AUSTINO HOBSONVILLE 2 LIMITED

PROPOSED RESIDENTIAL DEVELOPMENT

DETAILED SITE INVESTIGATION (DSI) &

SITE MANAGEMENT PLAN (SMP)

86-90 & 100 HOBSONVILLE ROAD, HOBSONVILLE

Reference Number: REP-1329/DSI/MAR19

PREPARED FOR: AUSTINO HOBSONVILLE 2 LTD

22 MARCH 2019

Geosciences Limited
47 Clyde Road, Browns Bay, Auckland
PO Box 35-366, Browns Bay, Auckland
(09) 475 0222
info@geosciences.co.nz www.geosciences.co.nz

Disclaimer

This report is provided on the condition that Geosciences Ltd disclaims all liability to any person or entity other than the client and Auckland Council in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of this report. Furthermore, Geosciences Ltd disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by the client, or any such person in reliance, whether in whole or any part of the contents of this report of all matters not stated in the brief outlined in our proposal and according to our general terms and conditions and special terms and conditions for contaminated sites.

Statement

This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the Environment's *Contaminated Land Management guidelines No.1 – Reporting on Contaminated Sites in New Zealand.*

Report prepared on behalf of GSL by:	Report reviewed and authorised on behalf of GSL by:
	
David Wilkinson Environmental Scientist Geosciences Ltd	Carl O'Brien General Manager Geosciences Ltd

Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 09 475 0222.

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

EXECUTIVE SUMMARY

Austino Hobsonville 2 Ltd propose to develop the piece of land encompassed by a 100, 90 and a portion of 86 Hobsonville Road through the subdivision of the land, the change in landuse from rural land to residential landuse and the development of the land into a residential configuration. As part of the development Geosciences Ltd (GSL) were engaged to undertake a detailed site investigation (DSI) of the land in order to address the requirements of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES) and Chapter E.30 of the Auckland Unitary Plan (Operative in Part) (AUP(OP)).

The DSI included a review of the Auckland Council property files, a review of current and historic certificates of title, historic aerial images and the Auckland Council Contaminated Land Database. The historical aerial images identified that the site was developed from vacant pasture to horticultural landuse at some point between 1980 and 1996, while the property file identified that a poultry shed, residential dwelling and hay barn were constructed on 100 Hobsonville Road by 1981. Additionally, the property file identified the presence of domestic waste water infrastructure relating to the residential dwelling on 100 Hobsonville Road. The historical review identified the following potentially contaminating activities which can be encompassed by items included on the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL):

- Bulk storage and use of persistent pesticides during horticultural activities on the site;
- Storage of machinery or chemicals in buildings on site;
- Potential for lead based paints on buildings constructed prior to 1979;
- Potential for ACM on buildings constructed prior to 2000; and
- Septic tanks and Effluent disposal fields associated to the residential dwellings on site

Based on those activities GSL developed a conceptual site model for potential contamination on the site. The conceptual model noted that the majority of the site may have been subject to the sprayed application of persistent pesticides only, which is likely to result in a uniform distribution of potential contaminants across the topsoil horizon. While the potential for hotspots was identified as a result of the storage of farm machinery in discrete locations of storage sheds, the age and nature of horticultural landuse suggested storage is not likely given the configurations on site. Based on the conceptual model, GSL conducted a judgemental soil sampling regime including the collection of nine composite soil samples from across former horticultural blocks, and the collection of one discrete soil sample from an area of hydrocarbon stained soil in the barn on 100 Hobsonville Road. Composite Soil samples were analysed for arsenic, copper, lead, and organochlorine pesticides (OCPs) while the discrete soil sample was analysed for heavy metals, polycyclic aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH) as an initial screen to determine the likelihood of persistent pesticide use. Analysis of the soil samples revealed:

- All composite soil samples returned concentrations of heavy metals within the expected naturally occurring background ranges for non-volcanic soils in the Auckland Region, and concentrations of OCPs below the laboratory limit of reporting; and
- the composite soil sample returned concentrations of heavy metals within the expected naturally occurring background concentration ranges for non-volcanic soil in the Auckland Region, and concentrations of TPH below the laboratory limit of reporting;

- the discrete soil sample returned detectable traces of PAH on the limit of reporting

With respect to the effluent disposal field related to the dwelling on 100 Hobsonville Road, GSL notes that the systems remain in use during rental of the property and as such do not offer any value in sampling at this stage. During the demolition of the dwelling, the system can be decommissioned and validated following the completion of the removal to confirm soil quality in light of residential landuse.

Based on the findings of this investigation GSL concludes that the proposed subdivision, change in landuse and development is highly unlikely to result in any risk to human health or the environment. That being said, the identification of the effluent disposal systems and detectable PAH in soil in discrete portions of the site will require the regulations of the NES to be addressed. With respect to the regulations of the NES, GSL concludes that the change in landuse and subdivision can be considered a permitted activity under Regulation 8(4) of the NES, while the disturbance of soil relating to the PAH impacted soils and decommissioning of the effluent disposal systems are likely to be with the permitted activity criteria of Regulation 8(3) of the NES. Regulation 8(3) allows for the disturbance of up to 25 m^3 of soil per 500 m^2 site (6,788.6 m^3 for a site of this size) and the off site disposal of up to 5 m^3 per 500 m^2 site area (1,357 m^3 for a site of this size).

A site management plan has been provided at the rear of this report to address the requirements of the NES and AUP(OP) with regards to the removal of the effluent disposal systems and the disturbance of soil with detectable traces of PAH.

As no soil samples exceeded the AUP(OP) permitted soil acceptance criteria of Chapter E.30, the contaminated land provisions of the AUP(OP) are not considered relevant to the majority of the piece of land. The removal of the effluent disposal field is likely to be considered a controlled activity under Chapter E.30 subject to the appropriate controls set out in the accompanying SMP.

1 INTRODUCTION

Geosciences Ltd (GSL) has prepared the following report for Austino Hobsonville 2 Ltd in accordance with the GSL proposal, Ref: *Pro-1720/Feb19, dated 25 February 2019*.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", and No. 5 – "*Site Investigation and Analysis of Soils*" (References 1 and 2).

2 PROPERTY DETAILS

Location:	A portion of 86, 90 & 100 Hobsonville Road
Legal Description:	86: SECT 1 SO 509537
	90: SEC 1 SO 490597, SEC 5 SO 490597
	100: SECT 1 SO 511858, SECT 3 SO 51858
Size:	13.5772 Ha combined
Zoning:	Future Urban Zone

The properties at the above addresses, and hereafter collectively referred to as “the site” (defined in Figure 1) in this report are comprised of some 13.5772 Ha of rural land on the western side of the Hobsonville Peninsula, West Auckland. The site is directly to the south of State Highway 18 and approximately 1.7 km to the south of the New Zealand Air Force Whenuapai Air Base.

3 PROPOSED CHANGE IN LANDUSE, SUBDIVISION AND DEVELOPMENT

Austino Hobonsville 2 Ltd proposes to develop the piece of land into a mix of residential developments as per their zoning under the Auckland unitary Plan (Operative in Part) as future urban land. Illustrative site plans indicate a mixture of standard residential lots and higher density housing alongside access roads, open space areas and infrastructure.

The proposed development therefore includes the subdivision of existing titles, the change in landuse from rural landuse and rural production, to residential and the development of the piece of land through the construction of residential dwellings.

4 STANDARDS AND REGULATIONS

Because of the change in landuse, subdivision, proposed development outlined above it will be necessary to address the requirements of the following standards, rules, and regulations applicable for the site.

4.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

The *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) (MfE, 2012) ensures that land affected by contaminants in soil is appropriately

identified and assessed. When soil disturbance and/or land development activities take place it should be, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, a change in landuse, subdivision, or development requires a Detailed Site Investigation (DSI) of the land to determine if there is a risk to human health because of any current or former activities that are occurring, or may have occurred, on the land under investigation.

4.2 AUCKLAND UNITARY PLAN (OPERATIVE IN PART) (AUP(OP))

Section 30(1)(f) of the RMA provides the Auckland Council with a statutory duty to investigate land for the purposes of identifying and monitoring contaminated land and for the control of discharges of contaminants into or onto land or water and discharges of water into water.

The Auckland Unitary Plan (Operative in Part) (AUP(OP)), which was formally notified on 30 September 2013, is a combined regional policy statement, regional coastal plan, regional plan, and district plan. Auckland Council notified an operative in part version of the plan on 15 November 2016 (Reference 4).

Chapter E.30 of the AUP(OP) deals specifically with contaminated land and maintains that Council is required to manage both the use of land containing elevated levels of contaminants and the discharge of contaminants from land containing elevated levels of contaminants. As no appeals have been lodged on Chapter E.30, the provisions of that section can be considered operative under Section 87 of the Resource Management Act 1991. For all purposes of this investigation, the relevant provisions of the AUP(OP) relating to soil contamination have legal jurisdiction and those provision have been considered where they may have an impact on the proposed development.

5 DSI OBJECTIVES

The objectives of this investigation were to assess:

- if the land is covered by the NES as a result of any current or former HAIL activities;
- the extent of any current or former HAIL activities on site;
- if the activity can comply with NES permitted activity conditions;
- what, if any, contaminated land rules of the AUP(OP) apply to the proposed development;
- the soil quality and associated risk to human health and the environment as a result of former activities on the site; and
- the need, if any, for further detailed investigations.

6 SCOPE OF WORKS

To achieve the objectives of the DSI, GSL has undertaken the following:

- A review of current and historical certificates of title for each of the properties;
- a review of historic aerial photographs of the site;
- a review of the property files held by Council for each of the properties;
- a search of the contaminated land database;
- a visual site inspection of the piece of land;
- the collection of nine composite soil samples from across the piece of land, and the collection of one discrete soil sample from a potential hotspot location;
- the laboratory analysis of the composite soil samples for arsenic, copper, lead and organochlorine pesticides (OCPs) and the analysis of the discrete soil sample for heavy metals, total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH); and
- the preparation of this report in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", detailing the findings of this investigation and the need, if any, for further work.

7 SITE HISTORY

A desktop study of publically available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating landuses.

7.1 CERTIFICATE OF TITLE

GSL has reviewed copies of the current and historic Certificates of Title for the aforementioned properties, including any instruments on the title which detail relevant property information such as: current ownership, registered interests, easements, covenants, lease restrictions and transmissions, to determine if pre-existing consent notices or other restrictions / notifications which may be relevant to historic uses or potential soil contamination are held against the property. No notes of interest were recorded on the titles, the title indicate that the lot boundaries were established between 2016 and 2017. Copies of these documents are attached in Appendix B.

7.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs from 1950, 1963, 1972, and 1980 are available for the site on the Retrolens website, while images from 1996, 2000, 2010, and 2017 are available on the Auckland Council GEOMaps website. The findings of the historic aerial photograph review are summarised below, while copies of these aerial photographs have been attached in Appendix C.

1950-1972 The 1950 image is the earliest available image for the site shows the site predominantly vacant pasture with a well-defined gully running through centre of the site and well-established shelterbelts in a portion of the site. There are no distinct structures on the piece of land within the 1950 aerial image.

There are no discernible developments to the site through the 1963 and 1972 images, the site remains pasture with no discernible structures during this time.

1980 The 1980 image shows the first discernible development to the area of 100 Hobsonville Road, a gravel driveway has been constructed along the site's northern boundary leading to a large shed in the northeast corner of the sites main area. The driveway then curves to the south to a crossing of the gully and loops around to a dwelling which has been constructed to the west of the gully. Horticultural activity in the form of broadacre cropping has been established on the western portion of 86 Hobsonville Road, however no structures are evident in this portion.

1996-2000 By the time the 1996 image was captured, the full extent of 86, and 90 Hobsonville Road has been converted to broadacre cropping while 100 Hobsonville Road has been divided into paddocks by mature shelter belts. Some of the paddocks show soil disturbance suggesting potential broadacre usage.

The residential dwelling has been expanded by this stage and is now a very large dwelling in the same location. To the south of the dwelling ,a shade house has been constructed, additionally a new storage shed, and elongated barn have been constructed to the west of the gully on the sites northern boundary.

The 2000 image shows the only discernible developments to the site are horticultural activities in the paddocks on 100 Hobsonville Road.

2010-2017 By the time the 2010 image was captured, the majority of horticultural activities appear to have ceased across the site with pastoral landuse re-established.

The 2017 image is the most recent available for the site and shows the site in largely the same configuration as 2010 with the exception of the bulk of the piece of land appearing overgrown.

7.2.1 SUMMARY OF HISTORIC AERIAL IMAGES

GSL has reviewed the available historic aerial images of the site, the aerial images show that the site was predominantly pasture until the 1980s, at which time horticultural activity progressively expanded across the piece of land, appearing to peak in 1996 – 2000. By 2010, horticultural activities had clearly ceased and the site became progressively more overgrown between 2010 and 2017. As the bulk storage and use of persistent pesticides is included on the MfE HAIL under Item A.10, the piece of land would be considered potentially contaminated. The bulk of the piece of land was clearly uniform in use and would have been subject to direct spray application only with any storage activities concentrated around the buildings and structures in the northern portion of the site .

The dwelling on 100 Hobsonville Road was originally constructed by 1980 before being expanded or potentially replaced by a large dwelling by 1996. A large shed was constructed on the northern boundary of 100 Hobsonville Road between 1972 and 1980 while a second large barn / shed was

constructed between 1980 and 1996. Any structure built prior to 1 January 2000 has the potential to contain asbestos containing materials (ACM), while structures constructed prior to 1979 have the potential for lead based paints to have been applied to the structures. ACM is included on the MfE HAIL under Item E.1 when in broken or degraded condition, while lead based paint can be encompassed by Item I of the MfE HAIL.

7.3 PROPERTY FILE

GSL requested the property file from Auckland Council for review of historic activities. The majority of information on the property files relates to the 100 Hobsonville Road, while the property file for 86 and 90 Hobsonville Road contains resource consent documentation regarding Austino Hobsonville 2 Ltd's proposed development of the site. Copies of relevant historic plans, correspondence, permits, and consents have been attached in Appendix D. The following items of note were on the supplied file:

1976 Plans and building permits are held on file relating to the construction of a large poultry shed. These relate to the large shed noted on the 1980 historic aerial image described above at the end of the access road from 100 Hobsonville Road.

1979 A building permit is held on file for the relocation of a dwelling onto 100 Hobsonville Road

1981 Building permits are held on file regarding the construction of a barn on site. These documents relate to the large barn noted in the aerial review above northwest of the poultry shed on the other side of the riparian gully.

2007 Drainage plans are held on file relating to the upgrade of the domestic wastewater treatment systems on 100 Hobsonville Road. The area of the disposal field is indicated on a hand drawn 'as built' drainage plan contained on file, described as being approximately 2,503 m^2 and contained within the pine tree plantation and riparian margin to the southeast and east of the dwelling.

GSL has identified the following potential sources of contamination in the property file review:

- Buildings constructed prior to 2000 have the potential to contain asbestos containing materials (ACM);
- Buildings constructed prior to 1979 have the potential for lead based paints to have been applied to the buildings; and
- Septic tanks and effluent disposal systems are considered to be encompassed by Items G.5 and G.6 on the MfE HAIL.

7.4 CONTAMINATED LAND DATABASE SEARCH

A request was made to Auckland Council for a search of the subject address against their contaminated land database which retains existing records of any investigated land contaminating activities that may have occurred at the site address and which were subsequently investigated by council. It should be noted that while there may be no information held on file this does not necessarily provide conclusive evidence that no potentially contaminating activities have taken

place at the site address. A copy of the site contamination enquiry is provided in Appendix E. Auckland Council could find no files in relation to the site address.

8 SITE INSPECTION & INFRASTRUCTURE

GSL personnel undertook a site inspection on 8 March 2019, at which time the weather was overcast with periods of heavy rainfall. At the time of the inspection the site appeared as it does in the most recent aerial photographs, that is; predominantly vacant rural land divided into blocks by thick, mature shelter belts, the site is accessed via gravel driveway along the northern boundary of 100 Hobsonville Road, while access to 90 Hobsonville Road was gained via farm gates at the southern boundary of 100 Hobsonville Road and access to 86 Hobsonville Road was gained from 88 Hobsonville Road to the immediate north of the property.

The only structures present on the piece of land were within 100 Hobsonville Road. The main structure is a large residential dwelling constructed on a U-shape around a large driveway / turn-around, located at the termination of the access road. The dwelling consists of three wings, with the southeast wing comprising the original dwelling located on the site, the main central wing and northwest wing are adjoined through glass conservatories. GSL did not note any visually obvious ACM on the dwelling, and no materials in broken or degraded condition that would impact soil quality. The dwelling is in excellent condition with no obvious signs of deterioration, painted surfaces are all in excellent condition with no areas of flaking etc. no paint flakes or chips were noted surrounding the dwelling. A full hazardous building materials survey will be required for demolition as set out in Section 13 below.

Along the northern boundary of the site is sited the poultry shed noted in the above sections, the shed is clad externally with fibre cement sheets considered likely to be asbestos containing materials and a corrugated iron roof, the building is constructed on a concrete foundation slab which extends approximately 1 m out from the walls of the shed, two grain silos are sited on the concrete slab at the southeast corner of the shed. The exterior cladding on the poultry shed is in generally good condition with the exception of one panel which has been broken (see Plate 2 in Appendix F), GSL considers the risk of gross soil contamination as a result of the fibre cement cladding to be low, however GSL notes that prior to demolition the building will require a hazardous building materials survey to be undertaken in order to confirm the location and extent of ACM with respect to specific demolition requirements. The volume of potential ACM is in excess of 10 m2 and as such will likely trigger Class B Asbestos Removal works.

To the east of the poultry shed is a large gully, on the western side of the gully is a large arched storage barn noted in the desktop review, the barn is timber framed and clad with corrugated iron with a bare earth floor, adjacent to the barn is a garage with a concrete foundation slab and again clad with fibre cement weatherboards, the cladding on the garage is noted to be in good condition, with no broken panels or fragments of material noted.

To the north of the barn is another, smaller storage shed, the shed is timber framed and clad with corrugated iron with the southern side open.

To the south of the dwelling is a disused domestic shade house, approximately 3,000 m^2 in area, the shade house is in a state of disrepair and has clearly been out of operation for several years.

To the south of the dwelling and structures, the full extent of the site is divided into former horticulture blocks which are now abandoned and densely overgrown. There are no further structures or features identifiable across the former horticultural blocks.

Site photographs are attached in Appendix G.

