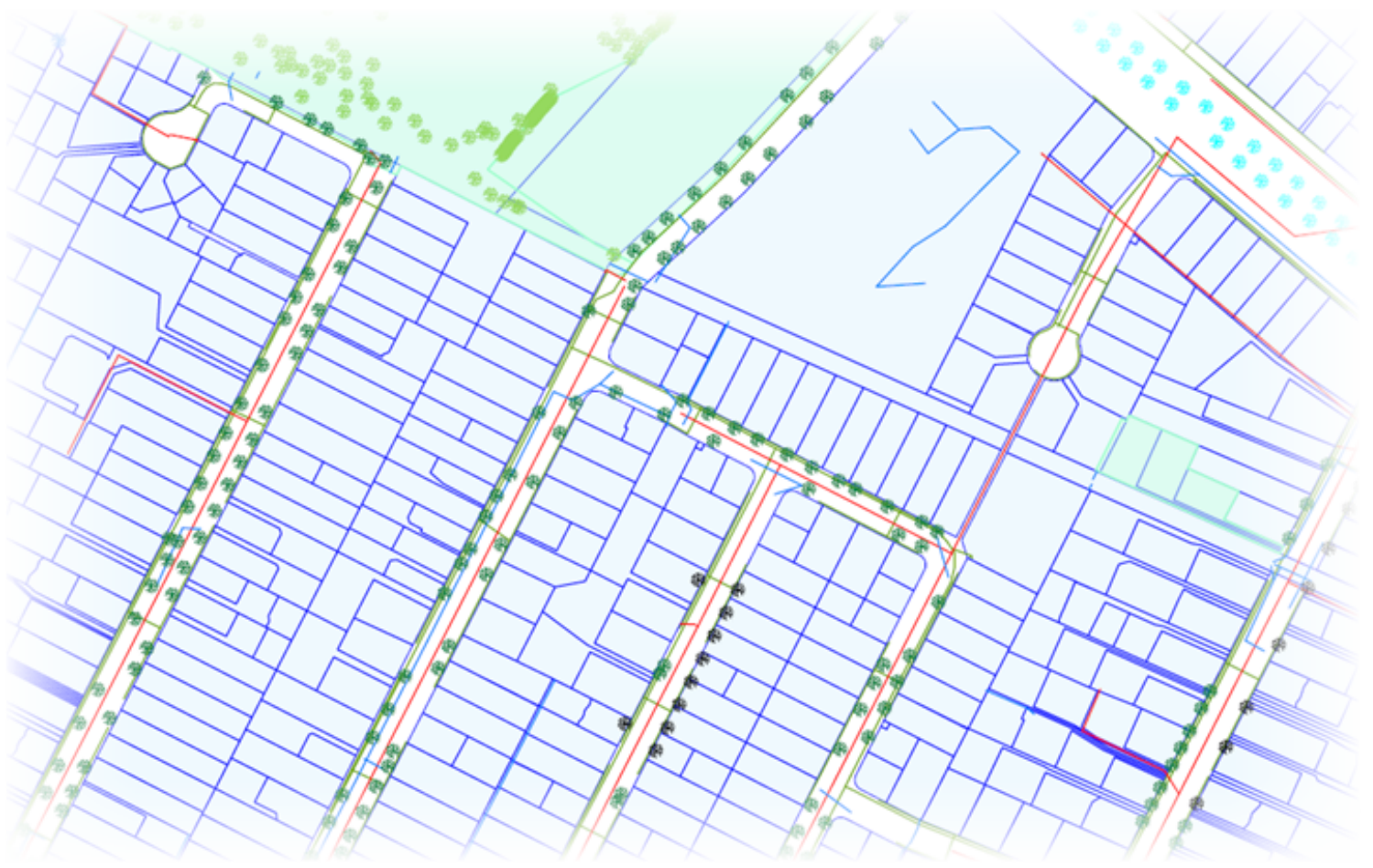


# Land Information Memorandum



Property address:  
1/46 Pacific Road

LIM number: 70240285  
Page 1

Christchurch City Council  
53 Hereford Street, PO Box 73015  
Christchurch 8154, New Zealand  
Tel 64 3 941 8999  
Fax 64 3 941 8984  
[www.ccc.govt.nz](http://www.ccc.govt.nz)

## Application details

Please supply to       HARCOURTS FERRYMEAD  
                                  PO BOX 19836  
                                  CHRISTCHURCH 8241

Client reference       PACIFIC

Phone number

Fax number            384 2243

Date issued            15 December 2020

Date received         9 December 2020

## Property details

Property address       1/46 Pacific Road

Valuation roll number   22801 06900    C

Valuation information   Capital Value: \$340000  
                                  Land Value: \$96000  
                                  Improvements Value: \$244000  
                                  *Please note: these values are intended for Rating purposes*

Legal description       Flat 1 DP 353018 on Lot 50 DP 29518 having share in 832 m2

Existing owner          Pacific Rental Properties Limited  
                                  9 De Thier Lane  
                                  Christchurch 8081

## Council references

Debtor number         3191766

Rate account ID       73115957

LIM number            70240285

Property ID            1144139

## Document information

This Land Information Memorandum (LIM) has been prepared for the purpose of section 44A of the Local Government Official Information and Meetings Act 1987 (LGOIMA). It is a summary of the information that we hold on the property. Each heading or "clause" in this LIM corresponds to a part of section 44A.

Sections 1 to 10 contain all of the information known to the Christchurch City Council that must be included under section 44A(2) LGOIMA. Any other information concerning the land as the Council considers, at its discretion, to be relevant is included at section 11 of this LIM (section 44A(3) LGOIMA). If there are no comments or information provided in these sections this means that the Council does not hold information on the property that corresponds to that part of section 44A.

The information included in this LIM is based on a search of Council records only and there may be other information relating to the land which is unknown to the Council. Please note that other agencies may also hold information relevant to the property, or administer legislation relevant to the use of the land, for example, the Regional Council (Ecan), Heritage New Zealand Pouhere Taonga, and Land Information New Zealand.

