Urgent
Land Information Memorandum

Application

Nicola Thayer		Number	L210878
602 Dunstan Road		Application date	8/12/21
Alexandra 9320			
			021 163 5474
Nicola Thayer-Smith		Email	thayer@xtra.co.nz

Property

Valuation No.	2846233001
Location	602 Dunstan Road, Alexandra
Legal Description	LOT 2 DP 403904
Owner	Thayer Trevor Graeme: Thayer-Smith Nicola Jane
Area (hectares)	2.3870

Rates

Government Valuation		
Land	$	470,000
Capital Value	$	1,270,000
Improvements	$	800,000
Current Rates Year 2021 to 2022		
Rating Amounts		
Annual Rates	$	2,016.36
Current Instalment	$	504.09
Next Instalment Due		21/02/22
Current Balance	$	0.00
Water Balance (if any)	$	

Note:
1. Rates are charged in four equal instalments for the period commencing 1 July and ending 30 June each year.
2. If you require further financial information regarding this property for settlement purposes, then the owner or their agent will need to contact the Council separately for this information.

Planning/Resource Management

Resource Area: RURAL RESOURCE AREA - RURAL RESIDENTIAL

The Central Otago District Plan contains the relevant rules for the Resource Area this land is zoned. There may be other matters of relevance to nearby land, which can be found on the District Plan maps.

Designation: No information located. Planning maps and data ***attached.***

Consents:

19/08/08 RESOURCE CONSENT 080303: Application to vary condition 4 of subdivision consent RC070083 & condition 1 of land use consent RC070083 re location of building platform for lot 2. Granted by Delegated Authority 16/09/08. Copy of decision ***attached.***

21/03/07 RESOURCE CONSENT 070083: Four lot subdivision creating allotments of 1.3ha; 2.4ha 1.4ha and 2.9266ha; Land use consent for rural dwellings and accessory buildings within building platforms on Lots 2 – 4. Granted by Delegated Authority 3/05/07. Copy of decision, survey maps, 224c and water test ***attached.***

Outstanding Requisitions:No outstanding requisitions located.

Building

Consents/Permits/Pools/Compliance Schedules:

17/09/12 BUILDING CONSENT 120675: Erect a new dwelling: Code Compliance Certificate issued 27/03/14. Copy of certificates, plans and specifications, water test and warranties ***attached.***

Carpentry – David Garden VBuilders Ltd BP107420

Architect – Mollison & Associates 2160

External Plastering – Spence Plastering BP118648

Roofing – Attention to Detail Roofing Ltd BP101047

15/11/11 BUILDING CONSENT 110787 Erect a new shed: Code Compliance Certificate issued 22/12/11. : Copy of CCC, plans and specifications ***attached.***

No pool registered to this property.

Outstanding Requisitions: No outstanding requisitions located.

Sewer and Water

Sewer: Private effluent disposal system located on this property

Water: Private water supply located on this property

Copy of drainage plan ***attached***.

Stormwater: Stormwater is usually discharged to property soak pits or to kerb and channelling where available. Direct connection of stormwater to sewer is not permitted.

Public sewerage water or stormwater drains on property: No information found.

Special Land Features

Any special feature or characteristic of the land concerned including potential erosion, avulsion, falling debris, subsidence, slippage, alluvium, or inundation, or likely presence of hazardous contaminants: *Information on hazards can be found on the Otago Regional Council website* www.orc.govt.nz

No information located at Central Otago District Council.

Network Utility Operators

Information relating to the availability of supply, authorisations etc (e.g. electricity or gas) can be obtained from the relevant Network Utility Operator.

Notes

1. Code Compliance Certificates were not issued until the Building Act came into force on 1 January 1993. Should an evaluation of the building be required an independent qualified person should be consulted.
2. No title search has been done on this property.
3. Any future development on this property may be liable for a development contribution under the Local Government Act 2002.
4. Every care has been taken to ensure that the information supplied by the Council on this form is accurate. The Council relies on information available to it, and will not be held responsible for incomplete or inaccurate information provided, or for any errors or omissions made in good faith.

AMY LINGARD - LIM OFFICER

Date: 14/12/21

Designations within 200m

None found.

Scheduled Activities within 200m

None found.

Heritage Buildings within 200m

None found.

Notable Trees within 200m

None found.

Active Faults within 200m

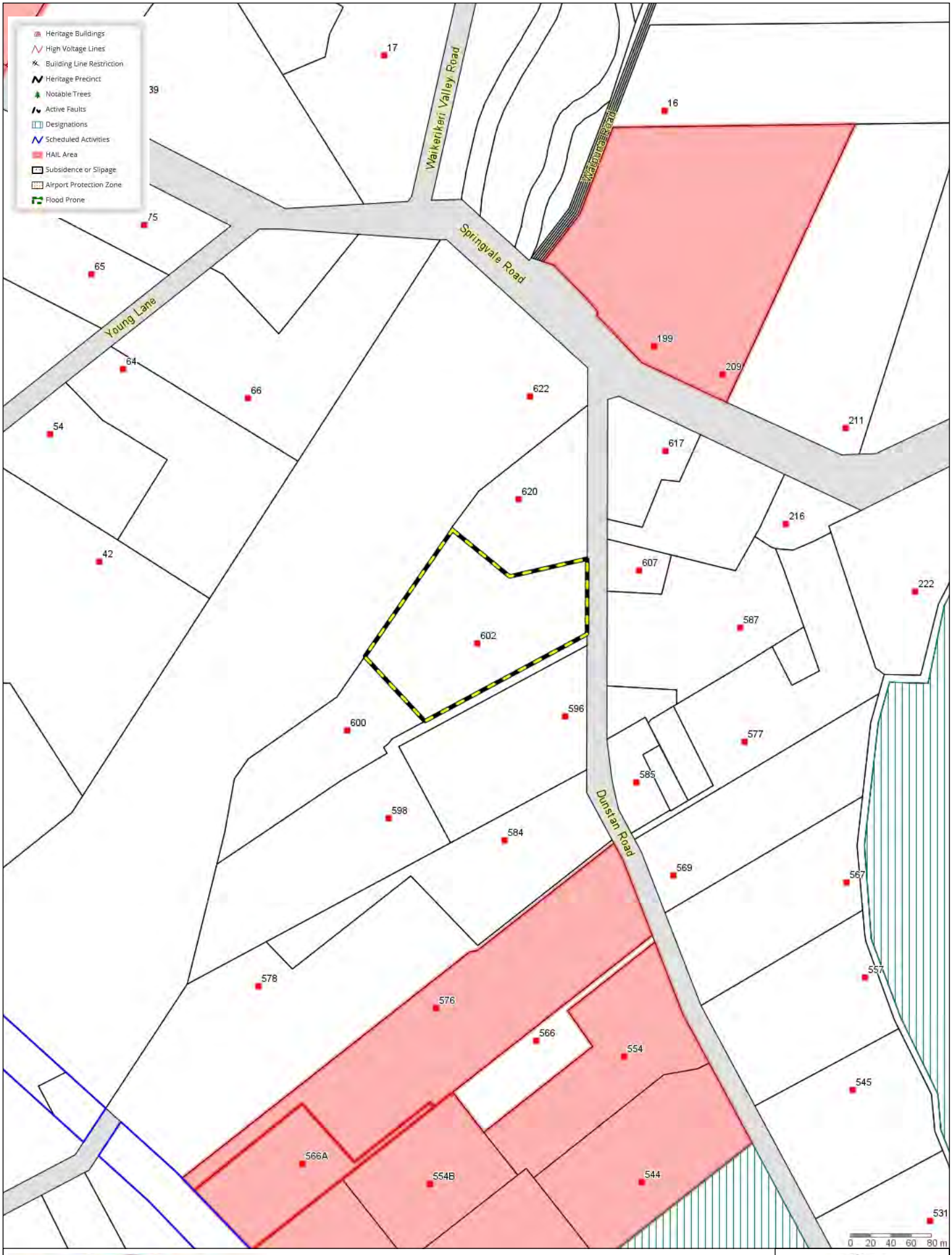
None found.

Hazardous Land within 100m

None found.

Subsidence and Slip Areas within 200m

None found.



CENTRAL OTAGO DISTRICT COUNCIL

Planning Map

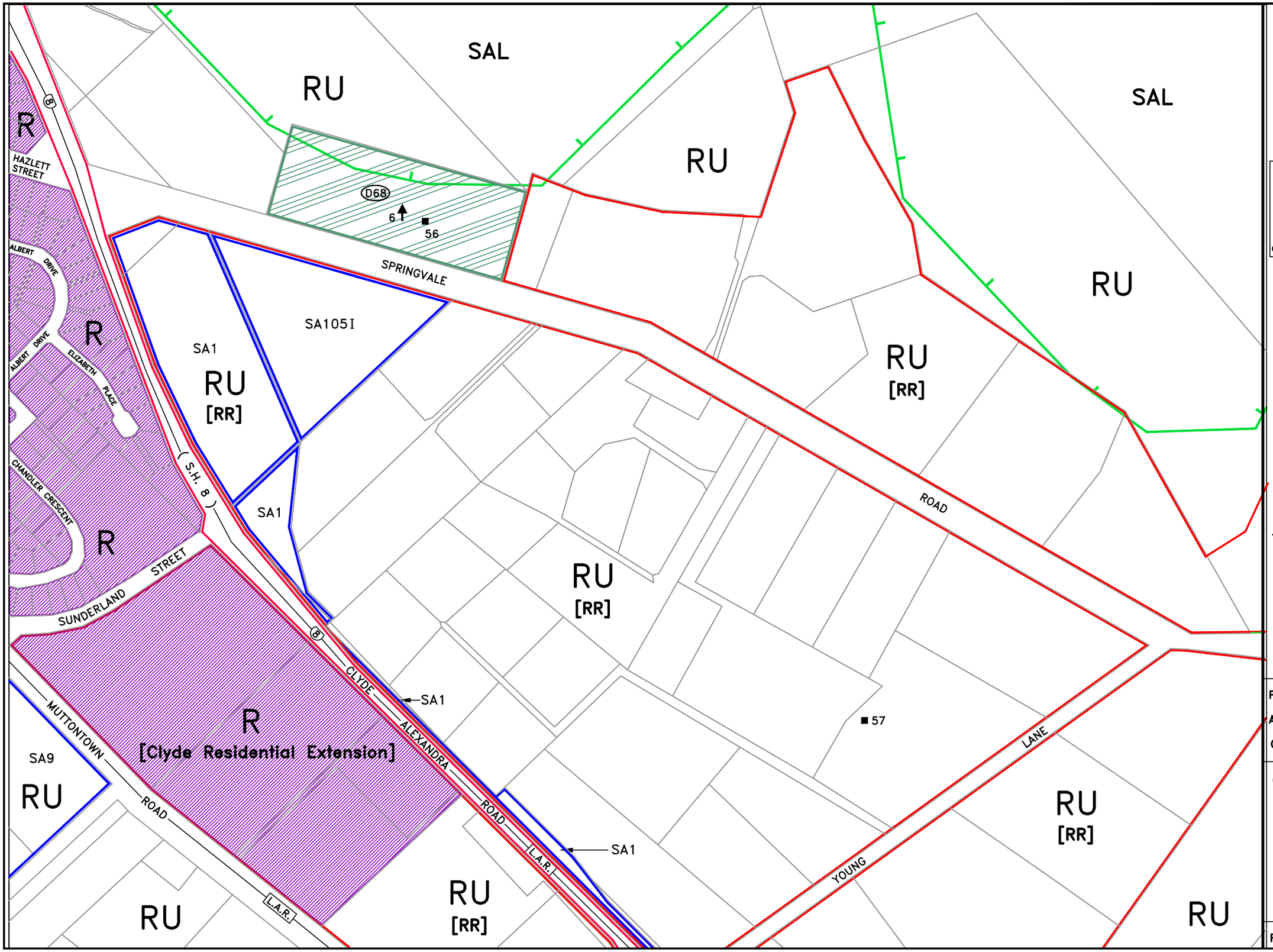
The information displayed is schematic only and serves as a guide.
It has been compiled from Central Otago District Council's records and is made available in good faith but its accuracy or completeness is not guaranteed.
Cadastral Information has been derived from Land Information New Zealands (LINZ) Core Record System Database (CRS).

NORTH

Scale 1:5000

Tuesday, 14 December 2021

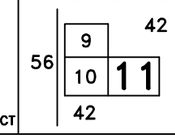
Original Sheet Size 210x297mm



CENTRAL OTAGO DISTRICT COUNCIL

LOCATION

ADJOINING MAPS



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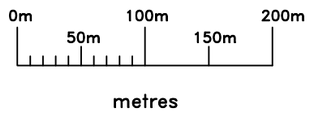


metres

Northpoint Vertical

See LEGEND for key to map notations

Publicly Notified : 18 July 1998

Amended by Decisions : 1 July 2000

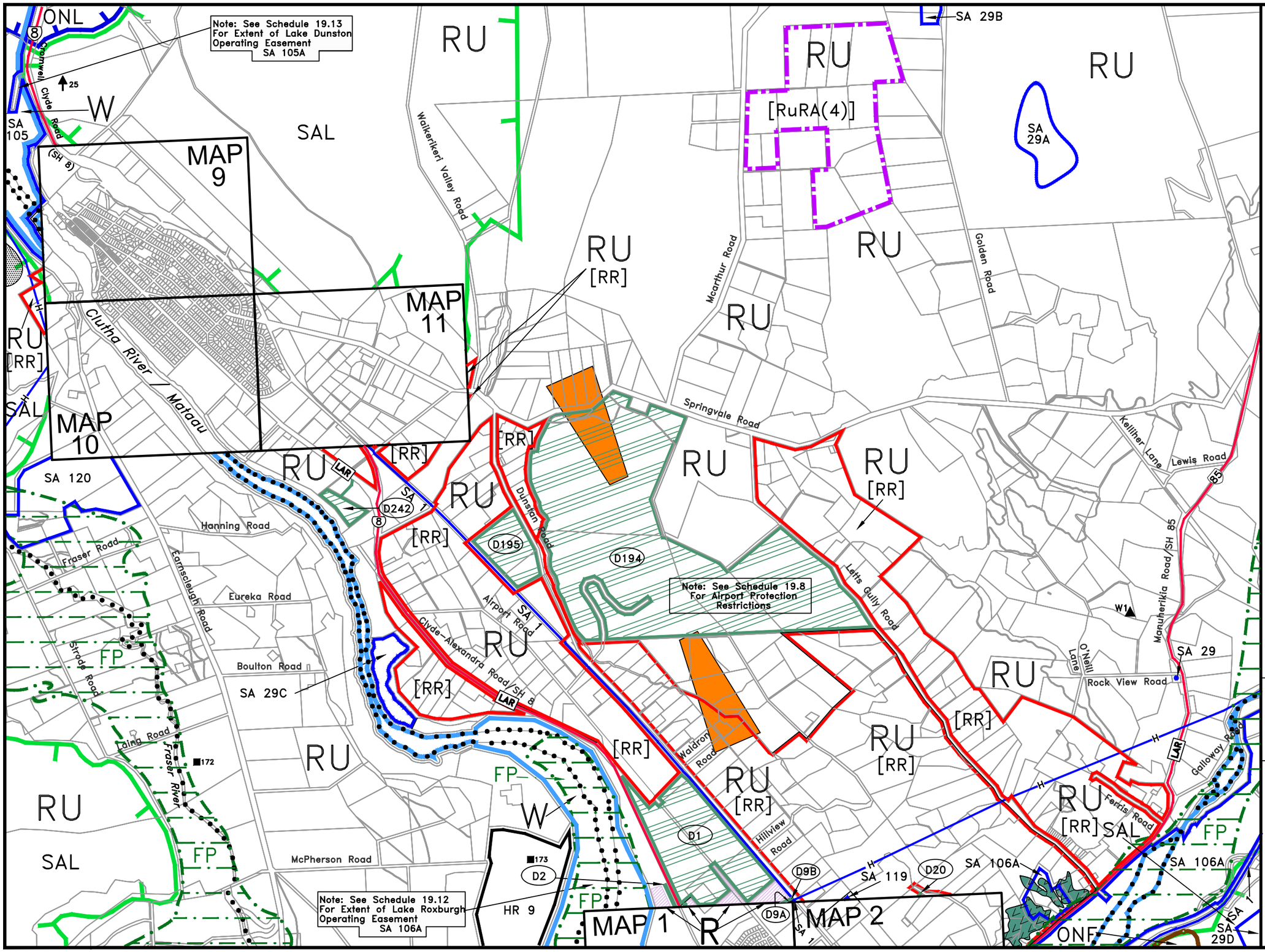
Operative Date : 20 April 2021

CENTRAL OTAGO DISTRICT PLAN

MAP 11

CLYDE 3of3

REVISION : D 13 April 2021



CENTRAL OTAGO DISTRICT COUNCIL

LOCATION

CENTRAL OTAGO DISTRICT

ADJOINING MAPS

56 | 42 | 57
43 | 70
61

Scale 1:30,000

(at A3)

0m 250m 500m 750m 1000m 1250m 1500m

metres

Northpoint Vertical

See LEGEND for key to map notations

Amended: 1 October 2008
22 October 2009
15 July 2013
20 November 2015
11 December 2019

Publicly Notified : 18 July 1998

Amended by Decisions : 1 July 2000

Operative Date : 1 April 2008

CENTRAL OTAGO DISTRICT PLAN

MAP 42

ALEXANDRA / CLYDE ENVIRONS

Central Otago District Planning Maps

Amended: 28 May 2011
15 July 2013
18 July 2014
20 November 2015

LEGEND

RESOURCE AREAS

- RU — Rural Resource Area
- Residential Resource Area
- Business Resource Area
- Industrial Resource Area
- Rural Settlements Resource Area
- W — Water Surface and Margin Resource Area

DESIGNATIONS

- D123 — Designation (Schedule 19.2)
- L.A.R. — Limited Access Road (Urban Map)
- L.A.R. — Limited Access Road (Rural Map)
- 8 — State Highway (Urban Map)
- 8 — State Highway (Rural Map)

SCHEDULED ACTIVITIES

- SA123 — Scheduled Activities (Schedule 19.3)

NOTES
1. All legal roads are deemed to be designated.
2. All designated land subject to underlying Resource Area provisions that apply where such land is to be used for a purpose other than the designated purpose.
3. Surface of any waterbody deemed to be in Water Surface and Margin Resource Area.
4. Other Rural Landscapes (ORL) are landscapes in the Rural Resource Area not identified as ONL, SAL or LMA.
5. Cadastral information correct as at 1 December 2007
6. Size of symbols as shown in Legend may vary when shown on Planning Maps.
7. Cadastral Information from Land Information New Zealand [LINZ] CROWN COPYRIGHT RESERVED with regard to Cadastral Information.

HERITAGE VALUES

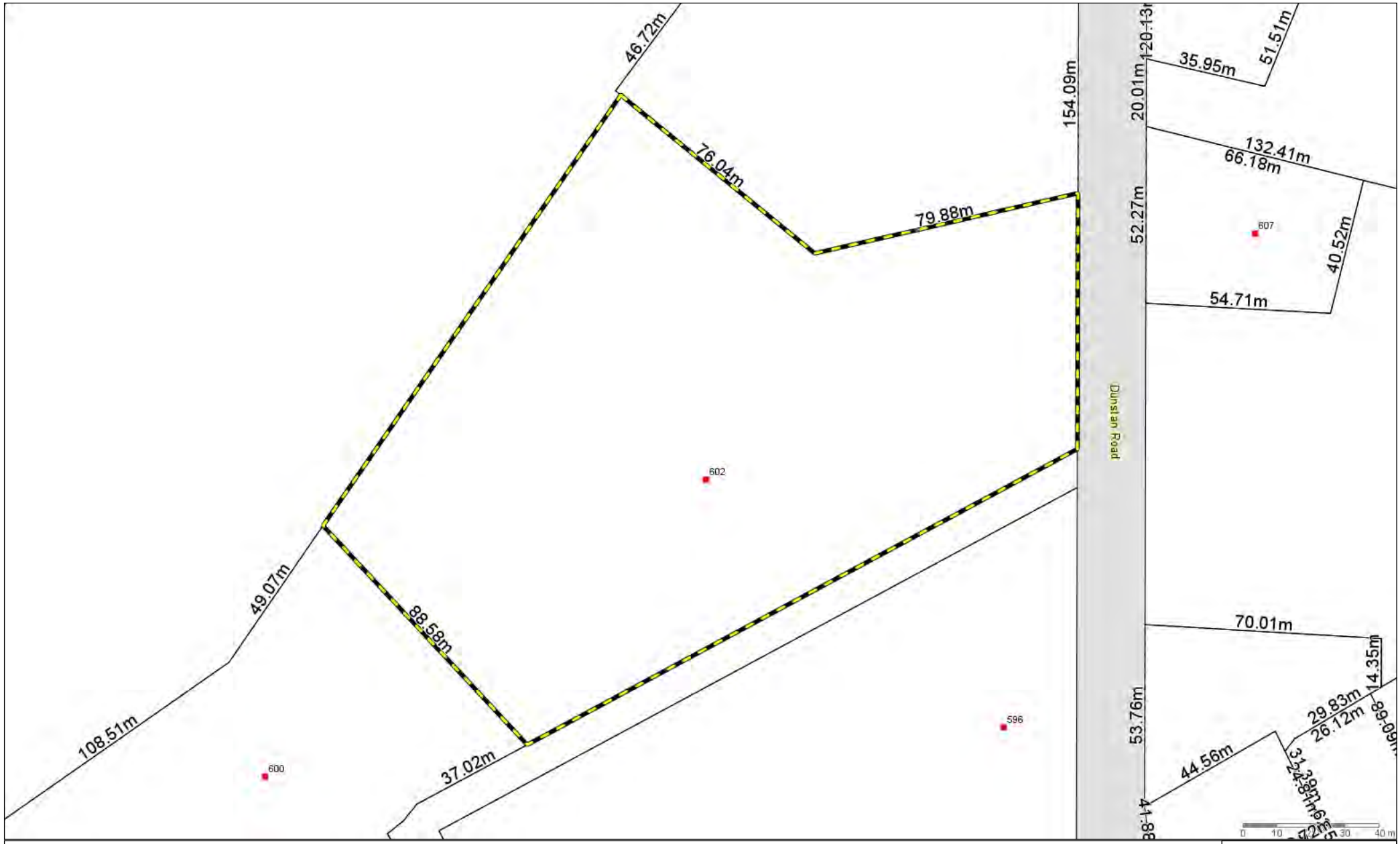
- HP — Heritage Precinct
- 123 — Heritage Building, Place, Site or Object (Schedule 19.4)
- 12 — Notable Tree (Schedule 19.4)
- HR12 — Historic Reserve (Schedule 19.10)
- SN12 — Area of Significant Natural Value (Schedule 19.6.1)
- W12 — Additional Wetlands (Schedule 19.6A)
- ONF — Outstanding Natural Feature
- ONL — Outstanding Natural Landscape (Schedule 19.6.2)
- SAL — Significant Amenity Landscape
- LMA — Upper Manorburn / Lake Onslow Landscape Management Area
- Esplanade Provision (Schedule 19.9)
- N — Nohoanga (Traditional Camping)

HAZARDS

- FP — Flood prone land (Schedule 19.11)
- Mined Area (Urban Maps)
- Mined Area (Rural Maps)
- F — Active Geological Fault
- Filled Area (Including closed Landfills)
- Area of Subsidence or Slippage
- H — High Voltage Transmission Lines that are part of the transmission network (See Rules 4.7.6 A (g) and 12.7.8)

OTHER NOTATIONS

- District Boundary
- Resource Area Boundary (Where distinction required)
- R / B — Resource Area Boundary underlying a Designation
- MAP 4A — Area subject to enlarged Planning Map
- [RR] — Rural Residential (See Rule 4.7.2 (ii))
- [RuRA( )] — Rural Resource Area (1)–(4) (See Rule 4.7.2 (ii) & (ia))
- [RRA( )] — Residential Resource Area (1)–(12) (See Rule 7.3.3 (i)(c))
- [BA(1)] — Business Resource Area (1) (See Rule 8.3.6 (i))
- R* — Residential Resource Area (See Rule 7.3.6(iii)(f)(2) – Sloping Sites)
- Airport Protection Zone (See Rule 4.7.6 A (i))
- Proposed Road Alignment
- Actual position of formed road (For information purposes only)
- Road to be Stopped
- BLR — Building Line Restriction
- Verandah Required (See Rule 8.3.6(iii))
- Building Facades (See Rule 8.3.2 (i))
- Bridge



CENTRAL OTAGO DISTRICT COUNCIL

Property Dimensions Map

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NORTH

Scale 1:1500

Tuesday, 14 December 2021

Original Sheet Size 297x210mm

CENTRAL OTAGO DISTRICT COUNCIL

Aerial Photography Map

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Cadastral Information has been derived from Land Information New Zealands (LINZ) Core Record System Database (CRS).

NORTH

Scale 1:1500

Tuesday, 14 December 2021

Original Sheet Size 297x210mm

2846233001
RC080303

16 September 2008

Weller Surveying Limited
PO Box 354
Alexandra

Dear Sir/Madam

Change to Resource Consent : RC080303 – Dunstan Road, Alexandra

This is to advise that pursuant to Section 127 of the Resource Management Act 1991, Condition 4 of the subdivision consent and Condition 1 of the land use consent granted to Weller Surveying Limited on 4 May 2007 is hereby changed. As a consequence of this, Condition 4 of the subdivision consent and Condition 1 of the land use consent are amended to read :

> *"Any dwelling on Lots 3 and 4 shall be located on the building platform as shown on the plan of subdivision and any dwelling on Lot 2 shall be located on the plans of subdivision prepared by Weller Surveying and dated August 2008" .*

Following consideration of the application it has been determined that any effects on the environment will be no more than minor and that granting consent will not be contrary to the objectives and policies of the relevant district plan.

I draw your attention to Section 357 of the Resource Management Act 1991 which confers a right of objection to the Council to the conditions of consent.

Yours faithfully

Anita Dawe
Planning Officer

S:\Resource Consents\Correspondence\07\070083.doc
28462/330/00

4 May 2007

Weller Surveying Limited
c/- Geoff Weller
PO Box 354
Alexandra

Dear Sir/Madam

Application for Resource Consent: RC070083 – Dunstan Road, near Springvale Road

This is to advise that the application for consent for a four lot rural residential subdivision creating allotments of 1.3ha, 2.4ha, 1.4ha and 2.9266ha; and land use consent to erect a dwelling on Lots 2-4 of the subdivision on a property situated on Dunstan Road, near Springvale Road described as Lots 2 DP 15277 and Lot 1 DP 18638 as contained in Certificate of Title OT9C/512, has been approved by the Manager, Planning and Environment under delegated authority, subject to the following conditions:

Subdivision

1. The subdivision may be staged and all conditions relevant to a stage shall be complied with prior to section 224(c) certification.

2. Right of way easement A as shown on the plan of subdivision shall be duly granted or reserved.

3. Any other easements required to protect access to services shall be duly granted or reserved.

4. Any dwelling on Lots 2, 3 and 4 shall be located on the "building platform" as shown on the plan of subdivision.

Note: Condition 4 shall be subject to a consent notice that shall be registered pursuant to section 221 of the Resource Management Act 1991.

5. Prior to section 224(c) certification the access from Dunstan Road to serve Lot 1 shall be constructed and sealed to the standard shown in Figure 12.2 of the amended Proposed District Plan and the design and construction of the access shall be to the satisfaction of the Chief Executive.

6. Prior to section 224(c) certification the access from Dunstan Road to serve Lots 2, 3 and 4 (via right of way A) shall be constructed and sealed to the standard shown in Figure 12.2 of the amended Proposed District Plan, and in accordance with Clause 3.3.19.2 of the Addendum to NZS 4404:2004, and the design and construction of the access including the culvert crossing the water race shall be to the satisfaction of the Chief Executive.

7. Prior to section 224(c) certification the carriageway within right of way A shall be constructed to at least the following standards:

   a) The carriageway shall be constructed in compliance with Addendum Table 3.2 (a) Right of Way classification and to at least the standards specified for tracks in Councils *Standards for Gravel Roads for Inclusion on Central Otago District Council Roading Hierarchy, December 2000.*
   b) Shallow trafficable side drains are allowable along generally level sections of carriageway.
   c) Suitably sized culverts located in water courses.

Note: It is acknowledged that the carriageway in right of way A may be sealed.

8. Prior to section 224(c) certification an adequate domestic water supply shall be made available to the boundary of Lots 2 - 4. The domestic water source shall be tested by a suitably qualified laboratory with the scope of the analysis being to the satisfaction of the Chief Executive. The supply shall meet the standards contained in the Drinking Water Standards for New Zealand 2000 and Clause 6.3.15 Small Rural Water Supplies and other relevant provisions of the Council's Addendum to NZS 4404:2004.

9. It shall be the consent holders responsibility to obtain consent from Delta Utility Services Limited and Telecom New Zealand Limited as to the position of any new electricity and telecommunication services to serve Lots 1 - 4. The consent holder shall be responsible for installing all such services underground prior to section 224(c) certification.

10. The consent holder shall supply evidence of the consents referred to in Condition 9 to the Chief Executive prior to section 224(c) certification.

11. It shall be the responsibility of the consent holder to meet the costs associated with the installation of electricity and telecommunication services necessary to meet the needs of the subdivision.

12. Payment of a reserves contribution of $2043.00 (exclusive of Goods and Services Tax) calculated in terms of Rule 15.6.1(1)(a)(ii) of the amended Proposed District Plan on the basis of three new allotments intended to contain a dwelling.

Notes: 1. All charges incurred by the Council relating to the administration, inspection and supervision of conditions of subdivision consent shall be paid prior to section 224(c) certification.
2. A development contribution of $7,554.00 (exclusive of goods and services tax) is payable for roading pursuant to the Council's Policy on Development and Financial Contributions contained in the Long Term Council Community Plan. Payment is due upon application under the Resource Management Act 1991 for certification pursuant to section 224(c). The Council may withhold a certificate under section 224(c) of the Resource Management Act 1991 if the required development and financial contributions have not been paid, pursuant to section 208 of the Local Government Act 2002 and Section 15.5.1 of the Proposed District Plan.

Land Use

1. The dwellings on Lots 2, 3 and 4 shall be located within the building platforms identified on the plan of subdivision.

2. The dwellings on Lots 2, 3 and 4 shall have a maximum height of 6.5 metres and in all other respects shall fully comply with the bulk and location requirements of Rule 4.7.6A of the amended Proposed District Plan.

3. The dwellings on Lots 2, 3 and 4 shall not protrude onto the skyline when viewed from a public road or public place.

4. Any dwellings on Lots 2, 3 and 4 shall be finished in colours selected from the colour range permitted in terms of Rule 4.7.6D of the Proposed District Plan excluding creams, terracotta and dark reds.

5. Prior to the occupation of any dwellings on Lots 2, 3 and 4 an adequate domestic water supply is to be made available to the dwelling from a source that shall be tested by a suitably qualified laboratory with the scope of the analysis being to the satisfaction of the Chief Executive.

6. At the time any dwelling is erected on Lots 2, 3 and 4 domestic water and fire fighting storage is to be provided by a standard 30,000 litre tank. Of this total capacity a minimum of 20,000 litres shall be maintained at all times as a static fire fighting reserve. Alternatively, an 11,000 litre fire fighting reserve is to be made available for each dwelling in association with a domestic sprinkler system installed in each dwelling to an approved standard. A fire fighting connection is to be located within 90 metres of any proposed building on the site. In order to ensure that connections are compatible with NZFS equipment the fittings are to comply with the following standards:

   (a) Either - 70mm Instantaneous Couplings (Female) NZS 4505, or for suction sources – 100mm Suction Couplings (Female) NZS 4505 (hose tail is to be same diameter as the threaded coupling eg 100mm coupling has 100mm hose tail).

   (b) The connection shall have a hardstand area adjacent to it to allow for an NZFS appliance to park on it. Access shall be maintained at all times to the hardstand area.

7. Fire fighting water supply may be provided by means other than specified in condition 6 if the written approval of the New Zealand Fire Service is obtained for the proposed method.

8. Effluent disposal from any dwelling constructed on Lots 2, 3 and 4 shall be disposed of in an approved sewerage disposal system designed and sited to comply with the Building Code and AS/NZS 4404:2004 "On Site Waste Water Management" and shall be sited in a position that will comply with the Otago Regional Council rules.

9. Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent shall be at the consent holder's expense.

10. The consent holder shall pay to the Council all required administration charges fixed by the Council pursuant to section 36 of the Act in relation to:
    a) Administration, monitoring and inspection relating to this consent; and
    b) Charges authorised by regulations.

11. Upon completion of a dwelling on Lots 2, 3 and/or 4, the consent holder shall advise the Chief Executive in writing (quoting RC 070083) that all conditions of this consent have been adhered to.

Following consideration of the application it has been determined that any effects on the environment will be no more than minor and that granting consent will not be contrary to the objectives and policies of the relevant district plan.

I draw your attention to Section 357 of the Resource Management Act 1991 which confers a right of objection to the Council to the conditions of consent.

Yours faithfully

Ann Peacock
Planning Team Leader

Land Registration District		Plan Number
Otago		DP 403904

MEMORANDUM OF EASEMENTS

Purpose	Shown	Serv. Ten.	Dom. Ten,
Right to convey water.	C.	Lot 3 hereon.	Lots 2 & 4 hereon.
	B.	Lot 4 hereon.	Lots 2 & 3 hereon.
	E,F.	Lot 2 DP 18638.	Lots 3 & 4 hereon.
Right to take water.	C.	Lot 3 hereon.	Lots 2 & 4 hereon.
Right of way.	A,B.	Lot 4 hereon.	Lots 2 & 3 hereon. Lot 2 DP 18638.
Right to convey electricity.	C.	Lot 3 hereon.	Lots 2 & 4 hereon.
	B.	Lot 4 hereon.	Lots 2 & 3 hereon.
	D.	Lot 2 hereon.	Lots 3 & 4 hereon.
Right to convey telecommunication cables and computer media.	B.	Lot 4 hereon.	Lots 2 & 3 hereon.

MEMORANDUM OF EASEMENTS IN GROSS

Purpose	Shown	Serv. Ten.	Grantee,
Right to convey electricity.	A,B.	Lot 4 hereon.	Aurora Energy Limited.
	D.	Lot 2 hereon.	
Right to install and maintain an electricity transformer.	D.	Lot 2 hereon.	
Right to convey telecommunication cables and computer media.	A,B.	Lot 4 hereon.	Telecom New Zealand Limited.

SCHEDULE OF EXISTING EASEMENTS IN GROSS

Purpose	Shown	Serv. Ten.	Created By.
Right to convey water.	a-b.	Lot 2 hereon.	T.874168.
	b-c. f-g.	Lot 4 hereon.	T.874168.
	d-e. g-h.	Lot 5 hereon.	T.882857 & T.885870.

I hereby certify that this plan was approved by the Central Otago District Council pursuant to Section 223 of the Resource Management Act 1991 on the 10th day of April 20.06

.....
Chief Executive L.A. van der Voort
(Pursuant to delegated authority)

subject to the granting or reserving of the easements set out in the memorandum hereon

NOTE: *Lot 5 hereon and part Lot 3 hereon (formerly Section 150 Block I Leaning Rock S.D.) are subject to Part IVA Conservation Act 1987.*

Lot 1 DP 15286

Lot 2 DP 15286

Lot 3 DP 15286

Lot 4 DP 15286

Lot 5 DP 15286

YOUNG LANE

Sec 150 Blk I
Leaning Rock SD
CT OT18D/384

89°25'50" 6.28

134°43'50" 191.37

over 20

Legal Road

SPRINGVALE ROAD

182°38'50" 37.48

(139.17) 50.39

54°10'50" 88.78

39°11'50" 46.70

683.25

1.99

131°42'30" (79,83) 79°38'15" 78.83 1.00 scd

74.00

Lot 1
DP 391214

Diag AAD
See T1

20.12

5
15.5690Ha

37°11'30" 154.69

37°03'30" 49.04 CT

2
DP 391214
CT 366074

139°31'20" 78.82

64°15'10" 177.51 CT

(214.23) 213.23

10.00

DUNSTAN ROAD
Legal Road

2
2.3870Ha

Diag AAB
See T1

3
1.5235Ha

Lot 2 DP 18638
CT OT9C/513

37°29'00" 24.37

57°34'00" 108.44

CT

58°32'00" 150.31

61°54'30" 53.50

CT 334°14'30" (108.57) 102.57 1.00 scd

12°40'45" (157.27) 54.11

33.41

16°23'50" (123.86) bdy CT 122.51

1.35 scd

64°17'20" 299.75

4
2.8240Ha

Lot 1 DP 11697

35°15'20"

199.46

53°48'30"

314°37'50" 254.93 (255.93) 1.00 scd

215°46'50" 148.90

Railway Land Block I Leaning Rock Survey District

Lot 1 DP 11732

Diag. AA
See T2
Diag. A

Lot 1 DP 391214

Diag. AAD

(9) DP 391214

(79,83) 79°38'15" 78.83 1.00 scd

(1) DP 391214

2
2.3870Ha

182°38'50" 75.60

(86.97)

DUNSTAN ROAD
Legal Road

4
2.8240Ha

10.00

1.00 scd

16 4 11.37

Lot 1 DP 362687

(221.62) 177.51

64°15'10"

(4) DP 15277

(13) DP 391214

213.23 (214.23) 1.00 scd

Lot 2 DP 18638

3
1.5235Ha

64°15'10" 31.51

53°30'00" 41°46'00" 6.53 5.89

10.00

244°15'10" 213.23

332°38'00" 6.81

4.00 334°14'30" 2.00 102.57 (108.57)

61°54'30" 53.50

Lot 2 DP 18638

4
2.8240Ha

Diag. AAB

T 1/3

Land District: Otago Digitally Generated Plan Generated on: 07/04/2008 09:47am Page 1 of 3	LOTS 2-5 BEING A SUBDIVISION OF LOT 2 DP 391214 & SECTION 150 BLOCK I LEANING ROCK SURVEY DISTRICT & EASEMENT OVER LOT 2 DP 18638.	Surveyor: Stuart Allan Calder Firm: Weller Surveying Limited (Alexandra)	Digital Survey Plan LT 403904 SUBJECT TO APPROVAL

Diag. AA

Non Primary

Lot 1 DP 15286

Lot 2 DP 15286

Lot 3 DP 15286

Lot 4 DP 15286

Lot 5 DP 15286

YOUNG LANE

SPRINGVALE ROAD

DUNSTAN ROAD

ex. easment (e-d) by T.882857 & T.885870

Lot 1 DP 391214

5

2

3

4

Diag AAC *See T3*

Diag AADA *See T3*

Diag AAA *See T3*

10.00

Lot 2 DP 18638

Lot 1 DP 11697

Lot 2 DP 18118

Railway Land Block I Leaning Rock Survey District

ex. easement (f-g) by T.876403

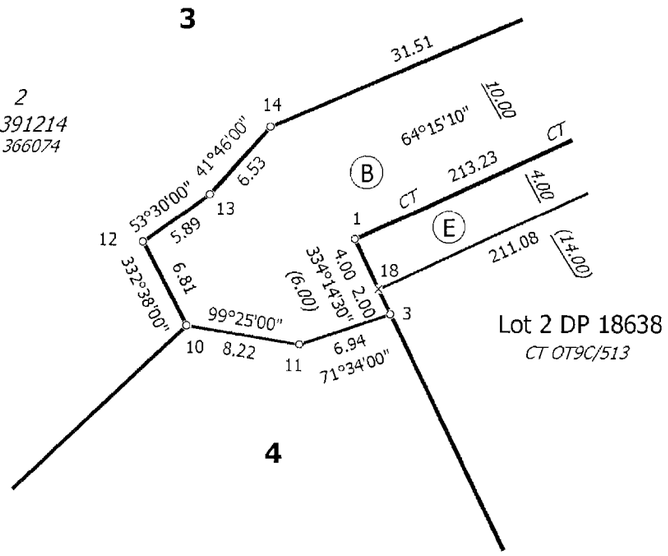
ex. easement (g-h) by T.882857 & T.885870

Lot 1 DP 11732

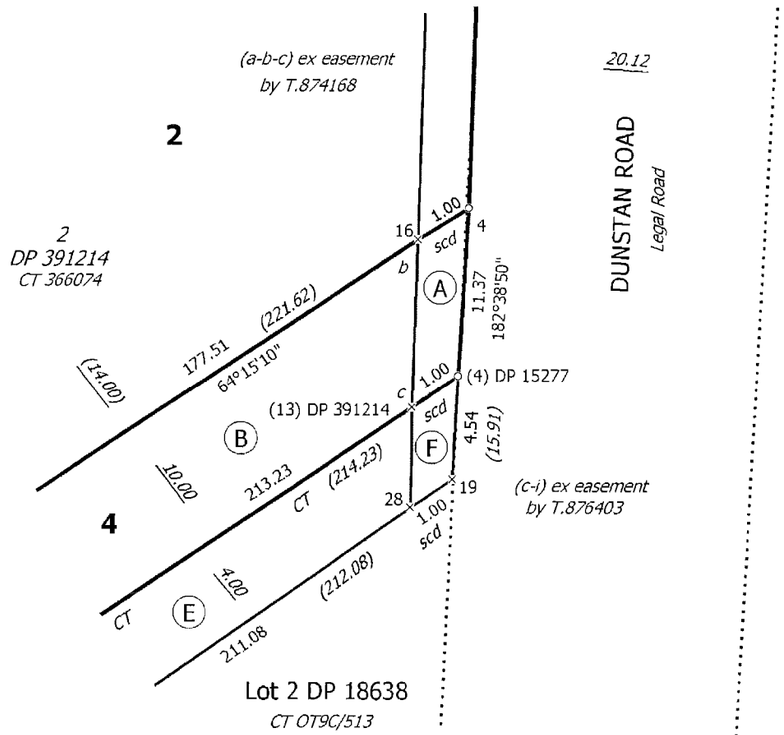
T 2/3

Land District: Otago Digitally Generated Plan Generated on: 07/04/2008 09:47am Page 2 of 3	LOTS 2-5 BEING A SUBDIVISION OF LOT 2 DP 391214 & SECTION 150 BLOCK I LEANING ROCK SURVEY DISTRICT & EASEMENT OVER LOT 2 DP 18638.	Surveyor: Stuart Allan Calder Firm: Weller Surveying Limited (Alexandra)	Digital Survey Plan LT 403904 SUBJECT TO APPROVAL

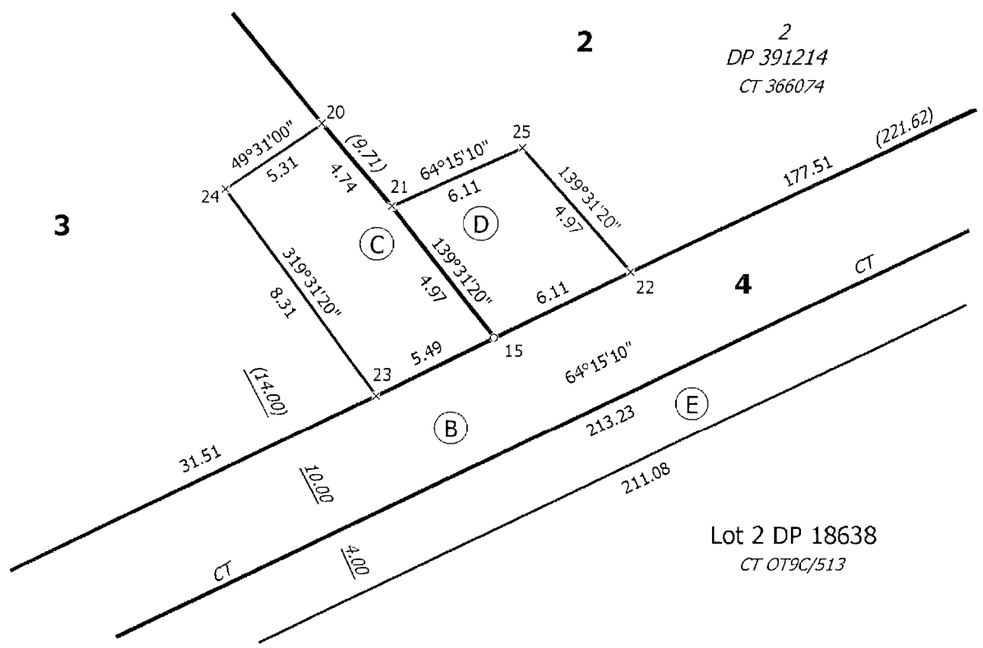
Diag. AAA
Non Primary



Diag. AADA
Non Primary



Diag. AAC
Non Primary



T 3/3

Land District: Otago Digitally Generated Plan Generated on: 07/04/2008 09:47am Page 3 of 3	LOTS 2-5 BEING A SUBDIVISION OF LOT 2 DP 391214 & SECTION 150 BLOCK I LEANING ROCK SURVEY DISTRICT & EASEMENT OVER LOT 2 DP 18638.	Surveyor: Stuart Allan Calder Firm: Weller Surveying Limited (Alexandra)	Digital Survey Plan LT 403904 SUBJECT TO APPROVAL

CENTRAL OTAGO DISTRICT COUNCIL

MEMO TO: Manager, Planning & Environment

FROM: Planning Officer

DATE: 10 August 2007

SUBJECT: RC070083 – Weller Surveying Limited, DUNSTAN RD, ALEXANDRA – **STAGE 1**
(2846233000)

I have received an application for 224(c) certification of the above subdivision consent.