8.1 GEOLOGY & GEOHYDROLOGY

The local geology is described by Edbrooke (Reference 7) as pumiceous mud, sand and gravel with muddy peat and lignite: rhyolite pumice, including non-welded ignimbrite, tephra and alluvia of the Puketoka Formation.

8.2 TOPOGRAPHY AND DRAINAGE

The site is relatively level with a gradual fall from a high point of approximately 50 m above sea level (asl) at the southern extent of 86 Hobsonville Road to a low point in the gully floor of approximately 25 m asl on the northern boundary of 100 Hobsonville Road. The western portion of the site has a slight fall to the east toward the gully.

Drainage is via overland flow to the main gully feature, the Auckland Council GEOMaps server indicates that the gully forms a permanent water course, the Rawiri Stream which drains the site to the north and discharges to the Waitemata Harbour approximately 2 km to the northeast of the site.

A review of the floodplains, flood prone, or flood sensitive areas of the Auckland Region (available on the Auckland Council GIS) revealed that the site is not located on a flood plain nor is the site located on a flood prone or flood risk area area.

The site is not part of the Natural Stream Management Areas – refer to Map Series 1, Map 23, Riverhead, Rodney, of the Auckland Regional Council's Regional Plan Map Series. The site is located in the footprint of the Kumeu Waitemata Aquifer, which is identified as a sensitive aquifer area in the Auckland Regional Plan Map Series 2, Map 7.

9 CONCEPTUAL MODEL FOR POTENTIAL CONTAMINATION

Based on the desktop study GSL identified the following sources of potential contamination within the piece of land under investigation:

- Bulk storage and use of persistent pesticides during horticultural activities on the site;
- Storage of machinery or chemicals in buildings on site;
- Potential for ACM on buildings constructed prior to 2000; and
- Septic tanks and Effluent disposal fields associated to the residential dwellings on site

Based on the above, GSL considers the primary potential source of contamination to be the bulk use of persistent pesticides to crops during horticultural activities on site. As no discrete structures are noted across the majority of the piece of land where horticultural activities have been undertaken, GSL considers that the direct sprayed application of persistent pesticides to be the primary source for potential contamination across the former horticultural blocks. The direct sprayed application of persistent pesticides is likely to result in a reasonably uniform distribution of

contaminants through the uppermost topsoil horizon. It is not expected that the direct sprayed application of persistent pesticides would result in distinct hotspots of contamination the contaminants of concern relating to historic horticulture are arsenic, copper, lead, and organochlorine pesticides (OCPs).

GSL notes that the most common persistent pesticides with long half-lives had been phased out or banned by the 1990s. As an initial screen for their potential use across the site, GSL undertook a justified soil sampling regime through the collection of 9 composite soil samples from portions of the site potentially subject to persistent pesticide use in order to establish whether or not persistent pesticides had been applied to crops on the land. GSL did not identify any distinct evidence of the bulk storage of persistent pesticides on site during the walkover with the layout and nature of the sheds suggesting use for farm machinery, hay and residential aspects. No bulk storage of any chemicals was noted during the site inspection and no residual spray containers were identifiable.

While ACM products may be present in buildings constructed prior to 1 January 2000, asbestos containing materials only pose a risk for soil contamination where they are found to be in degraded condition. With the exception of one broken panel of fibre cement cladding on the poultry shed, any potentially ACM products were noted to be in good condition and therefore highly unlikely to result in a risk of fibre generation or soil contamination. With respect to the panel on the poultry shed, while broken the product remained in un-weathered condition and was unable to be crumbled by hand, which indicates that it is unlikely to be friable and should therefore be addressed during demolition of the poultry shed.

GSL did note the presence of some minor hydrocarbon staining in a discrete area at the eastern extent of the hay barn, likely as a result of the storage of farm machinery. Where leaks or spills of oils and fuels are present, they result in small highly constrained hotspots and contaminants generally do not infiltrate deeper soils or migrate far from the source.

Effluent disposal fields and domestic wastewater treatment systems are considered to encompassed by Items G.5 and G.6 of the MfE HAIL. The area which has the highest potential for impacts resulting from the wastewater treatment is the disposal field where effluent liquor is, in this case, pumped to drip lines and drained into the soil. The discharge can result in impacts to the soil along those driplines, however it would not be expected that any impacts to soil would be found outside the immediate area of the disposal field. The disposal field remains currently in use and as such, sampling at this time does not provide any value with respect to ongoing landuse. While Council have previously identified the contaminants of concern to be heavy metals, bacteria and viruses. GSL notes that laboratory techniques used for soil testing make the analysis for contaminants such as bacteria and viruses cost prohibitive and difficult to assess. Therefore, GSL considers the heavy metals are adequate as an indicator of any potential impacts or risks related to the disposal field. As the disposal field remains in use and are generally considered a low risk for potential contamination, GSL considers that during demolition of the dwelling the disposal systems can be removed, and validation soil sampling can be undertaken following the removal.

With respect to lead based paint, the original dwelling was established on site in the late 1970s, at which point GSL notes that use of lead had greatly reduced within paints, if not completely stopped. White lead pigment was banned in New Zealand in 1979 and had been drastically reduced in concentrations in paints from 1950 up to that point. GSL notes that it is unlikely that any dwelling constructed in 1979 would have been subject to the use of lead paint to an extent where soil contamination may have occurred.

10 SOIL SAMPLING AND ANALYSIS

Based on the conceptual model developed in the above sections, GSL carried out a judgemental soil sampling regime which included the collection of composite soil samples from former horticultural blocks. The former horticultural areas of the site were divided into nine areas with one composite soil sample, composed of four discrete subsamples, collected from each area. Subsamples were collected using a stainless steel foot corer following the removal of any surficial vegetative cover. Each subsample was placed into a plastic zipper bag with the date, composite soil sample identification number, location and initials of the sampler noted on the bag. Once the four subsamples had been collected in the sample bag the soil was thoroughly mixed in order to homogenate the composite sample. GSL notes that the topsoil horizon across the full extent of the site was assessed to be a uniform organic rich silty loam, as the conceptual model identified that any potential contamination is likely to be uniformly distributed through the topsoil layer, the conditions on site are considered ideal for use of the composite methodology.

One discrete soil sample was collected from within the storage barn in an area where some minor surficial hydrocarbons staining was noted on the earth floor of the barn. The soil sample was collected using a stainless steel foot corer and placed directly in a laboratory prepared glass sample jar with the date, sample identification number, sample depth, location, and initials of the sampler noted on the label.

Sampling equipment was decontaminated in between samples using a soft soap solution in accordance with GSL internal quality control procedures.

10.1 LABORATORY ANALYSIS AND QUALITY CONTROL

10.2 ACCEPTANCE CRITERIA AND RELEVANT GUIDELINES

The NES mandates fourteen soil contaminant standards (SCS) for the protection of human health for organic compounds and inorganic elements for various landuse criteria. While a range of residential landuses are proposed, the NES human health SCS criteria for a residential block with 10% home grown produce (residential 10%) have been applied as a suitably conservative risk assessment for the proposed subdivision and development.

The AUP(OP) also sets permitted activity environmental discharge and soil acceptance criteria for potentially contaminated land against which the results have been assessed.

Results are also compared to the expected naturally occurring background concentration ranges of inorganic elements in non-volcanic soils in the Auckland Region.

11 ANALYTICAL RESULTS

A comparison of the analytical results with the relevant guideline criteria is provided in Table 1 below. Copies of the laboratory chain of custody (COC) document and analytical transcripts are attached in Appendix G, while a discussion of the results is provided below. GSL notes that no soil sample returned detectable concentrations of OCPs or TPH (SS1) at the laboratory limits of detection, these results have therefore been omitted from the table.

11.1 HEAVY METALS

All soil samples returned concentrations of heavy metals within the expected naturally occurring background concentration ranges for non-volcanic soils in the Auckland Region.

11.2 ORGANOCHLORINE PESTICIDES (OCPS)

All soil samples returned concentrations of OCPs below the laboratory limit of reporting.

11.3 POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

Soil sample SS1 returned a concentration of fluoranthene on its limit of reporting (0.03 mg/kg) which has a BaP equivalent concentration of 0.0003 mg/kg which falls well below the NES SCS and AUP(OP) permitted activity soil acceptance criteria.

Table 1: Analytical Results[1]

	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	BaP
SC1	5.1	-	-	8.5	<5	-	-	-
SC2	4.2	-	-	6.6	<5	-	-	-
SC3	2.3	-	-	<5	<5	-	-	-
SC4	<2	-	-	<5	<5	-	-	-
SC5	4.9	-	-	7.2	5.5	-	-	-
SC6	<2	-	-	<5	<5	-	-	-
SC7	5.7	-	-	15	17	-	-	-
SC8	7.7	-	-	18	20	-	-	-
SC9	<2	-	-	5.1	10	-	-	-
SS1	2.6	<0.4	16	8.1	14	<5	38	**0.0003**
NES[2]	20	3	460	>10,000	210	NL	NL	10
AUP(OP)[3]	100	7.5	400	325	250	105	400	20
Background[4]	0.4-12	<0.1-0.65	2-55	1-45	<5-65	0.9-35	9-180	ND

Notes:

1. All concentrations measured in mg/kg
2. National Environmental Standards for Assessing and Manging Contaminants in Soil for Assessing and Managing Contaminants in Soil to Protect Human Health – Residential landuse with 10% homegrown produce
3. Auckland Unitary Plan (Operative in Part) – Table E.30.6.14.1. Permitted activity soil acceptance criteria
4. For benzo(a)pyrene (BaP) the equivalent BaP concentration is calculated as the sum of each of the nine carcinogenic PAHs multiplied by their respective potency equivalence factors as per Table 40 of *The Methodology*
5. Values in **BOLD** exceed the NES criteria, values in **BOLD** exceed the AUP(OP) criteria, values in **BOLD** exceed the background ranges

6. NL = No limit / ND = not detected / NA = not applicable

12 CONCLUSIONS

GSL has conducted a detailed site investigation, in accordance with the MfE Contaminated Land Management Guidelines to determine the location and extent of current and / or former HAIL Activities on site and the potential for soil contamination, and the associated risk to human health and the environment, as a result. GSL has consequently concluded that:

- the site has been predominantly vacant grazing for the majority of its discernible past;
- the majority of the site was converted to horticultural activity between 1980 and 1996;
- a large poultry shed was constructed on 100 Hobsonville Road in 1976;
- residential landuse was established on the site in 1979 when a dwelling was relocated onto 100 Hobsonville Road

Based on the findings of the desktop review GSL developed a conceptual site model for potential contamination on site which identified the following potential sources of contamination:

- Direct sprayed use of persistent pesticides during horticultural activities on the site;
- Storage of machinery or chemicals in buildings on site;
- Potential for ACM on buildings constructed prior to 2000; and
- Septic tanks and Effluent disposal fields associated to the residential dwellings on site

The conceptual model identified that as the wider site area may have been subject to the sprayed application of persistent pesticides, that a generally uniform distribution of potential contaminants may be present across the surficial topsoil horizon. No distinct evidence for the bulk storage of persistent pesticides, or any other bulk storage was noted during the site inspection. Based on the conceptual model and observations of site, GSL conducted a judgemental soil sampling regime which included the collection of nine composite soil samples from the former horticultural blocks, and the collection of one discrete soil sample from the large barn in the north or the site where machinery appears to have been stored and visual hydrocarbons staining was noted. Composite soil samples were analysed for arsenic, copper, lead and organochlorine pesticides (OCPs), while the discrete soil sample was analysed for heavy metals, polycyclic aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPH). Analysis of the soil samples revealed;

- All composite soil samples returned concentrations of heavy metals within the expected naturally occurring background ranges for non-volcanic soils in the Auckland Region, and concentrations of OCPs below the laboratory limit of reporting; and
- the composite soil sample returned concentrations of heavy metals within the expected naturally occurring background concentration ranges for non-volcanic soil in the Auckland Region, and concentrations of TPH below the laboratory limit of reporting;
- the discrete soil sample returned detectable traces of PAH on the limit of reporting.

Based on the analytical results, GSL concludes that horticultural activity is highly unlikely to have resulted in impacts to the soil on site and are therefore highly unlikely to result in a risk to human health or the environment. While trace detections of PAH are returned in the soil sample collected in the barn, the concentrations are highly unlikely to result in a risk to human health or the environment.

With respect to the effluent disposal field related to the dwelling on 100 Hobsonville Road, GSL concluded that as the systems remain in use, that during the demolition of the dwelling the system can be decommissioned and validated following the completion of the removal. A site management plan has been provided in Section 14 of this report to address the requirements of the NES with regards to the removal of the effluent disposal systems and the disturbance of soil with detectable traces of PAH.

12.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

Due to the detection of PAH in soil in the barn, and the presence of the effluent disposal systems on 100 Hobsonville Road, those portions of the site will be required to address the regulations of the NES. That being said, as the detections of PAH are on the limit or reporting and fall orders of magnitude below the Residential 10% SCS, and as domestic waste water systems represent a very low risk to a discrete area of the site, GSL concludes that the proposed development is highly unlikely to result in a risk to human health. Subdivision and change in landuse of the site can therefore be considered a permitted activity under Regulation 8(4).

As the stained soil in the barn, septic tank and disposal field are considered HAIL, the regulations of the NES must be addressed should the disturbance of soil be undertaken in this area. GSL notes the volume of earthworks required to remove the disposal field infrastructure will likely comply with the permitted activity requirements of Regulation 8(3) of the NES.

Regulation 8(3) of the NES provides for small scale disturbance of soil on a piece of land as a permitted activity while the following conditions are met:

a) 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;

b) The soil must be reinstated to an erosion resistant state within 1 month after serving the purpose for which the activity was done

c) The volume of disturbance on soil must not be more than 25 m^3 per 500 m^2;

d) 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 soil samples;
  ii. For all other purposes combined, a maximum of 5 m^3 per 500 m^2may be taken away per year.

e) Soil taken away in the course of the activity must be disposed of at a facility licensed to receive soil of that kind;

f) The duration of the activity must be no longer than two months;

g) The integrity of a structure designed to contain contaminated soil must not be compromised.

A site management plan commensurate to the scale of works and risk associated with the removal of the effluent disposal infrastructure has been included as Section 13 below, the site management

plan documents the controls, site practises and procedures to be in place in accordance with the requirements of Regulation 8(3). For a piece of land of this size (13.5772 Ha), GSL notes that Regulation 8(3) allows for the disturbance of up to 6788.6 m^3 of soil and the offsite disposal of 1,357.72 m^3 of soil as a permitted activity.

GSL considers that while the requirements of the site management plan are in place, the removal of domestic effluent disposal fields and septic tanks is very low risk and fall within the remit of Regulation 8(3) as a small scale soil disturbance activity on a piece of land.

With respect to the hydrocarbon stained topsoil in the barn, while the soil does not meet the definition of cleanfill due to visual staining and detectable PAH, there is no reason that soil from this area cannot remain on site for reuse as top cover of landscaping. That being said, should off-site disposal of the soil be desired, while the soil will be required to be disposed of at a suitably licensed facility, the removal of the soil can be undertaken as a permitted activity alongside the decommissioning of the septic tanks and disposal fields.

12.2 THE AUCKLAND UNITARY PLAN (OPERATIVE IN PART) (AUP(OP))

For the same reasons as outlined above, the piece of land does not meet the Auckland Council definition of actually or potentially contaminated land, and the provisions of Chapter E.30 of the AUP(OP) will not apply to the proposed change in landuse, subdivision, and development and no further work, in this respect is required.

With regards to the effluent disposal field, as with the NES the removal of the effluent disposal field can be undertaken as a permitted activity under Rule E.30.6.1.2 of the AUP(OP) which provides for small scale disturbance activities as follows:

1) *The volume of soil disturbed must not exceed:*
   a. *200 m^3 per site; or*
   b. *200 m^3 per project for sites or road with multiple concurrent land disturbance projects, where the cumulative total volume of soil disturbance associated with each given project will be used when determining activity status; or*
   c. *An average depth and width of 1 m for linear trenching by network utilities in the road or rail corridor. For the purposes of this rule, the railway corridor does not include land more than 10 m from the rail tracks;*
2) *Prior to the activity commencing:*
   a. *The Council must be advised in writing if the volume of soil disturbed on land containing elevated levels of contaminants exceeds 25 m^3, including the details of the measures and controls to be implemented to minimise discharges of contaminants to the environment, and such controls are to be effective for the duration of the activity and until the soil is reinstated to an erosion resistant state; and*
   b. *Controls on linear trenching must be implemented to manage discharges to the environment from trenches acting as migration pathways for contaminants.*
3) *Any discharge from land containing elevated levels of contaminants must not contain separate phase liquid contaminants including separate phase hydrocarbons.*
4) *The duration of soil disturbance on site must not exceed two months*

Any contaminated material removed from the site must be disposed of at a facility or site authorised to accept such materials.

Should those conditions not be met, then resource consent may be required as a controlled activity under the AUP(OP).

12.3 HEALTH AND SAFETY AT WORK (ASBESTOS) REGULATIONS 2016

With respect to the demolition of any building constructed prior to 1999 the *Health and Safety at Work (Asbestos) Regulations 2016, demands* a fully intrusive pre-demolition hazardous building materials survey to be undertaken before demolition works can commence. The survey must be conducted by a suitably WorkSafe NZ licensed asbestos assessor, and will identify the location and extent of any hazardous building materials, specifically ACM. Should ACM be identified in the survey then asbestos removal works will be required prior to the demolition of the dwelling, the removal must be completed by an appropriately licensed asbestos removal contractor and under the controls of an asbestos removal control plan (to be provided by the appointed contractor. The hazardous building materials survey will form the basis of any asbestos removal control plan.

13 SITE MANAGEMENT PLAN

While Auckland Council identify effluent treatment and disposal field as potentially contaminating activities, GSL considers that domestic wastewater treatment systems can generally be considered low risk and can be decommissioned and removed from sites within the remit of a permitted activity, subject to appropriate controls being in place and effective for the duration of the soil disturbance activities. As the system is currently in use on site, it is not practical to undertake disturbance activities to assess underlying soil quality in advance of decommissioning and would be unnecessarily destructive to that system. Figure 2 identifies the approximate location of the effluent disposal field and septic tank on site.

As GSL understands that the existing dwelling is to be demolished, including the disposal field infrastructure, GSL notes that validation sampling post decommissioning can achieve the same level of certification of soil quality and ensure that any residual soil within the site can meet the applicable landuse standard.

