP12 2.0
		20-Feb-2019	20-Feb-2019	20-Feb-2019	20-Feb-2019	20-Feb-2019
Lab Number:		2128029.26	2128029.27	2128029.28	2128029.29	2128029.31
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Oxadiazon	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Oxyfluorfen	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Paclobutrazol	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Parathion-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Parathion-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Pendimethalin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Pirimiphos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Prochloraz	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Procymidone	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Prometryn	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Propachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Propiconazole	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyriproxyfen	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Quizalofop-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Simazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Simetryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Sulfentrazone	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	< 0.12	< 0.11	< 0.12	< 0.11	< 0.13
Tebuconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbufos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbumeton	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbutylazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Terbutylazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Terbutryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Thiabendazole	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4
Thiobencarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Tolyfluanid	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04
Triazophos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Trifluralin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Vinclozolin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Polycyclic Aromatic Hydrocarbons Screening in Soil						
1-Methylnaphthalene	mg/kg dry wt	< 0.012	0.013	< 0.012	0.018	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.012	0.018	< 0.012	0.013	< 0.013
Perylene	mg/kg dry wt	0.020	0.014	< 0.012	0.066	< 0.013
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	0.13	0.12	0.08	0.44	< 0.04
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	0.13	0.12	0.08	0.43	< 0.04
Acenaphthylene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	0.020	< 0.013
Acenaphthene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	0.026	< 0.013
Anthracene	mg/kg dry wt	0.015	0.013	< 0.012	0.078	< 0.013
Benzo[a]anthracene	mg/kg dry wt	0.073	0.074	0.038	0.28	< 0.013
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.086	0.074	0.053	0.31	< 0.013
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.090	0.069	0.043	0.29	< 0.013
Benzo[e]pyrene	mg/kg dry wt	0.050	0.037	0.025	0.168	< 0.013
Benzo[g,h,i]perylene	mg/kg dry wt	0.050	0.042	0.029	0.161	< 0.013
Benzo[k]fluoranthene	mg/kg dry wt	0.037	0.033	0.019	0.115	< 0.013
Chrysene	mg/kg dry wt	0.075	0.051	0.033	0.26	< 0.013
Dibenzo[a,h]anthracene	mg/kg dry wt	0.013	0.019	< 0.012	0.028	< 0.013

Sample Type: Soil						
Sample Name:	19:024 TP11 0.1 20-Feb-2019	19:024 TP11 1.0 20-Feb-2019	19:024 TP11 2.0 20-Feb-2019	19:024 TP12 0.1 20-Feb-2019	19:024 TP12 2.0 20-Feb-2019	
Lab Number:	2128029.26	2128029.27	2128029.28	2128029.29	2128029.31	
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Fluoranthene	mg/kg dry wt	0.175	0.119	0.090	0.70	< 0.013
Fluorene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	0.042	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.063	0.057	0.033	0.198	< 0.013
Naphthalene	mg/kg dry wt	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07
Phenanthrene	mg/kg dry wt	0.082	0.037	0.026	0.50	< 0.013
Pyrene	mg/kg dry wt	0.166	0.123	0.082	0.70	< 0.013
Total of Reported PAHs in Soil*	mg/kg	1.0	0.8	0.5	4.0	< 0.3
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	19:024 TP12 0.1 Dup 20-Feb-2019	19:024 TP12 2.0 Dup 20-Feb-2019	19:024 TP13 0.1 19-Feb-2019	19:024 TP13 1.0 19-Feb-2019	19:024 TP13 1.8 19-Feb-2019	
Lab Number:	2128029.32	2128029.34	2128029.35	2128029.36	2128029.37	
Individual Tests						
Dry Matter	g/100g as rcvd	88	78	88	87	82
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	4	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.13	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	12	17	10	17	19
Total Recoverable Copper	mg/kg dry wt	12	10	9	13	8
Total Recoverable Lead	mg/kg dry wt	84	17.8	34	19.5	15.3
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	7	10	6	13	11
Total Recoverable Zinc	mg/kg dry wt	62	45	50	66	47
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
alpha-BHC	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
beta-BHC	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
delta-BHC	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
4,4'-DDE	mg/kg dry wt	0.047	< 0.013	< 0.011	< 0.012	< 0.012
2,4'-DDT	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
4,4'-DDT	mg/kg dry wt	0.027	< 0.013	< 0.011	< 0.012	< 0.012
Total DDT Isomers	mg/kg dry wt	0.07	< 0.08	< 0.07	< 0.07	< 0.08
Dieldrin	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Endosulfan I	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Endosulfan II	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Endrin	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Endrin ketone	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Heptachlor	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012
Methoxychlor	mg/kg dry wt	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012

