

# Approved Building Consent Documents

**Please Note: A copy of the stamped approved documents must be available on site for all inspections.**

## Inspection booking timeframes

Call received	before 3pm inspection will be done	after 3pm inspection will be done
Monday	Wednesday	Thursday
Tuesday	Thursday	Friday
Wednesday	Friday	Monday
Thursday	Monday	Tuesday
Friday	Tuesday	Wednesday

Building inspections and enquiries phone: 03 347 2839

**Please ensure all work for inspection is ready the day before. Incomplete work requiring re-inspection will incur an additional inspection fee.**



**RECORD OF TITLE  
UNDER LAND TRANSFER ACT 2017  
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land  
Transfer Act 2017**



  
R.W. Muir  
Registrar-General  
of Land

**Identifier** 198071  
**Land Registration District** Canterbury  
**Date Issued** 15 August 2005

**Prior References**  
CB32K/656

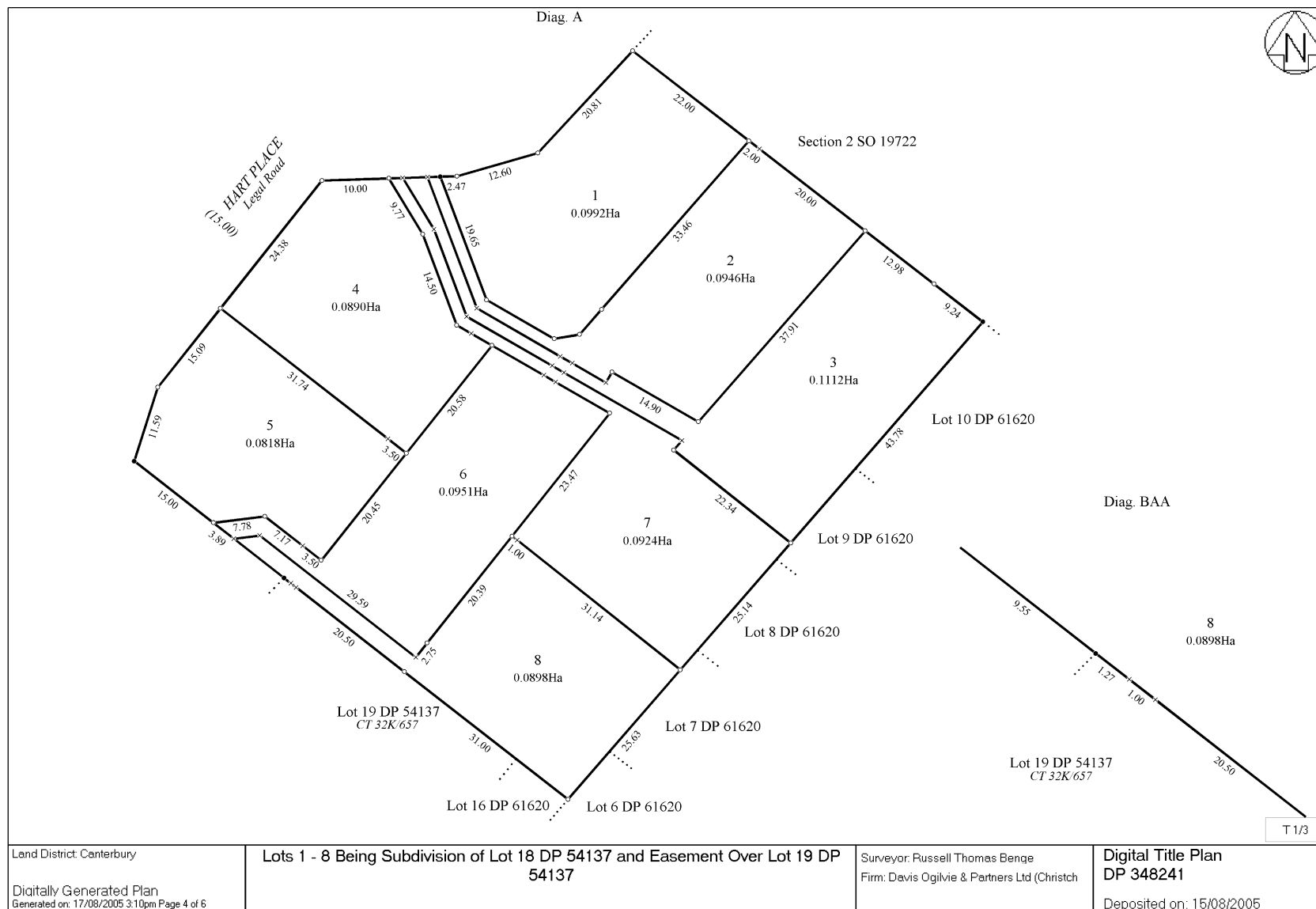
**Estate** Fee Simple  
**Area** 924 square metres more or less  
**Legal Description** Lot 7 Deposited Plan 348241

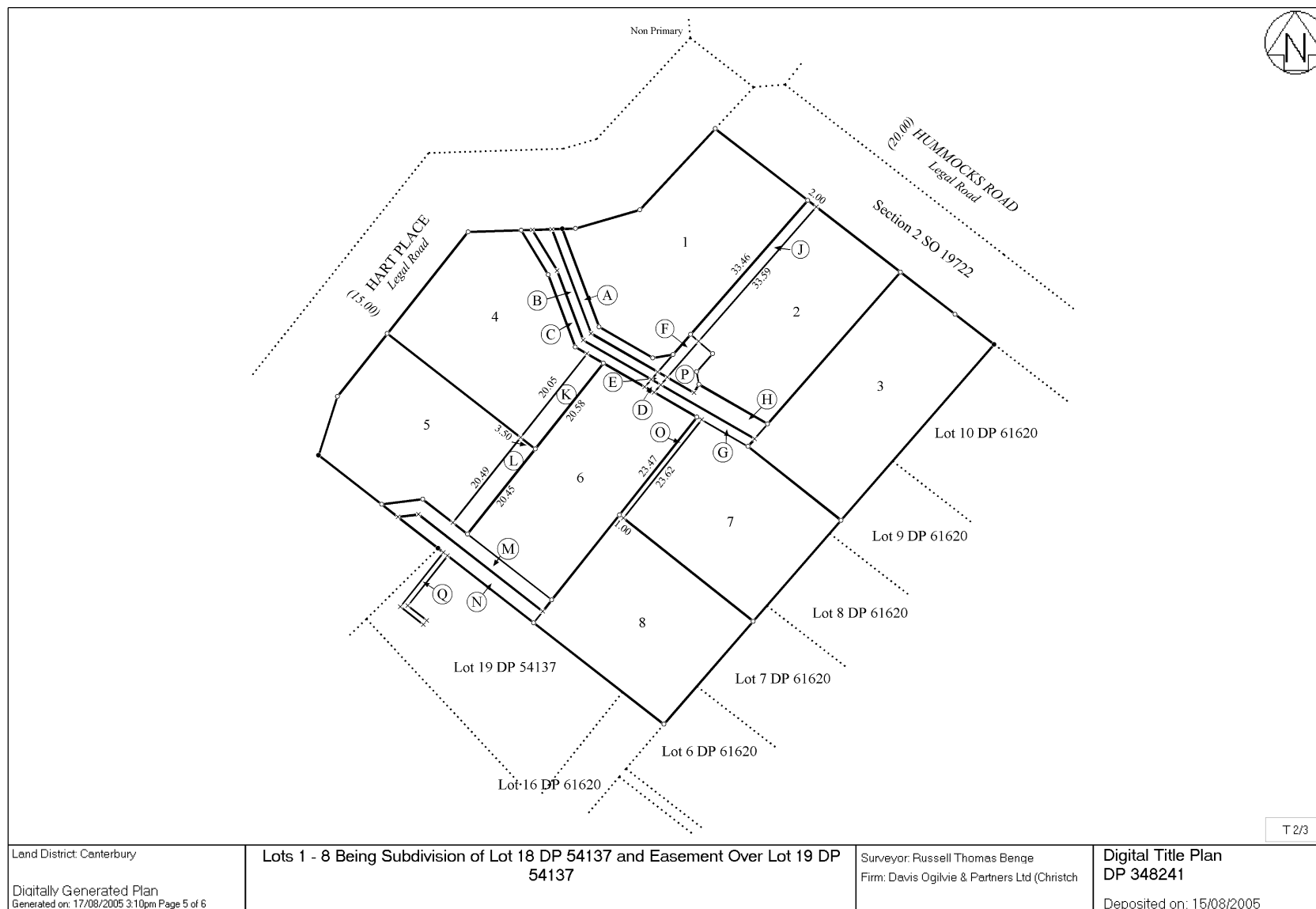
**Registered Owners**  
Lindsay Louis Munro and Hugh Garth Munro