The following section provide an assessment of the removal works against the permitted activity standards alongside appropriate practises and procedures for removal and validation of residual soils to ensure that any risks to human health or the environment are managed to an acceptably low level.

13.1 LOCATION AND EXTENT OF IMPACTED SOIL

GSL notes that the area impacted by hydrocarbon staining in the barn is extremely limited, being less than 20 m^2 in the eastern end of the barn, staining is constrained to the uppermost 10 mm of surface soil and not present below that depth. Disturbance required to address the visual staining is expected to be minimal

Plans contained within the property file indicate that the system is comprised of an Hynds Septic System, which consists of a multi chamber system with two disposal fields constructed of approximately 400 m of driplines. The specification of the tanks are not noted in the property file, however it appears to be concrete and covers an area of approximately 14 m^2, the depth is likely to not exceed 2 m below surface resulting in approximately 28 m^3, while the drip lines are expected to be situated in the topsoil horizon (i.e. the uppermost 400 mm of the soil profile).

The indicative area of the disposal field is approximately 2,503 m^2, with a maximum extent of disposal field lines of approximately 400 m. The extent of the disposal field areas is indicated on Figure 2.

13.2 PERMITTED ACTIVITY STANDARDS

As set out in Section 12.1 and 12.2 above, Regulation 8(3) of the NES and Rule E.30.6.1.2 allow for minor earthworks as a permitted activity. In the context of the site, the provisions of Regulation 8(3) would allow for the disturbance of up to 6,788.6 m^3, and the off-site disposal of up to 1,357.72 m^3 of soil for a piece of land of this size (13.5772 Ha), while the AUP(OP) allows for the disturbance of up to 200 m^3. The expected volume of soil disturbance required for the proposed decommissioning works should readily comply with the permitted activity standards of the NES and the AUP(OP).

The remaining sections of this report provide the practises and procedures to manage the risk of any actual or potential discharges during those works and will ensure that all material removed from the site is disposed of to an appropriately licensed facility.

13.3 SITE MANAGEMENT

The main construction contractor will ultimately be responsible for the implementation of this SMP and will be regarded as the primary PCBU for the project, under instruction from the Client. The main construction contractor may nominate a project manager who will oversee daily site operations, and as a result will be responsible for ensuring the following sections of the SMP are implemented and followed for the duration of the project. Any complaints, incidences, or accidental discoveries shall be reported to the main construction contractor/PCBU in the first instance.

13.3.1 CONTRACTOR HIERARCHY & SITE MANAGEMENT

GSL has prepared the information in Table 4 below to outline the responsibilities of suitably qualified and licenced professionals in relation to remedial works at the site. Each of the outlined professionals shall work collectively where work streams overlap to ensure remedial works are streamlined and undertaken in an efficient manner.

TABLE 4: RESPONSIBLE PARTIES

POSITION	CONTACT NAME & COMPANY	TELEPHONE NUMBER	RESPONSIBILITY
Main Construction Contactor			Project Delivery
Project Manager			Management of Project, PCBU
Site Manager/supervisor			Implementation of RAP
Contaminated Land Advisor			Validation of Remedial Works On-call assistance

13.3.2 ENGAGEMENT OF CONTAMINATED LAND ADVISOR

A suitably qualified Contaminated Land Advisor (CLA) will be appointed to provide on-call direction in relation to contamination / disposal issues for the project. The CLA will be suitably qualified and experienced in the investigation, reporting, remediation, and validation of contaminated land.

The CLA's main functions will be to:

- Assist in inspecting / screening potentially contaminated material;
- Assess the effectiveness of environmental control measures;
- Manage the collection and analysis of any soil samples (if required) in accordance with the Ministry for the Environment's (MfE) Contaminated Land Management Guideline No 1, (Reference 1);
- Provide assessments of the investigation;
- Make recommendations based on findings; and

Maintain regular liaison with the authorities if necessary.

13.3.3 BRIEFING SESSIONS

The site manager is to commission a briefing session for relevant staff and subcontractors prior to the commencement of works. The briefing session will include as a minimum:

- Known areas of impacted soil;
- Appropriate PPE and safety measures;
- Familiarisation with the requirements of the SMP;
- Guidance for identifying contaminated material as works progress (Appendix B); and
- Procedures to be followed should contaminated material be encountered (Appendix B).

13.3.4 HEALTH AND SAFETY PROCEDURES

While this SMP provides steps that are required in order to manage the removal of a small area of hydrocarbon staining alongside a septic system, the earthworks contractor is ultimately responsible for the H&S procedures related to the earthworks.

The concentrations of contaminants of concern identified within soils are compliant with the NES Soil Contaminant Standards for the commercial / industrial outdoor worker (unpaved), and provisions for the protection of the environment. Consequently, standard erosion, sediment and dust control mechanisms are considered more than adequate to manage any risks to the health and safety of workers during soil disturbance in this area.

The Health and Safety Guidelines on the Clean-up of Contaminated Sites developed by Occupational Safety and Health Services (OSH) provides reference to appropriate H&S measures that can be adopted for contaminated sites (Reference 2). A copy of this guideline can be provided upon request should the site manager have any distinct queries with respect to managing activities on site.

13.3.5 PERSONAL PROTECTIVE EQUIPMENT

The detected concentrations are not expected to present any specific risk to site workers. The major pathway for exposure to the identified contaminants of concern is via inhalation of contaminated dust. As this SMP includes provision for dust suppression, the minimum Personal Protective Equipment (PPE) which should be available on-site will be in accordance with the contractor's specific health and safety plan.

In the event of accidental discovery of unexpected contamination, or gross discharges of dust, GSL recommends that the following additional PPE be readily accessible to mitigate any risks associated with accidental discoveries:

- Protective leather or rubber gloves
- Safety glasses
- P2 Dust masks

The site manager will use his discretion with regard to the use of the additional PPE and might call on the CLA for advice on this matter.

13.4 SEPTIC TANK AND EFFLUENT DISPOSAL FIELD REMOVAL PROCEDURES

Prior to the excavation of the septic tank and disposal field, the site manager appointed by Austino Hobsonville 2 Ltd will arrange for the tank to be emptied through the use of an approved waste removal company utilising a suction truck specifically designed for this purpose. The waste will be disposed of by the appointed contractor to an approved liquid effluent receiving facility. Once empty, the tank will be carefully excavated and removed from site. Depending on the construction material and condition of the tank, it will either be disposed of to an appropriately licensed facility (e.g. landfill) or sent to a location for recycling under approved conditions.

After the tank has been pulled, the associated waste disposal infrastructure will be excavated alongside a small volume of soil and disposed of to an appropriately licensed waste receiver. The location of the septic tank and approximate extent of the dispersal field were confirmed in an

engineering inspection and report held on the Council property file. That said, it is noted that this is not an as built plan and as such the effluent disposal pipes should be 'chased out' using an excavator starting at the septic tank through to termination.

The use of experienced contractors and licensed disposal locations will provide the primary controls in managing any actual or potential adverse effects associated with the decommissioning process.

Appropriate Personal Protective Equipment (PPE), in accordance with the contractors H&S requirements will be utilised alongside mechanical excavation as far as possible to minimise any direct contact with actually or potentially hazardous waste. Decontamination (wash down) facilities will be available on site for the full extent of works for any personnel who may come into direct contact with residual waste or potentially impacted soil. In addition, all plant and equipment utilised during the decommissioning process will be appropriately decontaminated upon completion of those works and prior to being used in any other works.

With regards to earthworks controls, the works will include the excavation of the tank pit and trench which will not be expected to create any sediment laden run off. As the trench will be left open until validation has been undertaken, silt fences (or other appropriate controls as required) will be installed as required to prevent any sediment laden run off which might occur.

Should inclement weather be expected once works have commenced, but prior to stabilisation, localised erosion and sediment controls will be installed around the extent of works on an as necessary basis. If rainwater infiltrates the pit and trench it will be left to naturally percolate / drain into the underlying soil.

It is expected that those controls will primary be super silt fences and sediment socks as detailed in Auckland Council Guidance Document GD05, however the site manager / consent holder will use their discretion as to the exact extent of required controls.

Similarly, should works be undertaken in dry conditions and be observed to create visual plumes of dust, dust will be controlled through light and frequent water spraying under the direction of the site manager.

13.4.1 Validation of Effluent Disposal System

Following the completion of removal works for the septic tank and effluent disposal system, the appointed Contaminated Land Advisor will visually inspect the full extent of all excavations to confirm that all disposal infrastructure has been removed from site. In conjunction with that visual assessment, 4 - 5 validation soil samples will be collected from the excavation of the tank pit and disposal field as per the indicative locations shown on Figure 2. Soil samples will be collected from the base of the excavated disposal field and from the base of the tank pit, which are considered to represent the worst case scenarios of soil quality in light of the discharges.

Validation soil samples will be submitted to an accredited laboratory for the analysis of a suite of eight heavy metals. Analytical results will be compared against the NES soil contaminant standards for residential landuse with 10% homegrown produce as a suitably conservative remediation goal.

In the event that any of the validation soil samples return that exceeds the Soil Contamination Standards for Residential Landuse (10% Produce), the CLA in discussion with the landowner will determine the extent of any further remedial excavations that may be required, and further validation soil sampling will follow until such a time as all validation samples comply with the

remedial goal. It is noted that the CLA will be required to assess the quantum of additional remedial works required to ensure that those volumes remain within the permitted activity criteria stipulated by the NES and AUP(OP). Should volumes be expected to exceed the permitted activity threshold, works shall cease while any necessary resource consents area sought.

13.5 DISTURBANCE OF PAH IMPACTED SOIL

While detectable concentrations of PAH are noted in the barn in the northern portion of the site, the volume of disturbance required to address the stained areas of soil will be minimal and limited to a surface scrape of the stained area. GSL notes that there is no reason why unstained soil may not remain on site for re-use as topcover or landscaping.

The following practices and procedures will be implemented on site to manage any soil disturbance activities within the piece of land in light of the identified contaminants of concern.

- Prior to earthworks commencing, the contractor will arrange contingency disposal measures for any soil or excavated material encountered during earthworks that is deemed unacceptable for the proposed development. General surface soil must be disposed of at a managed-fill facility that is licenced to accept soil of this nature;
- Erosion and sediment control devices in accordance with Auckland Council Guidance Document GD05 will be established prior to any soil disturbance activities commencing;
- An area on site will be prepared for the temporarily stockpiling of material of suspicious nature that might be encountered during the earthworks;
- Any temporary stockpiles will be managed (kept damp) to ensure that there is no excess dust generated from the stockpiles;
- Earthworks will be undertaken predominantly through the use of mechanical excavation and should off-site disposal be required, direct loadout into trucks and / or truck and trailer units. All vehicles transporting material from site will travel directly to the approved fill facility;
- If necessary, silt fencing will be placed around the temporary stockpiles to ensure that there is no excess sediment run-off from the stockpiles;
- The CLA will be available on call to inspect any suspicious or noxious material that might be encountered during the earthworks. If necessary, the CLA will take soil samples for analysis of any foreign material that is discovered and advise on the disposal of any such material;
- Upon completion of the excavation the site manager shall ensure that plant and equipment are cleaned and decontaminated appropriately; and
- A landfill manifest or weigh bridge dockets of all material disposed of at a managed fill or landfill facility will be kept.

13.5.1 DUST CONTROL

Dust controls are required to minimise pollutants becoming airborne and reduce stormwater sediment loads. If the proposed earthworks are undertaken in dry conditions, dust can be

controlled by light frequent water spraying. Water spraying should be frequent enough to suppress the generation of dust but not as heavy as to generate sediment laden water run-off.

The site manager will use his discretion with regard to dust suppression and will be ultimately responsible for ensuring the control of dust during earthworks on site

13.6 CONTINGENCIES

In the event that other contamination is encountered on the site during the works, the site manager, in consultation with the CLA, will either:

- Identify the material in situ if possible (staining, odour, visible fibres or refuse etc.); or
- Excavate the material to a suitable leak proof and covered skip-bin or truck and take representative samples for analysis, placing the material on hold for appropriate disposal; or
- Halt excavations in the immediate vicinity of the discovery while the material is sampled in-situ, and removal / disposal options explored once the analytical results are returned.

An appropriate log will be kept by the site manager of any unidentified contamination encountered during the excavations.

GSL has produced a contaminated soil discovery guideline (CSDG) document that outlines the signs, risks, and remedial actions required for contamination scenarios that may be encountered during remedial earthworks (Appendix F).

Suspicious material will be investigated by the CLA and laboratory analysed if deemed necessary. The CLA will advise on the disposal options of any uncertain materials. Disposal options can include:

- remove to an appropriate temporary stockpile area for further testing and analysis; or
- disposal at a cleanfill, managed fill or landfill facility.

The appointed contractor might have their own discovery procedures based upon their specific experiences in working with contaminated land of various natures (urban to rural). Contractor specific documents may be used alongside or in conjunction with this RAP.

If any staff, contractors, or consultants discover contamination, they should notify the site manager immediately, who should enact the provisions of the plan.

13.7 FIBROUS MATERIAL (ASBESTOS)

It is not anticipated that any asbestos materials will be encountered within soils on the site. That being said, given the age of the barn and structures on site and the visually identifiable building materials, the presence of ACM cannot be ruled out entirely.

Where friable asbestos containing materials (ACM) are identified in the soil matrix, all works shall cease (including the excavation and disposal of affected materials) until the provisions of the *Health and Safety at Work (Asbestos) Regulations 2016* are exercised.

ACM identification will primarily be through visual identification by a suitably competent person. Any fibrous material observed during the excavations will be visually inspected, photographed and representative samples submitted to an accredited laboratory for analysis. Following receipt of

results, the site manager in conjunction with the CLA shall determine what, if any, further remedial steps are required, including the provision of asbestos removal control plans, semi-quantitative analysis, or site management under the *BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil (November 2017)*.

13.8 REPORTING AND RECORD KEEPING

At completion of the earthworks, the site manager shall provide a report that shall include records of the:

- Volume and nature of any material removed from site and all managed-fill/landfill disposal dockets;
- A log of any unknown or suspicious materials encountered during the earthworks;
- Laboratory reports, if any;
- Any complaints or incidents; and
- Site photographs of all excavations and re-instatement works.

.

14 REFERENCES

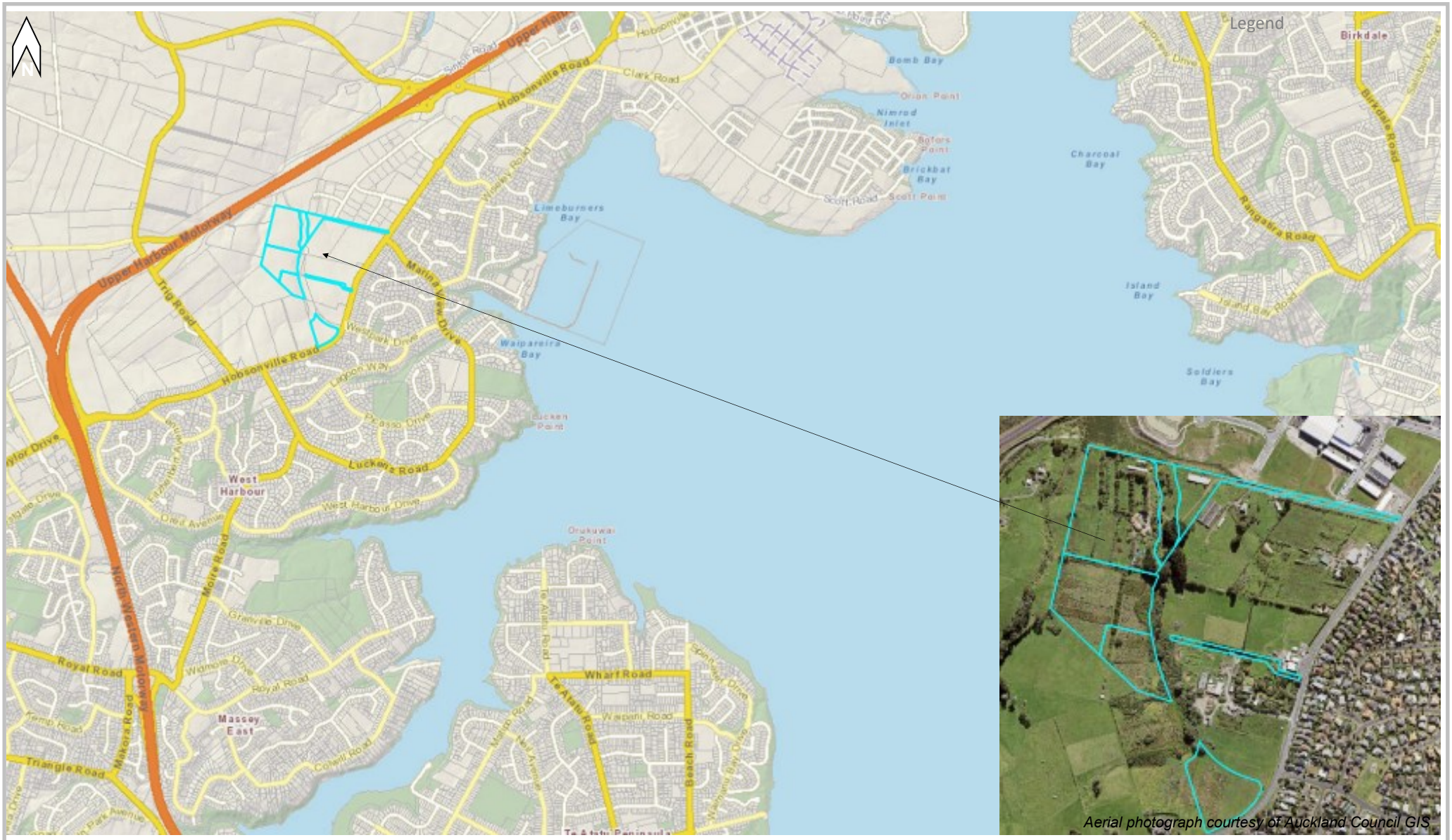
1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2012) - Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
4. Auckland Council (2013) –*Auckland Unitary Plan (Operative in Part)*, Auckland, New Zealand.
5. Auckland Council (2011) - *Auckland Council GEOMAPS*. http://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html
6. Retrolens Historical Image Resource - www.retolens.co.nz
7. Edbrooke, S.W (2001) — *Geology of the Auckland Urban Area* Institute of Geological and Nuclear Sciences Geological Map 3, Lower Hutt, New Zealand.
8. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health.* Ministry for the Environment, Wellington, New Zealand.
9. Gaw, S. K. (2002) - Pesticide Residues in Horticultural Soils in the Auckland Region, Auckland Regional Council Working Report No. 96. Auckland Regional Council, Auckland.
10. Auckland Regional Council (2001) – Background Concentrations of Inorganic Elements in Soils from the Auckland region (TP153) – Auckland.