Sample Type: Soil

Sample Name:		19:024 TP12 0.1 Dup 20-Feb-2019	19:024 TP12 2.0 Dup 20-Feb-2019	19:024 TP13 0.1 19-Feb-2019	19:024 TP13 1.0 19-Feb-2019	19:024 TP13 1.8 19-Feb-2019
Lab Number:		2128029.32	2128029.34	2128029.35	2128029.36	2128029.37
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Atrazine-desisopropyl	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Azaconazole	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Azinphos-methyl	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Benalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Bitertanol	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Bromacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromopropylate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Butachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Captan	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Carbaryl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Carbofuran	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorfluazuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorothalonil	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Chlorpyrifos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlorpyrifos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chlortoluron	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Cyanazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cyfluthrin	mg/kg	< 0.07	< 0.08	< 0.07	< 0.07	< 0.08
Cyhalothrin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Cypermethrin	mg/kg	< 0.13	< 0.15	< 0.13	< 0.14	< 0.15
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Diazinon	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlofluanid	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Dimethoate	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Diphenylamine	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Diuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fenpropimorph	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluazifop-butyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluometuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Flusilazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluvalinate	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Furalaxyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Haloxifop-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexaconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hexazinone	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Kresoxim-methyl	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Linuron	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Malathion	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Methamidophos	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Molinate	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Myclobutanil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Naled	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Norflurazon	mg/kg	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12

Sample Type: Soil

Sample Name:		19:024 TP12 0.1 Dup 20-Feb-2019	19:024 TP12 2.0 Dup 20-Feb-2019	19:024 TP13 0.1 19-Feb-2019	19:024 TP13 1.0 19-Feb-2019	19:024 TP13 1.8 19-Feb-2019
Lab Number:		2128029.32	2128029.34	2128029.35	2128029.36	2128029.37
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Oxadiazon	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Oxyfluorfen	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Paclobutrazol	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Parathion-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pendimethalin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pirimiphos-methyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prochloraz	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Procymidone	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Prometryn	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propachlor	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propiconazole	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyriproxyfen	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Quizalofop-ethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simazine	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Simetryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulfentrazone	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Tebuconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbacil	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbufos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbumeton	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbuthylazine	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Terbuthylazine-desethyl	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Terbutryn	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Thiabendazole	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Thiobencarb	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Tolyfluanid	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Triazophos	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Trifluralin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Vinclozolin	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Polycyclic Aromatic Hydrocarbons Screening in Soil						
1-Methylnaphthalene	mg/kg dry wt	0.016	< 0.013	< 0.011	< 0.012	< 0.012
2-Methylnaphthalene	mg/kg dry wt	0.011	< 0.013	< 0.011	< 0.012	< 0.012
Perylene	mg/kg dry wt	0.074	< 0.013	0.012	< 0.012	< 0.012
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	0.55	< 0.04	0.10	< 0.03	< 0.03
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	0.54	< 0.04	0.10	< 0.03	< 0.03
Acenaphthylene	mg/kg dry wt	0.025	< 0.013	< 0.011	< 0.012	< 0.012
Acenaphthene	mg/kg dry wt	0.018	< 0.013	< 0.011	< 0.012	< 0.012
Anthracene	mg/kg dry wt	0.096	< 0.013	< 0.011	< 0.012	< 0.012
Benzo[a]anthracene	mg/kg dry wt	0.38	< 0.013	0.044	< 0.012	< 0.012
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.38	< 0.013	0.066	< 0.012	< 0.012
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	0.39	< 0.013	0.061	< 0.012	< 0.012
Benzo[e]pyrene	mg/kg dry wt	0.22	< 0.013	0.036	< 0.012	< 0.012
Benzo[g,h,i]perylene	mg/kg dry wt	0.21	< 0.013	0.042	< 0.012	< 0.012
Benzo[k]fluoranthene	mg/kg dry wt	0.159	< 0.013	0.025	< 0.012	< 0.012
Chrysene	mg/kg dry wt	0.33	< 0.013	0.049	< 0.012	< 0.012
Dibenzo[a,h]anthracene	mg/kg dry wt	0.036	< 0.013	0.011	< 0.012	< 0.012

