9 May 2018 (Revised 10 November 2021)

Maraetai Land Development
C/- Neil Construction Limited
PO Box 8751
Symonds Street
Auckland 1150

Ref: Ltr-1173/PSI/May18(Rev1)

Attention: David Page
Land Manager

Dear David,

RE: PRELIMINARY SITE INVESTIGATION OF 98-100 TOTARA ROAD, WHENUAPAI

Geosciences Ltd (GSL), has conducted a preliminary site investigation (PSI) of the property located at 98-100 Totara Road, Whenuapai in accordance with GSL proposal ref: *Pro 1489/Apr18* dated 24 April 2018. The property is legally described as Lot 2 DP 81411, comprises an area of 11.61 Ha and is hereafter referred to as 'the site' in this report.

The primary purpose of this investigation is to assess the likelihood of any potential contamination issues being present on site, and the resulting applicability of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES).

1 BACKGROUND

The site is currently a rural residential lot comprising of a residential dwelling in the northern corner of the site, while the remaining area of the site is vacant pasture utilised for the grazing of cattle. The landuse is consistent with the surrounding area, which has a mixture of rural and rural-residential properties nestled in and around the Whenuapai NZ Air Force base located approximately 1 km to the east of the site. GSL understands that the site has been identified for future residential development.

The *National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES)* (Ministry for the Environment (MfE), 2012) ensures that land affected by contaminants in soil is appropriately identified and assessed. When soil disturbance, change in landuse, or subdivision activities take place it should be, if necessary remediated or the contaminants contained to make the land safe for the intended landuse.

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 under investigation. Consequently, any change in landuse, subdivision or development required a preliminary site investigation (PSI) of the land to determine whether or not any risk to human health exists as a result of any current or former activities that are occurring, or may have occurred, on that land.

GSL understands that the site has been secured by Maraetai Land Development with the intention of developing the land at some stage in the future. Maraetai Land Development engaged GSL to undertake a preliminary site investigation of the site to comment on the likely contamination risks associated with the property and determine whether or not the provisions of the NES are likely to apply to the site, or portions thereof.

2 SCOPE OF WORKS

This preliminary site investigation, undertaken in general accordance with the MfE Contaminated Land Management Guidelines (CLMG) No. 1 - "*Reporting on Contaminated Sites in New Zealand"* and No 5 - *"Site Investigation and Analysis of Soils"* included:

- an historical appraisal of the site by a study of historic aerial photographs;
- a review of the current and historic certificates of title;
- a review of the property file held by Council;
- a visual site inspection and walkover of the property; and
- the preparation of this letter report to comment on the liabilities applicable under the National Environmental Standards (NES) regulations, and Auckland Unitary Plan (Operative in Part) (AUP(OP)) rules for the development of the site.

3 SITE HISTORY

In order to establish the sites history, GSL conducted a desktop study of publicly available information, the findings of the study are detailed in the following sections.

3.1 RECORDS OF TITLE

GSL has reviewed copies of the current and historic Records of Title for the aforementioned property, 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 of or potential soil contamination are held against the property. No notes of interest were recorded on the titles. Copies of the certificates are attached in Appendix A.

3.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs from 1940, 1950, 1963, 1972, 1980, and 1988 are available from the Retrolens website while images from 1996, 2006, 2008, 2010, 2015, and 2017 are available on the Auckland Council GEOMaps website (GIS). The findings of the historic aerial photograph review are summarised below, while copies of the aerial photographs have been attached in Appendix B.

1940-1950 The 1940 image is the first available image of the site and shows the full extent of the site as vacant pasture. The site is divided into paddocks with a narrow shelter belt along the western, southern, and eastern boundaries. The only discernible structure on the site is

a small shed to the north of the site's centre, the use of the shed is not apparent from the image.

There is little discernible development to the site in the 1950 image, aside from the shed in the centre having been removed.

1963-1972 The 1963 image shows the site remaining vacant with no discernible structures noted on the area of the site. A portion of the site along the eastern boundary has been planted with trees which appear to be well established and mature by this time.

There are no discernible changes to the site in the 1972 image.

1980-1988 The 1980 and 1988 images show the only development to the site being the removal of the trees noted in the eastern portion of the site, with the full area having been returned to pasture.

1996-2017 The 1996 image is the first available colour image of the site and shows the only development to the site as being the construction of a residential dwelling and garage in the northernmost portion of the site. The remaining site area remains under pasture. There are no discernible developments to the site through the remaining images up to the 2017 plate. A small pen is present to the south of the dwelling, the proximity of the pen / race to the site boundary with Totara Road implies that the pen is a holding pen and loading race for livestock, the lay out of the race does not appear to be consistent with a spray race.

3.2.1 Summary of Aerial Photographs

GSL has reviewed the available historic aerial images of the site and conclude that the site has remained predominantly vacant pasture for its discernible history. For a period between the 1950's and 1980s, the eastern portion of the site was densely vegetated before being cleared again for pasture use.

The current residential dwelling was constructed by 1996 in the northern most portion of the site. The aerial photographs show no distinct evidence for any activity or industry included on the MfE HAIL having been undertaken on the site. There are no structures present on the site which could be spray races, nor is there any evidence for horticultural activities having been undertaken on the site.

3.3 PROPERTY FILE

GSL requested a copy of the property file from Auckland Council for review of historic activities. The property file contained plans and resource consent application documentation relating to the development of the site in 1994. The plans indicate that a house was relocated onto the property, a consent checklist indicated that the house was "at least 45 years old" cladded with weatherboard and tiles onto timber joinery. Due to the age of the dwelling, GSL notes that the potential exists for lead based paints to have been used on the exterior of the building. While not explicitly included on the MfE HAIL, lead based paint can infiltrate the soil directly surrounding the dwelling at times when the exterior paint is in deteriorated condition, or when routine maintenance is undertaken, such as scraping or sanding. In addition, GSL considers that there is potential for asbestos containing materials

(ACM) to have been used in its construction which will require consideration under the Health and Safety at Work (Asbestos) Regulations 2016 should the house be identified for demolition.

Plans dated 1995, for the garage associated with the dwelling are also contained in the property file, these indicates that the garage is constructed using a timber frame, blockwork and clad in galvanised steel, with corrugated steel roofing. The plans indicate that the garage sits on a 100 mm thick concrete slab foundation.

Plans dated 1994 were also contained in the property file relating to the onsite effluent disposal systems. As Auckland Council have generally considered domestic effluent disposal systems and septic tanks to be encompassed by Items G.5 and G.6 of the MfE HAIL as waste disposal to land, consideration will be required with respect to their presence. A pump out report is held on file which identified a concrete tank of 4,500 l capacity and a drainage field trench in place, the location of the tank is shown on Figure 2.

3.4 SUMMARY OF DESKTOP INVESTIGATION

GSL conducted a desktop study of publicly available information including a review of current and historic certificates of title, a review of historic aerial photographs, and a review of the property file held by Council. The desktop study has identified the following potential issues associated with the existing residential dwelling on site:

- Historic use of lead based paints;
- Potential presence of asbestos containing materials; and
- Presence of an onsite effluent disposal system.

No issues were identified that would encompass the wider areas of site beyond the house curtilage.

4 SITE INSPECTION AND WALKOVER

GSL undertook a site inspection on 8 May 2018 at which time the weather was fine and clear, at the time of the inspection the site appears exactly as it does in the most recent aerial photographs, that is; largely vacant pasture laid out in paddocks for the grazing of cattle. The only structures on the full extent of the site are the dwelling noted in the aerial photographs and its associated garage.

The site is accessed by a sealed driveway off Totara Road in the northern corner of the site, the driveway leads to the dwelling from which point access to the paddocks is gained through a standard timber farm gate. Adjacent to the gate is a timber loading race as identified in the aerial imagery. GSL notes that the layout of the race is consistent with a loading bay only and there is no evidence present for the race having been utilised for spraying of livestock. Similarly, its position adjacent to the road suggests that is has solely been utilised for loading / unloading stock for transport.

The dwelling and garage are confirmed to be as described in the property file plans; that is the dwelling is primarily being constructed of timber frame and weatherboard construction, with tiled roofing while the garage is timber framed and clad in metal weatherboards. No visually obvious potential ACM products were identified from an inspection of the exterior surfaces of these structures.

The area south of the dwelling curtilage is entirely vacant and separated into paddocks by standard post and batten wire farm fencing in aged condition. With respect to the portion of the site identified as being vegetated during the 1960s and 1970s, a number of tree stumps remain within this portion of the site showing relatively uniform distribution. The size and density of the stumps still present on site when assessed against that portion of the site suggest that marginal land may have been converted to forestry for a time as a mechanism for making better use of that land.

In the eastern portion of the site a small creek runs in a northerly direction across the site. While GSL notes that the creek's genesis is within the Royal NZ Air Force Whenuapai Air Force Base, it is only a very small portion of the headwater above the site and appears to originate from a portion of the Air Force Base occupied by landscaped gardens adjacent to recreational centres / barracks / mess hall type buildings on site well removed from the high risk portions of the site associated with aircraft.

No evidence for any activity or industry included on the MfE HAIL having been, or currently being undertaken on the site was noted during the site inspection. Site photographs are included as Appendix D.

5 POTENTIAL FOR CONTAMINATION

Following the completion of this investigation, GSL has identified the following source of potential contamination on site:

- Historic use of lead based paints on the residential house - encompassed under HAIL Item I where a risk to human or environmental health is present only;
- Possible utilisation of Asbestos Containing Materials within the construction of the house - HAIL Item E.1 only when in broken or degraded condition; and
- Presence of a septic tank and effluent disposal system associated with the residential house - HAIL Item G.5 / G.6.

An assessment of the likely extents and issues associated with each of these items is discussed in turn below based on GSL' extensive experience in similar situations.

5.1 LEAD BASED PAINT

While the use of lead based paint was becoming more and more reduced in the 1950's, its use continued until the 1970's and as such could be present on the villa relocated to site despite its construction in 1955. GSL considers that soil immediately surrounding the dwelling could potentially have been impacted by lead based paints if the exterior paint on the dwelling had been in deteriorated condition, or at times when routine maintenance such as sanding, or scraping were undertaken without adequate ground protection in place.

The potential effects of lead based paint on the surrounding soil would be expected to be concentrated in the area surrounding the dwelling where paint chips, flakes, or dust had infiltrated the soil, lead can then leach out of the paint into the soil resulting in high concentrations in the soil. Those concentrations are generally limited to the immediate curtilage and rapidly attenuate with distance from the source (the dwelling), only impacting the surficial soils within that curtilage.

5.2 ASBESTOS CONTAINING MATERIALS IN BUILDINGS

ACM has been widely used in an array of building materials for an extensive period of New Zealand's building materials history. While its use was widely concluded by 1990, New Zealand legislation notes that its use cannot be ruled out on buildings constructed prior to 1 January 2000. As a result, the presence of asbestos within the building and garage cannot be ruled out.

With regards to ACM, the potential for soil contamination is only present if ACM is in deteriorated or broken condition. No broken or degraded ACM was identified during the site inspection suggesting that if ACM is present within the building, it is most likely in good condition.

As with lead based paint, ACM is only likely to impact soil immediately adjacent to the dwelling and as such are not considered to present a potential for gross soil contamination across the site as a whole.

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.

5.3 EFFLUENT DISPOSAL INFRASTRUCTURE

Domestic effluent disposal infrastructure is considered by Auckland Council to be encompassed under Items G.5 and G.6 of the MfE HAIL as waste disposal to land. Should the existing septic tank and disposal field require decommissioning and removal as part of the proposed future development, works in this area will need to address the requirement of the NES and Auckland Unitary Plan (Operative in Part) with respect to contamination regulations.

Effluent disposal fields are likely to result in small scale impacts limited to the topsoil horizon where the effluent liquor is dispersed. In GSL's experience, impacts are unlikely to extend beyond the boundaries of the disposal field and generally do not exceed 400 mm in depth meaning that a small, localised area will likely require remedial earthworks during decommissioning. Impacts are considered unlikely to be pervasive across a large area.

6 CONCLUSIONS

GSL has undertaken a preliminary site investigation, in general accordance with the MfE Contaminated Land Management Guidelines, of the property located at 98-100 Totara Road, Whenuapai. The primary purpose of this investigation is to assess the likelihood of any potential contamination issues being present on site, and if so, comment on their likely implications for future residential development.

This investigation has identified potential sources of contamination on site to be the discrete area surrounding the existing residential dwelling in the northern portion of the site. Due to the age of the dwelling which was relocated onto the site in the 1990s, GSL considers that the following potential

sources of contamination will require further investigation should any change in landuse, subdivision, or development works be proposed in that area:

- Historical use of lead based paints; and
- Potentially asbestos containing building materials utilised in the residential dwelling and garage on site.

Additionally, plans held within the property file identify the location of the onsite domestic waste water treatment systems (septic tank and effluent disposal field), which Auckland Council have considered to be encompassed by Items G.5 and G.6 on the MfE HAIL. GSL concludes that should any change in landuse, subdivision, or development of that portion of the land be proposed, then these small scale, localised points will require further investigation and likely require localised remedial works.

With regards to the wider site area, GSL did not identify any evidence for any potentially contaminating activity included on the MfE Hazardous Activities and Industries List having been undertaken on the site. GSL therefore concludes that the risk for actual or potential contamination on the site to be low, and concludes that with respect to the wider site area that any future change in landuse, subdivision, or development would be highly unlikely to result in a risk to human health or the environment.

6.1 NATIONAL ENVIRONMENTAL STANDARDS

As a result of the identification of potentially contaminating landuses within he residential footprint on site, any change in landuse, subdivision, or development of that area will be required to address the regulations of the NES. As there is no distinct evidence for any activity included on the MfE HAIL having occurred or being more likely than not to have occurred on the wider site area, the wider site area does not meet the definition of *"Land Covered"* under Regulation 5(7), as a result, the regulations of the NES are not applicable to the change in landuse, subdivision, or development of those areas.

With respect to the immediate area of the original dwelling, while the NES is applicable to the development of that portion of the site, GSL notes that the area and volume of impacted soils is likely to be extremely limited in the scale of the overall development. The disturbance of potentially lead impacted soil within the dwelling curtilage and the effluent disposal systems are likely to be well within the remit of a Permitted Activity under Regulation 8(3) of the NES. Regulation 8(3) allows for the disturbance and offsite disposal of soil on actually or potentially contaminated sites 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."*

For a site of this size (11.61 Ha) Regulation 8(3) allows for the disturbance of up to 5,805 m^3 and the offsite disposal of up to 1,161 m^3 of soil, per year, as a permitted activity. It is likely that the required soil disturbance and offsite disposal of any actually or potentially impacted soil will fall within those volumes. The remediation of the effluent field and any actually or potentially impacted soil in the dwelling curtilage are considered highly likely to be encompassed by the above volumes, noting that Regulation 8(3) allows for the works to be encompassed by consecutive years, i.e. that should works extent over two days, that those days can be considered consecutive years and the volumes can be doubled.

A site management plan will likely be required to document the controls to be in place for the protection of human and environmental health for the duration of soil disturbance in those areas in order to meet the requirements of Regulation 8(3).

6.2 AUCKLAND UNITARY PLAN (OPERATIVE IN PART)

For the same reasons as the NES above, the majority of the site does not meet the Auckland Council definition of *"land containing elevated levels of contaminants"* and as such, the contaminated land rules of Chapter E.30 of the AUP(OP) will not apply to the proposed change in landuse, subdivision, and development of the site.

That said, the area of the residential dwelling and disposal field may meet that definition, and technically, the contaminated land rules of the Chapter E.30 may be applicable to soil disturbance in that area. That said, the AUP(OP) allows for the small scale disturbance of soil on actually or potentially contaminated land as a permitted activity under Rule E.30.6.1.2, which provides for small scale disturbance while the following conditions are met:

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 roads 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 rail 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 of the activity in writing if the volumes of soil disturbed on land containing elevated levels of contaminants exceeds 25 m^3, including 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 duration of the activity and until the soil is reinstated to an erosion-resistant state; and*
   b. *control 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 the soil disturbance on a site must not exceed two months.*

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

Where the disturbance of soil required to address the above potentially impacted areas can comply with the above conditions, GSL considers that the remediation of those areas can be undertaken as a permitted activity. Following the completion of those remedial works, the contaminated land rules of Chapter E.30 will no longer be applicable to the proposed development.

7 RECOMMENDATIONS

In order to address the requirements of the NES and Chapter E.30 of the AUP(OP) a site management plan will be required to document the controls to be in place for the protection of human and environmental health from the potential mobilisation of contaminants in soil during soil disturbance works.

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.

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

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

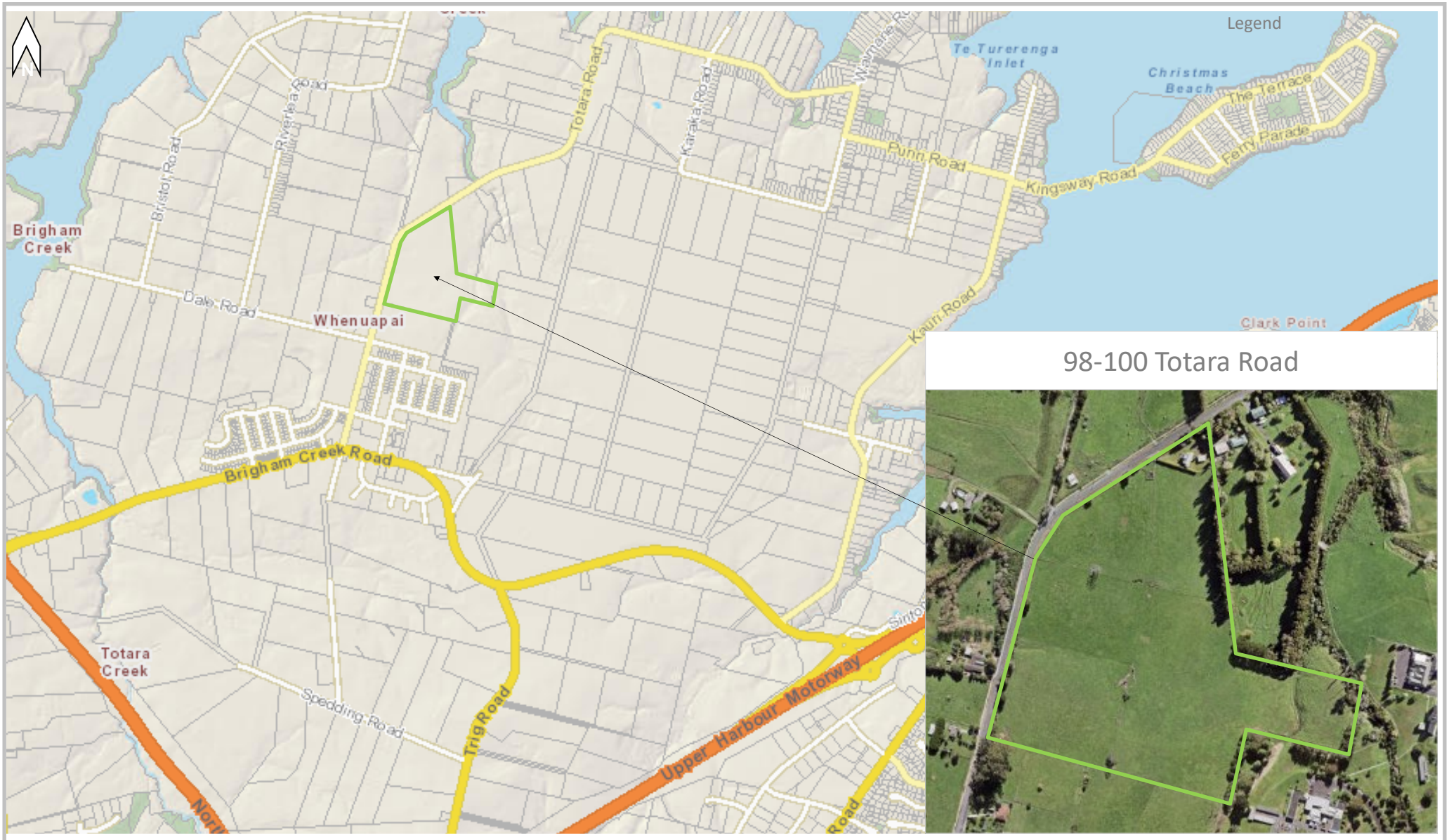
This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported 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.*

8 LIMITATIONS

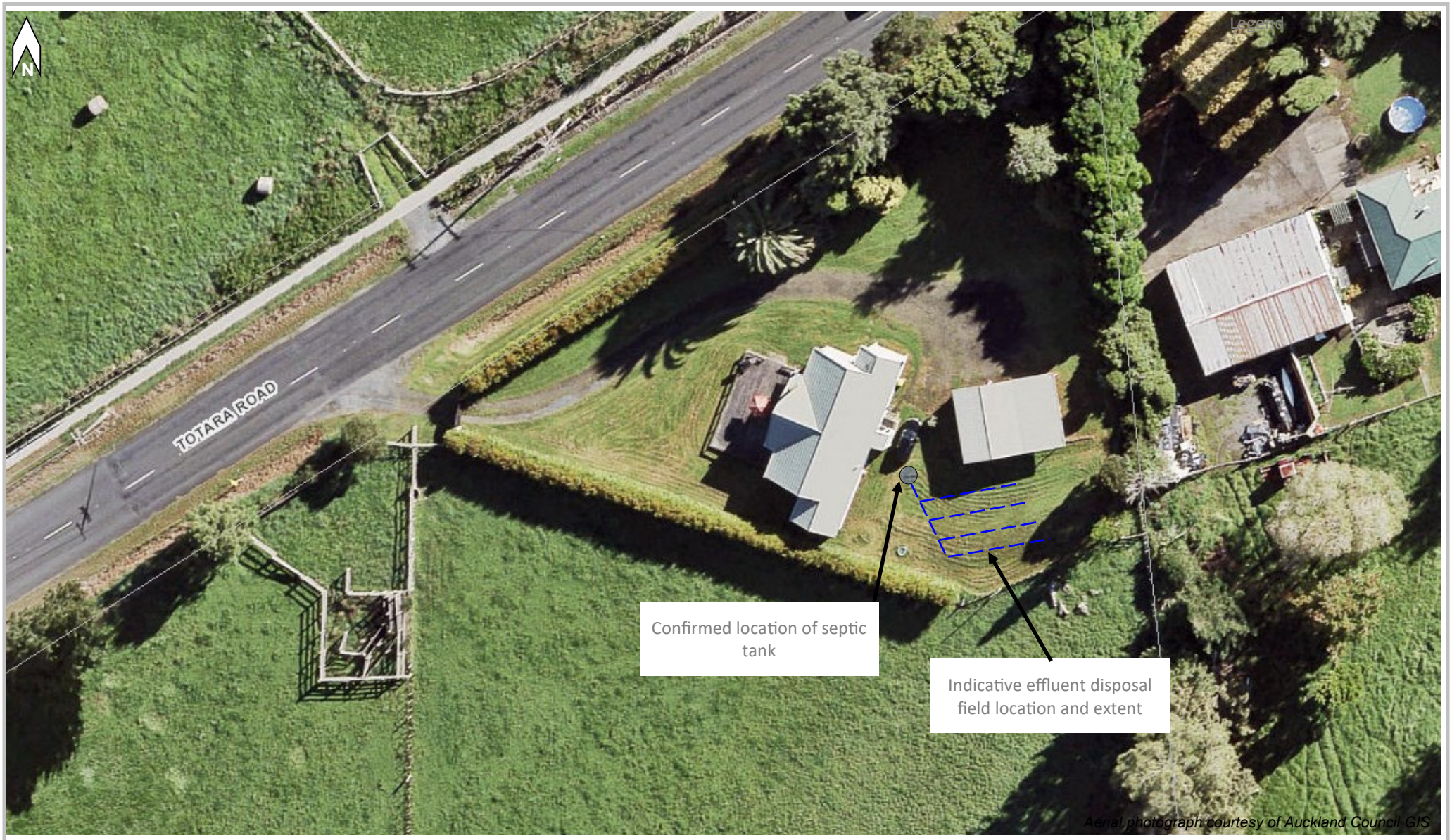
The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

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: J1173 Date: 07/05/2018
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	90-100 Totara Road, Whenuapai	Drawn: DW Approved: COB



geosciences ltd ENVIRONMENTAL	Title:	Figure 2 - Septic Tank and Disposal Field Location	Reference: J1173
			Date: 09/05/2018
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	98-100 Totara Road, Whenuapai	Drawn: DW
			Approved: COB

APPENDIX A CERTIFICATE OF TITLE

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952
Limited as to Parcels

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA38B/84**
Land Registration District	**North Auckland**
Date Issued	24 August 1977

Prior References
NA767/239

Estate	Fee Simple
Area	11.6100 hectares more or less
Legal Description	Lot 2 Deposited Plan 81411