15 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations may differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM .
9. Except as specifically stated in this report, no investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current or proposed use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or planned use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law, no third party may use or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability, or claim may exist or be available to any third party.
16. Except as specifically stated in this section, GSL does not authorise the use of this report by any third party.

FIGURES



geosciences ltd ENVIRONMENTAL	Title:	Figure 1 - Site Locality	Reference: J1329 Date: 22/03/2019
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	86, 90 & 100 Hobsonville Road, Hobsonville	Drawn: DW Approved: COB

geosciences ltd
ENVIRONMENTAL
Level 1, 47 Clyde Road,
Browns Bay, 0630
Tel: (09) 475 0222

FIgure 2 - Site Infrastructure

86-100 Hobsonville Road, Hobsonville

Reference:	J1329
Date:	6/03/2019
Drawn:	DW
Approved:	COB

geosciences ltd
ENVIRONMENTAL
Level 1, 47 Clyde Road,
Browns Bay, 0630
Tel: (09) 475 0222

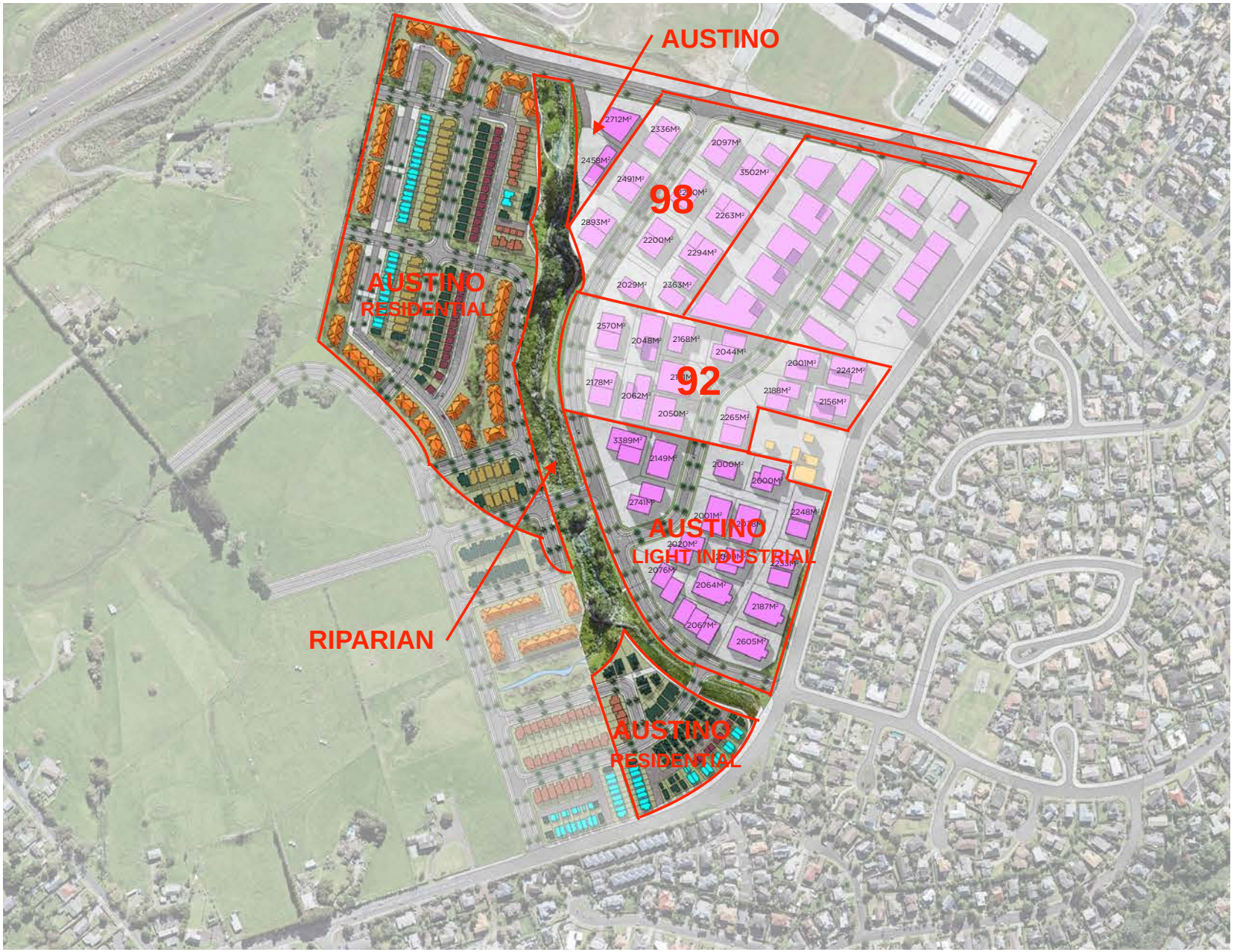
FIgure 3 - Soil Samples Locations

86-100 Hobsonville Road, Hobsonville

Reference:	J1329
Date:	6/03/2019
Drawn:	DW
Approved:	COB

APPENDIX A PROPOSED SCHEME PLAN

ILLUSTRATIVE SITE PLAN



KEY

- Zero Lot-line Detached Triple Storey Dwelling (4/5 bedrooms - approx. 210m2 GFA) ---------- 61
- Zero Lot-line Detached Triple Storey Dwelling (3/4 bedrooms - approx. 180m2 GFA with a ground level 1 bedroom - approx. 50m2 GFA minor unit) ---------- 62
- Terrace Triple Storey Dwelling (3 bedrooms - approx. 180m2 GFA with a ground level 1 bedroom - approx. 50m2 GFA minor unit) -- 36
- Duplex Double Storey Dwelling (2.5 bedrooms - approx. 100m2 GFA with a single car parking space within group parking) ---------- 54
- Minor Compact Dwelling (1 bedroom - approx. 50m2 GFA with a single car parking space) -------- 36
- Three Storey Walkup Apartment (2/2.5 bedrooms - 65/70m2 GFA with a single car parking within group parking) ---------- 231
- Light Industrial Site (minimum 2000m2 lot - 20m height limit) ---------- 18

Approximate Yield inside the Site (excluding 82, 92, 94, 96 & 98 Hobsonville Road)

Residential ---------- 480
Light Industrial ---------- 18

Note:

This conceptual layout is subject to more detailed technical investigations and other specialist inputs. Any proposal at this level requires appropriate discussion with Council to receive their feedback - which has not been obtained yet.

HARRISON GRIERSON

100 HOBSONVILLE ROAD

AUSTINO HOBSONVILLE 2 LIMITED

Project: 1021-144443-01
Date: 10 October 2018
Status: Draft
Scale: 1:4000 at A3
Revision: B

File Path:U:\1021\144443_a\UD\Site Plans\144443_100 Hobsonville Road_revision_v2_5 Oct.indd

APPENDIX B CERTIFICATE OF TITLE

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier 728445
Land Registration District North Auckland
Date Issued 10 February 2016

Prior References
NA119B/538

Estate	Fee Simple
Area	3.6151 hectares more or less
Legal Description	Section 1, 5 Survey Office Plan 490597

Registered Owners
Austino Hobsonville 2 Limited

Interests

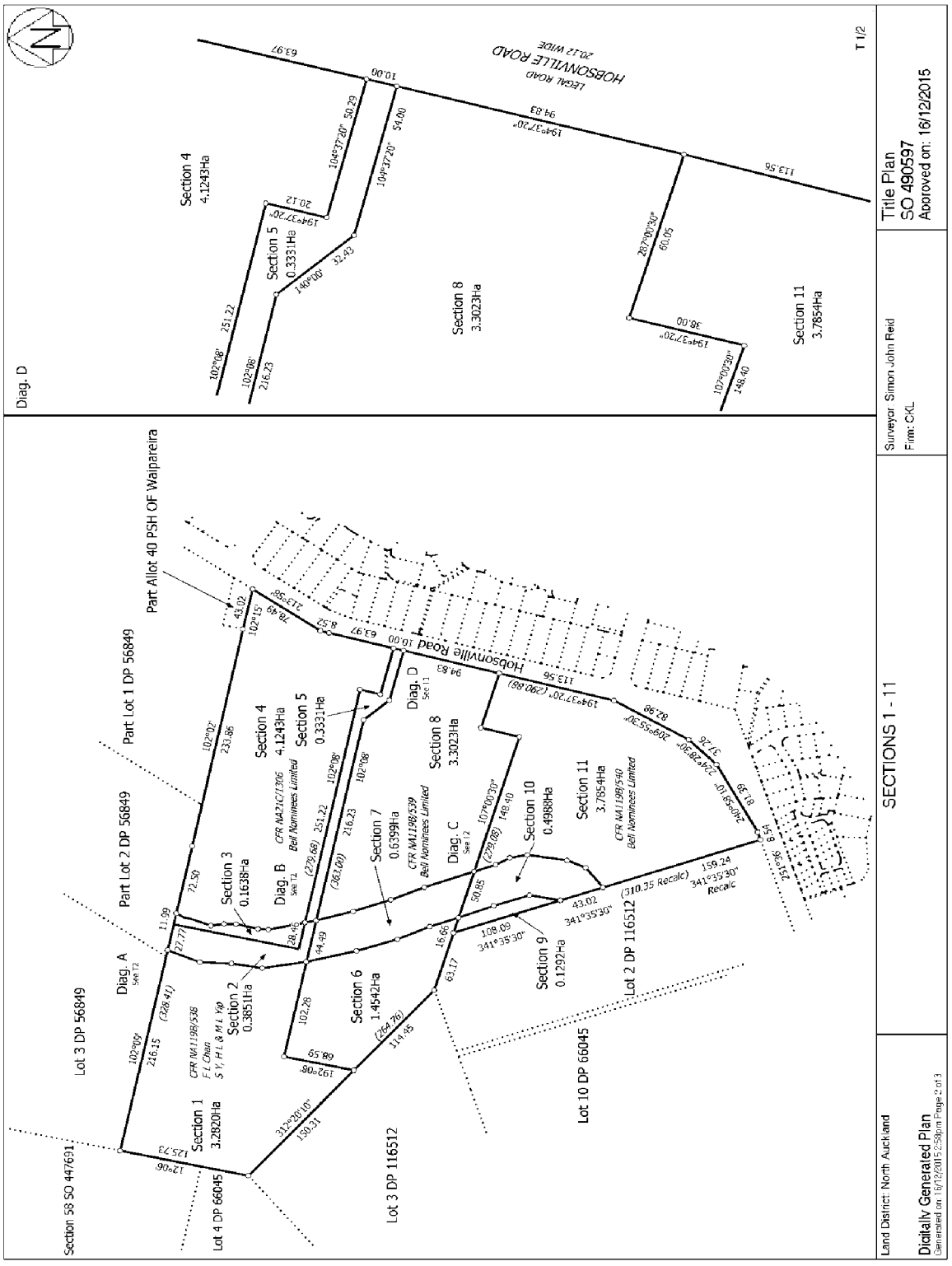
C428346.1 Notice pursuant to Section 94C Transit New Zealand Act 1989 declaring the adjoining State Highway No. 18 known as Hobsonville Road to be a limited access road - 5.11.1992 at 2.01 pm

8934563.4 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

Appurtenant hereto is a right of way created by Easement Instrument 11135543.1 - 23.8.2018 at 9:22 am

11363916.6 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

Identifier **728445**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **728445**
Land Registration District **North Auckland**
Date Issued 10 February 2016

Prior References
NA119B/538

Estate	Fee Simple
Area	3.6151 hectares more or less
Legal Description	Section 1, 5 Survey Office Plan 490597

Original Registered Owners
Bell Nominees Limited

Interests

C428346.1 Notice pursuant to Section 94C Transit New Zealand Act 1989 declaring the adjoining State Highway No. 18 known as Hobsonville Road to be a limited access road - 5.11.1992 at 2.01 pm

D388106.5 Mortgage to Bank of New Zealand - 13.5.1999 at 1.44 pm

8934563.4 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

10074417.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Auckland Council - 26.5.2015 at 9:42 am

10908145.1 Discharge of Compensation Certificate 10074417.1 - 26.9.2017 at 9:13 am

10942810.1 CAVEAT BY AUSTINO HOBSONVILLE 2 LIMITED - 27.10.2017 at 6:15 pm

Appurtenant hereto is a right of way created by Easement Instrument 11135543.1 - 23.8.2018 at 9:22 am

11363916.1 Withdrawal of Caveat 10942810.1 - 1.3.2019 at 3:54 pm

11363916.3 Discharge of Mortgage D388106.5 - 1.3.2019 at 3:54 pm

11363916.5 Transfer to Austino Hobsonville 2 Limited - 1.3.2019 at 3:54 pm

11363916.6 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier 728447
Land Registration District North Auckland
Date Issued 10 February 2016

Prior References
NA119B/539

Estate	Fee Simple
Area	4.7565 hectares more or less
Legal Description	Section 6, 8 Survey Office Plan 490597

Registered Owners
Austino Hobsonville 2 Limited

Interests

C428346.1 Notice pursuant to Section 94C Transit New Zealand Act 1989 declaring part State Highway No. 18 known as Hobsonville Road to be a limited access road - 5.11.1992 at 2.01 pm

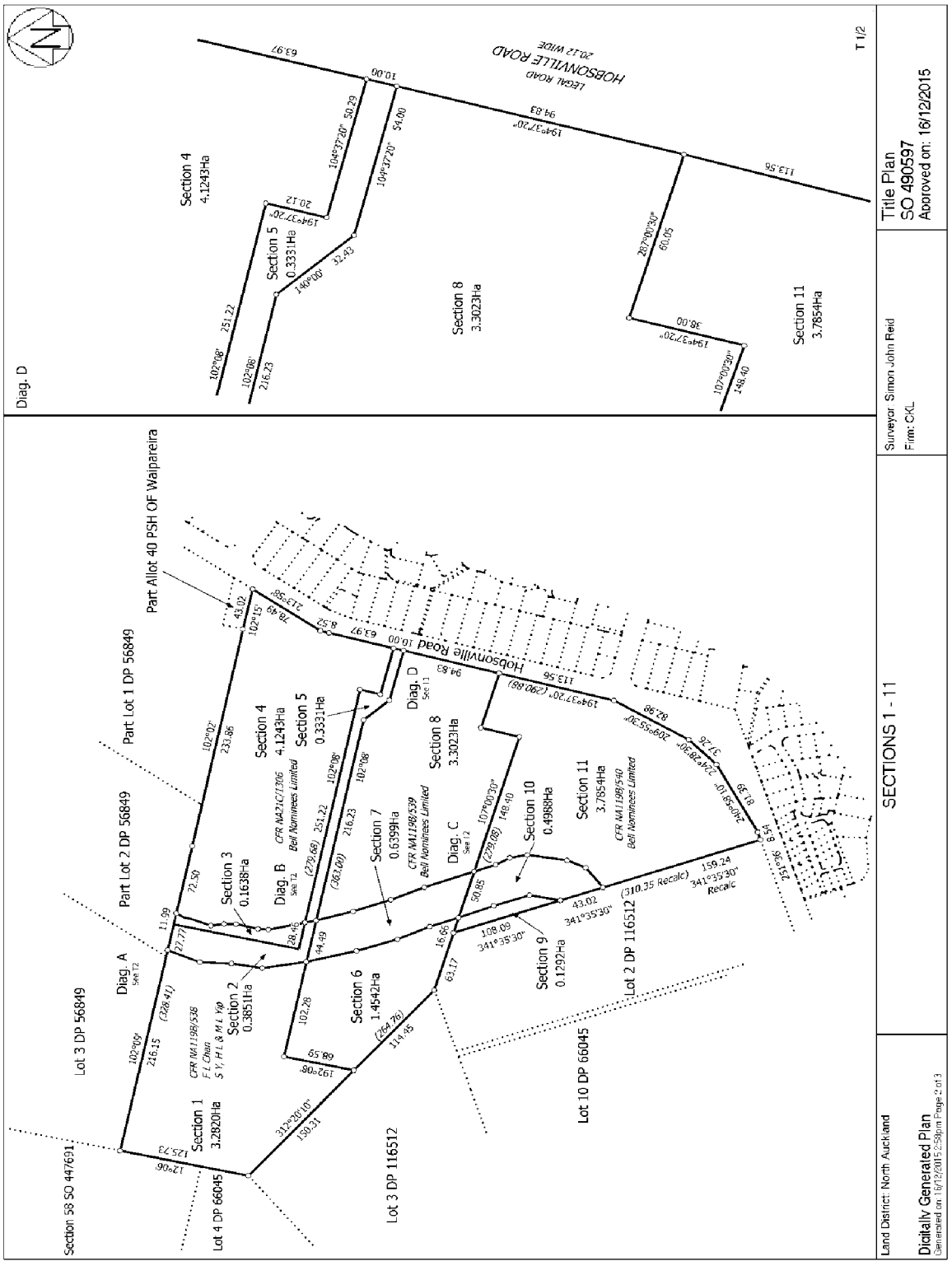
8934563.5 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

8934563.6 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

Appurtenant hereto is a right of way created by Easement Instrument 11143006.1 - 23.8.2018 at 9:22 am

11363916.6 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

Identifier **728447**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **728447**
Land Registration District **North Auckland**
Date Issued 10 February 2016

Prior References
NA119B/539

Estate	Fee Simple
Area	4.7565 hectares more or less
Legal Description	Section 6, 8 Survey Office Plan 490597

Original Registered Owners
Bell Nominees Limited

Interests

C428346.1 Notice pursuant to Section 94C Transit New Zealand Act 1989 declaring part State Highway No. 18 known as Hobsonville Road to be a limited access road - 5.11.1992 at 2.01 pm

D537290.3 Mortgage to Bank of New Zealand - 31.8.2000 at 3.48 pm

8934563.5 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

8934563.6 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

10074426.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Auckland Council - 26.5.2015 at 9:42 am

10908147.1 Discharge of Compensation Certificate 10074426.1 - 26.9.2017 at 9:15 am

10942810.1 CAVEAT BY AUSTINO HOBSONVILLE 2 LIMITED - 27.10.2017 at 6:15 pm

Appurtenant hereto is a right of way created by Easement Instrument 11143006.1 - 23.8.2018 at 9:22 am