Council records may not show illegal or unauthorised building or works on the property. The applicant is solely responsible for ensuring that the land is suitable for a particular purpose.

A LIM is only valid at the date of issue as information is based only upon information the Council held at the time of that LIM request being made.

## Property file service

This Land Information Memorandum does not contain all information held on a property file. Customers may request property files by phoning the Council's Customer Call Centre on (03) 941 8999, or visiting any of the Council Service Centres. For further information please visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

To enable the Council to measure the accuracy of this LIM document based on our current records, we would appreciate your response should you find any information contained therein which may be considered to be incorrect or omitted. Please telephone the Customer Call Centre on (03) 941 8999.

A search of records held by the Council has revealed the following information:

## 1. Special features and characteristics of the land

*Section 44A(2)(a) LGOIMA. This is information known to the Council but not apparent from the district scheme under the Town and Country Planning Act 1977 or a district plan under the Resource Management Act 1991. It identifies each (if any) special feature or characteristic of the land concerned, including but not limited to potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, or inundation, or likely presence of hazardous contaminants.*

( For enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### ┆ Consultant Report Available

Land Information New Zealand (LINZ) engaged Tonkin and Taylor to provide a Geotechnical Report on Ground Movements that occurred as a result of the Canterbury Earthquake Sequence. The report indicates this property may have been effected by a degree of earthquake induced subsidence. The report obtained by LINZ can be accessed on their website at <https://www.linz.govt.nz/land/surveying/earthquakes/canterbury-earthquakes/information-for-canterbury-surveyors>

### ┆ Sea Spray Zone

This property is in the sea spray zone as defined by NZS 3604 2011.

### ┆ Coastal Hazard Inundation

The Council has a report, Coastal Hazard Assessment for Christchurch and Banks Peninsula (2017), that indicates this property or part of this property may be susceptible to coastal inundation (flooding by the sea). The 2017 report considers four sea level rise scenarios through to the year 2120. A copy of the 2017 report and other coastal hazard information can be found at [www.ccc.govt.nz/coastalhazards](http://www.ccc.govt.nz/coastalhazards).

### ┆ Liquefaction Vulnerability

Christchurch City Council holds indicative information on liquefaction hazard for Christchurch. Information on liquefaction, including an interactive web tool, can be found on the Council website at [ccc.govt.nz/liquefaction](http://ccc.govt.nz/liquefaction). Depending on the liquefaction potential of the area that the property is in, the Council may require site-specific investigations before granting future subdivision or building consent for the property.

### ┆ Distant Source Tsunami - Area of Potential Inundation

This property may be affected by flooding by some tsunami scenarios as shown in reports by GNS and NIWA commissioned by ECan and CCC. Links to reports can be found at <https://ccc.govt.nz/tsunami-evacuation-zones-and-routes/> and on ECan's web site <https://www.ecan.govt.nz> by searching for the terms tsunami hazard.

## Related information

┆ There is attached a soil investigation report for this property.

## 2. Private and public stormwater and sewerage drains

*Section 44A(2)(b) LGOIMA. This is information about private and public stormwater and sewerage drains as shown in the Council's records.*

( For stormwater and sewerage enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### Related information

- ▮ The property is shown to be served by sewer and stormwater drains which are shared.

### 3. Drinking Water Supply

*Section 44A(2)(ba) and (bb) LGOIMA. This is information notified to the Council about whether the land is supplied with drinking water, whether the supplier is the owner of the land or a networked supplier, any conditions that are applicable, and any information the Council has about the supply.*

Please note the council does not guarantee a particular water quality to its customers. If you require information on current water quality at this property please contact the Three Waters & Waste Unit.

( For water supply queries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

#### Water Supply

Christchurch City Council is the networked supplier of water to this property. This property is connected to the Christchurch City Council Water Supply. The conditions of supply are set out in the Christchurch City Council Water Supply, Wastewater & Stormwater Bylaw (2014), refer to [www.ccc.govt.nz](http://www.ccc.govt.nz).

## 4. Rates

Section 44A(2)(c) LGOIMA. This is information on any rates owing in relation to the land.

( For rates enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### (a) Annual rates

Annual rates to 30/06/2021: \$ 2,287.89

	Instalment Amount	Date Due
Instalment 1	\$ 571.92	15/09/2020
Instalment 2	\$ 571.92	15/12/2020
Instalment 3	\$ 571.92	15/03/2021
Instalment 4	\$ 572.13	15/06/2021

Rates owing as at 15/12/2020: \$ 3.03

### (b) Excess water charges

\$ 0.00

( For water charge enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### (c) Final water meter reading required?

No Reading Required

( To arrange a final water meter reading, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).



## 5. Consents, certificates, notices, orders, or requisitions affecting the land and buildings

*Section 44A(2)(d) LGOIMA. This is information concerning any consent, certificate, notice, order, or requisition, affecting the land or any building on the land, previously issued by the Council.* The information in this section may also cover building consent and/or code compliance information issued by building certifiers under the Building Act 1991 and building consent authorities that are not the Council under the Building Act 2004.

You can check the property file to identify whether any consent or certificate was issued by a building certifier under the Building Act 1991.