Proprietors
Lois Violet Harre and Roderick McCrae Harre

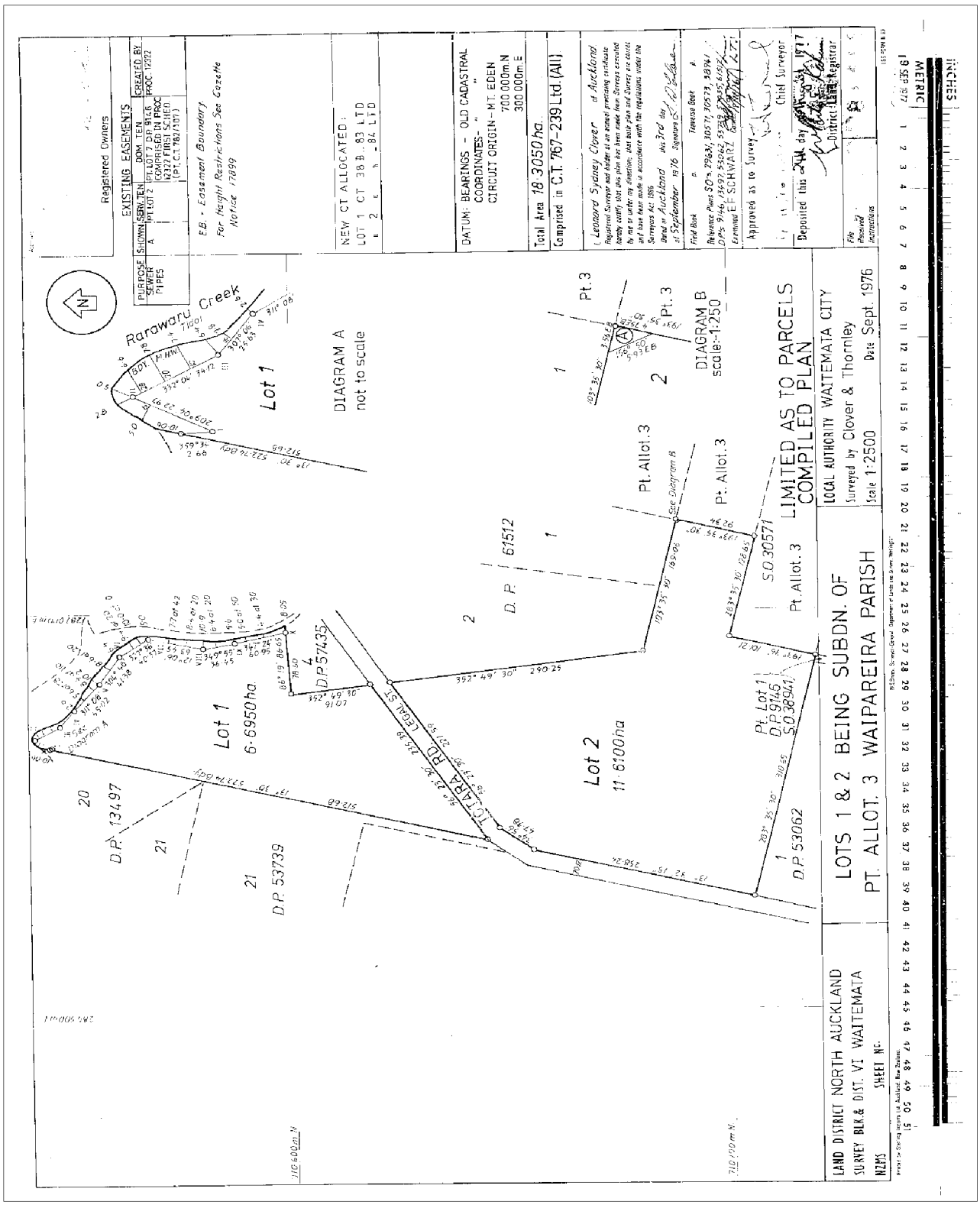
Interests

Subject to a drainage right over part marked A created by Proclamation 12322

K72265 Compensation Certificate by The Minister of Works - 26.8.1959 at 1.57 pm

17899 Gazette Notice declaring the within land subject to restrictions imposed by the within notice - 26.11.1960 at 2.54 pm

Identifier **NA38B/84**



COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952
Limited as to Parcels

Historical Search Copy

R.W. Muir
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Date Issued	24 August 1977

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NA767/239

Estate	Fee Simple
Area	11.6100 hectares more or less
Legal Description	Lot 2 Deposited Plan 81411

Original Proprietors
Barrie Frederick Connell and Lloyd McCrae Harre

Interests

Subject to a drainage right over part marked A created by Proclamation 12322

K72265 Compensation Certificate by The Minister of Works - 26.8.1959 at 1.57 pm

17899 Gazette Notice declaring the within land subject to restrictions imposed by the within notice - 26.11.1960 at 2.54 pm

7282097.1 Transmission to Lloyd McCrae Harre - 19.3.2007 at 9:00 am

7282097.2 Transfer to Lloyd McCrae Harre, Lynnette Joy Clark and Colin James Lucas - 19.3.2007 at 9:00 am

9569425.1 CAVEAT BY PAUL MAYNARD - 16.12.2014 at 3:40 pm

9395603.1 Transmission to Lynnette Joy Clark and Colin James Lucas as survivor(s) - 25.3.2015 at 3:32 pm

9395603.2 Transfer to Lois Violet Harre and Roderick McCrae Harre - 25.3.2015 at 3:32 pm

10023492.1 Lapse of Caveat 9569425.1 pursuant to Section 145A Land Transfer Act 1952 - produced 7.4.2015 at 3.25 pm and entered 28.4.2015 at 7.00 am

9936639.1 CAVEAT BY LYNNETTE JOY CLARK AND COLIN JAMES LUCAS - 15.4.2015 at 9:20 am

10423337.1 Withdrawal of Caveat 9936639.1 - 25.8.2016 at 9:54 am

References
Prior C/T 767/239

Transfer No. Limited as to Parcels
N/C. Order No. 368095.1

Land and Deeds 69

REGISTER

No. 38B/84

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 24th day of August one thousand nine hundred and seventy seven under the seal of the District Land Registrar of the Land Registration District of North Auckland

WITNESSETH that JOYCE EMMA ANDERSON widow and VIOLET ELIZABETH JANET ANDERSON widow both of Whenuapai and JOHN COUGHLAN WILLIAMS of Auckland Solicitor (one half share jointly) and LOIS VIOLET HARRE of Whenuapai married woman are

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 11.6100 hectares more or less being Lot 2 Deposited Plan 81411 and being part Allotment 3 Parish of Waipareira

DISTRICT LAND REGISTRAR AUCKLAND, N.Z.

Assistant Land Registrar

Interests at date of issue.

Subject to a drainage easement over the part herein marked A appurtenant to the pt Lot 7 Plan 9146 (C.T. 782/107) created by proc 12322

418984 Mortgage to Violet Elizabeth Janet Anderson 29.10.1955 at 2.56 o'c

DISCHARGED 31/7/1979 A.L.R.

K72265 Compensation certificate by the Minister of Works - 26.8.1959 at 1.57 o'c

17899 Gazette Notice declaring the within land subject to restrictions imposed by the within notice - 26.11.1960 at 2.54 o'c

A.L.R.

718457.2 Transfer to Lois Violet Harre abovenamed - 3.2.1978 at 1.40 oc.

for A.L.R.

718457.3 Mortgage to Violet Elizabeth Janet Anderson 3.2.1978 at 1.40 oc.

DISCHARGED 27/7/79 A.L.R.

for A.L.R.

498762.1 Transmission of Mortgage 718457.3 to Lois Violet Harre, Lloyd Harre and David Stewart Morris as executors - 27.7.1979 at 9.08 o'c

A.L.R.

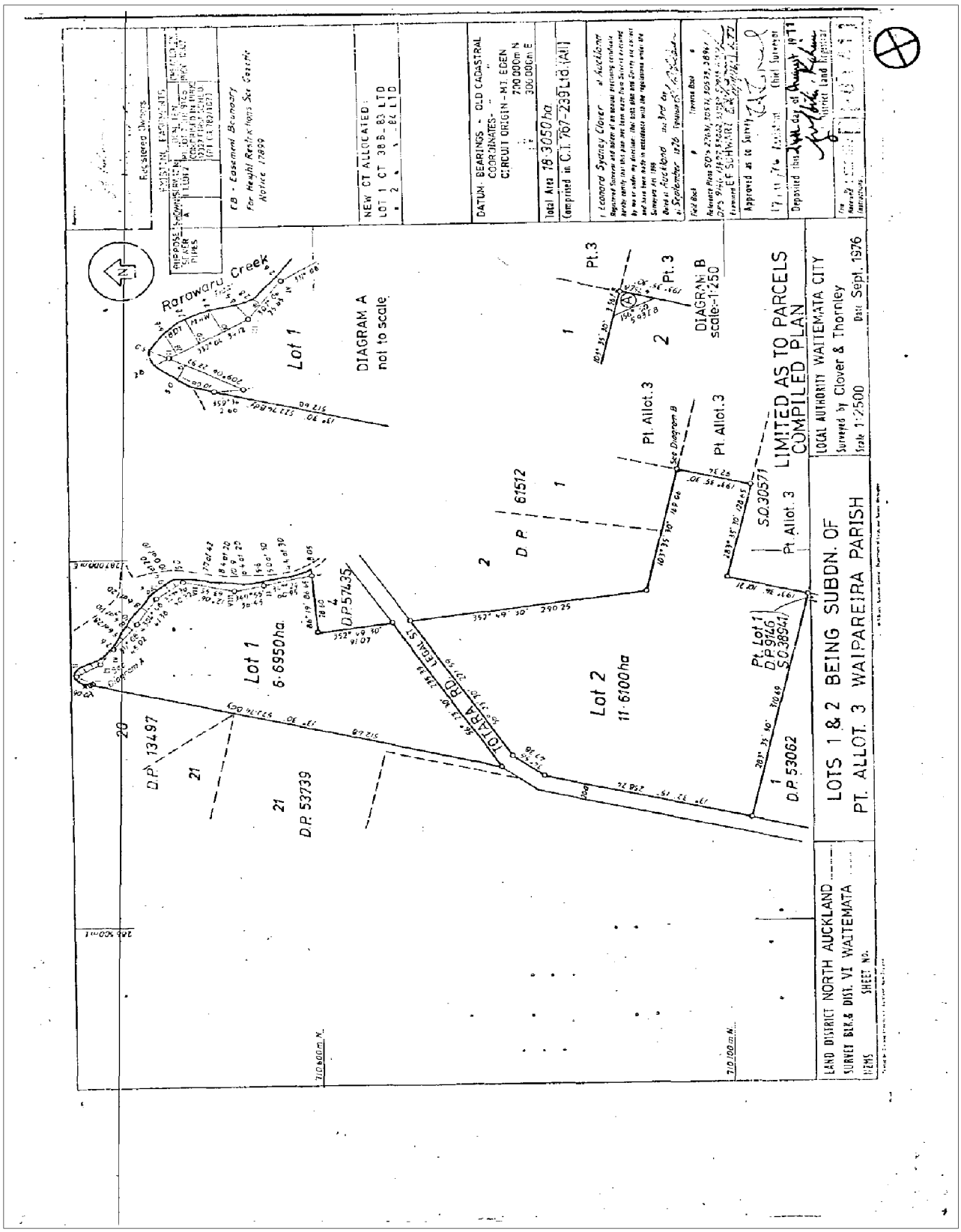
C.139864.1 Transfer to Barrie Frederick Connell of Auckland solicitor and Lloyd McCrae Harre of Whenuapai retired - 16.5.1990 at 1.31 o'c

A.L.R.

Measurements are Metric

No. 38B/84

Identifier **NA38B/84**



APPENDIX B HISTORICAL AERIAL PHOTOGRAPHS

Title:	**Historic Aerial Photographs**	**Reference:**	J1173
Project name:	98-100 Totara Road, Whenuapai	**Date:**	30/04/2018
		Drawn:	DW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

Title:	**Historic Aerial Photographs**	**Reference:**	J1173
Project name:	98-100 Totara Road, Whenuapai	**Date:**	30/04/2018
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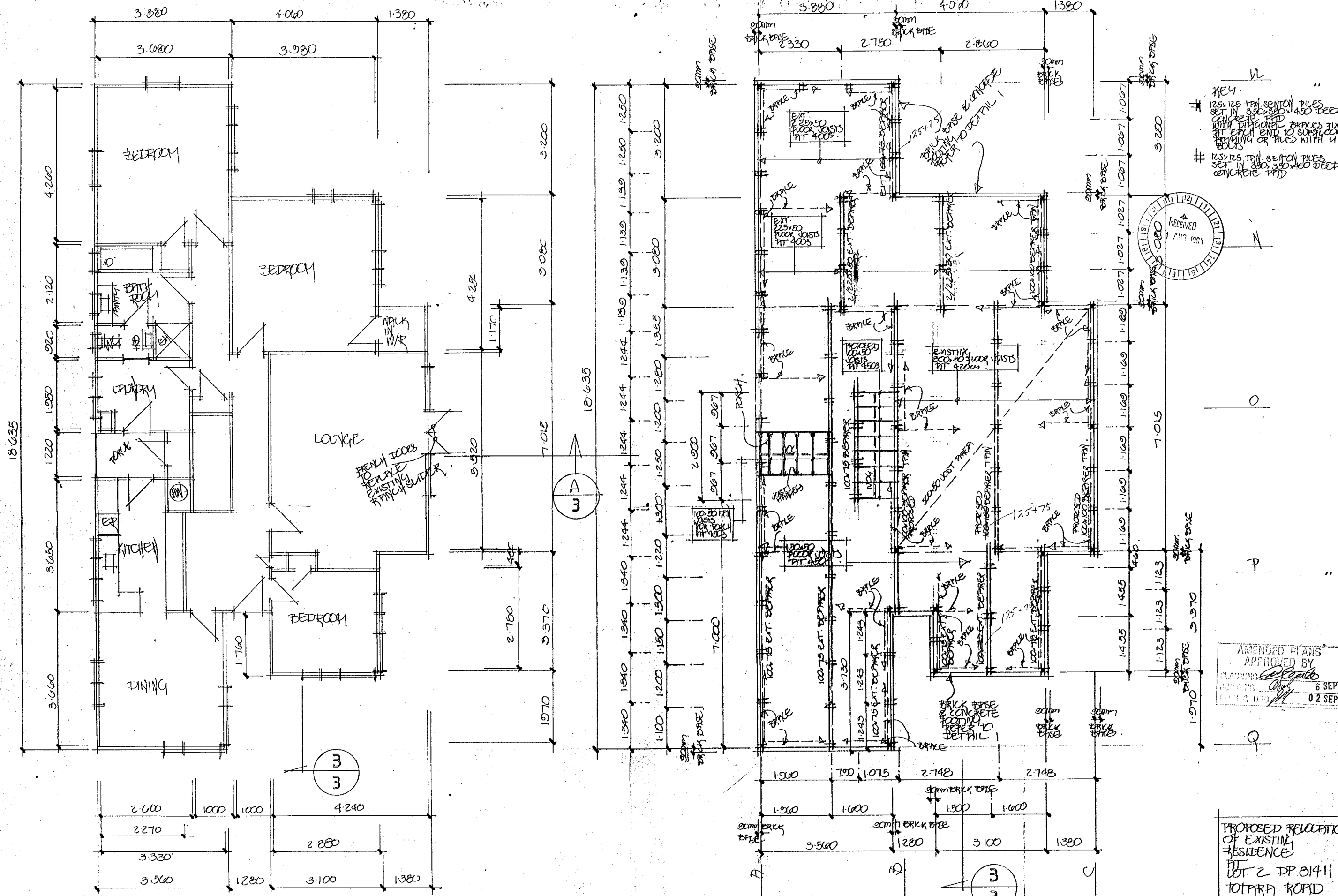
		Drawn:	DW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

APPENDIX C PROPERTY FILE EXTRACTS



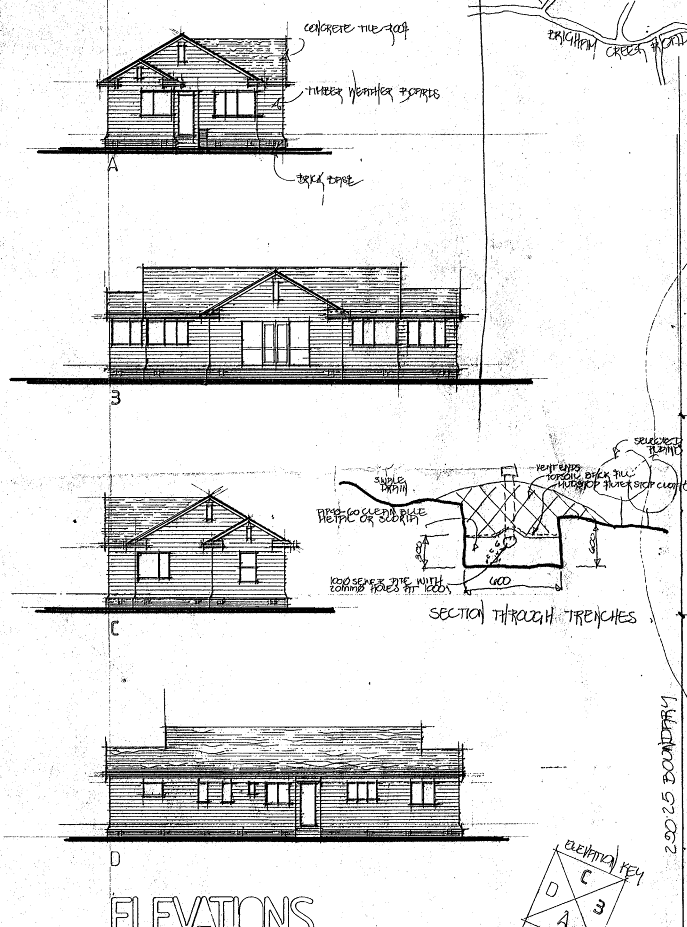
FLOOR PLAN

FOUNDATION PLAN

PROPOSED RELOCATION OF EXISTING RESIDENCE AT LOT 2 DP 81411 TOTARA ROAD WAITAKERE CITY

DATE	8/94
SCALE	1:50
SHEET	2 OF 3

No native trees and bush are to be cleared without prior approval of Council. Contact Councils Environmental Protection Officer for advice.



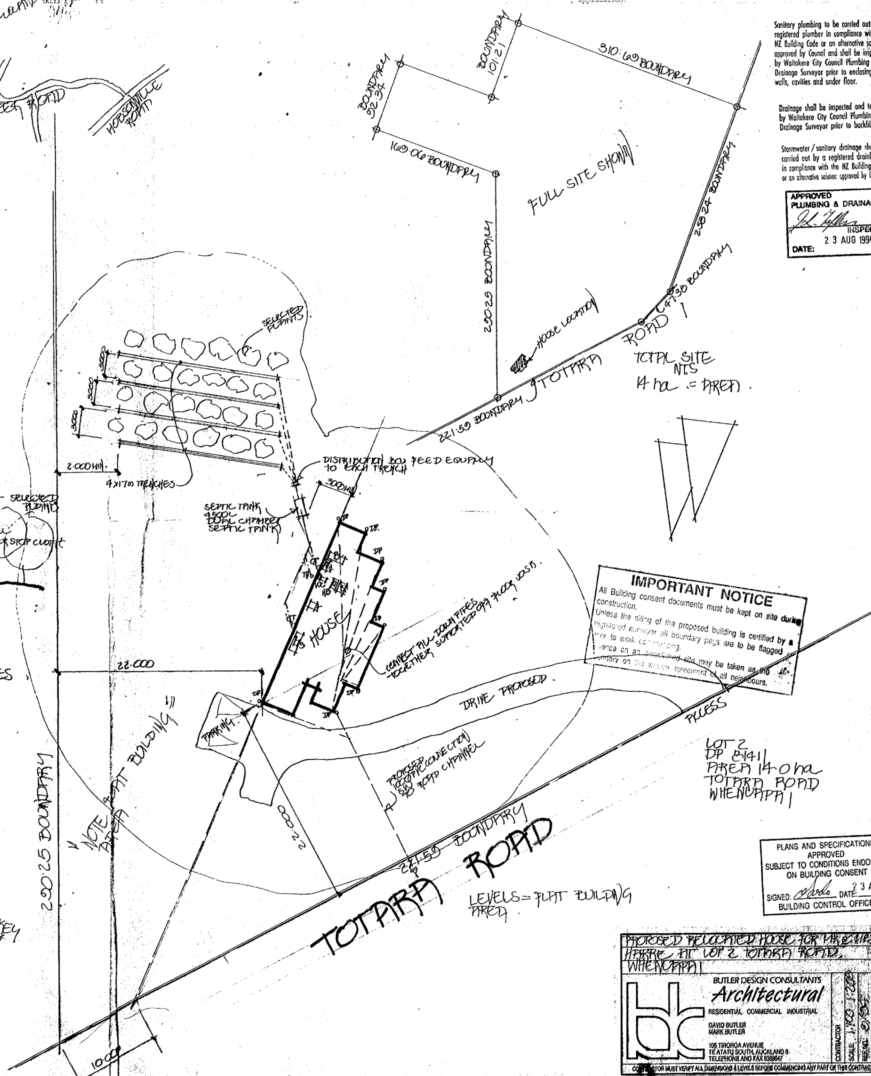
The property owner is required to submit to this Local Authority on completion of the construction of the septic tank and effluent disposal system, a certificate from the Consulting Engineer/Geologist certifying that the septic tank and the effluent disposal system has been constructed in accordance with the design that has been submitted with the building permit application.

Sanitary plumbing to be carried out by a registered plumber in compliance with the NZ Building Code or an alternative solution approved by Council and shall be inspected by Waitakere City Council Plumbing & Drainage Surveyor prior to enclosing in walls, cavities and under floor.

Drainage shall be inspected and tested by Waitakere City Council Plumbing & Drainage Surveyor prior to backfilling.

Stormwater / sanitary drainage shall be carried out by a registered drainlayer in compliance with the NZ Building Code or an alternative solution approved by Council

APPROVED
PLUMBING & DRAINAGE
INSPECTOR
DATE: 23 AUG 1994



IMPORTANT NOTICE

All Building consent documents must be kept on site during construction.
Unless the siting of the proposed building is certified by a registered surveyor all boundary pegs are to be flagged prior to work commencing.
Fence on an established site may be taken as the boundary on the written agreement of all neighbours.

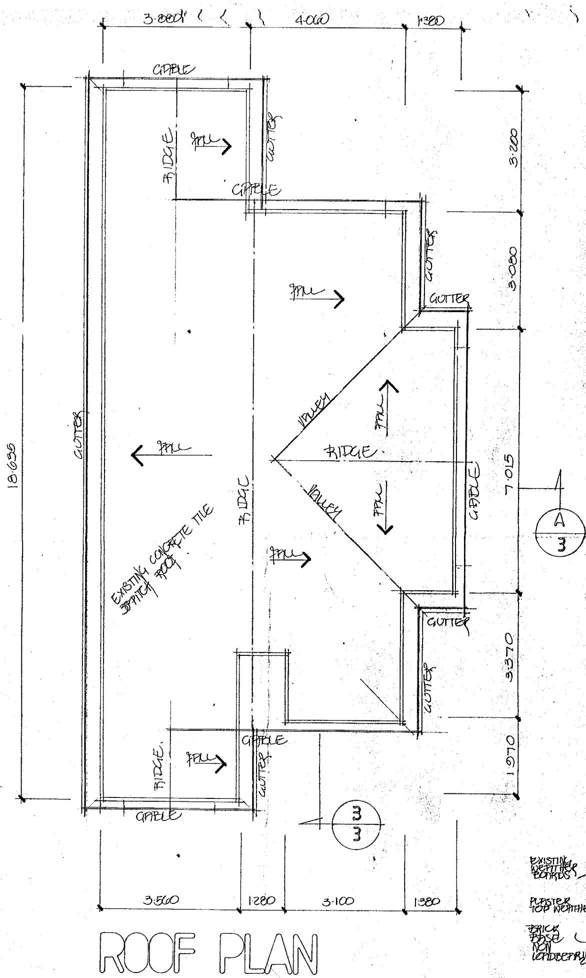
PLANS AND SPECIFICATIONS
APPROVED
SUBJECT TO CONDITIONS ENDORSED
ON BUILDING CONSENT
SIGNED: DATE: 23 AUG 19
BUILDING CONTROL OFFICER

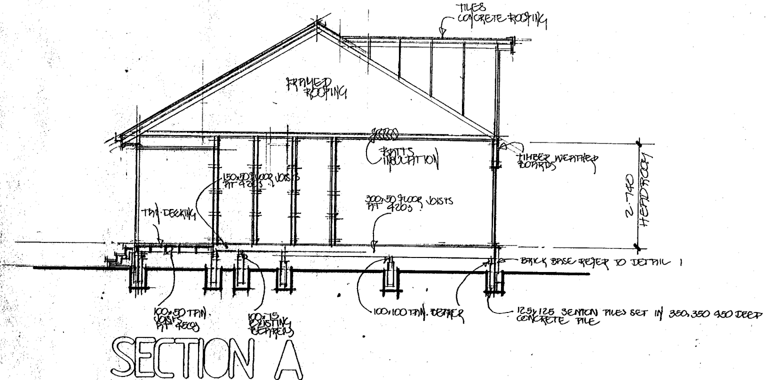
PROPOSED RELOCATED HOUSE FOR MR & MRS HARRE AT LOT 2 TOTARA ROAD, WHENUAPAI

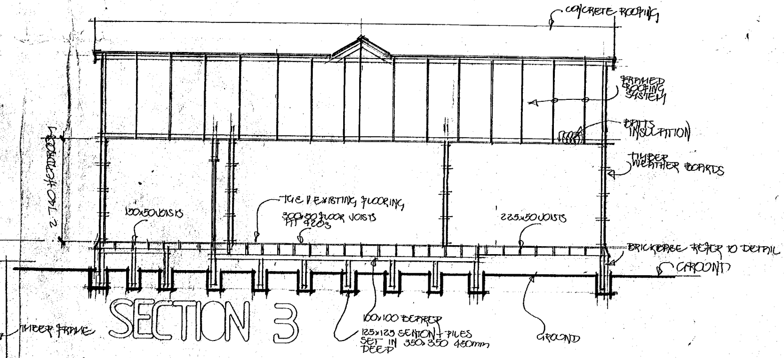
BUTLER DESIGN CONSULTANTS
Architectural
RESIDENTIAL COMMERCIAL INDUSTRIAL
DAVID BUTLER
MARK BUTLER
105 TIROROA AVENUE
TE ATATU SOUTH, AUCKLAND 8
TELEPHONE AND FAX 8389647