11363916.1 Withdrawal of Caveat 10942810.1 - 1.3.2019 at 3:54 pm

11363916.4 Discharge of Mortgage D537290.3 - 1.3.2019 at 3:54 pm

11363916.5 Transfer to Austino Hobsonville 2 Limited - 1.3.2019 at 3:54 pm

11363916.6 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**798036**
Land Registration District	**North Auckland**
Date Issued	11 July 2017

Prior References
728448

Estate	Fee Simple
Area	3.4000 hectares more or less
Legal Description	Section 1, 3 Survey Office Plan 509537

Registered Owners
Austino Hobsonville 2 Limited

Interests

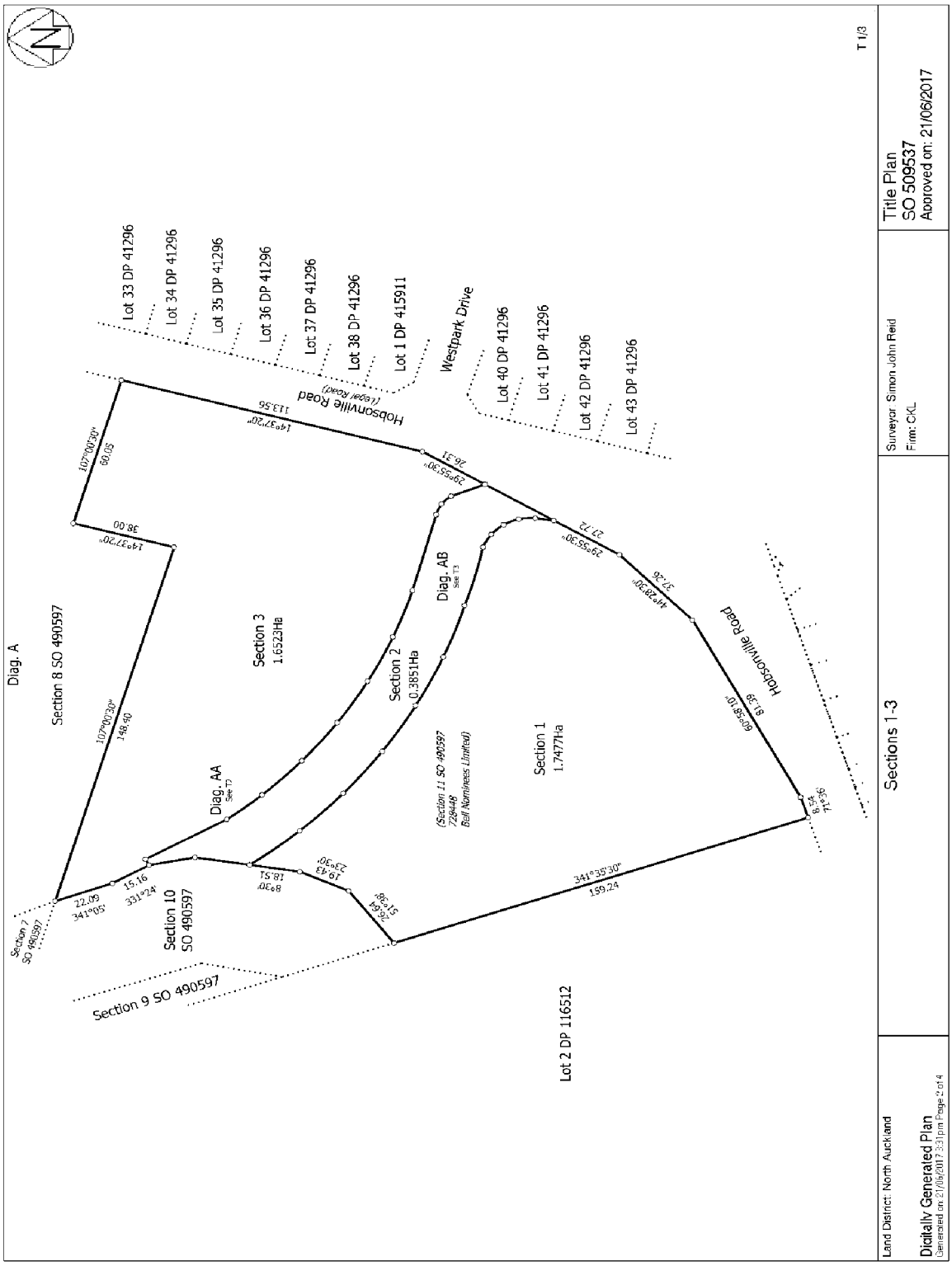
C428346.1 Notice pursuant to Section 94C Transit New Zealand Act 1989 declaring part State Highway No. 18 known as Hobsonville Road to be a limited access road - 5.11.1992 at 2.01 pm

8934563.3 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

8934563.5 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

11363916.6 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

Identifier **798036**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **798036**
Land Registration District **North Auckland**
Date Issued 11 July 2017

Prior References
728448

Estate	Fee Simple
Area	3.4000 hectares more or less
Legal Description	Section 1, 3 Survey Office Plan 509537

Original Registered Owners
Bell Nominees Limited

Interests

C428346.1 Notice pursuant to Section 94C Transit New Zealand Act 1989 declaring part State Highway No. 18 known as Hobsonville Road to be a limited access road - 5.11.1992 at 2.01 pm

D359875.9 Mortgage to Bank of New Zealand - produced 19.2.1999 at 11.08 am and entered 4.3.1999 at 2.58 pm

8934563.3 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

8934563.5 Notice pursuant to Section 91 Government Roading Powers Act 1989 - 6.12.2011 at 7:00 am

10074394.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Auckland Council - 26.5.2015 at 9:41 am

10655081.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Auckland Council - 12.12.2016 at 11:43 am

10892495.1 Departmental dealing correcting the plan image linked to the title - 31.8.2017 at 11:00 am

10908142.1 Discharge of Compensation Certificate 10074394.1 - 26.9.2017 at 9:12 am

10908143.1 Discharge of Compensation Certificate 10655081.1 - 26.9.2017 at 11:04 am

10942810.1 CAVEAT BY AUSTINO HOBSONVILLE 2 LIMITED - 27.10.2017 at 6:15 pm

11363916.1 Withdrawal of Caveat 10942810.1 - 1.3.2019 at 3:54 pm

11363916.2 Discharge of Mortgage D359875.9 - 1.3.2019 at 3:54 pm

11363916.5 Transfer to Austino Hobsonville 2 Limited - 1.3.2019 at 3:54 pm

11363916.6 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **817760**
Land Registration District **North Auckland**
Date Issued 04 December 2017

Prior References
NA12C/778

Estate	Fee Simple
Area	5.8896 hectares more or less
Legal Description	Section 1, 3 Survey Office Plan 511858

Registered Owners
Austino Hobsonville 1 Limited

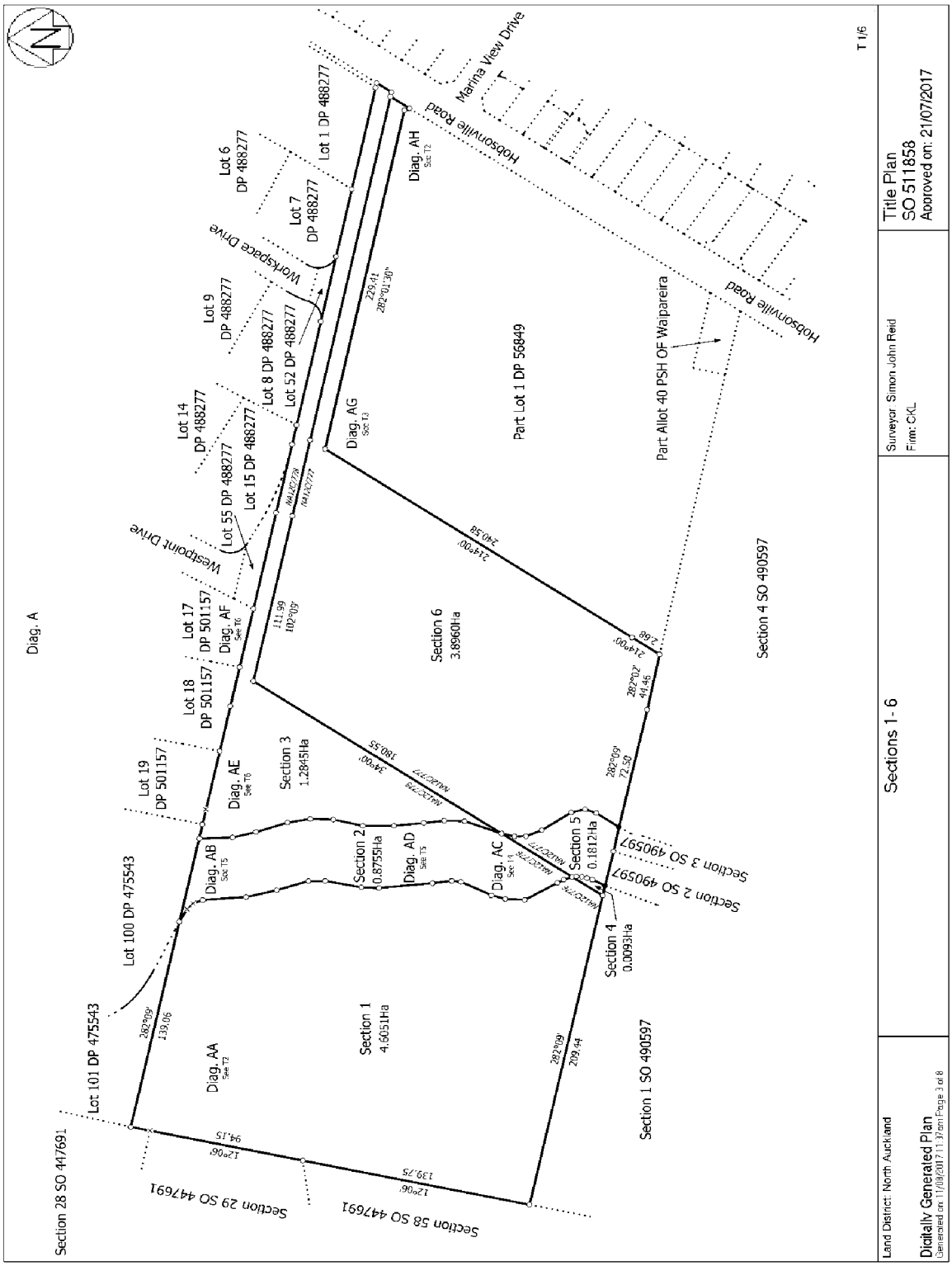
Interests

C428346.1 Certificate pursuant to Section 94(c) of the Transit New Zealand Act 1989 declaring that part of State Highway No.18 known as Hobsonville Road commencing at its junction with State Highway 16 and proceeding in an eastern direction to Upper Harbour Drive to be a Limited Access Road - 5.11.1992 at 2.01 pm

D149983.1 Compensation Certificate by the Minister of Lands - 29.5.1997 at 1.36 pm

Appurtenant hereto is a right of way (existing use and infrastructure construction works access) created by Easement Instrument 11173446.1 - 16.8.2018 at 10:38 am

11363916.7 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm


Marina View Drive
Hobsonville Road
Hobsonville Road
Workspace Drive
Westpoint Drive
Lot 1 DP 488277
Lot 6 DP 488277
Lot 7 DP 488277
Lot 9 DP 488277
Lot 8 DP 488277
Lot 52 DP 488277
Lot 14 DP 488277
Lot 15 DP 488277
Lot 55 DP 488277
Lot 17 DP 501157
Lot 18 DP 501157
Lot 19 DP 501157
Lot 100 DP 475543
Lot 101 DP 475543
Section 28 SO 447691
Section 29 SO 447691
Section 58 SO 447691
Diag. A
Diag. AA
Diag. AB
Diag. AC
Diag. AD
Diag. AE
Diag. AF
Diag. AG
Diag. AH
Part Lot 1 DP 56849
Part Allot 40 PSH OF Waipareira
Section 1 SO 490597
Section 2 SO 490597
Section 3 SO 490597
Section 4 SO 490597
Section 1 4.6051Ha
Section 2 0.8755Ha
Section 3 1.2845Ha
Section 4 0.0093Ha
Section 5 0.1812Ha
Section 6 3.8960Ha
Sections 1 - 6
Title Plan SO 511858 Approved on: 21/07/2017
Surveyor: Simon John Reid Firm: CKL
Land District: North Auckland
Digitally Generated Plan
T1/6

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **817760**
Land Registration District **North Auckland**
Date Issued 04 December 2017

Prior References
NA12C/778

Estate	Fee Simple
Area	5.8896 hectares more or less
Legal Description	Section 1, 3 Survey Office Plan 511858

Original Registered Owners
Austino Hobsonville 1 Limited

Interests

C428346.1 Certificate pursuant to Section 94(c) of the Transit New Zealand Act 1989 declaring that part of State Highway No.18 known as Hobsonville Road commencing at its junction with State Highway 16 and proceeding in an eastern direction to Upper Harbour Drive to be a Limited Access Road - 5.11.1992 at 2.01 pm

D149983.1 Compensation Certificate by the Minister of Lands - 29.5.1997 at 1.36 pm

10556165.1 Notice pursuant to Section 18 Public Works Act 1981 - 7.9.2016 at 3:41 pm

10895233.1 Notice pursuant to Section 23 Public Works Act 1981 - 5.9.2017 at 7:00 am

10420335.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Auckland Council - 17.10.2017 at 9:47 am

11078659.1 Withdrawal of Notice 10556165.1 pursuant to Section 18 Public Works Act 1981 - 6.4.2018 at 1:47 pm

11078659.2 Discharge of Compensation Certificate 10420335.1 - 6.4.2018 at 1:47 pm

11078659.3 Withdrawal of Notice 10895233.1 pursuant to Section 23 Public Works Act 1981 - 6.4.2018 at 1:47 pm

Appurtenant hereto is a right of way (existing use and infrastructure construction works access) created by Easement Instrument 11173446.1 - 16.8.2018 at 10:38 am

11363916.7 Mortgage to Bank of New Zealand - 1.3.2019 at 3:54 pm

APPENDIX C HISTORICAL AERIAL PHOTOGRAPHS

Title:	**Historic Aerial Photographs**	**Reference:**	J1329
Project name:	86-90 & 100 Hobsonville Road, Hobsonville	**Date:**	19/03/2019
		Drawn:	DW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

Title:	**Historic Aerial Photographs**	**Reference:**	J1329
Project name:	86-90 & 100 Hobsonville Road, Hobsonville	**Date:**	19/03/2019
		Drawn:	DW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

Title:	**Historic Aerial Photographs**	**Reference:**	J1329
Project name:	86-90 & 100 Hobsonville Road, Hobsonville	**Date:**	19/03/2019
		Drawn:	DW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

Title:	**Historic Aerial Photographs**	**Reference:**	J1329
Project name:	86-90 & 100 Hobsonville Road, Hobsonville	**Date:**	19/03/2019
		Drawn:	DW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

APPENDIX D PROPERTY FILE EXTRACTS

FJD:YMM

22 February 1978

Mr.G.B.Murray,
100 Hobsonville Road,
HOBSONVILLE.

Dear Sir,

RE: BUILDING PERMIT 5298 - Poultry Shed on Lot 3 DP 56849, 100 Hobsonville Rd.

In connection with the above building permit, your attention is drawn to the writer's letter of 14 December 1977 in which you were advised that the Building Inspector for the area Mr.Forster was unable to carry out a final inspection of the work as he was unable to gain access to the property.

It is also understood that you rang Mr.Forster before Christmas and at that time indicated that you would ring Mr.Forster again when he returned from leave.

As yet no communication has been received, and your attention to this matter would be appreciated.

Yours faithfully,

F.J.DUCKWORTH
for CITY INSPECTOR

FJD:YNM

14 December 1977

Mr.G.B. Murray,
100 Hobsonville Road,
HOBSONVILLE.

Dear Sir,

RE: BUILDING PERMIT 5298 - Poultry Shed on Lot 3 DP 56849, 100 Hobsonville Road.

In connection with the above building permit, you are advised that the Building Inspector for the area Mr.Forster advises that he is unable to carry out a final inspection of the work related to the above building permit as he was unable to gain access to the property.

In view of the above, it would be appreciated if you would contact Mr.Forster at the Te Atatu District Office, 247 Edmonton Road, Te Atatu South, telephone NEW 61-113 to 61-119 between the hours of 8.30 and 9.45a.m. on any week day in order to arrange a suitable time for a final inspection to be carried out.

Yours faithfully,

F.J.DUCKWORTH
for CITY INSPECTOR

Alan
Situation Please
16/1/78

Mr Murray rang before Christmas & was to have rung me back when I came back from leave no communication received to date.

DH 20/1/78

WAITEMATA CITY COUNCIL

Date 13 December 1977

MEMORANDUM *for:-*

Mr Duckworth

Nº 33116

Subject: BP 5298 - G. B & E. Mr. Murray - 100 Hobsonville Rd Hobsonville.

Would you write to Mr Murray (Box 28034, Remuera) & advise him that a final inspection has not been made in relation to attached file. In order to make such an inspection it will be necessary to gain access. Would you request that he contact me & arrange such an inspection.

A. J. Foster.

FJD:YMM

14 December 1977

Mr.G.B. Murray,
100 Hobsonville Road,
HOBSONVILLE.

Dear Sir,

RE: BUILDING PERMIT 5298 - Poultry Shed on Lot 3 DP 56849, 100 Hobsonville Road.

In connection with the above building permit, you are advised that the Building Inspector for the area Mr.Forster advises that he is unable to carry out a final inspection of the work related to the above building permit as he was unable to gain access to the property.

In view of the above, it would be appreciated if you would contact Mr.Forster at the Te Atatu District Office, 247 Edmonton Road, Te Atatu South, telephone HSN 61-113 to 61-119 between the hours of 8.30 and 9.45a.m. on any week day in order to arrange a suitable time for a final inspection to be carried out.

Yours faithfully,

F.J.DUCKWORTH
for CITY INSPECTOR

F 17590

19

CITY OF WAITEMATA

Roll No. / /

3270/608Pt

BUILDING PERMIT

No 5298

Owner of Section G.B. & S.H. Murray

Address Box 28034, Remuera

Date 15.9.76

THIS PERMIT is granted to the undermentioned person authorising the following building work on Lot No. 3 DP 66840

on 100 Hobsonville Road, Hobsonville in accordance with the plans lodged and

subject to the following conditions: To notations on plans.
Drainlayer to confer with Drainage Inspector before commencing work.