*Section 44A(2)(da) LGOIMA. The information required to be provided to a territorial authority under section 362T(2) of the Building Act 2004. There is currently no information required to be provided by a building contractor to a territorial authority under section 362T(2) of the Building Act 2004. The Building (Residential Consumer Rights and Remedies) Regulations 2014 only prescribed the information that must be given to the clients of a building contractor.*

( For building enquiries, please phone (03) 941 8999, email [EPADutyBCO@ccc.govt.nz](mailto:EPADutyBCO@ccc.govt.nz) or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### (a) Consents

- | BCN/1990/5366 Applied: 04/07/1990 Status: Completed  
1/46 Pacific Road North New Brighton  
Permit granted 20/07/1990  
Permit issued 26/07/1990  
GARAGE - FLAT 1- Historical Reference PER90102278
- | BCN/1990/6072 Applied: 31/07/1990 Status: Completed  
1/46 Pacific Road North New Brighton  
Permit granted 14/08/1990  
Permit issued 16/08/1990  
2 FLATS & 1 GARAGE FOR FLAT 2- Historical Reference PER90102357
- | BCN/1995/1720 Applied: 13/03/1995 Status: Completed  
1/46 Pacific Road North New Brighton  
Accepted for processing 13/03/1995  
Building consent granted 22/03/1995  
Building consent issued 23/03/1995  
Code Compliance Certificate Granted 21/05/1996  
Code Compliance Certificate Issued 21/05/1996  
CONSERVATORY - FLAT 1- Historical Reference CON95001873
- | BCN/2013/2927 Applied: 30/04/2013 Status: Completed  
2/46 Pacific Road North New Brighton  
Accepted for processing 30/04/2013  
Building consent granted 27/06/2013  
PIM Issued 27/06/2013  
Building consent issued 28/06/2013  
Council refused to issue a Code Compliance Certificate, s93 Building Act 2004 29/06/2015  
Code Compliance Certificate Issued 30/03/2016  
RELEVEL CONCRETE FLOOR, PARTIAL SLAB REPLACEMENT AND CRACK REPAIR- Historical Reference ABA10125159
- | BCN/2015/9256 Applied: 16/09/2015 Status: Completed  
1/46 Pacific Road North New Brighton  
Exemption from building consent approved 25/09/2015  
The house is to be re-leveled using jet grouting and high mobility grout.

### (b) Certificates

Property address:  
1/46 Pacific Road



*Note: Code Compliance Certificates were only issued by the Christchurch City Council since January 1993.*

## **(c) Notices**

- | Placards issued under the Civil Defence Emergency Management Act 2002 as a result of the 4 September 2010 and 22 February 2011 earthquakes have now expired (by 12 July 2011 if not before). Some civil defence placards were replaced with dangerous building notices issued under section 124 Building Act 2004, and where this has happened the section 124 notice is separately recorded. Many other buildings, although not issued with a section 124 notice, may require structural work or other repairs before they can be occupied again. It is the building owners responsibility to make sure the building is safe for any occupier or visitor. Detailed structural engineering assessments may still be required to be carried out.
- | CDB75077076 04/03/2011  
Building Evaluation : Building Inspected Under Civil Defence Emergency , Green Placard Issued (a deemed Building Act notice)

## **(d) Orders**

## **(e) Requisitions**

## 6. Certificates issued by a building certifier

*Section 44A(2)(e) LGOIMA. This is information notified to the Council concerning any certificate issued by a building certifier pursuant to the Building Act 1991 or the Building Act 2004.*

( For building enquiries, please phone (03) 941 8999, email [EPADutyBCO@ccc.govt.nz](mailto:EPADutyBCO@ccc.govt.nz) or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

## 7. Weathertightness

*Section 44A(2)(ea) LGOIMA. This is information notified to the Council under section 124 of the Weathertight Homes Resolution Services Act 2006.*

( For weathertight homes enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

*If there is no information below this means Council is unaware of any formal Weathertight Homes Resolution Services claim lodged against this property.*

## 8. Land use and conditions

*Section 44A(2)(f) LGOIMA. This is information relating to the use to which the land may be put and conditions attached to that use. The planning information provided below is not exhaustive and reference to the Christchurch District Plan and any notified proposed changes to that plan is recommended: <https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/christchurch-district-plan/>.*

*There maybe some provisions of the Christchurch City Plan or Banks Peninsula District Plan that affect this property that are still operative.*

( For planning queries, please phone (03) 941 8999, email [DutyPlanner@ccc.govt.nz](mailto:DutyPlanner@ccc.govt.nz) or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### ┆ **Regional plan or bylaw**

There may be objectives, policies or rules in a regional plan or a regional bylaw that regulate land use and activities on this site. Please direct enquiries to Canterbury Regional Council (Environment Canterbury).

## **(a) (i) Christchurch City Plan & Banks Peninsula District Plan**

### **(ii) Christchurch District Plan**

#### ┆ **Coastal Environment**

Property or part of property within the Coastal Environment overlay which is operative.

#### ┆ **Liquefaction Management Area (LMA)**

Property or part of property within the Liquefaction Management Area (LMA) Overlay which is operative.

#### ┆ **District Plan Zone**

Property or part of property within the Residential Suburban Zone which is operative.

## **(b) Resource consents**

If there are any land use resource consents issued for this property the Council recommends that you check those resource consents on the property file. There may be conditions attached to those resource consents for the property that are still required to be complied with.

### ┆ RMA/2004/1000 - Subdivision Consent

1/46 Pacific Road North New Brighton

FLAT PLAN UPDATE - CONSERVATORY ADDITION 223 recieved 13/5/04 Certified 14/5/04 224 requested 16/5/05

Issued 16/5/05 DP 353018 - Historical Reference RMA20016592

Status: Processing complete

Applied 14/04/2004

Decision issued 07/05/2004

Granted 07/05/2004

## 9. Other land and building classifications

*Section 44A(2)(g) LGOIMA. This is information notified to the Council by any statutory organisation having the power to classify land or buildings for any purpose.*

( For land and building enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

Please refer to Section 1 for details

## 10. Network utility information

*Section 44A(2)(h) LGOIMA. This is information notified to the Council by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004.*

( For network enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

! **None recorded for this property**

## 11. Other information

Section 44A(3) LGOIMA. This is information concerning the land that the Council has the discretion to include if it considers it to be relevant.

( For any enquiries, please phone (03) 941 8999 or visit [www.ccc.govt.nz](http://www.ccc.govt.nz).