**Interests**

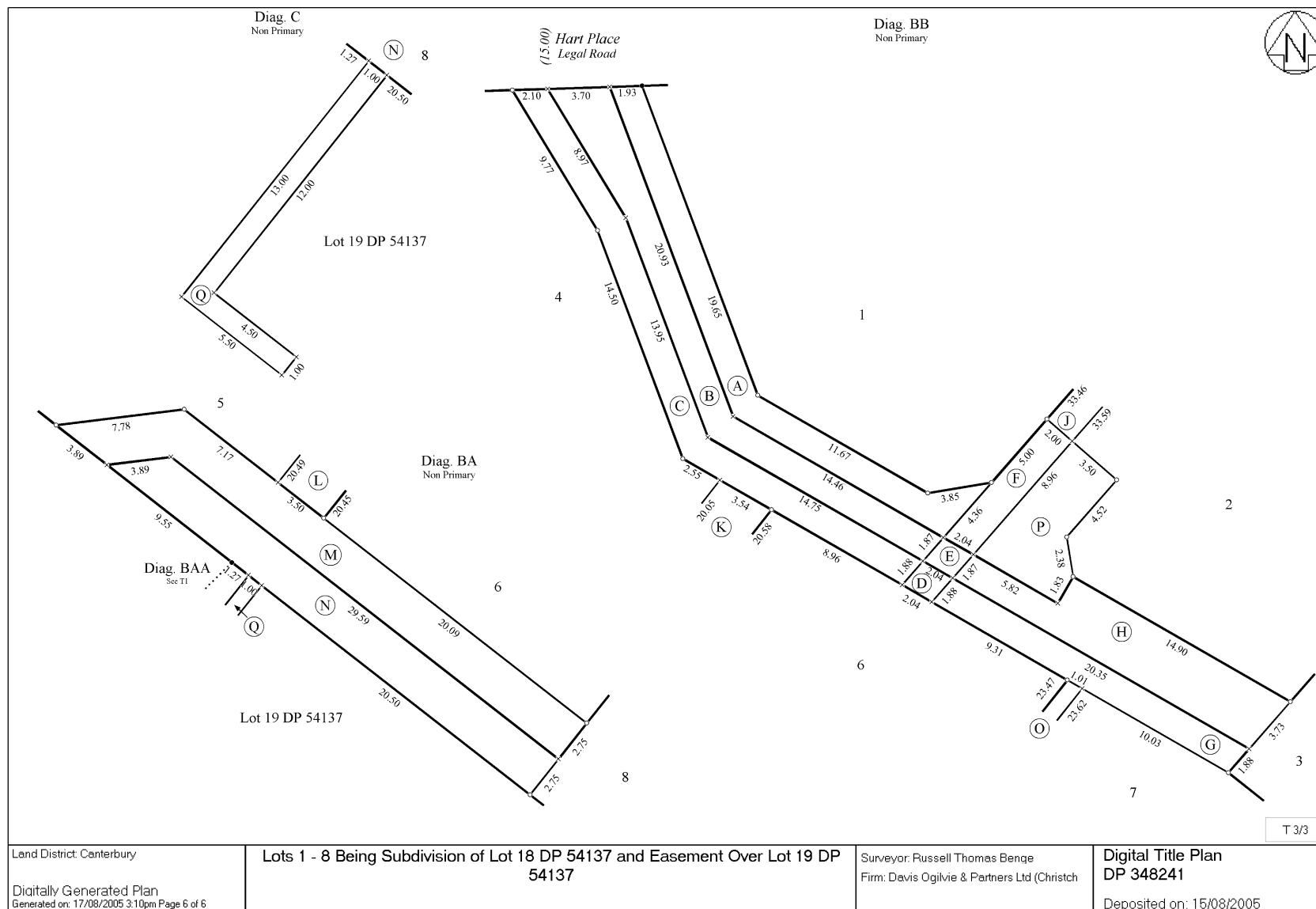
Subject to a right to drain sewage in gross over part marked C,D on DP 348241 in favour of Selwyn District Council created by Easement Instrument 6534113.5 - 15.8.2005 at 9:00  
The easements created by Easement Instrument 6534113.5 are subject to Section 243 (a) Resource Management Act 1991  
Subject to a right to convey electricity in gross over part marked C,D,G on DP 348241 in favour of Orion New Zealand Limited created by Transfer 6534113.6 - 15.8.2005 at 9:00 am  
The easements created by Transfer 6534113.6 are subject to Section 243 (a) Resource Management Act 1991  
Subject to a right of way and a right to convey water over part marked C,D,G, a right to convey electricity over part marked C,G,O, a right to convey telecommunications over part marked C,D,G,O all on DP 348241 created by Easement Instrument 6534113.7 - 15.8.2005 at 9:00 am  
Appurtenant hereto is a right of way and a right to convey water and telecommunications created by Easement Instrument 6534113.7 - 15.8.2005 at 9:00 am  
The easements created by Easement Instrument 6534113.7 are subject to Section 243 (a) Resource Management Act 1991  
Land Covenant in Transfer 6534113.8 - 15.8.2005 at 9:00 am

SDC - Approved Building Consent Document - BC221292 - Pg 2 of 33 - 5/10/2022 - abelaa









**DURABILITY:**

The timber treatment specification is to be in accordance with NZS 3602:2003, NZS 3640:2003 and any specific requirements of the relevant Building Consent Authority (BCA)

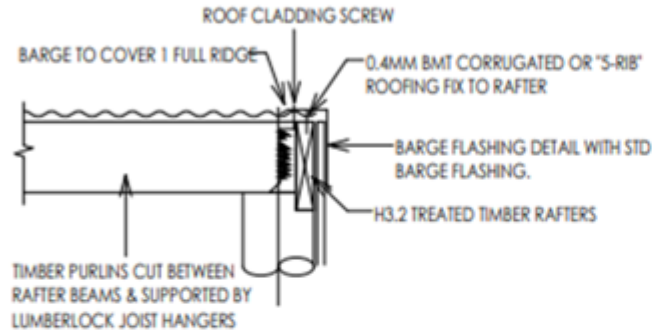
Where fixings are to be used in locations that could be exposed to regular wetting and on timber treated to a minimum of H3.2, our recommendation is to seek clarification from the relevant BCA.

In sea spray areas as defined in NZS3604:1999, it is recommended to seek clarification from the relevant BCA regarding any additional protection where fixings are exposed to the presence of windblown salts.

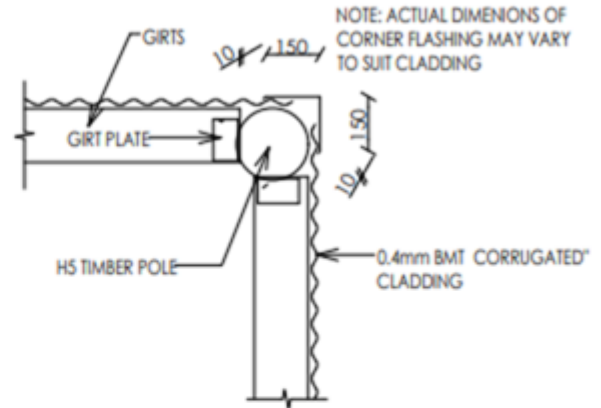
**TIMBER TREATMENT SCHEDULE (To be completed Building Consent Applicant):**

Wood-based building component	Tick if Applicable	Species or Type	Level of Treatment to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>
Purlins (components supporting roofing material)	✓	RADIATA VH9	H3.2
Rafters (component supporting the purlins)	✓	RADIATA VH9	H3.2
Poles (rounded –typically embedded into ground)	✓	NORMAL DENSITY	H5
Posts (rectangular –embedded into ground)			
Posts (rectangular –fixed to surface)			
Girts (structure supporting wall cladding)	✓	RADIATA VH9	H3.2
Props (component supporting the rafter)	✓	RADIATA VH9	H3.2
Blocking (component separating the rafter)	✓	RADIATA VH9	H3.2
Plywood Gusset (component joining rafter – rafter)			
Trusses (structure supporting roofing material)			
T-Stiffener (component under bottom chord of truss)			
Purlin Panel and Bottom Chord Brace (structure linking trusses-purlins and trusses-trusses)			

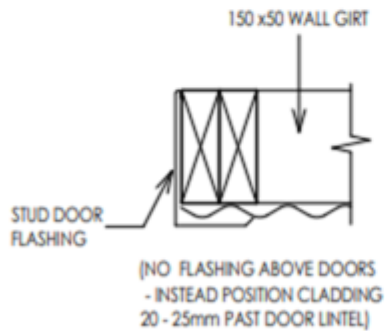
## STANDARD FLASHING DETAIL –



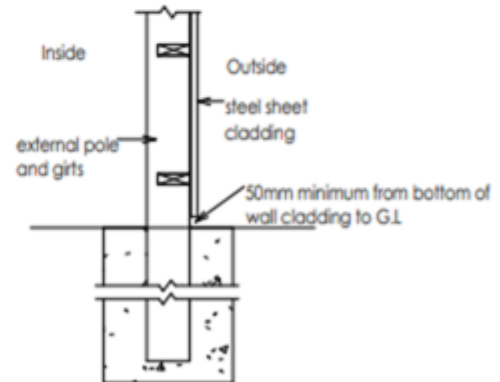
33 -BARGE DETAIL WITH STD BARGE FLASHING