Nature of proposed work
Poultry shed

Plumbing: $300
Drainage: $100
Value of work, $ 12,855

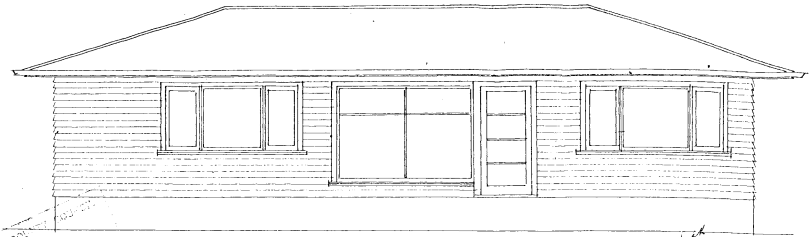
Fee $ 60 00 Rec. No 2572 3 - 23.8.76
Structural Fee $15.00 25725 - 23.8.76

G.D. Murray

Bldr: H.H. Simsons
Holroee Road,
HILLSBOROUGH

For the Waitemata City Council

Duly Authorised Officer.

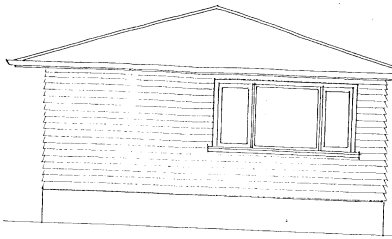


FRONT ELEVATION

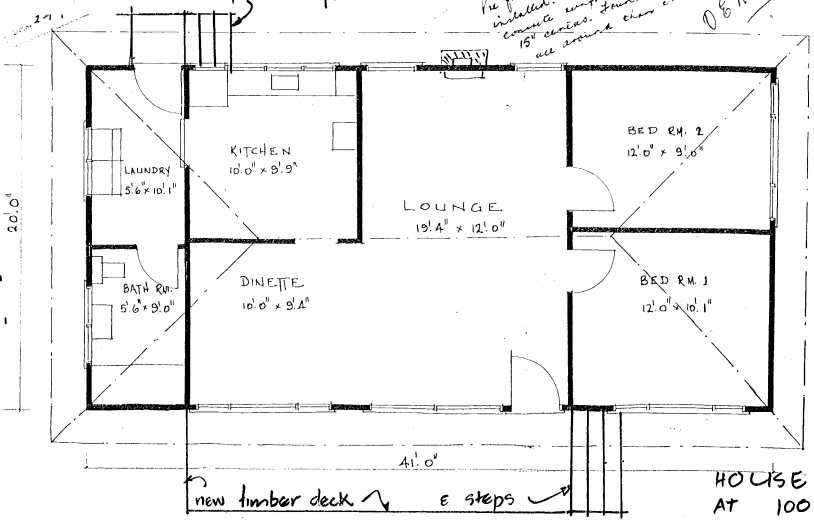
new porch & steps

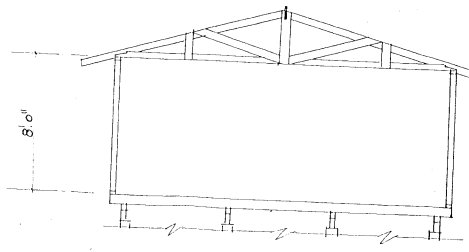
Pre fab. chimney to be 6" thick concrete surfaced with steel rods at 15" centres. Foundation to be 6" wide all around chimney base.

O.B. Wilson



END ELEVATION





CROSS SECTION

HOUSE TO BE RE-LOCATED AT 100 HOBSONVILLE RD FOR G.B. MURRAY.

F 17.5.90

16

CITY OF WAITEMATA

Roll No: / /
32700/608/2

BUILDING PERMIT

Nº 17441

Owner of Section L.V. AND V.M. GAVIN, Date 6th July 1981

Address 4 Holgate Ave, HERLAD ISLAND.

THIS PERMIT is granted to the undermentioned person authorising the following building work on Lot No. 3 D.P. 56849 on 100 Hobsonville Rd, HOBSONVILLE. in accordance with the plans lodged and subject to the following conditions:

Nature of proposed work BARN

L. V. GAVIN,

Value of work, $9,000

Fee $ 60 : 0 : 0 Rec. No. E054 15/6/1981

For the Waitemata City Council

Duly Authorised Officer.

Unity Press 57580/81

INSPECTORS' DEPARTMENT

REPORT ON BUILDING REQUIRING SPECIAL CONSIDERATION, INCLUDING COMMERCIAL AND INDUSTRIAL PREMISES, CHURCHES, HALLS ETC.

REFERENCE: B.P.A. No 689/5

OWNER: L.U.9.U.M. GAUN

BUILDER: SAME

APPLICANT: SAME

LOCATION OF JOB: 100 HOBSONVILLE RD HOBSONVILLE

TYPE OF BUILDING: HAY BARN

BUILDING INSPECTORS' REPORT

CHAPTER 5 CHECK

(1) DESIGN & CONSTRUCTION REQUIREMENTS

5.6/5.7 Classification of Occupancies and Mixed Occupancies - state classification:- D1

5.8 Fire Risk Area (State):- Outer B

5.9 Limitations of areas & storeys:-

	Area of Storey			No Storeys	Type of Constr.
	1	2	3		
Permitted	800m²			1	5
Actual	315m²			1	5

5.10 Exceptions to limits under 5.9:-

Reduction of Upper Floors:-

Area allowed for remote outlets:-

Area allowed for sprinkler installation:- Not

Total area permitted per floor:- (1) (2) (3)

Total area permitted for mezzanine:-

5.11 F.R.R.:- (Check and note amendments necessary - if none initial space)

Nil

5.12/5.13 External Walls & Separation Distances, Protection of Openings

(a) Omission of External Walls:- (Quote clause and relevent reason for accepting omission). Note amendments required - if none initial space.

Nil

(1) Cont'd

5.12/5.13 Cont'd

Separation Distances:- (State Elevation References & Relevant Separation Distances):-

F.R.R. & % Of Openings

	Components	Permitted	Actual
Elevation 1 over 0.9	Walls Panels % Openings	N/R	OK
Elevation 2 over 0.9	Walls Panels % Openings	N/R	OK
Elevation 3 over 0.9	Walls Panels % Openings	N/R	OK
Elevation 4 over 0.9	Walls Panels % Openings	N/R	OK
Elevation	Walls Panels % Openings		

5.14 Protection of Portal Frames:- (Check for height and location of portal frames and note that both legs must be considered. State amendments required - if none initial space):-

5.15 and 3.7 Parapets (ALSO CHECK FOR COMPLIANCE WITH 3.7 .....) State Amendments necessary - if none initial space:-

5.16 Floors (Applicable to types 1,2,3 Const.)

Required Rating (1st) (2nd) (3rd)

Actual Rating (1st) (2nd) (3rd)

Exceptions:-

State amendments required - if none initial space:-

.....Cont'd .....

(1) Cont'd

5.17 Internal Structural Members:- (Check Against Table 3 and note any amendments required)

5.18/5.19/5.20 Structural Members Supported by Fire Walls & Openings in Fire Walls:- (Check and note amendments required - if none initial space):-

5.21 Separation of Dwelling Units & Other Occupancies Within a Fire Compartment:- (Check and note any amendments required - if none initial space):-

5.22/5.23/5.24 Fire Partitions, Fire Stopping, Restrictions on Roof Space:- (Check and note any amendments required - if none initial space):-

5.25/5.26 Flame Spread, Roof Coverings (Check and note any amendments required - if none initial space):-

(2) MEANS OF EGRESS (5.27)

Check each of the following clauses and note any amendments required. If none are required, initial space.

5.28 Types of Exitways:-

5.29 Arrangement of Exitways:-

5.30 Number of Exitways:-

5.31) 5.32) Capacity of Exitways:-

5.33 Combined Exitways:-

5.34 Separation of Occupancies for purposes of Exitways:-

5.35) 5.36) Mezzanines & Basements:-

5.37 Cul de sacs:-

AGRICULTURAL BUILDING

N/A

.....Cont'd .....

(2) Cont'd

5.38/5.39/5.40 Doors, Smoke Stop Doors, Windows :-

5.41/5.42/5.43/5.44/5.45/5.46 Hallways, Stairs etc:-

5.47 Obstruction in exitways:-

5.48/5.49 Signs and Lighting:-

5.50/5.51/5.52/5.53/5.54 Special Requirements for Accomodation, Dwellings, Hospitals, Shops (10,000 sq.ft.) Fire Alarms, Emergency Lighting:-

N/A

AGRICULTURAL BUILDINGS

(3) SPECIAL REQUIREMENTS FOR PLACES OF ASSEMBLY

If relevant check requirements and note any amendments necessary. If none, then initial space following each item:-

5.57/5.58/5.59 Compliance and Construction Requirements:-

5.60/5.61/5.62/5.63/5.64 Street width, Exitways, Doors:-

5.65/5.66 Seating Arrangements & Aisles:-

N/A

5.67/5.68 Ceiling, Walls & Floors :-

5.69/5.70/5.71 Boilers & Ducts :-

5.72/5.73 Lighting

(4) SPECIAL REQUIREMENTS FOR THEATRES AND CINEMAS:

If relevant check requirements and note any amendments necessary, If none, then initial space following each item:-

THEATRES ONLY:- 5.75 to 5.85 inclusive. Special Exits, Proscenium Walls, Safety Curtains, Vents over Stage, Stages & Stage Floors, 'Workshop', Dressing Rooms:-

N/A

..... Cont'd .....

(4) Cont'd

THEATRES & CINEMAS:- 5.85 Protection of concealed spaces:-

CINEMAS ONLY:- 5.86 Projection Rooms:- N/A

6

GENERAL COMPLIANCE WITH OTHER BYLAWS

General Construction and check for compliance with all other relevant building bylaws or allied statutory controls:- (State amendments required - if none initial space):-

D.G. INSP:- Not Applicable

SUMMARY OF ALL AMENDMENTS REQUIRED BY BUILDING INSPECTORS: -

.....

.....Cont'd .....

ALL OTHER DEPARTMENTAL CHECKS OR REQUIREMENTS, A BUILDING PERMIT MAY BE ISSUED SUBJECT TO THE FOLLOWING CONDITIONS :-

Signed: ...A. Inst.....
BUILDING INSPECTOR.

Date: ...26/6/81.....

DRAINAGE AND PLUMBING INSPECTORS' REPORT

(1) DESCRIPTION OF DRAINAGE SYSTEM (i.e. Connection to sewer or other type of system - State type):-

(2) (a) DRAINAGE SET OUT CHECKED: (Initial)
(b) PLUMBING SET OUT CHECKED: (Initial)
(c) TRADE WASTES CHECKED: (Initial)
} N/A

(3) THE FOLLOWING AMENDMENTS OR ALTERATIONS OR ADDITIONAL INFORMATION MUST BE MADE (OR SUPPLIED) BEFORE APPROVAL IS POSSIBLE: - (List clearly, sign and date requirements)

SENIOR INSPECTOR

RECOMMENDATION

(a) The matters listed above have been settled to my satisfaction, and I recommend that the application be APPROVED subject to the following conditions:-

Signed: A.W. Savage
PLUMBING & DRAINAGE INSPECTOR

Date: 22/6/81

HEALTH INSPECTOR'S REPORT

(1) CONVENIENCES & ABLUTION FACILITIES: (Check and note amendments necessary - If none initial space):- N/A

(2) LIGHT AND VENTILATION TO ALL PARTS OF PREMISES: (Check and note amendments necessary - If none initial Space):- N/A

(3) FOOD PREMISES ONLY: (Check for compliance with relevant health regulations or other licensing requirements. Note amendments required - if none initial space):- N/A

(4) THE FOLLOWING AMENDMENTS OR ALTERATIONS OR ADDITIONAL INSTALLATION MUST BE MADE (OR SUPPLIED) BEFORE APPROVAL IS POSSIBLE:-

(List clearly, sign and date requirements).

HEALTH INSPECTORS' REPORT CONTINUED:

RECOMMENDATION

The matters listed above have been settled to my satisfaction, and I recommend that the application be APPROVED subject to the following conditions:-

Signed .....
HEALTH INSPECTOR

Date 19-6-81

SENIOR DISTRICT INSPECTORS' REPORT

I have checked the above reports and recommendations of the Building, Health and Plumbing & Drainage Inspectors, and recommend:-

That the application be APPROVED subject to the conditions set out in the above mentioned reports and the following additional conditions:-

Signed .....
SENIOR INSPECTOR

DATE .....

B.I. APPLICATION NO. 689/5

APPLICANT'S NAME: L.V.& V.M. GAVIN

BUILDER'S NAME: SAME

PROPOSAL: HAY BARN

LEGAL DESCRIPTION: LOT: 3 D.P. 56849

ROAD NAME & LOCALITY: 100 HOBSONVILLE RD HOBSONVILLE

ITEMS TO BE CHECKED BY STRUCTURAL ENGINEER:-
(To be listed clearly by Building Inspector)

complete checks

CALCULATIONS & STRUCTURAL CHECK

1. THE FOLLOWING AMENDMENTS, ALTERATIONS OR ADDITIONAL INFORMATION MUST BE MADE (OR SUPPLIED), BEFORE APPROVAL CAN BE CONSIDERED: (Please list clearly, and date and sign requirements):-

RECOMMENDATION:

The matters listed in (1) above (when applicable), have been settled to my satisfaction and I recommend that the application be APPROVED subject to the following conditions:-

Barn structure to comply with Paton's Standard Arch Series I Farm Building Design & Specification

STRUCTURALLY APPROVED
SUBJECT TO ENDORSEMENTS
DATE: 9/7/87

Dealt with by _____ Date _____

(STRUCTURAL ENGINEER)

REPORT ON COMMERCIAL OR INDUSTRIAL BUILDINGS

ENGINEERS REPORT

Application No. 689/5

APPLICANT'S NAME: L.V. & V.M. GAVIN

BUILDER'S NAME: SAME

PROPOSAL: HAY BARN

ROAD NAME: 100 HOBSONVILLE RD HOBSONVILLE RIDING LINCOLN

LEGAL DESCRIPTION: LOT 3 DP 56849

DISTRICT ENGINEER'S REPORT

(See Page 2 for Services Engineers Report)

1 ROADING REQUIREMENTS

n/A.

2 FOOTPATH

n/A.

3 CROSSING

Existing crossing.

4 PARKING AREA ON DEDICATED ROAD

n/A.

5 FLOOR LEVELS

n/A.

6 STORMWATER

Plumbing & Drainage Inspector satisfaction and approval.

7 ADDITIONAL INFORMATION OR AMENDMENTS REQUIRED BEFORE APPROVAL CAN BE CONSIDERED - (Sign and date requirements)

* RECOMMENDATION

(a) The matters listed in 7 above (where applicable) have been settled to my satisfaction and I recommend that the application be APPROVED subject to the following conditions:

(b) I recommend that the application be NOT APPROVED for the following reasons:

* Delete not applicable.

Dealt with by R. Jemp. of Engineers Dept on 1-7-81

To Engineer _____ on _____

SERVICE ENGINEER'S REPORT

to be returned by _____

1 WATER SUPPLY available

2 SEWERAGE

3 TRADE WASTES

4 ALTERNATIVE DRAINAGE

5 ADDITIONAL INFORMATION OR AMENDMENTS REQUIRED BEFORE APPROVAL CAN BE CONSIDERED - (Sign and date requirements) _____

RECOMMENDATION:

+ (a) The matters listed in 5 above (where applicable) have been settled to my satisfaction and I recommend that the application be APPROVED subject to the following conditions:

+ (b) I recommend that the application be NOT APPROVED for the following reasons:

+ Delete not applicable

Dealt with by _____ of Engineers Dept on _____

To Engineer _____ Returned on _____

-oOo-

SPECIFICATIONS

RURAL ARCH

PARAMOUNT ARCHED BUILDINGS

Manufactured by:
Kelvin G. Paton Ltd

Phone 37
HELENSVILLE

P.O. Box 46
HELENSVILLE

TIMBER
Purlins and girts to be B or No 2 framing grade. All timber 125 x 50 mm or larger to be A or No 1 framing grade.

SHEATHING
26 gauge galvanised iron on purlins spaced at maximum 1200mmc/c or 24 gauge galvanised iron on purlins spaced at maximum 1350mm c/c.

STEEL
All steelwork to N.Z.S.S. 1900 chapter 9.4. All steelwork to be suitably protected from corrosion and this protection shall consist of one coat of steel primer.

CONCRETE
Concrete for foundations shall be mixed in no less proportions than one cement to six of all in aggregate (1:6) by volume and have a minimum crushing strength of 10 m.p.a. at 28 days.

BRACING
Cross brace each end bay as indicated with PRYDE tension straps (top of Purlins). In buildings of 7 or more bays every fourth bay must be crossed braced.

NOTE: Tension straps before nailing with 76 or 64 x 2 mm galv. Flat head nails.