### (a) Kerbside waste collection

- | Your recycling is collected Fortnightly on the Week 1 collection cycle on a Wednesday. Please leave your recycling at the Kerbside by 6:00 a.m. Your nearest recycling depot is the Metro Place EcoDrop.
- | Your refuse is collected Fortnightly on the Week 1 collection cycle on a Wednesday. Please leave your rubbish at the Kerbside by 6:00 a.m. Your nearest rubbish depot is the Metro Place EcoDrop.
- | Your organics are collected Weekly on Wednesday. Please leave your organics at the Kerbside by 6:00 a.m.

### (b) Other

#### | Floor Levels Information

Christchurch City Council holds a variety of information relevant to building/property development across the city. This includes minimum finished floor levels that need to be set to meet the surface water requirements in clause E1.3.2 of the building code (where this applies), and the requirements of the Christchurch District Plan (where a property is in the Flood Management Area). Where this information has been processed for your site, it can be viewed at <https://ccc.govt.nz/floorlevelmap/>, otherwise site specific advice can be obtained by emailing [floorlevels@ccc.govt.nz](mailto:floorlevels@ccc.govt.nz).

#### | Community Board

Property located in Coastal-Burwood Community Board.

#### | Guest Accommodation

Guest accommodation (including whole unit listings on Airbnb; BookaBach; etc.) generally requires a resource consent in this zone when the owner is not residing on the site. For more information, please refer to: <https://ccc.govt.nz/providing-guest-accommodation/>.

#### | Tsunami Evacuation Zone

This property is in the orange tsunami evacuation zone, and should be evacuated immediately after a long or strong earthquake, or when told to by an official civil defence warning. Residents should make a plan for where they would go in a tsunami evacuation and stay out of this zone until told it is safe to go back. More information can be found at <https://ccc.govt.nz/services/civil-defence/hazards/tsunami-evacuation-zones-and-routes/>

#### | Electoral Ward

Property located in Coastal Electoral Ward

#### | Listed Land Use Register

Property address:  
1/46 Pacific Road



Hazardous activities and industries involve the use, storage or disposal of hazardous substances. These substances can sometimes contaminate the soil. Environment Canterbury identifies land that is used or has been used for hazardous activities and industries. This information is held on a publically available database called the Listed Land Use Register (LLUR). The Christchurch City Council may not hold information that is held on the LLUR. Therefore, it is recommended that you check Environment Canterbury's online database at [www.llur.ecan.govt.nz](http://www.llur.ecan.govt.nz)

## I **Spatial Query Report**

A copy of the spatial query report is attached at the end of this LIM. The spatial query report lists land use resource consents that have been granted within 100 metres of this property.

27 February 2015

Southern Response  
C/- Arrow International (NZ) Ltd

**RE: Geotechnical Investigation of 46A Pacific Road, North New Brighton,  
Christchurch. (D4404786)**

## 1 Introduction

ENGEO Limited (ENGEO) was requested by Arrow International (NZ) Ltd to undertake a geotechnical investigation of the subject property (herein referred to as 'the site').

We understand the dwelling at the site sustained damage as a result of the 2010-2011 Canterbury earthquake sequence and that you require a geotechnical assessment of the ground conditions to determine a suitable solution for the proposed repair

The scope of this study comprised:

- Desktop study of geotechnical and geological data;
- Geotechnical observation of the site to identify land damage caused by the 2010-2011 Canterbury earthquake sequence;
- Review of the Canterbury Geotechnical Database (CGD);
- Shallow soil testing to characterise ground conditions on site; and
- Prepare a report outlining our findings on the ground conditions and providing geotechnical advice for foundations.

Our scope of works did not include assessment of the structural integrity of the dwelling.

## 2 Site Description

The site is located in North New Brighton, Christchurch, on a relatively flat section of around 425 m<sup>2</sup>, share in 832 m<sup>2</sup> (Figure 1). It is bound to the north/east/south/west by residential properties. The site is 340m west of the beach.

**Figure 1: Site Location Plan and Investigation Locations**

All images sourced from Google Maps

### 3 Area Wide Information

#### 3.1 CERA Land Classification

The Canterbury Earthquake Recovery Authority (CERA) has mapped the site within the 'Green Zone' where buildings are typically considered suitable for repair or rebuilding. The Ministry of Business, Innovation and Employment (MBIE) has divided the CERA 'Green Zone' into Technical Categories. This site is currently classified as TC2, where "minor to moderate land damage from liquefaction is possible in future large earthquakes" and "shallow soil strength testing standard for all homes" is required. Therefore, a site specific liquefaction analysis was not undertaken in our investigation.

#### 3.2 Regional Geology

The site has been regionally mapped by GNS (Brown & Weeber, 1992) to be underlain by dominantly sand of fixed and semi-fixed dunes and beaches of the Christchurch Formation, and by Forsyth et al. (2008) as being underlain by river alluvium.

#### 3.3 Canterbury Geotechnical Database

##### Subsurface and Earthquake Specific Data

We have reviewed the Canterbury Geotechnical Database and summarised the data relevant to this site in Tables 1 and 2.

**Table 1: Summary of Subsurface Data**

CPT/Borehole Identifier	Position Relative to Building	Depth of Exploration (m)
HA01	3m southwest	2.4
HA02	2m northwest	2.4
HA03	2m northeast	2.2
HA04	3m southeast	3.4

**Table 2: Summary of Earthquake Specific Data**

	Events			
	4 Sept 2010 (Mw 7.1)	22 Feb 2011 (Mw 6.2)	13 Jun 2011 (Mw 6.0)	23 Dec 2011 (Mw 5.9)
Median PGA (g)	0.18	0.51	0.21	0.39
PGA Probable Range (g) <sup>1</sup>	0.13 to 0.24	0.37 to 0.70	0.15 to 0.30	0.26 to 0.59
PGA7.5 (g) <sup>2</sup>	0.16	0.36	0.14	0.26
Regional Liquefaction and Lateral Spreading Observations (EQC)	Not Mapped	None Observed	None Observed	No Data available
Site Specific Aerial Photograph Liquefaction Interpretation <sup>3</sup>	None Observed	None Observed	Minor	None Observed
Mapped Ground Cracks	There are no recorded ground cracks on the site or within 90 m.			