I confirm that some conditions of consent have been met and a consent notice prepared for the remaining conditions and recommend that approval be granted.
Note: Building platform for Lot 2 only registered by consent notice as this is a staged subdivision . Stage 1 is creating Lots 1 and 2 only. Water test supplied for bore on new Lot 2 and tested potable.

Anita Dawe
Planning Officer

Approved / Declined

LOUISE van der VOORT Dated: 10 August 2007
MANAGER, PLANNING AND ENVIRONMENT

Pursuant to delegated authority

Office Processing

	Completed
All outstanding fees paid	
Posted to surveyor	
Scanned and saved	
Update RC status	
Asset Register updated	
GIS & Rates advised	

032162789

New Bore on Lot 2

Invercargill city council
"CITY OF WATER AND LIGHT"

WATER TESTING LABORATORY

Lake Street Invercargill
ph(03) 216 2189 fax (03) 216 2789

09-Aug-07

Lab Reference Number: B 10526

McNeill Drilling Water Test Report: Alexandra

Name:	Weller	
	Geoff	
Address:		
Order No:	D64763	
Date Received:	7/08/2007	09:20
Date Sampled:	6/08/2007	11:30
Sample Description:	Water	

Bacteriological Analysis

Test	*Result*	*Units*	*Method*
Total Coliform:	less than 1	Colony Forming Units per 100ml	*(APHA 21ed 9222 B)*
Faecal Coliform:	less than 1	Colony Forming Units per 100ml	*(APHA 21ed 9222 D)*
Enterococci:	less than 1	Colony Forming Units per 100ml	*(APHA 21ed 9230 C)*

Physical and Aggregate Properties

Test	*Result*	*Units*	*Method*
pH:	6.88		*(APHA 21ed 4500-H+ B)*
pH after Aeration:	7.94		*(APHA 21ed 4500-H+ B)*
Turbidity:	8.51	NTU	*(APHA 21ed 2130 B)*
Total Hardness:	64	mg per litre as CaCO3	*(APHA 21ed 2340 C)*
Calcium Hardness:	53	mg per litre as CaCO3	*(APHA 21ed 2340 C)*
Magnesium Hardness:	11	mg per litre as CaCO3	*(APHA 21ed 2340 C)*

Chemical Analysis

Test	*Result*	*Units*	*Method*
Iron:	0.49	mg per litre	*(APHA 21ed 3500-Fe B)*
Nitrate Nitrogen:	0.74	mg per litre as N	*(NWASCO 38)*
Ammoniacal Nitrogen:	0.02	mg per litre as N	*(NWASCO 38)*
Chloride:	7	mg per litre	*(APHA 21ed 4500-Cl-B)*
Manganese:	0.01	mg per litre	*(APHA 21ed 3500-Mn B)*

Bacteriologically this water sample showed no sign of contamination. A soft water sample that was corrosive. The iron may gve slight taste and staining problems.

A. Cocker
Lab Manager

New Bore on Lot 2

MCNEILL DRILLING

MCNEILL DRILLING CO. LTD

WATER BORE/WELL SUMMARY FORM

CLIENTS NAME: Geoff Weller	RESOURCE CONSENT NO:
FULL ADDRESS: Dunstan Road, Alexandra	BORE SIZE: 125mm
RAPID NO:	START DATE: 02.08.2007
GRID REFERENCE: E2223572 N5549743	FINISH DATE: 03.08.2007
DRILLER: Mike Simmons	
MEASURED FROM: Ground Level	MACHINE: TH60
TOTAL DEPTH BORE: 42.46	DRILL METHOD: Tubex
TOP LEADER: 41.36	
STATIC WATER LEVEL: 33.57	
SCREEN :SLOT: 2.5mm	LENGTH: 1.00
TYPE: Stainless Steel	SIZE: 100mm
PVC SLOTTED: TOP:	BASE:
SCREEN/LEADER/SUMP: 1.10	SUMP SIZE:
TOTAL CASING USED: 41.62	
AIRLIFTED/PUMPED AT: 95 Litres Per Minute	
TEST PUMP PERIOD: 2 Hours	
DRAWDOWN FROM SWL: 0.38	
AIR/PUMP INTAKE: 38.50	
BACTERIAL WATER TEST: Invercargill	
CHEMICAL WATER TEST: Invercargill	
EXTRA NOTES:	
BORE LOG:	
00.00 – 1.60 Top Soil Clay	
1.60 – 2.80 Clay Bound Gravels	
2.80 – 7.50 Silty Sandy Gravels	
7.50 – 8.40 Sand	
8.40 – 13.20 Sandy Gravels	
13.20 – 20.00 Sand	
20.00 – 21.70 Very Sandy Gravels	
21.70 – 25.80 Sand some Gravels	
25.80 – 26.60 Very Sandy Gravels	
26.60 – 29.70 Sand	
29.70 – 31.20 Sandy Gravels	
31.20 – 35.50 Clean Gravels	
35.50 – 42.60 Silty Sandy Gravels	
42.60 Yellow Clay Bound Gravels	

CENTRAL OTAGO DISTRICT COUNCIL

William Fraser Building
1 Dunorling Street, Alexandra 932
PO Box 122, Alexandra 9340
New Zealand

TEL +64 3 440 0056
FAX +64 3 448 9196
EML codcalex@codc.govt.nz
WEB www.codc.govt.nz

CODE COMPLIANCE CERTIFICATE
Section 95, Building Act 2004

THE BUILDING

Street Address:	602 DUNSTAN ROAD
Legal Description:	LOT 2 DP 403904
Valuation Number:	2846233001
Project:	Erect a new dwelling.
Level/Unit Number:	
Current, lawfully established use:	Residential
Year of Construction (approx):	2012

OWNER*

Owner's Name and Mailing Address:

Thayer Home Trust
PO Box 370
Invercargill 9840

Phone Number:	03-2184299
Fax Number:	
Email Address:	trevor@ttval.co.nz

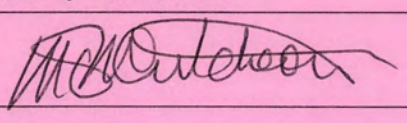
BUILDING WORK

Building Consent No:	BC 120675
Issued by:	Central Otago District Council

CODE COMPLIANCE CERTIFICATE

The Building Consent Authority named below is satisfied, on reasonable grounds, that:

a. the building work complies with the building consent.

Building Consent Officer:	Murray McCutcheon	On behalf of:
Signature:		**Central Otago District Council**
		PO Box 122
Date:	27/03/14	**Alexandra**

Compliance and Electrical Safety Certificate

This form has been issued by the Electrical Workers Registration Board

ELECTRICAL WORKERS REGISTRATION BOARD
Safety • Competency

Unique ID: IT 2014

This form has been designed to be used by licensed electrical workers to certify low voltage installations or part installations that comply with Part 2 of AS/NZS 3000 and are safe to be connected to a 230/400 volt multiple earth neutral (MEN) system of electrical supply.

(1) Location of installation

Address: _____

(2) Customer Information

Name: _____

Postal Address: _____

Phone and Email: _____

(3) Electrical Worker Information

Name: Paul Robbitt Registration/Practising Licence Number: I255

Organisation: Burns + Robbitt Telephone Number: 0274 329449

Email: probbitt@xtra.co.nz

Name of person(s) being supervised: _____

(4) Work Details

The work is (circle): **additions** | **alterations** | **new work**

The prescribed electrical work is: (✓) High Risk (✓) General ( ) Low Risk ( ) The homeowner has undertaken part of the electrical installation work.
(Please tick (✓) as appropriate)

Indicate the number of each item installed or altered:		Other Work?	Tick (✓) if work includes:
Number of lighting outlets:	48	Bathroom Heater x2	(✓) Mains
Number of socket outlets:	42	Towel Rail x 2	(✓) MEN switchboard closest to point of supply
Number of ranges:	1		(✓) Main Earthing System
Number of water heaters:	1		(✓) Electric Lines

(5) Certification of Work

I certify that the completed prescribed electrical work to which this certificate applies, has been done lawfully and safely and the information in the certificate is correct in that the installation, or part of the installation:

- (✓) has been installed in accordance with a certified design
- (✓) has an earthing system that is correctly rated
- (✓) contains fittings which are safe to connect to a power supply
- (✓) relies on supplier's Declaration of Conformity (attach or reference[1])
- (✓) relies on manufacturer's instructions (attach or reference[1])
- (✓) has been satisfactorily tested in accordance with Electricity (Safety) Regulations 2010
- ( ) is safe to connect

Test Results:	Electrical Worker	Inspector
Polarity (independent earth):	✓	
Insulation resistance:	✓	
Earth continuity:	✓	
Bonding:	✓	
Other (specify):	✓	

Electronic reference: _____

Electrical Worker's Signature: _____ Date: _____

1. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declarations of conformity, provide a reference to where the documents can be found, in a readily accessible format, through electronic means.

(6) Electrical Safety Certificate

I certify that the installation, or part of the installation, to which the Electrical Safety Certificate applies is connected to a power supply and is safe to use

Name: Paul Robbitt Registration/Practising Licence Number: I255

Signature: _____ Date 2/3/14
(if certifier is different from electrical worker)

GAS CERTIFICATE
OF COMPLIANCE

Reference No: 604 Dunstan Rd

Certificate of compliance for gasfitting work made pursuant to Regulation 46 of the Gas (Safety and Measurement) Regulations 2010 (as amended).

CLIENT	Trevor Thayer	**INSTALLATION**	
ADDRESS	604 Dunstan Rd Alexandra	**ADDRESS**	604 Dunstan Rd

DESCRIPTION OF THE GASFITTING WORK:
Install gas bottle station, gas pipework to fire in lounge and to bayonet fitting on exterior west wall

GAS TYPE	LPG	**GAS SUPPLY PRESSURE**	2.9 KPA
DATE(S) GASFITTING PERFORMED	27/3/2014		
STANDARD RISK CLASSIFICATION (tick one)	[✓] Low [ ] General [ ] High		

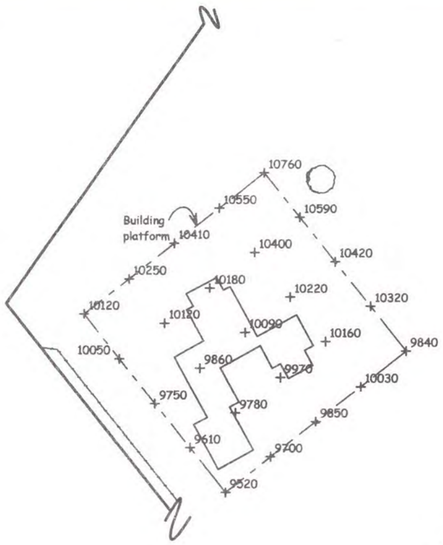
NAME OF PERSON/S WHO CARRIED OUT GASFITTING UNDER SUPERVISION:
Dave Hamilton

CERTIFICATE ATTACHMENTS
[n/a] Manufacturers Instructions:
[n/a] Certified Designs: Enter details of any designs

"I believe on reasonable grounds that:
(a) the gasfitting work described above has been done lawfully and safely; and
(b) the work has been done in accordance with AS/NZS 5601.2
(c) the information contained in this certificate is correct."

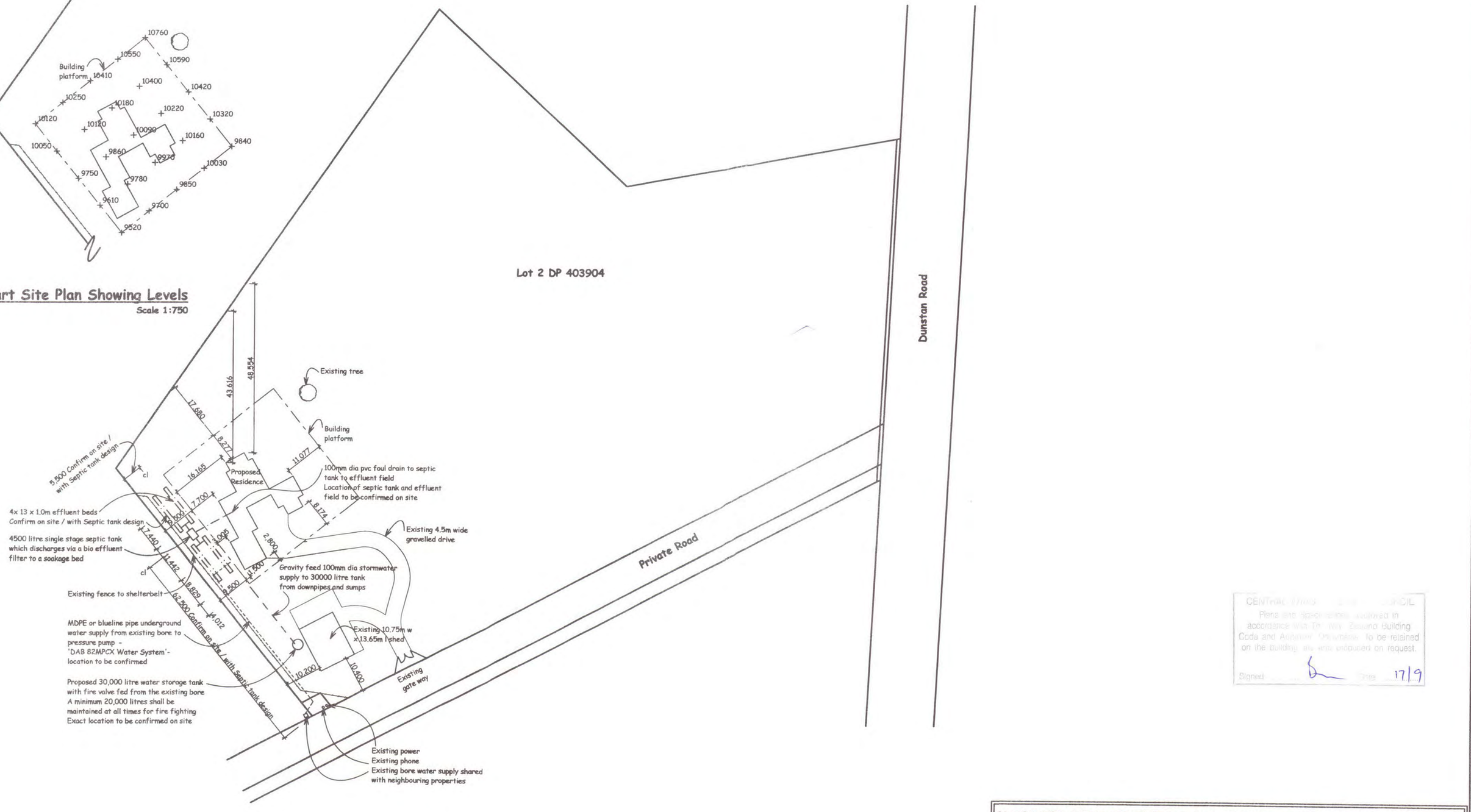
CERTIFIER NAME	Chris Sutherland
REGISTRATION TYPE & NUMBER	Certifying Gas fitter, 12404
SIGNATURE	
DATE	27-3-14

Master Plumbers Gasfitters Drainlayers



Part Site Plan Showing Levels

Scale 1:750



Proposed Site Plan Including Site Services

Scale 1:750

CENTRAL [illegible] COUNCIL
Plans and specifications approved in accordance with the New Zealand Building Code and Addition 'Provisions' to be retained on the Building site and produced on request.
Signed ... Date 17/9

PROPOSED NEW RESIDENCE FOR TREVOR THAYER & NICOLA THAYER-SMITH, DUNSTAN ROAD, CLYDE

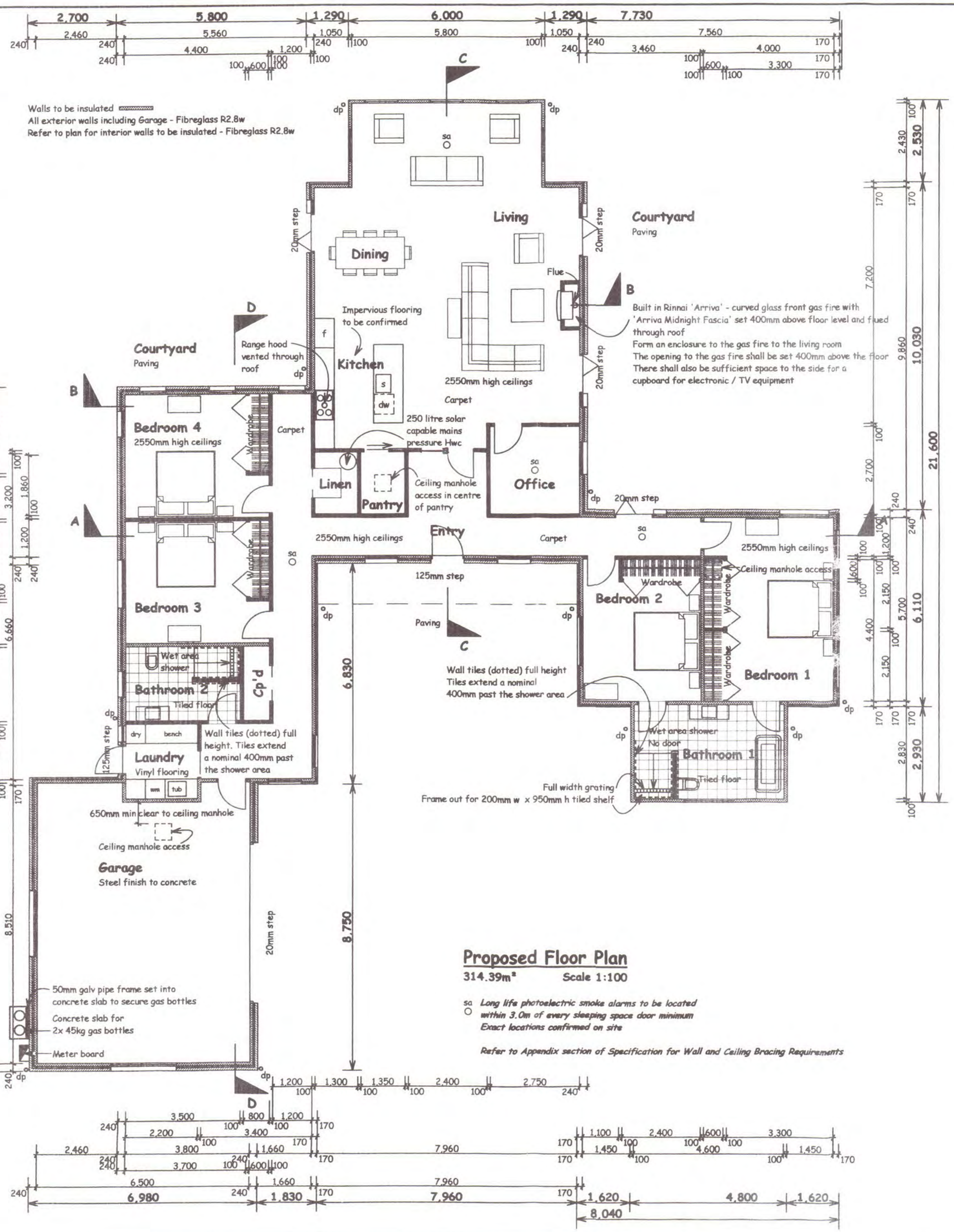
SITE PLAN INCLUDING SITE SERVICES

Mollison & Associates Ph: (03) 218 4049 Fax: (03) 214 4153
53 Gala Street, Invercargill Email: office@mollison.co.nz

Date 05 Sept 2012
Scale 1:750
Drawing Sheet 1 of 9

Set 3

5 SEP 2012


Walls to be insulated
All exterior walls including Garage - Fibreglass R2.8w
Refer to plan for interior walls to be insulated - Fibreglass R2.8w
Living
Dining
Courtyard
Paving
Flue
Built in Rinnai 'Arriva' - curved glass front gas fire with 'Arriva Midnight Fascia' set 400mm above floor level and flued through roof
Form an enclosure to the gas fire to the living room
The opening to the gas fire shall be set 400mm above the floor
There shall also be sufficient space to the side for a cupboard for electronic / TV equipment
Impervious flooring to be confirmed
Range hood vented through roof
Kitchen
2550mm high ceilings
Carpet
250 litre solar capable mains pressure Hwc
Bedroom 4
2550mm high ceilings
Wardrobe
Linen
Pantry
Ceiling manhole access in centre of pantry
Office
20mm step
Entry
2550mm high ceilings
Carpet
125mm step
Paving
Bedroom 3
Bedroom 2
Bedroom 1
2550mm high ceilings
Ceiling manhole access
Wet area shower
Bathroom 2
Tiled floor
Cp'd
Wall tiles (dotted) full height
Tiles extend a nominal 400mm past the shower area
Laundry
Vinyl flooring
dry
bench
wm
tub
Wall tiles (dotted) full height. Tiles extend a nominal 400mm past the shower area
Wet area shower
No door
Bathroom 1
Tiled floor
Full width grating
Frame out for 200mm w x 950mm h tiled shelf
650mm min clear to ceiling manhole
Ceiling manhole access
Garage
Steel finish to concrete
50mm galv pipe frame set into concrete slab to secure gas bottles
Concrete slab for 2x 45kg gas bottles
Meter board
Proposed Floor Plan
314.39m²
Scale 1:100
Long life photoelectric smoke alarms to be located within 3.0m of every sleeping space door minimum
Exact locations confirmed on site
Refer to Appendix section of Specification for Wall and Ceiling Bracing Requirements

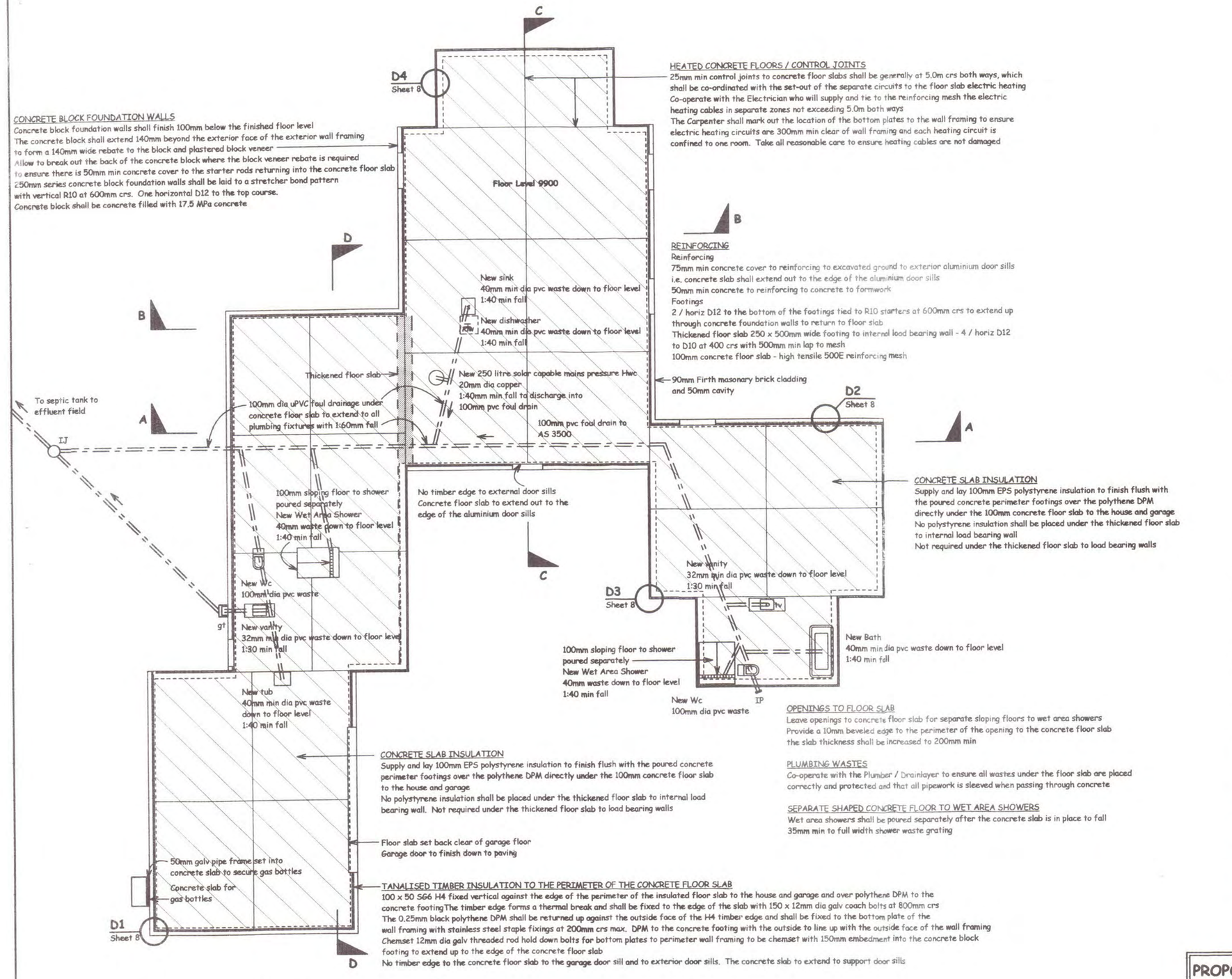
PROPOSED NEW RESIDENCE FOR TREVOR THAYER & NICOLA THAYER-SMITH, DUNSTAN ROAD, CLYDE

FLOOR PLAN

Date	05 Sept 2012
Scale	1:100
Drawing	Sheet 2 of 9

Mollison & Associates Ph: (03) 218 4049 Fax: (03) 214 4153
53 Gala Street, Invercargill Email: office@mollison.co.nz

5 SEP 2012



CONCRETE BLOCK FOUNDATION WALLS
Concrete block foundation walls shall finish 100mm below the finished floor level
The concrete block shall extend 140mm beyond the exterior face of the exterior wall framing to form a 140mm wide rebate to the block and plastered block veneer
Allow to break out the back of the concrete block where the block veneer rebate is required to ensure there is 50mm min concrete cover to the starter rods returning into the concrete floor slab
250mm series concrete block foundation walls shall be laid to a stretcher bond pattern with vertical R10 at 600mm crs. One horizontal D12 to the top course.
Concrete block shall be concrete filled with 17.5 MPa concrete

HEATED CONCRETE FLOORS / CONTROL JOINTS
25mm min control joints to concrete floor slabs shall be generally at 5.0m crs both ways, which shall be co-ordinated with the set-out of the separate circuits to the floor slab electric heating
Co-operate with the Electrician who will supply and tie to the reinforcing mesh the electric heating cables in separate zones not exceeding 5.0m both ways
The Carpenter shall mark out the location of the bottom plates to the wall framing to ensure electric heating circuits are 300mm min clear of wall framing and each heating circuit is confined to one room. Take all reasonable care to ensure heating cables are not damaged

REINFORCING
Reinforcing
75mm min concrete cover to reinforcing to excavated ground to exterior aluminium door sills i.e. concrete slab shall extend out to the edge of the aluminium door sills
50mm min concrete to reinforcing to concrete to formwork
Footings
2 / horiz D12 to the bottom of the footings tied to R10 starters at 600mm crs to extend up through concrete foundation walls to return to floor slab
Thickened floor slab 250 x 500mm wide footing to internal load bearing wall - 4 / horiz D12 to D10 at 400 crs with 500mm min lap to mesh
100mm concrete floor slab - high tensile 500E reinforcing mesh

CONCRETE SLAB INSULATION
Supply and lay 100mm EPS polystyrene insulation to finish flush with the poured concrete perimeter footings over the polythene DPM directly under the 100mm concrete floor slab to the house and garage
No polystyrene insulation shall be placed under the thickened floor slab to internal load bearing wall
Not required under the thickened floor slab to load bearing walls

OPENINGS TO FLOOR SLAB
Leave openings to concrete floor slab for separate sloping floors to wet area showers
Provide a 10mm beveled edge to the perimeter of the opening to the concrete floor slab the slab thickness shall be increased to 200mm min

PLUMBING WASTES
Co-operate with the Plumber / Drainlayer to ensure all wastes under the floor slab are placed correctly and protected and that all pipework is sleeved when passing through concrete

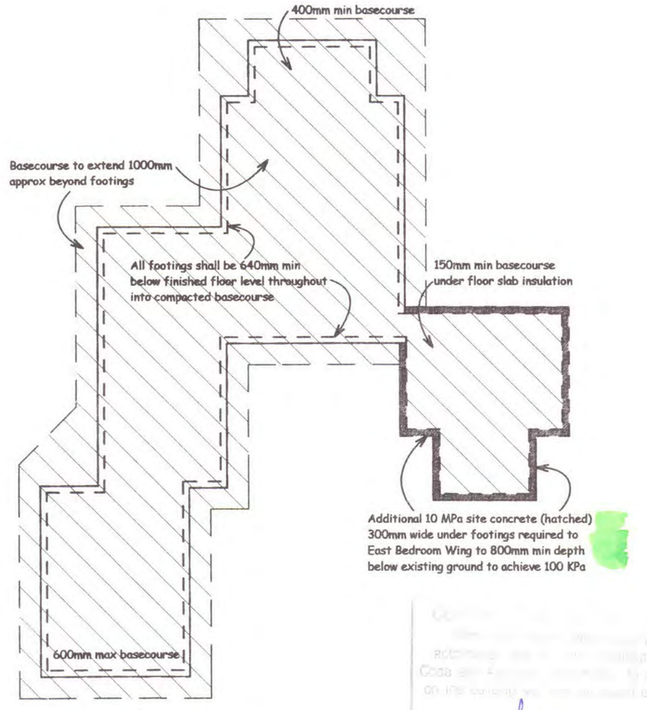
SEPARATE SHAPED CONCRETE FLOOR TO WET AREA SHOWERS
Wet area showers shall be poured separately after the concrete slab is in place to fall
35mm min to full width shower waste grating

CONCRETE SLAB INSULATION
Supply and lay 100mm EPS polystyrene insulation to finish flush with the poured concrete perimeter footings over the polythene DPM directly under the 100mm concrete floor slab to the house and garage
No polystyrene insulation shall be placed under the thickened floor slab to internal load bearing wall. Not required under the thickened floor slab to load bearing walls

TANALISED TIMBER INSULATION TO THE PERIMETER OF THE CONCRETE FLOOR SLAB
100 x 50 SG6 H4 fixed vertical against the edge of the perimeter of the insulated floor slab to the house and garage and over polythene DPM to the concrete footing The timber edge forms a thermal break and shall be fixed to the edge of the slab with 150 x 12mm dia galv coach bolts at 800mm crs
The 0.25mm black polythene DPM shall be returned up against the outside face of the H4 timber edge and shall be fixed to the bottom plate of the wall framing with stainless steel staple fixings at 200mm crs max. DPM to the concrete footing with the outside to line up with the outside face of the wall framing
Chemset 12mm dia galv threaded rod hold down bolts for bottom plates to perimeter wall framing to be chemset with 150mm embedment into the concrete block footing to extend up to the edge of the concrete floor slab
No timber edge to the concrete floor slab to the garage door sill and to exterior door sills. The concrete slab to extend to support door sills

Foundation and Plumbing and Drainage Plan
Scale 1:100

See Sheet 4 - Roof Plan for Stormwater Drainage



Footings Plan
Scale 1:200

COMPACTED BASECOURSE
Shall be placed under all concrete floor slabs and shall not be less than 150mm and shall be approx 600mm max depth
Supply and place clean imported AP40 and compact in layers not exceeding 150mm
Ensure that the compacted basecourse has an ultimate bearing capacity not less than 100 kPA below the top of the concrete block foundation wall
20mm clean river run sand blinding

DAMP PROOF MEMBRANE
Supply and lay 0.250mm black polythene DPM over compacted basecourse to return over foundation wall starters up through the floor slab to perimeter concrete block foundation wall to return up to the outside face of the timber edge to the floor slab

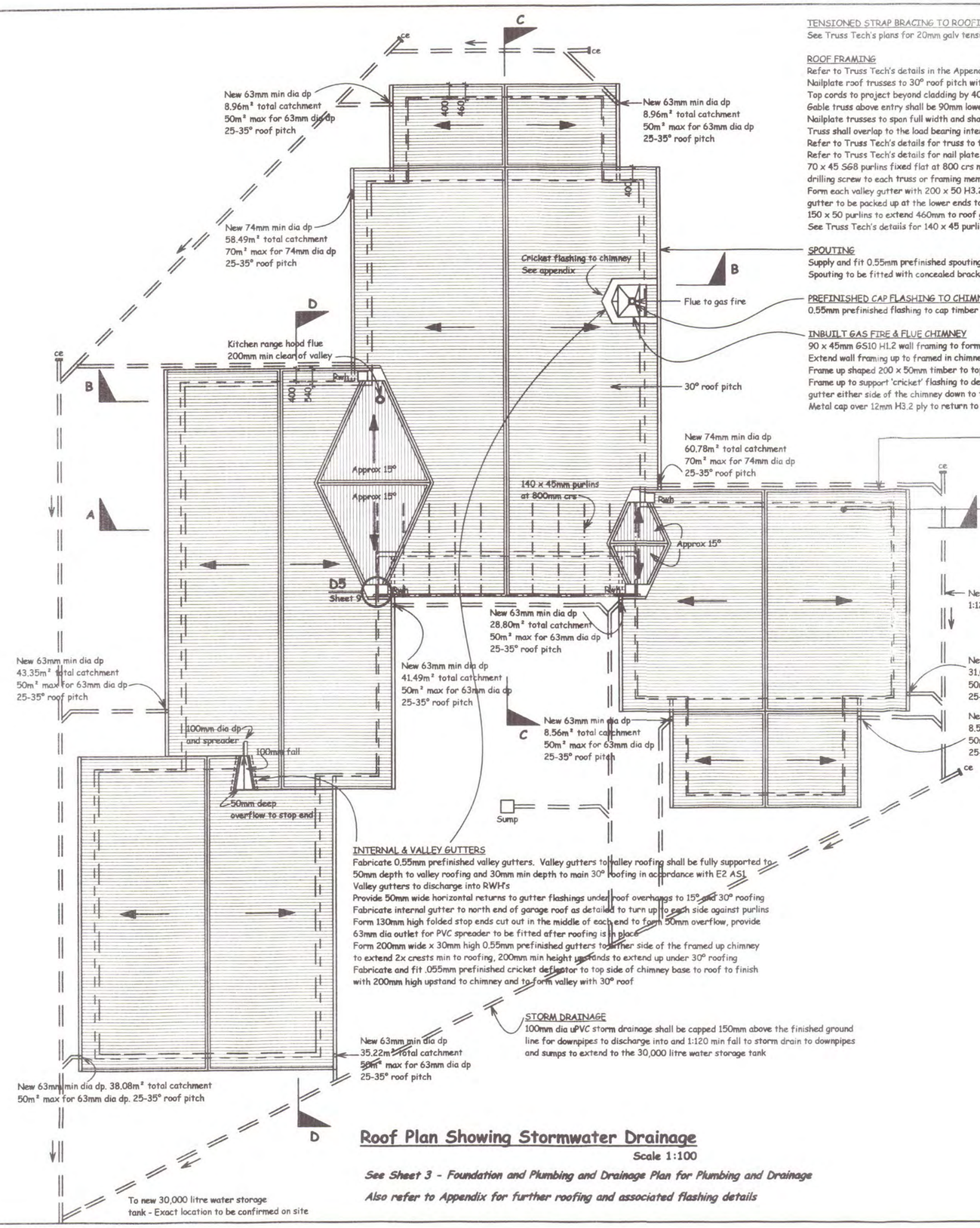
PROPOSED NEW RESIDENCE FOR TREVOR THAYER & NICOLA THAYER-SMITH, DUNSTAN ROAD, CLYDE

FOUNDATION AND PLUMBING & DRAINAGE PLAN

Mollison & Associates Ph: (03) 218 4049 Fax: (03) 214 4153
53 Gala Street, Invercargill Email: office@mollison.co.nz

Date 05 Sept 2012
Scale 1:100 & 1:200
Drawing Sheet 3 of 9

5 SEP 2012



TENSIONED STRAP BRACING TO ROOFING

See Truss Tech's plans for 20mm galv tensioned strap bracing fixed both ways over purlins to all roofing planes

ROOF FRAMING

Refer to Truss Tech's details in the Appendix Section
Nailplate roof trusses to 30° roof pitch with horizontal bottom cords shall be placed at 900mm crs to 2600mm top plate to wall framing
Top cords to project beyond cladding by 400mm
Gable truss above entry shall be 90mm lower to allow for 140mm deep purlins
Nailplate trusses to span full width and shall be supported by load bearing external and internal walls
Truss shall overlap to the load bearing internal wall
Refer to Truss Tech's details for truss to top plate fixing
Refer to Truss Tech's details for nail plate trusses over main roof trusses at 90° to form 15° valley roofing
70 x 45 SG8 purlins fixed flat at 800 crs max to 30° roofing and 600 crs max to secondary 12° roofing with 1 / 80mm long 10g self drilling screw to each truss or framing member to finish flush with the top of the outrigger purlins to the entry
Form each valley gutter with 200 x 50 H3.2 blocking between trusses in accordance with E2 AS1 to full 50mm purlin depth to form valley gutter to be packed up at the lower ends to discharge onto main roofing
150 x 50 purlins to extend 460mm to roof gables with 90 x 45 solid blocking on edge directly below each cantilevered purlin to provide soffit fixing
See Truss Tech's detaiis for 140 x 45 purlins on edge at 800mm crs max to extend across entry passage supported approx mid span by gable truss to 90 x 45 timber framed entry wall

SPOUTING

Supply and fit 0.55mm prefinished spouting with sufficient capacity for the catchment areas falling to each downpipe outlet
Spouting to be fitted with concealed brackets and snow straps to metal fascias

PREFINISHED CAP FLASHING TO CHIMNEY

0.55mm prefinished flashing to cap timber framed chimney with 150mm circular upstand for gas fire flue to extend up through. Metal cap over 12mm H3.2 ply to return to metal fascia folded to form 70 x 30 edge

INBUILT GAS FIRE & FLUE CHIMNEY

90 x 45mm GS10 H1.2 wall framing to form chimney, studs at 400mm crs max
Extend wall framing up to framed in chimney to flue studs at 400 crs, lined with 6.0mm RAB bd for Linea weatherboards to cavity battens
Frame up shaped 200 x 50mm timber to top of chimney shaped to fall 50mm to the external corners for a metal flashing
Frame up to support 'cricket' flashing to deflect snow and hail away from the base of the chimney to extend as a 200mm wide x 30mm depth gutter either side of the chimney down to the spouting. Solid blocking to form roof overhang.
Metal cap over 12mm H3.2 ply to return to metal fascia folded to form 70 x 30 edge

SOFFITS & METAL FASCIAS

Supply and fix 0.55mm prefinished metal fascias with folded groove provided to support the edge of the soffit linings
Ensure sufficient fixing is provided to cope with snow loading to attached spouting
90 x 45mm horizontal framing and blocking to the sides of all overhangs to roof framing to provide fixing for soffits
Supply and fix villa board linings to horizontal and sloping soffit linings with tapered edges to butt joints to be stopped flush and painted

LONGRUN ROOFING

Roofing to be installed in accordance with manufacturer's instructions and E2 AS1
Supply and install longrun prefinished corrugated profile roofing over Watergate Plus building paper to timber purlins
Roofing to extend 50mm min into spoutings and 80mm min internal gutters, valleys and RWH's
Roofing shall be fixed with colour matched fixings with neoprene washers
0.55mm prefinished flashings shall be in accordance with E2 - refer to Appendix Section