Sample Type: Soil						
Sample Name:	19:024 TP12 0.1 Dup 20-Feb-2019	19:024 TP12 2.0 Dup 20-Feb-2019	19:024 TP13 0.1 19-Feb-2019	19:024 TP13 1.0 19-Feb-2019	19:024 TP13 1.8 19-Feb-2019	
Lab Number:	2128029.32	2128029.34	2128029.35	2128029.36	2128029.37	
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Fluoranthene	mg/kg dry wt	0.87	< 0.013	0.117	< 0.012	< 0.012
Fluorene	mg/kg dry wt	0.027	< 0.013	< 0.011	< 0.012	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.27	< 0.013	0.047	< 0.012	< 0.012
Naphthalene	mg/kg dry wt	< 0.06	< 0.07	< 0.06	< 0.06	< 0.06
Phenanthrene	mg/kg dry wt	0.63	< 0.013	0.036	< 0.012	< 0.012
Pyrene	mg/kg dry wt	0.87	< 0.013	0.113	< 0.012	< 0.012
Total of Reported PAHs in Soil*	mg/kg	5.1	< 0.3	0.7	< 0.3	< 0.3
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	49	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	19:024 TP14 0.1 19-Feb-2019					
Lab Number:	2128029.38					
Individual Tests						
Dry Matter	g/100g as rcvd	92	-	-	-	-
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	-	-	-	-
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	-	-	-	-
Total Recoverable Chromium	mg/kg dry wt	15	-	-	-	-
Total Recoverable Copper	mg/kg dry wt	14	-	-	-	-
Total Recoverable Lead	mg/kg dry wt	46	-	-	-	-
Total Recoverable Mercury	mg/kg dry wt	< 0.10	-	-	-	-
Total Recoverable Nickel	mg/kg dry wt	10	-	-	-	-
Total Recoverable Zinc	mg/kg dry wt	77	-	-	-	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.011	-	-	-	-
alpha-BHC	mg/kg dry wt	< 0.011	-	-	-	-
beta-BHC	mg/kg dry wt	< 0.011	-	-	-	-
delta-BHC	mg/kg dry wt	< 0.011	-	-	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.011	-	-	-	-
cis-Chlordane	mg/kg dry wt	< 0.011	-	-	-	-
trans-Chlordane	mg/kg dry wt	< 0.011	-	-	-	-
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	-	-	-	-
2,4'-DDD	mg/kg dry wt	< 0.011	-	-	-	-
4,4'-DDD	mg/kg dry wt	< 0.011	-	-	-	-
2,4'-DDE	mg/kg dry wt	< 0.011	-	-	-	-
4,4'-DDE	mg/kg dry wt	0.020	-	-	-	-
2,4'-DDT	mg/kg dry wt	< 0.011	-	-	-	-
4,4'-DDT	mg/kg dry wt	0.044	-	-	-	-
Total DDT Isomers	mg/kg dry wt	0.06	-	-	-	-
Dieldrin	mg/kg dry wt	< 0.011	-	-	-	-
Endosulfan I	mg/kg dry wt	< 0.011	-	-	-	-
Endosulfan II	mg/kg dry wt	< 0.011	-	-	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.011	-	-	-	-
Endrin	mg/kg dry wt	< 0.011	-	-	-	-
Endrin aldehyde	mg/kg dry wt	< 0.011	-	-	-	-
Endrin ketone	mg/kg dry wt	< 0.011	-	-	-	-
Heptachlor	mg/kg dry wt	< 0.011	-	-	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.011	-	-	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.011	-	-	-	-
Methoxychlor	mg/kg dry wt	< 0.011	-	-	-	-

Sample Type: Soil

Sample Name:		19:024 TP14 0.1			
		19-Feb-2019			
Lab Number:		2128029.38			
Organonitro&phosphorus Pesticides Screen in Soil by GCMS					
Acetochlor	mg/kg	< 0.06	-	-	-
Alachlor	mg/kg	< 0.05	-	-	-
Atrazine	mg/kg	< 0.06	-	-	-
Atrazine-desethyl	mg/kg	< 0.06	-	-	-
Atrazine-desisopropyl	mg/kg	< 0.11	-	-	-
Azaconazole	mg/kg	< 0.03	-	-	-
Azinphos-methyl	mg/kg	< 0.11	-	-	-
Benalaxyl	mg/kg	< 0.03	-	-	-
Bitertanol	mg/kg	< 0.11	-	-	-
Bromacil	mg/kg	< 0.06	-	-	-
Bromopropylate	mg/kg	< 0.06	-	-	-
Butachlor	mg/kg	< 0.06	-	-	-
Captan	mg/kg	< 0.11	-	-	-
Carbaryl	mg/kg	< 0.06	-	-	-
Carbofuran	mg/kg	< 0.06	-	-	-
Chlorfluazuron	mg/kg	< 0.06	-	-	-
Chlorothalonil	mg/kg	< 0.11	-	-	-
Chlorpyrifos	mg/kg	< 0.06	-	-	-
Chlorpyrifos-methyl	mg/kg	< 0.06	-	-	-
Chlortoluron	mg/kg	< 0.11	-	-	-
Cyanazine	mg/kg	< 0.06	-	-	-
Cyfluthrin	mg/kg	< 0.07	-	-	-
Cyhalothrin	mg/kg	< 0.06	-	-	-
Cypermethrin	mg/kg	< 0.13	-	-	-
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	-	-	-
Diazinon	mg/kg	< 0.03	-	-	-
Dichlofluanid	mg/kg	< 0.06	-	-	-
Dichloran	mg/kg	< 0.2	-	-	-
Dichlorvos	mg/kg	< 0.09	-	-	-
Difenoconazole	mg/kg	< 0.09	-	-	-
Dimethoate	mg/kg	< 0.11	-	-	-
Diphenylamine	mg/kg	< 0.11	-	-	-
Diuron	mg/kg	< 0.06	-	-	-
Fenpropimorph	mg/kg	< 0.06	-	-	-
Fluazifop-butyl	mg/kg	< 0.06	-	-	-
Fluometuron	mg/kg	< 0.06	-	-	-
Flusilazole	mg/kg	< 0.06	-	-	-
Fluvalinate	mg/kg	< 0.05	-	-	-
Furalaxyl	mg/kg	< 0.03	-	-	-
Haloxifop-methyl	mg/kg	< 0.06	-	-	-
Hexaconazole	mg/kg	< 0.06	-	-	-
Hexazinone	mg/kg	< 0.03	-	-	-
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	-	-	-
Kresoxim-methyl	mg/kg	< 0.03	-	-	-
Linuron	mg/kg	< 0.06	-	-	-
Malathion	mg/kg	< 0.06	-	-	-
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	-	-	-
Methamidophos	mg/kg	< 0.3	-	-	-
Metolachlor	mg/kg	< 0.05	-	-	-
Metribuzin	mg/kg	< 0.06	-	-	-
Molinate	mg/kg	< 0.11	-	-	-
Myclobutanil	mg/kg	< 0.06	-	-	-
Naled	mg/kg	< 0.3	-	-	-
Norflurazon	mg/kg	< 0.11	-	-	-