<sup>1</sup>Range for one standard deviation either side of the mean.<sup>2</sup>Using Idriss and Boulanger (2008) magnitude scaling factor.<sup>3</sup>Interpreted by ENGEO.

### Groundwater

EQC has mapped groundwater between 1 m and 2 m depth at the time of the 2010-2011 Canterbury earthquake sequence. The closest EQC piezometer measurement is approximately 420 m west of the site.

From project orbit data the ground water surface elevation is presented below:

**Table 3: Summary of Groundwater Elevation**

	Events			
	Sept 2010	Feb 2011	Jun 2011	Dec 2011
<b>Groundwater Elevation</b>	1.15	1.15	1.07	1.18

### LiDAR and Ground Movement

EQC has prepared maps showing the change in surface elevation and horizontal deformation, as measured by a series of aerial LiDAR surveys. These LiDAR surveys capture surface deformation other than liquefaction-induced deformation, such as tectonic movement. GNS has created a “dislocated tectonic contour model” which shows the tectonic uplift or subsidence on a regional level based on survey of discrete benchmarks on bedrock outcrops across the Canterbury region. Subtracting the tectonic component of vertical deformation from surveyed ground levels gives an indication of vertical deformation from soil subsidence.

LiDAR surveys prepared on behalf of the EQC indicate on the order of approximately 100 mm to 400 mm of vertical settlement and approximately 130 mm of horizontal deformation towards the southwest.

## 3.4 Historic Aerial Photography

We reviewed limited aerial photographs of the site dating back to 1941. We describe relevant observations below:

- The site was part of an undeveloped grassed paddock from at least 1941 until at least 1994.
- The site and surrounding area was developed between 1984 and 1994, the dwelling at the site was also constructed during this time period.

## 3.5 Floor Levels

The Christchurch City Council (CCC) and CERA have released updated recommended floor levels for flood avoidance for properties in the Avon, Heathcote and Styx river catchments, as well as Sumner.

The site is located outside the “CCC City Plan – Flood Management Area”. Floor level recommendations are not currently provided for the site, we recommend you contact the CCC for specific floor level information.



## 4 Site Investigation

ENGEO visited the site on the 21<sup>st</sup> of January 2015 and made the following observations:

- The dwelling is a timber framed structure with light/medium weight cladding on a concrete floor (slab on grade) (Type C1, as defined by MBIE). The site has a separate double garage on the western side with light/medium weight cladding and concrete slab on grade foundation.
- The paved surfaces have 5mm wide cracks in the northern path and up to 30mm wide cracks in the northwest corner path.

Site photographs are presented in Figure 2.

**Figure 2: Site Photographs**



Photo 1: 5mm crack in northern path



Photo 2: 30 mm crack in northwest corner path



Photo 3: Driveway crack



Photo 4: Garage slab 50 mm higher than driveway

### 4.1 Hand Auger Borehole and Scala Penetrometer Testing

ENGEO completed four hand auger boreholes and associated Scala Penetrometer (Scala) tests to a depth between 2.2 m and 3.9 m. Standing water was not encountered in the hand auger boreholes.

Full logs are presented as attachments to this letter report and are written in general accordance with the New Zealand Geotechnical Society field classification guidelines (NZGS, 2005).

## 4.2 Summary of Subsurface Conditions

The material encountered in our subsurface investigations is broadly consistent with published mapping. Table 3 below provides a generalised summary of the subsurface conditions; consult the Site Plan and boring logs for specific subsurface conditions at each location.

**Table 3: Summary of Subsurface Conditions**

Depth (m)	Soil Type	Density/Consistency
0.0 to 0.1	Top Soil (SAND with trace rootlets; brownish grey, poorly graded)	Loose
0.0 to 3.4	Dune Sands (SAND; grey. Poorly graded, subrounded to subangular.)	Loose to Medium Dense

## 4.3 Soil Classification

For the purpose of seismic design, we consider the soil classification in line with NZS 1170.5:2004 to be 'Class D – Deep or Soft Soil'

# 5 Geotechnical Recommendations

As outlined in the MBIE guidance, expected settlements for TC2 sites under Ultimate Limit State (ULS) and Serviceability Limit State (SLS) design loads are up to 100 mm and up to 50 mm, respectively. In accordance with the MBIE guidance, we recommend designing foundations to handle these anticipated settlements.

We consider the following solution to be suitable for the proposed repair. Your Structural Engineer may have alternative options capable of tolerating the settlements anticipated for this site.

## 5.1 Repairing Foundations

We recommend a structural assessment to evaluate the foundation distress and practicality of relevening and repair. Provided the structure complies with the appropriate indicator criteria for floor/foundation releve provided in Table 2.3 of the guidance document, we recommend repairing foundations in line with Section 4 of the MBIE guidance.

Based on our test results, it is our opinion that a geotechnical Ultimate Bearing Capacity of 200 kPa can be assumed for material below 0.5 m depth in our hand auger boreholes. Relevening options may include underpinning the perimeter foundations, hydraulic or mechanical jacking or other suitable alternatives as discussed in Part A, Section 1 and Appendix A1 of the MBIE guidance.



## 5.2 Additional Considerations

- New foundation elements should be designed by a Chartered Professional Engineer practising in foundation design;
- We advise that future building work takes into consideration the recommendations of the MBIE guidance;
- If structures on the site are to be rebuilt instead of repaired we recommend you contact ENGEO for guidance.