DOWNPIPES

Location, size and catchment areas are noted on the roof plan
Downpipes shall extend from outlets to spouting and rainwater heads and shall be screw fixed
Downpipes shall be plumb and shall be fixed to wall cladding with downpipe brackets at 1200 crs max

RAINWATER HEADS

Fabricate 316 stainless steel rainwater heads to extend down through the roof overhangs to finish below the soffits and shall be gathered to the downpipe outlets. Provide slotted overflows to the rainwater heads that are 1.5x the area of the downpipe outlet
The overflow shall be fitted below soffit level
The RWH shall extend up the opposite 30° roof to collect the second

INTERNAL & VALLEY GUTTERS

Fabricate 0.55mm prefinished valley gutters. Valley gutters to valley roofing shall be fully supported to 50mm depth to valley roofing and 30mm min depth to main 30° roofing in accordance with E2 AS1
Valley gutters to discharge into RWH's
Provide 50mm wide horizontal returns to gutter flashings under roof overhangs to 15° and 30° roofing
Fabricate internal gutter to north end of garage roof as detailed to turn up to each side against purlins
Form 130mm high folded stop ends cut out in the middle of each end to form 50mm overflow, provide 63mm dia outlet for PVC spreader to be fitted after roofing is in place
Form 200mm wide x 30mm high 0.55mm prefinished gutters to either side of the framed up chimney to extend 2x crests min to roofing, 200mm min height upstands to extend up under 30° roofing
Fabricate and fit .055mm prefinished cricket deflector to top side of chimney base to roof to finish with 200mm high upstand to chimney and to form valley with 30° roof

STORM DRAINAGE

100mm dia uPVC storm drainage shall be capped 150mm above the finished ground line for downpipes to discharge into and 1:120 min fall to storm drain to downpipes and sumps to extend to the 30,000 litre water storage tank

Roof Plan Showing Stormwater Drainage

Scale 1:100

See Sheet 3 - Foundation and Plumbing and Drainage Plan for Plumbing and Drainage

Also refer to Appendix for further roofing and associated flashing details

PROPOSED NEW RESIDENCE FOR TREVOR THAYER & NICOLA THAYER-SMITH, DUNSTAN ROAD, CLYDE

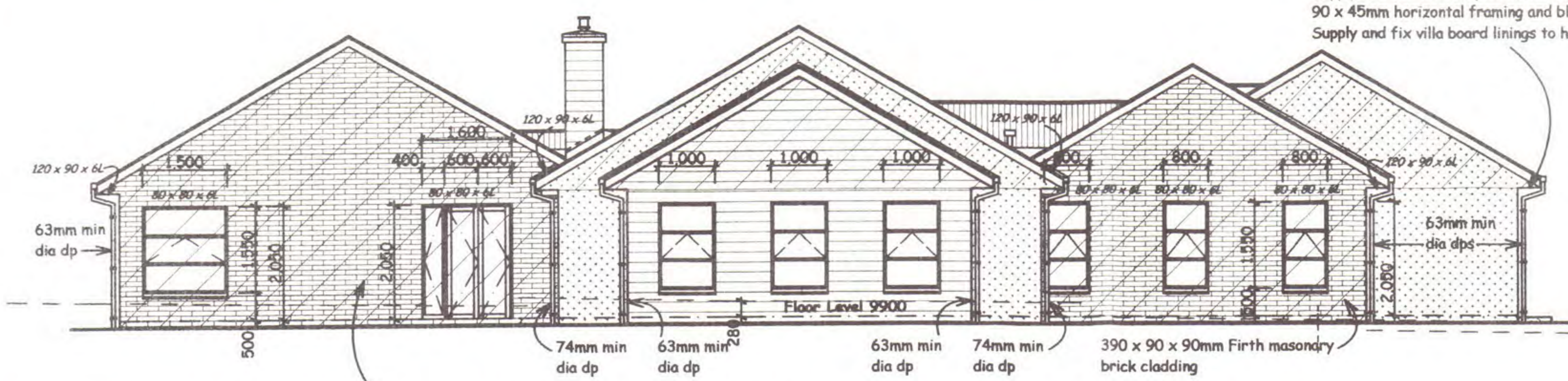
ROOF PLAN SHOWING STORMWATER DRAINAGE

Date 05 Sept 2012
Scale 1:100
Drawing Sheet 4 of 9

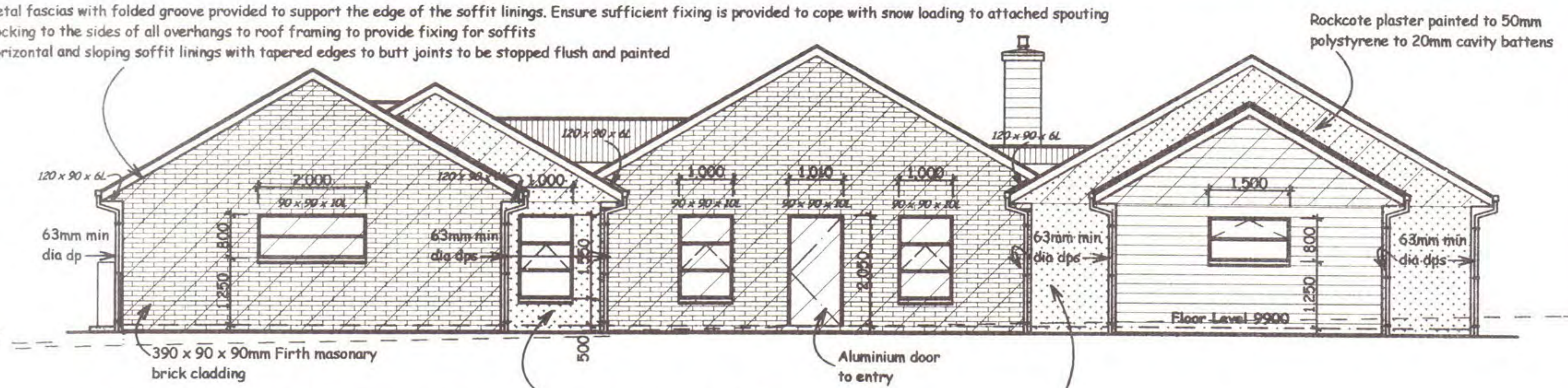
Mollison & Associates Ph: (03) 218 4049 Fax: (03) 214 4153
53 Gala Street, Invercargill Email: office@mollison.co.nz

17/9

5 SEP 2012



North Elevation
Scale 1:100



South Elevation
Scale 1:100

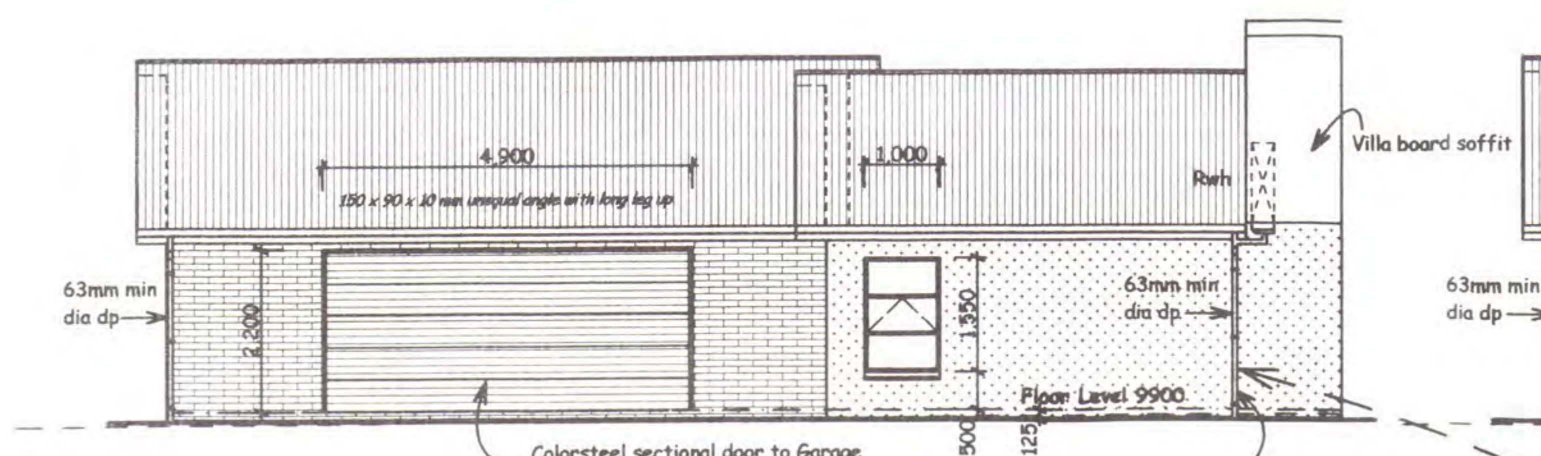
SOFFITS & METAL FASCIAS
Supply and fix 0.55mm prefinished metal fascias with folded groove provided to support the edge of the soffit linings. Ensure sufficient fixing is provided to cope with snow loading to attached spouting
90 x 45mm horizontal framing and blocking to the sides of all overhangs to roof framing to provide fixing for soffits
Supply and fix villa board linings to horizontal and sloping soffit linings with tapered edges to butt joints to be stopped flush and painted

Rockcote plaster painted to 50mm polystyrene to 20mm cavity battens

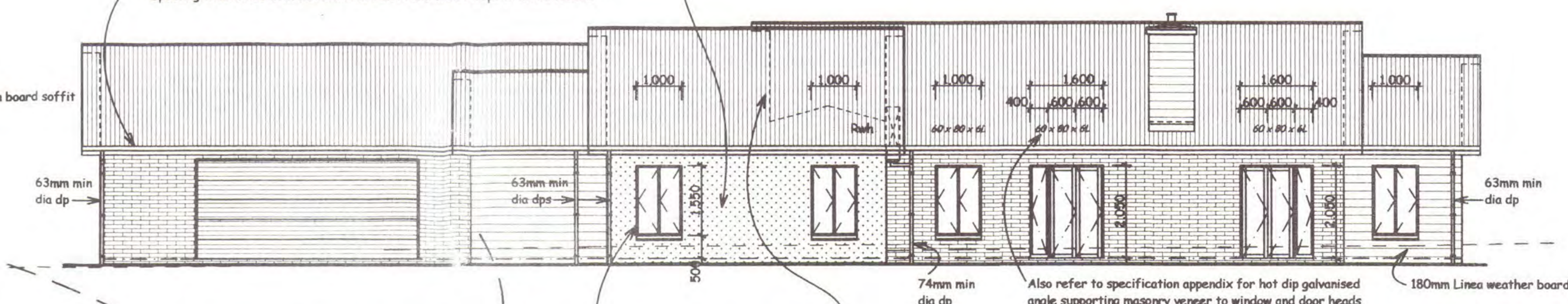
RIGID AIR BARRIER BD TO ROOF GABLES & EXTERIOR WALL FRAMING TO MASONRY VENEER GABLE WALLS
Supply and fix James Hardie 6mm RAB bd to
Gable end trusses to Linea weatherboard cladding to the north and south elevations. Note the gable trusses for Linea weatherboard cladding to be set 6mm back from the outside face of the wall framing so the 6mm RAB bad finishes flush with the wall framing
To the exposed sections of gable end trusses above lower roofing to Rockrose cladding to the north and south elevations
Full height to wall and gable framing to block veneer and plastered block veneer to north and south elevations
Provide Frameflash reinforced tape to the window and door openings

ROCKCOTE EPS CAVITY PLUS RENDER CLADDING SYSTEM
Approved Applicator Installer to install the cladding system in accordance with the manufacturer's instructions and with E2 AS1 - see Appendix Section for details
Install polystyrene cavity battens and vermin strip to Thermawrap to wall framing and to RAB bd to gable trusses
Allow Roofer to install roof upstand flashings over lower roofing to gable cladding above
Install 50mm EPS polystyrene with PVC trim to external corners, bottom edge and window and door openings
Install Rockcote reinforcing mesh and Rockcote EPS Cavity Plus Render Plaster System
Provide control joints in accordance with manufacturer's recommendations. MS Sealant between Rockcote plaster and metal window and door frames

SPOUTING
Supply and fit 0.55mm prefinished spouting with sufficient capacity for the catchment areas falling to each downpipe outlet
Spouting to be fited with concealed brackets and snow straps to metal fascias



East Elevation
Scale 1:100



East Elevation
Scale 1:100

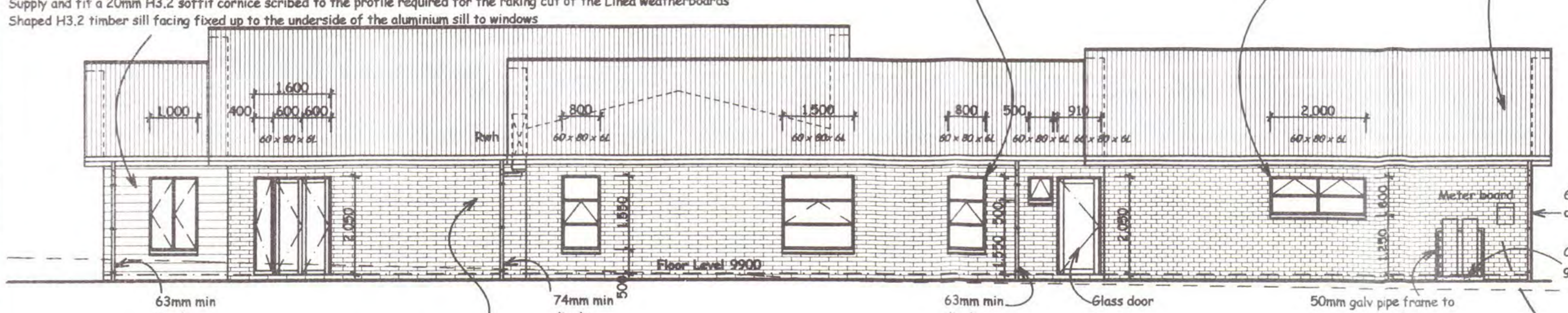
DOWNPIPES
Location, size and catchment areas are noted on the roof plan
Downpipes shall extend from outlets to spouting and rainwater heads and shall be screw fixed
Downpipes shall be plumb and shall be fixed to wall cladding with downpipe brackets at 1200 crs max

LONGRUN ROOFING
Roofing to be installed in accordance with manufacturer's instructions and E2 AS1
Supply and install longrun prefinished corrugated profile roofing over Watergate Plus building paper to timber purlins
Roofing to extend 50mm min into spoutings and 80mm min internal gutters, valleys and RWH's
Roofing shall be fixed with colour matched fixings with neoprene washers
0.55mm prefinished flashings shall be in accordance with E2 - refer to Appendix Section

JAMES HARDIE LINEA WEATHERBOARD CLADDING
Supply and install 180 x 16mm preprimed James Hardie Linea weatherboards fixed over 20mm cavity battens to the building wrap to the wall framing
The building wrap shall extend over the 6mm RAB bd to the gable end trusses
Cavity battens shall be fixed in accordance with James Hardie's instructions complete with vermin proof strip to the bottom row and 15mm clear above head flashings
Linea weatherboards also fitted over RAB bd to 4x sides timber framed chimney above roof. 50mm min cove to 200mm high upstands flush to 4x sides onto 30° roof
Vertical folded 0.55mm aluminium flashing to internal corners to extend 50mm beyond Linea weatherboard cladding and return polystyrene cladding
The bottom row shall be set 50mm below the concrete floor
External corners shall be finished with individual aluminium corner soakers
Supply and fit H3.2 timber soakers shaped to the angled stepped weatherboard profile to the sides of the aluminium frames
Weatherboard cladding shall be cut around the head flashings in accordance with E2
H3.2 shaped planted timber sill. Allow to prime raking cuts to weatherboards finishing up to the sloping soffit lining
Supply and fit a 20mm H3.2 soffit cornice scribed to the profile required for the raking cut of the Linea weatherboards
Shaped H3.2 timber sill facing fixed up to the underside of the aluminium sill to windows

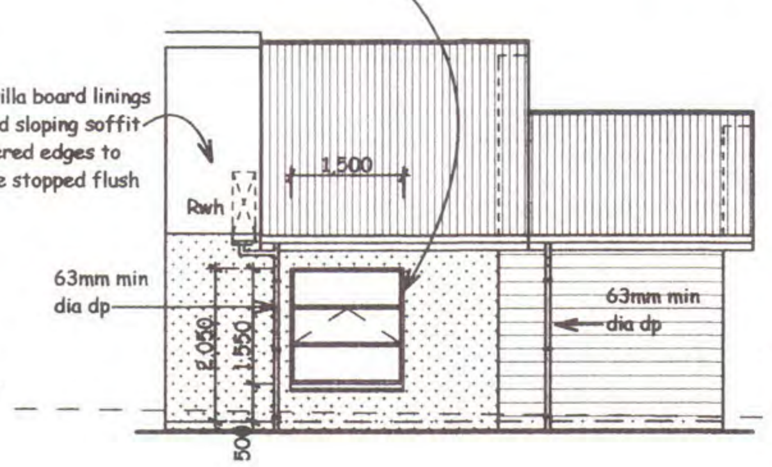
POWDERCOAT THERMAL BROKEN ~~ALUMINIUM~~ FRAMES TO WINDOWS & EXTERIOR DOORS
Aluminium frames shall be Altherm Residential Thermal Heart Series with thermal break
Powdercoat finish shall be colour Matt Black
All glazing shall be double glazing with 4mm clear outer glass and 4mm inner glass with a thermal spacer and argon gas filled. Obscure (Mateluz) double glazing to the bathrooms
Top hung sashes shall be fitted with stays, restrictors and lever handles
The hinged entry door shall be aluminium Plasma 4 panel powdercoat Matt Black
Full height side hung sashes to sidelights to bifold doors
19mm pine timber reveals fitted to all aluminium windows and doors

INSTALLATION OF ALUMINIUM WINDOWS & EXTERIOR DOORS
Arrange to install aluminium framed windows and doors supplied complete with timber reveals to finish flush with internal linings
Supply and screw fix aluminium angles to support sills to windows and doors. Supply and install sill flashing with folded stop ends in accordance with E2
Install windows and doors with 5mm min gap to framed opening with screw fixing at 400mm crs max with 25mm embedment to framing
Supply and fit foam air barrier board between reveals and wall framing set 20mm back from the inside face of the framing and fill with expanding foam to maintain foam air seal
Provide and install prefinished aluminium head flashings to all aluminium windows and doors in accordance with E2 for various claddings including external sill flashing to block veneer
Provide 150mm wide folded rubber membrane strip to finish in behind the sides of the aluminium frames to block veneer cladding



West Elevation
Scale 1:100

Supply and fix villa board linings to horizontal and sloping soffit linings with tapered edges to butt joints to be stopped flush and painted



West Elevation
Scale 1:100

Also refer to Appendix for further cladding details

All footings shall be 640mm min below finished floor level throughout
There shall be additional 10Mpa site concrete to a minimum 800mm depth below ground level to the east bedroom wing

Refer to Truss Tech's details in the Appendix section of the Specification for lintel sizes

Refer to the Appendix section of the Appendix for requirements to control joints to claddings

MASONRY VENEER
Allow to waterproof 140mm wide rebate to concrete block foundation wall to 100mm height to timber edge to concrete floor slab with 1.0mm Butyl rubber or 0.25mm polythene
Allow to supply and lay Firth 390 x 90 x 90 concrete block veneer to stretcher pattern
Type EM galvanized wall ties shall be in accordance with Table 18A E2 / AS1 for type B / Two NZS 3604 seismic zone and shall not exceed 600mm crs max horizontal and 400mm crs max vertical to wall framing and in accordance with Table 18B E2 / AS1. Ties shall be galvanized to 470g/m²
Mortar joints shall be struck to block veneer that remains exposed and mortar joints shall be flush where block veneer is to be plastered
Blocklayer to allow to supply and install hot dip galv ms angles to support nominal 190mm high block veneer above window and door openings as noted on the elevations in accordance with the Building Code or as specified by the Structural Engineer
The cavity shall be 40mm min and 70mm max from wall framing. Note galv angles shall also be fixed to gable ends to soffits to allow block veneer to extend out to the edge of the return spouting
Angles shall be in accordance with table 18E E2 / AS1
Allow for angled cuts to block veneer to finish up to sloping soffits. Angles shall be galvanized 600g/m²
Angles to openings outside this table shall be 90 x 90 x 10mm. Seating to masonry veneer shall be 100mm for spans up to and including 2.0m and 200mm seating for spans over 2.0mm
Brick veneer to soffit gables and to masonry veneer overlapping adjoining metal roofing shall be supported by fabricated 120 wide x 90mm high x 6mm hot dip galv angle drilled for two galv M12 fixings to gable trusses - also refer to the Appendix section for details. Bolt fixings to extend through 45mm truss framing with 50 x 50 square washers fitted
Provide 90mm high x 10mm wide weep holes to the bottom course at 800mm crs max. Window openings not exceeding 2.4m wide do not require slots to course directly under window sill
Provide a continuous 3mm min gap between the top course and the soffit. Allow to cut blocks to form sills to windows
Form a vertical control joint between block veneer and Rockcote polystyrene cladding as required by 9.2 E2 AS1

PROPOSED NEW RESIDENCE FOR TREVOR THAYER & NICOLA THAYER-SMITH, DUNSTAN ROAD, CLYDE	
ELEVATIONS	Date: 05 Sept 2012 Scale: 1:100
Mollison & Associates Ph: (03) 218 4049 Fax: (03) 214 4153 53 Gala Street, Invercargill Email: office@mollison.co.nz	Drawing: Sheet 5 of 9

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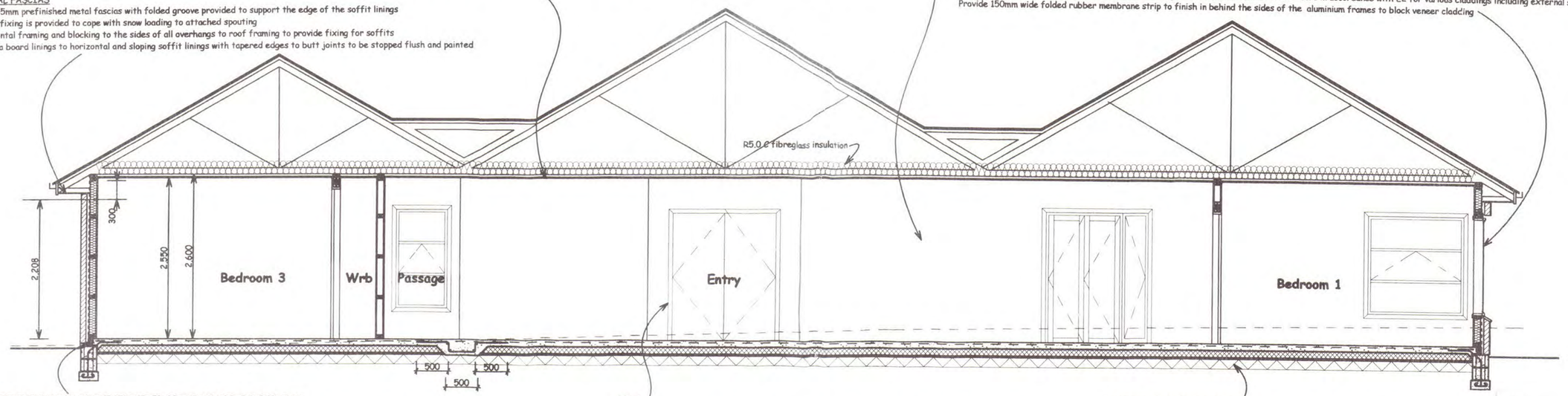
5 SEP 2012

INTERNAL WALL & CEILING LININGS
Gib linings to be fixed in accordance with Winstones best practice installation hand book i.e. wall linings fixed horizontal or vertical to minimize light highlighting joints. There shall be no horizontal or vertical joints at the corners of wall openings
Refer to the Schedule of Room Finishes Section. Wall linings to be fixed up to window and door reveals with separate architraves fitted. Linings to be fixed in accordance with manufacturer's instructions
13mm gib wall lining /13mm gib Braceline / 9mm James Hardie Villa Board / 13mm gib Ultraline ceiling lining / 13mm gib Aqualine ceiling lining
Refer to Bracing Section in the Appendix Section for the location of the Braceline
Wall linings shall finish flush with window and door reveals as there are separate planted reveals to be fitted
Supply and fit Gib Rhondo metal ceiling battens to the underside of the roof trusses at 600mm crs max in accordance with manufacturer's instructions. Also refer to Appendix Section for specific requirements for gib ceiling diaphragms

SOFFITS & METAL FASCIAS
Supply and fix 0.55mm prefinished metal fascias with folded groove provided to support the edge of the soffit linings
Ensure sufficient fixing is provided to cope with snow loading to attached spouting
90 x 45mm horizontal framing and blocking to the sides of all overhangs to roof framing to provide fixing for soffits
Supply and fix villa board linings to horizontal and sloping soffit linings with tapered edges to butt joints to be stopped flush and painted

INSTALLATION OF ALUMINIUM WINDOWS & EXTERIOR DOORS
Arrange to install aluminium framed windows and doors supplied complete with timber reveals to finish flush with internal linings
Supply and fit sill flashings to masonry veneer that extend 200mm each sode of windows and extend down 200mm with an H3.2 kick out fillet
Supply and screw fix aluminium angles to support sills to windows and doors
Supply and install sill flashing with folded stop ends in accordance with E2
Install windows and doors with 5mm min gap to framed opening with screw fixing at 400mm crs max with 25mm embedment to framing
Supply and fit foam air barrier bead between reveals and wall framing set 20mm back from the inside face of the framing and fill with expanding foam to maintain foam air seal
Provide and install prefinished aluminium head flashings to all aluminium windows and doors in accordance with E2 for various claddings including external sill flashing to block veneer
Provide 150mm wide folded rubber membrane strip to finish in behind the sides of the aluminium frames to block veneer cladding



TANALISED TIMBER INSULATION TO THE PERIMETER OF THE CONCRETE FLOOR SLAB
100 x 50 SG6 H4 fixed vertical against the edge of the perimeter of the insulated floor slab to the house and garage and over polythene DPM to the concrete footingThe timber edge forms a thermal break and shall be fixed to the edge of the slab with 150 x 12mm dia galv coach bolts at 800mm crs
The 0.25mm black polythene DPM shall be returned up against the outside face of the H4 timber edge and shall be fixed to the bottom plate of the wall framing with stainless steel staple fixings at 200mm crs max. DPM to the concrete footing with the outside to line up with the outside face of the wall framing
Chemset 12mm dia galv threaded rod hold down bolts for bottom plates to perimeter wall framing to be chemset with 150mm embedment into the concrete block footing to extend up to the edge of the concrete floor slab
No timber edge to the concrete floor slab to the garage door sill and to exterior door sills
The concrete slab to extend to support door sills

TRIM
Supply and fit the trim specified throughout the house including the garage, wardrobes and cupboards
Allow to scribe to internal corners. Trim shall be continuous, allow to mitre butt joints and external corners
Skirtings shall be Southern Pine Products Colonial profile timber CA 85 x 18.
Window and door architraves shall be Southern Pine Products Colonial profile timber CA 60 x 18 to 3x sides to door openings and 4x sides to window openings with mitred corners
Cornices shall be 90mm gib cove

CONCRETE SLAB INSULATION
Supply and lay 100mm EPS polystyrene insulation to finish flush with the poured concrete perimeter footings over the polythene DPM directly under the 100mm concrete floor slab to the house and garage
No polystyrene insulation shall be placed under the thickened floor slab to internal load bearing wall. Not required under the thickened floor slab to load bearing walls

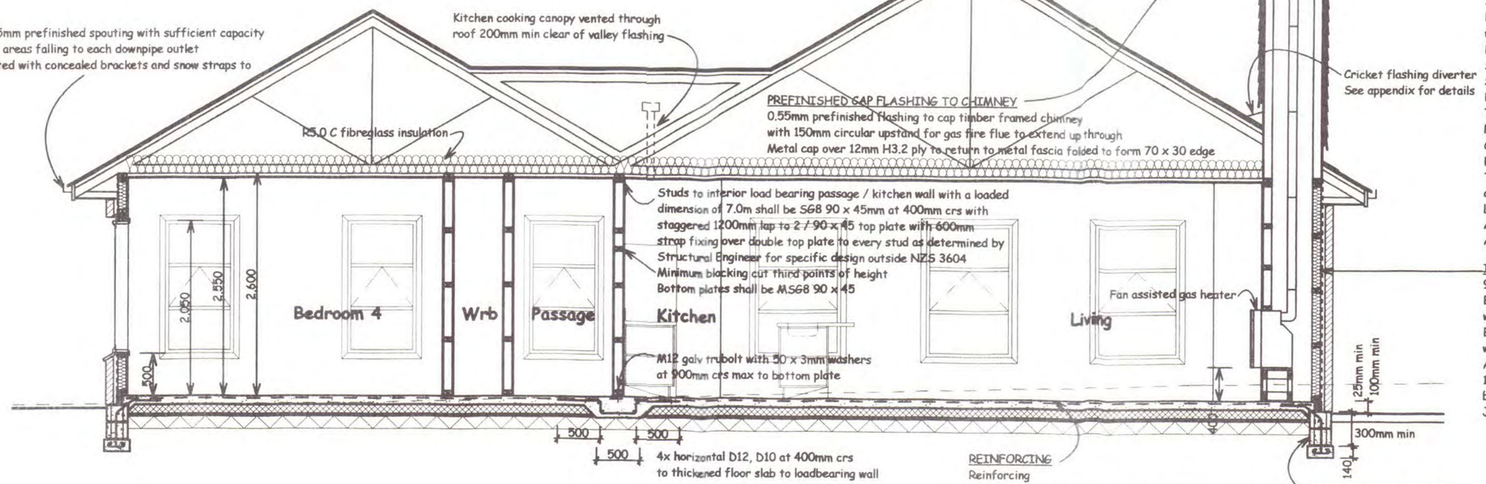
INBUILT GAS FIRE & FLUE CHIMNEY
90 x 45mm GS10 H1.2 wall framing to form chimney, studs at 400mm crs max. Extend wall framing up to framed in chimney to flue studs at 400 crs, lined with 6.0mm RAB bd for Linea weatherboards to cavity battens. Frame up shaped 200 x 50mm timber to top of chimney shaped to fal 50mm to the external corners for a metal flashing
Frame up to support 'cricket' flashing to deflect snow and hail away from the base of the chimney to extend as a 200mm wide x 30mm depth gutter either side of the chimney down to the spouting. Solid blocking to form roof overhang. Metal cap over 12mm H3.2 ply to return to metal fascia folded to form 70 x 30 edge
Form 200mm wide x 30mm high 0.55mm prefinished gutters to either side of the framed up chimney to extend 2x cress min to roofing,
200mm min height upstands to extend up under 30° roofing
Fabricate and fit .055mm prefinished cricket deflector to top side of chimney base to roof to finish with 200mm high upstand to chimney and to form valley with 30° roof

WALL FRAMING
Wall framing shall comply with NZS 3604 2011 including amendments
Also refer to Truss Tech's information for lintel sizes, lintel fixings and stud to top plate fixings in the Appendix Section
Also refer to wall bracing in the Appendix Section for specific hold down bolts to specific braced walls
Shall be to 2600mm overall height to achieve 2550mm finished floor to ceiling height
Wall framing shall be generally gauged 90 x 45mm SG8
Studs -
90 x 45 studs to exterior load bearing walls supporting the ends of roof truss shall be SG10 90 x 45 at 400mm crs max in accordance with Table A 8.2 also to gable end walls
Studs to interior load bearing passage / kitchen wall with a loaded dimension of 7.0m shall be SG10 90 x 45mm at 600mm crs with staggered 1200mm lap to 2 / 90 x 45 top plate
with 600mm strap fixing over double top plate to every stud as determined by Structural Engineer for specific design outside NZS 3604
Bottom plates shall be 90 x 45
Studs to exterior non load bearing walls shall be SG10 and to interior non load bearing walls studs shall be SG10 90 x 45mm at 600mm crs max
Single 90 x 45mm bottom plates and 2 / 90 x 45mm top plates
Bottom plates shall be 90 x 45 SG10.
Top plates shall be 2 / 90 x 45 SG10. Refer to Truss Tech's drawings for stud to top plate fixing
Provide three rows of dwangs to all wall framing
Co-operate with Plumber to ensure all blocking and openings required for plumbing fixtures is allowed for
Finalise positions of hardware fixtures with Mr & Mrs Thayer so all necessary blocking is in place for fixing hardware
Trimming studs to wall openings shall be in accordance with Table 8.5 NZS 3604. 3/ 90 x 45mm studs to each end of openings up to 1.8m wide and 4 / 90 x 45mm studs to each end of openings up to 3.0m wide
Lintel sizes noted on Truss Tech's drawings
All wall framing fixings shall be a min 2 / 100 x 3.75mm nail fixing
Allow to set in a nominal 25 x 25mm galv metal angle brace set as close as practical to 45° angle to each frame over nominal 2.0m width

Typical Cross Section A-A
Scale 1:50

TENSIONED STRAP BRACING TO ROOFING
See Truss Tech's plans for 20mm galv tensioned strap bracing fixed both ways over purlins to all roofing planes

SPOUTING
Supply and fit 0.55mm prefinished spouting with sufficient capacity for the catchment areas falling to each downpipe outlet
Spouting to be fitted with concealed brackets and snow straps to metal fascias



Typical Cross Section B-B
Scale 1:50

REINFORCING
Reinforcing
75mm min concrete cover to reinforcing to excavated ground to exterior aluminium door sills i.e. concrete slab shall extend out to the edge of the aluminium door sills
50mm min concrete to reinforcing to concrete to formwork
Footings
2 / horiz D12 to the bottom of the footings tied to R10 starters at 600mm crs to extend up through concrete foundation walls to return to floor slab
Thickened floor slab 250 x 500mm wide footing to internal load bearing wall - 4 / horiz D12 to D10 at 400 crs with 500mm min lap to mesh
100mm concrete floor slab - high tensile 500E reinforcing mesh

INSTALLATION OF WALL FRAMING
90mm wide Malthoid DPC fixed between bottom plates and concrete floors
Bottom plates to interior wall framing shall be fixed to concrete floor slab with M12x 150mm hold down bolts at 800mm crs with 50 x 50 x 3mm square washers to interior wall framing.
Bottom plates to exterior wall framing shall be fixed to 12mm galv thread rod with M12 trubolts cast into the concrete block with 150mm min embedment extending up through the edge of the concrete floor slab at 800mm crs max with 50 x 50 x 3mm square washers
Also fix to timber edge of concrete slab with 90 x 5mm tek screw fixing through the bottom plate at 800mm crs
12mm galv threaded rod shall extend down through the concrete slab and shall be chemset with 150mm min embedment into the concrete block foundation wall at 800mm crs max to exterior wall framing with 50 x 50 x 3mm galv square washers
Joints in top plates shall be over studs with 1200mm staggered joints to double top plates

Refer to Sheet 8 for specific footing details including site concrete to footings
Contractor to determine steps to footings on site

PROPOSED NEW RESIDENCE FOR TREVOR THAYER & NICOLA THAYER-SMITH, DUNSTAN ROAD, CLYDE	
CROSS SECTIONS A & B	Date: 05 Sept 2012
	Scale: 1:50
Mollison & Associates Ph: (03) 218 4049 Fax: (03) 214 4153 53 Gala Street, Invercargill Email: office@mollison.co.nz	Drawing: Sheet 6 of 9

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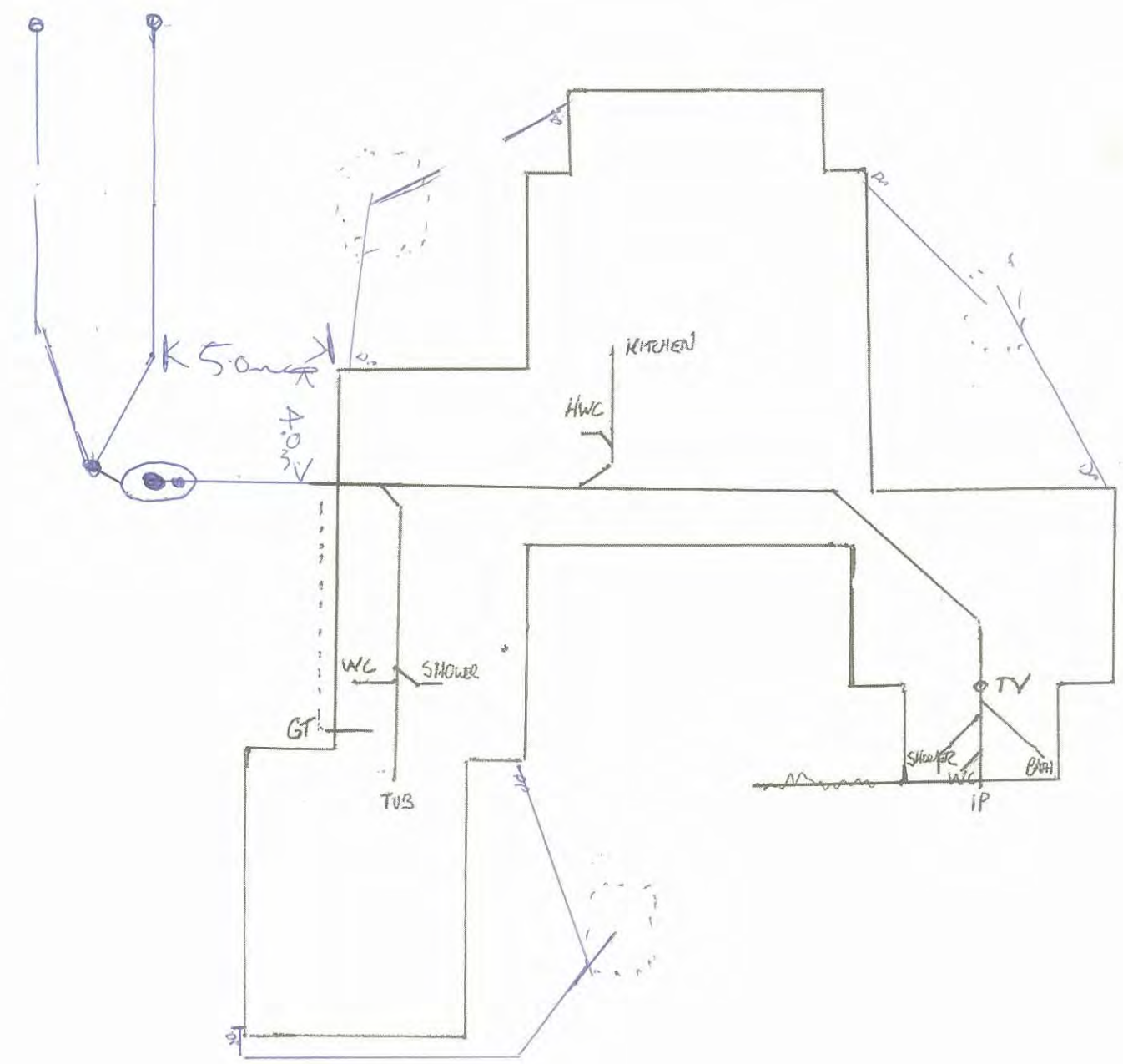
5 SEP 2012



THAYER
604 GUNSTAN RD
BC # 120675

JOB # AZ8926Q

BC120675
2846233001

19 November 2012

Thayer House Trust
C/- Trevor Thayer
PO Box 370
Invercargill 9840

Dear Sir

Water Test - 604 Dunstan Road, Alexandra

I refer to your letter received 19 November 2012.

At the time of subdivision Weller Development Ltd was required to provide detail that there was a potable water supply available to the boundary of Lots 2 – 4 and this test was completed as a condition of his resource consent for subdivision.

The water test in question relates to your property only, Lot 2 DP 403904.

Condition (5) of the land use consent states, "*Prior to the occupation of any dwellings on Lots 2, 3 and 4 an adequate domestic water supply is to be made available to the dwelling from a source that shall be tested by a suitably qualified laboratory with the scope of the analysis being to the satisfaction of the Chief Executive.*"

Each residential activity that is established on a rural property is required to provide a copy of recent water test which is less than 6 months old prior to the issue of building consent.

Your results were from one single sample only and must not be regarded as applicable to your water samples all the time, but rather as a snapshot and an indicator of just how "good" or "bad" the water can be. With an appropriate water treatment system installed and working properly, there should be minimal health risks from even contaminated water.

Note: The New Zealand Building Code Clause G12 Water Supplies under "Functional Requirement" *requires that all buildings provided with water outlets, sanitary fixtures or sanitary appliances must have safe and adequate water supplies.*

Yours faithfully

Sue de Jong
Consents Officer

28462|33001.

ENV 02-06-01

8 October 2012

Thayer Home Trust
c/- T Thayer
PO Box 370
Invercargill 9840

Dear Sir/Madam

WATER SAMPLE FOR ANALYSIS – BC120675 – Dunstan Road, Alexandra

Enclosed is the result of an analysis of water taken from the water supply at Lot 2 DP 403904, Dunstan Road, Alexandra on 19 September 2012.
The sample was collected from the outside tap and labelled as "SED-1214".

Bacteriological Tests

The sample had an **E.coli Coliform count of <1 MPN /100mls**. The result indicated that the supply was of satisfactory bacteriological standard for drinking water at the time of collection.

Chemical Analysis

Please refer to the water assessment attached.

Please find enclosed a copy of the test results for your information and an invoice for payment relative to cost of collection and testing of samples.

If you have any further enquires, please do not hesitate to contact the undersigned.