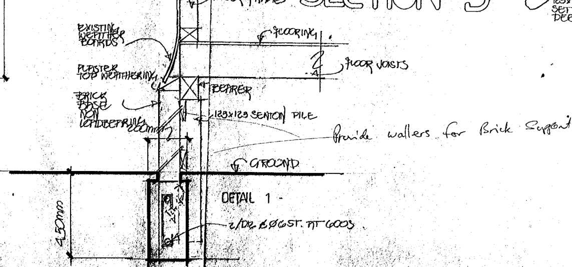
CONTRACTOR | SCALE 1:100 1:200 | REF. NO. | SHEET 1 OF 3

CONTRACTOR MUST VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCING ANY PART OF THIS CONTRACT









PROPOSED RELOCATION OF EXISTING RESIDENCE

PLANS AND SPECIFICATIONS APPROVED SUBJECT TO CONDITIONS ENDORSED ON BUILDING CONSENT

SIGNED DATE: 23 AUG 1994

BUILDING CONTROL OFFICER

DATE	8/94
SCALE	1:50
SHEET	3 OF 3

HAWTHORN-GEDDES
Civil & Structural
Registered Civil & Structural Engineers
138 Bank Street
P.O. Box 1575
Whangarei
Whangarei Ph (09)438
Fax (09)438
Warkworth Ph (09)425
Kaikohe Ph (09)401

JOB No: 80709 DATE: Aug 94
CLIENT: ROD HARRE
STRUCTURE: RELOCATED HOUSE
STRUCTURAL COMPONENTS: ON SITE EFFLUENT DISPOSAL DESIGN
N.Z.S.: AS/NZS 1547
DESIGNER: BJ KOSE CHECKED:

1. SITE LOT 2
DP 81411
14.00 ha
TOTARA RD
WHENUAPAI

2 ASSUMPTIONS : 3 BEDROOM HOUSE ⇒ 5 PEOPLE
WATER TANK WATER SUPPLY ⇒ 140ℓ/P/DAY

BOREHOLE REVEALED GOOD TOPSOIL LAYER OVER A SANDY SILTY CLAY (CAT 4 SUBSOILS)
ALLOW 10mm/DAY LONG TERM SOAKAGE.
DESIGN FOR SHALLOW TRENCHES

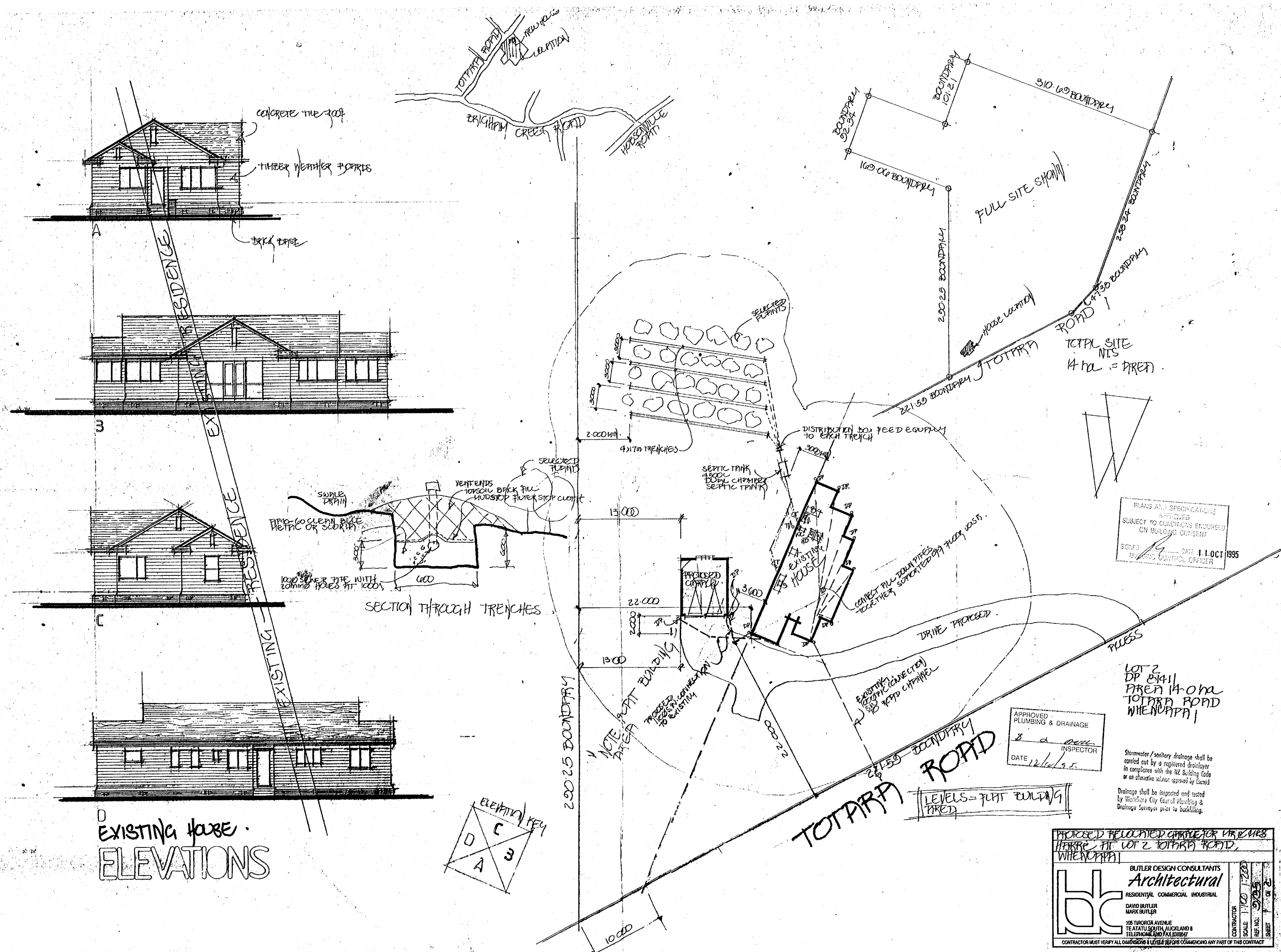
3. DESIGN : TOTAL EFFLUENT LOADING ⇒ 5 x 140
= 700ℓ/DAY

TOTAL SOAKAGE AREA REQ'D = $\frac{700}{10}$
= 70 m²

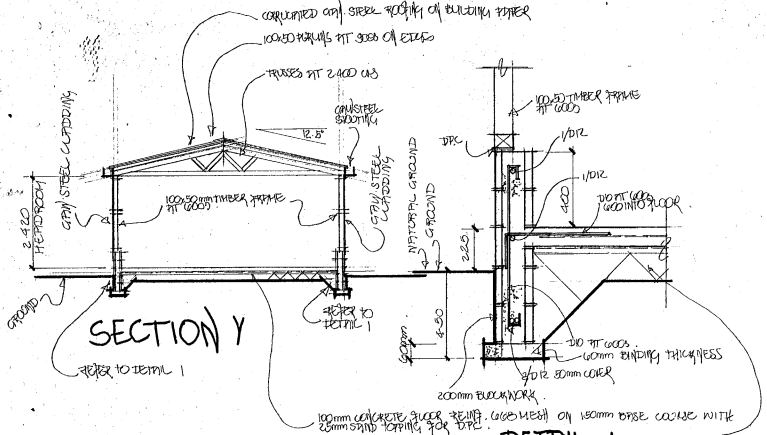
TOTAL WETTED AREA = 0.25 + 0.25 + 0.6
= 1.1 m²

∴ TOTAL LENGTH OF TRENCH REQ'D
= 64m

∴ CONSTRUCT 4 x 17 m LONG TRENCHES

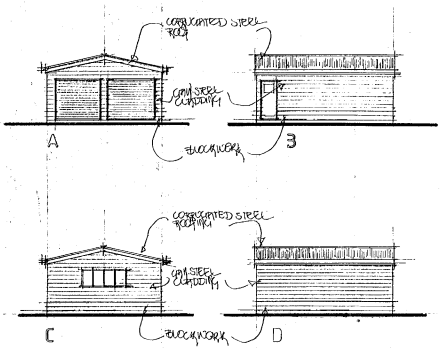


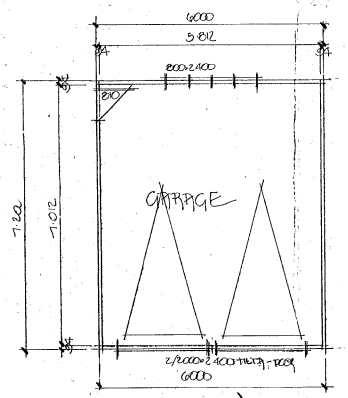
CONCRETE TILE ROOF
TIMBER WEATHER BOARDS
BRICK BASE
A
B
C
D
EXISTING RESIDENCE
EXISTING HOUSE ·
ELEVATIONS
ELEVATION KEY
TOTARA ROAD
NEW HOUSE LOCATION
BRIGHAM CREEK ROAD
HOBSONVILLE ROAD
FULL SITE SHOWN
HOUSE LOCATION
TOTAL SITE NTS
14 ha = AREA
SELECTED PLANTS
2.000 MIN.
4 X 17m TRENCHES
DISTRIBUTION BOX FEED EQUALLY TO EACH TRENCH
SEPTIC TANK
SWALE DRAIN
VENT ENDS
TOPSOIL BACK FILL
SECTION THROUGH TRENCHES
13.000
22.000
2.000
3.600
13.00
PROPOSED CARPORT
EXISTING HOUSE
DRIVE PROPOSED
ACCESS
220.25 BOUNDARY
221.59 BOUNDARY
TOTARA ROAD
LEVELS = FLAT BUILDING AREA
10.000
PLANS AND SPECIFICATIONS APPROVED SUBJECT TO CONDITIONS ENDORSED ON BUILDING CONSENT
DATE 11 OCT 1995
BUILDING CONTROL OFFICER
LOT 2
DP 81411
AREA 14.0 ha
TOTARA ROAD
WHENUAPAI
APPROVED
PLUMBING & DRAINAGE
INSPECTOR
DATE 12/10/95.
Stormwater / sanitary drainage shall be carried out by a registered drainlayer in compliance with the NZ Building Code or an alternative solution approved by Council
Drainage shall be inspected and tested by Waitakere City Council Plumbing & Drainage Surveyor prior to backfilling.
PROPOSED RELOCATED GARAGE FOR MR & MRS HARRE AT LOT 2 TOTARA ROAD, WHENUAPAI
BUTLER DESIGN CONSULTANTS
Architectural
RESIDENTIAL COMMERCIAL INDUSTRIAL
DAVID BUTLER
MARK BUTLER
105 TIROROA AVENUE
TE ATATU SOUTH, AUCKLAND 8
TELEPHONE AND FAX 8389647
CONTRACTOR
SCALE 1:100 1:200
REF. NO.
SHEET 1 OF 2
CONTRACTOR MUST VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCING ANY PART OF THIS CONTRACT



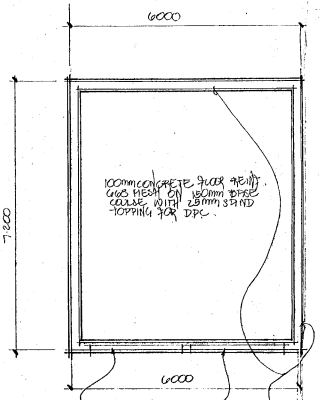
SECTION Y

DETAIL 1

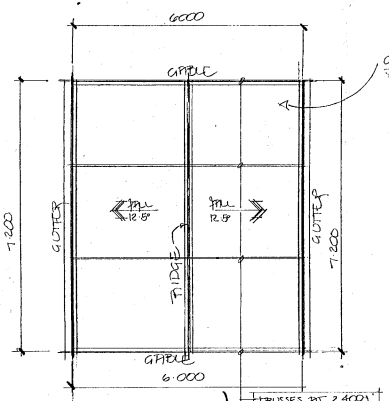




FLOOR PLAN



FOUNDATION PLAN



ROOF PLAN

ELEVATION KEY

PLANS APPROVED SUBJECT TO CONDITIONS ENDORSED ON BUILDING CONSENT

DATE 11 OCT 1995

BUILDING CONSULTANT OFFICER

PROPOSED = EXISTING GARAGE TO BE RELOCATED TO LOT 2 TOTARA ROAD WHENUAPAI

SCALE	1:50, 1:10, 1:100
DATE	9/95
SHEET	2 OF 2

Andrea 0223557608 2day

Asset Management

Sewer Miscellaneous Work Order

Report Date 05/07/2017 10:23 AM | Submitted By |

Work Order # 411811 | Activity SSTPO3 SEWER SEPTIC TANK PUMP OUT 3YR

Misc ID 19994367
Address 98 TOTARA RD
WHENUAPAI 0618

Description

Position
Area
Sub-area
Map #

District
Location

Misc Type	UKNOW	STANDARD SEPTIC TANK	Colour				
Usage Unit							
Surface			Condition				
Material							
Model #			Length	15.000	Height	0	
Serial #	4050		Width	0	Diameter	0	
Weigh	0.00		Depth	0.000	Avg Monthly Usage	0.00	
Elevation	0.00				Total Usage	0.00	
Owner	PRV	PRIVATE	Service Status	PVIN	PRIVATE LIVE		
Parcel							
X Coord							
Y Coord			Plan #				
Z Coord			Date Installed				
Budget #							

Initiated By			Initiated Date	05/07/2017	Scheduled	01/08/2017 09:00
Assigned To	STC	SEPTIC TANK CONTRACT	Service #		Due	29/08/2017 09:00

Authorisation
Budget #
Crew
Maint Type
Priority
Problem
Project
Source
Last As / SSTPO3 SEWER SEPTIC TANK PUMP OUT 3YR

Group Proj # 6819
Out of Service ☐
Potential Service Request ☐
Last Activity Completed 01/08/2014

Gate.

Onsite Wastewater Management
Effluent Disposal System Data Sheet

Auckland Council

PROPERTY INFORMATION | **UNIT ID**

Property Address:
98 TOTARA RD WHENUAPAI

Work Order: 411811
Pumpout Date: 14/8/20

Property Type:
☐ Residential (small) ☑ Residential (large) ☐ Bach ☐ Public Facility
☐ Other (Specify) ...

PUMP OUT INFORMATION

☑ Routine ☐ Early ☐ Rescheduled ☐ Emergency
☐ To Be Rescheduled Date Required ...

Comments

ASSET DATA

Type	☑ Standard	☐ Pre Treatment	☐ Grey Water	☐ Grease Trap
	☐ Long Drop	☐ Chamber	☐ Hi Tech	
	☐ Other (Specify) ...			
Size (litres)	☐ 2700	☐ 4050	☑ 4500	
	☐ Other (Specify) ... litres			
Material	☑ Concrete	☐ Fibreglass	☐ Plastic(PE)	
Lid Depth	☐ Not Applicable	☐ Above Ground	☐ Ground Level	
	☑ Below Ground (Specify Depth) ... 100 mm			
Risers Required	☐ Yes	☑ No		
Details ...				
Effluent Filter	☐ Yes	☑ No	*Baffles*	☑ Yes ☐ No
Sludge/Scum Depth	☐ Not Applicable	Measured With Sludgeometer	☐ Yes	☑ No
	Scum Depth (mm) ... 150	*Sludge Depth (mm) ...* 200		
Hose Length	☑ ≤ 50m	☐ > 50m and ≤ 100 m	☐ > 100m	

TANK CONDITION AND DEFECTS

Condition Good	☑ Yes	☐ No			
Details ...					
Defects Identified	☑ None	☐ Root Intrusion	☐ Broken Lid	☐ Other	
Details ...					

COMPLETION

Lid Sealed	☐ Not Applicable	☑ Yes	☐ No
Comments ...			
Cleanup Completed	☑ Yes	☐ No	
Details ...			

GENERAL PUMPOUT COMMENTS *(Notes on any other related issues).*

Comments:

Onsite Wastewater Management
Effluent Disposal System Data Sheet

Auckland Council

DRAINAGE FIELD DATA

Field Found ☐ Not Applicable *(Skip to **General Inspection Comments** below)* ☑ Yes ☐ No

Comments …

Drainage Field Type ☑ Evapo Beds ☐ Dripper Line ☑ Trench ☐ Raam Light ☐ Bore Holes ☐ Unknown ☐ Other (Specify) …

Separate Grey Water System	☐ Yes	☑ No	☐ Unknown
All Pipes Into Gulley Traps	☑ Yes	☐ No	☐ Unknown

DRAINAGE FIELD CONDITION

Drainage Field Suitable	☐ Yes	☐ No
All Components Accessible For Maintenance (incl. risers, monitoring ports, distribution box)	☑ Yes	☐ No
All Components in Good Condition	☑ Yes	☐ No

Details …

Distribution Box ☑ Water Tight ☐ Ground Water Entry ☐ Visual Leakage Out

Details …

DRAINAGE FIELD DEFECTS

Defects Identified ☑ None ☐ Effluent Surfacing ☐ Strong Odour ☐ Ponding ☐ Evidence Of Vehicle Traffic or Livestock On Drainage Field ☐ Other

Details …

GENERAL INSPECTION COMMENTS *(Notes on location of drainage field, soil type if known) ie in bush, paddock.*

Comments

Soil type: Sand Loam Clay

Nature of site (is it pasture, bush, paddock or other – please describe): Lawn

Is it boggy or overland flow: No

SITE INCIDENT *(Note: Requires notification to Auckland Council Call Centre)*

OSH Incident ☐ Yes ☑ No

Details …

Contractor Damage ☑ None ☐ Property ☐ Truck ☐ Mushroom ☐ Lid ☐ Other

Details …

Reinstatement Complete ☐ Not Applicable ☑ Yes ☐ No

Comments …

DAY WORKS *(Note: Requires Engineer's Prior Approval)*

Day Works Hr … Min …

Details …

SIGNOFF

Pump Out and Inspection Undertaken By [Name] … Igor, Victor, Blair, Bevie

☒ Task Location Confirmed

☐ Task Location Correction Required

DISCLAIMER:
This map/plan is illustrative only and all information should be independently verified on site before taking any action. Copyright Auckland Council. Land Parcel Boundary information from LINZ (Crown Copyright Reserved). Whilst due care has been taken, Auckland Council gives no warranty as to the accuracy and plan completeness of any information on this map/plan and accepts no liability for any error, omission or use of the information. Height datum: Auckland 1946.

Septic Tank Locations

Aerial Imagery 2015-2016 Urban

19994367 98 TOTARA RD WHENUAPAI

Parcel Boundaries | S Private, Other | S Septic Tank of Interest (Private, Other)

0 3.5 7 10.5
Meters

Scale @ A4 = 1:500

Date Printed: 6/07/2017

Auckland Council
Te Kaunihera o Tāmaki Makaurau

APPENDIX D SITE PHOTOGRAPHS

PLATE 1: LOADING BAY ADJACENT TO SITE ACCESS

PLATE 2: PASTURE AREA LOOKING SOUTH

PLATE 3: DWELLING AND GARAGE ON NORTHERN PORTION OF SITE

PLATE 4: EASTERN PORTION OF SITE, FORMERLY PLANTED WITH TREES

PLATE 5: CREEK RUNNING ACROSS EASTERN PORTION OF SITE

PLATE 6: CREEK RUNNING FROM AIRBASE ACROSS EASTERN PORTION OF SITE

PLATE 7: SOUTHERN PORTION OF SITE

PLATE 8: SITE VIEWED FROM THE SOUTHERN BOUNDARY LOOKING NORTH

24 September 2019 (Revised 10 November 2021)

Maraetai Land Development
C/- Neil Construction Limited
PO Box 8751
Symonds Street
Auckland 1150

Ref: Ltr-1394/PSI/Sep17(Rev1)

Attention: David Page
Land Manager

Dear David,

RE: PRELIMINARY SITE INVESTIGATION OF 102 TOTARA ROAD, WHENUAPAI

Geosciences Ltd (GSL), has conducted preliminary site investigation (PSI) of the property located at 102 Totara Road, Whenuapai in accordance with GSL proposal ref: *Pro 1855/Aug19* dated 06 August 2019. The property is legally described as Lot 1 DP 53062, comprises an area of 4.7551 Ha and is hereafter referred to as 'the site' in this report.

The primary purpose of this investigation is to assess the likelihood of any potential contamination issues being present on site, and the resulting applicability of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES).

1 BACKGROUND

The site is currently a rural residential lot comprising of two residential dwellings; one located midway along the western boundary of the site and the other located on the southern boundary of the site. The landuse is consistent with the surrounding area, which has a mixture of rural and rural-residential properties nestled in and around the Whenuapai NZ Air Force directly the east of the site. GSL understands that the site has been identified for future residential development.

The *National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES)* (Ministry for the Environment (MfE), 2012) requires that land affected by contaminants in soil is appropriately identified and assessed. When soil disturbance, change in landuse, or subdivision activities take place it should be, if necessary remediated or the contaminants contained to make the land safe for the intended landuse.

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 under investigation. Consequently, any change in landuse, subdivision or development required a preliminary site investigation (PSI) of the land to determine whether or not any risk to human health exists as a result of any current or former activities that are occurring, or may have occurred, on that land.

GSL understands that the site has been secured by Maraetai Land Development, with the intention of developing the land for residential landuse. Maraetai Land Development engaged GSL to undertake an investigation of the site to comment on the likely contamination risks associated with the property and determine whether or not the provisions of the NES are likely to apply to the site, or portions thereof.

2 SCOPE OF WORKS

This preliminary site investigation, undertaken in general accordance with the MfE Contaminated Land Management Guidelines (CLMG) No. 1 - "*Reporting on Contaminated Sites in New Zealand"* and No 5 - *"Site Investigation and Analysis of Soils"* included:

- an historical appraisal of the site by a study of historic aerial photographs;
- a review of the current and historic certificates of title;
- a review of the property file held by Council;
- a visual site inspection and walkover of the property; and
- the preparation of this letter report to comment on the liabilities applicable under the National Environmental Standards (NES) regulations, and Auckland Unitary Plan (Operative in Part) (AUP(OP)) rules for the development of the site.

3 SITE HISTORY

In order to establish the site history, GSL conducted a desktop study of publicly available information, the findings of the study are detailed in the following sections.

3.1 RECORDS OF TITLE

GSL has reviewed copies of the current and historic Records of Title for the aforementioned property, 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 of or potential soil contamination are held against the property. The titles indicate that the property was formed in 1964 under the Joint Family Homes Act 1964 and settled to Lois Violet Harre and Lloyd McCrae Harre, noting Mr McCrae occupation as a farmer. There are no other notes of interest on the titles. Copies of the certificates are attached in Appendix A.

3.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs from 1940, 1950, 1963, 1972, 1980, and 1988 are available from the Retrolens website while images from 1996, 1999, 2000, 2003, 2006, 2008, 2010, 2015, and 2017 are available on the Auckland Council GEOMaps website (GIS). The most recent available image is held on Google Earth from April 2019. The findings of the historic aerial photograph review are summarised below, while copies of the aerial photographs have been attached in Appendix B.

1940 This is the first available image of the site. Currently the site is vacant apart from trees lining the north, east and western boundaries of the site.

1950-1963 The site is currently segregated down the centre by a thick shelter belt running approximately north-south across the site. In 1950 trees from the northwest corner of the site have been removed, by 1963 the remainder of trees on the norther boundary have also been removed. There are no other significant developments on site.

1972 By 1972 a residential dwelling has been erected on site, as well as a paved driveway accessing the site from Totara Road to the west. An area of domestic garden has been established to the south of the dwelling with some planting evident. The remainder of the site remains vacant pasture with no other significant developments.

1980-1988 The shelter belt previously segregating the site down the middle has been removed. To the south of the residential dwelling a shed has been erected, a second small shed with a small, fenced enclosure is noted in the approximate centre of the site adjacent to the remnants of the former shelter belt.

Other than the construction of a second small shed in the approximate centre of the site's northern boundary, there is little discernible development to the site in the 1988 image.

1996 The 1996 image is the first available colour image of the site and while the image is of poor quality the colour confirms the site pastoral landuse. To the south of the residential dwelling the existing barn / shed has been extended to the south, while a small shed has been constructed in the southwest paddock, adjacent to the domestic gardens. In the southeast corner of the site, a stormwater culvert and channel is evident.

1999-2003 By 1999 a new residential dwelling has been erected along the southern boundary of the site. The small shed in the southwest paddock, noted in the previous image, has been removed. There are no other discernible developments to the site through the images from 2000, and 2003.

2006 The 2006 image is of much higher quality making the sites features easily discernible, the sites use remains predominantly pastoral with the two residential dwellings and barn in the southwest quadrant of the site. The small shed appears to be an animal shelter and pen first noted in the 1980 image appears to be a small animal enclosure or run. To the south of the main dwelling and barn a small apparent portacom type shed has been placed on the paddock, this is assumed to be a portable structure as it has been removed again by the 2008 image. A small domestic sized shadehouse has been constructed in the gardens to the southwest of the original dwelling.

Other than the removal of the portacom there are no discernible developments to the site in the 2008 image.

2010-2019 The shed in the centre of the northern boundary appears to be undergoing demolition / removal at the time of the 2010 image, some building materials are piled to the south of the shed and only remnants of the structure remain along with a timber animal loading race. A small shed has been constructed in the garden of the recent residential dwelling; this is assumed to be a temporary structure as it is removed by the 2015 image.

Aside from the demolition and removal of the shelter and animal run north of the site centre there is little discernible development noted on site in the 2015 image. The 2017 image shows a port-a-com style shed located off the southwest corner of the barn to the south of the original dwelling. The stormwater flowpath appears to have been replanted between culverts on the southern boundary and the eastern boundary where it crosses into the adjacent airbase. The 2019 Google Earth image shows little discernible development to the site.