30 -CORNER FLASHING



34 -DOOR POST FLASHING DETAIL



35 -CLADDING CLEARANCE TO GROUND



▼ 3A Hart Pl, Lake Coleridge, X Q



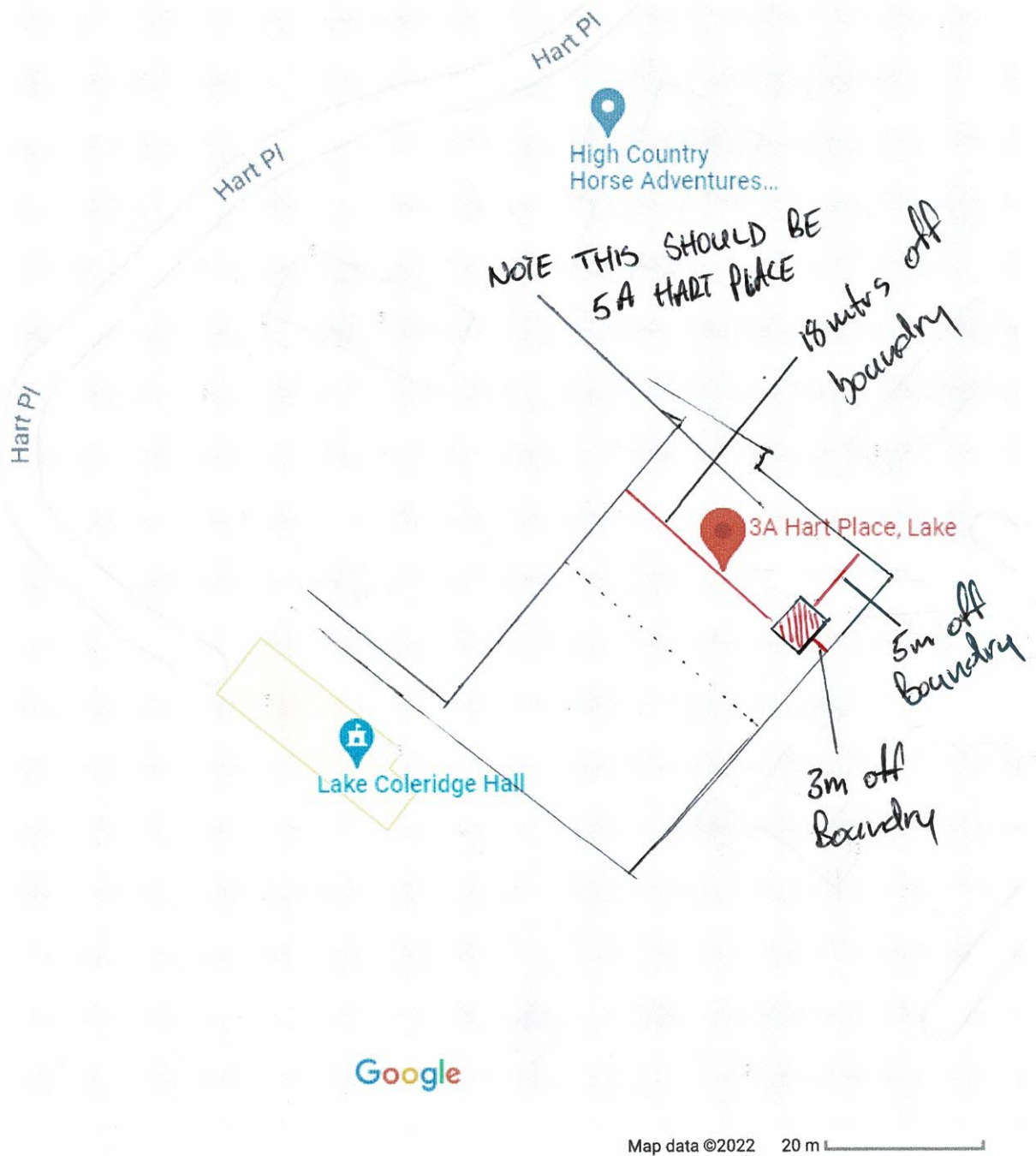
SDC - Approved Building Consent Document - BC221292 - Pg 8 of 33 - 5/10/2022 - abelaa



6m

1,481,127.016389 5,197,304.360853 Meters







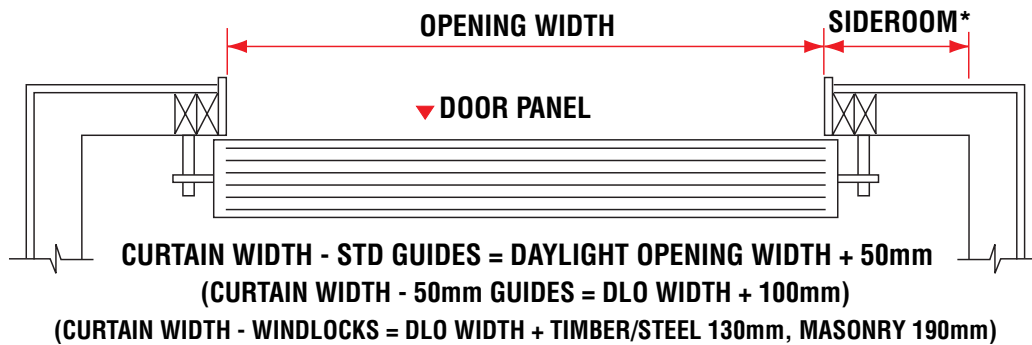


# SERIES-A ROLLER DOOR FRAMING INSTRUCTIONS

**DOMINATOR®**

FOR SERIES-A ROLLER DOORS UP TO 3.2M HIGH

**Note:** With ongoing product developments, the manufacturer retains the right to change products & specifications without notification. If a specification is critical to the end use, please discuss with your Local Dealer first. Illustrations are not accurate representations of product, and are for illustrative purposes only, not to scale. All measurements should be made by your Local Dealer for clarification.

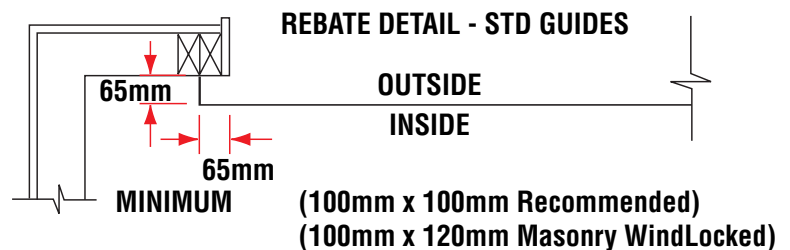
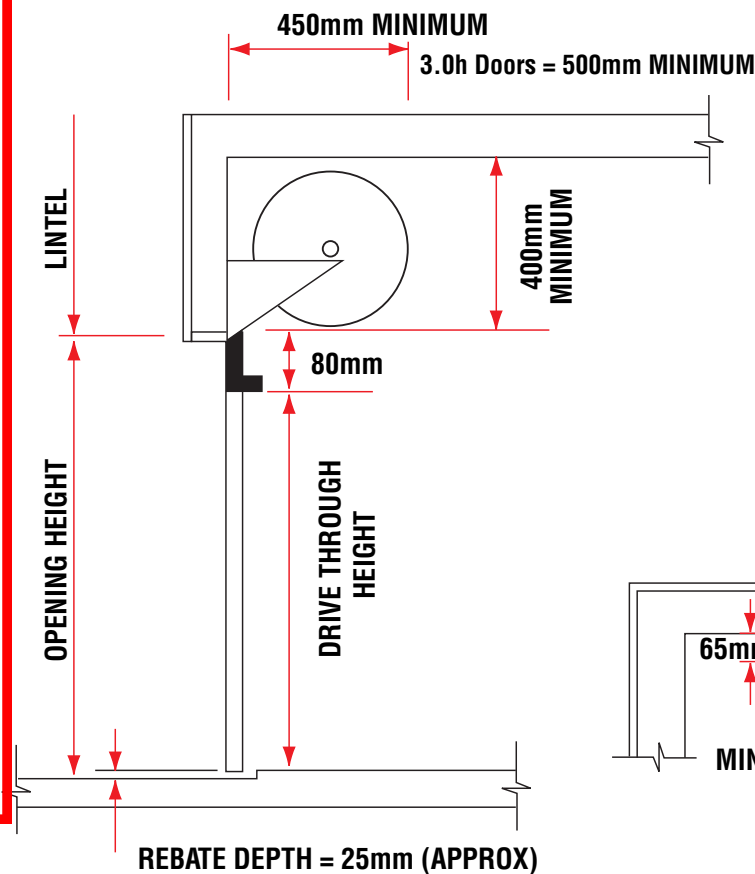


**\* SIDEROOM - STD GUIDES**  
**MANUAL OPERATION = 80mm MIN.**  
**AUTOMATIC OPERATION = 135mm MIN.**

**\* SIDEROOM - 50mm GUIDES**  
**MANUAL OPERATION = 125mm MIN.**  
**AUTOMATIC OPERATION = 185mm MIN.**

**\* SIDEROOM - WINDLOCKS**  
**TIMBER/STEEL = 135mm MIN.**  
**MASONRY = 165mm MIN.**  
**(Automation not recommended with Windlocks.)**

**NOTE:** For Automatic operation a power point on wall within 1.0m of the unit is required



Contact:

**DOMINATOR®**

© Copyright 2020

[www.dominator.co.nz](http://www.dominator.co.nz)  
 0800 DOMINATOR (366 462)



# ZINCALUME® Coated Steel

For enhanced  
corrosion resistance



# Continuing a tradition of dependability

ZINCALUME® coated steel combines the barrier protection of aluminum with the sacrificial protection of zinc, giving the advantages of both metals. The resulting alloy coating enhances corrosion resistance, making it ideal for applications like roofing and cladding.

COLORSTEEL® consists of a ZINCALUME® steel substrate to which a pre-painted finish system is applied. This system offers additional corrosion resistance while providing a range of colours to compliment any project. COLORSTEEL® Endura® is ideal for many applications, while COLORSTEEL® Maxx® is specifically developed to withstand higher atmospheric salt concentrations and is incredibly resistant to corrosion.

Please refer to the Environmental Categories & Product Maintenance Recommendations Brochure for detailed information on our warranties and the environments they are offered in.



## Appearance

ZINCALUME® coated steel has a finely spangled silvery matt finish. After exposure the surface finish darkens over time as the resin coating weathers away. This can occur at varying rates due to differences in aspect, degree of shading and the effect of rain rivulets over the ZINCALUME® surface.

This change is a natural one and is visual only. The protective properties of the product are not affected.

COLORSTEEL® is available in a wide variety of colours to suit every project.

While COLORSTEEL® products are designed for durability, all paint coatings will deteriorate over time. Therefore, at some stage, it will be necessary to repaint to avoid serious deterioration of the product. The main consideration is the paint coating integrity to perform a suitable bond for the overpainted system so that the durability of the new coating system is maintained. New Zealand Steel's experience would indicate that this period to first repaint is around 15 years. However, local climatic conditions, building design and paint colour can have a significant influence on the performance of the paint system. Therefore you may need to consult New Zealand Steel or paint suppliers, to help assess the most suitable time to repaint. COLORSTEEL® products may be readily over painted, after suitable preparation, for aesthetic reasons.

