

Figure 6: Cavity soffit detail

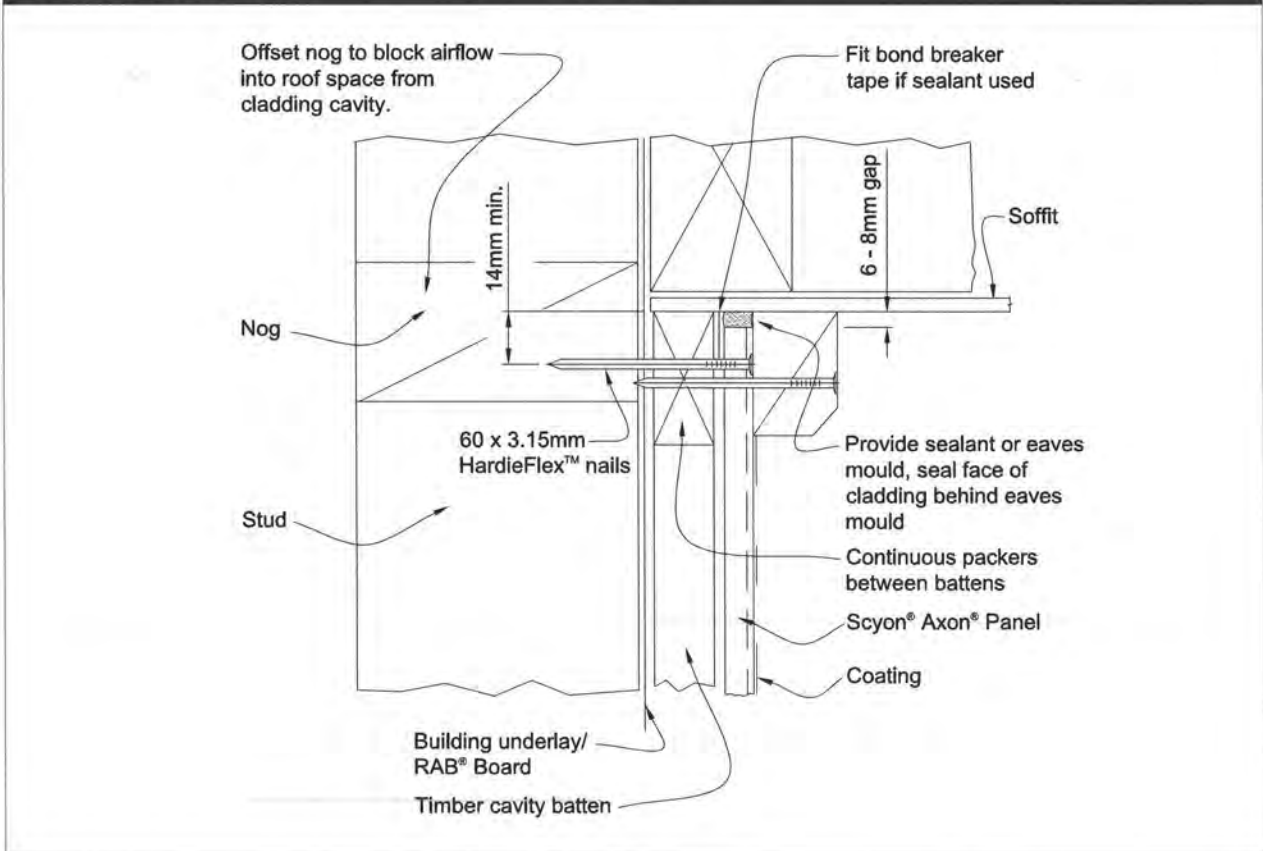


Figure 7: Cavity internal corner detail

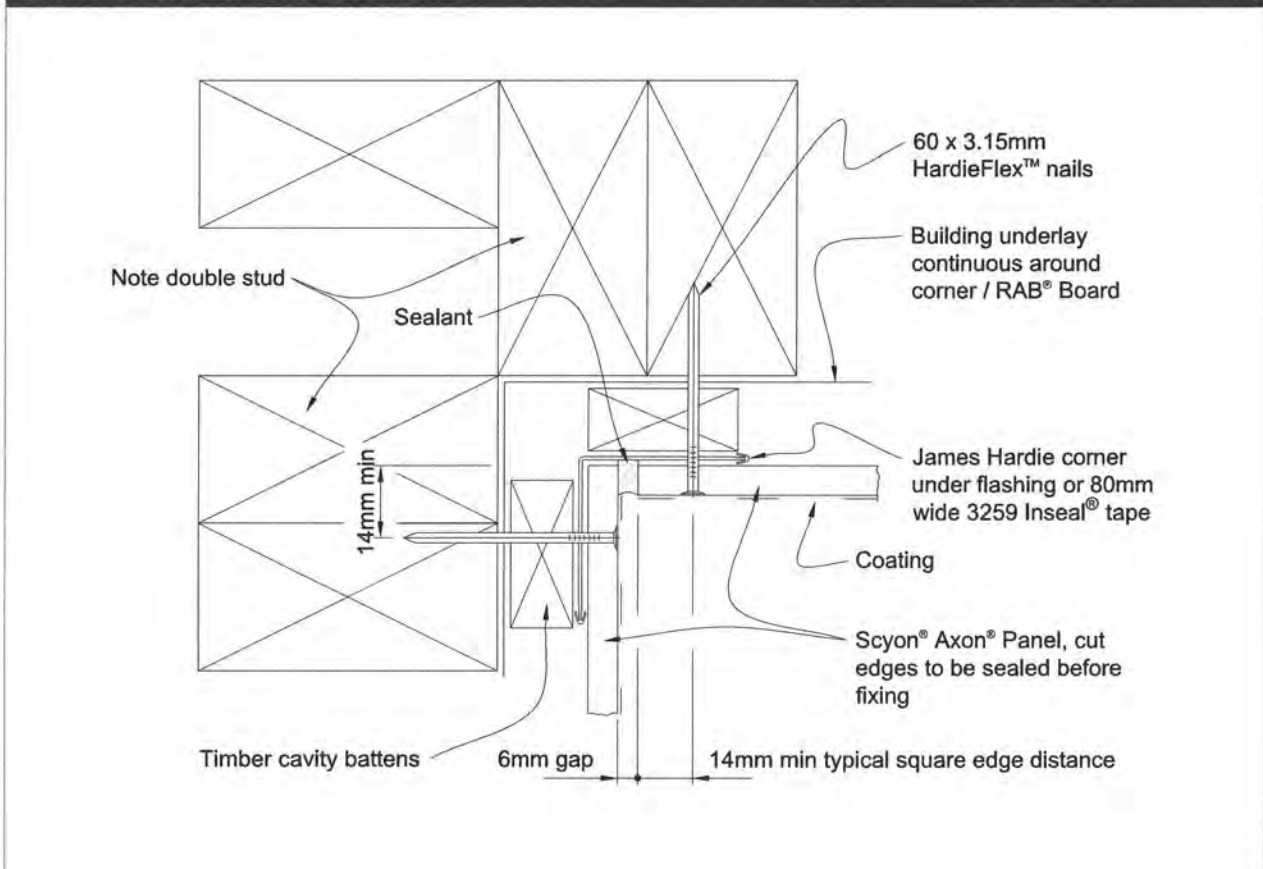
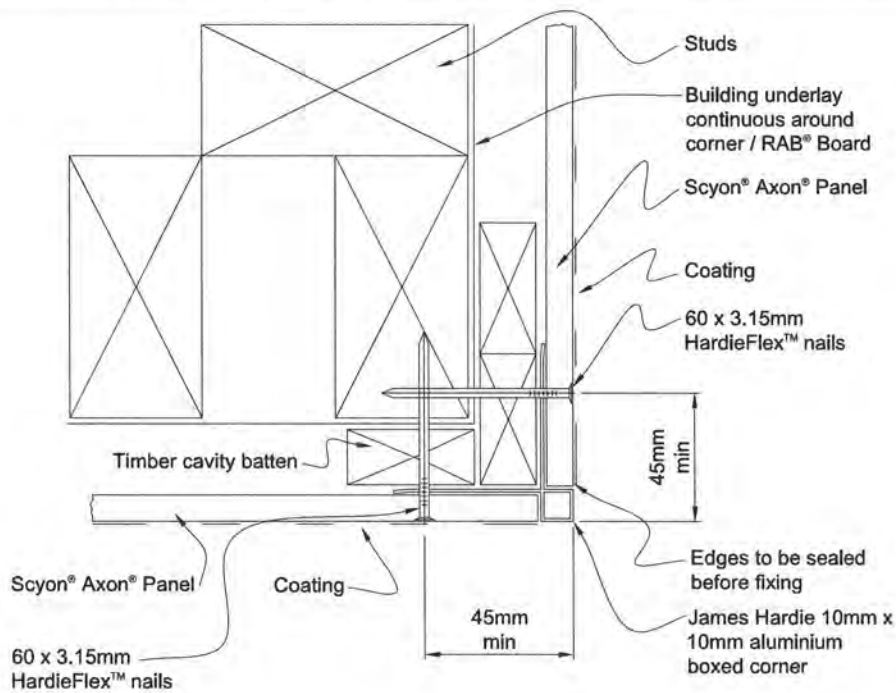