Yours faithfully

Sue de Jong
Consents Officer

BC 120675
Lot 2 DP403904

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Tel +64 7 858 2000
Fax +64 7 858 2001
Email mail@hill-labs.co.nz
Web www.hill-labs.co.nz

ANALYSIS REPORT

Client:	Central Otago District Council	**Lab No:**	1049600	DWAPv1
Contact:	Sue de Jong	**Date Registered:**	20-Sep-2012	
	C/- Central Otago District Council	**Date Reported:**	28-Sep-2012	
	PO Box 122	**Quote No:**	34279	
	ALEXANDRA 9340	**Order No:**		
		Client Reference:	Standard Testing	
		Submitted By:	Sue de Jong	

Sample Type: Aqueous

		Sample Name:		Guideline Value	Maximum Acceptable Values (MAV)
		Lab Number:			
Individual Tests					
Escherichia coli	MPN / 100mL	< 1	-	-	< 1
Routine Water Profile					
pH	pH Units	7.1	-	7.0 - 8.5	-
Total Alkalinity	g/m³ as $CaCO_3$	71	-	-	-
Free Carbon Dioxide	g/m³ at 25°C	12.4	-	-	-
Total Hardness	g/m³ as $CaCO_3$	63	-	< 200	-
Electrical Conductivity (EC)	mS/m	15.0	-	-	-
Electrical Conductivity (EC)	µS/cm	150	-	-	-
Approx Total Dissolved Salts	g/m³	100	-	< 1000	-
Total Boron	g/m³	0.0106	-	-	1.4
Total Calcium	g/m³	17.6	-	-	-
Total Copper	g/m³	0.020	-	< 1	2
Total Iron	g/m³	2.3	-	< 0.2	-
Total Magnesium	g/m³	4.5	-	-	-
Total Manganese	g/m³	0.0021	-	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³	1.16	-	-	-
Total Sodium	g/m³	6.8	-	< 200	-
Total Zinc	g/m³	2.1	-	< 1.5	-
Chloride	g/m³	2.3	-	< 250	-
Nitrate-N	g/m³	0.43	-	-	11.3
Sulphate	g/m³	4.7	-	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.moh.govt.nz/moh.nsf/pagesmh/8534

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for paramenters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m³ are the same as mg/L and ppm.

Routine Water Assessment for Sample No 1049600.1 - Dunstan Rd SED - 1214

pH/Alkalinity and Corrosiveness Assessment
The pH of a water sample is a measure of its acidity or basicity. Waters with a low pH can be corrosive and those with a high pH can promote scale formation in pipes and hot water cylinders.
The guideline level for pH in drinking water is 7.0-8.5. Below this range the water will be corrosive and may cause problems with disinfection if such treatment is used.

The alkalinity of a water is a measure of its acid neutralising capacity and is usually related to the concentration of carbonate, bicarbonate and hydroxide. Low alkalinities (25 g/m^3) promote corrosion and high alkalinities can cause problems with scale formation in metal pipes and tanks.

The pH of this water is within the NZ Drinking Water Guidelines, the ideal range being 7.0 to 8.0.
With the pH and alkalinity levels found, it is unlikely this water will be corrosive towards metal piping and fixtures.

Hardness/Total Dissolved Salts Assessment
The water contains a low amount of dissolved solids and would be regarded as being slightly hard.

Nitrate Assessment
Nitrate-nitrogen at elevated levels is considered undesirable in natural waters as this element can cause a health disorder called methaemaglobinaemia. Very young infants (less than six months old) are especially vulnerable. The Drinking-water Standards for New Zealand 2005 (Revised 2008) suggests a maximum permissible level of 11.3 g/m^3 as Nitrate-nitrogen (50 g/m^3 as Nitrate).

Nitrate-nitrogen was detected in this water but at such a low level to not be of concern.

Boron Assessment
Boron may be present in natural waters and if present at high concentrations can be toxic to plants.
Boron was found at a low level in this water but would not give any cause for concern.

Metals Assessment
Iron and manganese are two problem elements that commonly occur in natural waters. These elements may cause unsightly stains and produce a brown/black precipitate. Iron is not toxic but manganese, at concentrations above 0.5 g/m^3, may adversely affect health. At concentrations below this it may cause stains on clothing and sanitary ware.

Iron was found in this water at a high level.
Manganese was found in this water at a low level.
Treatment to remove iron and/or manganese will be required.

Bacteriological Tests
The NZ Drinking Water Standards state that there should be no Escherichia coli (E coli) in water used for human consumption. The presence of these organisms would indicate that other pathogens of faecal origin may be present. Results obtained for Total Coliforms are only significant if the sample has not also been tested for E coli.

Escherichia coli was not detected in this sample.

Final Assessment
The parameters Total Iron and Total Zinc did NOT meet the guidelines laid down in the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)' published by the Ministry of Health for water which is suitable for drinking purposes.

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

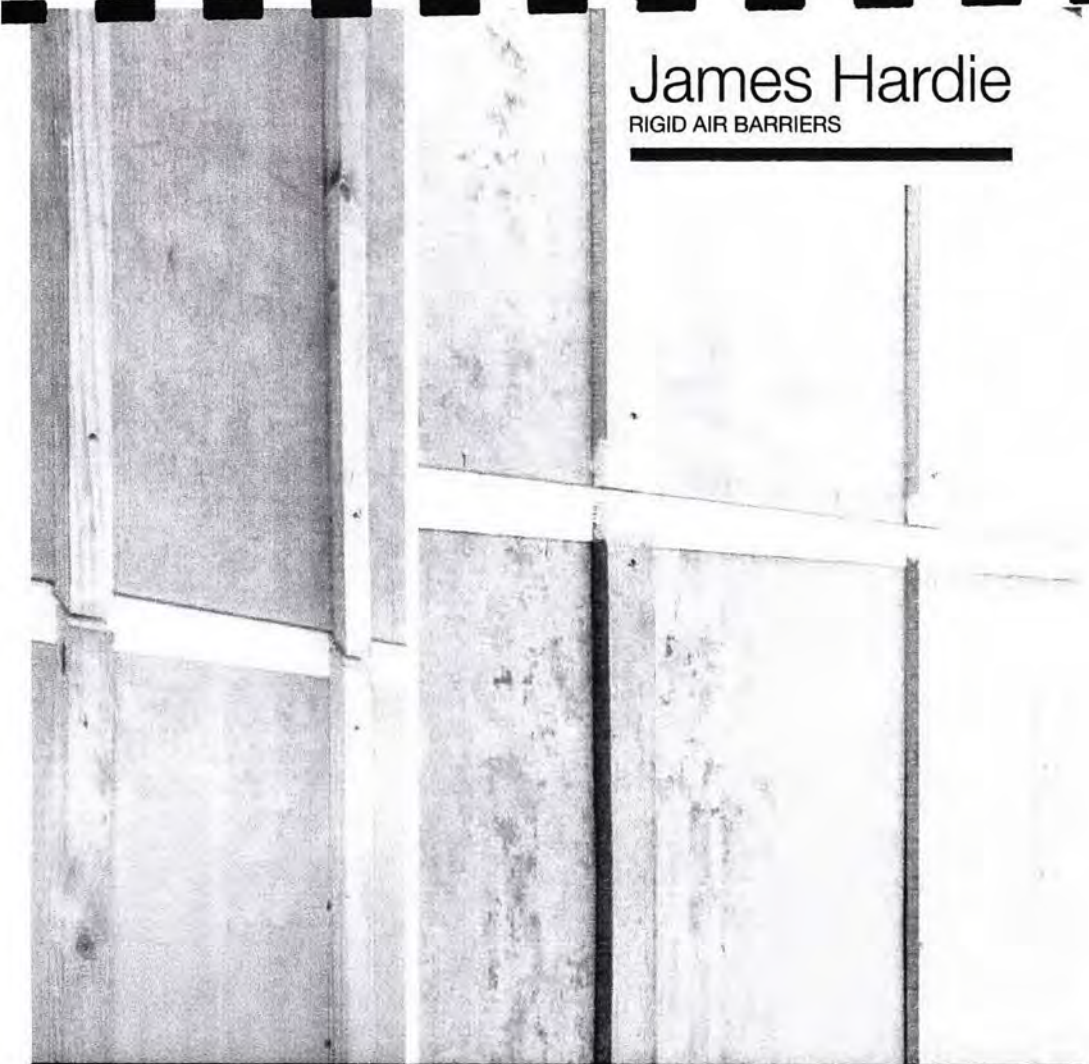
Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Samples
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Boiling nitric acid digestion. APHA 3030 E 21st ed. 2005.	-	1
pH	pH meter. APHA 4500-H^+ B 21st ed. 2005.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (Modified for alk <20) 21st ed. 2005.	1.0 g/m³ as $CaCO_3$	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D 21st ed. 2005.	1.0 g/m³ at 25°C	1
Total Hardness	Calculation from Calcium and Magnesium. APHA 2340 B 21st ed. 2005.	1.0 g/m³ as $CaCO_3$	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 21st ed. 2005.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 21st ed. 2005.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m³	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005.	0.0053 g/m³	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005.	0.053 g/m³	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005 / US EPA 200.8.	0.00053 g/m³	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005.	0.021 g/m³	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005.	0.021 g/m³	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005 / US EPA 200.8.	0.00053 g/m³	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005.	0.053 g/m³	1
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005.	0.021 g/m³	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 21st ed. 2005 / US EPA 200.8.	0.0011 g/m³	1
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B 21st ed. 2005.	0.5 g/m³	1
Nitrate-N	Filtered sample. Ion Chromatography. APHA 4110 B 21st ed. 2005.	0.05 g/m³	1
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B 21st ed. 2005.	0.5 g/m³	1
Escherichia coli	MPN count using Colilert (Incubated at 35°C for 24 hours), or Colilert 18 (Incubated at 35°C for 18 hours), Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9223 B, 21st ed. 2005., MIMM 11.A1.1.	1 MPN / 100mL	1

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

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

Martin Cowell - BSc (Chem)
Client Services Manager - Environmental Division



James Hardie
RIGID AIR BARRIERS

Installation Manual

MAY 2012 | NEW ZEALAND

James Hardie

Content

WE VALUE YOUR FEEDBACK

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

Ask James Hardie®
Fax 0800 808 988
literaturefeedback@jameshardie.co.nz

1 Introduction

James Hardie manufactures a range of rigid air barriers such as HomeRAB® PreClad™ Lining and RAB® Board.

HomeRAB PreClad Lining is a 3.5mm thick fibre cement sheet which is sealed on the face and edges and is used as a rigid air barrier for residential buildings within the scope of NZS 3604. HomeRAB PreClad Lining is manufactured in New Zealand by James Hardie using its Scyon® technology and complies with the requirements of AS/NZS 2908.

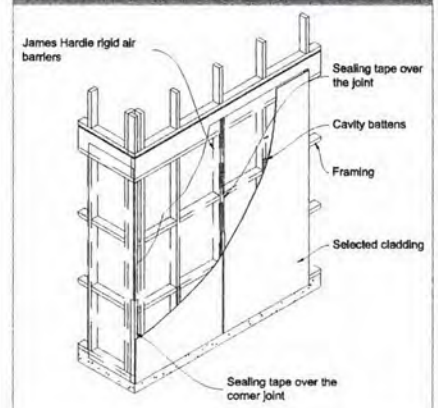
It acts as temporary weather protection during construction, ideal for renovations. It is suitable for use as rigid sheathing in residential buildings as per section 9.1.4 of E2/AS1 and complies with the requirements of Table 23 of E2/AS1. HomeRAB PreClad Lining is suitable to withstand wind pressures experienced in all wind zones including very high wind speed zone as specified in NZS 3604. HomeRAB PreClad Lining doesn't get fatigued or tear under the wind pressures exerted on it in the long term. HomeRAB PreClad Lining has been structurally tested to withstand wind pressures in excess of those experienced in a very high wind speed zone.

RAB Board is a 6.0mm thick fibre cement sheet which is sealed on the face and edges and is suitable for use as a rigid air barrier for wind pressures up to 4.5kPa.

It complies with the requirements of Table 23 of E2/AS1.

It is suitable for use as rigid sheathing as per the requirement of section 9.1.4 of E2/AS1. RAB Board is also suitable to withstand high wind pressures experienced on building facades where it creates a wind barrier which equalises the pressure within the cavity to the external pressures. Most building underlays cannot withstand high wind pressures due to the fatigue caused by positive/negative pumping actions acting within the cavity and on the facade.

Figure 1: James Hardie Rigid Air Barriers over framing



Due to these pressures a building underlay may not perform as desired. RAB Board has been tested to withstand wind pressures up to 4.5kPa(ULS) tested in conjunction with James Hardie Titan® Facade Panel.

James Hardie rigid air barriers provide the following benefits:

- Resistant to moisture damage and rotting when installed correctly.
- Integral sealer applied on the face and edges disposes of moisture rapidly and helps resist moisture penetration.
- Provides temporary weathertightness to the building envelope until the final claddings are installed.
- Provides general rigidity to the entire structure and can also be used to achieve structural bracing.

This manual covers the use of HomeRAB PreClad Lining and RAB Board in external wall applications only. Further information relating to HomeRAB PreClad Lining and RAB Board is also available in the following James Hardie design manuals:

- Fire and Acoustic Design Manual.
- Bracing Design Manual.

The Specifier or other responsible party for the project must ensure that the information in this manual is appropriate for the intended application and that specific design and detailing is undertaken for areas which are not covered in this manual.

Note: James Hardie rigid air barriers must not be used as external cladding.

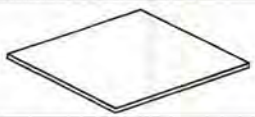
James Hardie rigid air barriers have been tested to comply with the performance requirements of the New Zealand Building Code (NZBC). James Hardie rigid air barriers have been BRANZ appraised. BRANZ Appraisal No. 611 (2011) can be viewed on www.jameshardie.co.nz or www.branz.co.nz.

Make sure your information is up to date

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or you need more information, visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

Table 1

HomeRAB PreClad Lining

Product	Description	Quantity / Size		
	**HomeRAB PreClad Lining** A fibre cement sheet with a green sealer applied on the face and edges. Installed with green side facing out. Approximate Mass: 4.5 kg/m²	Thickness: 3.5mm		
		Length (mm)	Width (mm)	Code
		2460	1200	**404100**
		2760	1200	**404101**

RAB Board

Product	Description	Quantity / Size		
	**RAB Board** A fibre cement sheet with a green sealer applied on the face and edges. Installed with green side facing out. Approximate Mass: 8.5 kg/m²	Thickness: 6.0mm		
		Length (mm)	Width (mm)	Code
		2450	1200	**402980**
		3000	1200	**402981**

NOTE:

All dimensions and masses provided are approximate only and subject to manufacturing tolerances.
Masses are based on Equilibrium Moisture Content (EMC) of product.

Table 2

Accessories/Tools

Components Supplied by James Hardie

	**HomeRAB PreClad jointer** 2760mm long for vertical joints **CODE: 305062**		**HomeRAB PreClad Horizontal Flashing** 3000mm long for horizontal joints **CODE: 305063**
	**HardieBlade™ Saw Blade** 185mm diameter, Poly diamond blade for fast, clean cutting of James Hardie fibre cement. **CODE: 300660**		**Inseal® 3259 Tape 50mm wide** A sealing strip for vertical joints 50m roll. **CODE: 300767**
	**RAB uPVC Horizontal Flashing** 3000mm long for RAB Board horizontal joints **CODE: 305152**		**Inseal® 3259 Tape 80mm wide** A sealing strip for corner joints 50m roll. **CODE: 300769**

COMPONENTS NOT SUPPLIED BY JAMES HARDIE

James Hardie recommends the following products for use in conjunction with its James Hardie rigid air barriers. James Hardie does not manufacture these products and does not provide a warranty for their use. Please contact component manufacturer for information on their warranties and further information on their products.

	**Hand Guillotine** Guillotine for cutting fibre cement.		**Sealing Tape** Flashing tape used to flash around window, door and pipe penetrations and over the vertical joints. **Protecto Sill Tape - Marshall Waterproofing** **0800 776 9727** **Window Flashing Tape** **AluBand - Thermakraft Ind.** **0800 806 595**
	**Electric Shear / Fibreshear**		
	**Fibre Cement Nails** 40 x 2.8mm galvanised HardieFlex™ nails for fastening RAB Board as per Table 3. 40 x 2.8mm stainless steel nails for fixing RAB Board as per Table 3.		**Nail Gun and Nails (RAB Board only)** Suitable pneumatic or coil gun nailer with: • 50 x 2.8mm galvanised / stainless steel round head gun nails or minimum length and gauge required for specific application. • 60 x 3.15mm galvanised / stainless steel round head gun nails or minimum length and gauge required for site specific application.
	**Flashings** Flashing materials to comply with Table 20 of E2/AS1.		**Scoring Knife** For easy score and snap cutting of fibre cement sheets.
	**Gun Nailer** Paslode Pneumatic CNW45R Cladding Coil Nailer **Paslode 09 477 3000** Sifco Pneumatic Coil Nail Gun - CN450R(CE) **Sifco Fastening Solutions 09 828 2019**		**Nail** **Stainless Steel** Sifco 32 x 3.05mm coil nails head size 9mm ø CR3DSS. **Sifco Fastening Solutions 09 828 2019** Paslode 32 x 3.06mm ring shank head size 9mm ø. Part No: D40240 for 3000 nails. **Paslode 09 477 3000** **Galvanised Nail** Paslode 32 x 3.06mm coil nails head 9mm ø. Part No: D40220 for 3000 nails. **Paslode 09 477 3000** **Loose Nails 32 x 3.05mm head 9mm Ø.** Part No: Galvanised 032305GHH. Part No: Stainless Steel 032305SHH. **NZ Nails 09 270 2080** **Loose Nails 32 x 3.06mm head 9mm Ø.** Part No: Galvanised MDHRAB032306. Part No: Stainless Steel SSGARAB032306. **ITW Proline Hardware Solutions 0800 277 577**

Figure 2: James Hardie Rigid Air Barriers with Brick/Block Cladding

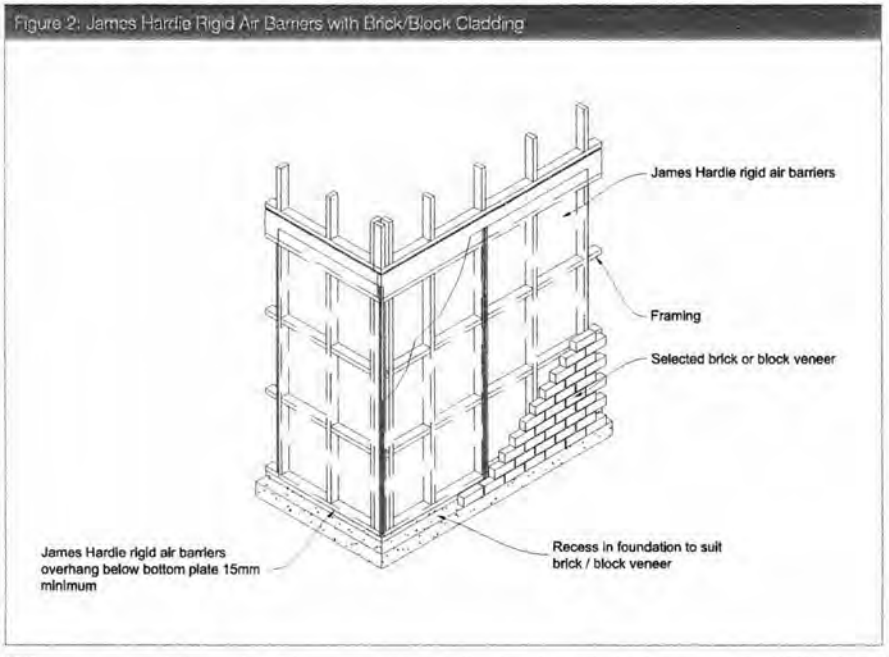
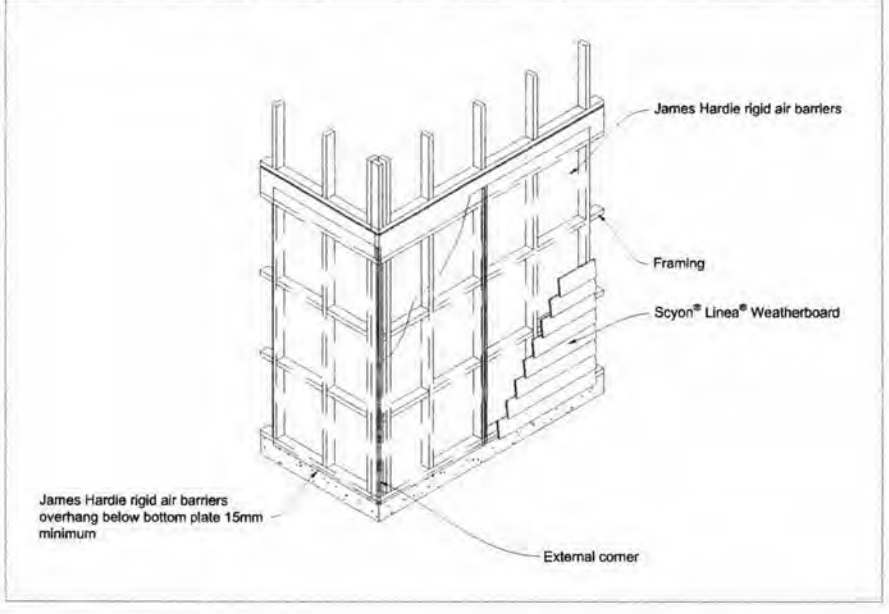


Figure 3: James Hardie Rigid Air Barriers with Scyon Linea Weatherboard



2 Safe working practices

WARNING — AVOID BREATHING SILICA DUST

James Hardie products contain sand, a source of respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'Score and Snap' knife, fibre cement shears or, where not feasible, use a HardieBlade™ Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g P1 or P2) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods — never dry sweep. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

James Hardie recommended safe working practices

CUTTING OUTDOORS

Position cutting station so that wind will blow dust away from user or others in working area. Use one of the following methods based on the required cutting rate:

BEST
- Score and snap
- Hand guillotine
- Fibreshear

BETTER
- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and HEPA vacuum extraction.

GOOD
- Dust reducing circular saw equipped with HardieBlade™ Saw Blade

CUTTING INDOORS

- Cut only using score and snap, hand guillotine or fibreshears (manual, electric or pneumatic).
- Position cutting station in well-ventilated area

DRILLING/OTHER MACHINING

When drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate area.

IMPORTANT NOTES:

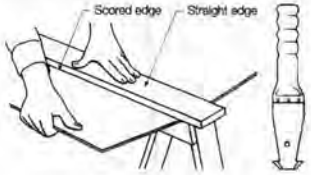
1. For maximum protection (lowest respirable dust production), James Hardie recommends always using "Best" — level cutting methods where feasible
2. NEVER use a power saw indoors
3. NEVER use a circular saw blade that does not carry the HardieBlade™ logo
4. NEVER dry sweep — Use wet suppression or HEPA Vacuum
5. NEVER use grinders
6. Always follow tool manufacturer's safety recommendations

P1 or P2 respirators can be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at www.jameshardie.co.nz to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

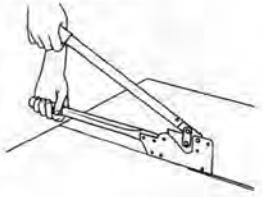
Working instructions
Refer to Recommended Safe Working Practices before starting any cutting or machining of product.

Score and Snap
Score and Snap is a fast and efficient method of cutting the product using special tungsten tipped Score and Snap knife.

Preferably score on the face side of the product. Score against a straight edge and repeat the action to obtain adequate depth for clean break — normally 1/3 of sheet thickness. Snap upwards to achieve break. Smooth any rough edges with a rasp.

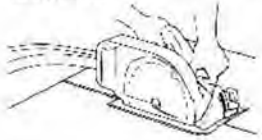


Hand guillotine
Make guillotine cut on the off-cut side of line to allow for the thickness of the blade.



Fibreshear heavy duty
An electrically powered, fast, clean and effortless way of cutting James Hardie building products, especially around curves such as archways. Make Fibreshear cut on the "off-cut" side of the line to allow for the thickness of the shear.

HardieBlade™ Saw Blade
The HardieBlade™ Saw Blade used with a dust-reducing saw fitted with HEPA vacuum filter is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.



Hole-forming
For smooth clean cut circular holes:
- Mark the centre of the hole on the sheet.
- Pre-drill a 'pilot' hole.
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.

For irregular holes:
- Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.
- Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.

Storage and handling
To avoid damage, all James Hardie building products should be stored with edges and corners of the sheets protected from chipping.

James Hardie building products must be installed in a dry state and protected from weather during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water, moisture, etc.

Quality
James Hardie conducts quality checks to ensure any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

3 Applications

HomeRAB PreClad Lining is suitable for use as a rigid air barrier for residential buildings within the scope of NZS 3604 and E2/AS1. HomeRAB PreClad Lining is fixed directly to the framing and the vertical joints can either be formed on stud or off stud. The joints formed over the studs are sealed by using a joint sealing tape and off stud joints are formed using a uPVC jointer. HomeRAB PreClad Lining is suitable for use behind all James Hardie claddings or alternative claddings such as brick, timber weatherboard, EIFS etc.

The **RAB Board** is suitable for use as a rigid air barrier when used in conjunction with commercial facades. It can also be used as a rigid air barrier in residential applications to withstand high wind pressures. In these applications, RAB Board is fixed directly to the framing. The vertical joints are sealed over the face of RAB Board.

James Hardie rigid air barriers can remain exposed to the external elements for maximum 90 days prior to the external cladding being installed.

The RAB Board can also be used as a backing board behind stucco plasters and other proprietary claddings which comply with NZBC requirements. Proprietary cladding must be installed as per their manufacturing specifications. In these applications, a building underlay must be used as a slip layer to cover RAB Board and ensure a separation between mortars and RAB Board. The RAB Board is fixed over a minimum 18mm thick cavity batten for these applications. The RAB Board may also be required over the framing to withstand high wind pressures within the cavity. Refer to James Hardie Hardiebacker™ Substrate technical specification, E2/AS1 'External Moisture' clause of NZBC and BRANZ 'Good Stucco Practice Guide' for further information on stucco plaster.

The claddings used over the James Hardie rigid air barriers must satisfy the various performance requirements of NZBC.

Corrugated steel and uPVC claddings must not be direct fixed over James Hardie rigid air barriers. These must be fixed using cavity construction method.

The cladding fastener length must be increased by 5mm to achieve the required nail pull out loadings.

The James Hardie rigid air barriers can be used to achieve bracings required for the buildings within the scope of NZS 3604.

RAB Board is also suitable for use in fire rated walls and can achieve a fire rating of up to 60 minutes regardless of the type of cladding used. With Scyon Linea Weatherboard a 90 minute fire rating can be achieved.

Installation of internal lining can be started after James Hardie rigid air barriers have been installed on the exterior of the building envelope. All sheet joints and penetrations must be sealed and the roof, soffit lining, windows/doors (including head flashings and airseals) must have been installed to ensure the building is weathertight before starting the installation of internal linings. The insulation in external walls, electrical cables, plumbing and any other type of services required must be installed and inspected by the building consent authority before starting the installation of internal linings. The internal lining and services must be installed in accordance with their manufacturer's product literature and comply with NZBC requirements.

The claddings must be installed within 90 days after the installation of James Hardie rigid air barriers. It is recommended that the roof is on prior to the installation of James Hardie rigid air barriers.

4 Framing and fixings

FRAMING

The timber framing must be in accordance with the current relevant standards or comply with the specific engineering design requirements. The timber treatment and moisture content must comply with NZS 3602 requirements. Framing must satisfy the requirements of B1 and B2 clauses of NZBC.

The minimum framing size required for fixing James Hardie rigid air barriers is 90 x 45mm. Studs must be provided as per Table 3 or Table 4. Ensure that the framing is suitable for installing the selected cladding. Refer to cladding installation manual for further information about the framing requirements.

For specific engineering design projects where the timber framing differs from whats been provided in this manual, Ask James Hardie on 0800 808 868.

FIXINGS

James Hardie rigid air barriers must be installed with its sealed face towards the external cladding and unsealed face towards the framing. The sealer applied on the face helps the board to drain the moisture freely over the face and keeps it dry.

- Nails must finish flush with board surface.

The **HomeRAB PreClad Lining** is fixed as described below.

HomeRAB PreClad Lining can either be gun nailed or hand nailed using the 32 x 3.05mm nails specified in the accessories table. It is recommended that the lining is gun nailed to cut down installation time. When gun nailing, follow nail gun manufacturer's instructions for correct operation of tool and site safety requirements.

- Nails must have a minimum clearance of 12mm from the sheet edges and a minimum of 50mm horizontally and 75mm vertically from the sheet corners.

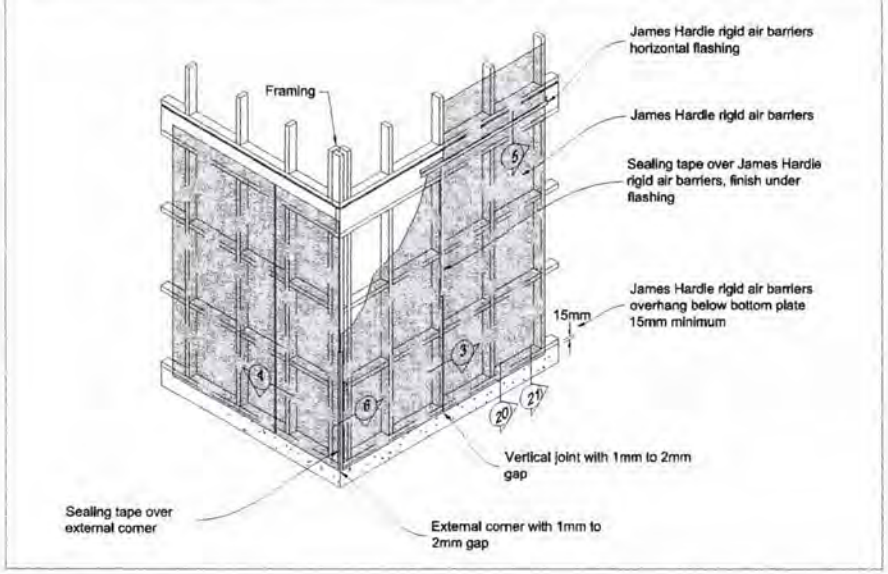
Table 3

HomeRAB PreClad Lining Fixings			
Wind zones	**Wind speed up to (m/s)**	**Framing spacing options**	**Nailing centres to studs, plates and nogs**
Very High	50	Studs @ 400mm and nogs @ 1200mm	150mm
		Studs @ 400mm and nogs @ 800mm	200mm
High, Medium and Low	≤ 44	All options as per NZS 3604	200mm

NOTES:

- Type of nail to be used is 32 x 3.05mm, 9mm head size
- HomeRAB PreClad Lining must not be used in EH wind zones. Use RAB Board instead.

Figure 4: James Hardie Rigid Air Barriers layout



The **RAB Board** is fixed as described below:

- When using as a rigid air barrier fix with 40 x 2.8mm HardieFlex™ nails. Refer to Table 4.
- When RAB Board is used for a fire rating system, the board must be fixed with HardieFlex nails at 200mm c/c at board edges and intermediate framing.
- When fixing RAB Board for bracing applications, follow the bracing details for installation.
- When using as a backing board over a cavity batten for stucco plasters, fix RAB Board using 60 x 3.15mm HardieFlex nails at 200mm c/c at board edges and intermediate framing.
- Nails must have a minimum clearance of 12mm from sheet edges and a minimum of 50mm horizontally and 150mm vertically from sheet corners.
- RAB Board can be fixed using 50 x 2.8mm round head gun nails. The gun nails used must have a full round head to provide the required holding power. The length and gauge of nails must at a minimum be as specified in this document. Check with nail gun manufacturer for more information.

  NOTE: Do not use D Head nails. Do not use gun nailing for bracing applications.
- Alternatively RAB Board can also be fixed with a 32 x 3.05mm head size 9mm ø nail. This nail must not be used in a bracing system. Refer to Table 4.

Table 4

RAB Board Fixings			
Wind pressures	**Framing centres max**	**Type of nail**	**Nailing centres to all framing**
Up to 1.5kPa	600mm	40 x 2.8mm HardieFlex nail	300mm
Up to 1.5kPa	600mm	32 x 3.05mm ring shank stainless steel head size 9mm ø nail	300mm
Above 1.5kPa to 4.5kPa	400mm	40 x 2.8mm HardieFlex nail	200mm
Above 1.5kPa to 4.5kPa	400mm	32 x 3.05mm ring shank stainless steel head size 9mm ø nail	200mm

FASTENER DURABILITY

Fasteners must have the appropriate level of durability required for the intended project to comply with NZBC. This is of particular importance in coastal areas, areas subject to salt spray and other corrosive environments. The following table provides the information regarding the types of nails to use to comply with the durability requirements of NZBC.

Table 5

Exposure conditions and nail selection prescribed by NZS 3604		
NAIL MATERIAL:		
D Zone*	Zone C outside sea spray zone and Zone B and Geothermal hot spots	Bracing — All zones
Grade 316 Stainless steel	Hot-dipped galvanised or 316 stainless	Grade 316 Stainless steel

*Zone C areas where local knowledge dictates that increased durability is required are to be classified as sea spray zones. Also where the cladding is expected to meet 50 year durability, HomeRAB PreClad Lining/RAB Board must be fixed with stainless steel nails.

Check with the local Territorial Authority if unsure. Refer to fixing manufacturer for warranty and fixing installation guidance.

Fasteners must be fully compatible with all other materials that they are in contact with to ensure the durability and integrity of the assembly. Contact fastener manufacturers for more information. Also refer to Table 20 and 21 of E2/AS1 for further information about the suitable fastening materials and their compatibility with other materials.

5 Installation

BOARD LAYOUT

When using James Hardie rigid air barrier, building underlays are not required over the framing. HomeRAB PreClad Lining/ RAB Board has been tested and complies with the performance requirements of Table 23 of Clause E2 of NZBC. The boards are jointed keeping a gap of 1-2mm maximum between the boards. The board must be cleaned of any dust before fixing the jointing tape over the joint.

Cut edges where exposed must be primed prior to installation with Dulux® Primacryl, Resene Quick Dry or similar.

The bottom edge of James Hardie rigid air barriers must overhang below the bottom plate by 15mm minimum. Refer Figures 20 and 21.

Vertical Joints

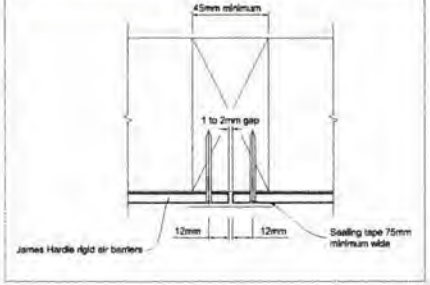
Vertical joints must be sealed to stop the moisture ingress into the framing behind the James Hardie rigid air barrier. The vertical joints are sealed over by running a 75mm wide sealing tape e.g. Protecto Wrap tape or Aluband flashing tape. A 50mm wide Inseal 3259 sealing tape can also be used where the CLD Structural Cavity Batten or timber cavity battens are fixed over the joint. The Inseal tape gets compressed permanently under the cavity battens to seal the joint.

Inseal tapes must not be left exposed.

The sealing tapes must be pressed hard over the James Hardie rigid air barriers surface while fixing so that they achieve the required bond. The sealing tapes must not be exposed to elements for more than 90 days. This achieves the required protection when the cladding is installed. The claddings must be installed within 90 days.

NOTE: Refer to sealing tape manufacturers recommendations regarding the installation of their sealing tapes in cold climate conditions. It is recommended to warm up the sealing tapes eg AluBand or Protecto Sill tape, when the air and substrate temperatures are below 10°C.

Figure 5: Vertical joint

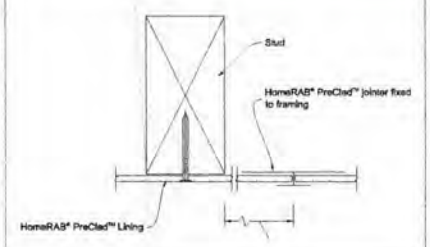


Off Stud Jointing - HomeRAB PreClad Lining Only
Off stud jointing is achieved by fixing a HomeRAB Preclad jointer to form a vertical joint away from the stud. This method is the quickest and the easiest method of installing HomeRAB PreClad Lining. Refer to Figure 6. The HomeRAB PreClad jointer is fixed to bottom and top plates and to nogs / dwangs. HomeRAB PreClad Lining fixings at top, bottom plates and nogs must be minimum 50mm away from HomeRAB PreClad jointer.

Always use a single piece of HomeRAB PreClad jointer extending from bottom of board to top of board.

The off-stud jointing method must not be used when fixing HomeRAB PreClad Lining for bracing applications.

Figure 6: HomeRAB PreClad Lining vertical off-stud jointing

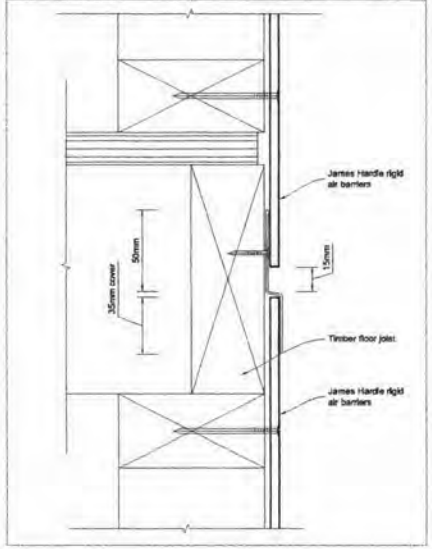


Horizontal Joints
The horizontal joint of James Hardie rigid air barriers must be flashed using a uPVC horizontal flashing or alternatively aluminium or colour steel Z flashings can also be used. Refer Figure 7. Leave a gap of minimum 15mm at the solid timber floor joist or as specified by the project engineer. The flashing must be lapped by a minimum 35mm on both sides of the joint.

For walls longer than 3m, horizontal uPVC flashing must be silicone sealed and lapped by 50mm minimum.

Rigid air barriers must not be fixed into floor joists.

Figure 7: Horizontal joint



Internal/External Corners
James Hardie rigid air barrier corner joints must be sealed using a 75mm minimum wide sealing tape. A 80mm wide inseal 3259 sealing tape can also be used where the cavity battens are fixed over the corner joint.

When using uPVC horizontal flashing in horizontal joints, the internal and external corner flashing joints must be sealed using a 75mm minimum wide joint sealing tape. Refer Figure 10.

When using RAB Board as a backing board for stucco plaster, the vertical joints of RAB Board are not required to be sealed. The horizontal joints at floor level must be flashed to satisfy the requirements of clause E2 of NZBC.

Figure 8: External corner joint

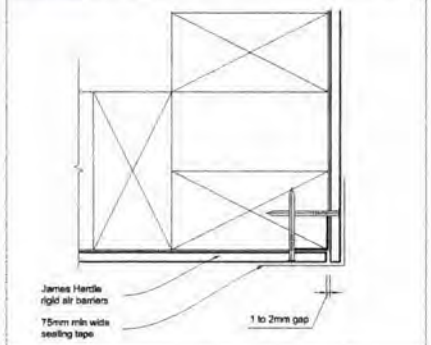


Figure 9: Internal corner joint

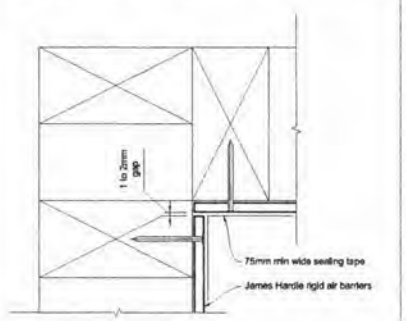


Figure 10: Corner junction to horizontal joint

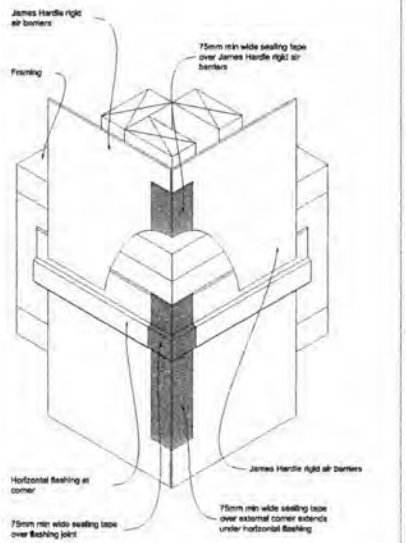


Figure 11: RAB Board used as backing board for stucco plaster/proprietary cladding systems

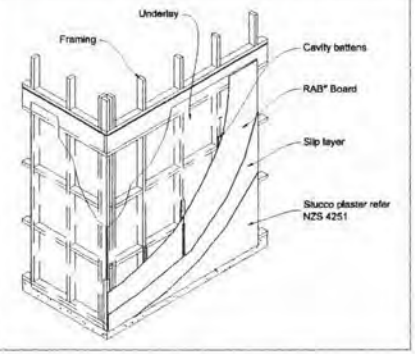


Figure 12: James Hardie Rigid Air Barriers to standard soffit

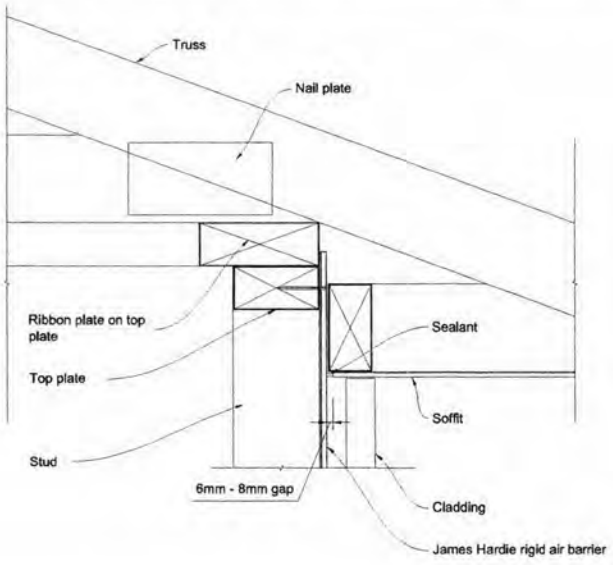
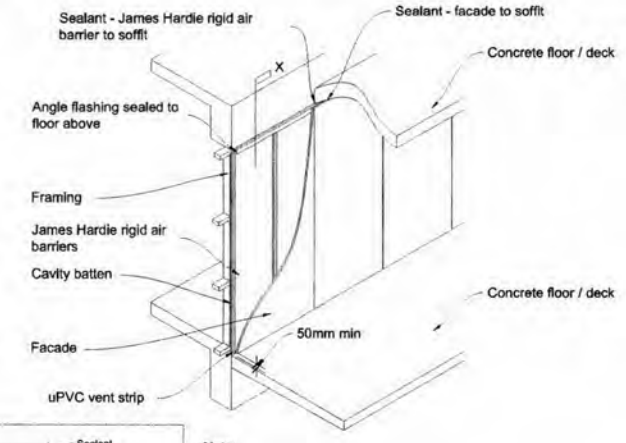
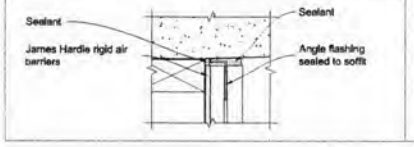


Figure 13: RAB Board to soffit junction/concrete



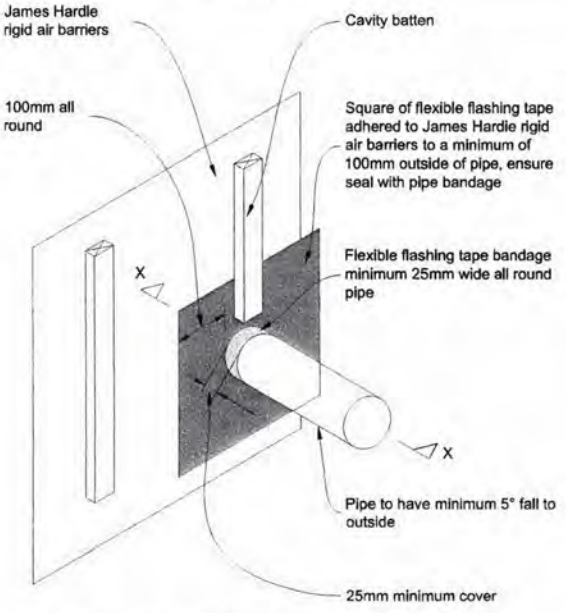


Note:
Check facade manufacturer for clearances

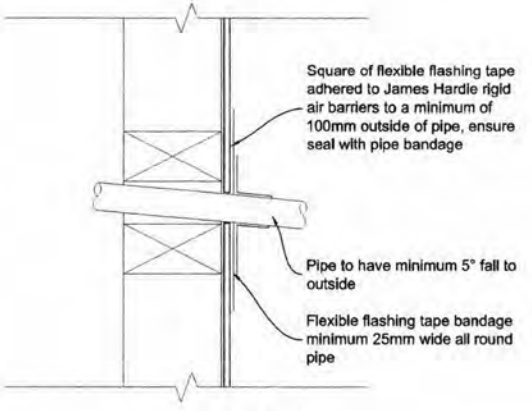
Penetrations

The pipe penetrations through James Hardie rigid air barrier must be sealed properly using a flexible flashing tape. Maintain a 100mm minimum cover of flashing over the board around the penetration.