### WEATHERING OF COLORSTEEL® PRODUCTS

All building products will weather over time. The weathering of COLORSTEEL® products will result in changes to gloss and colour. Factors which influence the change are environmental pollution, UV levels, building orientation and paint colour. When adding to an existing building, consideration should be given to the weathered appearance of the COLORSTEEL® products in the older part of the building.



# Painting ZINCALUME® coated steel

ZINCALUME® coated steel is readily paintable using good quality primers and water-based acrylic topcoats. Paint manufacturers' instructions should be followed.

Dirt, grease and any loose material must be cleaned off so the surface is clean and dry prior to the first coat being applied.

However, it is important to note the ZINCALUME® coated steel warranty does not cover failure caused by post paint systems. Where painted roofing or cladding is desired New Zealand Steel recommends the use of COLORSTEEL® specified for the environmental category of the building project.

## Corrosion resistance

ZINCALUME® coated steel has long term, corrosion resistance in many atmospheric conditions.

Test sites from around the world have provided a wealth of information over the past 50 years on the comparative performance of galvanised versus ZINCALUME® coated steel products.

Corrosion rates are determined by exposing samples of ZINCALUME® coated steel and galvanised steel on standard test racks and regularly monitoring the coating performance over a number of years.

Though corrosion rates vary according to the severity of conditions, ZINCALUME® coated steel out-performs galvanised coatings in almost all environments.

## Flashings and accessories

Flashings and ridge capping should be manufactured from the same coating system as used for the main roof. Extended ridge caps, soft zinc, or practices such as cutting and notching are recommended.

Where penetration flashings are required, neoprene or silicone rubber, EPDM, aluminium or soft zinc all give excellent performance. Lead is not compatible with ZINCALUME® coated steel and COLORSTEEL® so must not be used as it will promote corrosion.

## Marking

Black lead pencils must never be used for marking ZINCALUME® coated steel or COLORSTEEL® products. The carbon in the pencil promotes corrosion that will etch the surface, leaving a permanent mark.

## Where not to use

- Formwork in contact with wet concrete
- Embedded in concrete
- Animal shelters where ammonia levels are constantly high
- Fertiliser storage sheds and containers
- Culverts, or where the product is buried in the ground
- Water tanks
- Highly alkaline environments (e.g. cement manufacture)
- Coolroom products.

## Agricultural Use

ZINCALUME® coated steel and COLORSTEEL® can be used for roofing and cladding in most agricultural buildings. However, some intensive animal farming methods used for animals such as poultry, calves or pigs result in the animals being enclosed for significant periods of the year.

These conditions will result in the development of an alkaline environment due to the ammonia generated by the animal waste. In these conditions, ZINCALUME® coated steel or COLORSTEEL® prepainted steel should not be used. Contact New Zealand Steel Limited for specialist advice.

Other farming methods involve the occasional shedding of animals for a limited period. Buildings involved in these processes include cow sheds, shearing sheds and covered yards. Typically these buildings house animals for only short periods of the year and/or include very high levels of ventilation.

In a non-intensive environment the build up of ammonia is essentially non-existent. Under these conditions ZINCALUME® steel and COLORSTEEL® products will perform as well or better than galvanised steel. For information about warranties and your shed, contact New Zealand Steel Limited.

Top dressing chemicals are generally a mixture of lime (calcium carbonate) and fertiliser (superphosphate). Limestone is alkaline and superphosphate is acidic. The reaction with ZINCALUME® steel and COLORSTEEL® products is therefore dependent on the combination of chemicals applied.

## Maintenance

All roofing and cladding products are subject to the cumulative effects of weather, dust and other deposits. Normal rain washing will remove most accumulated atmospheric contaminants from roofs. Refer to the Environmental Categories & Product Maintenance Recommendations Brochure for more information.

### UNWASHED AREAS

ZINCALUME® coated steel and COLORSTEEL® performs well in most areas not regularly washed by rainwater. However, as with any steel based product, regular washing of areas not naturally rain washed is essential to ensure that a satisfactory life is realised from the product.





## Working with ZINCALUME® and COLORSTEEL®

### PROTECTION AT CUT EDGES

At the cut edge, ZINCALUME® coated steel provides similar protection to galvanised coatings. The zinc/aluminium alloy coating of ZINCALUME® coated steel provides galvanic protection to bare steel exposed at cut edges and by deep scratches.

### PASSIVATION

Surface passivation enhances the protection of the ZINCALUME® coated steel product during storage, forming, handling and fixing. It largely eliminates the need for rollforming oils, offers improved wet stack corrosion resistance and generally makes the product more mark resistant during handling and fixing.

### HANDLING AND STORAGE

If ZINCALUME® coated steel or COLORSTEEL® becomes wet during storage, the product should be immediately separated, wiped with a clean cloth and placed in a position where it can completely air dry.

### FORMING

ZINCALUME® coated steel is suitable for all but the most severe forming operations. With ZINCALUME® coated steel, the passivation system acts as a dry lubricant and in most cases will eliminate the need for additional lubrication in most forming operations. Solvent-based lubricants must not be used.

With COLORSTEEL®, tight tension bends in the finished product should be avoided as small cracks may be formed which expose the metal substrate to the atmosphere. For optimum corrosion performance no visible microcracking should be present in the finished product. There are many factors, substrate, paint, bend diameter and forming practice, that affect the tendency to microcrack. Therefore, it is not practical to have a fixed bend diameter that guarantees no microcracking. Most products, formed in well designed and operated equipment, will not have microcracks at tension bends. Solvent-based lubricants must not be used. It is important that visual

checks for microcracking be made on the finished product to ensure a high quality standard is maintained. Products with microcracking on the tension bends will show earlier signs of corrosion when used in unwashed areas in severe environments. The use of corrugated profiles in severe and 'special conditions' (e.g. Geothermal) will help to ensure greater durability.

### JOINING AND SEALING

ZINCALUME® coated steel and COLORSTEEL® cannot be soldered. To join use a neutral cure silicone sealant in conjunction with mechanical fasteners such as blind rivets. Care should be exercised in the choice of rivets. Aluminium rivets are recommended. Monel, stainless steel and carbon steel rivets must not be used. Edge sealing of COLORSTEEL® products is not recommended.

### FASTENERS

The fastener durability should equal or exceed that of the roofing or cladding product. Fasteners provided by external suppliers should conform with the requirements of AS3566 (and Amendments) "Screws – Self Drilling for the Building and Construction Industries". Fasteners should be suitable for the environment and comply with the following conditions:

- Stainless steel fasteners should not be used with ZINCALUME® or COLORSTEEL® coated steel in any environment
- Lead headed nails must not be used
- Use low carbon (<15%) non-conductive sealing washers
- Fasteners with heavy zinc or zinc-tin coatings or zinc alloy coated heads complying with AS3566 Class 3 and 4 are fully compatible with all products.
- Fasteners used on COLORSTEEL® products should be factory coated to provide an accurate colour match with COLORSTEEL® finishes.

For more information about COLORSTEEL® Products call **0800 697 833** or visit **colorsteel.co.nz**

**NOTE:** Buyers and users of New Zealand Steel Limited products and services must make their own assessment of the products for their own conditions. All queries regarding product specification, purpose or application should be directed to New Zealand Steel Limited, phone 0800 697 833. New Zealand Steel Limited reserves the right to modify products, techniques, equipment and statements to reflect improvements in the manufacture and application of its products. The information contained in this brochure is supplied without prejudice to New Zealand Steel Limited's standard terms and conditions of sale. In the event of conflict between this information and the standard terms and conditions, the standard terms and conditions prevail. COLORSTEEL®, COLORSTEEL® Maxx® and COLORSTEEL® Endura® are registered trademarks of New Zealand Steel Limited. ZINCALUME® is a registered trademark of BlueScope Steel Limited.

Copyright© New Zealand Steel Limited, October 2018. 113916.





# CORRUGATE

Corrugate is one of New Zealand's most used roofing profiles. This timeless classic can recapture traditional styles on a typical kiwi villa roof, as well as set trends as a modern roofing solution, wall cladding or fencing profile.



SDC - Approved Building Consent Document - BC221292 - Pg 16 of 33 - 5/10/2022 - abeta



**FREEMAN**  
GROUP E.R. FREEMAN LTD

[www.roofing.co.nz](http://www.roofing.co.nz)

**FREEMAN**  
ROOFING

Nelson | 03 544 3108

**BROCKELSBY**  
ROOFING PRODUCTS

Wellington | 04 566 1971

**ROOFLINE**  
MARLBOROUGH

Blenheim | 03 578 8793

**CANTERBURY**  
LONG RUN ROOFING ASHBURTON

Ashburton | 03 307 0593

**CANTERBURY**  
LONG RUN ROOFING TIMARU

Timaru | 03 688 7224

**ROOFING**  
SOLUTIONS

Dunedin | 03 488 2881

**QUEENSTOWN**  
ROOFING

Queenstown | 03 442 3883

**WANAKA**  
ROOFING

Wanaka | 03 443 1250





All profile dimensions are nominal



#### Versatile

Corrugate can be used either vertically or horizontally as a cladding and is ideal for feature walls, fences and screens.



#### Long Run

Modern roll forming technology allows Corrugate roofing and cladding to be manufactured in continuous lengths.