3.2.1 Summary of Aerial Photographs

GSL has reviewed the available historic aerial images of the site and concluded that the site remained predominantly vacant pasture since at least 1940. Residential landuse is established by 1972, with a second residential dwelling being constructed by 1999. The aerial photographs show no distinct evidence for any activity or industry included on the MfE HAIL having been undertaken on the site. There are no structures present on the site which could be spray races, nor is there any evidence for horticultural activities or major earthworks having been undertaken on the site.

3.3 PROPERTY FILE

GSL requested a copy of the property file from Auckland Council for review of historic activities. Copies of relevant historic plans, correspondence, permits, and consents have been attached in Appendix C. The following items of note were on the supplied file:

1963 A building permit application for the construction of a residential dwelling is held on file specifying “decromastic tiles” under roofing material, the bituminous glue utilised in some decromastic tiles has been known to contain asbestos fibres. Fibrous plaster ceilings are also noted in the specifications. Also specified in the building plans is the use of “white and red lead” paints and primers on exterior woodworking.

1979 Building application and permit for tractor shed.

1998 An application for the construction of minor dwelling located more than 20m from the existing dwelling is held on file. Plans included on the property file indicate the location of a domestic septic tank and effluent disposal trench and soakage system associated with the minor dwelling.

3.3.1 Summary of Property File

GSL reviewed the property file held by Auckland Council for the site, noted on the specifications for the original dwelling are potentially asbestos containing materials (ACM) and lead based paints. When in broken or degraded condition, asbestos containing material is included on the MfE HAIL under Item E.1, similarly the impacts of lead based paints can be encompassed by Item I of the HAIL where a potential risk to human health or the environment is noted.

Drainage plans and pump-out-reports held in the property file indicate the presence of two onsite septic tanks and effluent disposal systems on the site. Auckland Council consider that domestic effluent disposal systems are encompassed by Item G.5 and G.6 of the MfE HAIL as waste disposal to land.

3.4 SUMMARY OF DESKTOP INVESTIGATION

GSL conducted a desktop study of publicly available information including a review of current and historic certificates of title, a review of historic aerial photographs, and a review of the property file held by Council. The desktop study has identified the following potential issues associated with the existing residential dwelling on site:

- Historic use of lead based paints on the original dwelling and older sheds on site;
- Potential presence of asbestos containing materials within the original dwelling and sheds in the paddocks; and
- Presence of onsite effluent disposal systems.

4 SITE INSPECTION AND WALKOVER

GSL undertook a site inspection on 19 September 2019 at which time the weather was fine and clear, at the time of the inspection the site appears exactly as it does in the most recent aerial photographs, that is; largely vacant pasture laid out in paddocks for the grazing of cattle. The only structures on the full extent of the site are the dwellings and barn noted in the aerial photographs.

The main dwelling on site is the original 1960s house, which is accessed directly off Totara Road along a concrete driveway in the southwest quadrant of the site, a second driveway is cut along the southern boundary of the site providing access to the more recent minor dwelling.

The dwelling itself is confirmed to be as described in the plans in the property file, being a timber framed brick clad dwelling on concrete blockwork foundations, with tiled roofing, the lower storey of the dwelling appears to be utilised as a second dwelling / granny flat under the main house. Between the Totara Road and the main dwelling is a large manicured lawn with a vegetable garden, fruit trees, and a small shadehouse housing grapevines to the south of the dwelling. North of the dwelling and ornamental gardens are three chicken houses with attached runs sited under a stand of large mature Australian Swamp Gum trees. The chicken sheds are constructed out of timber frames and clad with longrun iron roofing materials.

Off the southeast corner of the main dwelling is a large timber barn with various stockpiles of timber, including some treated decking timbers, and roofing materials to the west and north of the barn. The barn itself is utilised for storage of firewood, kindling and other timber products, all of which are situated on a concrete floor slab. A timber loading race and pen is constructed on the east end of the barn which provides gated access to the adjacent paddocks and remainder of the site. In the northwest corner of a small paddock north of the barn and east of the main dwelling the breather valve for the septic tank system was noted, no distinct visually obvious indication was noted for the tank overflow or soakage trenches was noted during the inspection.

The second, more recent dwelling is located on the southern site boundary and accessed along a separate driveway off Totara Road, the dwelling is maintained in excellent condition and clad with modern weatherboards, and corrugated iron roofing material. In the paddock to the west of the dwelling the septic tank system associated with the dwelling is noted, the system is an Oasis Clearwater system which appears to be a modern, high tech, multi chamber system.

The remaining site area is vacant pasture and laid out in paddocks, separated by electrified cattle fences, the paddocks are utilised for raising drystock. The only structures noted on the pastoral areas of the site are the remnants of the loading race associated with the former shed on the northern boundary. Residual tree stumps from the former large shelter belt are noted across the central portion of the site running in a north-south direction. There are no structures present on the eastern half of the site, the full extent of that portion of the site is vacant pasture, the only item of note is the stormwater channel in the southeast corner of the site which directs culverted stormwater from the adjacent subdivision across a small portion of the site and onto the airbase to the east, where it is re-culverted. There is minimal risk for any potential run off from the airbase impacting soil on the site, as the stormwater channel would intercept any potential runoff. Additionally, the portion of the airbase appears to be predominantly residential barracks, mess halls, and office type buildings, no high-risk activities associated with airports or airfields appear to be undertaken on that portion of the base.

With the exception of the identification of two effluent disposal systems onsite, no evidence for any activity or industry included on the MfE HAIL having been, or currently being undertaken on the site was noted during the site inspection. Site photographs are included as Appendix D.

5 POTENTIAL FOR CONTAMINATION

Following the completion of this investigation, GSL has identified the following source of potential contamination on site:

- Historic use of lead based paints on the original 1960s residential dwelling and sheds adjacent to the northern site boundary;
- Possible utilisation of Asbestos Containing Materials within the construction of the original dwelling and sheds adjacent to the northern boundary; and
- Presence of two septic tanks and effluent disposal systems associated with the residential dwellings.

An assessment of the likely extents and issues associated with each of these items is discussed in turn below based on GSL' extensive experience in similar situations.

5.1 LEAD BASED PAINT

While the use of lead based paint was becoming more and more reduced in the 1950's, its use continued until the 1970's. As lead paints are noted in the specification for the construction of the dwelling, noting the use of lead primers on exterior woodwork, GSL considers that the curtilage of the original dwelling has the potential to be impacted by the historic use of lead based paints.

GSL considers that soil immediately surrounding the original 1960's dwelling could potentially have been impacted by lead based paints if the exterior paint on the dwelling had been in deteriorated condition, or at times when routine maintenance such as sanding, or scraping were undertaken without adequate ground protection in place.

The potential effects of lead based paint on the surrounding soil would be expected to be concentrated in the area surrounding the dwelling where paint chips, flakes, or dust had infiltrated the soil, lead can then leach out of the paint into the soil resulting in elevated concentrations in the soil. Those

concentrations are generally limited to the immediate curtilage and rapidly attenuate with distance and depth from the source (the dwelling), only impacting the surficial soils within that curtilage. As the dwelling in question is primarily brick clad, and lead primers were noted for use on external woodwork only, and the lead content in 160s paints was significantly lower than pre-1940 paints, the potential for impacts to present a risk to human or environmental health is considered to be low.

5.2 ASBESTOS CONTAINING MATERIALS IN BUILDINGS

ACM has been widely used in an array of building materials for an extensive period of New Zealand's building materials history. While its use was widely concluded by 1990, New Zealand legislation notes that its use cannot be ruled out on buildings constructed prior to 1 January 2000. As a result, the presence of asbestos within the buildings cannot be ruled out.

With regards to ACM, the potential for soil contamination is only present if ACM is in deteriorated or broken condition. No broken or degraded ACM was identified during the site inspection suggesting that if ACM is present within the building, it is most likely in good condition.

As with lead based paint, ACM is only likely to impact soil immediately adjacent to the original dwelling, and small sheds along the northern site boundary and as such are not considered to present a potential for gross soil contamination across the site as a whole.

With respect to the demolition of any building constructed prior to 1 January 2000 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.

5.3 EFFLUENT DISPOSAL INFRASTRUCTURE

Domestic effluent disposal infrastructure is considered by Auckland Council to be encompassed under Items G.5 and G.6 of the MfE HAIL as waste disposal to land. Should the existing septic tank and disposal field require decommissioning and removal as part of the proposed future development, works in this area will need to address the requirement of the NES and Auckland Unitary Plan (Operative in Part) with respect to contamination regulations.

Effluent disposal fields are likely to result in small scale impacts limited to the topsoil horizon where the effluent liquor is dispersed. In GSL's experience, impacts are unlikely to extend beyond the boundaries of the disposal field and generally do not exceed 400 mm in depth meaning that a small localised area will likely require remedial earthworks during decommissioning. Impacts are considered unlikely to be pervasive across a large area.

6 CONCLUSIONS

GSL has undertaken a preliminary site investigation, in general accordance with the MfE Contaminated Land Management Guidelines, of the property located at 102 Totara Road, Whenuapai. The primary purpose of this investigation is to assess the likelihood of any potential contamination issues being present on site, and if so, comment on the applicability of the regulations of the NES and Chapter E.30 of the AUP(OP).

This investigation has identified potential sources of contamination on site to be the discrete area surrounding the original 1960's residential dwelling and former shed locations along the norther site boundary. Due to the age of the original dwelling, which was constructed in 1969, GSL considers that the following potential sources of contamination will require further investigation should any change in landuse, subdivision, or development works be proposed in that area:

- Historical use of lead based paints; and
- Potentially asbestos containing building materials utilised in the residential dwellings and sheds on site.

Additionally, plans held within the property file identify the location of the onsite domestic wastewater treatment systems (septic tank and effluent disposal field) associated with the two residential dwellings, which Auckland Council have considered to be encompassed by Items G.5 and G.6 on the MfE HAIL. GSL concludes that should any change in landuse, subdivision, or development of that portion of the land be proposed, then these small scale, localised points will require further investigation and likely require localised remedial works.

With regards to the wider site area, outside of the commentary above, GSL did not identify any evidence for any potentially contaminating activity included on the MfE Hazardous Activities and Industries List having been undertaken on the site. GSL therefore concludes that the risk for actual or potential contamination on the site to be low and concludes that with respect to the wider site area that any future change in landuse, subdivision, or development would be highly unlikely to result in a risk to human health or the environment.

6.1 NATIONAL ENVIRONMENTAL STANDARDS

As a result of the identification of potentially contaminating landuses within the residential footprint on site, any change in landuse, subdivision, or development of that area will be required to address the regulations of the NES. As there is no distinct evidence for any activity included on the MfE HAIL having occurred or being more likely than not to have occurred on the wider site area, the wider site area does not meet the definition of *"Land Covered"* under Regulation 5(7), as a result, the regulations of the NES are not applicable to the change in landuse, subdivision, or development of those areas.

With respect to the immediate area of the original dwelling, while the NES is applicable to the development of that portion of the site, GSL notes that the area and volume of impacted soils is likely to be extremely limited in the scale of the overall development. The disturbance of potentially lead impacted soil within the dwelling curtilage and the effluent disposal systems are likely to be well within the remit of a Permitted Activity under Regulation 8(3) of the NES. Regulation 8(3) allows for the disturbance and offsite disposal of soil on actually or potentially contaminated sites 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."*

For a site of this size (4.7551 Ha) Regulation 8(3) allows for the disturbance of up to 2,377.55 m^3 and the offsite disposal of up to 475.51 m^3 of soil, per year, as a permitted activity. It is likely that the required soil disturbance and offsite disposal of any actually or potentially impacted soil will fall within those volumes.

A site management plan will likely be required to document the controls to be in place for the protection of human and environmental health for the duration of soil disturbance in those areas in order to meet the requirements of Regulation 8(3).

6.2 AUCKLAND UNITARY PLAN (OPERATIVE IN PART)

For the same reasons as the NES above, the majority of the site does not meet the Auckland Council definition of *"land containing elevated levels of contaminants"* and as such, the contaminated land rules of Chapter E.30 of the AUP(OP) will not apply to the proposed change in landuse, subdivision, and development of the site.

That said, the area of the residential dwelling and disposal field may meet that definition, and technically, the contaminated land rules of the Chapter E.30 may be applicable to soil disturbance in that area. That said, the AUP(OP) allows for the small scale disturbance of soil on actually or potentially contaminated land as a permitted activity under Rule E.30.6.1.2, which provides for small scale disturbance while the following conditions are met:

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 roads 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 rail 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 of the activity in writing if the volumes of soil disturbed on land containing elevated levels of contaminants exceeds 25 m^3, including 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 duration of the activity and until the soil is reinstated to an erosion-resistant state; and

b. control 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 the soil disturbance on a site must not exceed two months.

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

Where the disturbance of soil required to address the above potentially impacted areas can comply with the above conditions, GSL considers that the remediation of those areas can be undertaken as a permitted activity. Following the completion of those remedial works, the contaminated land rules of Chapter E.30 will no longer be applicable to the proposed development.

7 RECOMMENDATIONS

In order to address the requirements of the NES and Chapter E.30 of the AUP(OP) a site management plan will be required to document the controls to be in place for the protection of human and environmental health from the potential mobilisation of contaminants in soil during soil disturbance works.

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.

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

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.*

8 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 location**	**Reference:** J1394 **Date:** 19/09/2019
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	102 Totara Road, Whenuapai, Auckland	**Drawn:** KW **Approved:** CB

APPENDIX A CERTIFICATE OF TITLE

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

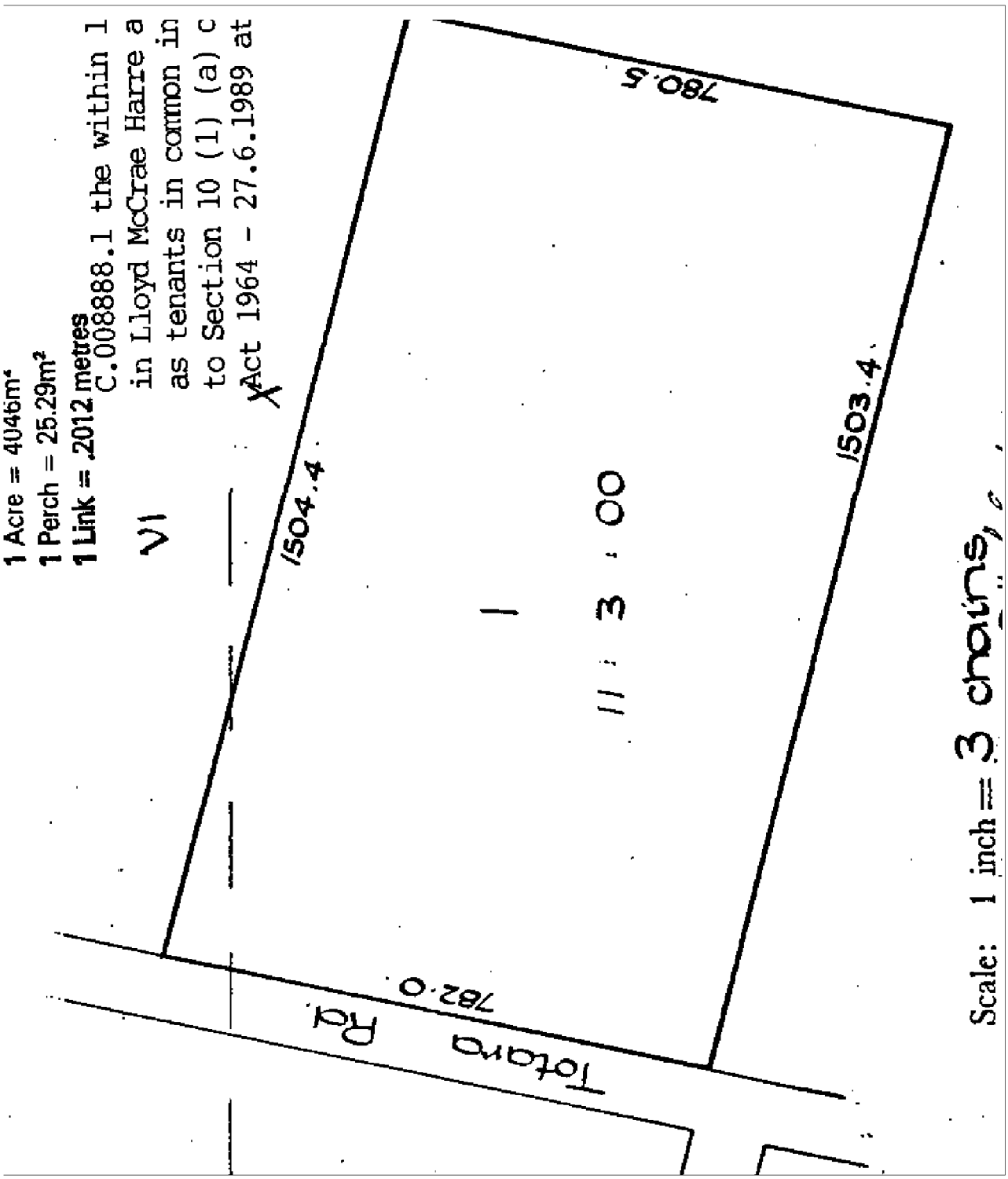
Identifier **NA4A/1477**
Land Registration District **North Auckland**
Date Issued 29 July 1964

Prior References
NA1166/90

Estate	Fee Simple
Area	4.7551 hectares more or less
Legal Description	Lot 1 Deposited Plan 53062

Registered Owners
Totara Gateway Trustee Limited as to a 1/2 share
Roderick McCrae Harre and Andrea Elizabeth Flora Harre as to a 1/2 share

Interests


1 Acre = 4046m²
1 Perch = 25.29m²
1 Link = .2012 metres
C.008888.1 the within l
in Lloyd McCrae Harre a
as tenants in common in
to Section 10 (1) (a) c
Act 1964 - 27.6.1989 at
VI
1504.4
780.5
1503.4
782.0
Totara Rd
Scale: 1 inch = 3 chains

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 **NA4A/1477**
Land Registration District **North Auckland**
Date Issued 29 July 1964

Prior References
NA1166/90

Estate	Fee Simple
Area	4.7551 hectares more or less
Legal Description	Lot 1 Deposited Plan 53062

Original Registered Owners
Lloyd McCrae Harre as to a 1/2 share
Lois Violet Harre as to a 1/2 share

Interests

9177796.1 Transmission of a 1/2 share/interest Lloyd McCrae Harre to Lois Violet Harre as Executor - 10.9.2012 at 8:28 am

10414652.1 Transfer of a 1/2 share/interest Lois Violet Harre to Totara Gateway Trustee Limited - 3.6.2016 at 2:23 pm

11264700.1 Transmission of a 1/2 share/interest Lois Violet Harre as Executor to Roderick McCrae Harre as Executor, Andrea Elizabeth Flora Harre as Executor and Lisa Janine Roberts as Executor - 4.2.2019 at 4:12 pm

11264700.2 Transfer of a 1/2 share/interest Roderick McCrae Harre as Executor, Andrea Elizabeth Flora Harre as Executor and Lisa Janine Roberts as Executor to Roderick McCrae Harre and Andrea Elizabeth Flora Harre - 4.2.2019 at 4:12 pm

Reference: 1166/90
Prior C/T.

Transfer No. A 22681
N/C. Order No.

Land and Deeds 69

No. 4A/1477

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 29th day of July one thousand nine hundred and sixty-four under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that LOIS VIOLET HARRÉ wife of LLOYD McCRAE HARRÉ OF Whenuapai, farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 11 ACRES 3 ROODS more or less being Lot 1 Deposited Plan 53062 and being part Allotment 3 Parish of Waipareira.

DISTRICT LAND REGISTRAR NORTH AUCKLAND N.Z.

[illegible] Assistant Land Registrar.

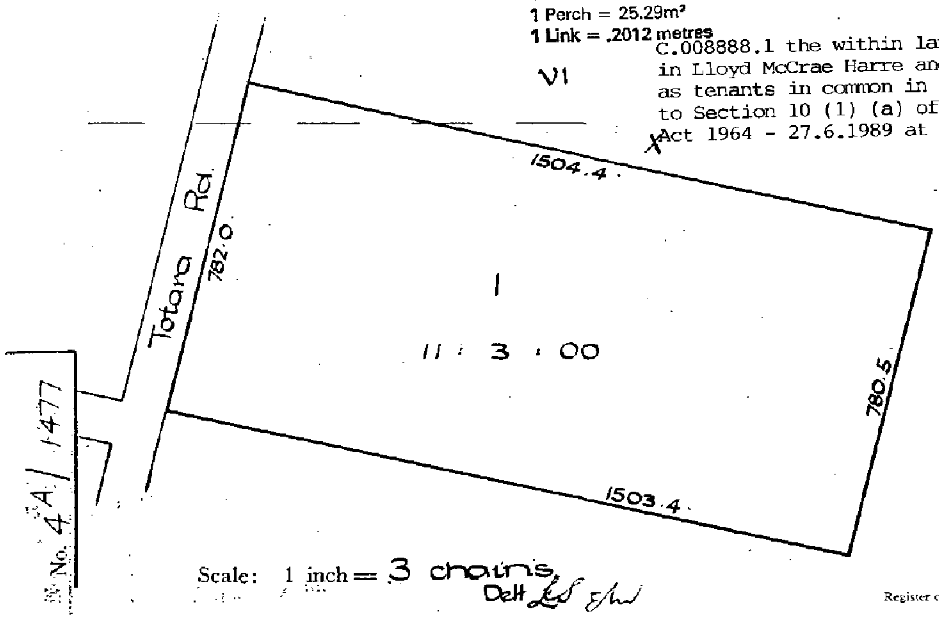
610476.2 Settled under the Joint Family Homes Act 1964 on 27.4.1976 at [illegible] o'c. Cancelled C.008888.1 [illegible]
[illegible] For A.L.R.

B.772623.1 Mortgage to [illegible] Western Connett - 20.1.1988 at 9.15 o'c.
B871727.1 Discharged [illegible]
[illegible] A.L.R.

Waitemata S.D.

METRIC AREA IS 4.7550ha
4.4550ha
Conversion Factors:
1 Acre = 4046m²
1 Perch = 25.29m²
1 Link = .2012 metres

C.008888.1 the within land is now revested in Lloyd McCrae Harre and Lois Violet Harre as tenants in common in equal shares pursuant to Section 10 (1) (a) of the Joint Family Homes Act 1964 - 27.6.1989 at 9.00 o'c
[illegible]
A.L.R.



Scale: 1 inch = 3 chains
Delt [illegible]

Register copy for L. & D. 69, 71,72

C.667707.1 Mortgage to Trust Bank Auckland Limited - 19.10.1994 11.28 o'c

DISCHARGE

C 926736.28

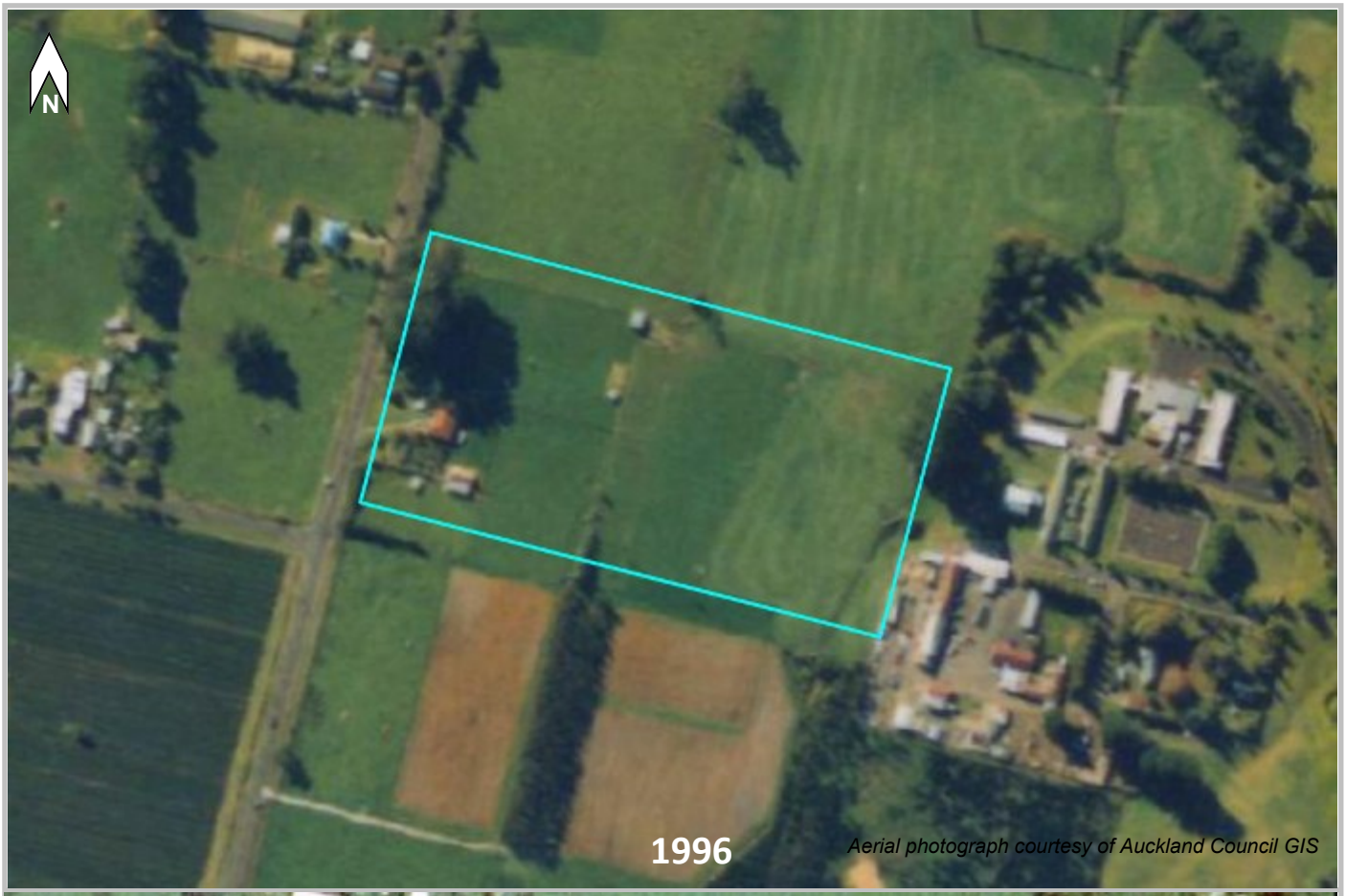
A.L.R.