Figure 14: Pipe penetration through James Hardie Rigid Air Barriers



Note: Also refer to Figure 60 of E2/AS1 for information on pipe penetrations.



Section XX

Flashings

The exposed timber framing around the window jamb can either be covered with a 150mm minimum wide flashing tape / sealing tape, refer Figure 18, or the jamb can be covered with a building underlay, refer Figure 19. The window sill must be dressed with a 150mm minimum wide flashing tape. The tape is sealed over the face of James Hardie rigid air barrier, refer Figure 15.

The James Hardie rigid air barrier surface must be clean, free of grime and dry before the tapes are applied. Some tape manufacturers require a primer tak spray be applied before fixing the tapes to the board surface to achieve a better tape adhesion. Check with the tape manufacturers for further information.

Figure 15: Window flashing

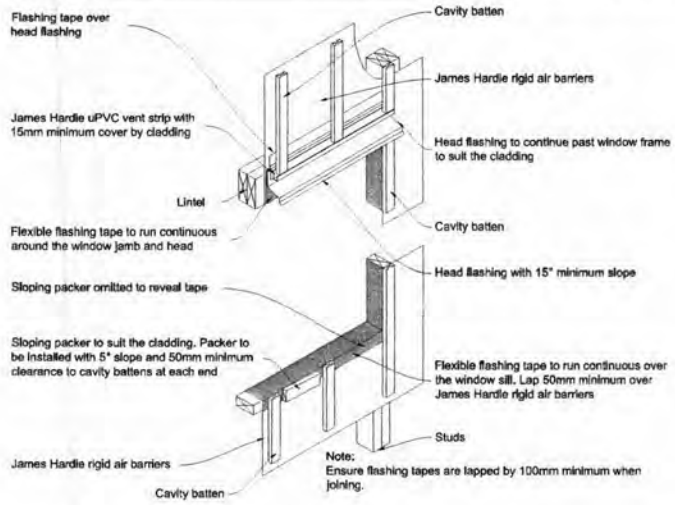
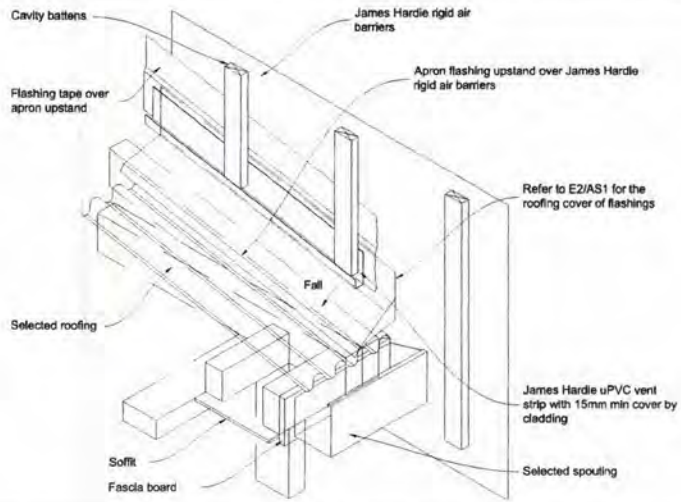


Figure 16: Apron flashing



Balustrade to Wall Junctions

The junctions between balustrades to wall should be appropriately flashed. Refer to E2/AS1 of NZBC for information and flashing details.

Figure 17: Flashing at balustrade

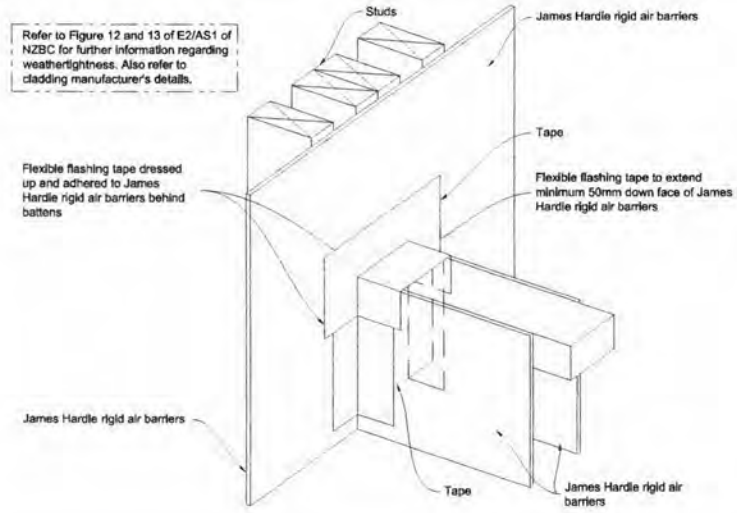


Figure 18: Window jamb with flashing tape

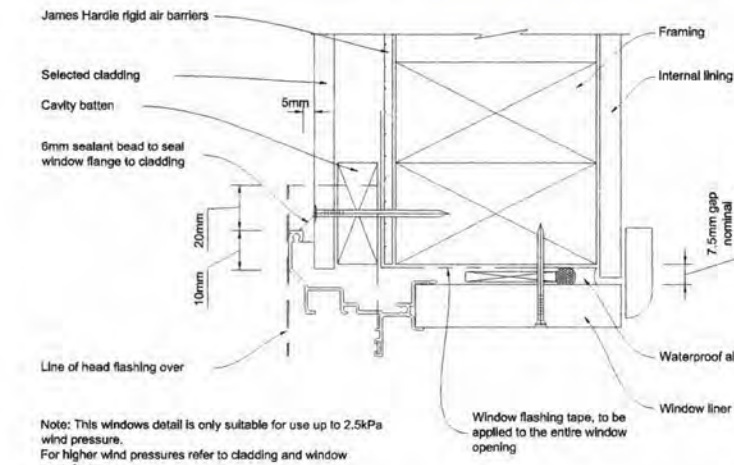
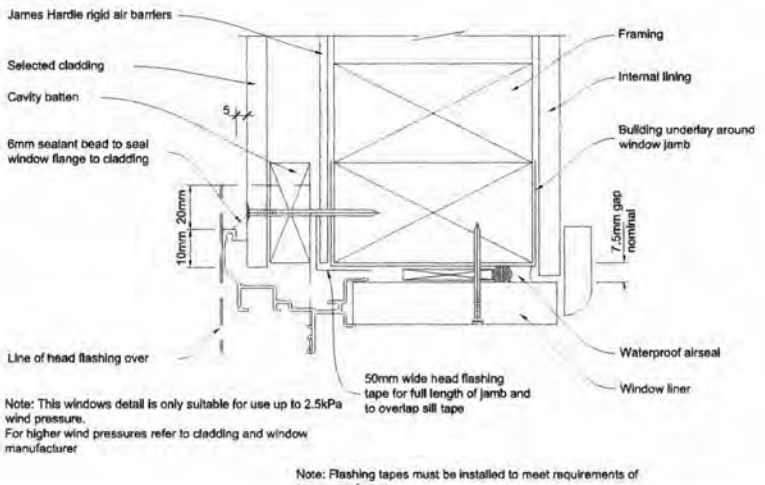


Figure 19: Alternate window jamb with building underlay



Bracing

For bracing application the James Hardie rigid air barriers must be installed as per HomeRAB PreClad Lining/RAB Board bracing details in the James Hardie Bracing Design Manual. Bracing with HomeRAB PreClad Lining can only be achieved for direct fix construction. Bracing with RAB Board can be achieved for both construction methods i.e. direct fixed and cavity construction. For bracing applications only stainless steel nails must be used. For further information on bracing, Ask James Hardie on 0800 808 868.

Fire Rated Wall Construction

For fire rated applications RAB Board must be installed as per the current James Hardie Fire and Acoustic Design Manual. RAB Board is suitable to achieve fire ratings up to 60 minutes regardless of the cladding material it is to be used in conjunction with.

CLEARANCES

James Hardie rigid air barriers must extend below the bottom plate by 15mm minimum over concrete foundation and 15mm past floor joist of timber foundation. James Hardie rigid air barriers must maintain a 100mm minimum clearance between the bottom edge of the board and the finished ground.

Check cladding manufacturer for minimum clearances required for the selected cladding.

Maintain the required clearances between the bottom plate and top of ground to comply with NZBC and NZ standards. The adjacent finished ground must slope away from the building in accordance with NZBC requirements. Do not install James Hardie rigid air barriers in such a way that it may remain in contact with standing water.

Figure 20: Foundation detail – direct fix cladding

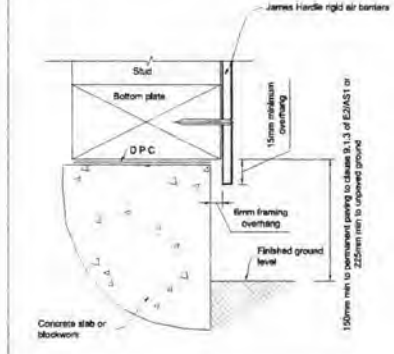
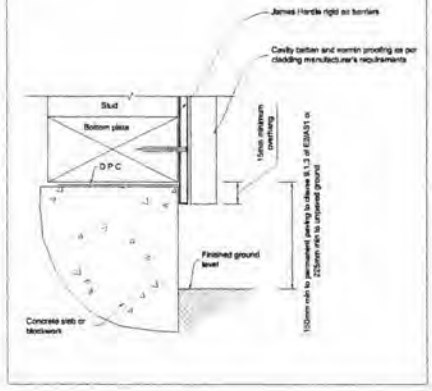


Figure 21: Foundation detail – cavity fix cladding



ALPINE REGIONS

In regions subject to freeze/thaw conditions, James Hardie rigid air barriers must not be in direct contact with snow or ice build up e.g. external walls in alpine regions subject to snow drifts over winter. James Hardie rigid air barriers have been tested to resist freeze thaw in accordance with AS/NZS 2908.2 clause 8.2.3 requirements and is suitable for use in alpine regions.

6 Product information

GENERAL

HomeRAB PreClad Lining and RAB Board are cellulose fibre reinforced cement building products. The basic composition is Portland cement, ground sand, cellulose fibre and water.

RAB Board is easily identified by the name RAB Board printed on the back face. HomeRAB PreClad Lining is easily identified by the chequered pattern on its face and the name 'HomeRAB PreClad' embossed on the front face diagonally. It has green colour water repellent sealer applied on its front face. The name is also printed on the back face of the lining.

HomeRAB PreClad Lining and RAB Board are manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheet (ISO 8336).

HomeRAB PreClad Lining and RAB Board are classified Type B, Category 3 in accordance with AS/NZS 2908.2.

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

DURABILITY

Resistance to Moisture/Rotting

James Hardie rigid air barriers have demonstrated resistance to permanent moisture induced deterioration (rotting) and have passed the following tests in accordance with AS/NZS 2908.2:

- Water Permeability (Clause 8.2.2)
- Warm Water (Clause 8.2.4)
- Heat Rain (Clause 6.5)
- Soak Dry (Clause 8.2.5)

Resistance to Fire

James Hardie rigid air barriers are deemed to be a non-combustible material and have the following Early Fire Hazard Indices (tested to AS 1530 Part 3).

Early fire hazard indices	
Flammability (FI)	0
Spread of Flame Index (SFD)	0
Heat Evolved Index	0
Smoke Developed Index (SDI)	0 – 1

7 Finishes and maintenance

The selected cladding must be installed and finished within 90 days after the installation of James Hardie rigid air barriers, and the cladding must comply with the requirements of NZBC. Regular cleaning and maintenance of claddings paints, joints, junctions, penetrations, flashings etc must be carried out at regular intervals and as per the requirements of the material manufacturers. Regular maintenance of cladding is also a requirement under NZBC.

The ground clearances required for the James Hardie rigid air barriers and the cladding must always be maintained.

Product Warranty

James Hardie
RIGID AIR BARRIERS

May 2012

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 15 years from the date of purchase that the HomeRAB® PreClad™ Lining/RAB® Board (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials. Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY:

The warranty is strictly subject to the following conditions:

a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation;

b) this warranty is not transferable;

c) the Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice;

d) the project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards;

e) the claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product;

f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces);

g) all warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law;

h) If meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested the performance of the HomeRAB® PreClad™ Lining/RAB® Board when installed in accordance with the HomeRAB® PreClad™ Lining/RAB® Board installation manual in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

James Hardie

Ask James Hardie™
Call 0800 808 868
www.jameshardie.co.nz

Product Warranty

scyon
LINEA
WEATHERBOARD

January 2012

Warranty: James Hardie New Zealand Limited ("James Hardie") warrants for a period of 25 years from the date of purchase that the Scyon® Linea® Weatherboard (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the Scyon® Axent™ Trim and accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY:

The warranty is strictly subject to the following conditions:

a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation.

b) This warranty is not transferable.

c) The Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice.

d) The project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards.

e) The claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product.

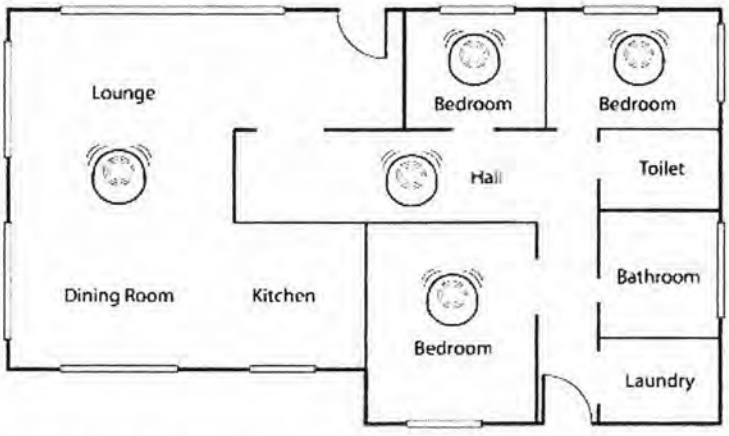
f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces).

g) All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law.

h) If meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

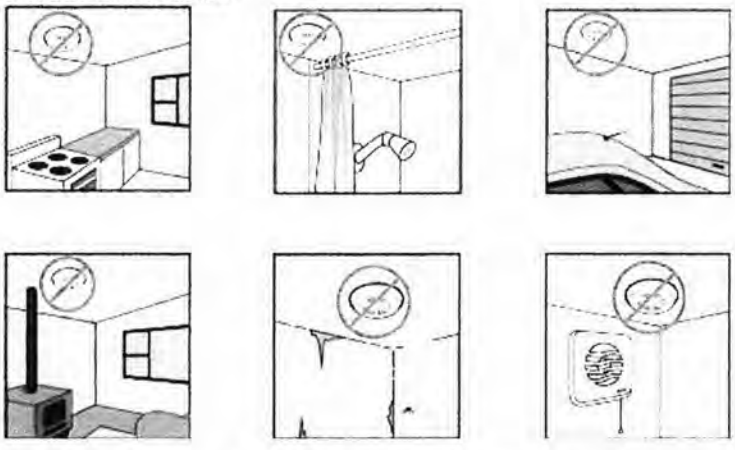
Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested the performance of Scyon® Linea® Weatherboard when installed in accordance with the Scyon® Linea® Weatherboard technical specification, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

James Hardie



Where not to put them.

Don't install smoke alarms in the kitchen, garage or bathrooms unless they are specially designed smoke alarms for those areas. Heat detectors are available for the kitchen.



What sort of smoke alarm should I install?

The New Zealand Fire Service recommends you install long-life photoelectric type smoke alarms in your home. They may be a bit more expensive, but the benefits are significant:

- they provide a minimum of 10 years smoke detection
- they remove the frustration of fixing the 'flat battery beep' at inconvenient times
- the cost of replacement batteries for standard alarms means the long-life one effectively pays for itself over its lifetime
- elderly don't have to scale ladders to replace batteries annually

But, at a minimum, you should install one standard photoelectric alarm in the hallway closest to the bedrooms.

Villaboard®
LINING

Product Warranty

January 2012

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 15 years from the date of purchase that the Villaboard® Lining (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY:

The warranty is strictly subject to the following conditions:

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b) this warranty is not transferable;

c) the Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice;

d) the project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code (NZBC), regulations and standards;

e) the claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product;

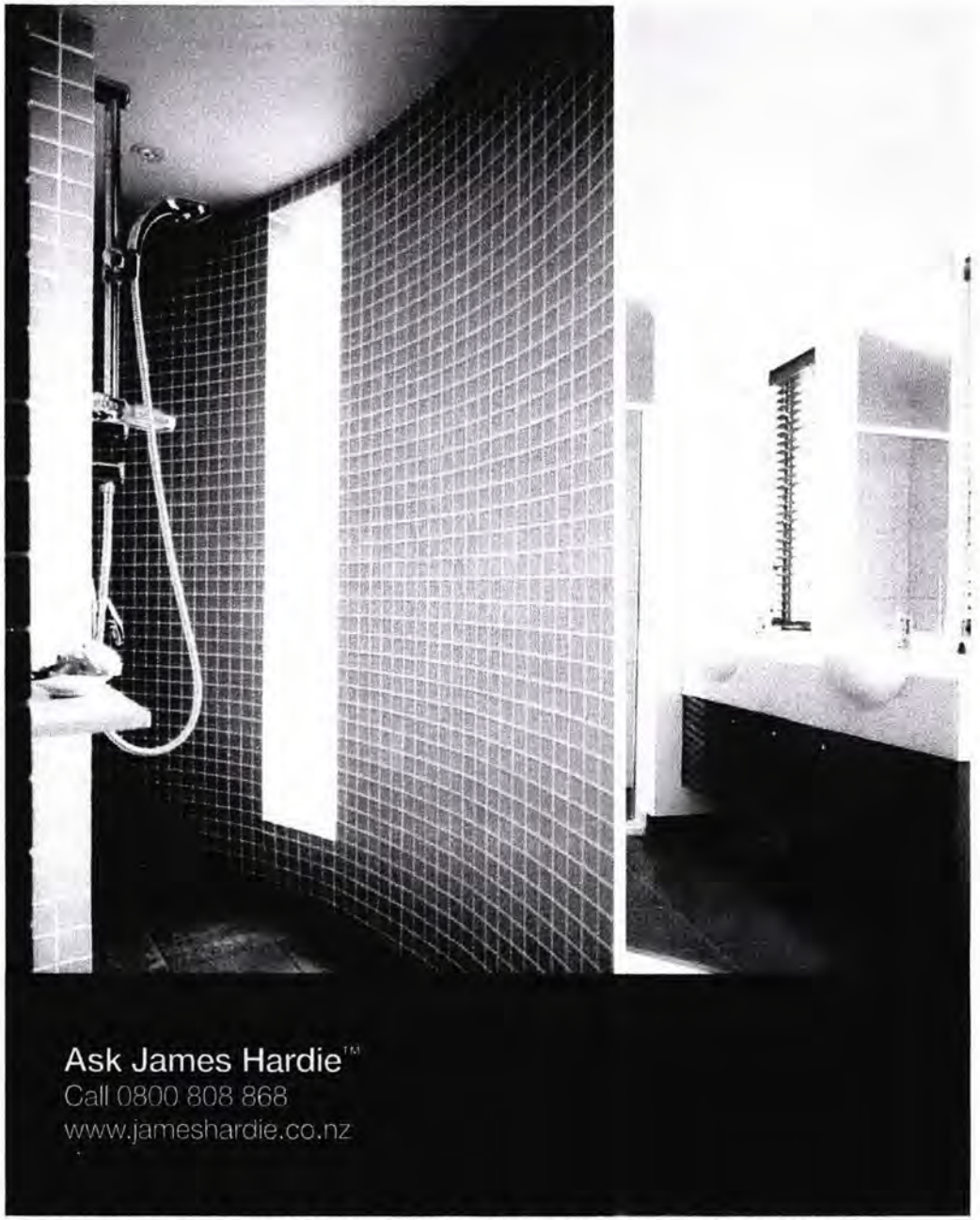
f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces);

g) all warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law;

h) if meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested the performance of the Villaboard® Lining when installed in accordance with the Villaboard® Lining installation manual, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

James Hardie



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BLACK DOG
DIGGING & DRAINLAYING

Black Dog Digging & Drainlaying Ltd
PO Box 425
Alexandra 9340
Phone: 03 448 7700
Mobile: 0274 671 888
Email: blackdog_digging@xtra.co.nz

ASSESSMENT FOR DOMESTIC ON-SITE WASTEWATER TREATMENT AND DISPOSAL.
Assessment based on criteria set out in AS/NZS 1547:2000 "On-site Domestic Wastewater Management"

1.SITE INFORMATION

Owner/Developer: T & N Thayer

This development consists of 4 Bedroom house and adjacent garage.

Address/Location:

Lot 2,DP403904,Dunstan Road Clyde.

Site Plan Details:

A copy of the site plan is appended.

Geology:
The land at this site has been formed as a alluvial terrace by the Clutha River.
There is a thin cover of soil overlying silty clay then a extensive depth of gravels.
A photo of a test hole is appended.

Climate:
The climate has cold winters and warm summers. Rainfall is low and long frosty periods can occur in winter.

Water supply:
The water supply for this property will be drawn from the existing bore water supply.

Evaluation of Possible Solutions:
It is the owners preference to use a single stage septic tank with effluent disposal to ground via a soakage field. This combination should perform satisfactorily at this site.

2.On-Site Evaluation

Work Undertaken:

Soil formations have been identified by a walkover survey,and by inspection of recent test excavations of at the site which have been undertaken in conjunction with the proposed development. Photos are appended.

Soil Exposure:

The site is exposed with various established trees providing some shelter.

Environmental Aspects:

There are no environmental or site stability aspects which are considered critical or significant in relation to this development proposal.

Drainage Controls:

It is not considered necessary to impose any specific drainage controls or setback areas in conjunction with this proposal. There are no significant waterways.The exact location is to be confirmed on site at the time of installation.

3.SYSTEM PROPOSAL.

The moderate draining river gravel at this site is a category 2 soil,as described in AS/NZ-S1547;2012 and as such a design loading rate(DLR)up to 25mm per day(for primary treated affluent discharged via soakage beds and trenches)may be used.

The house proposed for this property will have 4 bedrooms and the assumed (maximum)design population for the wastewater system is 7 persons.
The proposed system is designed for a daily effluent discharge up to 1200 litres.

The proposed system consists of a 4500l litre, single stage septic tank,which discharges via an effluent filter to a soakage bed. The tank is to be installed between the barn and the proposed house. This is at least 50m away from the nearest water bore and at least 5m away from any boundaries. All drains from the building to the septic tank will comply with AS/NZ3500.

An approved Bio-Filter will be installed at the tank outlet.
The soakage bed will be two runs of 100mm pipe 25m long with 8mm holes drilled at 800mm centres. Each trench bed will be 1.0m wide giving the field a total area of 50sq metres. The beds will have 200mm layer of screened aggregate on the bottom,then the pipe will be placed on this. Another layer of screened aggregate will be placed over the pipe and a layer of filter fabric on this. There will be a 2 way diverta installed at the start of the disposal field to alternate the beds. Inspection caps will be placed at the end of each run.

Relevant construction details for the treatment and disposal system are given in the appended drawing.

Sam Forsyth.

Certifying Registered Drainlayer No:24866.

15 August 2012.

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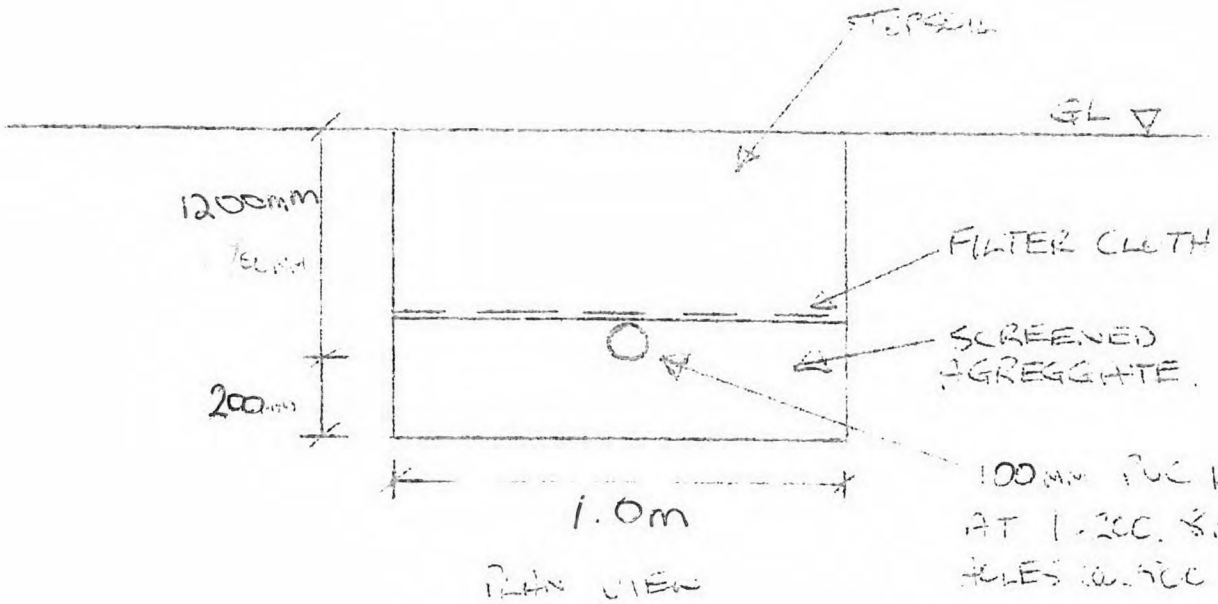
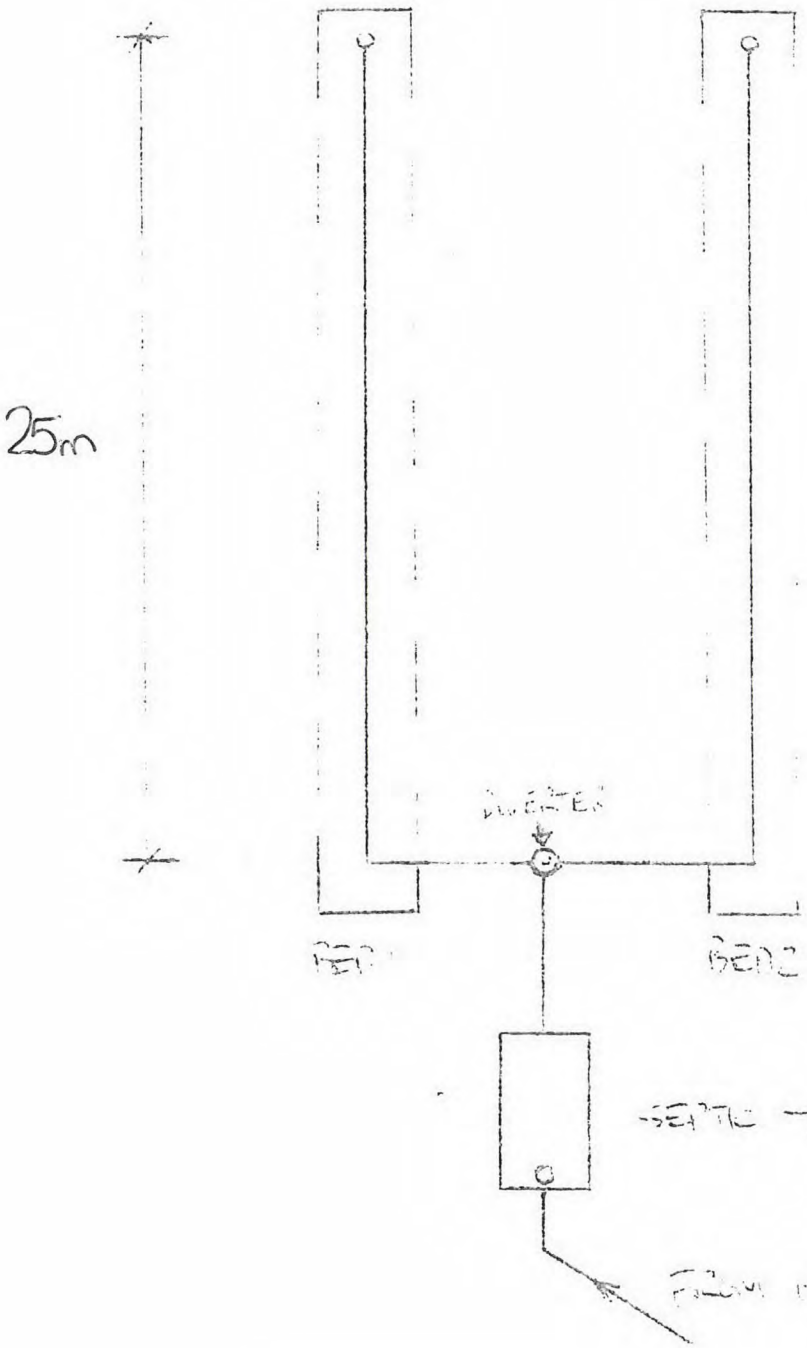
TRENCH CROSS-SECTION.



PLAN VIEW



BLACK DOG
DIGGING & DRAINLAYING.
C.O.D.C Approved Contractor
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PO Box 425
Alexandra 9340
Central Otago
New Zealand

Part 1 Water Services

SECTION 16 TESTING AND COMMISSIONING

16.1 SCOPE OF SECTION

This Section specifies requirements for testing and commissioning a water service.

16.2 FLUSHING

At the completion of the water service installation and prior to hydrostatic testing, the system shall be thoroughly flushed to remove any foreign matter. The flushing shall be undertaken in accordance with Appendix I, Paragraph I3 and continue until the flushed water runs completely clear. The system shall then be pressure tested in accordance with Clause 16.3.1.

The water service used to supply drinking water shall be protected against contamination in accordance with Appendix H and Appendix I.

NOTE: See also section 9 for testing and commissioning non drinking water services.

16.3 TESTING

16.3.1 Hydrostatic test

Water services shall not show any leakage when subjected to a hydrostatic pressure of 1500 kPa for a period of not less than 30 min.

The test shall be performed on installed piping prior to burial or concealment. In the case of pipe systems with elastomeric seals, the piping shall be backfilled leaving the joints exposed until completion of the test.

NOTES:

1 When a pressure test is carried out, it may be necessary to disconnect and cap the water service to isolate it from the water main, fixtures and appliances, which may be damaged by the test pressure applied.

2 Fire services are subject to individual testing by some network utility operator at a higher pressure and for varied periods of time.

16.3.2 Storage tanks (except rainwater tanks)

Storage tanks (except rainwater tanks) shall be filled until they overflow for a period of not less than 1 min. The overflow shall discharge to the satisfaction of the relevant environmental protection legislation.

Compliance with the air gap criteria shall be verified (see Clause 4.6.3.2 (a))

16.4 CLEANING AND DISINFECTION OF DRINKING WATER STORAGE TANKS

The disinfection of drinking water storage tanks shall be carried out in accordance with Appendix I.

16.5 DISINFECTION OF WATER SERVICES

The disinfection of water services shall be carried out in accordance with Appendix H.

16.6 COMMISSIONING

At the completion and testing of the water service, the operation of all valves, cisterns, taps, pressure relief-valves, and other components shall be checked to confirm their correct performance.

Part 2 Foul Drainage

SECTION 13 TESTING OF SANITARY PLUMBING AND SANITARY DRAINAGE INSTALLATIONS

13.1 SCOPE OF SECTION

This Section specifies requirements for the testing of sanitary plumbing and sanitary drainage installations.

13.2 SANITARY PLUMBING TESTING

A2

13.2.1 Water efficiency

Where the authority having jurisdiction, has a water management strategy or has instituted temporary water restrictions in response to an existing water shortage, the authority may request that an air test be applied to the completed work, either in its entirety or in sections as determined.

13.2.2 Test conditions

Where hydrostatic testing is used as a means for testing sanitary plumbing and sanitary drainage installations, non-drinking water may be used, where provided by the network utility operator.

The following applies:

(a) When tested, the respective sections of any soil pipe, waste pipe, vent pipe or above-ground drain shall be free of leaks when subjected to—

(i) hydrostatic test to flood level; or

(ii) air test to 30 kPa for a minimum period of 3 min.

(b) When subjected to a hydrostatic pressure equal to twice the shut-off head of the pump, the discharge pipe through which sewage is pumped to the sewer shall be free of leaks or if a relief valve is fitted, twice the pressure at which such a valve operates.

(c) Sanitary fixtures of all kinds shall be tested by subjecting them to normal use. After each relevant test, the residual water seal in the trap of the fixture concerned and in the trap of any other fixture connected to the same system of discharge pipes shall comply with Clause 6.4.2.

A1

(d) Where it is found upon test that, under normal operating conditions, the water seal retained in any such trap is less than 25 mm, each such trap shall be ventilated in accordance with these requirements or such other provisions made that will ensure retention of a water seal of at least 25 mm.

NOTE: Fixtures generally used without plugs will be tested without plugs, e.g., basins, bidets and similar.

13.3 SANITARY DRAINAGE TESTING

13.3.1 Water test

Below-ground drains shall be tested as follows:

(a) A water test shall be applied to every new below-ground drain and to any section of an existing below-ground drain that has been repaired or replaced.

(b) The head of water on any section of drain shall not exceed 3 m.

(c) The test shall be applied by—

(i) sealing all openings except the top of the section of the below-ground drain to be tested;

(ii) filling the below-ground drain with water to the highest level in that section; and

(iii) maintaining the water at this level for a period of—

(A) 10 min for vitrified clay drains, by the addition of measured quantities of make-up water as set out in Item (d); or

(B) 5 min for drains of any other material.

(d) The test is considered to be successful if the quantity of make-up water—

(i) does not exceed 1 L per 30 m length of DN 100 vitrified clay drains;

(ii) does not exceed 1.5 L per 30 m length of DN 150 vitrified clay drains; or

(iii) is zero during the test period for drains of other materials.

13.3.2 Air test

As an alternative to the water test, an air test may be applied to the completed work, either in its entirety or in sections in accordance with the following:

(a) The air pressure test shall consist of applying a pressure of 30 kPa to the drain and holding this pressure for 3 min to allow the air temperature to stabilize.

(b) The air supply shall then be shut off and the time taken for the pressure in the pipe (to drop from 25 kPa to 20 kPa) shall be measured.

(c) The drain is considered to have passed the test if the time taken is greater than 90 s for pipes of size DN 225 or smaller, or 180 s for pipes of sizes DN 300 and DN 375.

Part 3 Stormwater Drainage

SECTION 10 SITE TESTING

10.1 SCOPE OF SECTION

This Section specifies criteria for the testing of downpipes within buildings, site stormwater drains and main internal drains under buildings and all rising mains.

10.2 DOWNPIPES, SITE STORMWATER DRAINS AND DRAINS WITHIN OR UNDER BUILDINGS

Downpipes, site stormwater drains and drains within or under buildings shall be tested in accordance with Clause 10.3

10.3 TEST CRITERIA

10.3.1 Downpipes within buildings

Downpipes within buildings shall be free of leaks when subject to either—

(a) water test at a pressure of a head of water equal to the lesser of 10 m or the length of the downpipe for a period of not less than 10 min; or

(b) air test at a pressure of not less than 30 kPa for a period of not less than 3 min.

Note: 1 kPa = 100 mm head of water.

10.3.2 Site stormwater drains, drains within and under buildings and main-internal drains

Site stormwater drains, drains within and under buildings and main internal drains shall be free of leaks when subjected to either of the following:

(a) *Water test (see Clause 10.4.1)* The leakage rate not to exceed the relevant value given in Table 10.1 for a pressure within the range 1.5 m to 3.0 m head of water maintained for a period of not less than—

  (i) 10 min for FRC, precast concrete (steel reinforced) and vitrified clay (ceramic) products; or

  (ii) 5 min for all other authorized products.

(b) *Air test (see Clause 10.4.2)* Application of a pressure test of not less than 30 kPa for a period of not less than 3 min then, after disconnection of the pressure source, the period for a pressure drop from 25 kPa to 20 kPa to exceed the relevant value given in Table 10.2.

TABLE 10.1

MAXIMUM LEAKAGE RATE

Material	Maximum leakage rate per 30 m length L/min
FRC, precast concrete (steel reinforced) and vitrified clay (ceramic)	$\frac{DN}{1000}$
All other authorized	Nil

10.3.3 Rising mains

Rising mains shall be free of leaks when subject to a pressure test at a pressure of not less than twice the shut-off head of the pump connected to the rising main, for a period of not less than 10 min.

TABLE 10.2

MINIMUM PERIOD FOR PRESSURE DROP

Nominal size DN	Minimum period for pressure drop from 25 kPa to 20 kPa s
100 to 225	90
300 to 450	180

10.4 PROCEDURE

10.4.1 Water test

The head of water on any section of drain shall not exceed 3 m.

The procedure shall be as follows:

(a) Seal all openings except the top of the section of the below-ground drain to be tested.

(b) Fill the below-ground drain with water to the highest level in that section.

(c) Maintain the water at this level for a period of—

(i) 10 min for vitrified clay drains, by the addition of measured quantities of make-up water as set out in Item (c); or

(ii) 5 min for drains of any other material.

The test is considered to be successful if no make-up water is required.

NOTE: For vitrified clay drains the following quantities of make up water are permitted—

(a) up to 1 L per 30 m length of DN 100; or

(b) up to 1.5 L per 30 m length of DN 150.

10.4.2 Air test

The procedure shall be as follows:

(a) Apply a pressure of 30 kPa to the drain and hold this pressure for 3 min to allow the air temperature to stabilize.

(b) Shut off the air supply and measure the time taken for the pressure in the pipe to drop from 25 kPa to 20 kPa.

The drain is considered to have passed the test if the time taken is greater than 90 s for pipes of size DN 225 or smaller, or 180 s for pipes of sizes DN 300 and DN 375.

Part 4 Heated Water Services

SECTION 11 TESTING AND COMMISSIONING

11.1 SCOPE OF SECTION

This Section specifies requirements for testing and commissioning a heated water service.

NOTE: All fixtures, appliances, water tanks, storage water heaters and other equipment, which may be damaged during pressure testing, should be isolated before testing.

11.2 FLUSHING

Prior to hydrostatic testing, the piping system shall be cleaned and flushed to remove foreign matter. The flushing shall continue until the flushed water runs completely clear. See Clause 3.3 for special conditions for thermostatic mixing valves. After flushing, each line strainer shall be inspected and cleaned as necessary.

11.3 TESTING

When all draw-off points are closed, those pipes that are subjected to pressure shall be hydrostatically tested in accordance with the following:

(a) The completed heated water reticulation, excluding the storage container or water heater, shall not leak when tested with water at ambient temperature at a pressure of 1500 kPa for a period of not less than 30 min. Prior to testing, the heating medium shall be isolated. It may be necessary to disconnect fixtures, appliances and valves in order to prevent damage during testing.

(b) Testing shall be carried out on all piping prior to being insulated or concealed in ducts, chases or trenches.

(c) The complete system (including valves, pumps and other equipment) shall be tested under normal working conditions for a period of not less than 48 h. The system shall be checked visually for leaks.

(d) All safe trays and safe wastes shall be tested with water to ensure that they do not leak under full flow conditions.

(e) All drain pipes from expansion control and temperature/pressure-relief valves and all vent pipes shall be tested with water to ensure that they are unobstructed and are open to the atmosphere.

11.4 COMMISSIONING

The heated water service shall be commissioned in accordance with the following:

(a) The system shall be charged with water prior to the heating medium being applied to the heater.

(b) All air shall be fully purged from the system.

(c) The following items shall be checked for correct operation, as applicable:

  (i) Leakage from each temperature/pressure-relief valve, pressure-relief valve and expansion control valve.

  (ii) Stored water temperature in accordance with Clause 1.9.1.

  (iii) Hot water delivery temperature in accordance with Clause 1.9.2.

  (iv) Water level in a gravity-type system.

(v) Inlet isolating valve, fully open.

(vi) Flow rate at outlet points.

(vii) Pump.

(viii) Flow and return temperatures.

(ix) Inlet pressures where a reduced pressure valve is installed.

(x) Vibration, noise or water hammer.

(xi) Each multiple heater unit shall be checked for operation, individually.

11.5 OPERATING INSTRUCTIONS

Operating instructions shall be made available to the owner or occupier of the premises.

Rinnai
EXPERIENCE OUR INNOVATION

Arriva Operation and Installation Manual

Approved by the Asthma and Respiratory Foundation

Appliance must be installed with an approved Rinnai flue system.

Appliance must be installed, commissioned and serviced by a licensed tradesperson in accordance with these instructions and all applicable local rules and regulations.