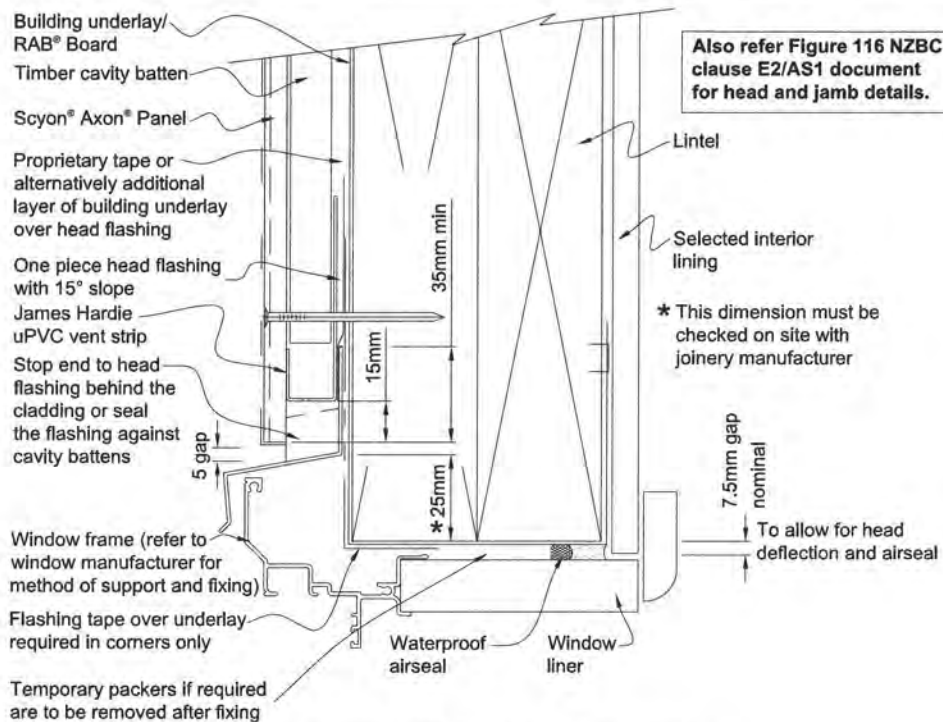
Figure 8: Cavity external corner detail



Note:

- Refer to Figure 27 for jointing with 'h' mould.
- Do not run corner mould continuous over floor joists.

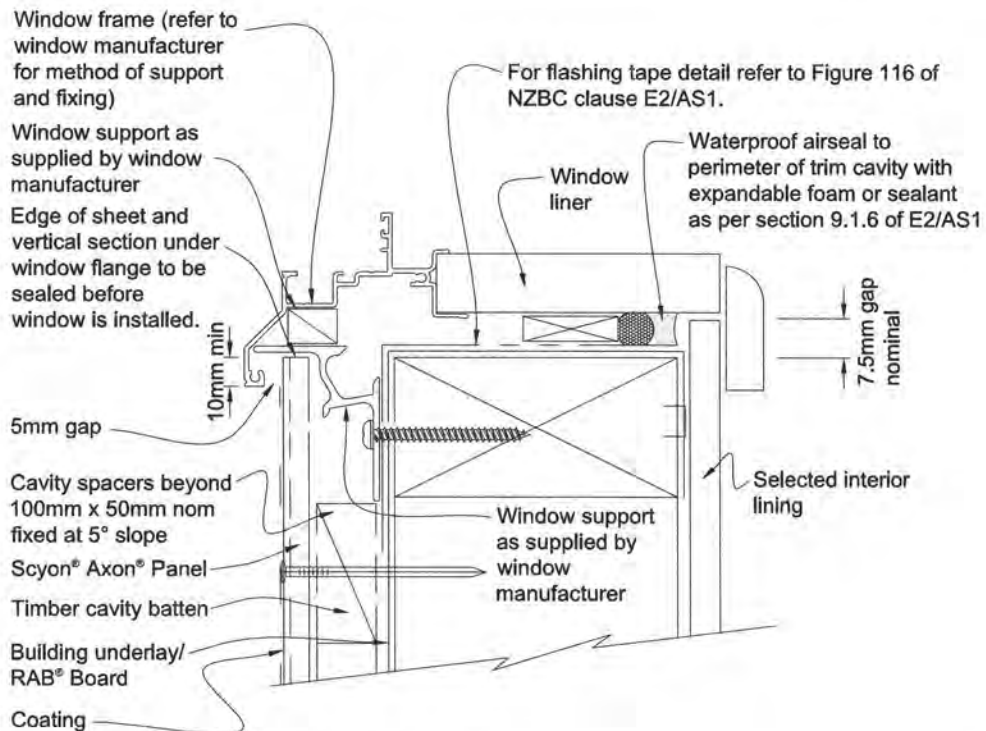
Figure 9: Cavity window head



Also refer Figure 116 NZBC clause E2/AS1 document for head and jamb details.