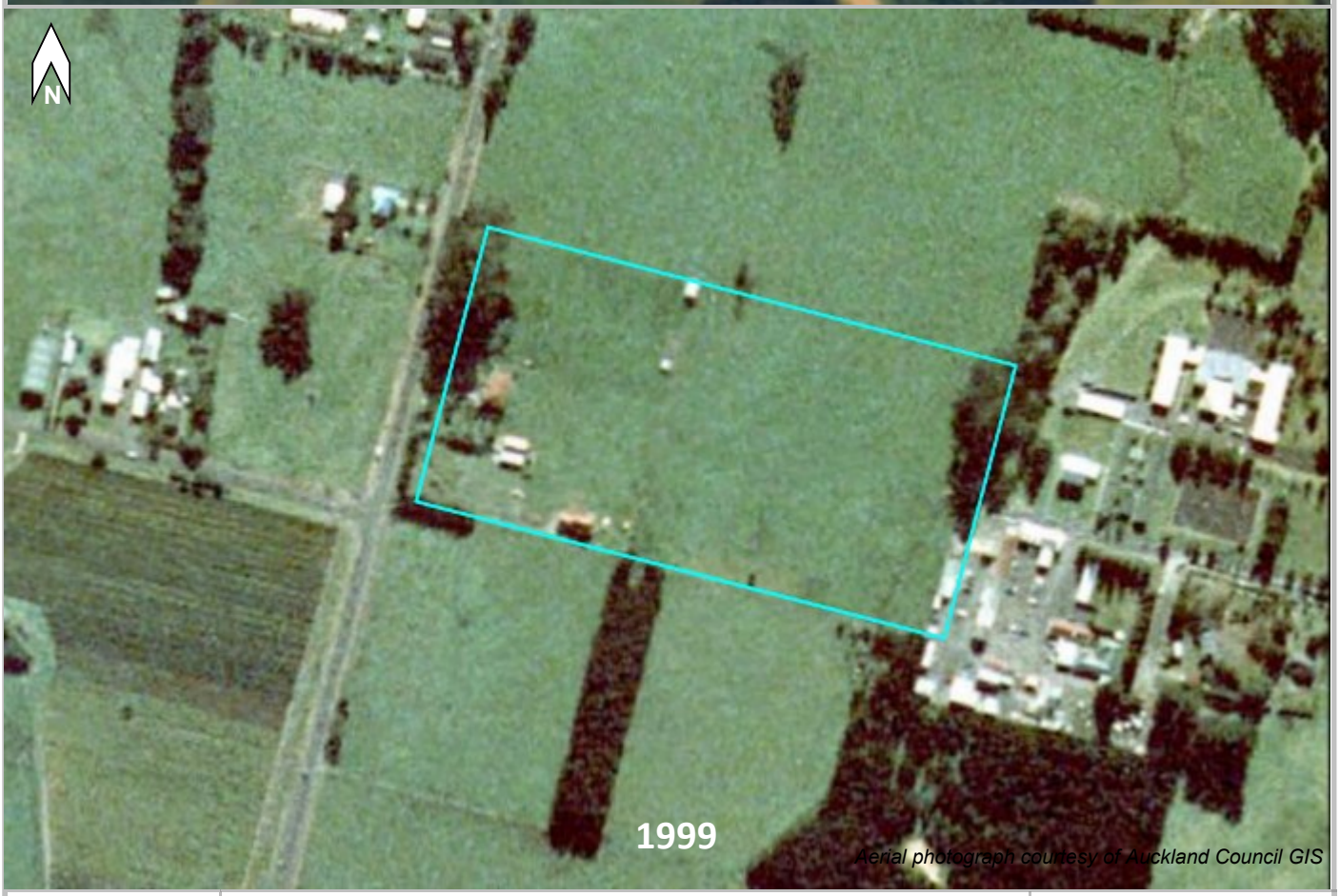
APPENDIX B HISTORICAL AERIAL PHOTOGRAPHS

Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB

Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB

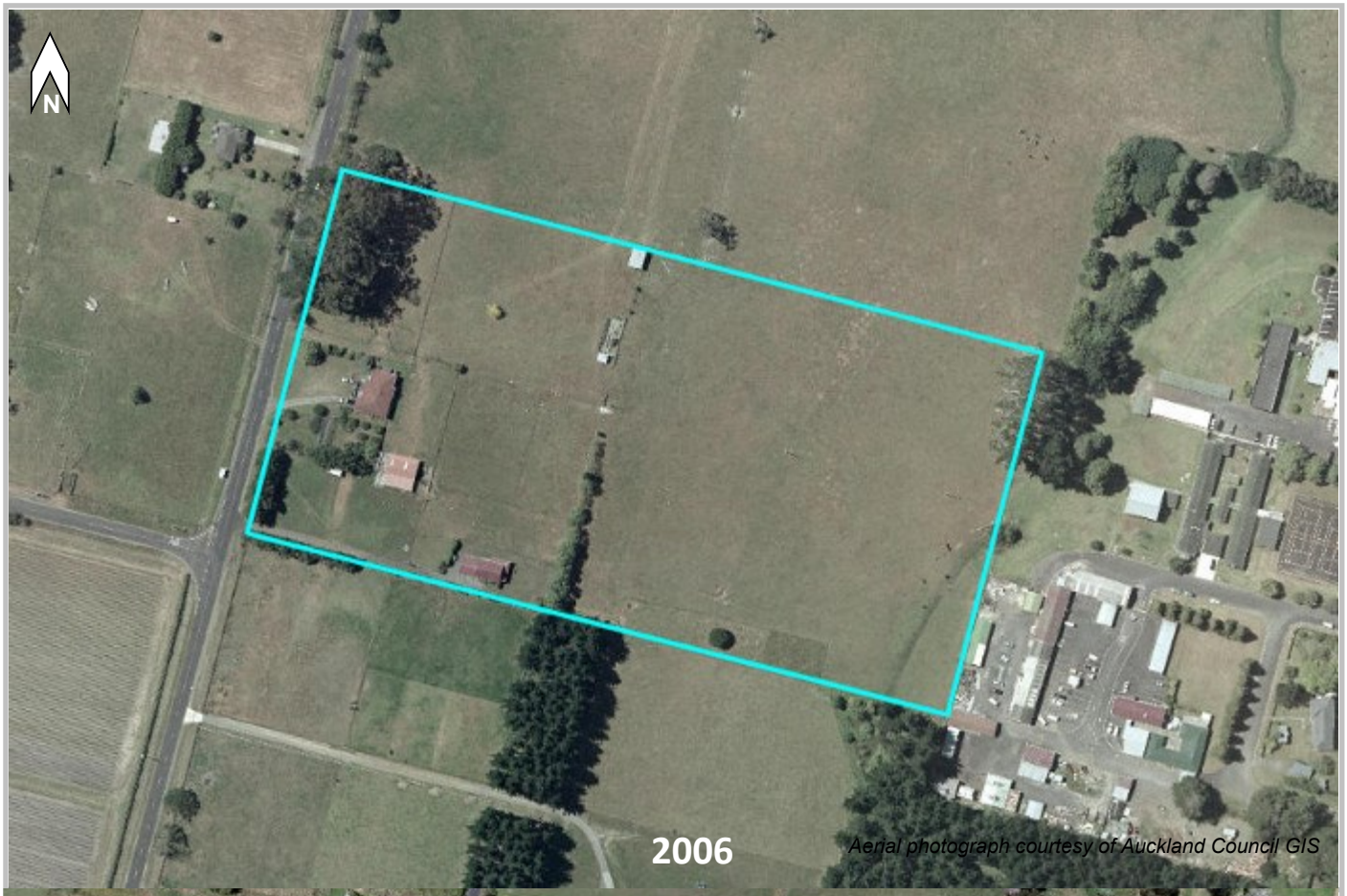
Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB



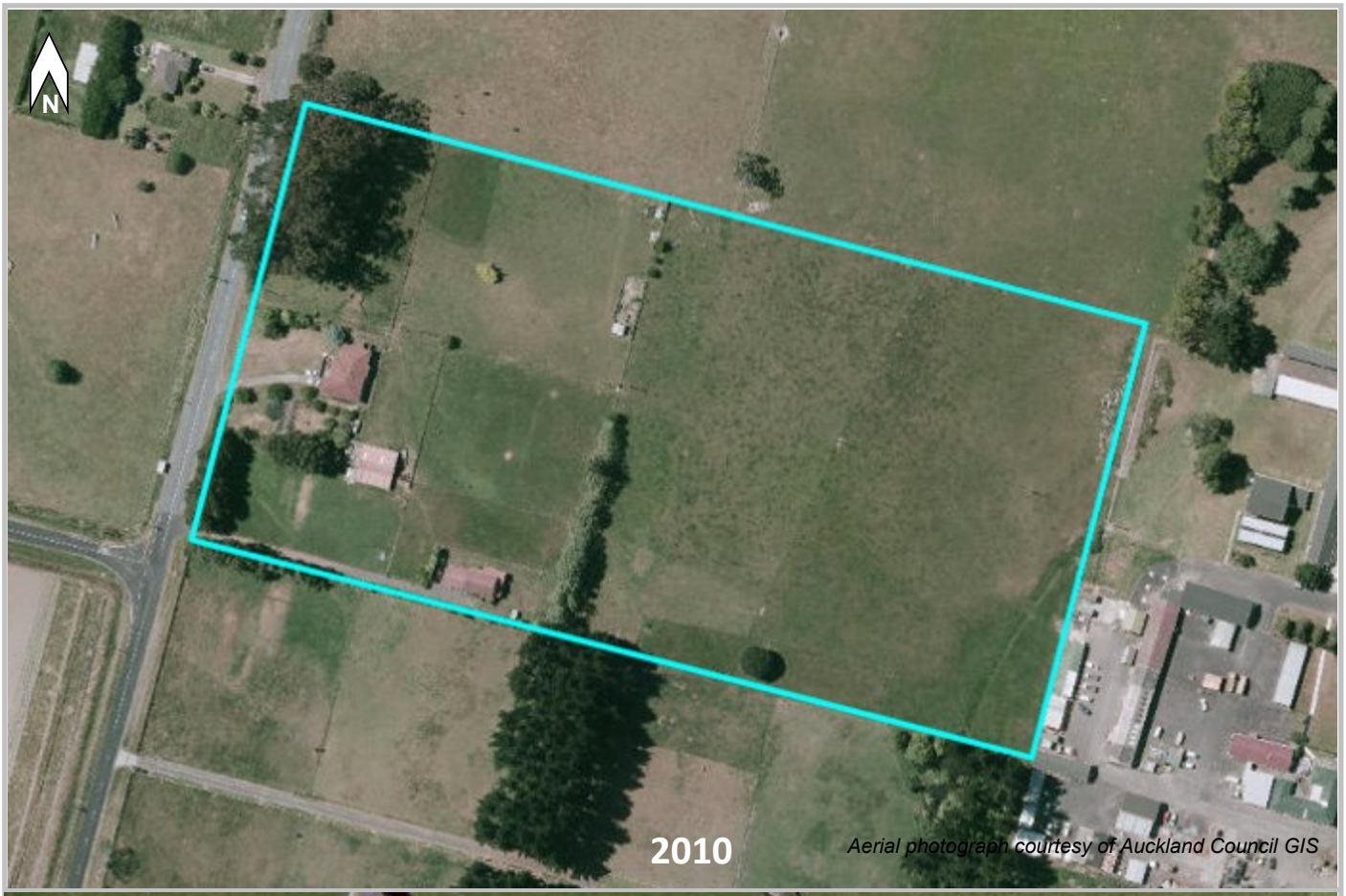


Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB

Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB



Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB



Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB

Aerial photograph courtesy of Auckland Council GIS

Title:	**Figure 1—Historic aerials**	**Reference:**	J1394
Project name:	102 Totara Road, Whenuapai	**Date:**	17/09/2019
		Drawn:	KW
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	CB

APPENDIX C PROPERTY FILE EXTRACTS

Riding Waitakere.

County of Waitemata

No 4172

Roll No. 327A / 204/

BUILDING PERMIT

Date 11.12.63.

Owner of Section L.V. HARRE,

Address No. 2. R.D., Kumeu.

This Permit is granted to the undermentioned person authorising the following building work on Lot No. 1, D.P. 9146, Part of Allot. 3, Waipareira Parish.

on ~~Western Boundary~~ Totara, Road Whenuapai in accordance with the plans lodged and subject to the following conditions: 10-12 Airport Road Subject to the provisions of Sect. 22 (5) of the Counties Amendment Act, 1961.

Nature of proposed work Dwelling.

Harre and Silcock,
222 Te Atatu Road,
TE ATATU.

Value of work, £ 4,950

Fee £ 18 : - : - Rec. No 11061

For the Waitemata County Council.

L. L. JONES,
County Clerk.

per .....
County Building Inspector.

UP 8-3945

APPLICATION No. 800/13 PERMIT No. 4172

VALUATION Roll No. 327A/2041 DATE ISSUED 11.12.1963

DATE STAMP
RECEIVED
- 4 DEC 1963
WAITEMATA COUNTY COUNCIL
(INSPECTORS DEPT.)

WAITEMATA COUNTY COUNCIL

P.O. BOX 5440 — NEWTON, AUCKLAND, C.2

Application for a Building Permit

OWNER OF SECTION. NAME LOIS VIOLET HARRÉ PHONE No. 659 WHENUAPAI
(BLOCK CAPITALS)

PRESENT POSTAL ADDRESS NO 2 RD KUMEU

BUILDER. NAME HARRÉ AND SILCOCK PHONE No. 4710 HND

POSTAL ADDRESS 222 Te Atatu Rd Henderson

(Note:—Permit will be posted to builder unless otherwise requested).

NATURE OF PROPOSED BUILDING WORK Construction of a Dwelling

VALUE OF WORK £4950 FEE £18 : 0 : 0 (See back page).

FULL LEGAL DESCRIPTION OF SECTION (as appears on either rate demand or title deeds).

LOT 1 DP 9146 PART OF ALLOT 3 Waipareira Parrish

NAME OF PREVIOUS OWNER OF SECTION JAMES NEIL ANDERSON AND LOIS VIOLET HARRÉ

AREA OF SECTION 10 Acre(s). Frontage 416 Feet.

ROAD NAME ~~WESTERN BOUNDARY~~ LOCALITY WHENUAPAI

FOR OFFICE USE ONLY

Footpath-Deposit	Refund
Fee / /	Amount / /
Recpt.	To
Paid By	
Date	Date

Remarks: This is Now Lot 1 DP DP 53062 ... 16868

Permit issued subject to the following conditions:—

APPROVED By E C Memme BUILDING INSPECTOR 10/12/63 DATE

APPROVED BY E C Memme DRAINAGE INSPECTOR 10/12/63 DATE

FEE £ 18 : — RECEIPT No. 11061 DATE 4.12.63

UP—68108

APPROVED IN ACCORDANCE WITH TOWN PLANNING SCHEME
SIGNED
DATE 5.12.63

SPECIFICATION

FOUNDATIONS

If solid concrete. Size of footings 12"x12" Walls ..... Reinforcing 4 - 1/2 MS Rods

[redacted] concrete blocks. Size 16x8x8 VIBROPAK [redacted] Spacing —

N.B.—All blocks must be at least 12" in to ground on a 12" x 12" x 4" concrete pad.

FRAMING

	Size	Spacing	Span	Timber
		Along Runs.		
Jack Studs (Note: If base over 6ft. in height, Jack studs to be spaced at 20in. centres).	—	.....	—	.....
Bearer Plates	12x5 RSJ	Supported in centres with ONE 10x10 pillars		
Floor Joists	9x2	14"	13'0"	TAN. PINUS
Outer Studs	4x2	18'		" "
Inner Studs	4x2 + 3x2	18'		" "
Ceiling Joists	4x2	18'		" "

Bottom Plates. Size 4x2 + 3x2 Top Plates. Size 4x2 + 3x2

Noggins. Size WALL THICKNESS Number of rows of noggins 3

N.B.—**Minimum** stud height for dwellings is 8 feet.

ROOF

Covering DECROMATIC TILES Ridges. Size 9x1 TAN Purlins. Size .....

Collar ties. Size 6x1 Sarking. Size — Under Purlins 4x3

	Size	Spacing.	Span	Timber
Rafters	4x2	24'	.....	TAN PINUS

MISCELLANEOUS

Flooring. Size 4x1 T&G Exterior Sheathing BRICK VENEER

Inside lining GIB BOARD + FIBER CEILINGS

Is any second hand material to be used in the proposed constructions? NO

N.B.—Top window trimmers must be checked ½" or otherwise supported.

SANITATION

Privy Type WC e.g. Water closet, chemical pan or night soil?

N.B.—If chemical pan or night soil pan, the privy building must be at least 15' away from any dwelling.

DRAINAGE & PLUMBING

All drainage and plumbing must be carried out by registered tradesmen. If it is intended to install a septic tank, now or in the future, the site must be inspected by the Sanitary Inspector before building is commenced.

IT IS MOST IMPORTANT that buildings should not be occupied before complete plumbing and drainage systems have been installed and officially approved.

Signature of Applicant T. S. Harre'

SITE PLAN

RESIDENTIAL SECTIONS

The site plan must be accurately drawn to the scale provided (16 feet to 1 inch).

ALL OTHER SECTIONS

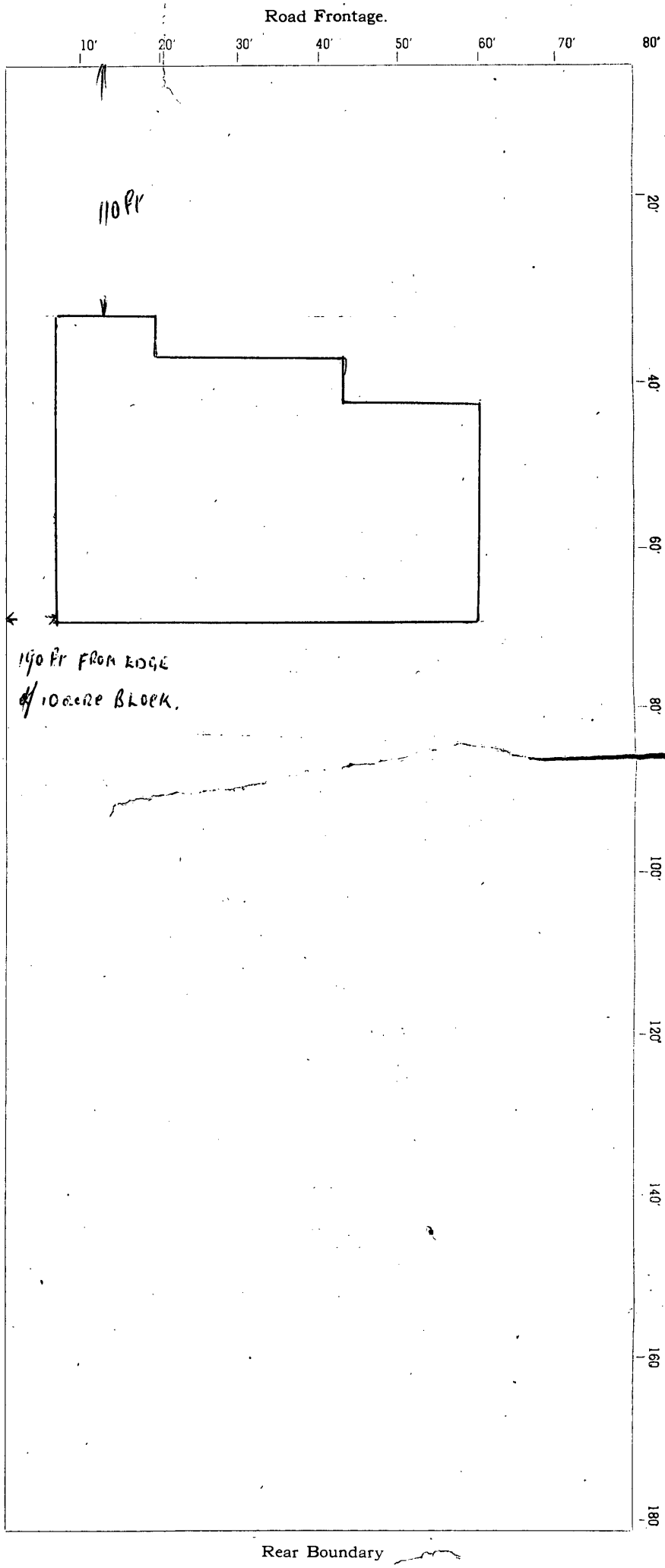
(including farms, etc.)

Please state scale used.

Note

1. This site plan must show the desired position of the proposed building and also ALL existing buildings.
2. Distances of each building from boundary lines must be clearly indicated.
3. No building shall be erected closer than 3 feet to a side boundary. This measurement is from the fascia board in the case of an overhanging roof.
4. Separate plans, drawn to scale (preferably $\frac{1}{8}$" or $\frac{1}{4}$" to 1'), must be submitted, showing a ground plan, and elevations of two sides. In cases of extensions to existing buildings, these plans should show the whole building, and the extension should be shaded or coloured.
5. Applications must be made in duplicate and two copies of the plan must be supplied if applying for a permit to erect a dwelling, bach or if any plumbing or drainage is to be installed.
6. Location plan must be completed.

PENCIL DRAWINGS WILL NOT BE ACCEPTED.



This and the succeeding pages form the specification referred to in our Agreement dated this .....day of.....1963.

EMPLOYER .....

CONTRACTOR .....

WITNESS .....

SPECIFICATION of work to be done and materials to be used in the erection of a Residence at West Boundary Rd., Whenuapai.

CONTRACT. This contract includes the supply and delivery of all materials, Labour, fittings, tools, plant etc. complete and necessary for the due and proper completion of the building as shown on the plans and herein specified in a thorough and workmanlike manner in strict accordance with the Local By-Laws and to the satisfaction of the Owner. No lower grade than O.B. timber shall be allowed in any part of the work. All timber to be treated as to get the best results for both seasoning and straightness. All joints to be properly scarfed and checked or otherwise jointed in an approved manner and everything securely nailed. In exposed woodwork, all nails to be punched. All work to be fixed level, plumb and true and no butts will be allowed where same can be concealed. All exposed interior timbers to be hand dressed and sanded.

PERMITS: Contractor to comply with the Labour and Building By-Laws of the District; to apply for and obtain all the necessary permits and to pay all fees for same.

PROVIDE & FIX: The words "provide" and "fix" shall be construed to mean "provide and "fix" where used separately unless otherwise specified.

INSURANCE: The Contractor to have all his employees covered against accident by an "Employer's Liability Policy" and to take out Insurance against fire for a sum sufficient to cover 75% of the contract sum. Both policies to remain in force until the building is taken over by the Owner. Fire insurance to be placed with a reputable Company.

SETTING OUT: The Contractor will do all setting out, and be responsible for same.

MATERIALS WORKMANSHIP: All workmanship to be careful, thorough and in accordance with the best trade practice, and all materials must be of the best of

their respective kinds, unless distinctly otherwise specified. Workmanship shown on the plans or specified and not shown, must be supplied as though shown and specified. Materials shown but not specified must be of the kind commonly employed for the service it is intended to perform. All materials to be new and the best of their respective kinds. All figured dimensions shall be taken in preference to scale and strictly adhered to, and all detail drawings shall supersede these to a smaller scale.

EXTRAS: No extras will be allowed for unless authorised in writing by the Owner, and paid for as such.

STABILITY ETC.: The Contractor shall carefully brace and support all parts of his work against damage by wind and also protect same from damage by water. He shall also make good damage to adjoining property of every kind arising out of his works.

CLEANING: The Contractor at the conclusion of the operations shall have all ceilings, walls and woodwork carefully dusted and wiped down, windows washed and glass left free from scratches, floors brushed and wiped and the entire building left in perfectly clean condition for occupation.

TURFING: Area covered by house to be turfed and left clean of all stumps roots etc. and carted away on site where directed.

MAINTENANCE: Period to be thirty days after the Owner has taken possession. Any defects in materials, workmanship or any part or parts that require replacing or adjusting which have been included in this contract shall be adjusted or replaced as specified in this specification at the Contractor's own expense.

MATERIALS: In the event of any materials herein specified not being procurable at the time it is required or will tend to stop the progress of the contract, such materials may be substituted with other mateeials, provided however, that the substituted materials conform with the Local By-Laws and to the wishes of the Owner whom the Contractor is to notify first. At the conclusion of the contpact, the Contractor will adjust any difference in cost.

BASE WALLS: To be 8" Vibcorak block with 8" x 10" reinforced concrete band.

Walls to be laid true to level in straight lines and plumb with mortar. Exterior of all blockwork to be plastered and splash coated. Clean out all cavities and flush all joints in the brickwork on the inside.

VENTS: Provide concrete mouseproof vents spaced 3 ft. away from angles and approx. 6 ft. between.

FLOOR JOISTS: To be 9 x 2 and gauged to an even surface and nailed with 3" and 4" nails to all bearers and plates. All joints to be lapped on a bearer.

BRICKLAYER AND CONCRETOR.

CONCRETE: All concrete work to be carried out according to the Local By-Laws. For general purposes, the mixture shall be 4-2-1 metal, sand and cement or 6 parts river shingle to 1 part cement well mixed and rammed into trenches and boxing immediately after mixing.

MORTAR: To be composed of four parts clean, sharp and washed sand to one part Portland cement. Use Mortaflex at the rate of 1 gallon to 1 cubic foot of cement.