Sample Type: Soil

Sample Name:		19:024 TP14 0.1				
		19-Feb-2019				
Lab Number:		2128029.38				
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Oxadiazon	mg/kg	< 0.06	-	-	-	-
Oxyfluorfen	mg/kg	< 0.03	-	-	-	-
Paclobutrazol	mg/kg	< 0.06	-	-	-	-
Parathion-ethyl	mg/kg	< 0.06	-	-	-	-
Parathion-methyl	mg/kg	< 0.06	-	-	-	-
Pendimethalin	mg/kg	< 0.06	-	-	-	-
Permethrin	mg/kg	< 0.03	-	-	-	-
Pirimicarb	mg/kg	< 0.06	-	-	-	-
Pirimiphos-methyl	mg/kg	< 0.06	-	-	-	-
Prochloraz	mg/kg	< 0.3	-	-	-	-
Procymidone	mg/kg	< 0.06	-	-	-	-
Prometryn	mg/kg	< 0.03	-	-	-	-
Propachlor	mg/kg	< 0.06	-	-	-	-
Propanil	mg/kg	< 0.2	-	-	-	-
Propazine	mg/kg	< 0.03	-	-	-	-
Propiconazole	mg/kg	< 0.05	-	-	-	-
Pyriproxyfen	mg/kg	< 0.06	-	-	-	-
Quizalofop-ethyl	mg/kg	< 0.06	-	-	-	-
Simazine	mg/kg	< 0.06	-	-	-	-
Simetryn	mg/kg	< 0.06	-	-	-	-
Sulfentrazone	mg/kg	< 0.3	-	-	-	-
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.11	-	-	-	-
Tebuconazole	mg/kg	< 0.06	-	-	-	-
Terbacil	mg/kg	< 0.06	-	-	-	-
Terbufos	mg/kg	< 0.06	-	-	-	-
Terbumeton	mg/kg	< 0.06	-	-	-	-
Terbutylazine	mg/kg	< 0.03	-	-	-	-
Terbutylazine-desethyl	mg/kg	< 0.06	-	-	-	-
Terbutryn	mg/kg	< 0.06	-	-	-	-
Thiabendazole	mg/kg	< 0.3	-	-	-	-
Thiobencarb	mg/kg	< 0.06	-	-	-	-
Tolyfluanid	mg/kg	< 0.03	-	-	-	-
Triazophos	mg/kg	< 0.06	-	-	-	-
Trifluralin	mg/kg	< 0.06	-	-	-	-
Vinclozolin	mg/kg	< 0.06	-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Soil						
1-Methylnaphthalene	mg/kg dry wt	< 0.011	-	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.011	-	-	-	-
Perylene	mg/kg dry wt	< 0.011	-	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	0.07	-	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt	0.07	-	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.011	-	-	-	-
Acenaphthene	mg/kg dry wt	< 0.011	-	-	-	-
Anthracene	mg/kg dry wt	< 0.011	-	-	-	-
Benzo[a]anthracene	mg/kg dry wt	0.034	-	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.046	-	-	-	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	0.039	-	-	-	-
Benzo[e]pyrene	mg/kg dry wt	0.024	-	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	0.026	-	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	0.018	-	-	-	-
Chrysene	mg/kg dry wt	0.031	-	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.011	-	-	-	-