Note: When RAB® Board is used flashing tape to be applied to the entire window opening

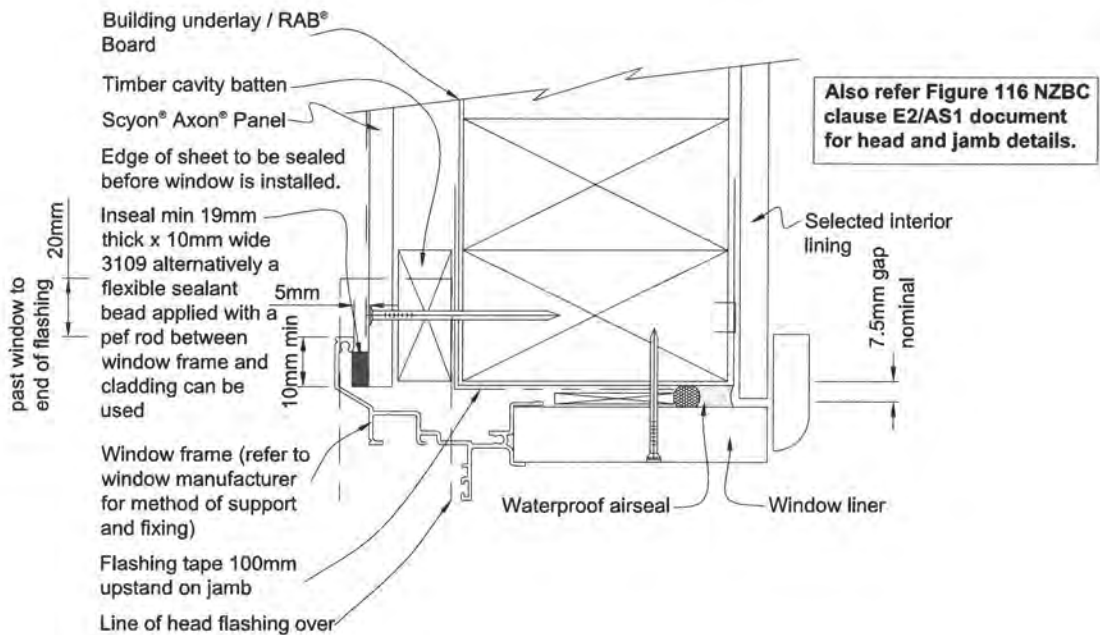
Figure 10: Section at sill



General notes for materials selection

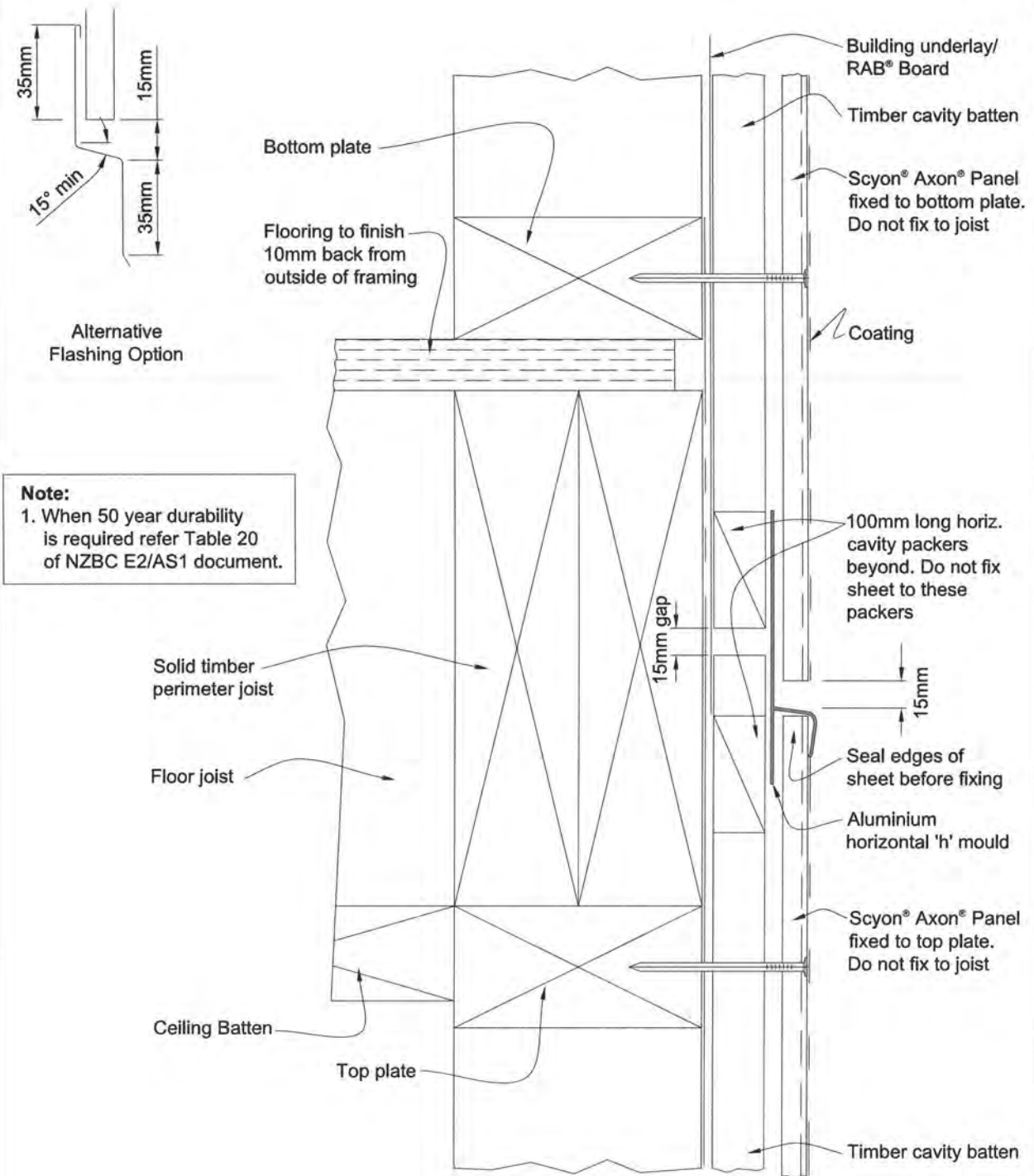
1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Building underlay must comply with acceptable solution E2/AS1 and NZS 3604.
3. Flashing tape must have proven compatibility with the selected building underlay and other materials with which it comes into contact as per Table 21 of E2/AS1.