BRICKS: For all exterior walls and chimneys to be selected common Glenburn bricks or selected Tunnel kiln using Bullnosed bricks for external corners and window openings. All bricks to be well wetted and allowed to partially dry out before being laid. No bats will be allowed unless necessary for bond. Joints shall not exceed 5/16" in thickness and the work to be carried out regularly with no work rising more than one foot above existing work. All exterior joints to be well raked as work proceeds, and on completion of brickwork to be pointed with a mixture of 3 parts silica sand to 1 part coloured cement, using a 1/4" flat pointing tool. Colour of cement to be chosen by Owner. The whole of exterior brickwork on completion to be cleaned down with a weak solution of acid and left clean and tidy to Owner's satisfaction.

FOOTINGS: The footings shall be 12 x 12 reinforced with four ½" M.S. rods. The footings shall be horizontal on the bottom throughout and stepped to suit the nature of the ground.

DAMPCOURSE: All timbers in contact with concrete or brickwork to have Malthoid under.

CHIMNEY: Chimney to be precast concrete Petrous No. 1.

CHIMNEY FOOTING: Chimney footings to be a concrete slab 6" wider each side of brickwork and reinforced with 3/8" M.S. rods at 12" centres.

FRONT PORCH FLOOR: To be 4" thick concrete with slight fall to front, reinforced with 3/8" M.S. rods at 9" centres both ways. Steps are to be 6" risers 12" treads finished as per porch floor. Back porch to be finished as for front porch.

LAUNDRY: Provide one single 2 ft. concrete wash tub and fix on concrete stand.

CARPENTER AND JOINER.

ALL MATERIALS ARE TO BE THE BEST OF THEIR RESPECTIVE KINDS AND GRADES AND LAID TRUE TO THEIR VARIOUS LEVELS AND CONSTRUCTED IN A PROPER TRADESMANLIKE MANNER TO MAKE THE WHOLE OF THE WORKS SOUND CONSTRUCTION AND TO COMPLY WITH THE LOCAL BY-LAWS IN EVERY RESPECT AND TO THE ENTIRE SATISFACTION OF THE BUILDING INSPECTOR.

JOINERY.

All exterior door and window frames to be as shown in plans, to be grooved, treated and constructed in a proper manner and primed before fixing. Exterior door frames to be fitted with 3/8" galv. weather bar in sills.

SASHES: All sashes and fanlights to be cedar or totara to the sizes as shown on plan and details. All sashes to be neatly fitted and hung with Whitco fittings. Allow for split sashes where shown on plans. All sashes except where otherwise mentioned to be glazed with 18 oz. clear glass. Landscape sashes to be glazed with drawn plate or 3203 glass. Bathroom and W.C. sash will be glazed obscure to Owner's choice.

DOORS: All interior doors except where otherwise mentioned to be 6'6 x 2'8 x 1¾ H.T.P. flush panel hung on three 3½ steel butts. Front door and back door to be glass doors, 2'10" wide x 1¾ ht. Totara H & P hung on three 4" butt hinges. Wardrobes and linen press doors to be 6'6 x 2' approx. and same pattern as interior doors, hung on three 3½" butt hinges. Kitchen cupboard doors to be flush panel to the dimensions required and hung on 2¼" A.C. hinges and fitted with handles and catches complete, to the Owner's choice.

CITY OF WAITEMATA

Roll No. / /
32740/358/2

BUILDING PERMIT

Nº 12461

Owner of Section HARRIS. L.M.

Date 24th July 1979

Address Totara Rd, Whenuapai.

THIS PERMIT is granted to the undermentioned person authorising the following building work on Lot No. 1 D.P.53062

on 102 - 104 Totara Rd, Whenuapai. in accordance with the plans lodged and

subject to the following conditions: 1) Spouting, downpipes and stormwater drainage to be provided to the approval of the Inspector. 2) To notations on plans.

Nature of proposed work TRACTOR SHED.

D.M. HARRIS,
35 Toru St,
TE ATATU NORTH

Value of work, $3,500

Fee $ 23 0: 0 Rec. No. J7 18/6/79

For the Waitemata City Council

Duly Authorised Officer.

FOR FURTHER CONDITIONS SEE OVER

ity Press 50659/79

Building Inspected. Date ..... Insp. Intls. .....

7/9/79 Footing

5/10/79 P/Floor

28/11/79 Roof post holes

4/2/81 Final - Stormwater drainage drainage required.

Final Inspection 15/7/81

a

Inspector

Register Noted. Date .....

City of Waitemata

JOHN HENRY CENTRE
6 PIONEER ST.
HENDERSON
AUCKLAND 8.

Telephone HSN 61-195, 61-119
PRIVATE BAG, HENDERSON
AUCKLAND 8.
ADDRESS ALL CORRESPONDENCE
TO THE CITY SECRETARY

JPB:AR

9 February 1981

Mr R M Harre
35 Toru Street
TE ATATU

Dear Sir,

RE: BUILDING PERMIT 12461 - Tractor Shed on Lot 1 DP 53062 TOTARA ROAD, WHENUAPAI

In connection with the above building permit, I would advise that an inspection of the property on 9.2.81 has revealed that the following points require attention before the file can be finalised and the road damage deposit refunded:-

STORMWATER DRAINAGE TO BE PROVIDED TO THE APPROVAL OF THE INSPECTOR

Once the above work has been completed, you are requested to contact the Building Inspector at the above address on any week day between the hours of 8.30 and 9.45a.m. so that a further inspection can be arranged.

Yours faithfully,

J.P.BRABBS
for CITY INSPECTOR

Work not done. ~~xxx~~ Discussed with Mrs Harre. C/u in normal manner without writing
8/4/81

Copy sent to:
Mr L M Harre

102-104 Totara Road
WHENUAPAI

15/7/81

CITY OF WAITEMATA

Roll No. / /

32740/358/2

BUILDING PERMIT

№ 12461

Owner of Section HARRE. L.M.

Date 24th July 1979

Address Totara Rd, Whenuapai.

THIS PERMIT is granted to the undermentioned person authorising the following building work on Lot No. 1 D.P.55062

on 102-104 Totara Rd, Whenuapai. in accordance with the plans lodged and

subject to the following conditions: 1) Spouting, downpipes and stormwater drainage to be provided to the approval of the Inspector. 2) To notations on plans.

Nature of proposed work TRACTOR SHED.

R.M. HARRE,
35 Toru St,
TE ATATU NORTH

Value of work, $3,500

Fee $ 23 0 : 0 Rec. No. J7 18/6/79

For the Waitemata City Council

Duly Authorised Officer.

Unity Press 50659/79

APPLICATION No. 251/12

FINAL CHECK Initials

Date 23/7

PERMIT No. 12461

DATE ISSUED 24/7/79

Authorised Officer

HEAD OFFICE DATE STAMP

RECEIVED
19 JUN 1979
Waitemata City Council
Inspectors Dept.

CITY OF WAITEMATA

JOHN HENRY CENTRE, 6-8 PIONEER STREET, HENDERSON

POSTAL ADDRESS: PRIVATE BAG, HENDERSON 8 — PHONE: HSN 61-195 and 61-119

INSPECTORS DEPARTMENT ON GROUND FLOOR

BUILDING PERMIT APPLICATION

OWNER OF SECTION: NAME L. M. HARRE (BLOCK CAPITALS) PHONE No. WEI 8659

PRESENT POSTAL ADDRESS TOTARA RD. WHENUAPAI

BUILDER: NAME R. M. HARRE PHONE No. HSN 45019

POSTAL ADDRESS 35 TORU ST TE ATATUNTH

(Permit will be posted to builder unless otherwise requested)

SIGNATURE OF APPLICANT R M Harre

NATURE OF PROPOSED BUILDING WORK

TRACTOR SHED

VALUE OF WORK

Building (including the materials for Plumbing & Drainage)	$3500.00
***Drainage** (excluding materials)	$
***Plumbing** (excluding materials)	$
•Building Permit Fee	$23.00.

*Separate permits to be obtained by Drainlayer and Plumber.

•Fee to be assessed on value of work excluding amount upon which Drainage and Plumbing Fees payable and may be paid at time of lodging application.

†A further 25% is payable on this fee where structural check is required.

FLOOR AREA OF PROPOSED WORK

Basement	
Ground Floor	72 sq.m
First Floor	
Others	
Total	72 sq.m

Building Research Act 1969
LEVY ON TOTAL VALUE OF $3,000 OR MORE INCLUDING DRAINAGE AND PLUMBING WORK
Fee: $1.00 per $1000 or part thereof

Amount of Levy	4.00
Receipt No.	J1
Date	18/6/79

VALUATION ROLL NO.

32740/358/2

FULL LEGAL DESCRIPTION OF THE PROPERTY (as per Rate Demand or Title Deeds)

LOT 1

D.P. 53062

NAME OF PREVIOUS OWNER OF SECTION —

AREA OF SECTION: 4.7551 Ha ~~square metres~~ (Show large sites in hectares) FRONTAGE: 150 metres

ROAD NAME TOTARA Rd LOCALITY WHENUAPAI

IMPORTANT — SEE INSTRUCTIONS ON PAGE FIVE

FOR OFFICE USE ONLY

REMARKS

Permit issued ~~subject to the following conditions~~ TO NOTATIONS ON PLANS

ROUTING DOWNPIPES AND STORMWATER DRAINAGE TO BE PROVIDED TO THE APPROVAL OF THE INSPECTOR

Approved by A. Jones Building Inspector 30/6/79 Date

Approved by G Bruce Plumbing/Drainage Inspector 4-7-79 Date

Approved by Health Inspector Date

Town Planning Zoning Rural A Date and Officer

Approved by GJM Town Planning Officer 20/6/79 Date

Building Permit Fee	$23.00	Receipt No. J1	Date	18/6/79
Structural Checking Fee *	$5.75	Receipt No. e100	Date	19/7/79
Road Damage Deposit Fee	$100.00	Receipt No. ✓	Date	✓
Road Damage Deposit Refund	$	To	Date	
Cost of Vehicular Crossing	$EXISTS		Date	

Electricity Transmission Lines: ~~Present~~/Not present over property	WCC Sanitary and Stormwater Sewers checked — Release/~~Hold~~	Location of ARA Trunk Sewers checked — Release/~~Hold~~
Initials GS Date 3/7/79	Initials GS Date 3/7/79	Initials GS Date 3/7/79

PLEASE REFER TO INSTRUCTIONS ON PAGE FIVE

SPECIFICATION

TO BE COMPLETED BELOW FOR MINOR BUILDINGS
(Full specifications are required for all other work)

FOUNDATIONS

If solid concrete. Size of footings 300 x 300mm Walls 200mm Reinforcing D12

If concrete blocks. Size ..... Spacing .....

N.B. — All blocks must be at least 300mm into ground and set on a 300mm x 300mm x 100mm concrete pad.

FRAMING

	Size	Spacing	Span	Timber
Jack Studs	100x50	600 mm		No 1 MG
Bearer Plates	100x75	.....		No 1 MG
Floor Joists	150 x 50	450 mm	2·70 m	No 1 MG
Outer Studs	100x50	600 mm		No 1 MG
Inner Studs	100x50	600 mm		" "
Ceiling Joists	.....	.....	.....	.....

Bottom Plates Size 100x50 Top Plates Size 100x50

Noggins Size 100x50 Number of rows of noggins 2 Rows

N.B. (a) Minimum stud height for dwellings is 2.4m.
(b) Top window trimmers must be checked 15mm or otherwise supported.

ROOF

Covering 24g GALV. IRON Ridges Size ..... Purlins Size 150x50

Sarking Size ..... Under Purlins .....

	Size	Spacing	Span	Timber
TRUSSES / ~~Rafters~~	100x50	2.90 m	6.00m	No 1 MG RAD

MISCELLANEOUS

Flooring Size 150x25 R/S TAN RAD 25mm TAN R/S RAD Exterior Sheathing BOARD & BATTEN

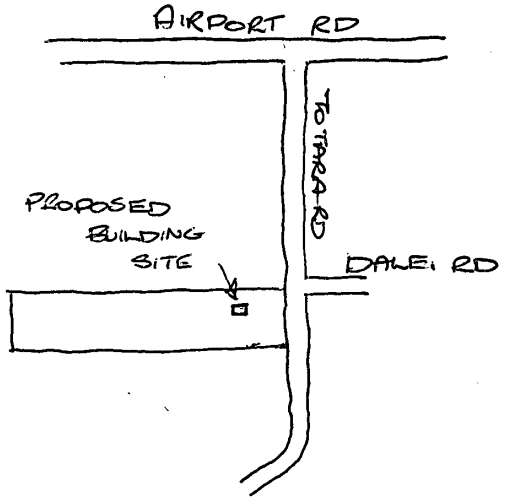
Inside Lining .....

Is any second-hand material to be used in the proposed Construction? No If YES, then a separate application must accompany this form.

SANITATION

Privy Type ..... e.g. water closet, chemical pan or other type?

LOCALITY SKETCH TO SHOW LOCATION OF BUILDING SITE
(Must be completed)



DRAINAGE AND PLUMBING

ALL DRAINAGE AND PLUMBING MUST BE CARRIED OUT BY REGISTERED TRADESMEN. IF IT IS INTENDED TO INSTALL A SEPTIC TANK, NOW OR IN THE FUTURE, THE SITE MUST BE INSPECTED BY THE INSPECTOR BEFORE BUILDING IS COMMENCED.

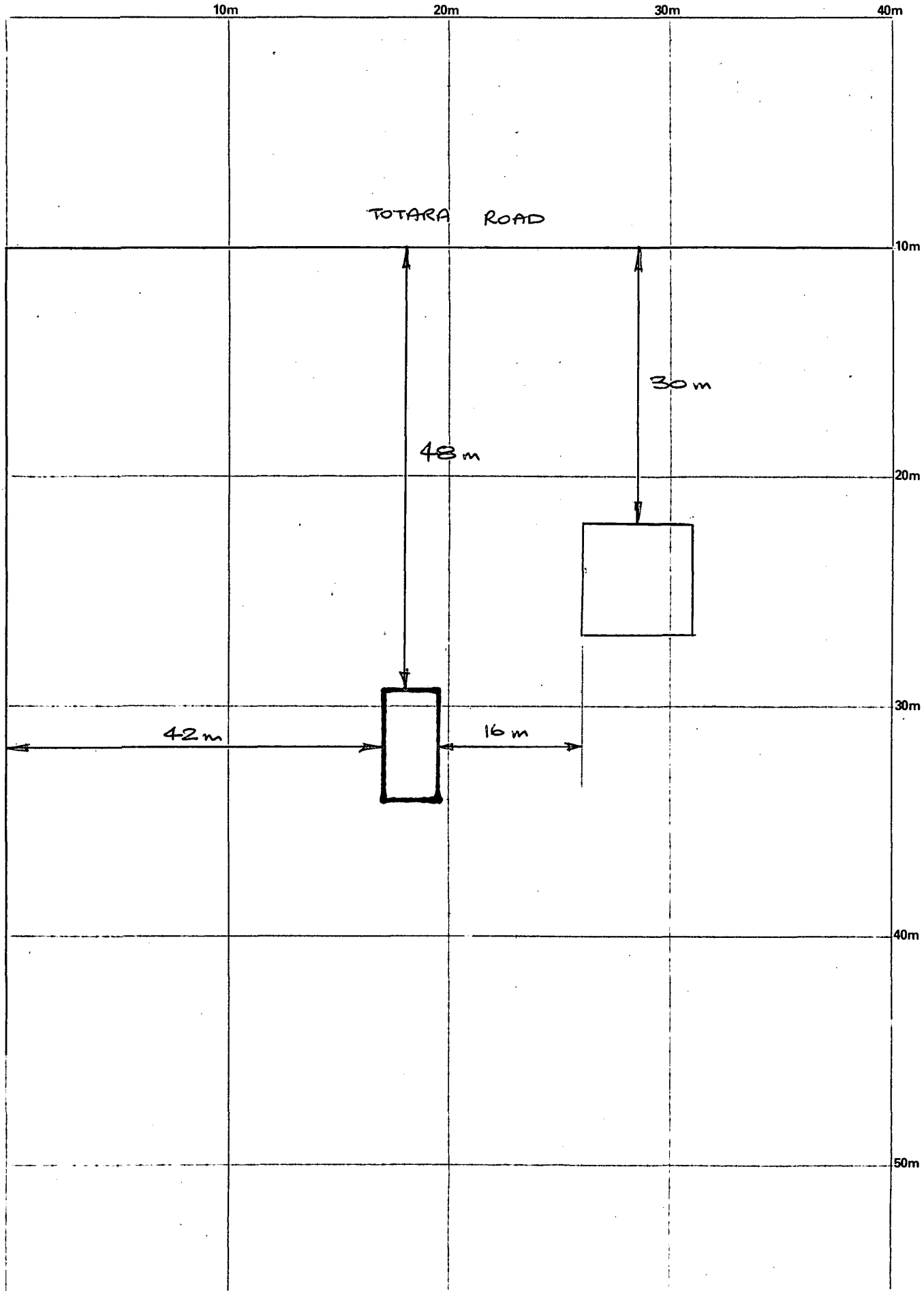
IT IS MOST IMPORTANT THAT BUILDINGS SHOULD NOT BE OCCUPIED BEFORE COMPLETE PLUMBING AND DRAINAGE SYSTEMS HAVE BEEN INSTALLED AND OFFICIALLY APPROVED.

PLUMBING AND DRAINAGE PERMITS MUST BE OBTAINED BEFORE ANY PLUMBING OR DRAINAGE WORK IS COMMENCED.

PLEASE REFER TO INSTRUCTIONS ON PAGE FIVE

SITE PLAN: (a) All existing buildings are to be shown in black ink and new buildings in red.
(b) For residential sections the site plan must be accurately drawn to the scale provided. 1:200 (i.e., one square equals one metre).
(c) All other sections (including farms, etc), please state scale used.
(d) All dimensions MUST be specified.

ROAD BOUNDARY



FOR OFFICE USE ONLY

REPORT ON COMMERCIAL OR INDUSTRIAL BUILDING
STRUCTURAL ENGINEER'S REPORT

REPORT C (1)

B.P. APPLICATION NO. 251/12

APPLICANT's NAME: L.M. HARRE

BUILDER'S NAME: R.M. HARRE

PROPOSAL: TRACTOR SHED

LEGAL DESCRIPTION: LOT: 1 D.P. 53062

ROAD NAME & LOCALITY: TOTARA RD WHENUAPAI.

1) Roof structure. ✓
2) Lateral bracing to Section of wall exceeding 6m. ✓
3) Verandah beam/supports/pads.
4) Overspanned joists (Section A-A)
5) Overspaced blocks & overspanned bearer (Section A-A).

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):-

*(a) 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:-

EXTRA NOTES AS SHOWN.

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

* Delete not applicable

Dealth with by V. Hoppe (STRUCTURAL ENGINEER) Date 11/7/79

City of Waitemata

JOHN HENRY CENTRE
6 PIONEER ST.
HENDERSON
AUCKLAND 8.

Telephone HSN 61-195, 61-119
PRIVATE BAG, HENDERSON
AUCKLAND 8.
ADDRESS ALL CORRESPONDENCE
TO THE CITY SECRETARY

JPB:YMM

13 July 1979

Mr.R.M.Harre,
35 Toru St,
TE ATATU NORTH.

Dear Sir,

RE: BUILDING PERMIT APPLICATION 251/12 - Tractor Shed on Lot 1 DP 53062 Totara Road, Whenuapai.

In connection with the above building permit application, you are advised that a structural checking fee of $5.75 is required.

Please forward your remittance with the duplicate copy of this letter direct to the writer at the above address so that your application can be finalised.

Yours faithfully,

J.P.BRABBS
for CITY INSPECTOR

e100. BP

16 JUL 1979

CITY OF WAITEMATA

PRIVATE BAG HENDERSON, 8

This receipt is **NOT** a permit. No work is to be executed until a **PERMIT** is **OBTAINED.**

Received from R. McHazze

Details of payment.
B P App. 251/12

02-051-22	**Building Permit Fee**	
02-052-22	**Plumbing & Drainage Permit Fees**	
03-955-22	**Structural Checking Fee**	5.75
- 82-22	**Private Crossing**	
- 653-22	**Footpath Damage Deposit**	
- 656-22	**Building Research Levy**	
	TOTAL $	5.75

CASH	
CHEQUE	✓

... only.

Receipt is acknowledged of amount pri...

...*******575=a ...

CITY TREASURER p.p. ...

City of Waitemata

JOHN HENRY CENTRE
6 PIONEER ST.
HENDERSON
AUCKLAND 8.

Telephone HSN 61-195, 61-119
PRIVATE BAG, HENDERSON
AUCKLAND 8.
ADDRESS ALL CORRESPONDENCE
TO THE CITY SECRETARY

9/2/81

ms R. M. Hasse,
35 Tour St
Te atatu.

Dear Sir,

RE: BUILDING PERMIT 12461 - Tractor Shed on Lot 1 DP 53062 Totara Rd Whenuapai.

In connection with the above building permit, I would advise that an inspection of the property on 9/2/81 has revealed that the following points require attention before the file can be finalised and the road damage deposit refunded:-

1) ~~SPOUTING DOWNPIPES AND~~ STORMWATER DRAINAGE TO BE PROVIDED TO THE APPROVAL OF THE INSPECTOR

Once the above work has been completed, you are requested to contact the Building Inspector at the above address on any week day between the hours of 8.30 and 9.45a.m. so that a further inspection can be arranged.

Yours faithfully,

J.P.BRABBS
for CITY INSPECTOR

Copy sent to:
ms L. M. Hasse
102-104 Totara Rd
Whenuapai.

MONITORING CHECK SHEET

Consent Number : 981696

Propertry ID : ~~LOT 1 DP 53062~~ 492

Property Location : 102 Totara Rd, Whenuopai

Legal Description : Lot 1 DP 53062

Inspection date : 7/05/01

Compliance Y/N : Y

Comments : All condetions have been met J.F. Denton

ENTERED

Reinspection date 2 :

Comments :

Reinspection date 3 :

Comments :

Legal action initiated :

Final clearance : 07/05/01

98/420<

27 September 1999

Job no. 98135

DIPROSE
CONSULTANTS LTD
CIVIL & STRUCTURAL ENGINEERS

Mr R Harre
102 Totara Rd
Whenuapai
AUCKLAND

Dear Sir,

INSPECTION OF EFFLUENT DISPOSAL SYSTEM FOR MINOR DWELLING AT 102 TOTARA RD, WHENUAPAI

As required by council, we have visited the above mentioned property and observed the effluent disposal system that has been constructed.

We note that the system that was installed was not a Reflection Nibbler Jnr System as specified in our report Job no. 98135/1 dated 21 September 1999. An Oasis Clearwater series 2000 has instead been installed.

Based on the information provided by the manufacturer we believe that the Oasis Clearwater series 2000 system should perform quite suitably for your purposes. Please refer to the asbuilt plan supplied by the Contractor for the layout of the system.

We were unable to observe the system in its entirety but discussions with the Contractor suggest that the system has been competently constructed. At the time of our visit the system was complete and we understand that it has been functioning satisfactorily.

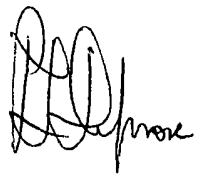
We are satisfied on reasonable grounds that the treatment system and disposal field have been installed generally in accordance with normal acceptable practice for this type of system and the relevant recommendations given in our above mentioned report but noting that the system has been substituted by a Oasis Clearwater series 2000 system.

295 Lincoln Rd
Waitakere City.
P O Box 77038, Mt Albert.
Ph/Fax: 0-9-836 5522
Mobile: 0-25-749 949

Note that this letter does not certify that the treatment plant itself is as per the manufacturers design.

We trust the above is satisfactory for your present requirements. If we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,
DIPROSE CONSULTANTS LTD



P L Diprose BE (Hons), MIPENZ, Registered Engineer

Waitakere City Council
Te Taiao o Waitakere

Waitakere City Council
Civic Centre
6 Waipareira Ave
Waitakere City

Private Bag 93109
Henderson
Waitakere City

Telephone
09 836 8000

Facsimile
09 836 8001

DX CX 10250 Auckland Mail Centre

Email: info@waitakere.govt.nz

21 September 1998

LOIS VIOLET HARRE
102 TOTARA RD
WHENUAPAI
WAITAKERE CITY 1250

* 102-104 Totara Rd *
Whenuapai

Dear Sir/Madam

Resource Consent Application Number RMA981696
Location: 102-104 TOTARA RD, WHENUAPAI, WAITAKERE CITY 1008.

I am pleased to advise that your Resource Consent (Planning) application has been considered and consent has been granted pursuant to sections 94, 104, 105, and 108 of the Resource Management Act 1991.

The report considering your application and the decision which has been made is attached. The conditions must be met for your consent to be valid.

Please note also that you must establish the activity within two years. If that does not happen the consent lapses and you may need to apply for an extension or a new consent.

If you are dissatisfied with the decision or conditions of consent you have an opportunity to object to the Council. If you want to do this you will need to write a letter outlining your concerns. You should refer to section 357 of the Resource Management Act 1991 which covers objections to decisions (see the guideline attached). Any objections must be made in writing within 15 working days of your receipt of this letter.

Please contact MATT HEALE of the Resource Management Section (extn 8621) if you have any general queries about the enclosed report or decision.

If you are dissatisfied with the decision and are considering lodging an objection you may wish to discuss the matter first with Peter Reaburn, Planning Manager (836-8014).

Yours faithfully

P.P.