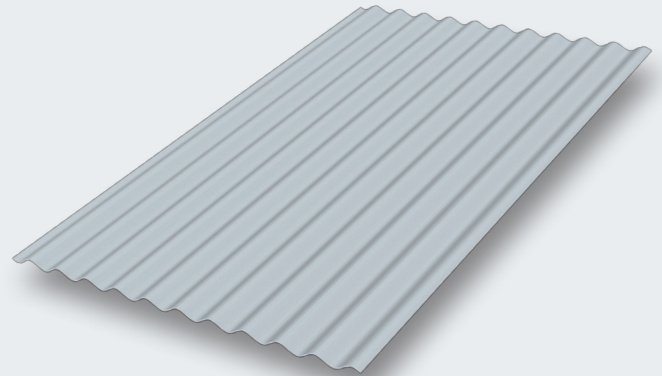
#### Colour Choice

A wide range of standard colours is available with additional colours and coatings available on request.



#### Curving

Corrugate is ideal for roll curving when manufactured from .55mm G300 steel. It can be machine rolled to a minimum inside radius of 400mm for a variety of uses e.g barrel ridges, corners on horizontally clad walls, or bull nose curves.



## MATERIALS & DURABILITY

Corrugate is available in:

	Thickness (BMT)	
	.40mm	.55mm
Colorsteel®	G550	G300 + G550
Zincalume®	G550	G300 + G550
Galvsteel™	G550	G300 + G550
Aluminium (plain & prepainted)	.70mm	.90mm

Also available in other non-ferrous metals.

Various types of coatings are available to suit all environments including industrial and coastal conditions.

For optimum performance, the severity of the environment in which the cladding will be installed should determine both the metal and type of coating to be used.

## DESIGN REQUIREMENTS

The minimum pitch for Corrugate is 8°.

Corrugate will spring curve to a minimum radius of 12m for .40mm BMT G550.

Specifications and product performance statements for specific projects are available upon request prior to project commencement.

## ROOFING ACCESSORIES

A full range of accessories including rainwater goods, flashing, underlays, fasteners and matching translucent sheeting are available.

For additional information please refer to:

- New Zealand Steel Installers Guide
- New Zealand Steel Specifiers & Builders Guide
- New Zealand Steel Metal Roof and Wall Cladding Code of Practice

## MAINTENANCE

To Prevent the accumulation of dirt or other material not removed by rain, manual washing is required.

Recommended washing frequency based on environment:

	Environmental conditions	
	Severe	Moderate
Cladding	Every 6 months	Every 12 months
Sheltered Areas*	Every 3 months	Every 6 months

\*Areas that do not receive adequate rain washing e.g. soffits, wall cladding under eaves, underside of gutters, fascias, sheltered areas of garage doors, unwashed roof areas.

Surfaces should not be in continuous contact with moisture and all debris must be removed (applies mainly to gutters).

With the first sign of surface corrosion the affected areas should be cleaned, spot primed and repainted. Any fixings that have deteriorated to a point where leakage is evident should be replaced.

Fading will occur over time. Periodic over-painting will be necessary to retain aesthetic value.

## WARRANTY

Corrugate is covered by warranty for:

- Coating performance
- Corrosion resistance
- Substrate integrity

Warranty is subject to the use of the appropriate product for the environment.

A written warranty is available on request.

## MAXIMUM SPAN

For 1.1kn Concentrated Load for G550 Steel

Location of span	Thickness (BMT)	
	.40mm	.55mm
Roof End Span	700	1000
Roof Intermediate Span	1000	1500
Wall End Span	1200	1700
Wall Intermediate Span	1800	2400

Single spans should be limited to 80% of the above end spans.

Purlin spacing should be reduced in high traffic areas or areas supporting items such as air conditioning units or walkways that are provided for maintenance.

## FASTENINGS

Recommended roof fasteners:

Nails	60mm
Timbertites	12g x 50mm
Steeltites	12g x 35mm

Wall fastenings also available. The fastener and its coatings must be compatible and suitable for environment and roofing product.

## SHEET COVER

1 x Sheet	838mm
2 x Sheet	1600mm
3 x Sheet	2362mm
4 x Sheet	3124mm
5 x Sheet	3886mm
6 x Sheet	4648mm
7 x Sheet	5410mm
8 x Sheet	6172mm
9 x Sheet	6934mm
10 x Sheet	7696mm

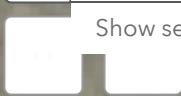
## Flashing, Cladding, Rain water and Floor Details

Barge	Barge Cap	<input checked="" type="checkbox"/>	Rolled Over	<input type="checkbox"/>	N/A	<input type="checkbox"/>
Corners	Flashings	<input checked="" type="checkbox"/>	Rolled Around	<input type="checkbox"/>	N/A	<input type="checkbox"/>
P A Door	Side Flashing	<input checked="" type="checkbox"/>	Head Flashing	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Roller Door	Side Flashing	<input checked="" type="checkbox"/>	Head Flashing	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Roof Cladding	Zincalume	<input type="checkbox"/>	Colour Steel	<input checked="" type="checkbox"/>		
Wall Cladding	Zincalume	<input type="checkbox"/>	Colour Steel	<input checked="" type="checkbox"/>		
Rain Water	To Ground	<input checked="" type="checkbox"/>	To Soak Pits	<input type="checkbox"/>		
Floor	Earth	<input type="checkbox"/>	Concrete	<input type="checkbox"/>		



3 Hart Place, Lake Coleridg X Q

Show search results for 3 Hart ...



SDC - Approved Building Consent Document - BC221292 - Pg 19 of 33 - 5/10/2022 - abelaa



Environmen



1,481,141.138782 5,197,301.009471 Meters

Project: 22343

23 June 2022

Darfield ITM

By email: [peter@darfielditm.co.nz](mailto:peter@darfielditm.co.nz)

Attention: Peter Butler

## PROPOSED SHED – 3A HART PLACE, LAKE COLERIDGE VILLAGE SITE SOIL INVESTIGATION

Thank you for engaging Richards Consulting Engineers (RCE) to undertake a site soil investigation at the above address and report the findings. Please find outlined below a summary of the site soil investigation and a conclusion on the suitability of the sub-soils to support the proposed shed.

### 1.0 SUMMARY

The site subsoils have soft upper layers with 300kPa bearing not encountered until 1.7m and 200kPa at 1.0m depth. This poor material is well known in this location of the village due to the previous shelter belt removal

The proposed importance level 1 shed at 3A Hart Place may concrete pile foundations embedded down to a minimum 1.7m bgl to achieve 300kPa. Alternatively, SED may be completed on the concrete pile foundations to allow for minimum 1.0m embedment, where a minimum bearing capacity of 200kPa can be found. If a concrete slab foundation is required this will need to be founded on hardfill to a depth of 1.0m and we recommend that this is not connected to the primary structure or foundations.

During the excavation for the foundations if any organic material from the old shelter belt is discovered it must be removed and replaced with compacted gravel fill.

### 2.0 PROPOSED STRUCTURE

We understand the structure is an importance level 1 shed supplied by Darfield ITM. Its proposed location is 3m off the South-East boundary, 5m off the North-East boundary, and 18m off the North-West boundary.

### 3.0 SITE DESCRIPTION

The site has a legal description LOT 7 DP 348241. The site is relatively flat and covered in grass. There are minor depressions in the ground and these are assumed to be a result of the backfill settling after the shelter belt was removed. A review of historical images from Canterbury Maps shows there was a large shelter belt at the proposed location of the structure. This shelter belt was removed between 40-50 years ago.



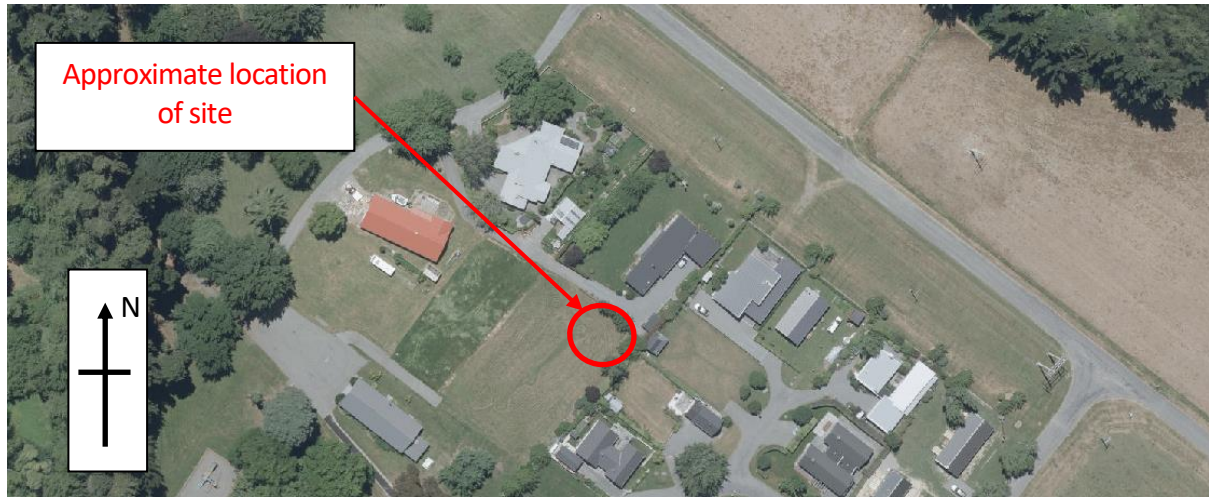


Figure 1: Most Recent Aerial Imagery of Site (Canterbury Maps)