Owner, please retain this manual for future reference.

LIMITED WARRANTY

Rinnai brings you peace of mind with a 2 year minimum warranty.

TERMS AND CONDITIONS

1. During the 24 month period from date of purchase and subject to clauses 2 and 3 below, Rinnai New Zealand Limited ("Rinnai") will, at its own discretion, either replace or repair any defective product at no charge to the customer.
2. This warranty covers manufacturing defects only. This warranty will not apply if (for example) the product has been improperly installed or is otherwise installed contrary to manufacturer's recommendations, has been damaged during or after installation, has not been operated in accordance with operating instructions, or has been subjected to damage or abuse beyond that expected from conditions of normal use.
3. Warranty claims may be invalid if not accompanied by details of the installing or supervising gas fitter's registration number and the gas fitting certification number.
4. This warranty commences from the date of purchase. Proof of purchase is required at the time of any warranty claim.
5. Servicing of the product is to be carried out by a Rinnai authorised service centre.

All Rinnai appliances meet or exceed the safety standards required by New Zealand gas and electrical regulations. The company is constantly improving its products and as such specifications are subject to change or variation without notice.

Please keep these instructions in a safe place for future reference.

RECORD AND ATTACH YOUR PROOF OF PURCHASE BELOW:

Your Retailer:_____

Name:_____

Address:_____

_____

Telephone:(_____) _____

Date of Purchase: _____ / _____ / _____

Rinnai

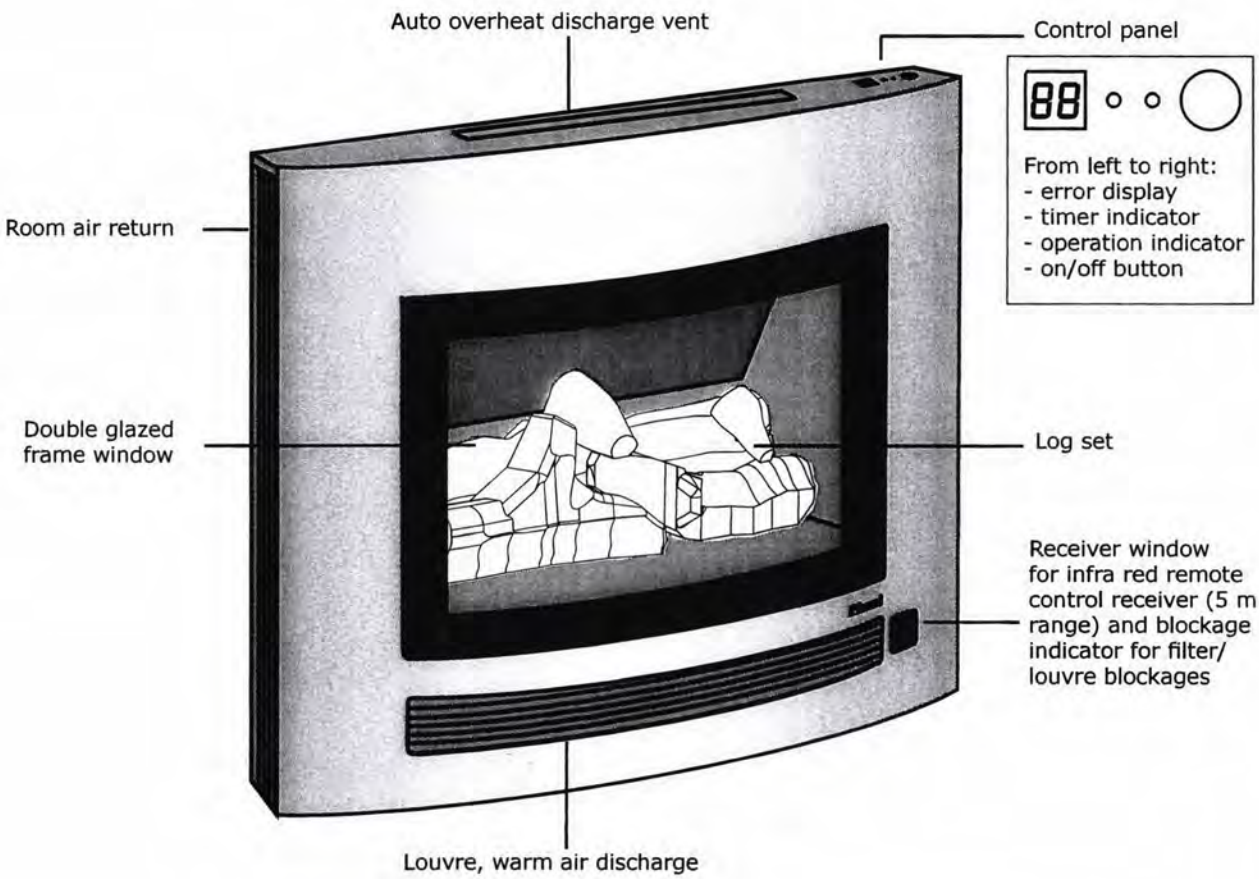
Contents

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

For assistance or additional information contact Rinnai on 0800 RINNAI (0800 746 624).

About Your Arriva



Gas Consumption:	31.5 MJ/h (high)
Output:	7.0 - 1.8 kW
Efficiency:	80% (high)
Heats Area Up To:	70 - 95 m² (depending on the region you live in)

Power flued appliance that uses a fan to draw air from the outside for combustion. Combusted gases are propelled back outside creating combustion efficiency and better room air quality.

The operation section of this manual has been written to:

- Highlight the safe operation and positioning of this appliance
- Advise on maintenance, servicing and troubleshooting to ensure optimum performance

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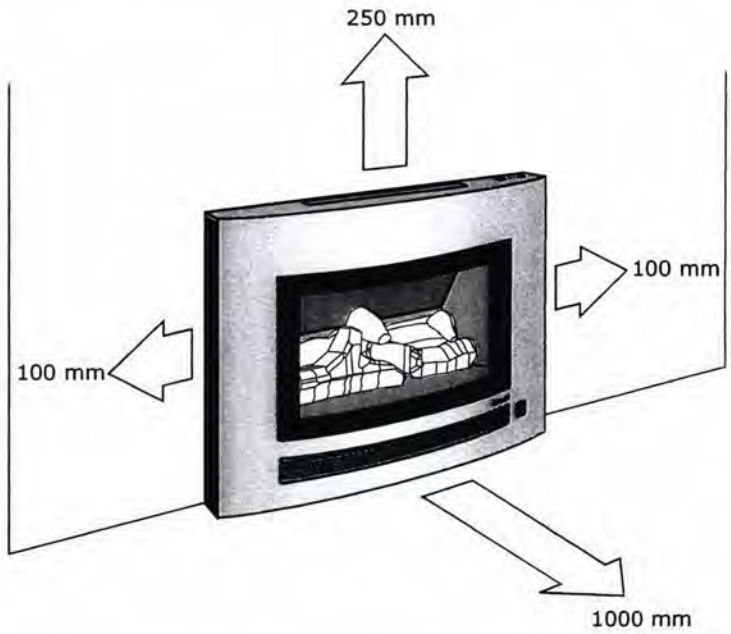
Clearances

The appliance must not be installed where curtains or other combustible materials could come into contact with the heater. In some cases curtains may need restraining.

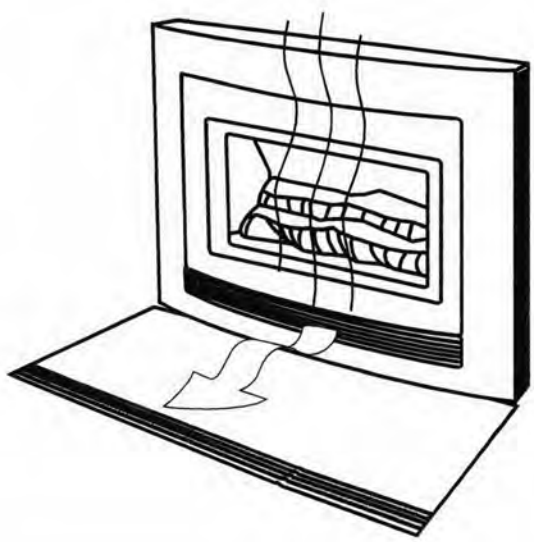
The diagram below shows clearances required when the heater is operating.



Floor protection

This appliance discharges a large volume of warm air at a low level.

Heat emanating from this fire may over time affect the appearance of some materials used for flooring, such as, carpet, vinyl, cork or timber. This may be amplified if the air contains cooking vapours or cigarette smoke. To avoid this occurring, it is recommended that a mat be placed in front of the appliance.



Installer Information

Before installation:

The heater is supplied in 2 separate cartons (excluding flue). One carton contains the heater body assembly and the log set, while the other contains the fascia and top panel. Unpack appliance and flue components and check for damage.

DO NOT install any damaged items.

Check all components have been supplied and that you have the correct gas type.

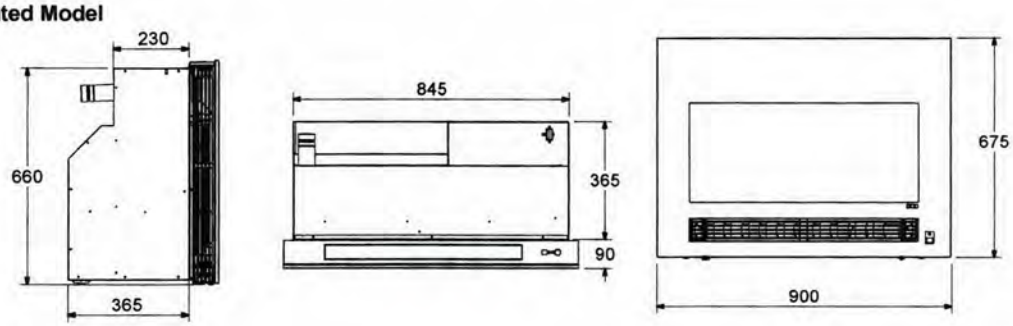
Read these instructions to get an overview of the steps required before starting the installation. Failure to follow these instructions could cause a malfunction of the appliance. This could result in serious injury and property damage.

Specification

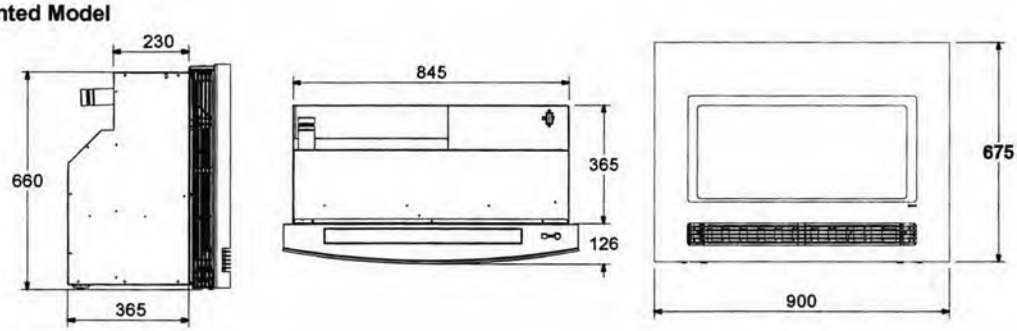
The manufacturer reserves the right to change or modify specifications without notice.

Description	**Inbuilt convector, ceramic log space heater with forced convection and power flue system. Glass or steel fronted.**
Combustion Method	Yellow flame and bunsen multi port burner
Data Plate	**Inside appliance, upper right hand side beside convection fan.**
Fan	High, medium and Low (Auto Off function only)
Flue	**Balanced flue, inner = 50 mm, outer 75 mm** **Flue must be terminated to the atmosphere in accordance with NZS 5261. Rinnai warranty conditions will be voided if non Rinnai flue components are fitted. This heater is only certified for use with approved Rinnai Arriva flueing components.**
Gas Connection	½ " BSP male flare to barrel union (lower right hand side of appliance)
Gas Control	**Electronic control**
Gas Type	NG or LPG
Ignition	**Electronic continuous spark discharge to intermittent pilot by either remote or push button method.**
Input/Output	31.5 - 8 MJ/h 7.0 - 1.8 kW
Noise Level	**33 - 41 dB(A), fan low to high**
Power Consumption	High 90 W, Low 60 W, Standby 10 W Standard electrical connection is to the right hand side of the appliance
Safety Devices	**Overheat, power failure, flame failure, thermal fuse, overcurrent fuse, spark detector and temperature thermistor.**
Temperature Control	Thermostatic, temperature control range 16 - 26 °C
Thermal Efficiency	**80% on high** • **energy efficiency 4.2 stars (direct flueing)** • **energy efficiency 5.2 stars (extended flueing)**
Weight	70 kg

Steel Fronted Model



Glass Fronted Model



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Appliance Positioning

When positioning the unit, the main points governing location are flueing and warm air distribution.

This heater must not be installed where curtains or other combustible materials could come into contact with the appliance. In some cases curtains may need restraining.

Enclosure requirements

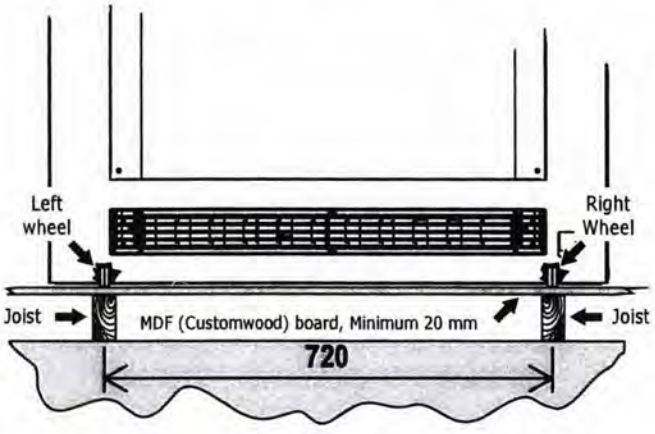
The Rinnai Arriva has a cool outer casing, it can be installed into an existing masonry or decorative fireplace.

A pair of wheels located at the rear of the heater allows it to be slid in and out of the enclosure for commissioning and maintenance. The heater must be positioned on a flat level surface that allows free movement of the appliance.

In a masonry fireplace, use a slurry of sand and cement to level the base as required.

In a decorative fireplace, when the appliance is elevated from the ground, construct a base using a board with supporting joists as shown.

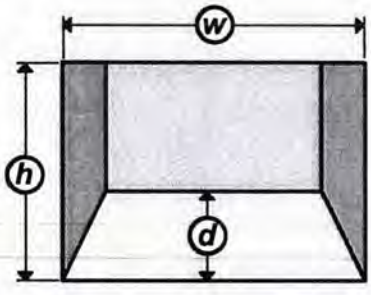
In elevated installations the front mounting feet of the appliance will protrude. These can be re-positioned so they fit within the enclosure by using the slots that sit behind the front wheels.



Enclosure Dimensions

Width (w)	845 - 860 mm
Height (h)	660 - 665 mm
Depth (d)	380 mm direct flue 475 mm extended flue

All dimensions provided are critical to the installation of this appliance and must be strictly adhered to.



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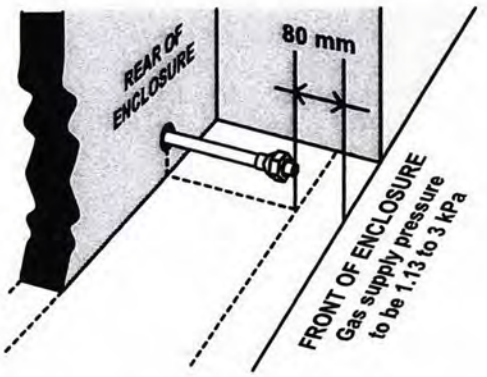
Gas Supply

The gas (½ " BSP) terminates inside the heater and enters the appliance (lower right hand side) from the rear. To ensure correct positioning, terminate the gas supply so it is 80 mm in from the front face of the enclosure opening.

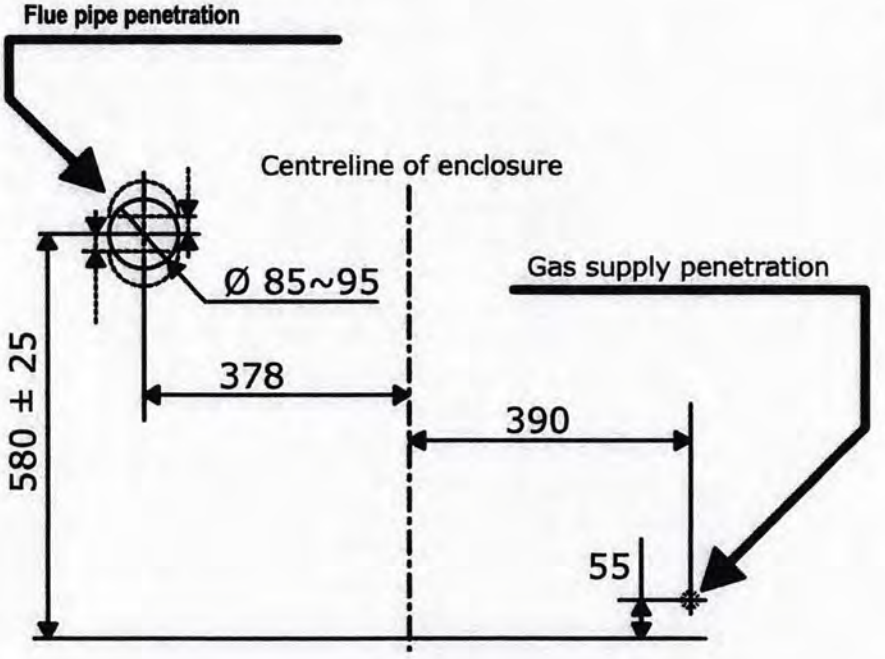


Gas pipe sizing must consider the gas input to this appliance as well as other gas appliances in the premises. The gas meter and regulator must be specified for the total gas rate. An approved sizing chart such as the one in NZS 5261 should be used.

All foreign materials such as filings must be purged from the gas supply as they may cause the gas control valve to malfunction.

Direct Flue Wall Penetration Requirements

Use the guide below to mark the penetration points (mm) for the gas supply and flue transition locations. Consideration must be given to the position of any studs, noggins or other components of the wall structure on both sides of the wall.



Mark these measurements accurately as this is critical for successful installation.

The penetration for the flue transition only needs to be made for Direct flue installations, where the flue terminal is to be terminated directly to the rear of the appliance.

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Flueing - General

IMPORTANT For all installations an Rinnai Arriva flue system MUST BE used. Flue system must be fully assembled and secured in place before the heater is installed.

Flue terminal locations

Must be compliant with 'Clearances Required for Flue Terminals' from NZS 5261 2003. Flue terminal should be positioned away from flammable materials.

Flashings

Are not part of the flue kits or components and must be specified.

Clearance to combustibles

- Flue transition (refer page 30) = 5 mm
- Elbow component of Adaption Flue Kit (ASPKIT03) = 25 mm

All other Arriva flue components have zero clearance.

Maximum length and number of bends

- Maximum flue length = 8 m
- Maximum number of bends = 3 bends

1 x 90° bend = 1 m of length, for every 90° bend the overall length must be reduced by 1 m (i.e. with 3 bends maximum flue length is 5 m).

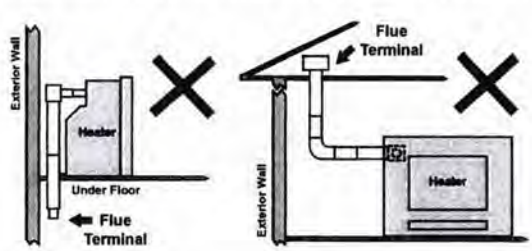
Flue transition for all flueing installations (excluding horizontal direct flueing) is counted as a 90° bend.

Down rating the appliance

For all Arriva flueing except direct flueing, the appliance must be down rated as per instructions on the data plate. Down rating ensures effective performance of the fan.

Roof space or underfloor termination

Flue is not to terminate under floors or in a roof space.



Condensate

A condensate trap is required for any vertical flue installations to ensure condensate generated during combustion is trapped and prevented from entering the chamber.

For horizontal and down and out installations there must be a continuous fall of at least 2°. This equates to approximately 20 mm per metre to the termination point to drain condensate. For standard direct flueing the Rinnai flue kits have an inbuilt 2° fall.

Masonry

The Arriva must not be flued into natural draft flue cavities or via a chimney.

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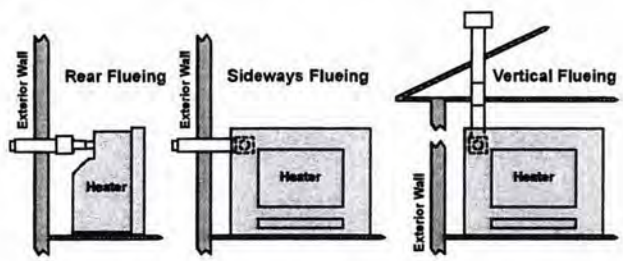
Flueing - Types of Flue Installations

NOTE Refer Flue Installation manual provided with the Arriva Direct and Adaption Flue kits for detailed flue installation instructions.

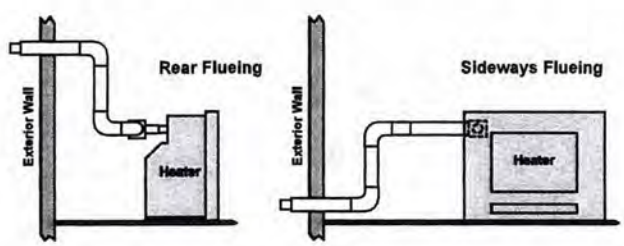
Direct flueing

Flue is run direct from appliance to the termination point either in a horizontal or vertical direction.



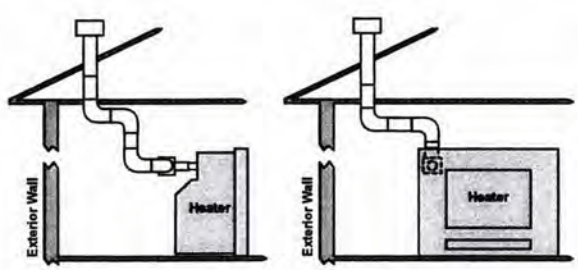
Extended offset horizontal flueing

Flue is run offset from appliance to a horizontal termination point to avoid obstructions.



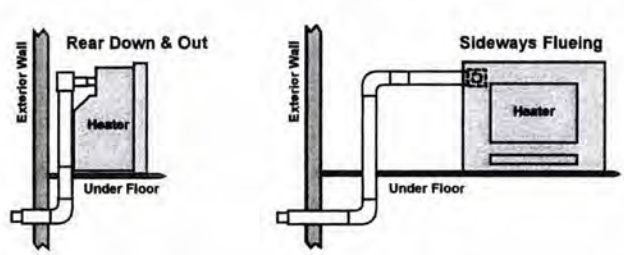
Extended offset vertical flueing

Flue is run offset from appliance to a vertical termination point to avoid obstructions.



Down and out offset flueing

Flue is run below floor level to an external termination point. Flue must terminate 300 mm above the ground.



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Flueing - Flue Transition

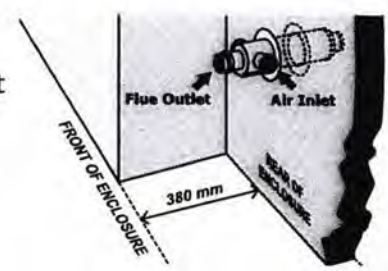
The flue transition provides a connection between the flue spigot and air inlets of the heater with those of the flue system. For all flueing installations (excluding horizontal direct flueing) it is counted as a 90° bend.

The flue transition requires a 5 mm gap from combustibles. This clearance is provided automatically when the supplied stand off brackets are used. All other flue components except the elbow section of the Adaption Flue Kit are designed for zero clearance and can be placed hard against timber or plasterboard.

In all cases when positioned correctly, the flue transition connection must protrude 110 mm from the rear of the enclosure.

Horizontal direct flue transition

When installed as a horizontal direct flue, the flue transition is pushed hard against the internal wall plate which is pushed hard against the rear wall of the enclosure as shown.

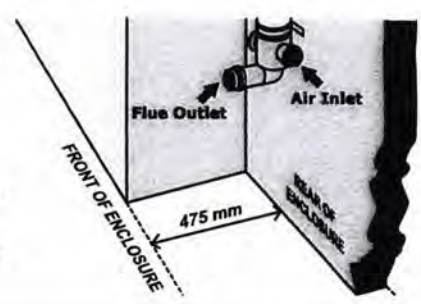


Vertical flue transition

When installed as a vertical direct flue, the flue transition is fastened to the rear wall by standoff brackets supplied.

Elbow component of Adaption Flue Kit requires a 25 mm clearance to combustibles.

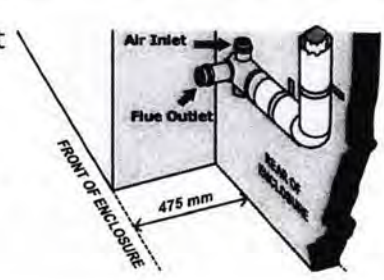
Appliance needs to be down rated, refer data plate.



Offset flue transition

When installed as a vertical or horizontal offset flue, the flue transition is fastened to the rear wall by standoff brackets supplied.

Appliance needs to be down rated, refer data plate.

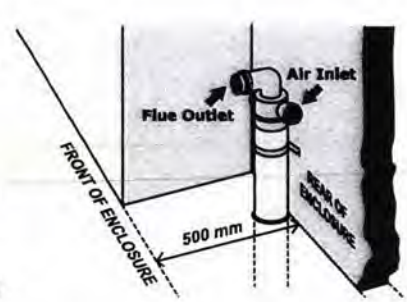


Down and out flue transition

When installed as a down and out flue, the flue transition is fastened to the rear wall by standoff brackets supplied.

The enclosure depth for a down and out installation of 500 mm to allow the flue pipe to clear the base of the appliance.

Appliance needs to be down rated, refer data plate.



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Arriva Installation

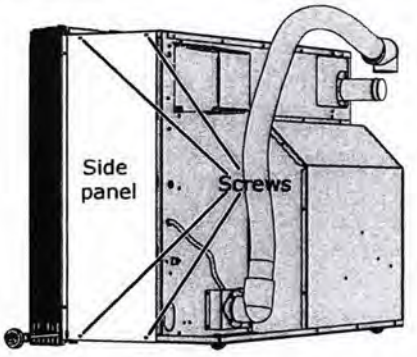
Carefully remove the log set from the carton and place in a safe location until required. Position the heater body assembly in front of the enclosure opening.

WARNING Isolate electrical supply before removing any panels.

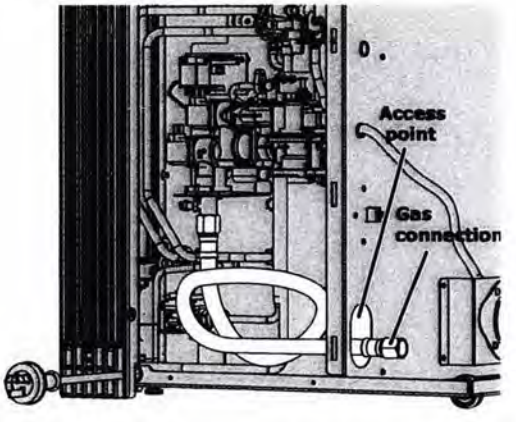
Use a soapy solution to test all gas connections. If a leak is present bubbles will form at the leak point. When finished remove any residue with a rag. Prevent any soapy solution from coming into contact with the electrical components.

Connecting to gas pipe

1. Remove the right hand side access panel by removing the 4 retaining screws.



2. Extend flexible gas connection through the gas fitting access point to the outside of the heater body.



3. Position the appliance in front of the enclosure so the end of the gas pipe aligns with the gas fitting access point.

4. Securely connect flexible gas connection to the gas pipe, testing all connections for gas leaks.

5. Replace right hand panel and secure screws into place.

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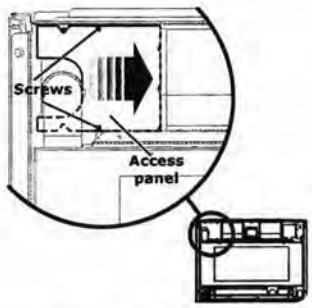
Arriva Installation

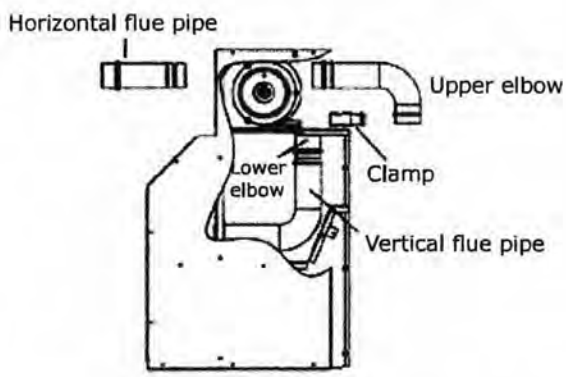
Flue and air hose access

Unscrew flue access panel, 2 fixing screws are located inside the top left hand corner of the appliance. Slide panel to the right behind the convection fan.



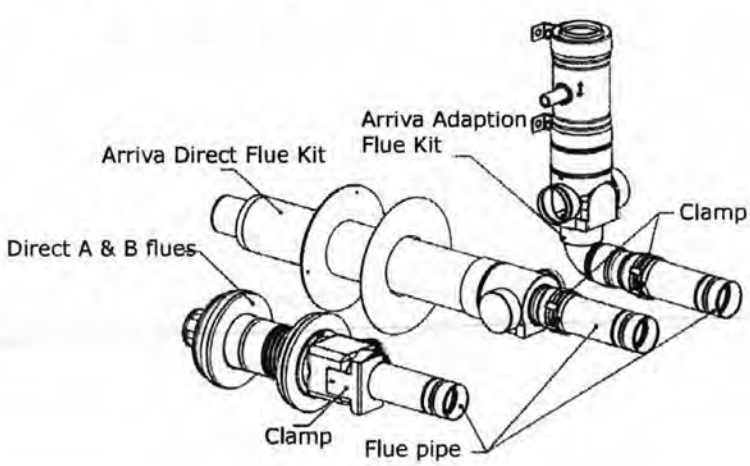
Remember to position hose so it can still be accessed once the appliance is moved into the enclosure. You can do this by tying a piece of string to the air hose and passing this through the flue access opening. This will allow the hose to be pulled up into position as required.

Remove clamp holding vertical flue to the upper elbow and remove upper elbow. Slide vertical pipe fully down into the lower elbow. Remove horizontal flue pipe from upper elbow.



Flue pipe connection

Connect the horizontal flue pipe to flue and hold in place using appropriate clamp. Failure to secure the flue system using the supplied clamps may result in a dangerous situation.



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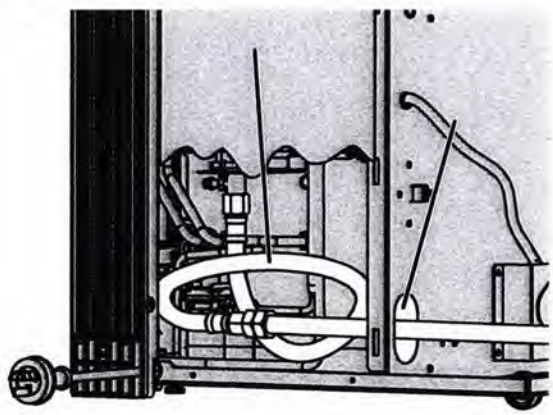
Arriva Installation

Heater body installation

Carefully move appliance body into enclosure cavity ensuring both the gas pipe and flue transition are aligned with their access openings.

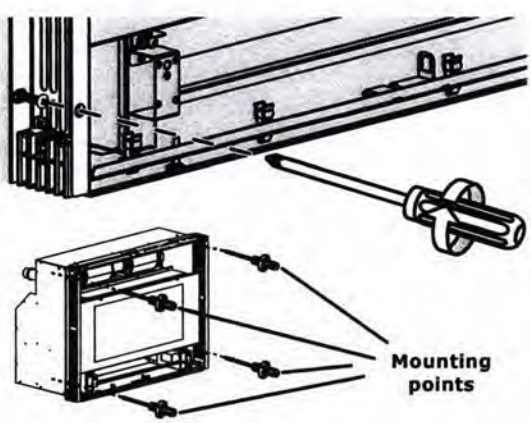
As the appliance is pushed into place ensure the flexible gas connection coils freely inside the appliance and that the gas pipe penetrates through the centre of the gas access point.



Securing the heater body

Once the heater is in position open the air return louvre doors to gain access to the appliance mounting points. There are 4 in total, 2 upper and 2 lower on each side of the appliance.

Secure the heater body through these points using appropriate fixings.



Flue spigot and air inlet hose

The Rinnai Arriva flueing system must be installed in accordance with the instructions supplied.

Flue access panel

Once the flue and air connections are secured slide the flue access panel back into position and fasten.

The hole in the flue access panel is offset and can be reversed to align with the final position of the flue connections.

Fitting final flue connections

Slide the upper elbow onto the horizontal flue pipe. Slide the vertical flue pipe up and into the upper elbow and fix together using the clamp.

Check all connections are properly engaged and are inserted beyond the O-ring seal.

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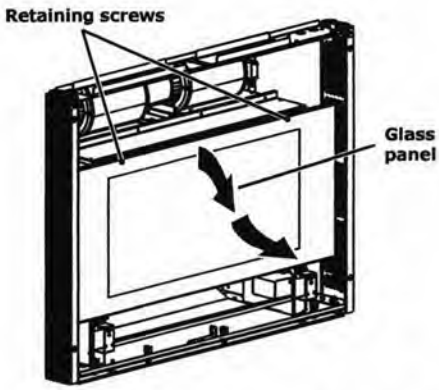
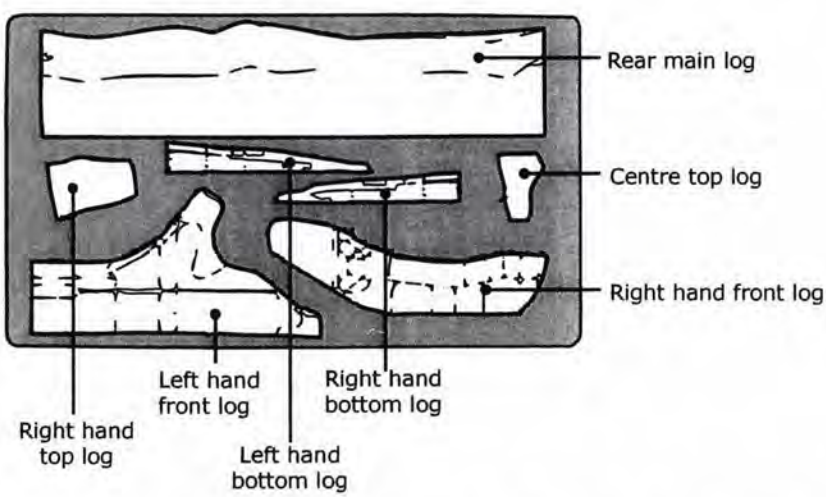
Installing the Log Set

1. Remove the 2 retaining screws that secure the combustion chamber glass panel. Rotate and lift the combustion chamber glass clear of the combustion chamber and put aside until needed.

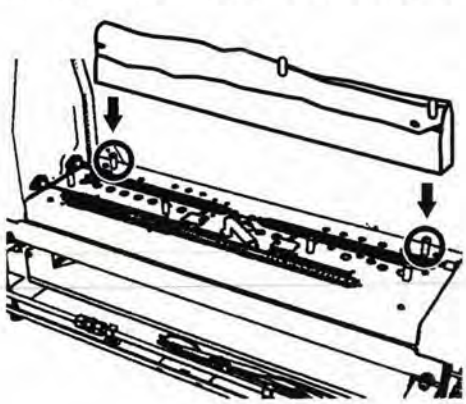


2. Remove log set, this is made up of 7 pieces as follows:

- Rear main log
- Right hand front log
- Right hand top log
- Right hand bottom log
- Left hand front log
- Centre top log
- Left hand bottom log



3. Place the rear main log into the combustion chamber on the rear location pins.



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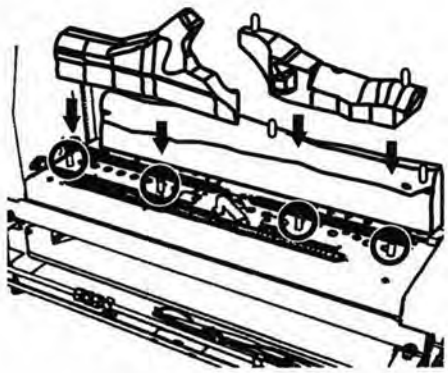
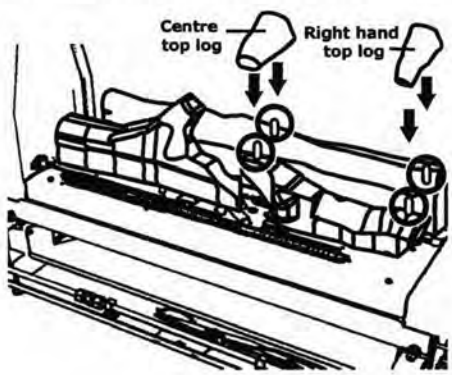
Installing the Log Set

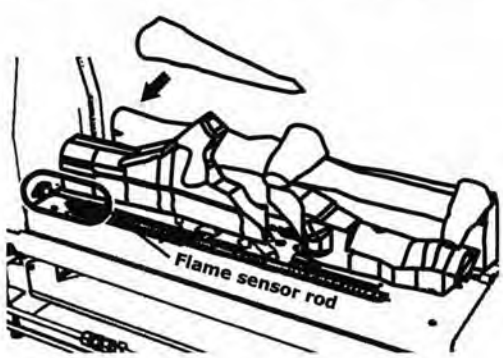
4. Place the left hand and front hand front logs into the combustion chamber on the locating pins.

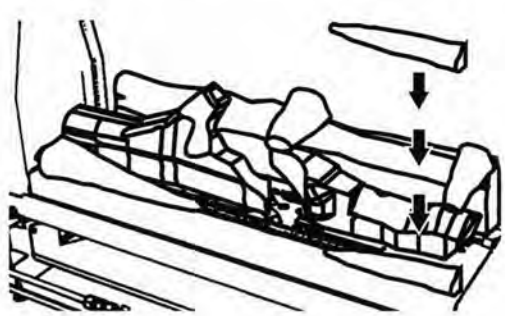


5. Place the centre top log over the rear main and right hand front logs. Secure on the central locating pin of each log. Repeat step with the right hand top log, securing log on locating pins on the right hand side.



6. Place the left hand bottom log into the combustion chamber so it hides the flame sensor rod from view. Place the right hand bottom log on the opposite side.





7. Replace combustion chamber glass panel and secure in place with the 2 retaining screws.

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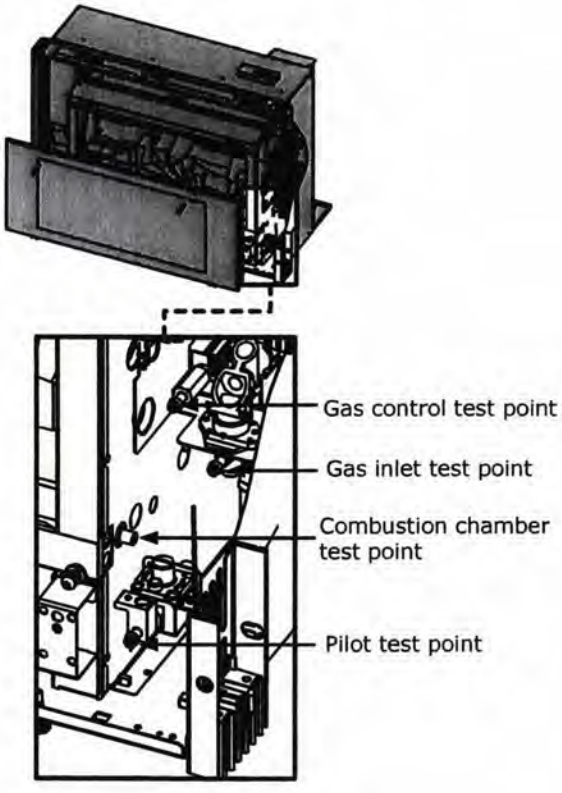
Installation - Arriva Commissioning

Burner pressures given below are correct at the time of printing and should always be checked against values on the data plate.

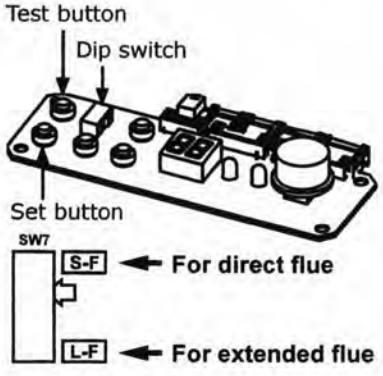
Gas Type		**NG**		**LPG**		**Propane**	
Flue		**Direct**	**Extended**	**Direct**	**Extended**	**Direct**	**Extended**
Pressure (Pressure Balance kPa)	Pilot	0.980	0.980	1.960	1.960	1.960	1.960
	PL	0.206	0.206	0.667	0.667	0.667	0.667
	PF	0.666	0.666	2.068	2.068	2.068	2.068
	PA	0.294	0.294	0.843	0.843	0.843	0.843
	PH	0.745	0.588	2.078	1.646	2.078	1.646

Primary gas pressure (minimum) NG 1.5 kPa, LPG 2.75 kPa

Test Point Positions



Control Panel Positions



Checking supply pressure

1. Remove combustion chamber glass front assembly and the plastic control panel cover.
2. Attach positive pressure hose on the manometer to the glass inlet test point.
3. Replace combustion chamber glass front assembly. Make sure there is a good seal around the edge of the chamber by squeezing tape all the way around the edge. Take care not to bunch the tape in the corners.
4. Press the On/Off button to check inlet pressure when all the burners start operating.

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Installation - Arriva Commissioning

Setting pilot pressure

Stop heater and remove combustion chamber glass front assembly. Move the manometer hose to the pilot test point. Remember to replace the inlet test point screw.

Replace combustion chamber glass front assembly, restart heater, check and adjust pilot pressure as required.

Setting operating pressure

The gas pressures on the appliance are factory set and normally do not require adjustment or commissioning. Should adjustment be required refer steps below or instruction sheet located inside the appliance (plastic pouch on the inside of the left hand outer panel).