Sample Type: Soil

Sample Name: 19:024 TP14 0.1

19-Feb-2019

Lab Number: 2128029.38

Polycyclic Aromatic Hydrocarbons Screening in Soil

Fluoranthene	mg/kg dry wt	0.085	-	-	-	-
Fluorene	mg/kg dry wt	< 0.011	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.029	-	-	-	-
Naphthalene	mg/kg dry wt	< 0.06	-	-	-	-
Phenanthrene	mg/kg dry wt	0.028	-	-	-	-
Pyrene	mg/kg dry wt	0.081	-	-	-	-
Total of Reported PAHs in Soil*	mg/kg	0.5	-	-	-	-

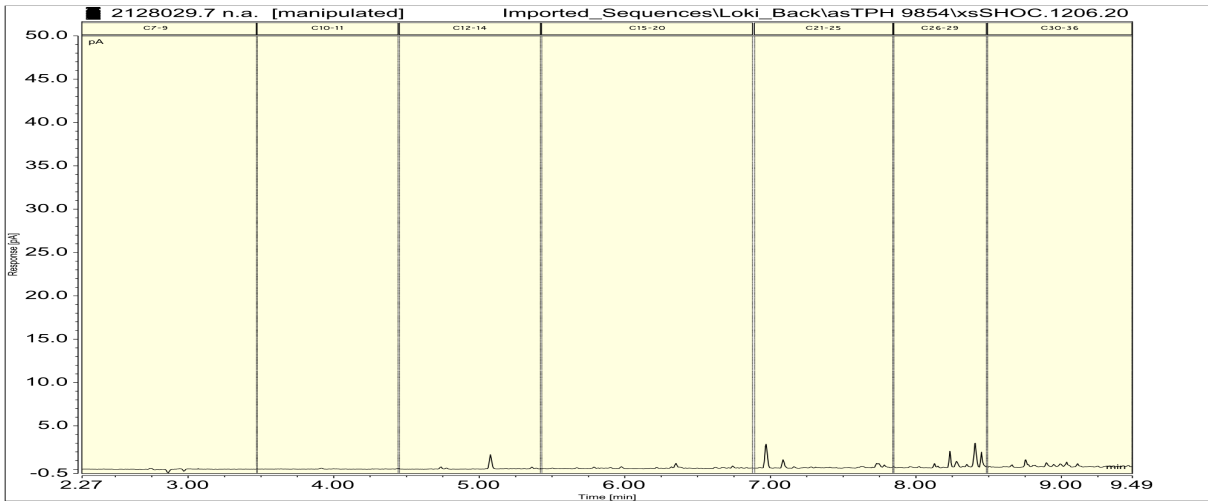
Total Petroleum Hydrocarbons in Soil

C7 - C9	mg/kg dry wt	< 8	-	-	-	-
C10 - C14	mg/kg dry wt	< 20	-	-	-	-
C15 - C36	mg/kg dry wt	< 40	-	-	-	-
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	-	-	-	-