Figure 11: Cavity window jamb



Note: When RAB® Board is used flashing tape to be applied to the entire window opening

Figure 12: Cavity horizontal joint detail



Note:
1. When 50 year durability is required refer Table 20 of NZBC E2/AS1 document.

Figure 13: Cavity parapet flashing

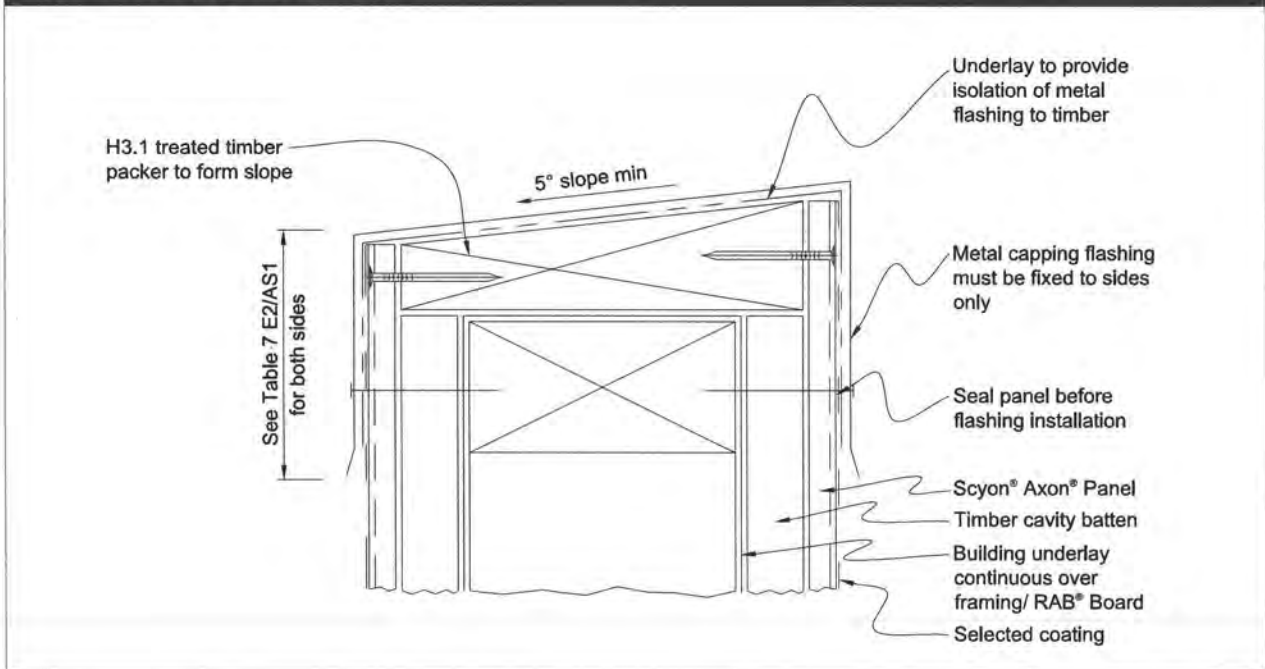


Figure 14: Cavity enclosed deck balustrade to wall junction

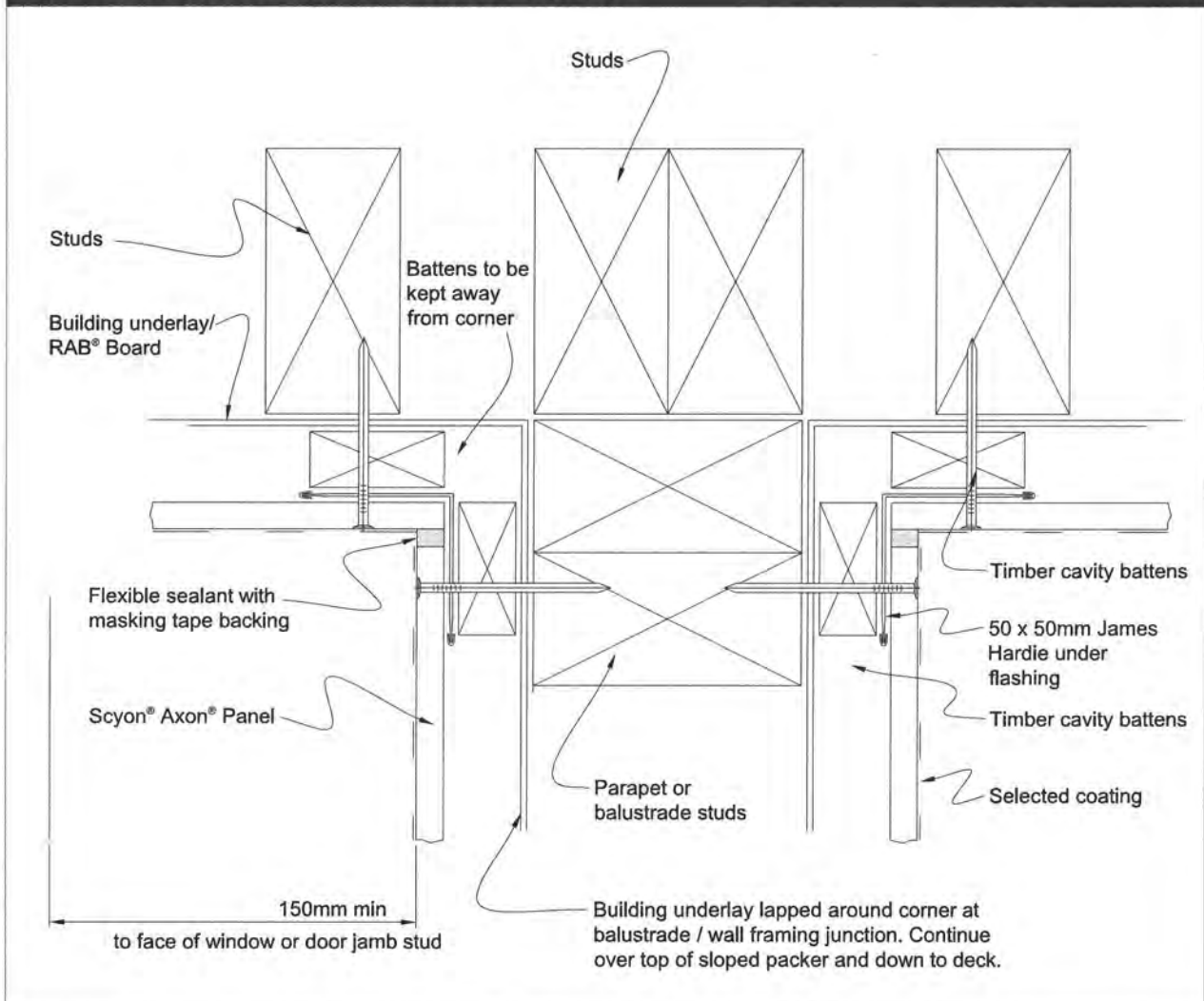
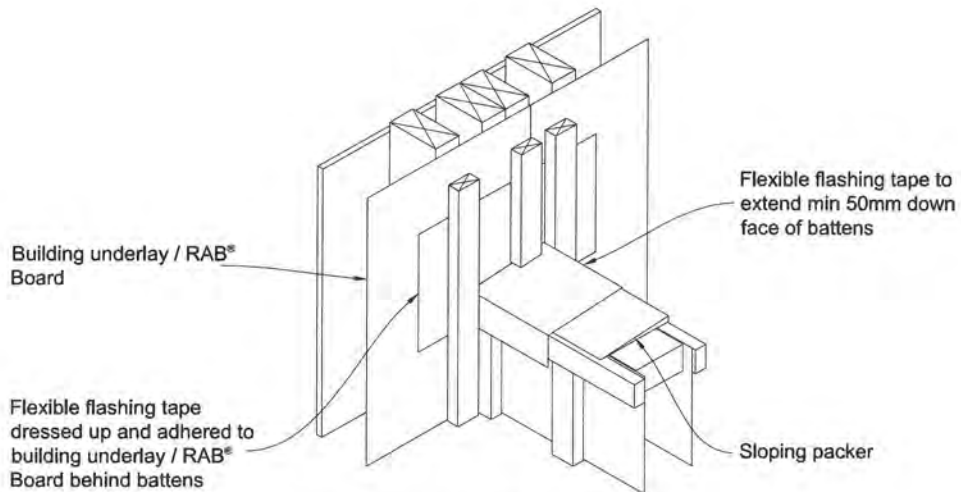
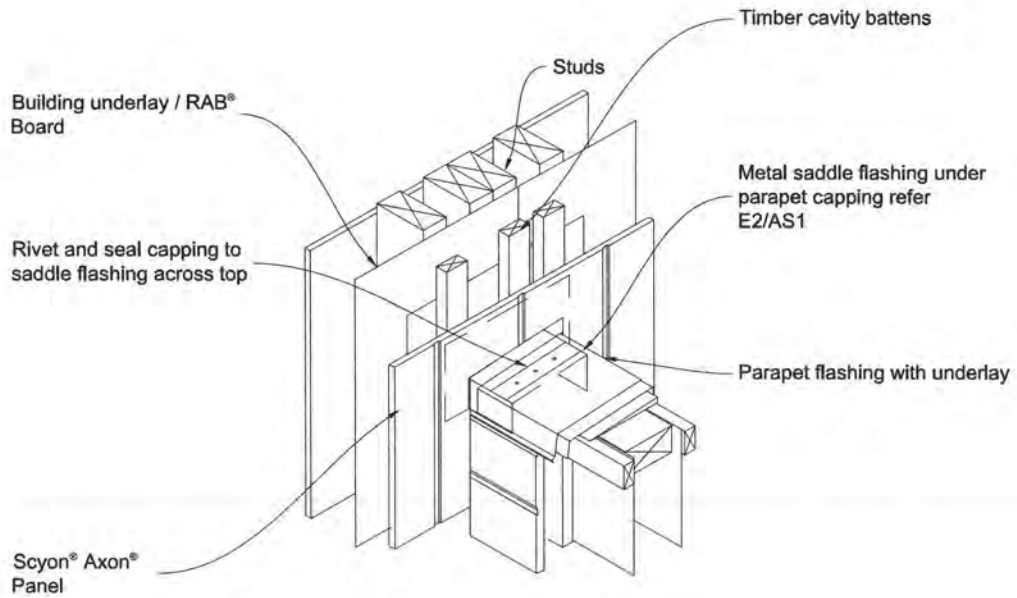