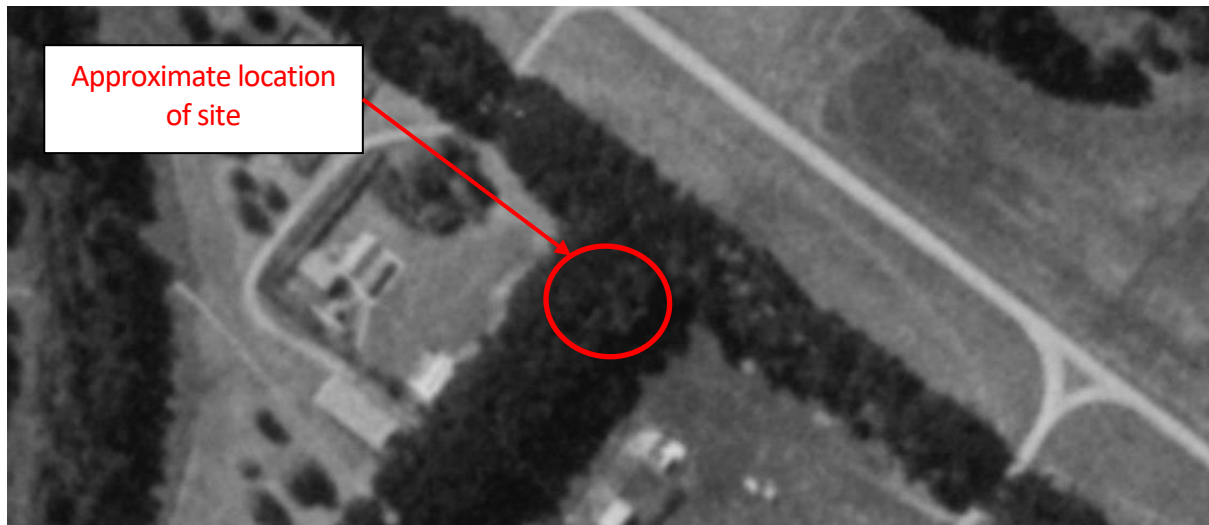


Figure 2: 1965-1969 Aerial Imagery of Site (Canterbury Maps)

#### 4.0 SHALLOW SOIL INVESTIGATION

##### 4.1 Site Investigation

The shallow soil investigation was undertaken on the 20<sup>th</sup> of June 2022 and consisted of a visual site walkover, a total of four Scala Penetrometers, and one hand auger. Please refer to the attached site plan for the approximate test locations and the attached soil investigation test results. The maximum depth reached was 1.5m with the hand auger, and 1.8m with the Scala Penetrometer. The hand augered boreholes were logged in accordance with the procedures in the New Zealand Geotechnical Society 'Guidelines for the Field Classification and Engineering Description of Soil and Rock for Engineering Purposes' (2005).

The following soil strata were identified by the hand auger investigations:

Table 1: Soil Strata Hand Auger 1

Depth	Strata
0 – 300mm	TOPSOIL
300 – 500mm	Clayey SILT; Brown, Soft, Moist
500 – 600mm	Clayey SILT with trace tree roots; Brown, Soft, Moist
600 – 1000mm	Clayey SILT, Brown, Firm, Moist
1000 – 1500mm	Clayey SILT, Brown, Firm, Wet
1500mm	Test terminated (unable to penetrate)

The Scala Penetrometer test found the ultimate bearing capacity of 300kPa from a depth of 1.7m bgl and 200kPa from a depth of 1.0m bgl. The groundwater table was not encountered.

#### 4.2 Subsoil Desktop study

The geology of the site as shown in the GNS Science (2014) online map (Scale 1:250K) shows that the area comprises OIS2 (Late Pleistocene) river deposits which are described as “Generally unweathered; variable mixtures of gravel/sand/silt/clay forming extensive terraces or plains.”.

An investigation using New Zealand Geotechnical Database, looking into the bore logs nearby the test site, was carried out to check the consistency of the results obtained. A summary of the results of this bore log investigation is given in the following table.

*Table 2: Borelogs from the New Zealand Geotechnical Database*

Bore Log	Distance to Site	Depth of soil type	Strata description
HA-DCP_161244	25m E	0 – 0.15m 0.15 – 0.5m 0.5 – 1.0m  1.0 – 1.5m 1.5m	<ul style="list-style-type: none"> <li>• TOPSOIL</li> <li>• SILT; light brown, dry, non-plastic</li> <li>• SILT with trace organics, light brown with some dark brown mixed, dry, non-plastic, organics, amorphous</li> <li>• SILT, light brown, dry, non-plastic</li> <li>• End of hole (Effective refusal in SILT)</li> </ul>
HA_153330	90m S	0 – 0.35m 0.35 – 1.5m  1.5 – 2.0m  2.0 – 2.1m 2.1 – 2.7m  2.7 – 2.9m  2.9 – 3.0m 3.0m	<ul style="list-style-type: none"> <li>• TOPSOIL</li> <li>• Silty fine SAND; light brown, Firm, moist, non-plastic</li> <li>• SILT with trace fine sand; light brown. Stiff to very stiff. dry to moist, non-plastic.</li> <li>• Moist to wet</li> <li>• Silty fine SAND; greyish brown, Medium dense, wet to saturated</li> <li>• Fine to coarse SAND; greyish brown. Medium dense, wet</li> <li>• Trace fine sub-rounded gravel</li> <li>• End of hole</li> </ul>

## 5.0 HAZARDS

### 5.1 Liquefaction

The site is described as having a small chance of liquefaction during strong earthquake shaking as stated in Selwyn liquefaction susceptibility (2006). The site was tested to an ULS event without significant liquefaction (Darfield earthquake, 2010). Therefore, the risk of liquefaction on the site is low.

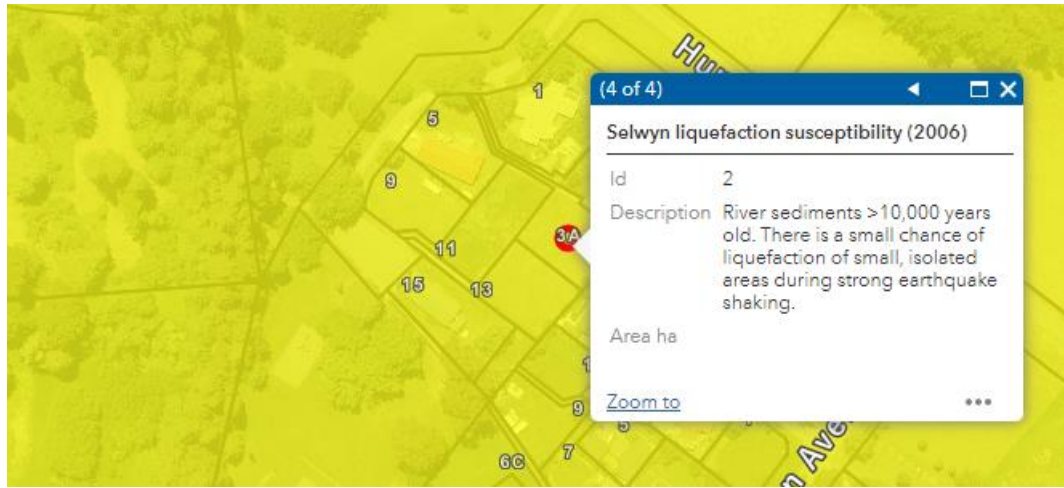


Figure 4: Selwyn Liquefaction Susceptibility (2012)

## 5.2 Flooding

The location of the proposed structure is not located within a known flood hazard zone as indicated by the Lake Coleridge Stormwater Scheme, section 10.9, "For a 50-year event, no flooding is expected in Lake Coleridge". (Selwyn District Council, n.d.).

## 6.0 RECOMMENDATIONS

The proposed importance level 1 shed at 3A Hart Place may concrete pile foundations embedded down to a minimum 1.7m bgl to achieve 300kPa. Alternatively, SED may be completed on the concrete pile foundations to allow for minimum 1.0m embedment, where a minimum bearing capacity of 200kPa can be found. If a concrete slab foundation is required this will need to be founded on hardfill to a depth of 1.0m and we recommend that this is not connected to the primary structure or foundations.

During the excavation for the foundations if any organic material from the old shelter belt is discovered it must be removed and replaced with compacted gravel fill.

## 7.0 LIMITATIONS

This report has been prepared for Darfield ITM. It is expected the Selwyn District Council will refer to this report. Other parties rely on this report at their own risk.

This report does not include the following:

- Assessment against the Resource Management Act
- Stormwater assessment
- Contamination assessment
- Detailed Liquefaction assessment
- Detailed slope stability assessment
- Wastewater assessment
- Foundation design

The recommendations in this report are based on our visual site walkover and the Scala Penetrometer and hand auger results obtained at the time of testing. Assumptions have been made about the continuity of subsoil properties between the test holes; due to the inherent variability of sub-soils this assumption cannot be guaranteed.