1. Stop heater and remove combustion chamber glass front assembly. Attach negative pressure manometer hose to the combustion chamber test point and the positive pressure hose to the gas control test point.
2. Replace combustion chamber glass front assembly.
3. Check the 'Flueing - Flue Transition' section of this manual to see if down rating is required. If required set dip switch to position L-F **before** setting the pressures.
4. Press the On/Off button to start the heater.
5. Press the test button twice and the heater will change to the front burner on its lowest setting (no rear burners) and the display will show PL.
6. Use the up and down buttons to adjust the burner pressure to the value shown on the data plate.
7. Press the set button to lock in the set pressure and the display will change to PF and the front burner will change to its highest setting.
8. Repeat steps 6 and 7 to set stages PA (all burners on low setting) and PH (all burners on high setting).
9. When you press the set button for the final time, the display will change to show 70. If the display does not change to 70 there is an error with the commissioning and it should be carried out again.
10. Press the On/Off button to turn the heater off.
11. Commissioning is now complete. Remove manometer, replace test point screws and replace plastic control panel cover.

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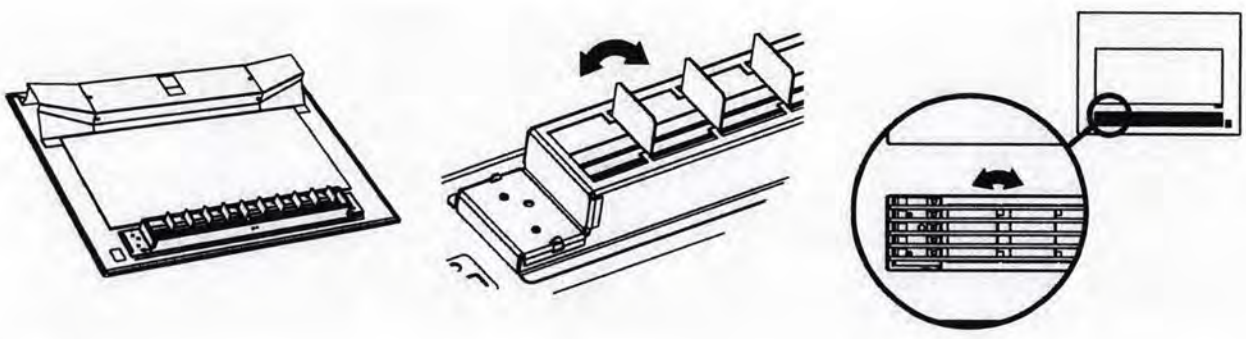
Installation - Setting Air Guide Vanes

The air guide vanes allow the installer to set and adjust the horizontal air flow distribution of the appliance. These are not to be confused with the horizontal louvres that determine the direction of vertical air flow, these are fixed and cannot be adjusted.

The air guide vanes can be adjusted by carefully bending the air guide vanes to the left or right as required with a screwdriver.



DO NOT:

- Repeatedly adjust the vanes more than 5 times as this may cause the metal to fracture and/or break
- Attempt to adjust the air flow direction while the appliance is operating or still hot as this can result in a burn injury

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Installation - Panels

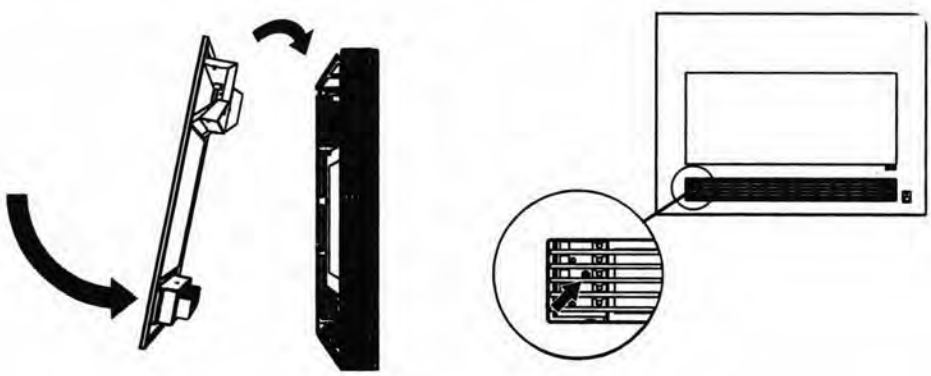
When installing Arriva glass fascias

- Inspect glass for any chip or obvious sign of damage before installation
- Always wear gloves and safety glasses when handling glass
- Do not remove glass corner protectors until glass fascia has been installed
- Careful handling should be practised, no sudden impact or excess force should be applied

Installing the fascia panel

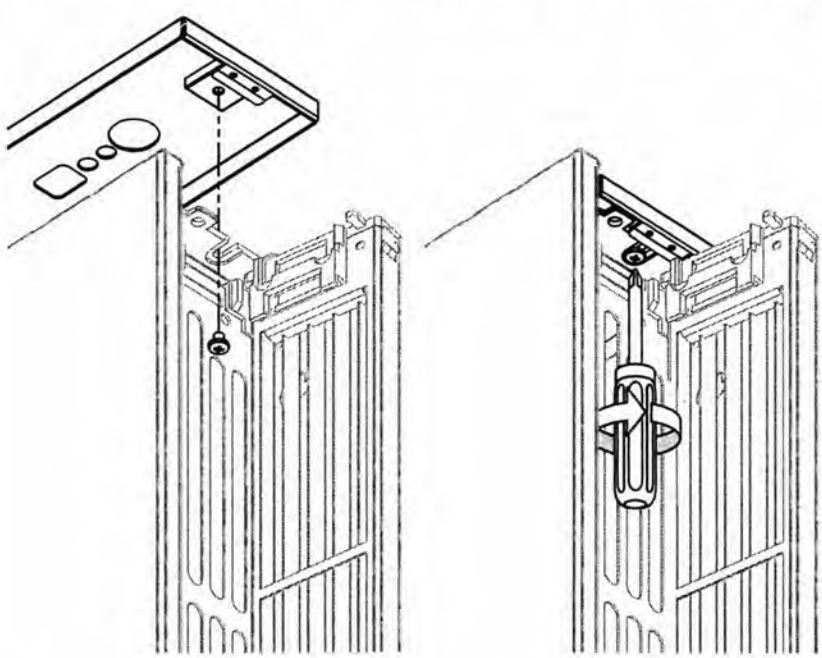
Install the fascia panel by hooking the top to the body and rotating the bottom in towards the appliance body.

Secure the fascia to the appliance body with 2 retaining screws through the front of the warm air discharge louvre.



Installing the top panel

Push the top panel down into place and secure with screws provided.



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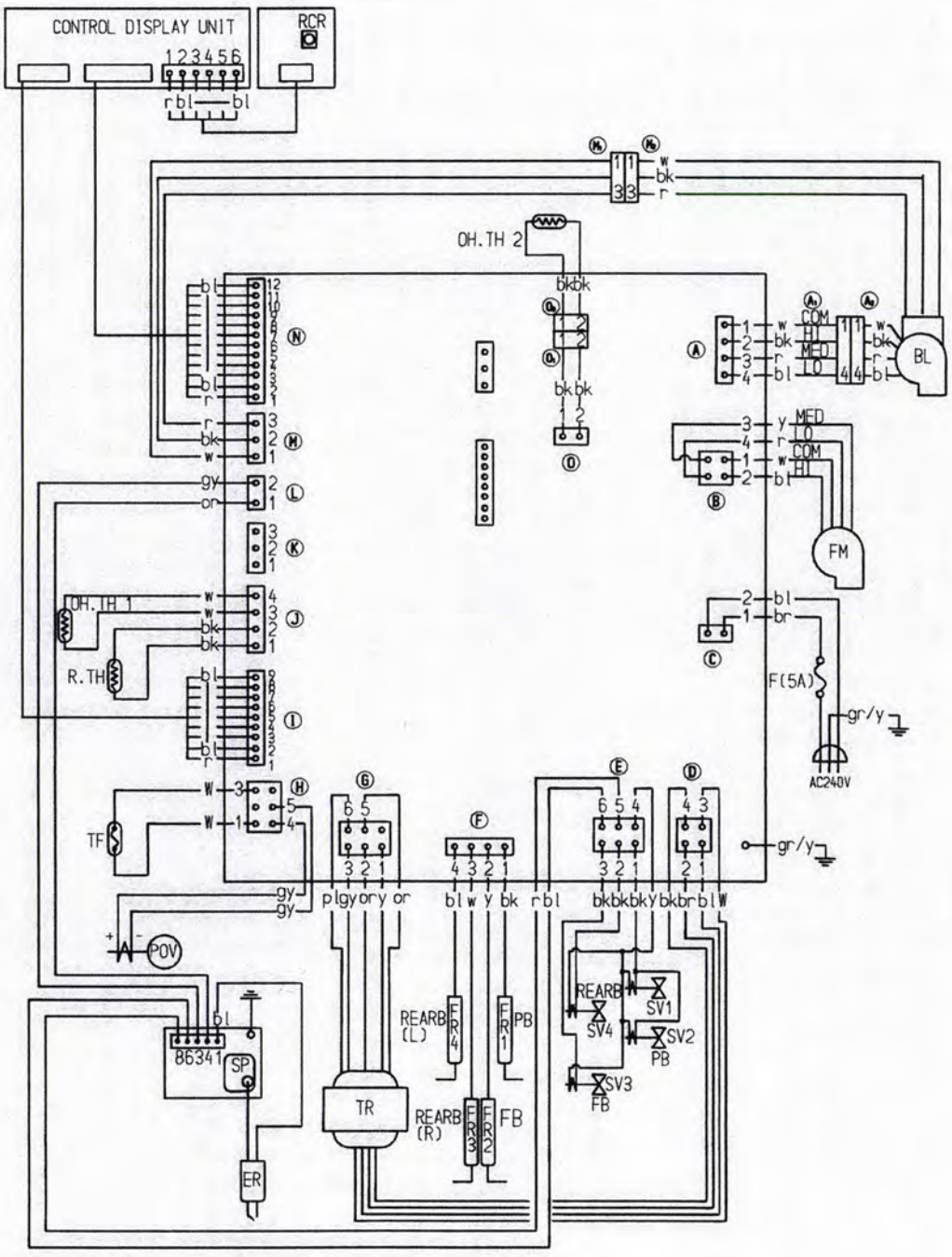
Wiring Diagram



Mark	Colour
bk	Black
bl	Blue
gr/y	Yellow - Green Stripe
gy	Grey
or	Orange
pl	Purple
r	Red
w	White
y	Yellow

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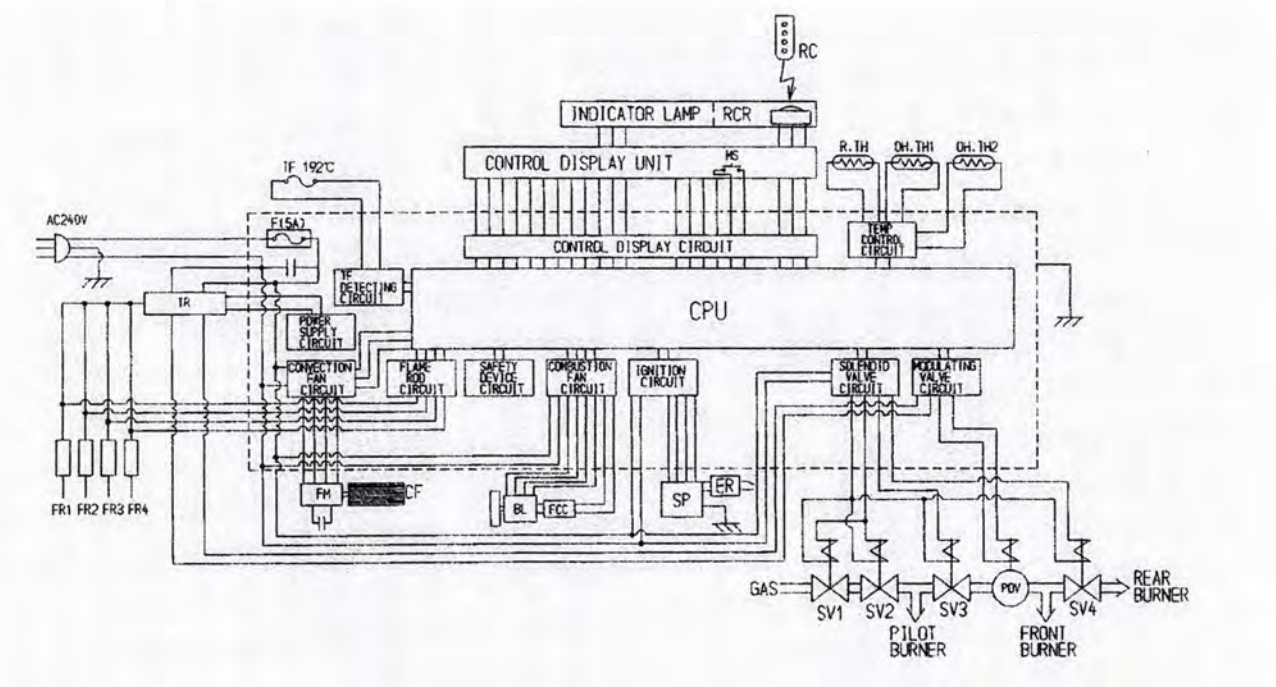
Block Diagram



Mark	Part	Mark	Part
MS	Main Switch	OH.TH1,2	Over Heat Thermistor 1, 2
R.TH	Thermistor	SV1~4	Main Solenoid Valve 1~4
TF	Thermal Fuse	BL	Combustion Fan Motor
F	Fuse	FCC	Fan Control Circuit
ER	Electrode	RCR	Remote Control Circuit
POV	Modulating Solenoid Valve	CPU	Central Processing Unit
TR	Transformer	PB	Pilot Burner
FR1~4	Flame Rods 1~4	FB	Front Burner
RC	Remote Controller	REARB	Rear Burner
CF	Convection Fan	REARB (L)	Rear Burner Left
FM	Convection Fan Motor	REARB(R)	Rear Burner Right
SP	Sparker		

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Commissioning Checklist

Complete the installation and commissioning checklist below and make sure this manual is left with the customer. Explain to the customer about the use and care of the unit and understands the instructions and operation of the appliance.

	NO	YES
Appliance positioned in a suitable location? (i.e. clearances, combustibles etc.)	☐	☐
Was a Rinnai approved flue system installed and is the flue drawing effectively?	☐	☐
Down rated (if applicable) according to data plate instructions?	☐	☐
Has specified gas pressures been checked and set?	☐	☐
Is the log set located correctly?	☐	☐
Has the appliance been tested for correct operation?	☐	☐
Is the customer fully aware of the operating procedure?	☐	☐

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Installer Details

Company name:_____

Installer name:_____

Address:_____

_____

Phone:_____ Mobile:_____

Certificate of Compliance number for installation:_____

Signed:_____ Date:_____

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Rinnai

EXPERIENCE OUR INNOVATION

Consumers: 0800 RINNAI (746 624)
Installers: 0800 TO RINNAI (86 746 624)

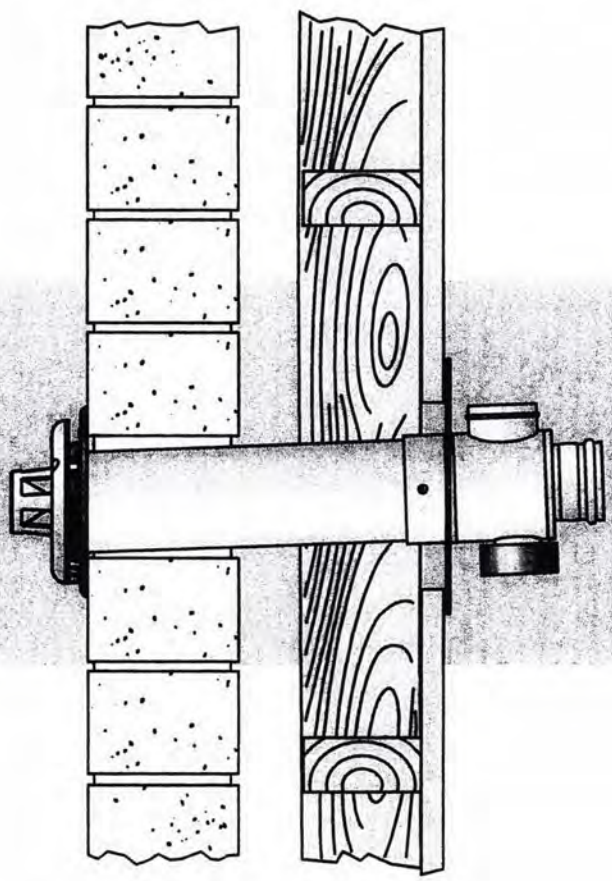
Address: 105 Pavilion Drive, Airport Oaks, Mangere, Manukau
PO Box 53177, Auckland Airport, Manukau 2150

Phone: (09) 257 3800
Fax: (09) 257 3899

Email: info@rinnai.co.nz
Website: www.rinnai.co.nz

Rinnai

Power Flued Flamefire Space Heater Co-axial Flue System Installation Manual



To Suit Model:
Power Flued Flamefire
Aspiration RHFE-750ETR

These components shall be installed in accordance with:

- Manufacturer's Installation Instructions
- Current AS/NZS 3000, AS/NZS 3500 & AS 5601
- Local Regulations and Municipal Building Codes

THESE COMPONENTS MUST BE INSTALLED, SERVICED AND REMOVED BY AN AUTHORISED PERSON!

ONLY THE FLUE SYSTEM COMPONENTS SPECIFIED IN THIS MANUAL MUST BE USED. COMPONENTS NOT SPECIFIED IN THIS MANUAL, WHETHER MANUFACTURED BY RINNAI OR OTHERWISE, ARE NOT COMPATIBLE AND "MUST NOT" BE USED!

The Australian Gas Association
All Rinnai gas products are A.G.A. certified.

Quality Endorsed Company

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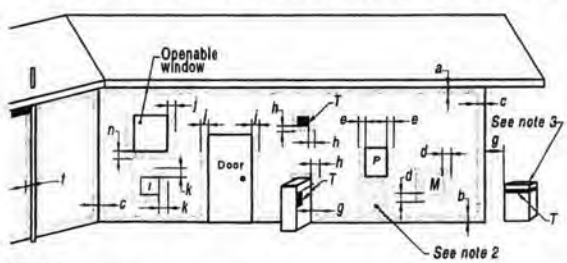
REGULATIONS, CLEARANCES & GENERAL INFORMATION

The heater and the flue system shall be installed in accordance with the following:

- The requirements of the current version of AS 5601 (Gas Installations)
  Note that AS5601-2004 is referred to in this instruction and was current at the time of printing, but may have since been superseded. It is the Installer's responsibility to ensure that requirements of the current version of AS5601 are met.
- Manufacturers installation instructions.
  Before commencing an installation, read the installation sections of the 'Customer and Installation Manual' supplied with the heater.
- Local & Municipal building codes.
- Any other relevant Statutory Regulation.
- Rinnai Energysaver space heaters when correctly installed with Rinnai approved flue components are room-sealed appliances and no internal ventilation is required.
- Rinnai Energysaver space heaters are fan-assisted. Therefore the fan assisted flue clearance dimensions from AS5601 extract shown on this page must be used.
- The outer plastic section of the co-axial flue complies with temperature hazard requirements and can be installed with zero clearance to combustible material.
- Vertical clearances when using a roof terminal (ESROOFCOWL) are shown in Fig.1.

  If in doubt contact the Rinnai Australia Technical Advice Helpline (number on the back page).



LEGEND:
T = Flue terminal
I = Mechanical air inlet
M = Gas meter
P = Electricity meter or fuse box
Shading indicates prohibited areas for flue terminals

Ref.	Item	Minimum clearances (mm)	
		Natural draft	Fan assisted
a	Below eaves, balconies and other projections:		
	• *Appliances up to 50 MJ/h input*	300	200
	• *Appliances over 50 MJ/h input*	500	300
b	From the ground, above a balcony or other surface †	300	300
c	From a return wall or external corner †	500	300
d	From a gas meter (M) (see 4.7.11 for vent terminal location of regulator)	1000	1000
e	From an electricity meter or fuse box (P)	500	500
f	From a drain pipe or soil pipe	150	75
g	Horizontally from any building structure † or obstruction facing a terminal	500	500
h	From any other flue terminal, cowl, or combustion air intake †	500	300
j	Horizontally from an openable window, door, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation:		
	• *Appliances up to 150 MJ/h input*	500	300
	• *Appliances over 150 MJ/h input up to 200 MJ/h input*	1500	300
	• *Appliances over 200 MJ/h input up to 250 MJ/h input* †	1500	500
	• *Appliances over 250 MJ/h input* †	1500	1500
	• All fan-assisted flue appliances, in the direction of discharge	-	1500
k	From a mechanical air inlet, including a spa blower	1500	1000
n	Vertically below an openable window, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation:		
	• Space heaters up to 50 MJ/h input	150	150
	• Other appliances up to 50 MJ/h input	500	500
	• *Appliances over 50 MJ/h input and up to 150 MJ/h input*	1000	1000
	• *Appliances over 150 MJ/h input*	1500	1500

† Unless appliance is certified for closer installation

All distances are measured to the nearest part of the terminal.

Prohibited area below electricity meter or fuse box extends to ground level.

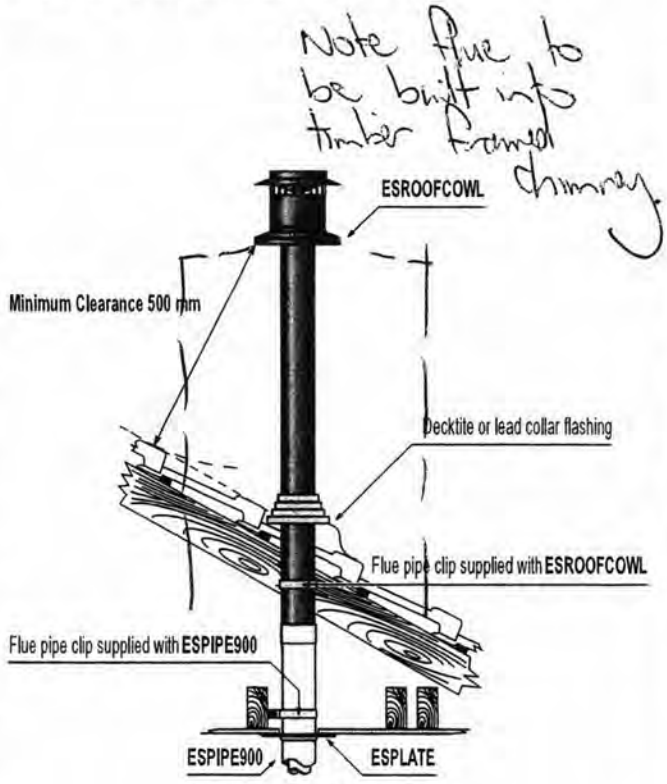
See Clause 5.13.6.6 for restrictions on a flue terminal under a covered area.

See Appendix J, Figures J2(a) and J3(a), for clearances required from a flue terminal to an LP Gas cylinder. A flue terminal is considered to be a source of ignition.

For appliances not addressed above acceptance should be obtained from the technical regulator.

FIGURE 5.3 (in part) MINIMUM CLEARANCES REQUIRED FOR BALANCED FLUE TERMINALS, FAN-ASSISTED FLUE TERMINALS, ROOM-SEALED APPLIANCE TERMINALS OR THE TERMINALS OF OUTDOOR APPLIANCES

Horizontal Clearances (Extract AS5601-2004 5.13.6.5 Fig. 5.3)



Vertical Clearances Fig.1

CENTRAL OTAGO DISTRICT COUNCIL

William Fraser Building
1 Dunorling Street, Alexandra 9320
PO Box 122, Alexandra 9340
New Zealand

TEL +64 3 440 0056
FAX +64 3 448 9196
EML codcalex@codc.govt.nz
WEB www.codc.govt.nz

CODE COMPLIANCE CERTIFICATE
Section 95, Building Act 2004

THE BUILDING

Street Address:	DUNSTAN ROAD, ALEXANDRA
Legal Description:	LOT 2 DP 403904
Valuation Number:	2846233001
Project:	Erect a new shed.
Level/Unit Number:	
Current, lawfully established use:	Agricultural
Year of Construction (approx):	2012

OWNER*

Owner's Name and Mailing Address:

T G & N J Thayer
PO Box 370
Invercargill 9840

Phone Number:	03-2176064
Fax Number:	
Email Address:	

BUILDING WORK

Building Consent No:	BC 110787
Issued by:	Central Otago District Council

CODE COMPLIANCE CERTIFICATE

The Building Consent Authority named below is satisfied, on reasonable grounds, that:

a. the building work complies with the building consent.

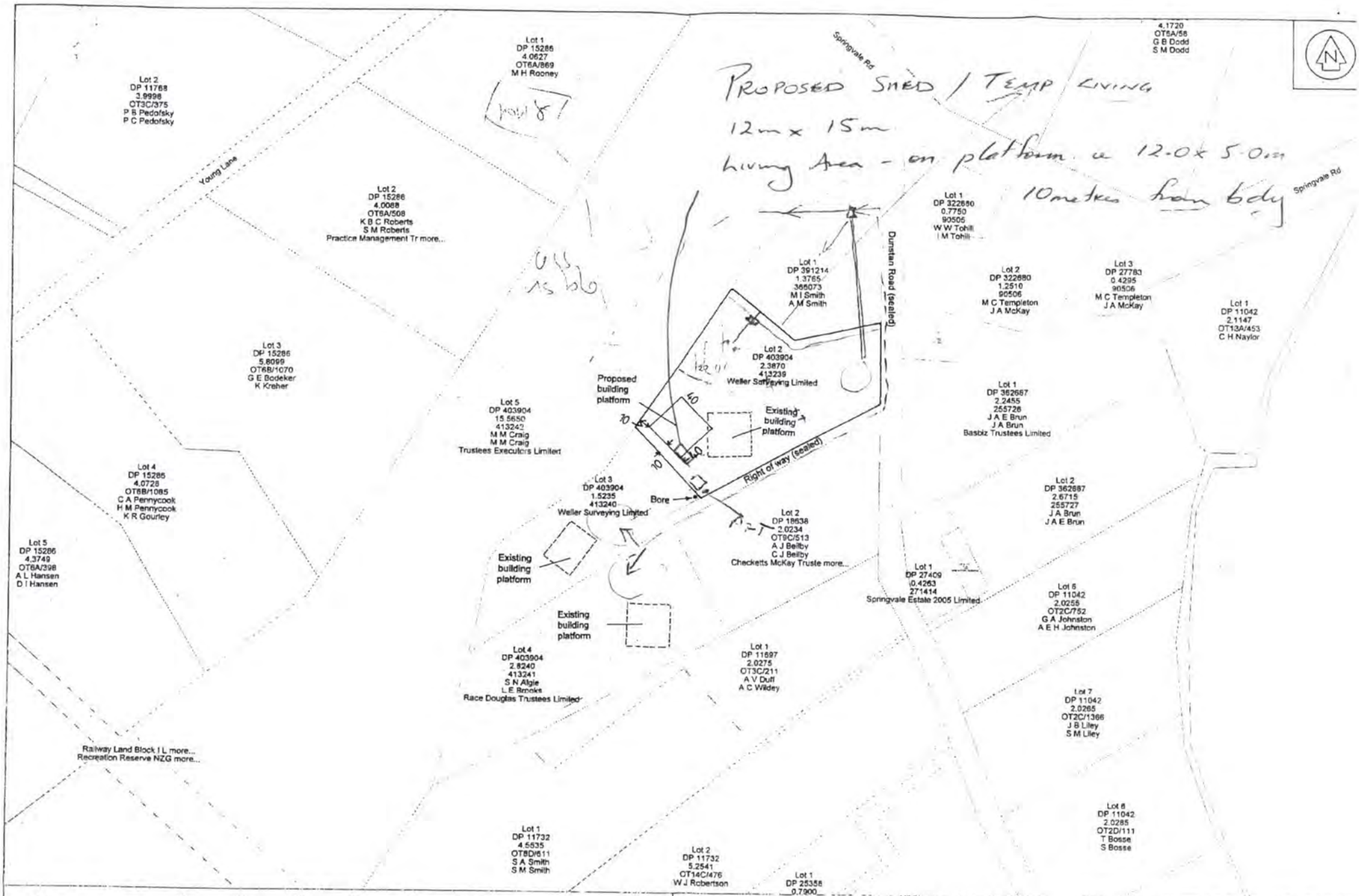
Building Consent Officer: Noel Patterson.

Signature: P.P. [signature]

Date: 22/12/17

On behalf of:

Central Otago District Council
PO Box 122
Alexandra



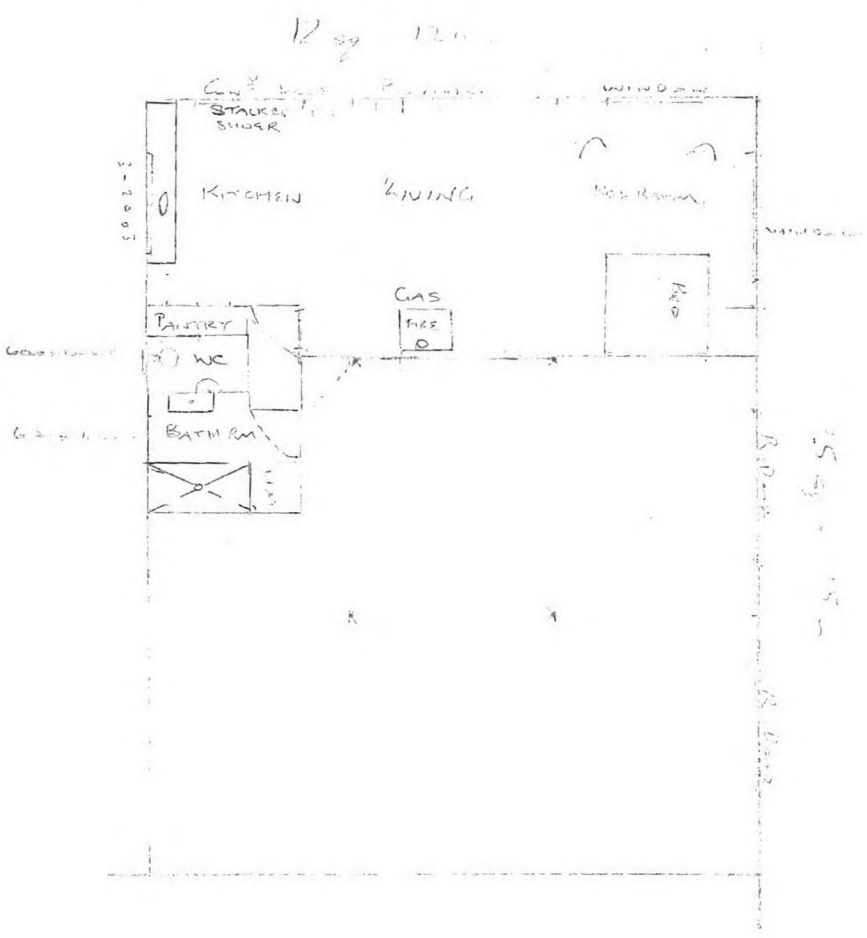
QuickMap
Custom Software Ltd

Any person wishing to rely on the information shown on this map must independently verify the information
Scale 1:3000 A1 A3 Topographical and Cadastral map derived from LINZ data. Printed: 8/7/2008 14:17.

NEW BUILDING PLATFORM ON LOT 1 DP 403904.

Prepared by: Weller Surveying Ltd
P O Box 354
Alexandra

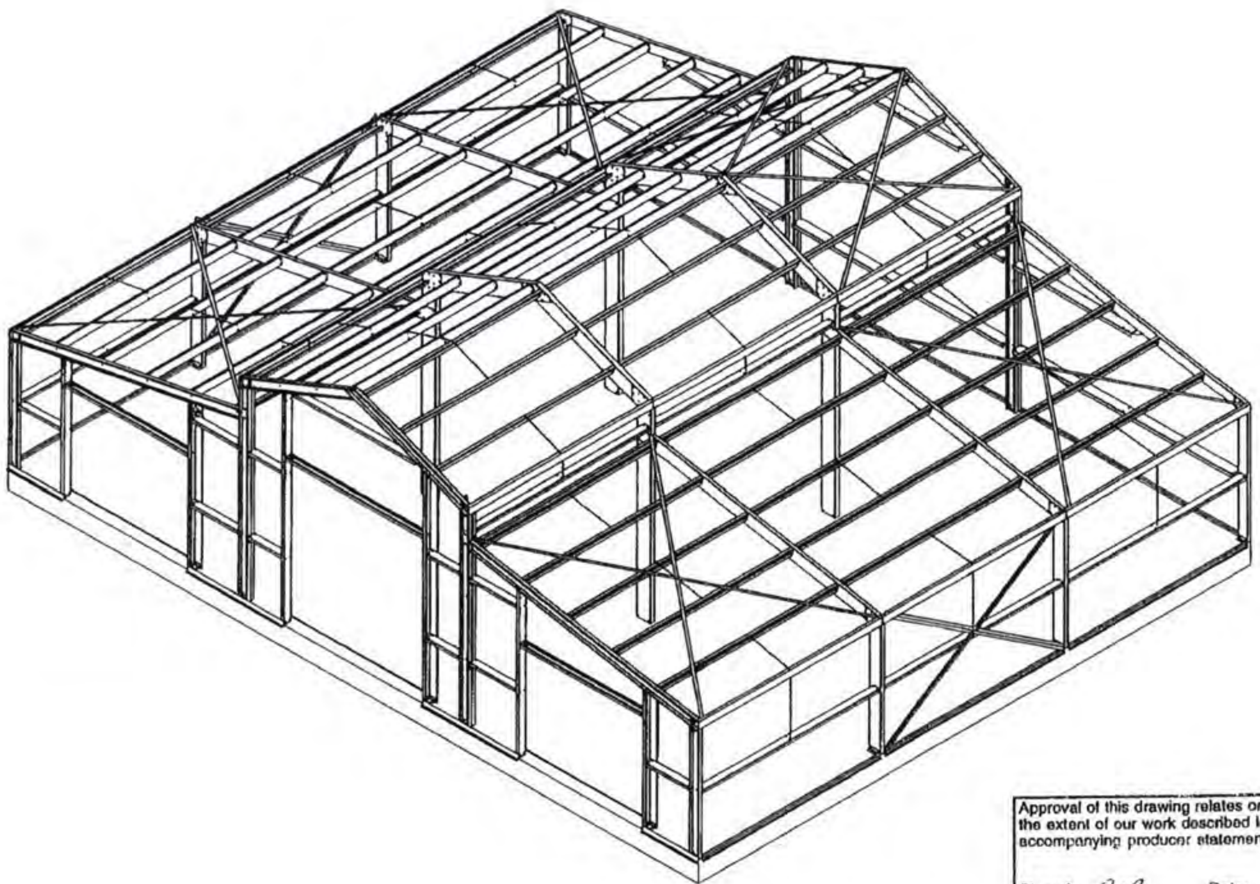
Date: Aug 2008
File: 1923B


STACKED SINGK
KITCHEN
LIVING
WINDOW
CAS
FIRE
PANTRY
WC
BATH RM

PF101 AMERICAN
15 X 12 X 2.6 X 4.2

Site Address

Site addres to conform to design features



Approval of this drawing relates only to the extent of our work described in the accompanying producer statement.

Signed: [signature] Date: 11/4/2011

Kerry McCollum
CPEng 184622
DESIGN STATION LTD

Content

Project Notes

Portal Frames

Grid 1: L1 : EC200-19 GABLE EC200-19
Grid 2: L1 : EC250-19 GABLE EC300-19
Grid 2: L1 : EC250-19 GABLE EC300-19
Grid 3: L1 : EC200-19 GABLE EC200-19

Purlins

Bay 1 :EC150-10 Speed bracing @ Center
Bay 2 :EC150-10 Speed bracing @ Center

Girts

Eve Girts : As shown on drawings
Side Wall Girts:As shown on drawings
End Wall Girts :As shown on drawings

Mullions

Garage Door Mullions Mono : DM150-15
Garage Door Mullions Gable : DM150-19
Vermin Proof girt on external walls

Bracing

Roof Strap Bracing 50mm x 0.95mm G550 Strap
Wall Strap Bracing Double 50mm x 0.95mm G550 Strap

Cladding/Lining

Roof Cladding: Veedek or equilvent
Roof Lineing : Optional

Wall Cladding : Veedek or equilvent
Wall Lining : Optional

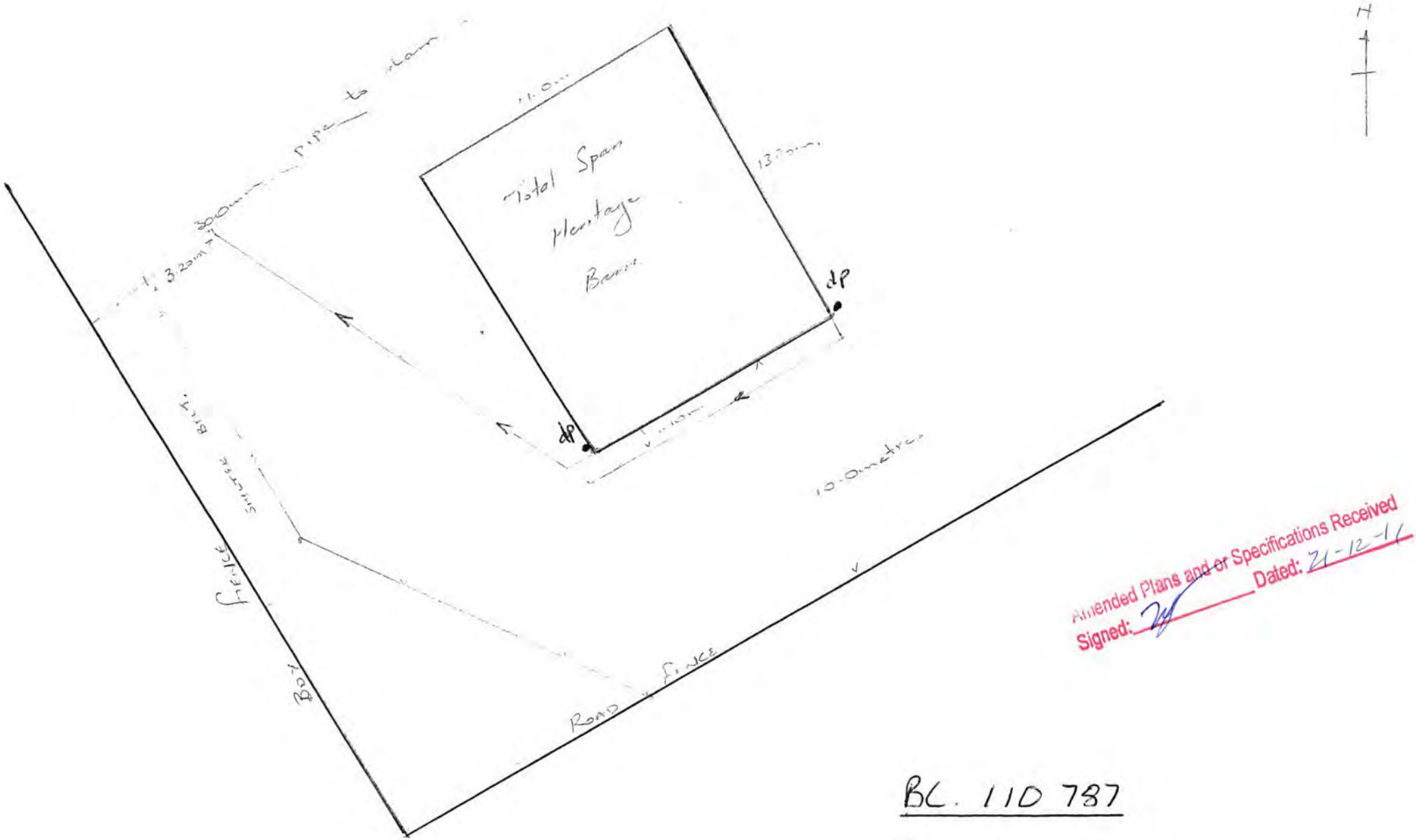
Contractor shall verify all dimensions on site before commencing construction.
Written dimensions supersede scaled dimensions
Specifications form part of this documentation

THE BARN COMPANY

DESIGN STATION LIMITED
P.O.BOX 1069, WHANGAREI
Ph: +64 9 4381562 Fx: +64 9 4381647
Email: design@donovangroup.co.nz