2128029.7

19:024 TP3 0.1 18-Feb-2019

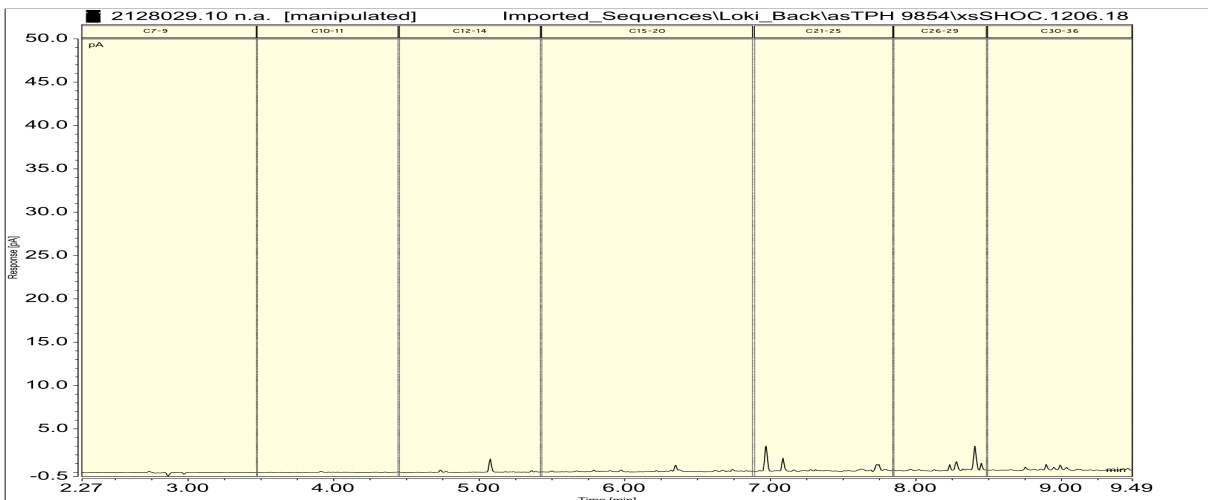
Client Chromatogram for TPH by FID



2128029.10

19:024 TP4 0.1 18-Feb-2019

Client Chromatogram for TPH by FID



2128029.21

19:024 TP9 0.1 18-Feb-2019

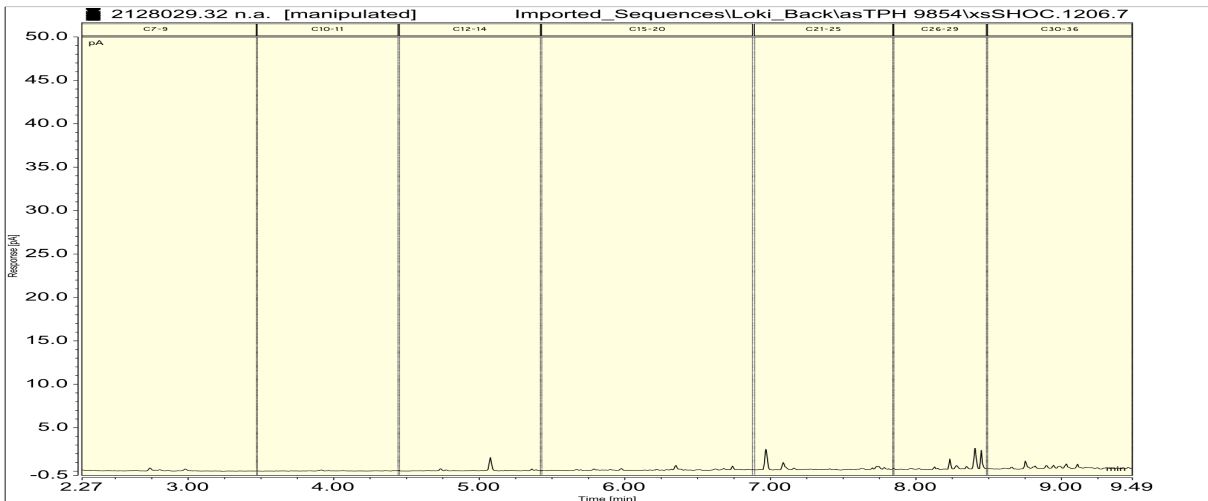
Client Chromatogram for TPH by FID



2128029.32

19:024 TP12 0.1 Dup 20-Feb-2019

Client Chromatogram for TPH by FID



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 clean 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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
TPH Oil Industry Profile + PAHscreen	Sonication in DCM extraction, SPE cleanup, GC-FID & GC-MS analysis. Tested on as received sample. US EPA 8015B/MfE Petroleum Industry Guidelines [KBIs:5786,2805,10734;2695]	-	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Heavy Metals with Mercury, 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	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Organochlorine/nitro&phosphorus Pests Screen in Soils, GCMS	Sonication extraction, Dilution cleanup, GC-MS analysis. Tested on as received sample	-	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	BaP Potency Equivalence calculated from Benz(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1 + Chrysene x 0.01 + Dibenz(a,h)anthracene x 1 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.002 mg/kg dry wt	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Benzo[a]pyrene Toxic Equivalence (TEF)	BaP Toxic Equivalence calculated from Benzo(a)anthracene x 0.1 + BaP x 1 + Benzo(b)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenz(a,h)anthracene x 1.1 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.002 mg/kg dry wt	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38
Total of Reported PAHs in Soil*	Sonication extraction, SPE cleanup, GC-MS SIM analysis.	0.3 mg/kg	1-7, 9-12, 14, 16-19, 21-23, 25-29, 31-32, 34-38

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

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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