Prepared by



Reviewed by



Approved by



Logan Goldingham  
Technician

Henry West  
BE(hons)

Sam Richards  
CPEng, CMEng

**RICHARDS CONSULTING ENGINEERS**

**ENCLOSED:**

TEST LOCATION MAP

PHOTOS

SOIL INVESTIGATION RESULTS

NZ GEOTECHNICAL DATABASE BORELOGS

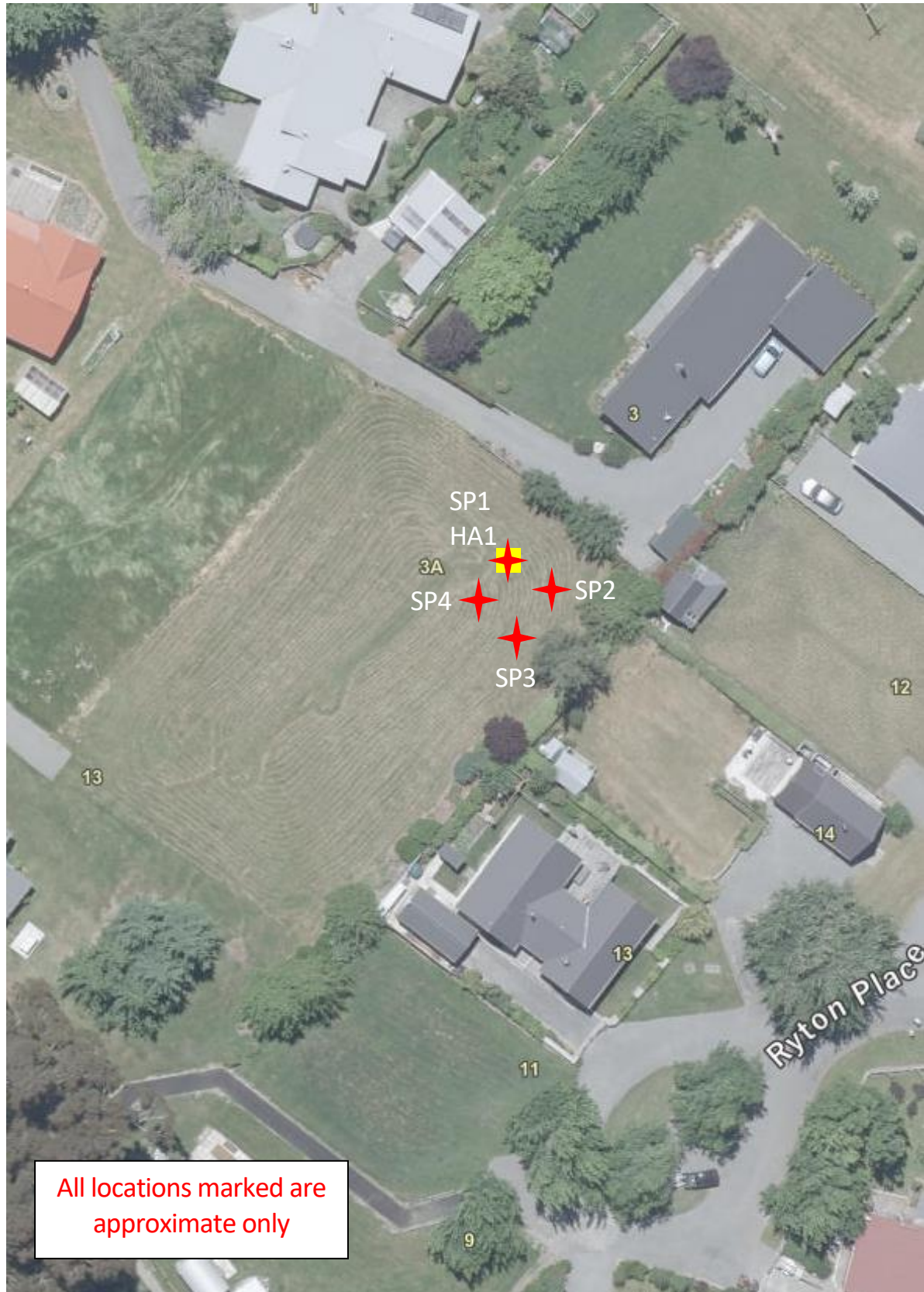
**REFERENCES**

Selwyn District Council. (n.d.). *Lake Coleridge Stormwater Scheme*. Retrieved from Selwyn District Council:

<https://extranet.selwyn.govt.nz/amps/SitePages/Lake%20Coleridge%20Stormwater%20Scheme.aspx>



## TEST MAP LOCATION





## PHOTOS

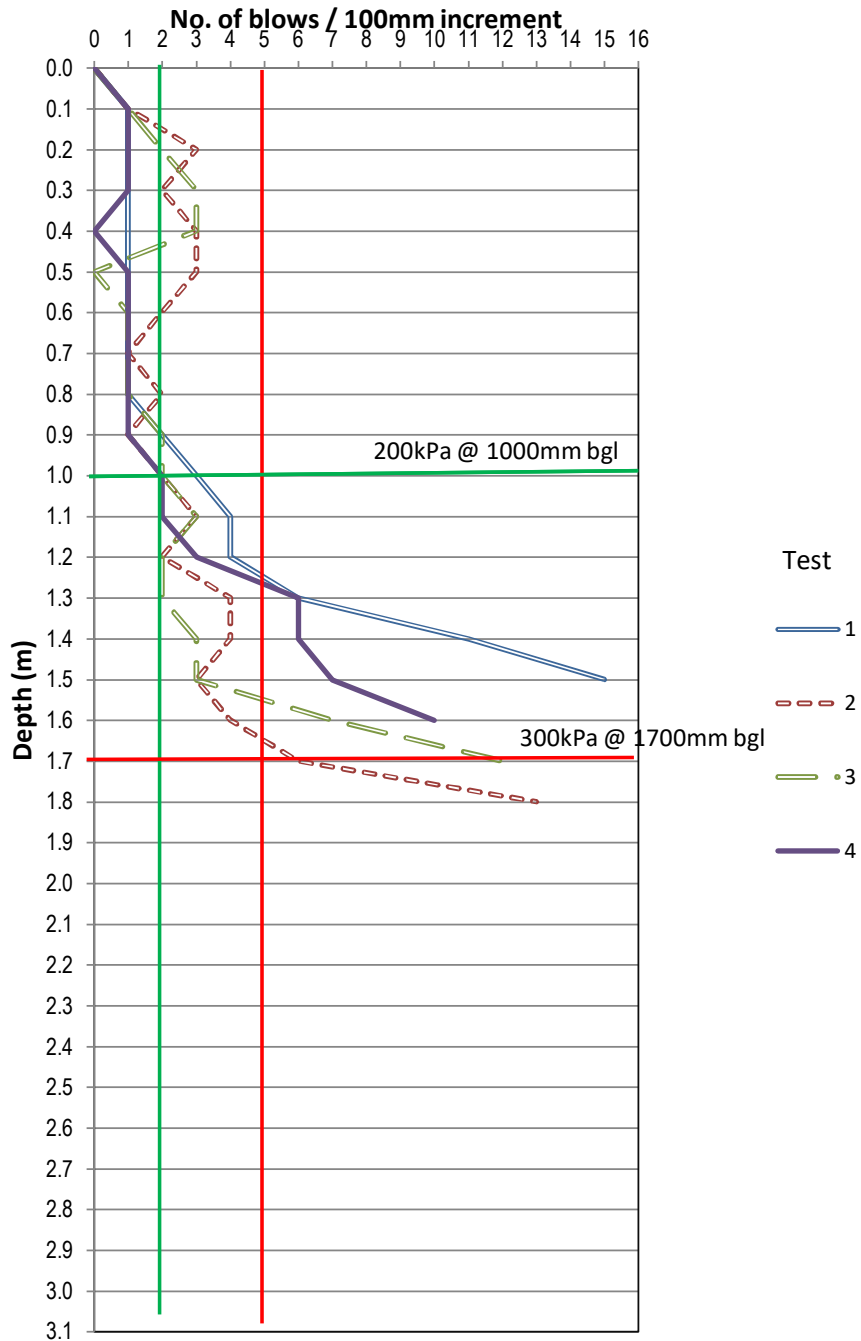


**SITE SOILS INVESTIGATION**

Project No.: 22343  
Project: Shed  
Address: 3A Hart Place, Lake Coleridge Village

**RICHARDS**  
CONSULTING ENGINEERS

Date tested: 20 June 2022

**Combined Site Soil Penetrometer Test results**

Test method used: NZS 4402:1988 Test 6.5.2

SITE SOILS INVESTIGATION			<div>RICHARDS CONSULTING   ENGINEERS</div>
Project No.: 22343			
Project: Shed			
Address: 3A Hart Place, Lake Coleridge Village			
Date tested: 20 June 2022		Test ID: 1	
Notes: Test terminated as unable to penetrate			
Depth below ground level	blows/100m m	Scala Penetrometer Results	Soil Description
0.0	0	0.0	[0-300mm] TOPSOIL
0.1	1	0.1	
0.2	1	0.2	
0.3	1	0.3	[300-500mm] Clayey SILT, Brown, Soft, Moist
0.4	1	0.4	
0.5	1	0.5	
0.6	1	0.6	[500-600mm] Clayey SILT with trace tree roots
0.7	1	0.7	
0.8	1	0.8	
0.9	2	0.9	[600-1000mm] Clayey SILT, Brown, Firm, Moist
1.0	3	1.0	
1.1	4	1.1	
1.2	4	1.2	[1000-1500mm] Clayey SILT, Brown, Firm, Wet
1.3	6	1.3	
1.4	11	1.4	
1.5	15	1.5	[1500mm] Test terminated (unable to penetrate)
1.6		1.6	
1.7		1.7	
1.8		1.8	
1.9		1.9	
2.0		2.0	
2.1		2.1	
2.2		2.2	
2.3		2.3	
2.4		2.4	
2.5		2.5	
2.6		2.6	
2.7		2.7	
2.8		2.8	
2.9		2.9	
3.0		3.0	
3.1		3.1	
3.2		3.2	
3.3		3.3	
3.4		3.4	
3.5		3.5	
3.6		3.6	
3.7		3.7	
3.8			
3.9			
4.0			
4.1			