## 6 References

- Brown, L.J. & Weeber, J.H. (1992). Geology of the Christchurch Urban Area 1:250,000. CGD5122. Institute of Geological and Nuclear Sciences.
- Canterbury Earthquake Recovery Authority (2013). Canterbury Geotechnical Database. Retrieved January 2015, from <https://canterburyrecovery.projectorbit.com/cgd>
- Canterbury Maps: Tour back in time through Christchurch in 1941, 1965, 1973, 1984, 1994 and 2011. Retrieved January 2015, from <http://canterburymaps.govt.nz/apps/tourofchch>.
- Canterbury Regional Council (2007). Christchurch City Waterways Survey Maps.
- Christchurch City Council. Floor Levels in Residential Homes in Christchurch. Retrieved January 2015, from <http://www.ccc.govt.nz/homeliving/buildingplanning/floorlevels/index.aspx>
- Christchurch City Council. Rates Information. Retrieved January 2015, from <http://www.ccc.govt.nz/CCC.Web.RatesInfo/homeliving/ratesvaluations/ratesinfo/index.aspx>
- Forsyth, P., Barrell, D. J., & Jongens, R. (2008). Sheet 16 - Geology of the Christchurch Area 1:250,000. Institute of Geological and Nuclear Sciences.
- New Zealand Geotechnical Society (2005). Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes.
- Standards Association of New Zealand (2004). Structural Design Actions, Part 5: Earthquake Actions – New Zealand, NZS 1170.5:2004. Standards New Zealand, Wellington.
- The Ministry of Business, Innovation, and Employment (2012). Guidance - Repairing and Rebuilding Houses affected by the Canterbury Earthquakes.

We further note that some of the data included in this report was extracted from the Canterbury Geotechnical Database (<https://canterburygeotechnicaldatabase.projectorbit.com>), which were prepared and/or compiled for the EQC to assist in assessing insurance claims made under the Earthquake Commission Act 1993. The source maps and data were not intended for any other purpose. EQC and its engineers, Tonkin & Taylor, have no liability for any use of the maps and data or for the consequences of any person relying on them in any way. This "Important notice" must be reproduced wherever this data or any derivatives are reproduced.

## 7 Limitations

- i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Southern Response, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.
- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site inspections and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 03 328 9012 if you require any further information.

Report prepared by



**Stephanie Cherfane**

Geotechnical Engineer

Reviewed by



**Greg Martin, PEngGeol**

Principal Engineering Geologist

*Attachments:*

*- Hand Auger Borehole Logs*

# LOG OF HAND AUGER HA01

Southern Response  
46 Pacific Road  
North New Brighton  
9653

Client : Arrow International Ltd  
Client Ref. : D4404786  
Date : 21/01/15  
Hole Depth : 2.4 m  
Hole Diameter : 50 mm

Shear Vane No :  
Logged By : EG/JW  
Reviewed By : JM  
Latitude : -43.489344  
Longitude : 172.721665

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Scala Penetrometer					
									Blows per 100mm					
	TS	SP	Fine to medium SAND with trace rootlets; brownish grey. Poorly graded, subrounded to subangular [TOPSOIL].				VL		2	4	6	8	10	12
0.5			Fine to medium SAND; grey. Poorly graded, subrounded to subangular.			D								
			Becomes moist at 0.6m depth.											
1.0														
1.5														
2.0														
2.5														
3.0														
3.5														
4.0														

End of Hole Depth: 2.4 m  
Termination Condition: Practical refusal

Hand auger met practical refusal at 2.4 m depth due to hole collapse.  
Scala Penetrometer met target depth at 3.9 m.  
Dip test showed no standing water  
TS=TOPSOIL

# LOG OF HAND AUGER HA03

**Southern Response**  
46 Pacific Road  
North New Brighton  
9653

**Client** : Arrow International Ltd  
**Client Ref.** : D4404786  
**Date** : 21/01/14  
**Hole Depth** : 2.2 m  
**Hole Diameter** : 50 mm

**Shear Vane No** :  
**Logged By** : EG/JW  
**Reviewed By** : JM  
**Latitude** : -43.489203  
**Longitude** : 172.721731

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Scala Penetrometer					
									Blows per 100mm					
	TS	SP	Fine to medium SAND with trace silt and rootlets; brown. Poorly graded. Sub rounded to sub angular [TOPOIL].				L							
			Fine to medium SAND; grey. Poorly graded, subrounded to subangular.											
0.5							D							
			Becomes moist at 0.7 m depth.				L-MD							
1.0		SP												
							M							
1.5														
							MD							
2.0														
							W							
2.5			End of Hole Depth: 2.2 m Termination Condition: Practical refusal											
3.0														
3.5														
4.0														

Hand auger met practical refusal at 2.2 m depth due to hole collapse.  
Scala Penetrometer met practical refusal at 3.2 m depth.  
Dip test showed no standing water.  
TS = TOPSOIL

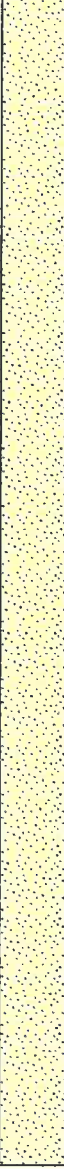
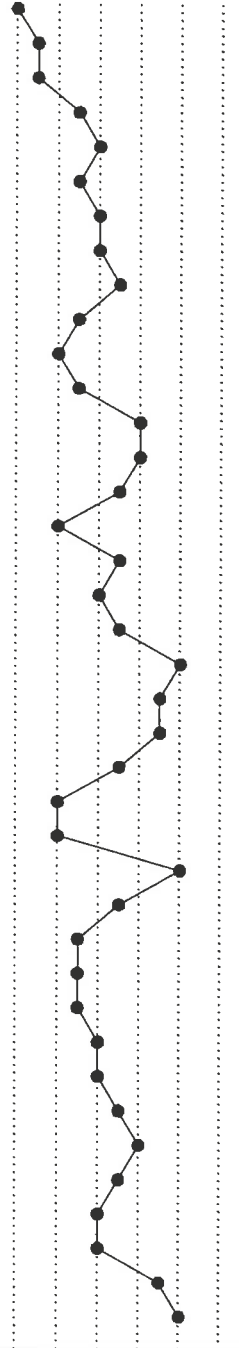
GEOSCIENCE HAND AUGER HA TEMPLATE- SOUTHERN RESPONSE.GPJ NZ DATA TEMPLATE 2.GDT 27/2/15