Figure 15: Cavity enclosed balustrade to wall



Flashing Tape Application Prior to Metal Flashing Fixing

Figure 16: Cavity enclosed deck

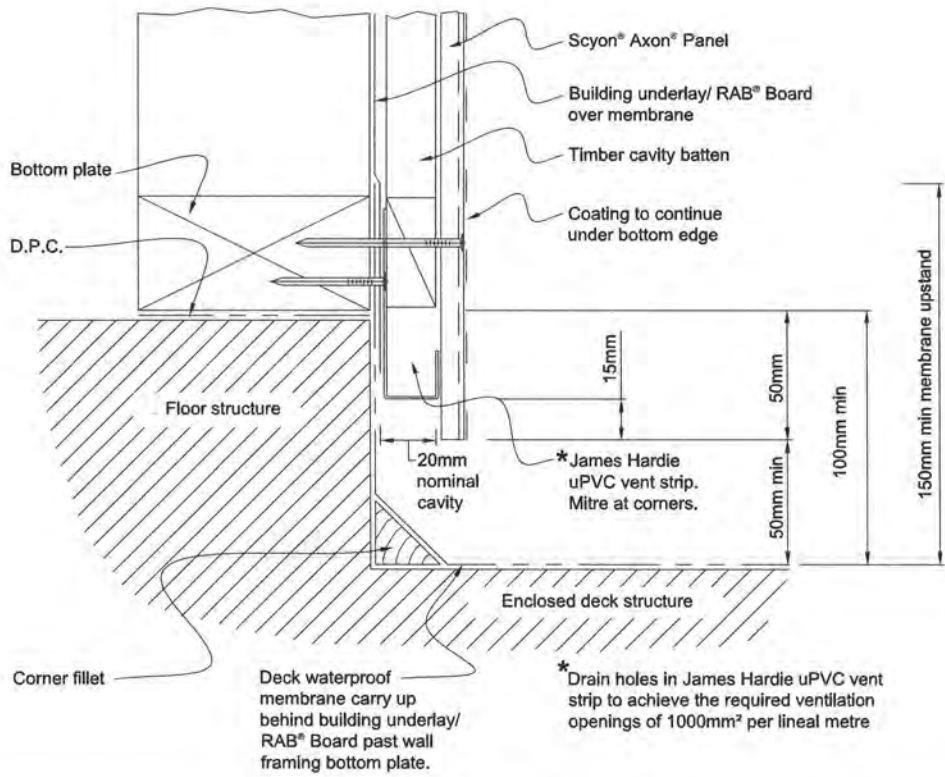


Figure 17: Cavity deck junction

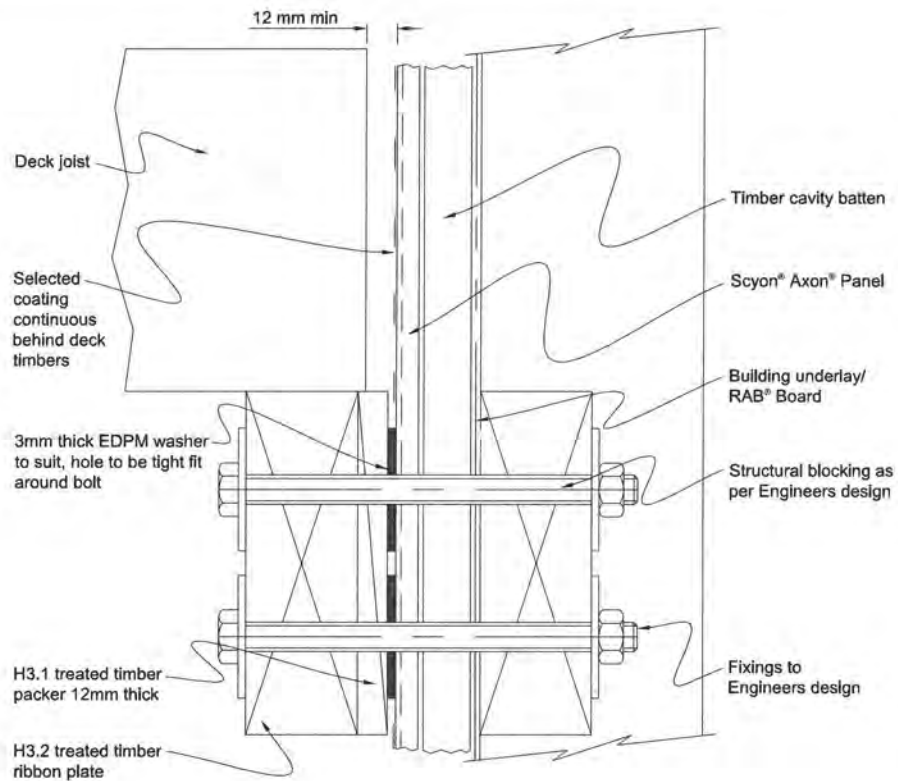