PF101

Cover		S01
1.1.1	PF101	
J.PRICE	G.S	1:75	Rev: 2



Amended Plans and or Specifications Received
Signed: [signature] Dated: 21-12-11

BC. 110 787

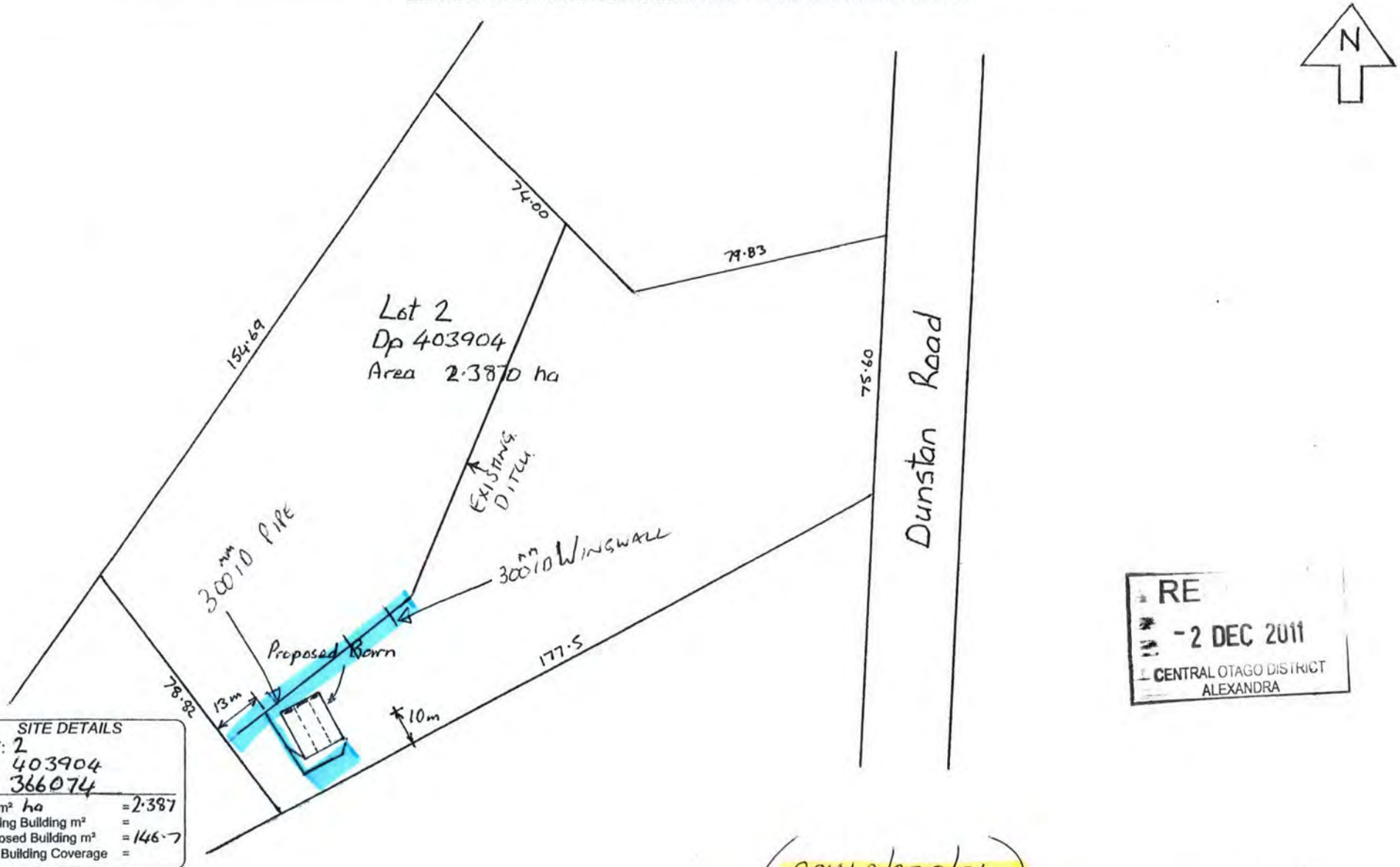
NOT TO SCALE

1:200

THAYER - AS BUILT DRAINAGE

PLAN - 604 PUNAWAI RD CROMDALE

CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO STARTING • ALL DIMENSIONS IN MM UNLESS STATED



RECEIVED
-2 DEC 2011
CENTRAL OTAGO DISTRICT
ALEXANDRA

SITE DETAILS	
LOT: 2	
DP: 403904	
CT: 366074	
Site m² ha	= 2.387
Existing Building m²	=
Proposed Building m²	= 146.7
% of Building Coverage	=

28462/330/01
BC 110787

NOTES:

TOTALSPAN
STEEL SHEDS & BUILDINGS
WHO CAN? TOTALSPAN!
PHONE: 0800 TOTALSPAN 0800 868 857

BUILDING PROPOSED FOR: T+N Thayer
604 Dunstan Road Alexandra

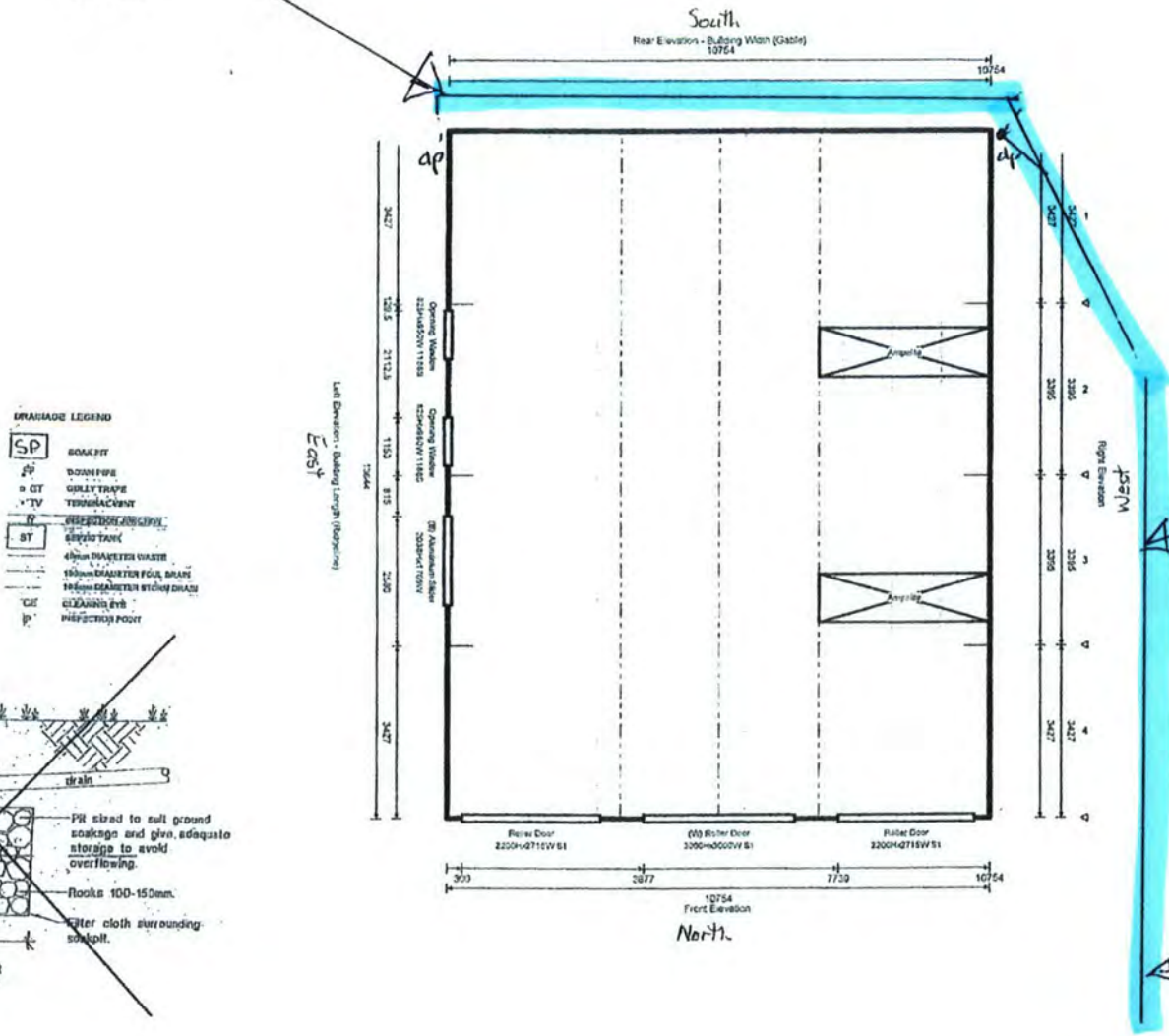
DRAWING TITLE: SITE PLAN

SCALE: 1:10 DATE: 10-10-11
DRAWN: AJL FILE:

SHEET: 1 OF:

DIMENSIONS IN mm UNLESS OTHERWISE STATED THIS IS A C.A.D. DRAWING AND MUST NOT BE ALTERED BY MANUAL METHODS

100mm DWV



100mm DWV

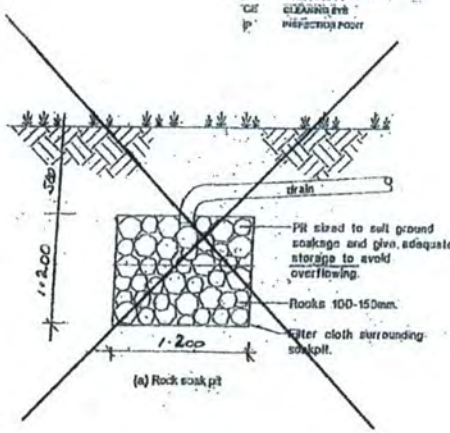
FALL WILL BE GREATER THAN 1.60.

TO 300mm DIA PIPE.

RECEIVED
- 2 DEC 2011
CENTRAL OTAGO DISTRICT
ALEXANDRA

DRAINAGE LEGEND

SP	SOAKPIT
DP	DOWNPIPE
GT	GRILLY TRAPE
TV	TERRACEVENT
IP	INSPECTION JUNCTION
ST	WATER TANK
	40mm DIAMETER WASTE
	100mm DIAMETER FOUL DRAIN
	100mm DIAMETER STORM DRAIN
CO	CLEANING EYE
IP	INSPECTION POINT



(a) Rock soak pit

TOTALSPAN BUILDINGS
A Division of Spanbild New Zealand Ltd
112 Waterloo Road, Hornby,
P.O.Box 11-013, Christchurch
PH: (09) 261 2306 FAX: (09) 262 1535

PREPARED BY: Gus Lammers, Central Otago, 03 445 4462

FOR: Mr. & Mrs. Trevor & Nicola Thayer

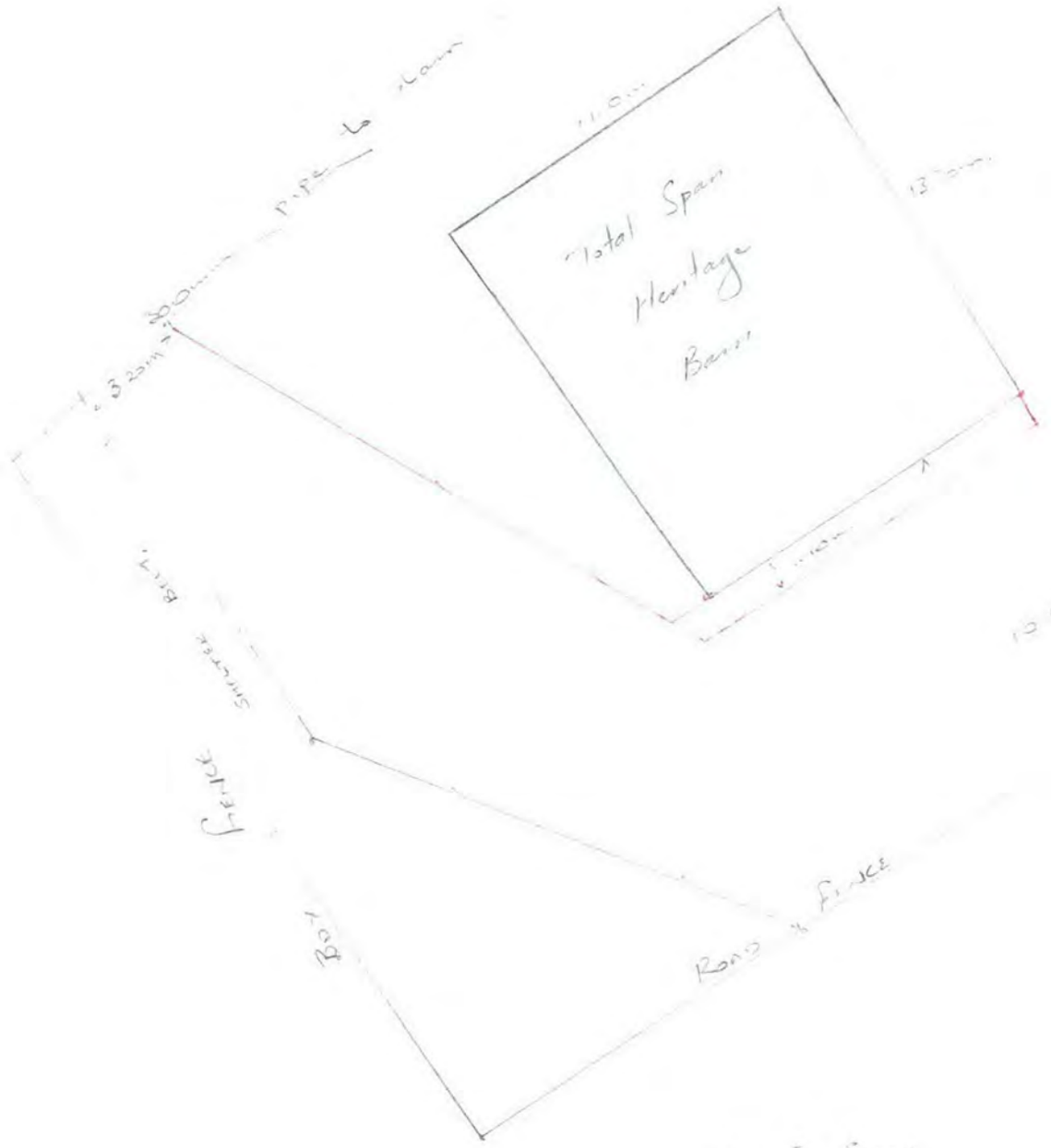
REFERENCE: Gus-15

SITE ADDRESS: 604 Dunstan Road
Alexandra
New Zealand

Scale 1 : 100

PLAN
Drainage Plan

Sheet 3 of 7



B/C # 110787.

NOT TO SCALE

1:200

THAYER - AS BUILT DRAINAGE

PLAN - 604 PUNJTHAN RD CLYDE

S. FORSYTH CERT/REGISTERED DRAINLAYER.
#24866

TOTALSPAN®

STEEL SHEDS & BUILDINGS

Engineered By:

F R Smith Consultant

consulting engineer, civil - structural

Steel Framed Enclosed Buildings - Heritage Barn
Producer Statement
Structural Details

Client:

Mr. & Mrs. Trevor & Nicola Thayer
604 Dunstan Road
Alexandra
New Zealand

Building:

Length:	13644mm
Width:	10754mm
Stud Height:	2700mm
Bay Number:	4
Bay Size:	3395mm
Wind Zone:	Very High (W)
Floor Type:	Concrete Slab
Floor Area:	146.73 m2

NOTES

INDEX

I certify that buildings erected in accordance with these drawings will conform to the requirements of the New Zealand and Australian Building Codes.

CENTRAL OTAGO DISTRICT COUNCIL
Plans and Specifications Approved in accordance with The New Zealand Building Code and Approved Documents. To be retained on the building site and produced on request.
Signed: ..... Date 15-11-11

F R Smith BE (civil) MIPENZ, MACENZ, MEIAust, no. 2410880, Cp.Eng. RPEQ (6225)

HERITAGE BARN SPECIFICATIONS

GENERAL
1 - All work shall conform to the New Zealand Building Code.
2 - Check diagonals to ensure building is square.

LOADINGS
1 - Buildings are designed to AS/NZS 1170 for NZS 3604 HIGH and VERY HIGH. Design Wind Speeds to limit state levels of 45 and 50m/s, T.C.2 roof live load of 0.25kPa, and basic Roof Snow loads of 0.86kPa.
2 - The roofing is not designed for point loads of 1 Kn.
3 - Dwelling buildings must conform to the habitable building requirements NZS 3604.

FOUNDATIONS
1 - Support ground to have a safe bearing capacity of at least 75 kPa. In weaker ground building loads to be taken to subsoil which has a bearing capacity of at least 75 kPa.

CONCRETE
1 - Remove vegetation, 60mm of top soil and loose material from the site of the building, backfill with compacted hardfill, if required, and lay a blinding of sand to the underside of the concrete slab. Ensure the surface of the slab will be at least 100mm above the highest level of cleared ground around the slab.
2 - Concrete shall have a maximum aggregate size of 20mm, slump of 80mm maximum and a 20 MPa compression strength at 28 days.
3 - The concrete floor slab shall be 100mm thick with a 200 x 200 mm edge thickening and a D16 rod continuous around the perimeter of the slab with 600 laps and 75 bottom cover.
4 - Concrete slab to be reinforced with 668 mesh placed 30mm maximum below the slab surface with 225mm laps.
5 - Provide a 0.25mm black polythene dampproof and slip layer under the slab taped with 100mm laps (optional but recommended).
6 - Fix roof frames to concrete with M10 zinc screwbolts screwed into holes drilled in the slab.

STEELWORK
1 - All structural framing members shall be G550-1.0mm BMT, G500-1.2mm BMT, G450-1.5mm, 1.9mm BMT grade steel galvanised to Z200 (G550 for 80 x 40 boxed and single channels). Cleats to be G450, Z200.
2 - Purlins and girts shall be 80 x 40 x 0.75 B.M.T. lipped, crimped channel located at centres shown on the drawings.
3 - Boxed members to be flange fixed with #10 Tek screws at 600 centres.
4 - Screws to be #10 x 16 Tek screws Class 3 zinc plated, fixed at a minimum edge distance of 6mm and to a12mm minimum pitch.
5 - Girts to be connected with 2 #10 Tek screws each side of girt.
6 - Steelwork shall conform to:
NZ/AS 4600 Cold Formed Steel Structures Code
NZ/AS 1397:1993
AS 1562:1962 Design and Installation of Metal Roofing
AS 1111/1112 Hex Commercial Bolts and Screws

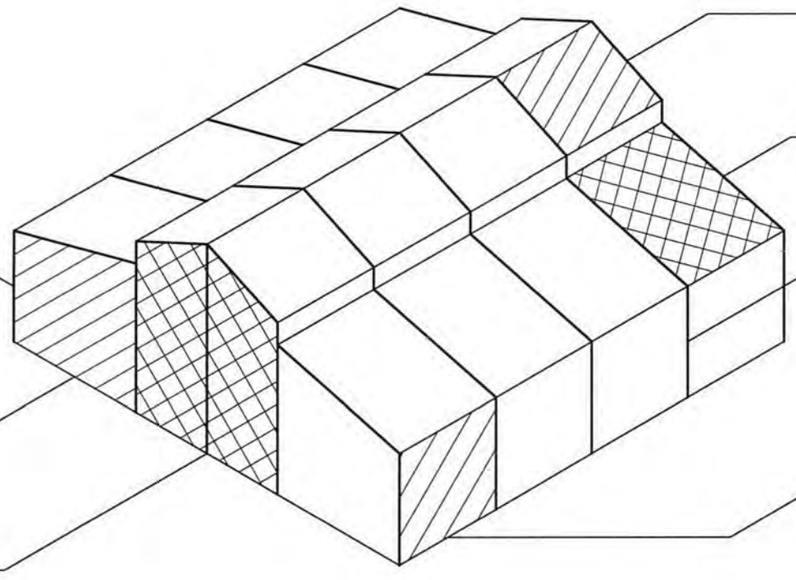
CLADDING
1 - AS 3566 Self Drilling Screws for Building Wall sheeting shall be 0.35 B.M.T., G550 grade steel zincalumed to AZ150 and rolled to profile as detailed. Roof Sheeting shall be 0.40 B.M.T 6 rib for commercial and habitable buildings and 0.35 B.M.T 7 rib for other buildings.
2 - Roof sheets shall be fixed to ridge and eaves purlins with a Tek screw at every rib, as shown, tekscrew to alternative ribs at intermediate fixings, all complete with neoprene washers tigtened firmly but not to form depressions in the roof cladding. Ensure all roof fixings are waterproof.
3 - Wall sheeting shall be fixed to the eave purlins and to the rafters of the end wall frames with a Tek screw at third points of each pan and to third points of alternate pans at other girts and fixings.
4 - Ridges, gables and all penetrations to be flashed with similar sheet steel.
5 - Guttering to be fixed with Tek screws and joint sealed with silicone. Fit downpipes to guttering to discharge to an approved stormwater drainage system, provided by the Owner.
6 - Frame for personnel door and windows with 80 x 40 x 0.75 unlipped channels. Flange connect members with 2 screws to each flange Fix jambs to floor with 40x40x1.2 angle cleat having 1/M10 screwbolt to concrete and 2 Tek screws to jamb.

Building Tables	
Zoned	T.C.2 Rural
Wind Zone	Very High
Wind Region	Region W (S50)
Bay Size	3395mm
Live Roof Load	0.25 kPa
Roof Snow Load	0.86 kPa

End Portal Frames	
C15010	Main Leg Main Rafter Skillion Leg Skillion Rafter
B15010	Centre Upright, Floor to Apex
B15010	Maindoor Jamb
C15010	Maindoor Head Beam Centre Upright, Over Maindoor

End Wall Skillion Girts	
3	Girt Rows
C80x40	Girt Section, Outer Rows
B80x40	Girt Section, Inner Row

End Wall Main Girts	
4	Girt Rows
C80x40	Girt Section



Main Roof Purlins	
3	Purlin Rows
C80x40	Purlin Section
Yes	2 Rows of C80x40 Bridging

Skillion Roof Purlins	
4	Purlin Rows
C80x40	Purlin Section, Outer Rows
B80x40	Purlin Section, Inner Rows

Inner Portal Frames	
B15010	Main Leg Main Rafter Skillion Leg Skillion Rafter

Side Wall Main Girts	
3	Girt Rows
C80x40	Girt Section, Outer Rows
B80x40	Girt Section, Inner Row

DESIGN: F R Smith

ENGINEER'S SIGNATURE:

CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO STARTING • ALL DIMENSIONS IN MM UNLESS STATED

N

154·69

74·00

79·83

Lot 2
Dp 403904
Area 2·3870 ha

75·60

Dunstan Road

78·82

13m

Proposed Barn

10m

177·5

CENTRAL OTAGO DISTRICT COUNCIL
Plans and Specifications Approved in accordance with The New Zealand Building Code and Approved Documents. To be retained on the building site and produced on request.
Date 15-11-11
Signed

SITE DETAILS

LOT: 2
DP: 403904
CT: 366074

Site m² ha	= 2·387
Existing Building m²	=
Proposed Building m²	= 146·7
% of Building Coverage	=

NOTES:

TOTALSPAN®
STEEL SHEDS & BUILDINGS
WHO CAN? TOTALSPAN!

PHONE: 0800 TOTALSPAN
0800 868 857

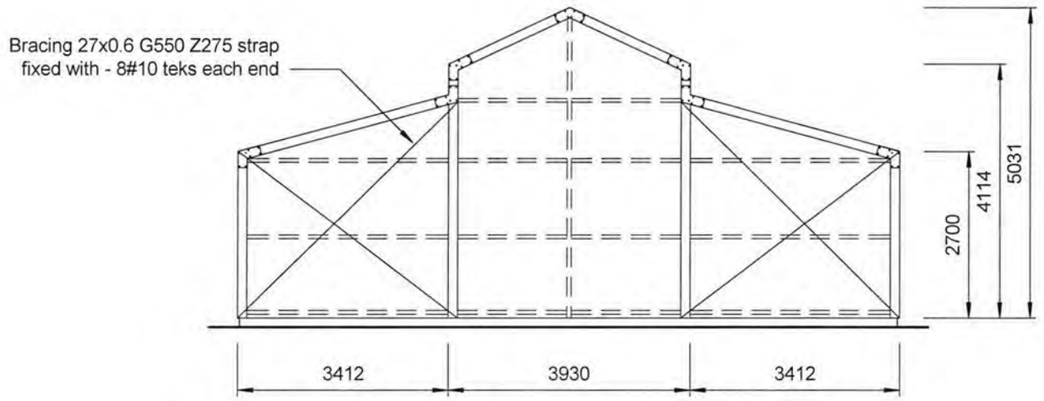
BUILDING PROPOSED FOR: T+N Thayer
604 Dunstan Road Alexandra

DRAWING TITLE: SITE PLAN

SCALE: 1:10
DATE: 10-10-11
DRAWN: AJL
FILE:

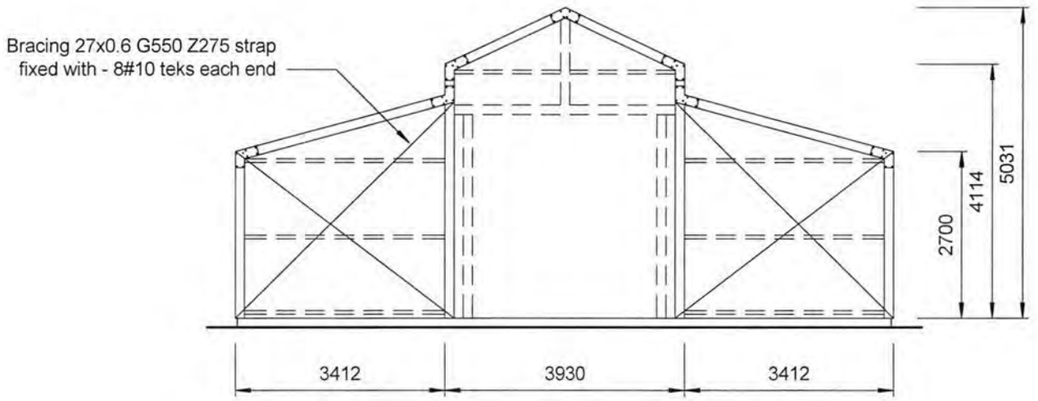
SHEET: 1
OF:

Bracing:
1. 2 braced panels located as shown.
2. Where the bracing cannot meet the required layouts, a specific design is required.



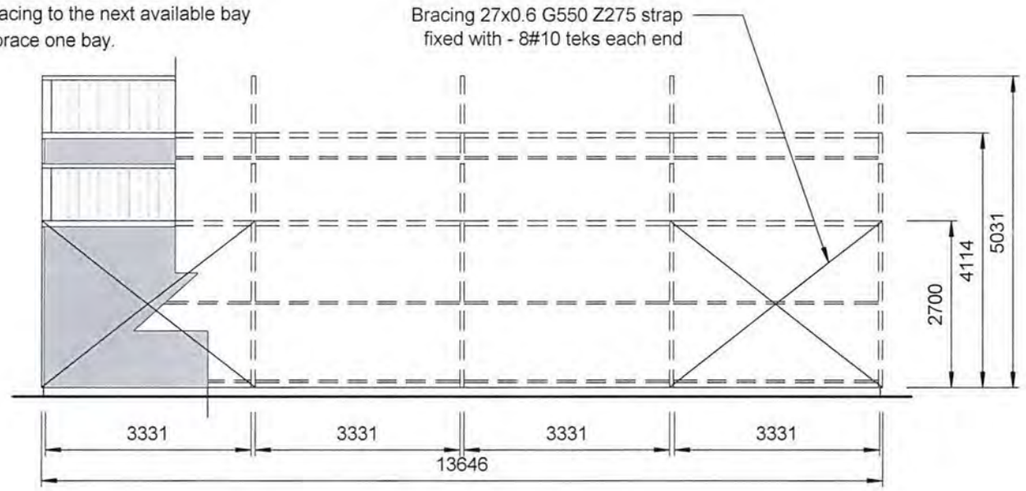
END PORTAL FRAME - BRACING

Bracing:
1. 2 braced panels as shown.
2. When 2 doors are located in the gable end, double brace other panel.
3. When 3 doors are located in the gable end, shall be specific design unless bracing can be fixed in both adjacent end bays of the side walls.



END PORTAL FRAME - BRACING
TYPICAL MAIN DOOR ENTRY

Bracing:
1. 2 braced bays per each side.
2. If openings are required in the end bays, relocate bracing to the next available bay or double brace one bay.



SIDE FRAME - 4 BAY

Purlins not shown for clarity

CENTRAL OTAGO DISTRICT COUNCIL
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Signed: ..... Date: 15-11-11

FREDERICK R SMITH
Chartered Consulting Engineer
363 Wairakei Rd, Burnside
Christchurch 8053, NZ
Phone +64 03 348 1521

TOTALSPAN BUILDINGS
A Division of Spanbild New Zealand Ltd
112 Waterloo Road, Hornby,
P.O.Box 11-013, Christchurch
PH: (09) 261 2306 FAX: (09) 262 1535

For: Mr. & Mrs. Trevor & Nicola Thayer
604 Dunstan Road
Alexandra
New Zealand

DESIGN: F R Smith
SCALE: A3 1:100
ENGINEER'S SIGNATURE:

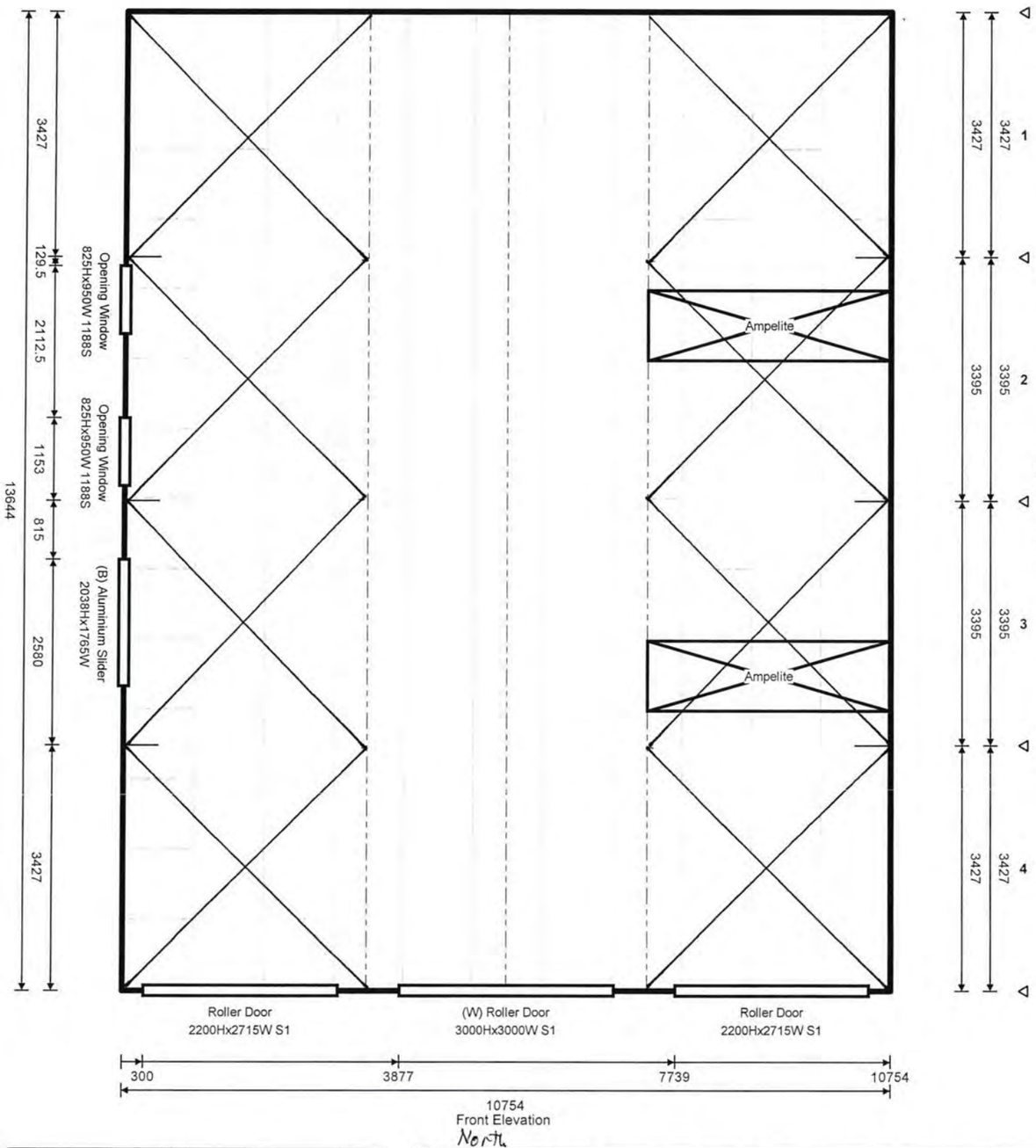
Heritage Barn

Wall Bracing

Sheet 6 of 15

DIMENSIONS IN mm UNLESS OTHERWISE STATED THIS IS A C.A.D. DRAWING AND MUST NOT BE ALTERED BY MANUAL METHODS

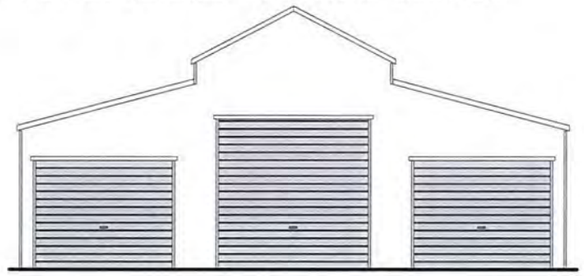
Rear Elevation - Building Width (Gable) South
10754



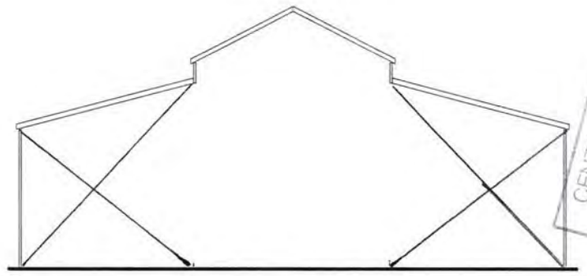
Left Elevation - Building Length (Ridgeline) East

Front Elevation North

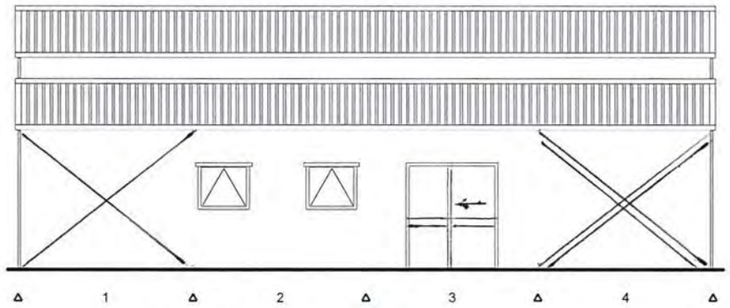
Right Elevation West



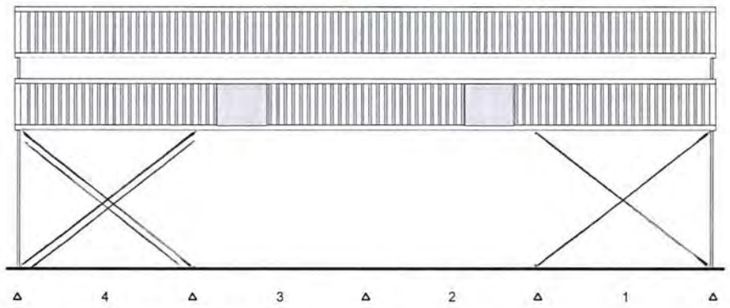
Front Elevation
North



Rear Elevation
South



Left Elevation
East



Right Elevation
West

CENTRAL OTAGO DISTRICT COUNCIL
Plans and Specifications Approved in accordance with The New Zealand Building Code and Approved Documents To be retained on the building site and produced on request.
Signed ..... Date 15-11-11

TOTALSPAN BUILDINGS
A Division of Spanbild New Zealand Ltd
112 Waterloo Road, Hornby,
P.O.Box 11-013, Christchurch
PH: (09) 261 2306 FAX: (09) 262 1535

PREPARED BY: Gus Lammers, Central Otago, 03 445 4462

FOR: Mr. & Mrs. Trevor & Nicola Thayer

REFERENCE: Gus-15

SITE ADDRESS: 604 Dunstan Road
Alexandra
New Zealand

N.T.S

PLAN & ELEVATIONS
Bracing Layout

South

Rear Elevation - Building Width (Gable)
10754

10754

SP

SP

dp

dp

Opening Window 825Hx950W 1188S

Opening Window 825Hx950W 1188S

(B) Aluminium Slider 2038Hx1765W

Ampelite

Ampelite

Roller Door 2200Hx2715W S1

(W) Roller Door 3000Hx3000W S1

Roller Door 2200Hx2715W S1

300 3877 7739 10754

10754
Front Elevation

North

Left Elevation - Building Length (Ridgeline)

East

13644

3427 1285 2112.5 1153 815 2590 3427

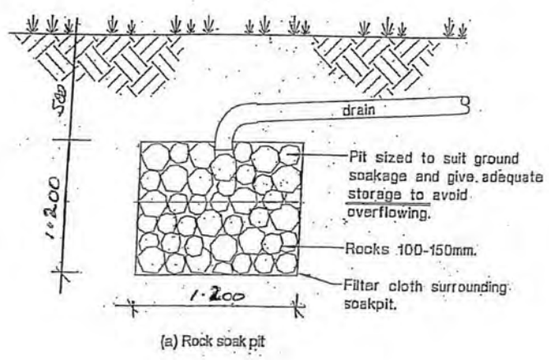
Right Elevation

West

3427 3427 1
3395 3395 2
3395 3395 3
3427 3427 4

DRAINAGE LEGEND

SP	SOAK PIT
dp	DOWN PIPE 65mm ϕ
GT	GULLY TRAPE
TV	TERMINAL VENT
IV	INSPECTION JUNCTION
ST	SEPTIC TANK
	40mm DIAMETER WASTE
	100mm DIAMETER FOUL DRAIN
	100mm DIAMETER STORM DRAIN
CE	CLEANING EYE
IP	INSPECTION POINT



(a) Rock soak pit

CENTRAL OTAGO DISTRICT COUNCIL
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Signed: ..... Date 15.11.11

TOTALSPAN BUILDINGS
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PH: (09) 261 2306 FAX: (09) 262 1535

PREPARED BY: Gus Lammers, Central Otago, 03 445 4462

FOR: Mr. & Mrs. Trevor & Nicola Thayer

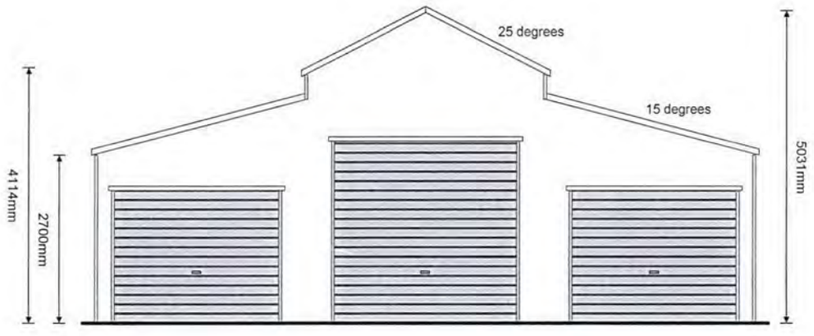
REFERENCE: Gus-15

SITE ADDRESS: 604 Dunstan Road
Alexandra
New Zealand

Scale 1 : 100

PLAN
Drainage Plan

DIMENSIONS IN mm UNLESS OTHERWISE STATED THIS IS A C.A.D. DRAWING AND MUST NOT BE ALTERED BY MANUAL METHODS



Front Elevation

North

CENTRAL OTAGO DISTRICT COUNCIL
Plans and Specifications Approved in accordance with the New Zealand Building Code and Approved Variations. To be retained on the building site and produced on request.

Signed ..... Date 15-11-11

TOTALSPAN BUILDINGS
A Division of Spanbild New Zealand Ltd

112 Waterloo Road, Hornby,
P.O.Box 11-013, Christchurch
PH: (09) 261 2306 FAX: (09) 262 1535

PREPARED BY: Gus Lammers, Central Otago, 03 445 4462

FOR: Mr. & Mrs. Trevor & Nicola Thayer

REFERENCE: Gus-15

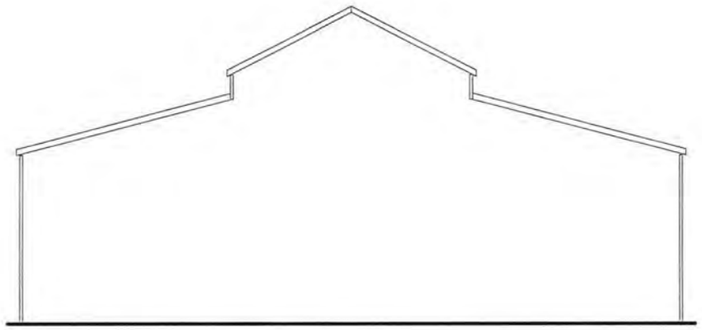
SITE ADDRESS: 604 Dunstan Road
Alexandra
New Zealand

Scale 1 : 100

FRONT ELEVATION

Sheet 4 of 7

DIMENSIONS IN mm UNLESS OTHERWISE STATED THIS IS A C.A.D. DRAWING AND MUST NOT BE ALTERED BY MANUAL METHODS



Rear Elevation
South

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REAR ELEVATION

Sheet 5 of 7

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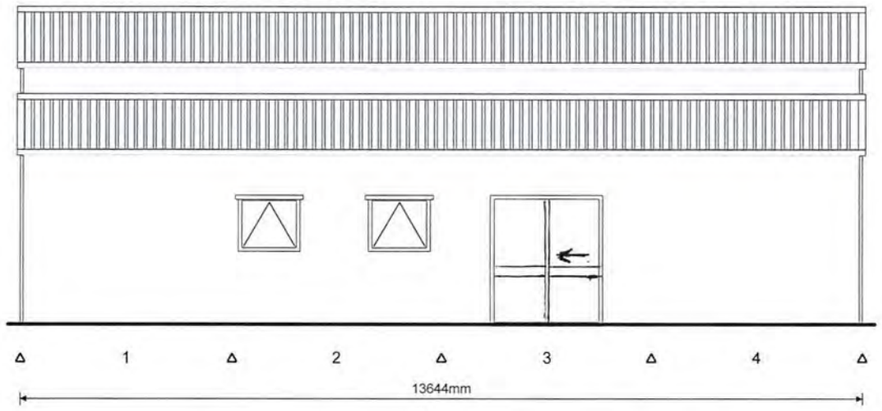

Left Elevation

East

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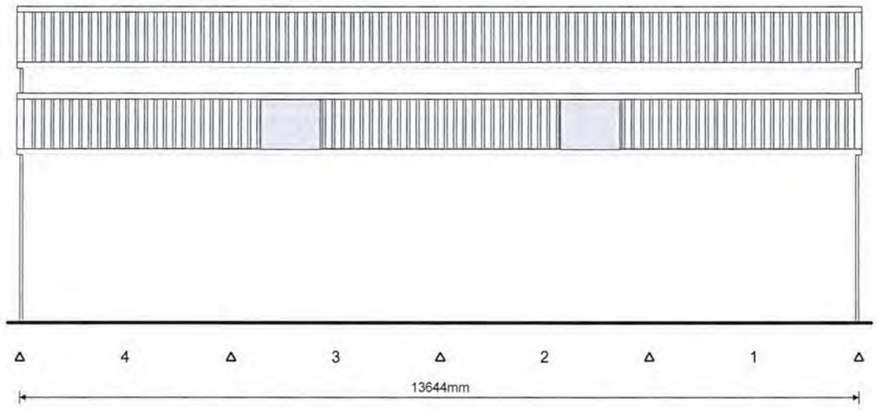
LEFT ELEVATION

Sheet 6 of 7

DIMENSIONS IN mm UNLESS OTHERWISE STATED THIS IS A C.A.D. DRAWING AND MUST NOT BE ALTERED BY MANUAL METHODS



Right Elevation

West

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RIGHT ELEVATION

Sheet 7 of 7