Graham Corban MSc Tech (Hons)
Client Services Manager - Environmental

F

Appendix F – Results Table


TEST PIT SOIL ANALYSIS RESULTS - Upper Playing Field - Prince of Wales Park

Sample Date	19/02/19	19/02/19	20/02/19	20/02/19	20/02/19	20/02/19	20/02/19	20/02/19	20/02/19	20/02/19	19/02/19	19/02/19	19/02/19	19/02/19	Assessment Criteria			
Sample Details															Background Concentration (mg/kg dry wt) ¹	Human Health (mg/kg) ²	Environmental Risk Threshold (mg/kg) ⁵	Class A Landfill Screening Criteria ⁷
Sample Name	TP10 0.1	TP10 1.9	TP11 0.1	TP11 1.0	TP11 2.0	TP12 0.1	TP12 2.0	TP12 0.1 Dup	TP12 2.0 Dup	TP13 0.1	TP13 1.0	TP13 1.8	TP14 0.1					
Sample Depth (m bgl)	0.1	1.9	0.1	1.0	2.0	0.1	2.0	0.1	2.0	0.1	1.0	1.8	0.1					
Lab Number	2128029.23	2128029.25	2128029.26	2128029.27	2128029.28	2128029.29	2128029.31	2128029.32	2128029.34	2128029.35	2128029.36	2128029.37	2128029.38					
Soil Type	Clay	Clay	Clay	Clay	Clay, Course Gravel	Clay	Silt/Clay	Greywacke	Silt	Silt	Clay	Greywacke	Greywacke					
Heavy Metals (mg/kg dry wt)																		
Arsenic	5	3	4	3	4	5	3	4	3	4	3	3	4	2 - 7.0	70	150	100	
Cadmium	< 0.10	< 0.10	0.12	< 0.10	< 0.10	0.12	< 0.10	0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.1 - 0.2	1300	40	20	
Chromium	97	18	14	16	16	12	19	12	17	10	17	19	15	9 - 18	6300	650	100	
Copper	20	10	17	14	16	12	10	12	10	9	13	8	14	5 - 19	>10,000	600	100	
Lead	5.1	17.3	52	28	31	80	18	84	17.8	34	19.5	15.3	46	16.7 - 73.3	3300	3,000	100	
Mercury	0.21	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.1 - 2.6	4200	50 ⁷	4	
Nickel	13	10	7	13	16	7	10	7	10	6	13	11	10	5 - 14	20000 ³	89 ⁷	200	
Zinc	22	43	58	83	91	64	50	62	45	50	66	47	77	38 - 201	350000 ³	480	200	
Polycyclic Aromatic Hydrocarbons (PAH) (mg/kg dry wt)																		
Acenaphthene	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	0.026	< 0.013	0.018	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Acenaphthylene	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	0.02	< 0.013	0.025	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Anthracene	0.011	< 0.014	0.015	0.013	< 0.013	0.078	< 0.013	0.096	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	< 0.0002 - 0.04	-	-	-	
Benzo[a]anthracene	0.067	< 0.014	0.073	0.074	0.038	0.28	< 0.013	0.38	< 0.013	0.044	< 0.012	< 0.012	0.034	-	-	-	-	
Benzo[a]pyrene (BAP)	0.07	< 0.014	0.086	0.074	0.053	0.31	< 0.013	0.38	< 0.013	0.066	< 0.012	< 0.012	0.046	0.004 - 0.33	-	8,800 ⁵	-	
Benzo[b]fluoranthene + Benzo[j]fluoranthene	0.077	< 0.014	0.09	0.069	0.043	0.29	< 0.013	0.39	< 0.013	0.061	< 0.012	< 0.012	0.039	-	-	-	-	
Benzo[g,h,i]perylene	0.045	< 0.014	0.05	0.042	0.029	0.161	< 0.013	0.21	< 0.013	0.042	< 0.012	< 0.012	0.026	-	-	-	-	
Benzo[k]fluoranthene	0.031	< 0.014	0.037	0.033	0.019	0.115	< 0.013	0.159	< 0.013	0.025	< 0.012	< 0.012	0.018	-	-	NA ⁶	-	
Benzo[e]pyrene	0.043	< 0.014	0.05	0.037	0.025	0.168	< 0.013	0.22	< 0.013	0.036	< 0.012	< 0.012	0.024	-	-	-	-	
Chrysene	0.064	< 0.014	0.075	0.051	0.033	0.26	< 0.013	0.33	< 0.013	0.049	< 0.012	< 0.012	0.031	-	-	NA ⁶	-	
Dibenzo[a,h]anthracene	0.012	< 0.014	0.013	0.019	< 0.012	0.028	< 0.013	0.036	< 0.013	0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Fluoranthene	0.155	< 0.014	0.175	0.119	0.09	0.7	< 0.013	0.87	< 0.013	0.117	< 0.012	< 0.012	0.085	0.007 - 0.39	-	190	-	
Fluorene	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	0.042	< 0.013	0.027	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Indeno[1,2,3-c,d]pyrene	0.058	< 0.014	0.063	0.057	0.033	0.198	< 0.013	0.27	< 0.013	0.047	< 0.012	< 0.012	0.029	-	-	NA ⁶	-	
1-Methylnaphthalene	< 0.012	< 0.014	< 0.012	0.013	< 0.012	0.018	< 0.013	0.016	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
2-Methylnaphthalene	< 0.012	< 0.014	< 0.012	0.018	< 0.012	0.013	< 0.013	0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Naphthalene	< 0.06	< 0.07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.07	< 0.06	< 0.07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.002 - 0.01	-	0.013 ⁵	-	
Phenanthrene	0.069	< 0.014	0.082	0.037	0.026	0.5	< 0.013	0.63	< 0.013	0.036	< 0.012	< 0.012	0.028	0.005 - 0.12	-	0.046 ⁶	-	
Perylene	0.016	< 0.014	0.02	0.014	< 0.012	0.066	< 0.013	0.074	< 0.013	0.012	< 0.012	< 0.012	< 0.011	-	-	-	-	
Pyrene	0.152	< 0.014	0.166	0.123	0.082	0.7	< 0.013	0.87	< 0.013	0.113	< 0.012	< 0.012	0.081	0.008 - 0.46	-	NA ⁶	-	
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	0.11	< 0.04	0.13	0.12	0.08	0.44	< 0.04	0.55	< 0.04	0.1	< 0.03	< 0.03	0.07	-	-	-	-	
Benzo[a]pyrene Toxic Equivalence (TEF)	0.11	< 0.04	0.13	0.12	0.08	0.43	< 0.04	0.54	< 0.04	0.1	< 0.03	< 0.03	0.07	-	-	-	-	
Total Petroleum Hydrocarbons (mg/kg dry wt)																		
C7 - C9	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	-	120 ⁴	170	-	
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	1500 ⁴	140	-	
C15 - C36	< 40	< 40	< 40	< 40	< 40	< 40	< 40	49	< 40	< 40	< 40	< 40	< 40	-	NA ⁴	1700	-	
Total hydrocarbons (C7 - C36)	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	-	NA ⁴	3300	-	
Organonitro & phosphorus Pesticides (mg/kg dry wt)																		
89 different Organonitro&phosphorus Pesticides tested - All returned results under lab detection levels																		
Organochlorine Pesticides (mg/kg dry wt)																		
Aldrin	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
alpha-BHC	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
beta-BHC	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
delta-BHC	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
gamma-BHC (Lindane)	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
cis-Chlordane	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
trans-Chlordane	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Total Chlordane [(cis+trans)*100/42]	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	-	-	-	-	
2,4'-DDD	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
4,4'-DDD	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
2,4'-DDE	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
4,4'-DDE	0.095	< 0.014	0.069	< 0.012	< 0.012	0.038	< 0.013	0.047	< 0.013	< 0.011	< 0.012	< 0.012	0.02	-	-	-	-	
2,4'-DDT	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
4,4'-DDT	0.049	< 0.014	0.049	< 0.012	< 0.012	0.015	< 0.013	0.027	< 0.013	< 0.011	< 0.012	< 0.012	0.044	-	-	-	-	
Total DDT Isomers	0.14	< 0.08	0.12	< 0.07	< 0.07	0.07	< 0.08	0.07	< 0.08	< 0.07	< 0.07	< 0.07	0.06	-	1,000	640	-	
Dieldrin	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Endosulfan I	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Endosulfan II	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Endosulfan sulphate	< 0.012	< 0.014	< 0.012	< 0.012	< 0.012	< 0.012	< 0.013	< 0.011	< 0.013	< 0.011	< 0.012	< 0.012	< 0.011	-	-	-	-	
Endrin	< 0.0																	