# LOG OF HAND AUGER HA04

Southern Response  
46 Pacific Road  
North New Brighton  
9653

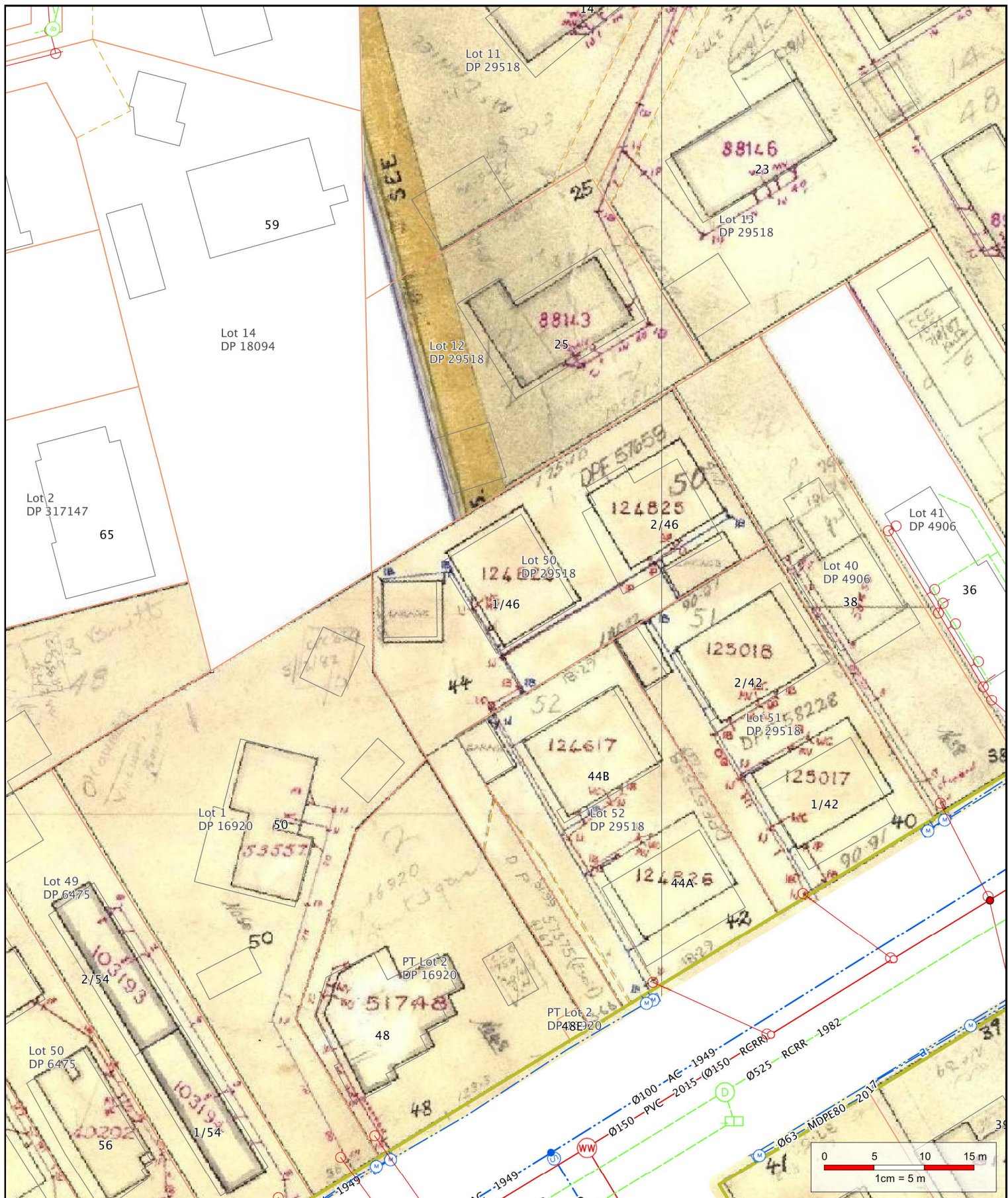
Client : Arrow International Ltd  
Client Ref. : D4404786  
Date : 21/01/15  
Hole Depth : 3.4 m  
Hole Diameter : 50 mm

Shear Vane No :  
Logged By : JW/EG  
Reviewed By : JM  
Latitude : -43.489275  
Longitude : 172.721806

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Scala Penetrometer					
									Blows per 100mm					
									2	4	6	8	10	12
0.5	DUNE SANDS	SP	Fine to medium SAND; grey. Poorly graded, subrounded to subangular.				L-MD							
			Becomes moist at 0.6 m depth.											
1.0														
1.5														
2.0						M	MD							
2.5														
3.0														
3.5														
4.0						W								
End of Hole Depth: 3.4 m Termination Condition: Practical refusal														
Hand auger met practical refusal at 3.4 m depth due to hole collapse. Scala Penetrometer met target depth at 3.9 m. Dip test showed no standing water														

GEOSCIENCE HAND AUGER HA TEMPLATE- SOUTHERN RESPONSE.GPJ NZ DATA TEMPLATE 2.GDT 27/2/15





1 : 500 on A4

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ph: 941-8300 fax: 941-8385

Accuracy not guaranteed. Onsite verification required. Display of data scale dependent, full detail available at 1:500.