Property Ident: 18402

NO ABA-2007-2471

AS BUILT DRAINAGE PLAN

ENTERED
Waitakere City Council
Te Taiao o Waitakere

SITE INFORMATION

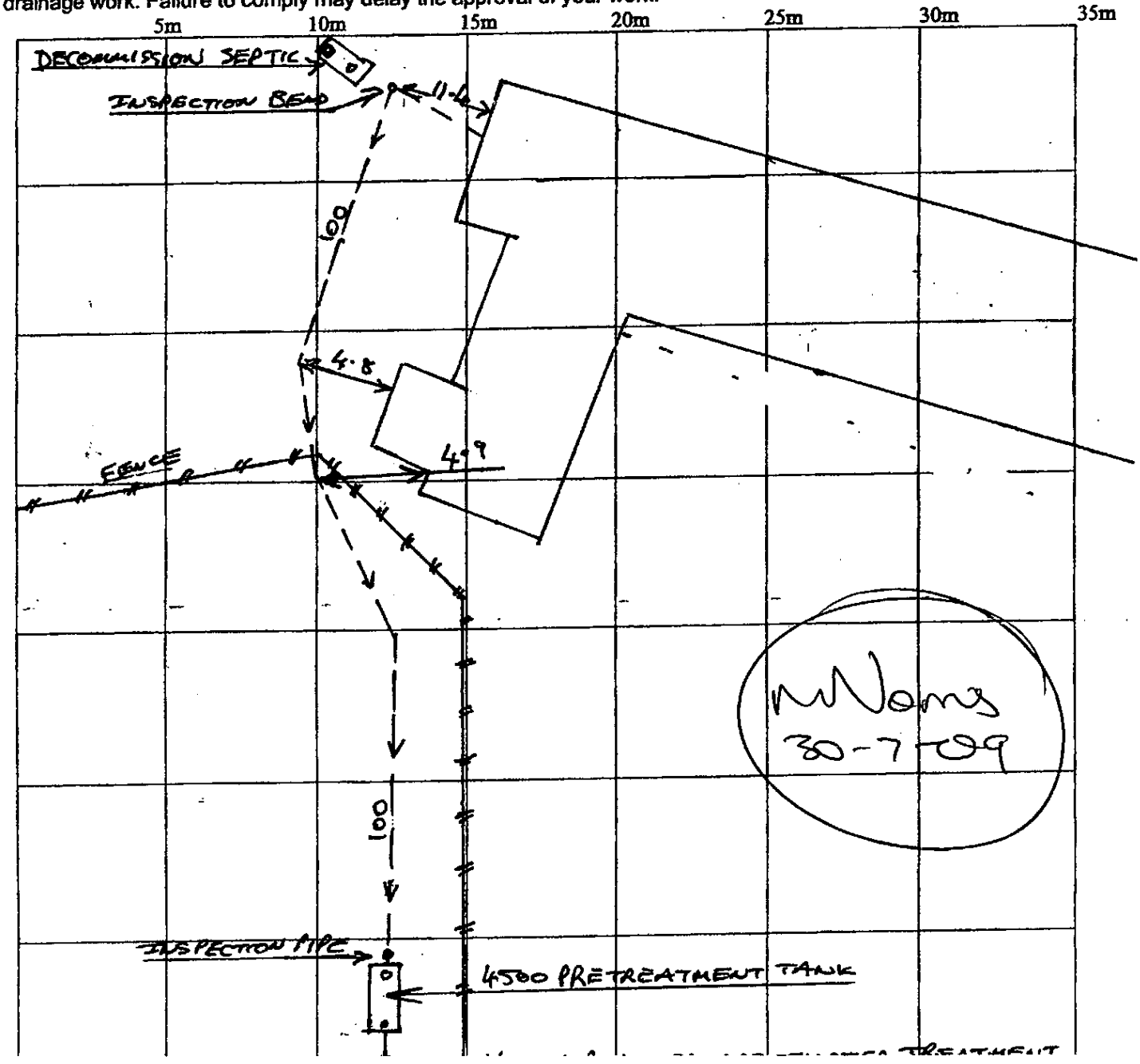
Building Consent No: ABA 2007-2471 Inspector: Murray Norris

Owners Name: TUXFORD PROPERTIES Drainlayers Name: DAVID REYLAND - 4597

Site Address: 100 HOBSONVILLE ROAD - HOBSONVILLE

Lot: 3 DP: 56849 Date inspected: 30-07-2009

Drainage plans are required for all new work and extensions to drains including effluent disposal systems. The plan is to be completed accurately drawn in ink to a scale of 1:200 and must show clearly the street boundary, property boundaries, outline of the buildings as well as the layout of ALL drains and inspection fillings. Please indicate the scale used if it is different than 1:200. Please ensure that this as built plan is completed prior to the inspection of the drainage work. Failure to comply may delay the approval of your work.



GLENN MOSER

16/8/11

HYNDS ENVIRONMENTAL

Site Plan

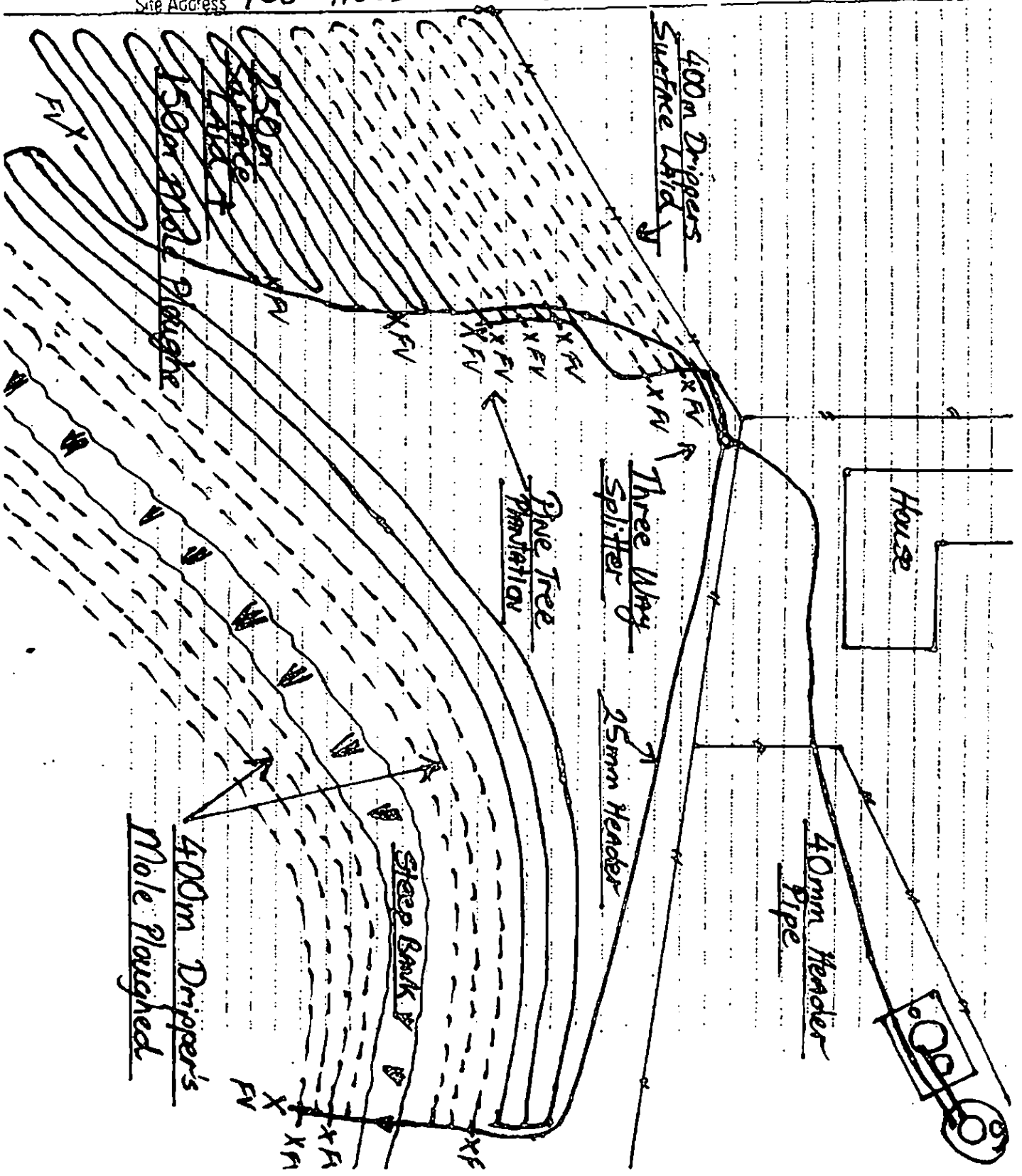
waste-water asault plan.

ABA 2007-2421

property key: 18402 Date 31/7/09

Name

Site Address 100 Hobsonville Rd. Hobsonville.



16/8/11
GLENN MOSER

AS BUILT DRAINAGE PLAN

Waitakere City Council
Te Taiao o Waitakere

SITE INFORMATION

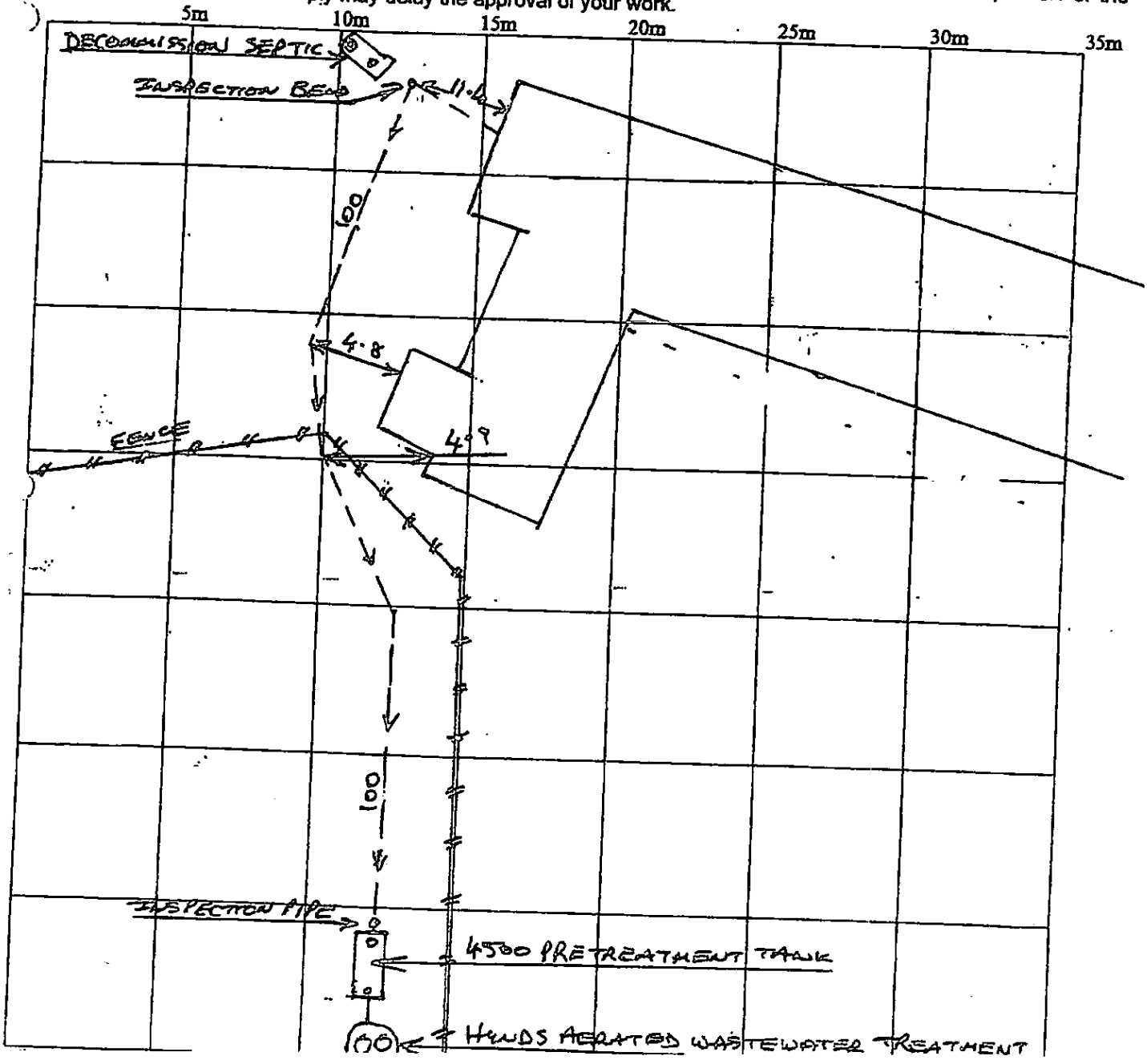
Building Consent No: ABA 2007-2471 Inspector: MURRAY

Owners Name: TUXFORD PROPERTIES Drainlayers Name: DAVID REYLAND – 4597

Site Address: 100 HOBSONVILLE ROAD – HOBSONVILLE

Lot: 3 DP: 56849 Date inspected: 30-07-2009

Drainage plans are required for all new work and extensions to drains including effluent disposal systems. The plan is to be completed accurately drawn in ink to a scale of 1:200 and must show clearly the street boundary, property boundaries, outline of the buildings as well as the layout of ALL drains and inspection fillings. Please indicate the scale used if it is different than 1:200. Please ensure that this as built plan is completed prior to the inspection of the drainage work. Failure to comply may delay the approval of your work.



APPENDIX E CONTAMINATED LANDUSE DATABASE

15th March 2019

Geosciences Limited
PO Box 35366
Browns Bay
Auckland 0753

Attention: David Wilkinson

Dear David

Site Contamination Enquiry – *100 Hobsonville Road*

This letter is in response to your enquiry requesting available site contamination information for the above 100 Hobsonville Road. The following details are based on information available from the former Auckland Regional Council records system and information currently held by the Auckland Council Natural Resources and Specialist Input Unit. The details provided below exclude any property information held by the former district/city councils.

No pollution incident files regarding spills/contamination were found for the above site. The general catchment file and site visit file for the catchment 510 were not searched. These files contain pollution incidents where the source of pollution was not traced to a particular site, site visits where no follow-up correspondence was required and some information from archived files.

If the above site is coastal or beside a river, it is possible that historic, unconsented reclamation may have occurred. The Auckland Council Specialists Unit Coastal Team may be able to provide further information.

The records reviewed as part of this Site Contamination Enquiry search do not identify individual horticultural sites in the region. However, there is a possibility that horticultural activities may have occurred at the site. The local Auckland Council customer service centre, specific to the area of the site may be able to provide relevant information where former horticultural sites have been mapped.

If you are concerned that a historic land use (such as filling) may have caused the underlying soils to become contaminated, it is recommended that you obtain an independent environmental assessment of the site. Staff from the Auckland Council Earthworks and Contaminated Land Team can provide advice on the results of any evaluation in terms of site remediation and/or potential consent requirements.

The former Auckland Regional Council and current databases were searched for records of closed landfills, bores, air discharge, industrial and trade process consents, contaminated site discharge consents, and environmental assessments within a 200m radius. Relevant details of the pollution incidents and identified consents are appended to this letter as an excel spreadsheet. **Please refer to the column labelled 'Property Address' and Incident/Consent/Bore ID (where applicable) on the attached spreadsheet to aid in identifying corresponding data on the map.**

The details provided are in accordance with the obligation to make information publicly available upon request. While the Auckland Council has carried out the search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

In addition, further site specific pollution incidents may be held at the area office below. It is recommended that you contact the local customer service centre of the Auckland Council, specific to the site being investigated: 1 The Strand, Takapuna as they also may hold files with further relevant information.

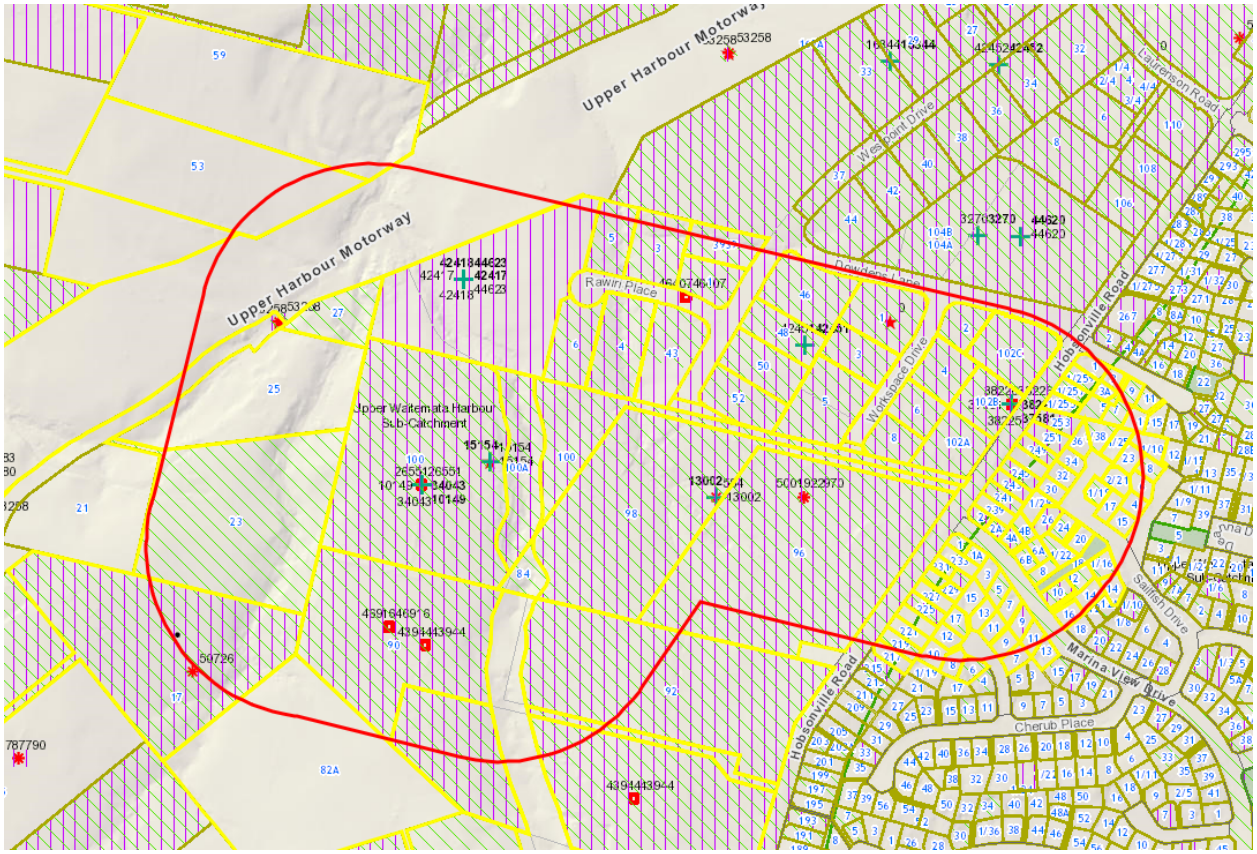
I trust that this answers your query. If you wish to discuss the matter further, please contact **Andrew Kalbarczyk** on 301 0101. Should you wish to request any of the files listed above for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure files will be available).

Please note: the Auckland Council cost recovers officer's time for all site enquiries. A basic enquiry takes approximately 1 - 2.5 hours to search the files and databases in which information is held. As such an invoice for the time involved in this enquiry will follow shortly.

Yours sincerely,

pp. EM
Jared Osman
Team Leader – Contaminated Air, Noise
Specialist Unit | Resource Consents

Please refer to the column labelled 'Property Address' and Incident/Consent/Bored ID (where applicable) on the attached spreadsheet to aid in identifying corresponding data on the map.