G

Appendix G – Site Plans



Key:
 Test Pit Locations

No.	Revision	By	Chk	Appd	Date
1	For Information	HJ	TN		11/03/19



Original Scale (A1)	Design		
Reduced Scale (A3)	Drawn	HJ	07/03/19
	Day Checker	TN	11/03/19
	Day Check	TN	11/03/19

* Refer to Revision 1 for Original Signature



Client: **Wellington Water**
 Project: OMARORO RESERVOIR DEVELOPMENT PROJECT

Title: LOWER PLAYING FIELD SAMPLE LOCATIONS - PRINCE OF WALES PARK, MT COOK
 Discipline: Environments
 Drawing No.: 3262332
 Rev: 1



Rolleston Street

TP12

TP13

TP14

TP11

TP10

Key:
● Test Pit Locations

No.	Revision	By	Chk	Appd	Date
1	For information	HJ	TN		11/03/19



Original Scale (A1)	Design		
Reduced Scale (A3)	Drawn	HJ	07/03/19
	Day Verifier		
	Day Check	TN	11/03/19

* Refer to Revision 1 for Original Signature



Project: OMARORO RESERVOIR DEVELOPMENT PROJECT

Title: UPPER PLAYING FIELD SAMPLE LOCATIONS - PRINCE OF WALES PARK, MT COOK

Discipline: Environments
Drawing No.: 3262332
Rev: 1



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**make
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better.**