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## Private Drainage

### Standard Infrastructure

- Bio Gas
- Condensate Trap
- End Cap
- Inlet
- Outlet
- Valve
- Main
- Cable

### Water Intake/Supply

- Connector
- Bellows
- Connector
- Hydrant

### Water Intake/Supply

- Inlet
- Meter
- Outlet
- Pump
- Restrictor
- Valve
- Air Release
- Butterfly
- Flow restriction
- Gate
- Pressure Activated
- Sluice
- Valve
- Reservoir
- Structure
- Lateral
- Main
- Sub Main

### Wastewater

- End Cap
- Valve
- Air Gap Separator
- Vent
- Eye
- Eye (Vertical)
- Outfall
- Pump
- Junction
- Access
- Flush Manhole
- Inspection Point
- Standard Manhole
- Trap
- Vented Manhole
- Lateral
- Main
- Pressure Main

### Wastewater

- Lateral Fitting
- Local Pressure
- Control Panel
- Boundary Kit
- Tank System
- Site
- Vacuum Chamber
- Vacuum Breaker
- Bend
- Change
- Eye
- Flow Restriction
- Inlet
- Dome Sump
- Double Sump
- Gross Debris Trap

### Stormwater

- Inlet
- Inlet Headwall
- Pipe End
- Silt Trap
- Single Sump
- Soak Pit
- Triple Sump
- Junction
- Standard Manhole
- Outlet
- Pump
- Structure
- Basin
- Lateral
- Main
- Lateral Fitting
- Double Sump

### Stormwater

- Lateral Fitting
- Single Sump
- Soak Pit
- Inspection point
- Manhole
- Pipe Protection
- Abandoned
- Proposed
- Out of service
- Easement









**1/46 Pacific Road  
Subdivision Consents**



## Land Use Resource Consents within 100 metres of 1/46 Pacific Road

Note: This list does not include subdivision Consents and Certificates of Compliance issued under the Resource Management Act.

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### 11 Tedder Avenue

RMA/2001/881

Dwelling with an attached garage which exceeds the 35% site coverage in the Transitional Plan. - Historical Reference RMA20004752

Processing complete

Applied 09/04/2001

Decision issued 07/05/2001

Granted 04/05/2001

### 24 Pacific Road

RMA/2014/732

TEMPORARY ACCOMODATION FOR WORKERS - Historical Reference RMA92025360

Processing complete

Applied 31/03/2014

Decision issued 01/05/2014

Granted 01/05/2014

### 37 Pacific Road

RMA/2001/790

Extension to the first floor of the intrudes into the recession plane. - Historical Reference RMA20004659

Processing complete

Applied 30/03/2001

Decision issued 17/04/2001

Granted 10/04/2001

### 55 Pacific Road

RMA/1995/1590

To erect a second unit where the existing unit does not comply with the 1.8m side yard setback - Historical Reference RES951793

Processing complete

Applied 21/06/1995

Decision issued 10/07/1995

Granted 10/07/1995

### 57 Britannia Street

RMA/1997/1567

To erect a second dwelling and exceed the 20m building length without a 2.4m step in Plan. - Historical Reference RES971752

Processing complete

Applied 02/07/1997

Decision issued 10/07/1997

Granted 10/07/1997

## **57A Britannia Street**

RMA/1997/4100

Transitional Plan - Lot 1 fails to comply with the min. width req. for subdivision of 16m. Proposed Lot 1 has a width between 11.5m and 22m. - Historical Reference RMA511

Processing complete

Applied 27/06/1997

## **59 Pacific Road**

RMA/1998/908

Non-Complying two lot subdivision. - Historical Reference RES980978

Processing complete

Applied 06/04/1998

Decision issued 01/01/1999

Granted 01/01/1999

## **60 Pacific Road**

RMA/2005/2077

Conservatory which intrudes the boundary setback by 1.2m - Historical Reference RMA20020955

Processing complete

Applied 07/09/2005

Decision issued 04/10/2005

Granted 04/10/2005

## **61 Britannia Street**

RMA/2007/142

Conservatory intrudes 3m boundary setback - Historical Reference RMA92007349

Processing complete

Applied 25/01/2007

Decision issued 26/02/2007

Granted 23/02/2007

## **65 Britannia Street**

RMA/1999/2239

2 Lot subdivision with various non compliances - Historical Reference RES990905

Processing complete

Applied 31/03/1999

Decision issued 30/04/1999

Granted 30/04/1999

## 8 Eros Place

RMA/1972/217

Erect a dwelling with a rear yard of 13` - Historical Reference RES9220678

Processing complete

Applied 20/07/1972

Decision issued 07/08/1972

Granted 07/08/1972

## 9 Tedder Avenue

RMA/2011/572

TEMPORARY ACCOMMODATION - Hair studio - Historical Reference RMA92018114

Processing complete

Applied 20/05/2011

Decision issued 23/05/2011

Granted 23/05/2011

## Data Quality Statement

### Land Use Consents

All resource consents are shown for sites that have been labelled with an address. For sites that have been labelled with a cross (+) no resource consents have been found. Sites that have no label have not been checked for resource consents. This will be particularly noticeable on the margins of the search radius. If there are such sites and you would like them included in the check, please ask for the LIM spatial query to be rerun accordingly. This will be done free of charge although there may be a short delay. Resource consents which are on land occupied by roads, railways or rivers are not, and currently cannot be displayed, either on the map or in the list. Resource consents that relate to land that has since been subdivided, will be shown in the list, but not on the map. They will be under the address of the land as it was at the time the resource consent was applied for. Resource consents that are listed as Non-notified and are current, may in fact be notified resource consents that have not yet been through the notification process. If in doubt. Please phone (03)941 8999.

The term "resource consents" in this context means land use consents. Subdivision consents and certificates of compliance are excluded.

### Subdivision Consents

All subdivision consents are shown for the sites that have been labelled with consent details. For Sites that have been labelled with a cross (+) no records have been found. Sites that have no label have not been checked for subdivision consents. This will be particularly noticeable on the margins of the search radius. If there are such sites and you would like them included in the check, please ask for the LIM spatial query to be rerun accordingly. This will be done free of charge although there may be a short delay.

The term "subdivision consents" in this context means a resource consent application to subdivide land. Non subdivision land use resource consents and certificates of compliance are excluded.

This report will only record those subdivision applications which have not been completed i.e once a subdivision has been given effect to and the new lots/properties have been established the application which created those lots will not be shown

All subdivision consent information is contained on the map and no separate list is supplied