Peter Reaburn
PLANNING MANAGER

ENTERED

AS BUILT DRAINAGE PLAN

Waitakere City Council
Te Tatao o Waitakere

SITE INFORMATION

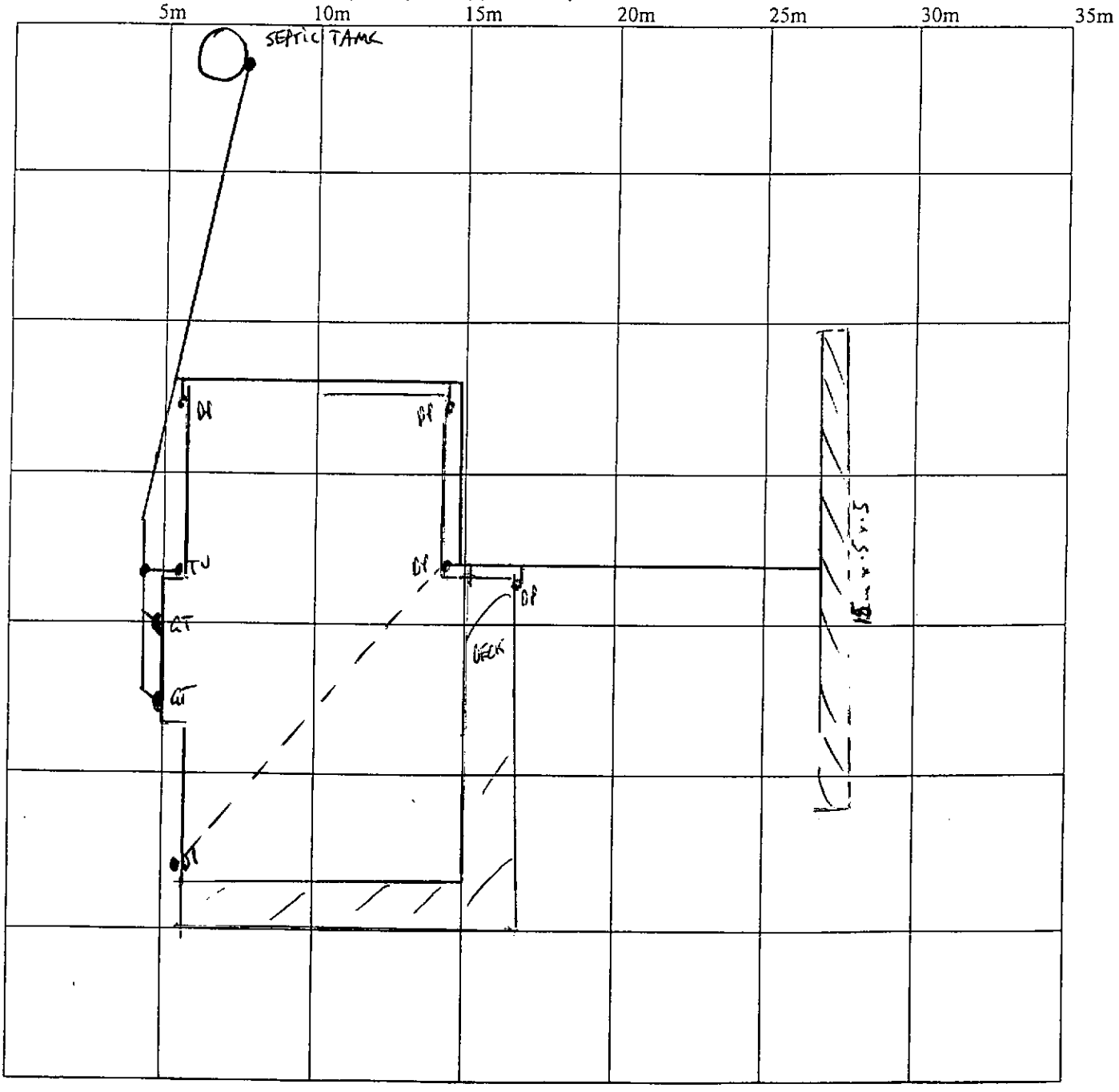
Building Consent No: 98042205 Inspector: B A Marsh

Owners Name: HARRIE Drainlayers Name: MARK WINSLOW

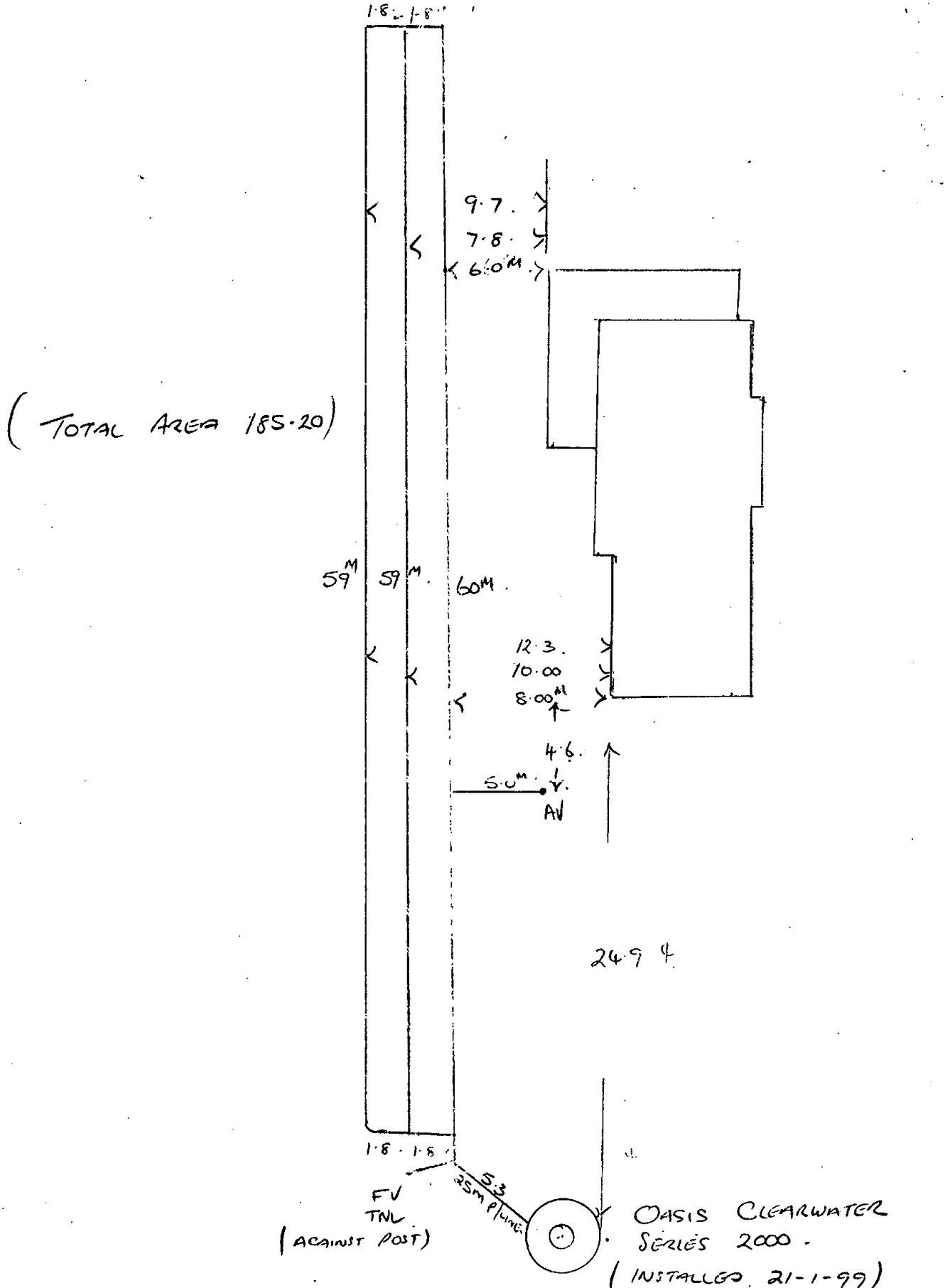
Site Address: 102 TOTARA RD WHEN

Lot: 1 DP: 53062 Date inspected: 20/4/99

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.



102 TOTARA ROAD 492



(TOTAL AREA 185·20)

HARRE HOUSE.
102 TOTARA ROAD
WHENUAPAI.
ID: 492
SCALE 1:200.

ENTERED

DRAINAGE 1 LTD

REGISTERED DRAINLAYERS

FREEPHONE 0800 888 248, PO BOX 626 OREWA

GST Number: 90-024-272

Oasis Clearwater ENVIRONMENTAL SYSTEMS

FIELD SERVICE REPORT/TAX INVOICE S 1384

NAME: Lloyd Harre PHONE/CONTACT NUMBER: 416 8659

SITE ADDRESS: 102 Totara Rd Whenuapai

POSTAL ADDRESS:

COUNCIL: Waitakere DATE LAST SERVICED: 1 12 08 DATE THIS SERVICE: 2 7 09

Your Oasis Clearwater Home Sewage Treatment Plant was serviced and inspected on the date shown above. The results are as follows:

	CONDITION	REMARKS
Control Panel Mode Lights		
Control Panel Audible Alarm		
Field Isolator Switch	5	
Effluent Pump	4	
Aerator	3	Noisy + Air leaking
Zabel Filter	4	

5=Excellent 1=Poor

	CONDITION	REMARKS
Lids and Manholes	3	Need new bolts.
Bio Mass	5	
Sludge Buildup	5	
Sludge Recycle Pump	4	
Clarifier	3	
Arkel Filter	4	

5=Excellent 1=Poor

Irrigation area evidence of run off or water logging? (1) Normal Area (2) Reduced Area Yes / No

NOTES System has recently been flooded causing sludge to get in pump chamber. Need to clean filter monthly to prevent flooding.

Oasis Contact number (03) 3440262 or Ross Bicknell

WARNING: Correct landscaping around your unit is essential. Warranty of mechanical and electrical equipment is void if flooding occurs. 021943001

DRAINAGE 1 LTD

REGISTERED DRAINLAYERS

FREEPHONE 0800 888 248, PO BOX 626 OREWA

GST Number: 90-024-272

Oasis Clearwater ENVIRONMENTAL SYSTEMS

FIELD SERVICE REPORT/TAX INVOICE S 1237

NAME: Lloyd Harre PHONE/CONTACT NUMBER: 416 8659

SITE ADDRESS: 102 Totara Rd Whenuapai

POSTAL ADDRESS:

COUNCIL: Waitakere DATE LAST SERVICED: 29 5 08 DATE THIS SERVICE: 1 12 08

Your Oasis Clearwater Home Sewage Treatment Plant was serviced and inspected on the date shown above. The results are as follows:

	CONDITION	REMARKS
Control Panel Mode Lights	5	
Control Panel Audible Alarm	No	Sound
Field Isolator Switch	5	
Effluent Pump	4	
Aerator	4	
Zabel Filter	5	

5=Excellent 1=Poor

	CONDITION	REMARKS
Lids and Manholes		
Bio Mass	5	
Sludge Buildup	5	
Sludge Recycle Pump	5	
Clarifier	5	
Arkel Filter	5	

5=Excellent 1=Poor

Irrigation area evidence of run off or water logging? (1) Normal Area (2) Reduced Area Yes/ No

NOTES

WARNING: Correct landscaping around your unit is essential. Warranty of mechanical and electrical equipment is void if flooding occurs.

DRAINAGE 1 LTD

REGISTERED DRAINLAYERS

FREEPHONE 0800 888 248, PO BOX 626 OREWA

GST Number: 90-024-272

Oasis Clearwater ENVIRONMENTAL SYSTEMS

FIELD SERVICE REPORT/TAX INVOICE S 1095

NAME: Lloyd Harre PHONE/CONTACT NUMBER: 4168659

SITE ADDRESS: 102 Totara Rd Whenuapai

POSTAL ADDRESS:

COUNCIL: Waitakere DATE LAST SERVICED: Nov 07 R/W DATE THIS SERVICE: 29 5 08

Your Oasis Clearwater Home Sewage Treatment Plant was serviced and inspected on the date shown above. The results are as follows:

	CONDITION	REMARKS
Control Panel Mode Lights		
Control Panel Audible Alarm		
Field Isolator Switch	5	
Effluent Pump	4	
Aerator	4	
Zabel Filter	4	

5=Excellent 1=Poor

	CONDITION	REMARKS
Lids and Manholes	4	
Bio Mass	3	
Sludge Buildup	3	
Sludge Recycle Pump	5	
Clarifier	5	
Arkel Filter	5	

5=Excellent 1=Poor

Irrigation area evidence of run off or water logging? (1) Normal Area (2) Reduced Area Yes / No

NOTES Primary chamber needs emptying. Ram blocked at far end, dug up and repaired.

WARNING: Correct landscaping around your unit is essential. Warranty of mechanical and electrical equipment is void if flooding occurs.

APPENDIX D SITE PHOTOGRAPHS

PLATE 1: ACCESS TO MAIN DWELLING FROM TOTARA ROAD

PLATE 2: ORIGINAL DWELLING VIEWED FROM TOTARA ROAD

PLATE 3: EASTERN SIDE OF THE ORIGINAL DWELLING

PLATE 4: BREATHER VALVE FOR SEPTIC TANK ASSOCIATED WITH THE ORIGINAL DWELLING

PLATE 5: CHICKEN SHEDS TO THE NORTHWEST OF THE DWELLING

PLATE 6: PENS SURROUNDING THE BARN / TRACTOR SHED

PLATE 7: INTERIOR OF BARN / TRACTOR SHED

PLATE 8: RESIDUAL TREE STUMPS FROM FORMER SHLETERBELT

PLATE 7: STORMWATER FLOWPATH IN SOUTHEAST CORNER OF SITE, ADJACENT TO AIRBASE

PLATE 8: MINOR DWELLING ON SOUTHERN BOUNDARY

PLATE 7: MINOR DWELLING

PLATE 8: PORTACOM SITUATED ON PADDOCK TO THE SOUTH OF RESIDENTIAL DWELLING AND BARN

PLATE 7: LOOKING EAST OVER DOMESTIC FRUIT TREES AND GRAPE VINE SHADEHOUSE

PLATE 8: SHADE HOUSE / PERGOLA FOR GRAPEVINES

SITE MANAGEMENT PLAN (SMP)

98 – 102 TOTARA ROAD, WHENUAPAI

Reference Number: REP-1685/SMP/NOV21

PREPARED FOR: MARAETAI LAND DEVELOPMENT

29 NOVEMBER 2021

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 site management plan 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 plan has been prepared in acknowledgement of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been authorised by a suitably qualified and experienced practitioner (SQEP); and has been prepared with the intention of providing practices and procedures for the management of potentially contaminated land that meets the criteria of the NES, the MfE guidelines and the requirements of Maraetai Land Development's development plans.

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

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APPENDICES

1 INTRODUCTION

It is proposed to develop the site through the change in landuse from rural residential land / vacant rural land to residential landuse in line with the wider development of Whenuapai under the future urban zoning. As previous investigation (refer Section 2 below) identified potentially contaminating landuses on discrete portions of the site, a Site Management Plan (SMP) is required to document the practices and procedures necessary to mitigate risks associated with the potential mobilisation of contaminants during soil disturbance activities.

Table 1: Site Details

Address	Legal description	Area	Zoning
98-100 Totara Road, Whenuapai	Lot 2 DP 81411	11.61 Ha	Future Urban Zone
102 Totara Road, Whenuapai	Lot 1 DP 53062	4.7551 Ha	Future Urban Zone
Total Area		16.37 Ha	

The properties at the addresses in Table 1 above and shown on Figure 1, are hereafter referred to collectively as 'the site' in this report. The site comprises two large rural residential lots predominantly utilised for pastoral grazing with three residential dwellings located in the north, west and south, the site lies adjacent to the New Zealand Defence Force Whenuapai Air Force Base and further rural residential and rural production activities in the wider area.

GSL understands that earthworks will likely be required across the full extent of the site in order to prepare suitable building platforms, infrastructure and services. In accordance with the National Environmental Standards (NES), this SMP has been prepared to document the site practises to be in place for the protection of human and environmental health as a result of the potential mobilisation of contaminants in soil during soil disturbance works on site. This SMP also documents the site validation requirements relating to the decommissioning of onsite effluent disposal systems associated with the residential occupation of the site.

2 PREVIOUS INVESTIGATIONS AND POTENTIAL CONTAMINANTS

Geosciences Ltd (GSL) has undertaken the following site investigations on the two properties:

- Preliminary Site Investigation (PSI) of 98-100 Totara Road, Whenuapai - *LtR-1073/PSI/May18 (Revised 10 November 2021)*; and
- Preliminary Site Investigation (PSI) of 102 Totara Road, Whenuapai - *Ltr-1394/PSI/Sep19 (Revised 10 November 2021)*

Both of the above investigations included review of historical aerial photographs of the properties, review of the certificates of title, Council property file and visual inspection / walkover of the properties. The investigations revealed that both properties have a similar developmental history,

in that they were developed from vacant rural pasture between 1972 (102 Totara Road), and 1996 (98-100 Totara Road) through the construction / relocation of residential dwellings.

As the site is not serviced by reticulated wastewater services, all three residential dwellings on site are serviced by domestic septic tanks and effluent disposal infrastructure. Auckland Council considers that such devices meet the threshold for HAIL activity under Item G.5 and G.6 on the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL). Additionally, due to the age of the original dwelling on 102 Totara Road and the relocated dwelling on 98-100 Totara Road, GSL noted the potential for lead based paint to have been utilised on exterior surfaces on two of those structures. The potential impacts of lead based paint can be encompassed under Item I on the MfE HAIL only where a risk to human or environmental health is present. As the newer dwelling located on the southern boundary of 102 Totara Road was constructed in the early 2000's it is not considered to have been subject to the use of lead based paint.

Due to the small scale of any areas potentially impacted by the use of lead based paints and onsite effluent disposal, the PSI's for both properties concluded that any impacted area could be addressed through remediation by offsite disposal of soil as a permitted activity under Regulation 8(3) of the NES.

The PSI's did not identify any evidence for any HAIL having been undertaken on the wider site area outside the residential dwelling curtilages and effluent disposal systems. It was concluded that outside of those distinct areas on site, it was highly unlikely that the development of the wider site area would result in any risk to human health or the environment.

2.1 ESTIMATED IMPACTED AREAS

Based on GSL's experience, lead concentrations are expected to be elevated within a 3 m halo surrounding each of the original dwellings on site. The following areas will be considered to have been impacted by lead based paint (demarcated on Figure 2):

- 98-100 Totara Road:
    - Area: 234 m^2
    - Depth: 300 mm
    - Volume: 67.2 m^3
- 102 Totara Road:
    - Area: 238 m^2
    - Depth: 300 mm
    - Volume: 71.4 m^3
- ***Total Area:*** ***462 m^2***
- ***Total Volume:*** ***138.6 m^3***

With respect to the septic tanks and disposal fields, no as built plans were included on the property files. In GSL's experience, standard septic tanks in pre-1990s installations are generally 4,500 l or similar, single skin concrete tanks with an overflow / liquid drainage line which will likely be present for 98-100 Totara Road. Auckland Council GEOMaps indicates a "hi-tech" septic tank associated

with the newer dwelling on the southern boundary of 102 Totara Road, however no further information about the system was identified but suggests this is likely a modern multi chamber system and shallow drip line discharge.

As the only potentially impacted soil resulting from the tanks themselves is a small amount of soil directly underlying the tank, if a leak had occurred, and the soil directly underlying any dripper lines, only a very small volume of soil will require disposal in order to address the septic tanks and disposal lines. The majority of soil disturbed can be reused to backfill any excavations required to remove and decommission the system. The locations of the septic tanks are also indicated on Figure 2 and GSL expects that <50m^3 of soil disturbance will be required to address the effluent systems.

3 STATUTORY REQUIREMENTS

The following SMP has been prepared in order to address the requirements of the following regulations of the NES and AUP(OP) respectively.

3.1 NATIONAL ENVIRONMENTAL STANDARDS

As the PSI's for each of the properties identified that actually or potentially contaminating landuse activities are more likely than not to have occurred on the site, the regulations of the NES are considered to be applicable to any change in landuse, subdivision and development of the piece of land. However, as the potentially impacted areas are minor in relation to the overall size of the site, GSL considers that any remedial works required can easily meet the permitted activity requirements of Regulation 8(3) of the NES. Regulation 8(3) allows for the small-scale disturbance and offsite disposal of soil where the following criteria 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^{2}may 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."

For a piece of land of this size (16.37 Ha) Regulation 8(3) allows for the disturbance of up to 8,185 m^3 and the offsite disposal of up to 1,637 m^3 of soil per year, as a permitted activity.

The volume of soil required to be disturbed to address potentially lead based paint impacted soil and the decommissioning of the effluent disposal systems is deemed to fall comfortably within the volumes allowed as a permitted activity.

3.2 AUCKLAND UNITARY PLAN (OPERATIVE IN PART)

As with the NES, the rule E.30.6.1.2 allows for the small scale disturbance of soil on actually or potentially contaminated soil as a permitted activity while the following criteria are met:

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 roads 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 rail 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 of the activity in writing if the volumes of soil disturbed on land containing elevated levels of contaminants exceeds 25 m^3, including 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 duration of the activity and until the soil is reinstated to an erosion-resistant state; and*
   b. *control 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 the soil disturbance on a site must not exceed two months.*
5. *Any contaminated material removed from the site must be disposed of at a facility or site authorised to accept such materials."*

GSL considers that the remedial works required to address potentially lead impacted soil and the decommissioning of the effluent disposal systems can readily meet the allowable 200 m^3.

4 SITE MANAGEMENT PLAN

This site-specific management plan (SMP) provides procedures for the handling of potentially contaminated excavated soil material because of the proposed development at 98-102 Totara Road, Whenuapai (Figure 1). It is to be submitted to Auckland Council for approval before works commence on site.

The practices and procedures in this plan are intended to ensure that health, safety, and environmental risks associated with the proposed earthworks activities at 98-102 Totara Road are managed to an acceptably low level. It is not intended that this SMP should replace the contractor's site-specific health and safety plan or earthworks and sediment control plan, but should be enacted in conjunction with these documents.

4.1 RESPONSIBILITIES AND SITE MANAGEMENT

The appointed earthworks contractor will assign a 'site manager' to the project that will be responsible for the implementation of this SMP during the proposed works at the site.

4.2 ENGAGEMENT OF CONTAMINATED LAND ADVISOR

GSL will be available in the role of Contaminated Land Advisor (CLA) and will provide on-call direction in relation to contamination / disposal issues for the project. GSL area a professional advisor, suitably qualified and experienced in the investigation, reporting, remediation, and validation of contaminated land.

The main functions of the CLA are 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 5);
- Provide assessments of the investigation;
- Make recommendations based on findings; and
- Maintain regular liaison with the authorities if necessary.

4.3 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 material;
- 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).

4.4 HEALTH AND SAFETY PROCEDURES

While this SMP provides steps that are required because of the concentrations of arsenic identified during the DSI, the earthworks contractor is ultimately responsible for the H&S procedures related to the earthworks.

The concentration of heavy metals in soil within the potentially impacted areas, are not expected to exceed the human health standards for site workers, as outlined in the soil contaminant health standards ($SCS_{(HEALTH)}$) of the NES. However, it is important to utilise a conservative methodology in order to protect the health of site users and ecological receptor during remedial works. Consequently, provisions must be established, and adhered to, in order to ensure the health and safety of workers during soil disturbance in the impacted areas as identified in Section 2.1 above.

Inhalation is the most important exposure risk related to airborne contaminants in dust while direct contact with skin or eyes is the secondary route of entry in this case. The primary protection for site workers will be to utilise mechanical excavation methodologies and direct loadout to trucks for offsite disposal where possible, minimising the potential for any direct contact with soil.

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. A copy of this guideline can be provided on request.

4.5 PERSONAL PROTECTIVE EQUIPMENT

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. Additional PPE that may be required include:

- Protective leather or rubber gloves
- Safety glasses
- 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.

5 PROPOSED REMEDIAL WORKS

The remedial consist of the removal of potentially lead impacted soil from the immediate curtilages of the dwelling at 98-100 Totara Road and the original dwelling on 102 Totara Road, and the removal of the septic tanks associated with all three dwellings on the site. The following sections detail the procedures to be followed to address the excavation and offsite disposal of potentially impacted soil.

GSL notes that in the interest of efficiency, remedial earthworks can be undertaken alongside demolition of the residential dwellings and can therefore be undertaken by the same contractor.

5.1 EROSION AND SEDIMENT CONTROLS

Erosion and sediment controls in accordance with Auckland Council Guidance Document GD05 *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* will be in place and effective prior to, and for the duration of any soil disturbance activities and until the site is restored to an erosion resistant state on completion of works.

Erosion and sediment controls will be in accordance with the primary contractor's site-specific erosion and sediment control plan.

5.2 DUST CONTROLS

Where remedial works are undertaken in dry conditions dust controls in accordance with the *Good Practice Guide for Assessing and Managing the Environmental Impacts of Dust Emission* (MfE 2001) are required to minimise pollutants becoming airborne in dust and reduce stormwater sediment loads. Dust generation can be controlled by light, frequent water spraying and the covering of any stockpiled materials.

The site manager has the responsibility of managing the suppression of dust on site for the duration of soil disturbance. Water usage should be frequent enough to suppress the generation of dust, but not so heavy as to generate sediment laden run off.

5.3 LEAD BASED PAINT EARTHWORKS PROCEDURES

As a conservative approach, a 3m halo of topsoil surrounding the two dwellings (Figure 2) are assumed to be impacted by lead based paint to a depth of approximately 300 mm (or subgrade level, whichever is reached first). As the dwelling on the southern boundary of 102 Totara Road is modern, it is not considered to be impacted by lead based paint and no remedial works associated with lead based paint are required.

The estimated volume of topsoil material to be disturbed because of the remedial earthworks is 138.6 m^3. This material will consist mostly of topsoil with small amounts of turf and clay soils.

The procedures below will be followed to ensure that potentially contaminated soil is adequately handled and disposed of off-site.