Figure 18: Cavity one piece apron flashing joint

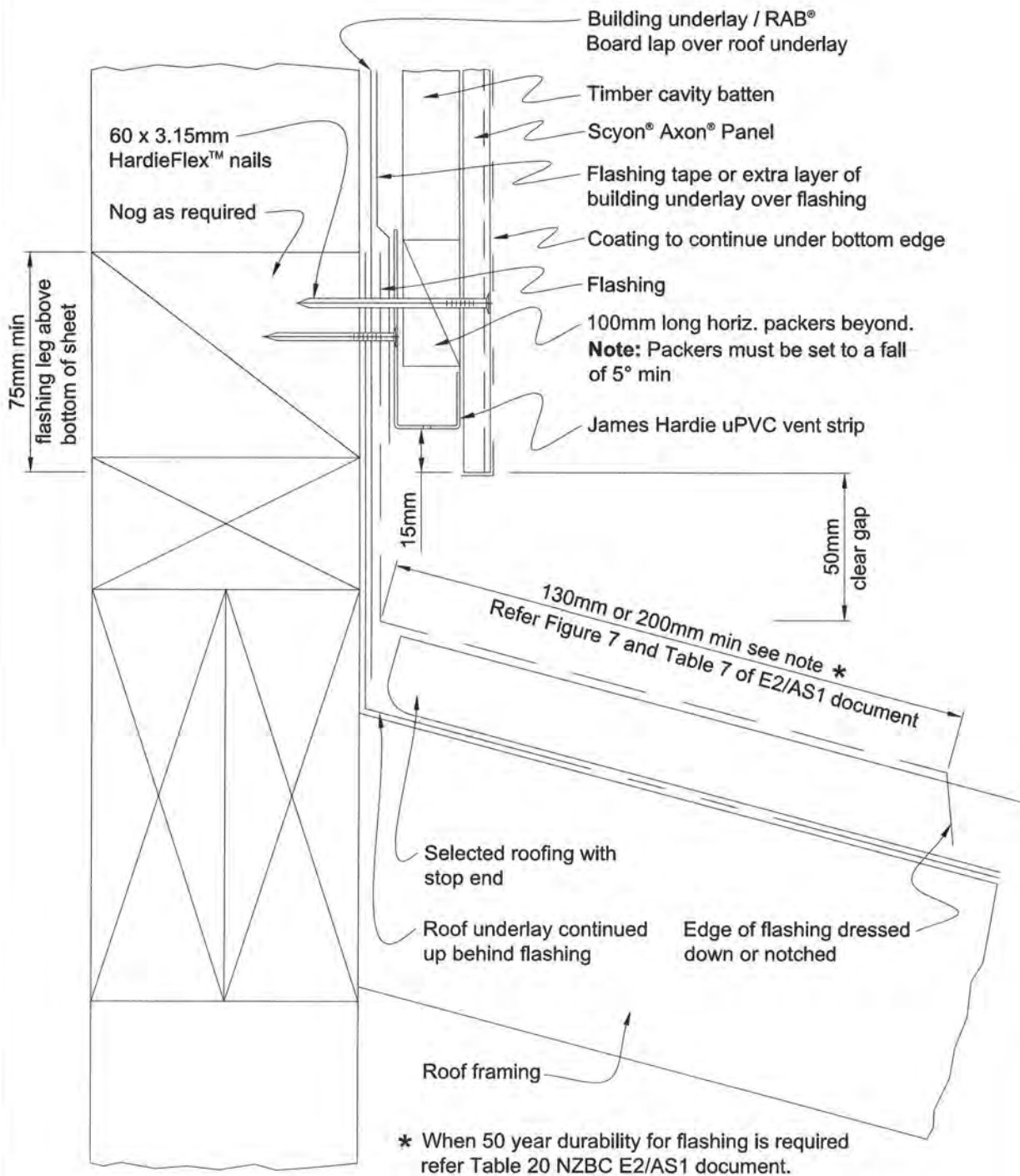


Figure 19: Cavity pipe penetration

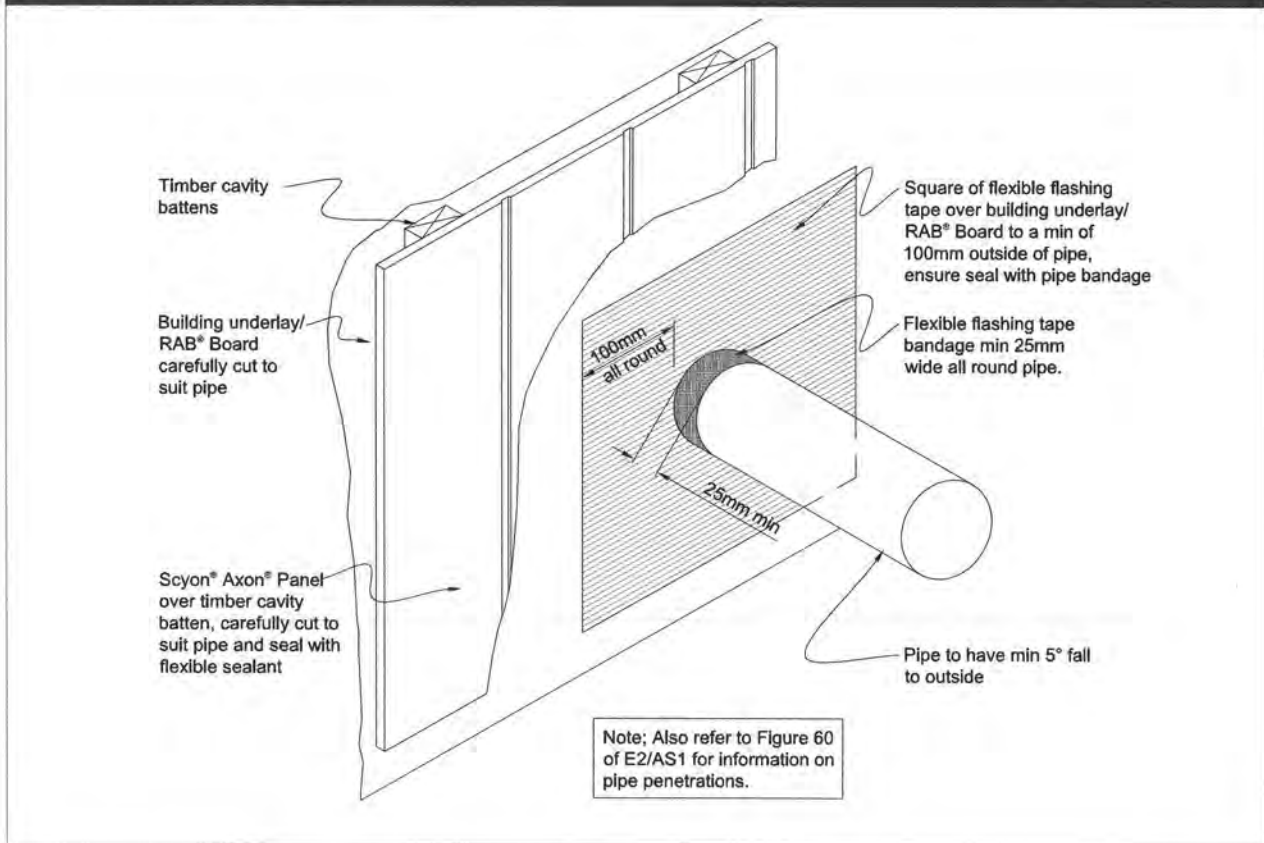


Figure 20: Cavity meter box at head

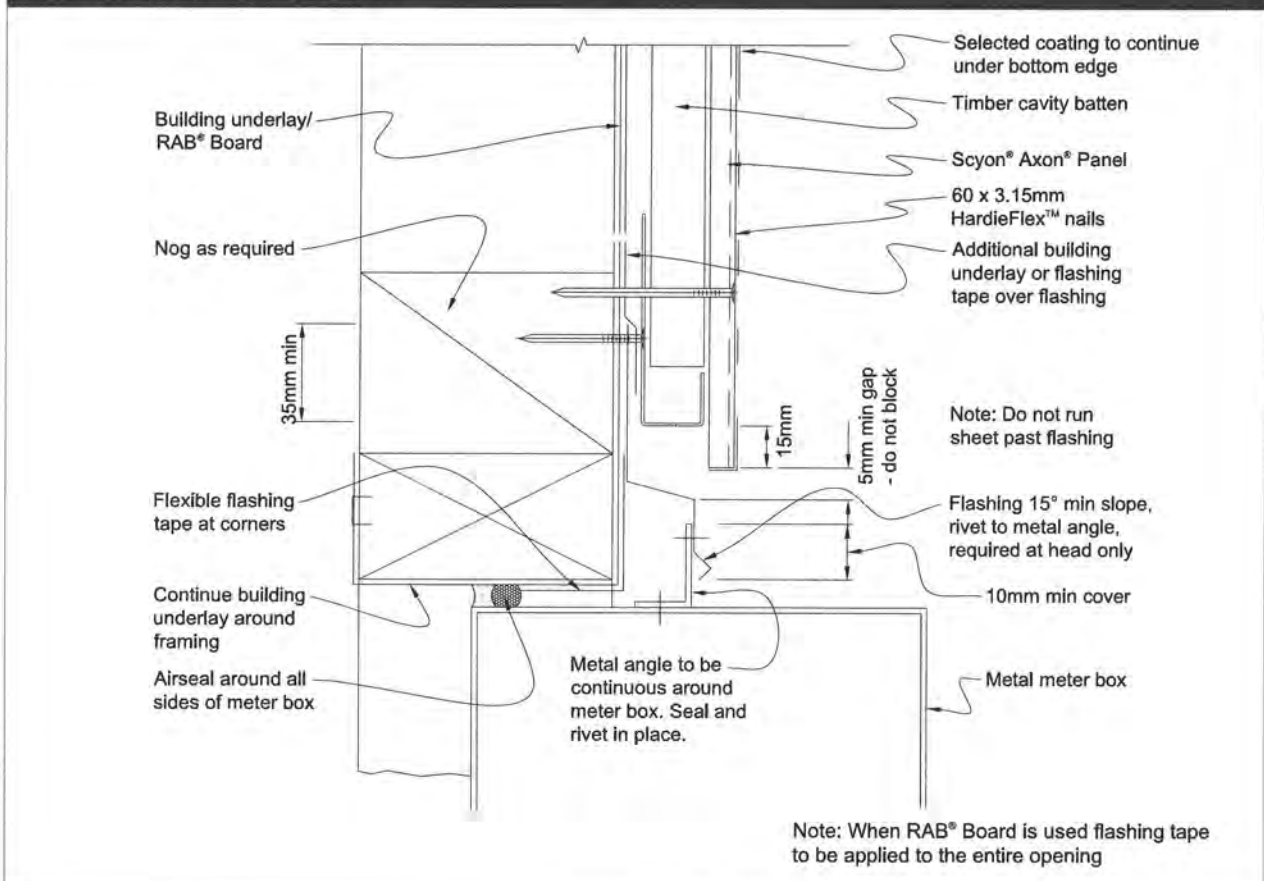


Figure 21: Cavity meter box at sill