Test method used: NZS 4402:1988 Test 6.5.2

Test method used: NZS 4402:1988 Test 6.5.2



SITE SOILS INVESTIGATION			<div>RICHARDS CONSULTING   ENGINEERS</div>																																																																														
Project No.: 22343																																																																																	
Project: Shed																																																																																	
Address: 3A Hart Place, Lake Coleridge Village																																																																																	
Date tested: 20 June 2022		Test ID: 2																																																																															
Notes: Test terminated as unable to penetrate																																																																																	
Depth below ground level	No. blows/100m	Scala Penetrometer Results	Soil Description																																																																														
0.0	0	<table><thead><tr><th>Depth (m)</th><th>No. of blows / 100mm increment</th></tr></thead><tbody><tr><td>0.0</td><td>0</td></tr><tr><td>0.1</td><td>1</td></tr><tr><td>0.2</td><td>3</td></tr><tr><td>0.3</td><td>2</td></tr><tr><td>0.4</td><td>3</td></tr><tr><td>0.5</td><td>3</td></tr><tr><td>0.6</td><td>2</td></tr><tr><td>0.7</td><td>1</td></tr><tr><td>0.8</td><td>2</td></tr><tr><td>0.9</td><td>1</td></tr><tr><td>1.0</td><td>2</td></tr><tr><td>1.1</td><td>3</td></tr><tr><td>1.2</td><td>2</td></tr><tr><td>1.3</td><td>4</td></tr><tr><td>1.4</td><td>4</td></tr><tr><td>1.5</td><td>3</td></tr><tr><td>1.6</td><td>4</td></tr><tr><td>1.7</td><td>6</td></tr><tr><td>1.8</td><td>13</td></tr><tr><td>1.9</td><td>13</td></tr><tr><td>2.0</td><td>13</td></tr><tr><td>2.1</td><td>13</td></tr><tr><td>2.2</td><td>13</td></tr><tr><td>2.3</td><td>13</td></tr><tr><td>2.4</td><td>13</td></tr><tr><td>2.5</td><td>13</td></tr><tr><td>2.6</td><td>13</td></tr><tr><td>2.7</td><td>13</td></tr><tr><td>2.8</td><td>13</td></tr><tr><td>2.9</td><td>13</td></tr><tr><td>3.0</td><td>13</td></tr><tr><td>3.1</td><td>13</td></tr><tr><td>3.2</td><td>13</td></tr><tr><td>3.3</td><td>13</td></tr><tr><td>3.4</td><td>13</td></tr><tr><td>3.5</td><td>13</td></tr><tr><td>3.6</td><td>13</td></tr><tr><td>3.7</td><td>13</td></tr></tbody></table>	Depth (m)	No. of blows / 100mm increment	0.0	0	0.1	1	0.2	3	0.3	2	0.4	3	0.5	3	0.6	2	0.7	1	0.8	2	0.9	1	1.0	2	1.1	3	1.2	2	1.3	4	1.4	4	1.5	3	1.6	4	1.7	6	1.8	13	1.9	13	2.0	13	2.1	13	2.2	13	2.3	13	2.4	13	2.5	13	2.6	13	2.7	13	2.8	13	2.9	13	3.0	13	3.1	13	3.2	13	3.3	13	3.4	13	3.5	13	3.6	13	3.7	13	
Depth (m)	No. of blows / 100mm increment																																																																																
0.0	0																																																																																
0.1	1																																																																																
0.2	3																																																																																
0.3	2																																																																																
0.4	3																																																																																
0.5	3																																																																																
0.6	2																																																																																
0.7	1																																																																																
0.8	2																																																																																
0.9	1																																																																																
1.0	2																																																																																
1.1	3																																																																																
1.2	2																																																																																
1.3	4																																																																																
1.4	4																																																																																
1.5	3																																																																																
1.6	4																																																																																
1.7	6																																																																																
1.8	13																																																																																
1.9	13																																																																																
2.0	13																																																																																
2.1	13																																																																																
2.2	13																																																																																
2.3	13																																																																																
2.4	13																																																																																
2.5	13																																																																																
2.6	13																																																																																
2.7	13																																																																																
2.8	13																																																																																
2.9	13																																																																																
3.0	13																																																																																
3.1	13																																																																																
3.2	13																																																																																
3.3	13																																																																																
3.4	13																																																																																
3.5	13																																																																																
3.6	13																																																																																
3.7	13																																																																																
0.1	1																																																																																
0.2	3																																																																																
0.3	2																																																																																
0.4	3																																																																																
0.5	3																																																																																
0.6	2																																																																																
0.7	1																																																																																
0.8	2																																																																																
0.9	1																																																																																
1.0	2																																																																																
1.1	3																																																																																
1.2	2																																																																																
1.3	4																																																																																
1.4	4																																																																																
1.5	3																																																																																
1.6	4																																																																																
1.7	6																																																																																
1.8	13																																																																																
1.9	13																																																																																
2.0	13																																																																																
2.1	13																																																																																
2.2	13																																																																																
2.3	13																																																																																
2.4	13																																																																																
2.5	13																																																																																
2.6	13																																																																																
2.7	13																																																																																
2.8	13																																																																																
2.9	13																																																																																
3.0	13																																																																																
3.1	13																																																																																
3.2	13																																																																																
3.3	13																																																																																
3.4	13																																																																																
3.5	13																																																																																
3.6	13																																																																																
3.7	13																																																																																

Test method used: NZS 4402:1988 Test 6.5.2

Test method used: NZS 4402:1988 Test 6.5.2

SITE SOILS INVESTIGATION			<div>RICHARDS CONSULTING   ENGINEERS</div>
Project No.: 22343			
Project: Shed			
Address: 3A Hart Place, Lake Coleridge Village			
Date tested: 20 June 2022		Test ID: 3	
Notes: Test terminated as unable to penetrate			
Depth below ground level	blows/100m m	Scala Penetrometer Results	Soil Description
0.0	0	<div><div>Depth (m)</div><div>No. of blows / 100mm increment</div></div>	
0.1	1		
0.2	2		
0.3	3		
0.4	3		
0.5	0		
0.6	1		
0.7	1		
0.8	1		
0.9	2		
1.0	2		
1.1	3		
1.2	2		
1.3	2		
1.4	3		
1.5	3		
1.6	7		
1.7	12		
1.8			
1.9			
2.0			
2.1			
2.2			
2.3			
2.4			
2.5			
2.6			
2.7			
2.8			
2.9			
3.0			
3.1			
3.2			
3.3			
3.4			
3.5			
3.6			
3.7			
3.8			
3.9			
4.0			
4.1			

Test method used: NZS 4402:1988 Test 6.5.2

Test method used: NZS 4402:1988 Test 6.5.2

SITE SOILS INVESTIGATION			<div>RICHARDS CONSULTING   ENGINEERS</div>
Project No.: 22343			
Project: Shed			
Address: 3A Hart Place, Lake Coleridge Village			
Date tested: 20 June 2022		Test ID: 4	
Notes: Test terminated as unable to penetrate			
Depth below ground level	No. blows/100m	Scala Penetrometer Results	Soil Description
0.0	0	<div><div>Depth (m)</div><div>No. of blows / 100mm increment</div></div>	
0.1	1		
0.2	1		
0.3	1		
0.4	0		
0.5	1		
0.6	1		
0.7	1		
0.8	1		
0.9	1		
1.0	2		
1.1	2		
1.2	3		
1.3	6		
1.4	6		
1.5	7		
1.6	10		
1.7			
1.8			
1.9			
2.0			
2.1			
2.2			
2.3			
2.4			
2.5			
2.6			
2.7			
2.8			
2.9			
3.0			
3.1			
3.2			
3.3			
3.4			
3.5			
3.6			
3.7			
3.8			
3.9			
4.0			
4.1			

Test method used: NZS 4402:1988 Test 6.5.2

Test method used: NZS 4402:1988 Test 6.5.2

HAND AUGER AND SCALA LOG						Job No.: K210147																	
<b>Client:</b> Fraemohs Homes <b>Project:</b> Geotechnical Investigation <b>Location:</b> 12 Ryton Place, Lake Coleridge <b>Coordinates:</b> E 1481167.7, N 5197306.6						<b>Hole No.:</b> HA02/SP02																	
						<b>Date:</b> 4/03/2021																	
						<b>Logged By:</b> TV																	
						<b>Sheet:</b> 2B																	
						<b>Ground Level:</b> 383																	
RL	Subsurface Conditions	Depth (m)	Groundwater	Geological Unit	Graphic Log	Scala Penetrometer (blows / 50mm)																	
						0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
382.85	Organic SILT with some gravel, light brown, dry, non-plastic; organics, rootlets; gravel, fine to coarse, subrounded, greywacke		Groundwater Not Encountered	FILL TO PSOIL																			
	SILT light brown, dry, non-plastic																8						
382.5																							
	SILT trace organics, light brown with some dark brown mixed, dry, non-plastic; organics, amorphous	0.5																					



Project Title: 7 Ryton Place, Lake Coleridge

Project Number: 20556

Client: Carol and Peter Hawker

HA01

GL (mAOD):

N Coord: 0

E Coord: 0

Date: 13/10/2020

Method: Hand Auger

Logged By: AM

Scale: 1:25 Sheet 1 Of 1

Blows (per 100mm)	UBC (kPa) (Stockwell)	Level	Legend	Depth (m)	Description	Water
3 6 9	100 200 300 400					
				0.35	SILT, minor fine sand, trace sub-rounded gravel, dark brown. Firm, moist, non-plastic. (TOPSOIL)	
				1.00	Silty fine SAND, light brown. Firm, moist, non-plastic. (ALLUVIAL DEPOSITS)	
				1.50	0.80 Some fine sand.	
				2.00	SILT, trace fine sand, light brown. Stiff to very stiff, dry to moist, non-plastic. (ALLUVIAL DEPOSITS)	
				2.70	2.00 Moist to wet. 2.10 - 2.30 Silty fine SAND, greyish brown. Medium dense, wet to saturated.	
				3.00	Fine to coarse SAND, greyish brown. Medium dense, wet. (ALLUVIAL DEPOSITS)	
					2.90 Trace fine sub-rounded gravel.	
					End Of Hole At 3.00 m	
				4.00		

## KEY

D - Disturbed Sample

B - Bulk Sample

W - Water Sample

V - Hand Shear Vane kPa

▽ - Groundwater Strike

▼ - Groundwater Level

## REMARKS

No Groundwater Encountered  
Terminated at target depth.

SDC - Approved Building Consent Document - BC221292 - Pg 33 of 33 - 5/10/2022 - abelaa