- The affected areas, as shown in Figure 3, will be marked with marker pegs, fluorescent paint or other suitable markings in the field;
- Prior to earthworks commencing, the contractor will arrange for the disposal of soil and excavated material at a landfill facility that is licenced to accept soil of this nature;
- excavated soil will be loaded directly into a truck or trailer and taken directly to a facility authorise to receive soil of this kind;
- 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;
- Silt fencing will be placed around any temporary stockpiles to ensure that there is no excess sediment run-off from the stockpiles;
- The CLA will be notified and 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. The CLA will 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.

5.3.1 LEAD BASED PAINT VALIDATION REQUIREMENTS

On the completion of the remedial works as detailed above validation will, in the first instance, be through a visual inspection to confirm the scope of remedial works has been carried out in accordance with the SMP. Following visual confirmation, five validation soil samples will be

collected from each remedial area, accounting for 10 total validation soil samples for the analysis of lead only.

Should any validation soil sample return a concentration of lead in excess of the NES residential 10% soil contaminant standard (210 mg/kg), further remedial works will be instructed, and further validation samples collected until compliant results are obtained.

5.4 SEPTIC TANK AND EFFLUENT DISPOSAL FIELD REMOVAL

Prior to the excavation of the septic tanks and disposal fields on site, the site manager / contractor will arrange for the tanks 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 tanks will be carefully excavated and removed from site. Excavations in each area will commence around the sides of the tank to reveal the tanks construction and layout, carefully advancing to allow the full tank to be lifted out for disposal or recycling offsite and to expose the disposal field infrastructure. As the overburden from the tank and disposal filed are not identified in the conceptual model as being at risk of soil contamination due to the gravity led infiltration to soil, all overburden from the excavation of the tank and disposal infrastructure should be stockpiled adjacent to the tank and disposal trenches to utilize as backfill once validation has confirmed successful remediation has been undertaken.

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 disposal infrastructure (overflow / dripper lines) will be excavated alongside a small volume of soil underlying the pipework and disposed of to an appropriately licensed landfill facility. 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 risks or adverse effects associated with the decommissioning process.

5.4.1 EARTHWORKS PROCEDURES

The procedures documented in Section 5.3, alongside erosion and sediment controls and dust controls above will be utilized for the duration of the excavation offsite disposal and validation of the septic tanks and effluent disposal systems.

5.4.2 SEPTIC TANK VALIDATION REQUIREMENTS

Following completion of removal and decommissioning works for the three septic tanks and disposal infrastructure, GSL will visually inspect the full extent of all excavations to confirm that all disposal infrastructure has been removed from the site. In conjunction with the visual assessment, validation soil samples will be collected on the basis of:

- one soil sample from the base of each tank pit;

- one soil sample per 15 lineal meters from the base of the disposal trenches.

Soil samples will target the base of the tank pit and soil directly underlying disposal infrastructure being the worst-case scenario for long-term discharge. Validation soil samples will be submitted for the analysis of a suite of heavy metals. Analytical results will be compared against the NES residential 10% homegrown produce standard as a suitably conservative remedial goal.

In the event that nay soil samples return concentrations that exceed the remedial goal, GSL will, in discussion with the landowner, 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 soil samples comply with the remedial goal.

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 earthworks (Appendix B).

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 SMP.

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

6.1 FIBROUS MATERIAL (ASBESTOS)

It is not anticipated that any asbestos materials will be encountered within soil on the site. Prior to demolition or removal, all buildings and structures must be subject to an appropriately intrusive building materials survey to identify the location and extent of and asbestos containing materials present and inform on removal requirements.

However, should asbestos containing materials (ACM) be 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* are exercised.

ACM identification will primarily be through visual identification by a suitably competent person. Any fibrous material observed during excavations will be visually inspected, photographed and representative sample 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 may be required, including the provisions of asbestos removal control plans, semi-quantitative analysis, or site assessment under the WorkSafe endorsed *BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soils* (November 2017).

7 VALIDATION

Upon completion of the remedial works, a site validation report (SVR) will be completed and provided to Auckland Council. The SVR will include:

- The quantity of soil material removed from site, including copies of the disposal manifests;
- A description of any unforeseen contaminated soil material encountered during the remedial works;
- Laboratory analytical results from any soil testing that occurred during the remedial works; and
- Any incidences or complaints that occurred during the earthworks.

8 REFERENCES

1. Ministry for the Environment (2011) - Draft Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health.* Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2011) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
4. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
5. Department of Labour (1999) — *Health and Safety Guidelines on the Cleanup of Contaminated Sites.* Occupational Safety and Health Services. Department of Labor. Wellington. ISBN 0-477-03546-9.

FIGURES

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ENVIRONMENTAL
Level 1, 47 Clyde Road,
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Figure 1 - Site Locality

98-102 Totara Road, Whenuapai

Reference:	J1685
Date:	29/11/2021
Drawn:	DW
Approved:	COB

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Figure 2 - Remediation Areas

98-102 Totara Road, Whenuapai

Reference:	J1685
Date:	29/11/2021
Drawn:	DW
Approved:	COB

APPENDIX A: CONTAMINATED SOIL DISCOVERY GUIDELINES

CONTAMINATED SOIL DISCOVERY GUIDELINES (CSDG)

Reference Number: GSL/CSDG

Geosciences Limited
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info@geosciences.co.nz www.geosciences.co.nz

DISCLAIMER

These guidelines are provided on the condition that Geosciences Ltd disclaims all liability to any person or entity 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 these guidelines. 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 any such person in reliance, whether in whole or any part of the contents of these guidelines of all matters not explicitly stated within the guidelines and according to our general terms and conditions and special terms and conditions for contaminated sites.

STATEMENT

These guidelines have been prepared in acknowledgement of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. They have been authorised by a suitably qualified and experienced practitioner (SQEP); and have been prepared with the intention of providing practices and procedures for the management of potentially contaminated land which meets the criteria of the NES and the MfE guidelines.

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1 INTRODUCTION

Contaminated land can be defined as, '*any land that has been adversely affected through the impact of human activity that has resulted in a significant alteration to the chemical, inorganic or organic characteristics of the naturally occurring soil material of the land'*.

Such a definition leaves a broad spectrum of potential physico-chemical characteristics which may apply. It is not the purpose of these guidelines to attempt to define all of the possible activities, characteristics, processes, or chemical compounds which may have an adverse impact upon naturally occurring soil material.

However, in the current field of contaminated soil investigation, disturbance, remediation and validation, and within the context of the *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) there are situations that may be uncovered, or may present themselves in other ways, where the impact of man-made activities are both hazardous, in terms of human risk, and significant, in terms of environmental risk.

It should be noted that not all hazardous and significant contamination sources can be discerned by the eye, the ear or the nose and that any suspected occurrence of soil contamination should be scientifically investigated through the most appropriate means available.

It is hoped that this document can provide some additional guidance, examples, and discussion points around the investigation and assessment of particularly 'gross' or visually, olfactory and auditory significant contamination events, sources or plumes. It should not be taken that this document can replace suitable qualifications and experience, but rather can be used as general guide to the field practical methods used to immediately assess, prepare, and undertake the safe handling and immediate containment or excavation of contaminated soil materials.

2 PURPOSE

The practices and procedures in this report are intended to provide a field-practical process for the identification, assessment and management of grossly contaminated soil that may be encountered during earth breaking activities or other sub surface soil disturbance. These processes are intended to provide guidance on health, safety and environmental risks and risk management associated with earth breaking activities when gross evidence of contamination is encountered.

The practices and procedures outlined provide for first layer risk control and are one of many stages in the applicable health, safety and environmental risk management process. It is not intended to replace site specific health and safety plans, nor can it provide for every possible eventuality encountered in the field and cannot be reasonably expected to replace significant relevant on-the-job experience.

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 and this is a key reference document when dealing with contaminated materials. These guidelines do not intend to replace the

guidance provided in that document and, if in doubt, it is the more preferable guidance document on provisions for Health and Safety when operating on contaminated soil sites.

3 INADVERTENT DISCOVERY OF CONTAMINATION

It is assumed that a site which has already been identified as 'contaminated' has been assessed with respect of the inorganic or organic characteristics which exceed the applicable criteria or threshold values as defined by the relevant legislation, rules, or plans. Identified contaminated sites will therefore already have appropriate protocols in place for the ongoing assessment, investigation, remediation and validation of the areas that have been defined as contaminated and have plans and procedures in place to protect both human health and the environment.

It still remains possible however, that unknown, unidentified or even identified but under-estimated, contamination may exist on such a site, or on a supposed 'non-contaminated' site. Such unknown contamination may be encountered as underground lenses (conglomerates of contamination in a localised zone), layers (widespread zone of contamination occurring along a stratified zone), hotspots (individual occurrences in a single location not otherwise connected), columns (vertical bands of contamination) or a plume (a zone of contamination moving along or through an aquifer / underground flow path and usually associated with seasonal or permanent groundwater flow).

In the event that 'unknown contamination' is encountered then it is advisable to have available some form of reference documentation that can provide insight to the frontline staff on the immediate signs, symptoms and actions that should be identified, assessed or considered while further advice is sought.

In all events encountering unknown soil contamination, a suitably qualified and experienced practitioner (SQEP) should be contacted for further advice, assessment and investigation.

4 GENERAL PROCEDURES

Below is a summarized guide of applicable steps which should be considered if any grossly contaminated material is encountered. The contaminated soil discovery guideline factsheets at the back of the report provide further details on the explicit health, safety and environmental risks associated with particular contamination scenarios, and the procedures to follow, however, in all instances the following general procedures summarized within the headings below should be considered. The steps highlighted below should not be considered exhaustive nor considered solely in step-by-step fashion, it may be necessary to conduct one or more actions at the same time or in differing order as a result of changing circumstances 'on the ground'.

4.1. STOP

- Stop working immediately and exclude others from working in the immediate area.
- Switch off machinery, generators etc., and establish a safe zone around the area dependent upon the assumed risk.

- For example, a gas release from an old landfill can be considered potentially toxic and / or explosive and a zone of approximately 10m may be considered appropriate depending upon the scale of the event.
- A series of dark red, brown or black stains in a pit with no odorous or free liquid discharges is unlikely to be immediately hazardous and the safe zone may extend to only the excavation edges.

- Prevent ingress or egress of stormwater, rainwater or wash water and stop all further activity immediately associated with the area.
- At this stage the extent, type and risk to health as a result of contamination is unknown – proceed with care and caution.

4.2. ADVISE THE SITE MANAGER

The site manager (or designated person) is the person principally in charge of health and safety on the site. They should also be familiar with these guidelines. The following steps are generally completed by the site manager or completed on the manager's delegation.

4.3. CONTAIN

If the contamination is leaving the site, or has the potential to leave the work site, then it should be contained. At this stage, the exact nature and risk of the contamination may not be known, so appropriate care and caution should be exercised. Some or all of the following methods may be used to contain the contamination:

- Sediment fences and straw bales;
- drain covers and sandbags;
- absorbent booms, spill mats, 'kitty litter' etc. can all be utilized to protect the environment from further release; and
- If containment is not possible, immediately contact:
  - ***Auckland Pollution Hotline*** **(09) 377 3107**.

4.4. ASSESS THE RISK

Not all contaminants, or all instances of contamination, will require special provisions or procedures. Similarly, an instance of contamination may be falsely or incorrectly reported. Not all stains are contamination, or all apparent plumes of oil on a liquid surface, are man-made occurrences.

- Refer to the factsheets at the back of these guidelines.
- Make a note of any or all of the following. It may be necessary to document and record some or all of the findings, for forwarding to the SQEP, as odours may dissipate and water may dry up or soak back into the soil:
  - Appearance – staining, trickling, flowing, bubbling (gas escape), thick, sticking to tools and equipment, sliding off tools etc.

- Odour – sweet, sour, petrol-like, tar-like, sharp etc.
- Colour or colours
- Miscibility i.e. does it or does it not mix with water. Oil / solvents etc. do not mix with water and creates a coloured sheen on the water surface.

- If gross contamination is confirmed (or strongly suspected) then the appropriate measures should be put in place, dependent upon the risks concerned as defined in the factsheets. A half buried rusted drum of waste batteries will require different safety procedures to the discovery of a buried pile of asbestos cement board, for example.

4.5. CONTACT THE CLA (SQEP)

Contact the on-call contaminated land advisor – provide digital photographs if safely possible to do so. Talk to the CLA. They may advise additional steps to follow; they may be required to come to site.

4.6. RESTRICT ACCESS

Following the assessment of the risk, the safety zone can now be better defined.

- With reference to the factsheets, restrict access to the safe zone to only those members of the team that need to be there. It may be necessary in the case of potentially explosive vapour release, to cordon off a significant sized area and prevent working, or vehicular access, within that area.
- Consider the potential flow paths of vapours along trenches, down slopes, through drains etc.
- Access can be restricted through purely visual means, e.g. warning sings, via fencing or by staff management (security guard for example) or a mixture of all three based upon the site manager's assessment and the extent of the contamination.

4.7. ESTABLISH A WORKING TEAM AND PROVIDE WITH APPROPRIATE PPE

Before continuing, establish a team of competent trained individuals who can deal with the matter and ensure that they have, and are correctly wearing, the appropriate PPE for the situation at hand as defined in the factsheets. Consider the following when establishing the team:

- Experience – have they handled such a situation before?
- Competence – are they familiar with the tools, equipment, PPE and procedures that will be employed?
- Comfort – not all staff are comfortable with unknown situations. Will they be comfortable in this situation?

4.8. EXCAVATE

At some point, the contamination is likely to be removed. This may not be the case in every instance and the regulations allow for other actions such as in-situ remediation, stabilisation, encapsulation etc. and the SQEP will advise on the specific methodologies required. In certain circumstances a more detailed remedial plan may have to be compiled which will document specific goals, validations and disposal actions. The SQEP will advise on the requirements of the regulations. In most cases of localised acute instances of gross contamination, they can be safely managed immediately in the interests of protecting human health and the environment. In this case, some or all of the following processes should be followed:

- Excavation / Isolation – solid contaminants, soil, drums, refuse etc. can be excavated, by machine or by hand, directly into a covered truck or sealed skip, preventing further potential spread and isolating the contaminants for assessment and disposal;
- Vacuum extraction – contaminated water may be sucked up into a vacuum tanker, provided that there is no risk of reaction or explosion, where it can be isolated for assessment and disposal. DO NOT MIX water / liquid from more than one event in a vacuum truck;
- Separation – large separate items, such as asbestos sheet fragments, can be collected by hand, separated from the soil matrix and placed in double skinned plastic bags for appropriate disposal; and
- Absorbance – contaminated water, hydrocarbons and chemicals can all be absorbed through the use of contaminated pads, pillows and booms which can then be placed in sealed skips or bags and isolated for appropriate disposal.

4.9. DOCUMENT

Keep written documents, including digital photographs, of all measures used to contain or cleanup the contamination. This might include some or all of the following:

- Assessment measures used e.g. laboratory analysis, in-situ analysis (e.g. XRF), smell, behaviour in water (miscibility etc.), pH indicator test etc.;
- Staff involved in clean-up and experience;
- Methods used, problems encountered, discussions with SQEP;
- Complaints by third parties (e.g. odours, colour changes to local waterways etc.);
- Excavation or separation methods used, names of contractors etc.;
- Volumes extracted;
- Conditions of cartage, e.g. skip bin, covered truck, closed wheelie bins etc.
- Location of final disposal and disposal documentation e.g. tip dockets, weighbridge receipts etc.

4.10. DISPOSE

In order to ensure that all material is disposed of correctly, ensure the safe and licensed disposal of the material in accordance with the requirements outlined by the SQEP. In the majority of cases, examples of gross contamination are likely to require disposal at a licensed landfill facility e.g. Redvale Landfill or Hampton Downs Landfill. Other licensed facilities may exist that can handle potentially contaminated material, that may also be able to provide assistance.

- Contaminated liquids will not be received at landfill for disposal and must go to a licensed liquid disposal facility. Sewerage contaminated liquids can probably go directly to the nearest local sewer treatment facility, but chemical contaminated liquid will be required to go to an appropriate liquid treatment plant.
- Drums of unknown or unidentified waste may have to go to a solid / liquid hazardous waste handling plant.
- Contaminated PPE will also require appropriate disposal.
- In all instances, the receiving facility will be unlikely to receive and handle the material without some form of analysis or assessment of the composition of the waste.
- Keep all transport and disposal dockets for the final report.

4.11. REPORT

Communications and documentation will be kept during the procedures but a final report should be provided to the project manager detailing all of the steps, communications and records as required.

This report provides assurance to the regulatory authority that all the necessary steps have been followed and the matter has been adequately and professionally dealt with.

5 FACTSHEETS

5.1. PETROLEUM HYDROCARBONS

ACTIVITY

- Petroleum service station
- Vehicle workshop
- Gasworks sites

POTENTIAL CONTAMINATION

- Total Petroleum Hydrocarbons (TPHs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Benzene, Toluene, Ethylxylene, and Xylenes (BTEX)
- Heavy Metals

DESCRIPTION

Petroleum-contaminated soils have a brown / black discolouration and an 'oily' consistency. Petroleum products, such as diesel and petrol, are insoluble in water and can form oil slicks in excavated areas such as trenches. Petroleum products in soil can be detected by the characteristic odour of petrol and diesel. BTEX produces a much 'sweeter' odour similar to that of paint-thinners.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Adverse reactions to strong hydrocarbon odours are possible, e.g. headaches, blurred vision, nausea. Contaminants can be absorbed into body via inhalation of dust, contact with skin, or ingestion. Leaked fuels can migrate into groundwater, potentially contaminating drinking water.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face respirator.

HANDLING AND DISPOSAL

Pooled hydrocarbon spills can be removed using suitable absorbent materials or collected by a suitably rated vacuum tanker. Spills can also be transferred to a sealed container by an appropriately rated vacuum pump or similar. Hydrocarbon contaminated soil can be placed in a sealed leak proof skip bin or truck for disposal at a facility authorised to receive material of that kind.

5.2. HEAVY METALS

ACTIVITY

- Metal workshop
- Metallisation works
- Electroplating industries
- Timber treatment facilities

POTENTIAL CONTAMINATION

- Heavy Metals

DESCRIPTION

Gross contamination of heavy metals in soils can cause bands of discolouration within the soil profile. Pools of discoloured water (yellow, blue, red, orange) in excavated areas, such as trenches, are indicative heavy metal contamination. Solvents used for metal preparation, like BTEX, can form 'sheen' on the surface of water and produce a 'sweet' odour similar to that of paint-thinners.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Contaminants can be absorbed into body via inhalation of dust, contact with skin, or ingestion. Heavy metals have the ability to leach further into soil and eventually into groundwater, potentially contaminating drinking water. A consideration should be given to the potential of pH alteration as metal finishing plants often employ acidic solutions for metal preparation.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

Heavy metal-contaminated soil can be placed in a truck and covered with tarpaulin for disposal at a facility authorised to receive material of that kind.

5.3. DRY CLEANERS

ACTIVITY

- Dry-cleaners

POTENTIAL CONTAMINATION

- Volatile hydrocarbons (trichloroethylene, tetrachloroethylene, carbon tetrachloride)

DESCRIPTION

It is difficult to distinguish soil contamination by solvents used for dry-cleaning. However, the solvents can form a bilayer with water they are less dense than water. The odours associated with dry-cleaning agents are very distinctive and can be described as 'sickly sweet', causing dizziness and nausea.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Contaminants can be absorbed into body via inhalation of vapours, contact with skin, or ingestion. Depending on atmospheric conditions, dry-cleaning agents may readily evaporate. Extended exposure to dry-cleaning agents can affect the central nervous system. Gross contamination of dry-cleaning agents in soil can migrate past the water table, making remediation complex.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face respirator.

HANDLING AND DISPOSAL

Pooled hydrocarbon spills can be removed using suitable absorbent materials or collected by a suitably rated vacuum tanker. Spills can also be transferred to a sealed container by a suitably rated vacuum pump or similar. Solvent contaminated soil, including drums or containers, can be placed in a sealed leak proof skip bin for disposal at a facility authorised to receive material of that kind.

5.4. TANNERY / LEATHER PROCESSING

ACTIVITY

- Leather manufacture / treating facility

POTENTIAL CONTAMINATION

- Heavy Metals (particularly chromium)
- Solvents
- Pesticides
- Bleaching agents

DESCRIPTION

Gross contamination of chromium in soils, caused in the tanning stage of treating leather, can cause orange and blue bands of discolouration within the soil profile. Pools of discoloured water (orange, blue, green) in excavated areas, such as trenches, are indicative chromium and metal contamination.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Contaminants can be absorbed into body via inhalation of vapours and dust, contact with skin, or ingestion. Wastewater produced from the tanning process can have excessive levels of chromium and sulphides which can cause gross soil contamination if inadequately handled.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical / oil resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

Pooled liquid spills can be removed by using tailor-designed absorbent materials and via tanker or pump. Contaminated soil can be placed in a sealed skip bin or covered truck for disposal at a facility authorised to receive material of that kind.

5.5. ASBESTOS

ACTIVITY

- Improper disposal of asbestos-containing building materials

POTENTIAL CONTAMINATION

- Asbestos (fibres)

DESCRIPTION

Asbestos in soil is most likely due to burial of building materials. Asbestos fibres are usually entrained in a substrate material, making identification difficult. Broken cement, floor tiles, roof shingles, insulation, heat shields, and textured ceiling tiles manufactured between the 1950s and 1980s are likely to contain asbestos.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Asbestos can be absorbed into the lungs via inhalation of fibres. A significant acute or chronic exposure can lead to mesothelioma, asbestosis and lung cancer. Buried asbestos is relatively stable; however, disturbing asbestos during excavations could lead to the production of harmful fibres.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) disposable coveralls; (2) washable PVC gloves; (4) safety glasses; (5) suitably graded full face or half face P3 respirator.

HANDLING AND DISPOSAL

KEEP DAMP to suppress fibre generation. Large fragments may be collected by hand and place in double skinned plastic bags. Asbestos-contaminated soil can be placed in a sealed skip bin for disposal at a facility authorised to receive material of that kind. Soil of this kind can also be transported via sealed doubled bags or a sealed skip bin.

5.6. REFUSE

ACTIVITY

- Inorganic / Organic refuse disposal

POTENTIAL CONTAMINATION

- Variable, dependant on the type of refuse
- Contaminants could arise from liquid waste, putrid organic waste, and any material that would normally be sent to a licensed landfill

DESCRIPTION

Refuse in soil is most likely due to burial of waste materials that should have normally been sent to landfill. Waste could include, but not limited to, paint cans, oil / hydrocarbon containers, and putrid household waste. The odour of buried refuse is likely to be extremely pungent.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Due to the variability of types of refuse and waste, it is difficult to distinguish human health and environmental risks. Individual assessment of the risks will be required.

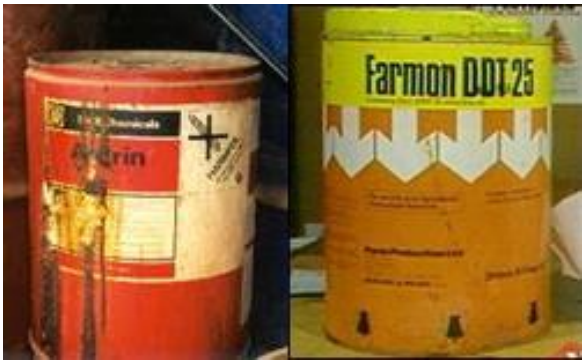
PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical-resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

Handling and disposal of refuse will be dependent upon the waste material identified.

5.7. PESTICIDES



ACTIVITY

- Horticultural activity
- Pesticide manufacture

POTENTIAL CONTAMINATION

- Pesticides, including DDT, dieldrin, and other organochloride pesticides (OCPs)

DESCRIPTION

Persistent use and storage of pesticides associated with horticultural activities are the main contributors to pesticide-related contamination in soil. Illegal burial of pesticide drums and containers may be encountered on production and agricultural sites. Pesticides are often found as fine, white powders.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Pesticide contaminants can be absorbed into body via inhalation of dust, contact with skin, or ingestion. Extended exposure to organochloride pesticides can disrupt the endocrine system as well as affecting DNA. DDT and its breakdown products, DDD and DDE, are highly persistent and do not breakdown easily in soil. DDT and its isomers have the ability to magnify through the food chain (bioaccumulate).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical-resistant steel-capped boots; (2) disposable coveralls; (3) chemical-resistant gloves; (4) safety glasses; (5) suitably graded half-face or full face mask or respirator.

HANDLING AND DISPOSAL

If bulk pesticide storage containers are found, the site manager must be advised. Pesticide-contaminated soil can be placed in a truck and covered with tarpaulin for disposal at a facility authorised to receive material of that kind.

5.8. SEWAGE

ACTIVITY

- Underground sewage tanks / pipelines

POTENTIAL CONTAMINATION

- Raw sewage
- Bacteria / pathogens (*Escherichia coli*, *Vibrio cholerae*, etc.)

DESCRIPTION

Sewage in soil is most likely due to leaking underground septic tanks and / or sewer pipelines. The odour of sewage is likely to be extremely pungent.

HUMAN HEALTH AND ENVIRONMENTAL RISKS

Pathogens in sewage-contaminated soil can be absorbed into body via contact with skin or ingestion. Exposure to raw sewage can infect a person with an array of harmful pathogens, such as E. coli, which originate from faecal matter in wastewater. Gross contamination of raw sewage can lead to eutrophication of lakes, rivers, and other receiving bodies of water.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE for handling soil of this kind: (1) chemical-resistant steel-capped boots; (2) disposable / liquid repellent coveralls; (3) chemical-resistant / waterproof gloves; (4) safety glasses; (5) suitably full face mask or face shield.

HANDLING AND DISPOSAL

If raw sewage is encountered, the site manager must be advised. Sewage-contaminated soil can be placed in a truck and covered with tarpaulin for disposal at a facility authorised to receive material of that kind.