APPENDIX F SITE PHOTOGRAPHS

PLATE 1: ACCESS ROAD ALONG NORTHERN BOUNDARY OF 100 HOBSONVILLE ROAD

PLATE 2: BROKEN FIBRE CEMENT PANEL ON EASTERN END OF POULTRY SHED

PLATE 3: INTERIOR OF POULTRY SHED

PLATE 4: GRAIN SILOS ON SOUTHEAST CORNER OF POULTRY SHED

PLATE 5: BARN IN NORTHER PORTION OF 100 HOBSONVILLE RD, STAINED AREA IN FOREGROUND

PLATE 6: GARAGE ADJACENT TO HAY BARN

PLATE 7: ORIGINAL DWELLING WITH MODERN GARAGE EXTENSION IN FOREGROUND

PLATE 7: CENTRAL AND WESTERN WINGS OF DWELLING

PLATE 9: SEPTIC TANKS ON 100 HOBSONVILLE RD

PLATE 10: AREA OF 86 HOBSONVILLE, COMPOSITE 9

PLATE 11: COMPOSITE AREA 8, INDICATIVE OF CONDITION OF FORMER HORTICULTURAL AREAS

PLATE 10: COMPOSITE AREA 6, WESTERN EXTENT OF SITE

PLATE 13: DERELICT SHADE HOUSE SOUTH OF DWELLING

PLATE 14: RESIDUAL SHADE HOUSE INFRASTRUCTURE SOUTH OF DWELLING

APPENDIX G LABORATORY TRANSCRIPTS

CHAIN OF CUSTODY RECORD

☐ Eurofins | mgt Auckland Office — 35 O'Rorke Road, Penrose, AUCKLAND 1061, New Zealand; P : 0800 856450 (free dial); E : ScottCarroll@eurofins.co.nz ; OnurMehmet@eurofins.com.au

☐ Eurofins | mgt Wellington Office — 85 Port Road, Seaview, Lower Hutt, WELLINGTON 5011, New Zealand; P : 0800 856450 (free dial); E : ScottCarroll@eurofins.co.nz ; OnurMehmet@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166, Australia; P : 0800 856450 (free dial); E : ScottCarroll@eurofins.co.nz ; OnurMehmet@eurofins.com.au

Company	Geosciences Ltd	Purchase Order		Project Manager	Carl O'Brien
Address	47 Clyde Road, Browns Bay	Eurofins | mgt Quote №		Project №	J1329
Contact Name	David Wilkinson				
Contact Phone №	(09) 475 0222				
Special Direction					
Relinquished by (Signature)					
(Time / Date)	___:___ 11 / 03 / 2019				

Project Name	86, 90 & 100 Hobsonville Road
Electronic Results Format	pdf
Email for Results	david@geosciences.co.nz
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

№	Client Sample ID	Date	Matrix	Analysis (Note: Where metals are requested, please specify "Total" or "Filtered") B22-NZ	B48-NZ	M7-NZ	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Bag	Sample Comments / DG Hazard Warning
1	Comp 1	8/03/2019		X										X	
2	Comp 2	8/03/2019		X										X	
3	Comp 3	8/03/2019		X										X	
4	Comp 4	8/03/2019		X										X	
5	Comp 5	8/03/2019		X										X	
6	Comp 6	8/03/2019		X										X	
7	Comp 7	8/03/2019		X										X	
8	Comp 8	8/03/2019		X										X	
9	Comp 9	8/03/2019		X										X	
10	SS1	8/03/2019			X	X							x		
11															
12															

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Laboratory Use Only										
Received By	Karishma Patel	AUCK | WELL | MELB	Date	12 / 3 / 19	Time	9 :00 AM	Signature		Temperature	
Received By		AUCK | WELL | MELB	Date	___/___/___	Time	___:___	Signature		Report №	644763

Geosciences Ltd
First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Attention: **Carl O'Brien**

Report **644763-S**
Project name 86 90 & 100 HOBSONVILLE ROAD
Received Date Mar 12, 2019

Client Sample ID			**COMP 1**	**COMP 2**	**COMP 3**	**COMP 4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**K19-Ma12343**	**K19-Ma12344**	**K19-Ma12345**	**K19-Ma12346**
Date Sampled			**Mar 08, 2019**	**Mar 08, 2019**	**Mar 08, 2019**	**Mar 08, 2019**
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
a-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
b-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
cis-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dibutylchlorendate (surr.)	1	%	125	148	149	131
Tetrachloro-m-xylene (surr.)	1	%	128	120	119	123
Heavy Metals						
Arsenic	2	mg/kg	5.1	4.2	2.3	< 2
Copper	5	mg/kg	8.5	6.6	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
% Moisture	1	%	15	11	11	9.2

Client Sample ID			COMP 5	COMP 6	COMP 7	COMP 8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K19-Ma12347	K19-Ma12348	K19-Ma12349	K19-Ma12350
Date Sampled			Mar 08, 2019	Mar 08, 2019	Mar 08, 2019	Mar 08, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
a-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
b-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
cis-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dibutylchlorendate (surr.)	1	%	87	139	115	147
Tetrachloro-m-xylene (surr.)	1	%	75	119	111	117
Heavy Metals						
Arsenic	2	mg/kg	4.9	< 2	5.7	7.7
Copper	5	mg/kg	7.2	< 5	15	18
Lead	5	mg/kg	5.5	< 5	17	20
% Moisture	1	%	17	10	21	22

Client Sample ID			COMP 9	SS1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			K19-Ma12351	K19-Ma12352
Date Sampled			Mar 08, 2019	Mar 08, 2019
Test/Reference	LOR	Unit		
Total Petroleum Hydrocarbons (NZ MfE 1999)				
TPH-SG C7-C9	5	mg/kg	-	< 5
TPH-SG C10-C14	10	mg/kg	-	< 10
TPH-SG C15-C36	20	mg/kg	-	< 20
TPH-SG C7-C36 (Total)	35	mg/kg	-	< 35

Client Sample ID			COMP 9	SS1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			K19-Ma12351	K19-Ma12352
Date Sampled			Mar 08, 2019	Mar 08, 2019
Test/Reference	LOR	Unit		
Organochlorine Pesticides (NZ MfE)				
2.4'-DDD	0.01	mg/kg	< 0.01	-
2.4'-DDE	0.01	mg/kg	< 0.01	-
2.4'-DDT	0.01	mg/kg	< 0.01	-
4.4'-DDD	0.01	mg/kg	< 0.01	-
4.4'-DDE	0.01	mg/kg	< 0.01	-
4.4'-DDT	0.01	mg/kg	< 0.01	-
a-BHC	0.01	mg/kg	< 0.01	-
Aldrin	0.01	mg/kg	< 0.01	-
b-BHC	0.01	mg/kg	< 0.01	-
Chlordanes - Total	0.01	mg/kg	< 0.01	-
cis-Chlordane	0.01	mg/kg	< 0.01	-
d-BHC	0.01	mg/kg	< 0.01	-
Dieldrin	0.01	mg/kg	< 0.01	-
Endosulfan I	0.01	mg/kg	< 0.01	-
Endosulfan II	0.01	mg/kg	< 0.01	-
Endosulfan sulphate	0.01	mg/kg	< 0.01	-
Endrin	0.01	mg/kg	< 0.01	-
Endrin aldehyde	0.01	mg/kg	< 0.01	-
Endrin ketone	0.01	mg/kg	< 0.01	-
g-BHC (Lindane)	0.01	mg/kg	< 0.01	-
Heptachlor	0.01	mg/kg	< 0.01	-
Heptachlor epoxide	0.01	mg/kg	< 0.01	-
Hexachlorobenzene	0.01	mg/kg	< 0.01	-
Methoxychlor	0.01	mg/kg	< 0.01	-
Toxaphene	0.1	mg/kg	< 0.1	-
trans-Chlordane	0.01	mg/kg	< 0.01	-
Dibutylchlorendate (surr.)	1	%	138	-
Tetrachloro-m-xylene (surr.)	1	%	117	-
Polycyclic Aromatic Hydrocarbons (NZ MfE)				
Acenaphthene	0.03	mg/kg	-	< 0.03
Acenaphthylene	0.03	mg/kg	-	< 0.03
Anthracene	0.03	mg/kg	-	< 0.03
Benz(a)anthracene	0.03	mg/kg	-	< 0.03
Benzo(a)pyrene	0.03	mg/kg	-	< 0.03
Benzo(a)pyrene TEQ (lower bound)*	0.03	mg/kg	-	< 0.03
Benzo(a)pyrene TEQ (medium bound)*	0.03	mg/kg	-	0.04
Benzo(a)pyrene TEQ (upper bound)*	0.03	mg/kg	-	0.07
Benzo(b&j)fluoranthene[N07]	0.03	mg/kg	-	< 0.03
Benzo(g.h.i)perylene	0.03	mg/kg	-	< 0.03
Benzo(k)fluoranthene	0.03	mg/kg	-	< 0.03
Chrysene	0.03	mg/kg	-	< 0.03
Dibenz(a.h)anthracene	0.03	mg/kg	-	< 0.03
Fluoranthene	0.03	mg/kg	-	0.03
Fluorene	0.03	mg/kg	-	< 0.03
Indeno(1.2.3-cd)pyrene	0.03	mg/kg	-	< 0.03
Naphthalene	0.1	mg/kg	-	< 0.1
Phenanthrene	0.03	mg/kg	-	< 0.03
Pyrene	0.03	mg/kg	-	0.04
p-Terphenyl-d14 (surr.)	1	%	-	80
2-Fluorobiphenyl (surr.)	1	%	-	144

Client Sample ID			COMP 9	SS1
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**K19-Ma12351**	**K19-Ma12352**
Date Sampled			**Mar 08, 2019**	**Mar 08, 2019**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	< 2	-
Copper	5	mg/kg	5.1	-
Lead	5	mg/kg	10	-
Metals M7 (NZ MfE)				
Arsenic	2	mg/kg	-	2.6
Cadmium	0.4	mg/kg	-	< 0.4
Chromium	5	mg/kg	-	16
Copper	5	mg/kg	-	8.1
Lead	5	mg/kg	-	14
Nickel	5	mg/kg	-	< 5
Zinc	5	mg/kg	-	38
% Moisture	1	%	17	19

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B4B-NZ: TPH, PAH (NZ MfE)			
Total Petroleum Hydrocarbons (NZ MfE 1999)	Melbourne	Mar 14, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons (NZ MfE)	Melbourne	Mar 14, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Eurofins | mgt Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)			
Organochlorine Pesticides (NZ MfE)	Melbourne	Mar 14, 2019	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Heavy Metals	Melbourne	Mar 15, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals M7 (NZ MfE)	Melbourne	Mar 15, 2019	6 Months
- Method: USEPA 6010/6020 Heavy Metals			
% Moisture	Melbourne	Mar 12, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Geosciences Ltd
Address: First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Project Name: 86 90 & 100 HOBSONVILLE ROAD

Order No.:
Report #: 644763
Phone: 0011 64 9 4760 454
Fax:

Received: Mar 12, 2019 9:00 AM
Due: Mar 19, 2019
Priority: 5 Day
Contact Name: Carl O'Brien

Eurofins | mgt Analytical Services Manager : Swati Shahaney

Sample Detail						Moisture Set	Metals M7 (NZ MfE)	Eurofins | mgt Suite B4B-NZ: TPH, PAH (NZ MfE)	Eurofins | mgt Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ#									
Christchurch Laboratory - IANZ#1290									
Eurofins Australia Laboratory						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	COMP 1	Mar 08, 2019		Soil	K19-Ma12343	X			X
2	COMP 2	Mar 08, 2019		Soil	K19-Ma12344	X			X
3	COMP 3	Mar 08, 2019		Soil	K19-Ma12345	X			X
4	COMP 4	Mar 08, 2019		Soil	K19-Ma12346	X			X
5	COMP 5	Mar 08, 2019		Soil	K19-Ma12347	X			X
6	COMP 6	Mar 08, 2019		Soil	K19-Ma12348	X			X
7	COMP 7	Mar 08, 2019		Soil	K19-Ma12349	X			X
8	COMP 8	Mar 08, 2019		Soil	K19-Ma12350	X			X
9	COMP 9	Mar 08, 2019		Soil	K19-Ma12351	X			X
10	SS1	Mar 08, 2019		Soil	K19-Ma12352	X	X	X	
Test Counts						10	1	1	9

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Petroleum Hydrocarbons (NZ MfE 1999)							
TPH-SG C7-C9	mg/kg	< 5			5	Pass	
TPH-SG C10-C14	mg/kg	< 10			10	Pass	
TPH-SG C15-C36	mg/kg	< 20			20	Pass	
TPH-SG C7-C36 (Total)	mg/kg	< 35			35	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Method Blank							
Metals M7 (NZ MfE)							
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Petroleum Hydrocarbons (NZ MfE 1999)							
TPH-SG C7-C9	%	84			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	106			80-120	Pass	
LCS - % Recovery							
Metals M7 (NZ MfE)							
Cadmium	%	106			80-120	Pass	
Chromium	%	113			80-120	Pass	
Nickel	%	107			80-120	Pass	
Zinc	%	108			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Organochlorine Pesticides (NZ MfE)				Result 1					
2.4'-DDD	K19-Ma12369	NCP	%	100			70-130	Pass	
2.4'-DDE	K19-Ma12369	NCP	%	94			70-130	Pass	
2.4'-DDT	K19-Ma12369	NCP	%	104			70-130	Pass	
4.4'-DDE	K19-Ma12369	NCP	%	85			70-130	Pass	
Aldrin	K19-Ma12369	NCP	%	81			70-130	Pass	
Chlordanes - Total	K19-Ma12369	NCP	%	88			70-130	Pass	
cis-Chlordane	K19-Ma12369	NCP	%	88			70-130	Pass	
Dieldrin	K19-Ma12369	NCP	%	90			70-130	Pass	
Endosulfan I	K19-Ma12369	NCP	%	80			70-130	Pass	
Endosulfan II	K19-Ma12369	NCP	%	74			70-130	Pass	
Endrin	K19-Ma12369	NCP	%	92			70-130	Pass	
Endrin aldehyde	K19-Ma12369	NCP	%	90			70-130	Pass	
Endrin ketone	K19-Ma12369	NCP	%	89			70-130	Pass	
Heptachlor epoxide	K19-Ma12369	NCP	%	74			70-130	Pass	
Hexachlorobenzene	K19-Ma12369	NCP	%	81			70-130	Pass	
trans-Chlordane	K19-Ma12369	NCP	%	89			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals				Result 1					
Arsenic	K19-Ma12344	CP	%	105			75-125	Pass	
Copper	K19-Ma12344	CP	%	108			75-125	Pass	
Lead	K19-Ma12344	CP	%	104			75-125	Pass	
Spike - % Recovery									
Metals M7 (NZ MfE)				Result 1					
Cadmium	K19-Ma12344	CP	%	104			75-125	Pass	
Chromium	K19-Ma12344	CP	%	113			75-125	Pass	
Nickel	K19-Ma12344	CP	%	109			75-125	Pass	
Zinc	K19-Ma12344	CP	%	109			75-125	Pass	
Spike - % Recovery									
Total Petroleum Hydrocarbons (NZ MfE 1999)				Result 1					
TPH-SG C7-C9	K19-Ma16376	NCP	%	119			70-130	Pass	
Spike - % Recovery									
Metals M7 (NZ MfE)				Result 1					
Cadmium	K19-Ma12368	NCP	%	115			75-125	Pass	
Chromium	K19-Ma12368	NCP	%	106			75-125	Pass	
Nickel	K19-Ma12368	NCP	%	100			75-125	Pass	
Zinc	K19-Ma12368	NCP	%	97			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides (NZ MfE)				Result 1	Result 2	RPD			
2.4'-DDD	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4'-DDE	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4'-DDT	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDD	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDE	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDT	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
a-BHC	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Aldrin	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
b-BHC	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Chlordanes - Total	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
cis-Chlordane	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
d-BHC	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Dieldrin	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan I	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan II	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan sulphate	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin aldehyde	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin ketone	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
g-BHC (Lindane)	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Heptachlor	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Heptachlor epoxide	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Hexachlorobenzene	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Methoxychlor	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
trans-Chlordane	K19-Ma12343	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1	Result 2	RPD			
Acenaphthene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Acenaphthylene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Anthracene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benz(a)anthracene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(a)pyrene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1	Result 2	RPD			
Benzo(b&j)fluoranthene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(g.h.i)perylene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(k)fluoranthene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Chrysene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Dibenz(a.h)anthracene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluoranthene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluorene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Naphthalene	K19-Ma12343	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Phenanthrene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Pyrene	K19-Ma12343	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	K19-Ma12343	CP	mg/kg	5.1	4.5	12	30%	Pass	
Copper	K19-Ma12343	CP	mg/kg	8.5	7.9	8.0	30%	Pass	
Lead	K19-Ma12343	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Metals M7 (NZ MfE)				Result 1	Result 2	RPD			
Cadmium	K19-Ma12343	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	K19-Ma12343	CP	mg/kg	13	12	9.0	30%	Pass	
Nickel	K19-Ma12343	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	K19-Ma12343	CP	mg/kg	26	23	9.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	K19-Ma12344	CP	mg/kg	4.2	4.1	3.0	30%	Pass	
Copper	K19-Ma12344	CP	mg/kg	6.6	6.5	2.0	30%	Pass	
Lead	K19-Ma12344	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Metals M7 (NZ MfE)				Result 1	Result 2	RPD			
Cadmium	K19-Ma12344	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	K19-Ma12344	CP	mg/kg	9.3	9.2	1.0	30%	Pass	
Nickel	K19-Ma12344	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	K19-Ma12344	CP	mg/kg	18	18	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	K19-Ma12351	CP	%	17	16	2.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1	Result 2	RPD			
Acenaphthene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Acenaphthylene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Anthracene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benz(a)anthracene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(a)pyrene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(b&j)fluoranthene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(g.h.i)perylene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(k)fluoranthene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Chrysene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Dibenz(a.h)anthracene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluoranthene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluorene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Naphthalene	K19-Ma12368	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Phenanthrene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Pyrene	K19-Ma12368	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Metals M7 (NZ MfE)				Result 1	Result 2	RPD			
Cadmium	K19-Ma12368	NCP	mg/kg	0.7	0.7	1.0	30%	Pass	
Chromium	K19-Ma12368	NCP	mg/kg	21	21	2.0	30%	Pass	
Nickel	K19-Ma12368	NCP	mg/kg	13	13	1.0	30%	Pass	
Zinc	K19-Ma12368	NCP	mg/kg	69	70	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Swati Shahaney	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.