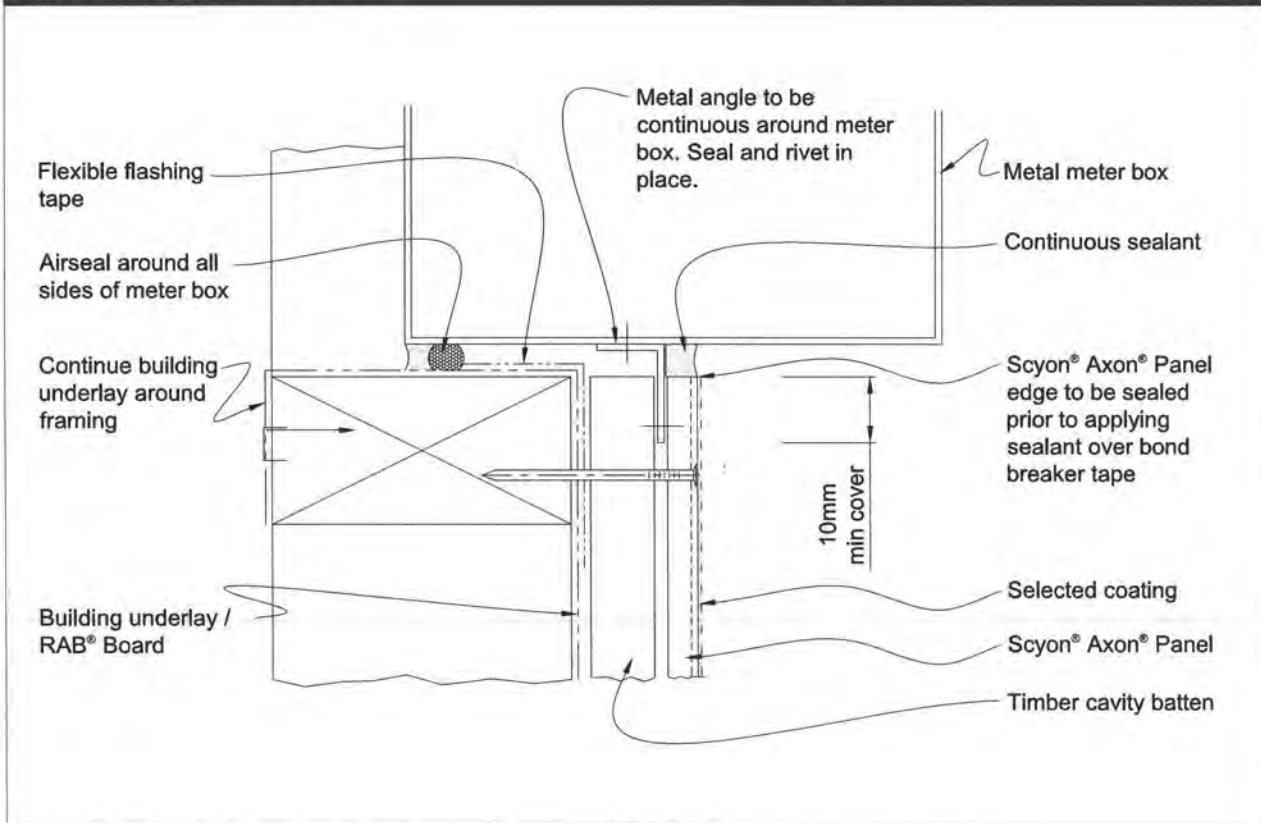


Figure 22: Cavity meter box at jamb

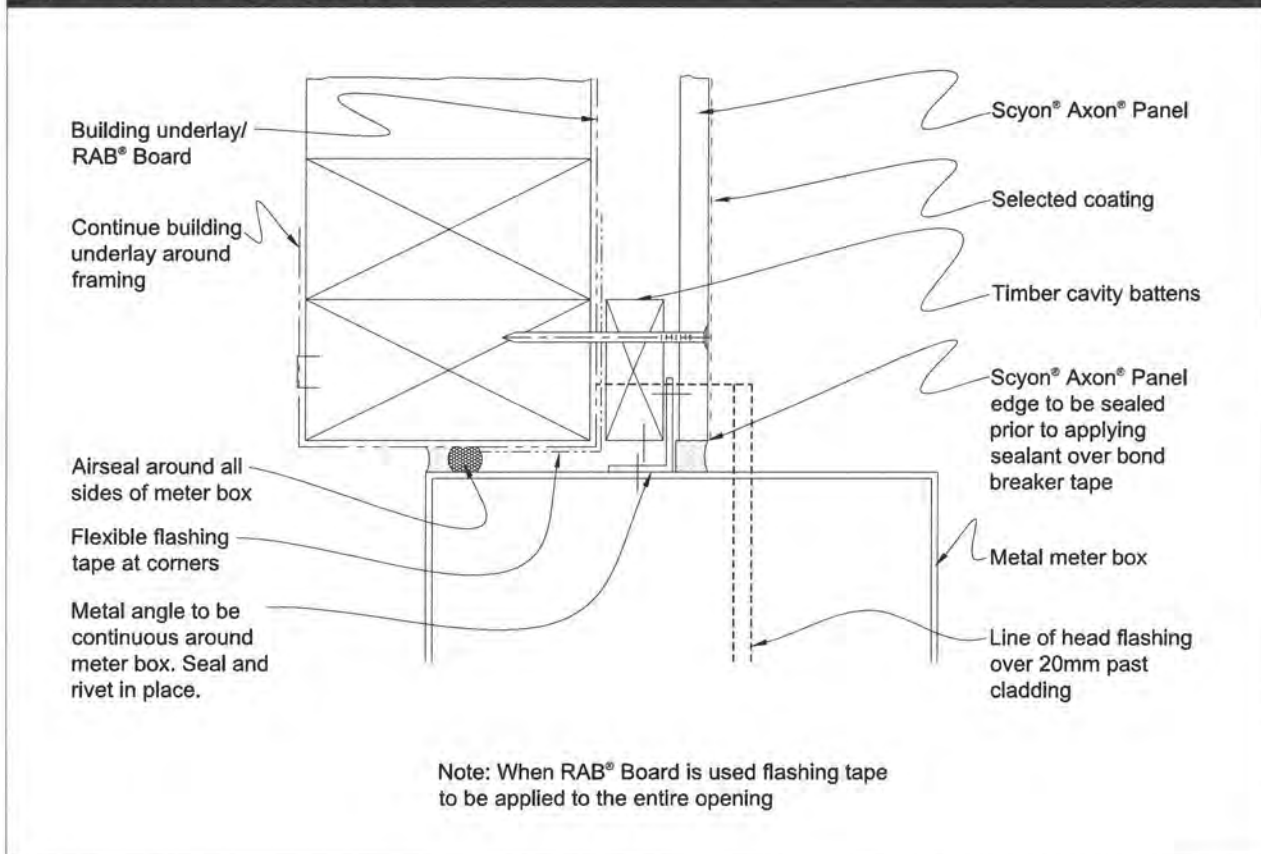


Figure 23: Cavity interstorey drainage

Note: This detail is required at the second storey joist level . Refer E2/AS1 clause 9.1.9.4.

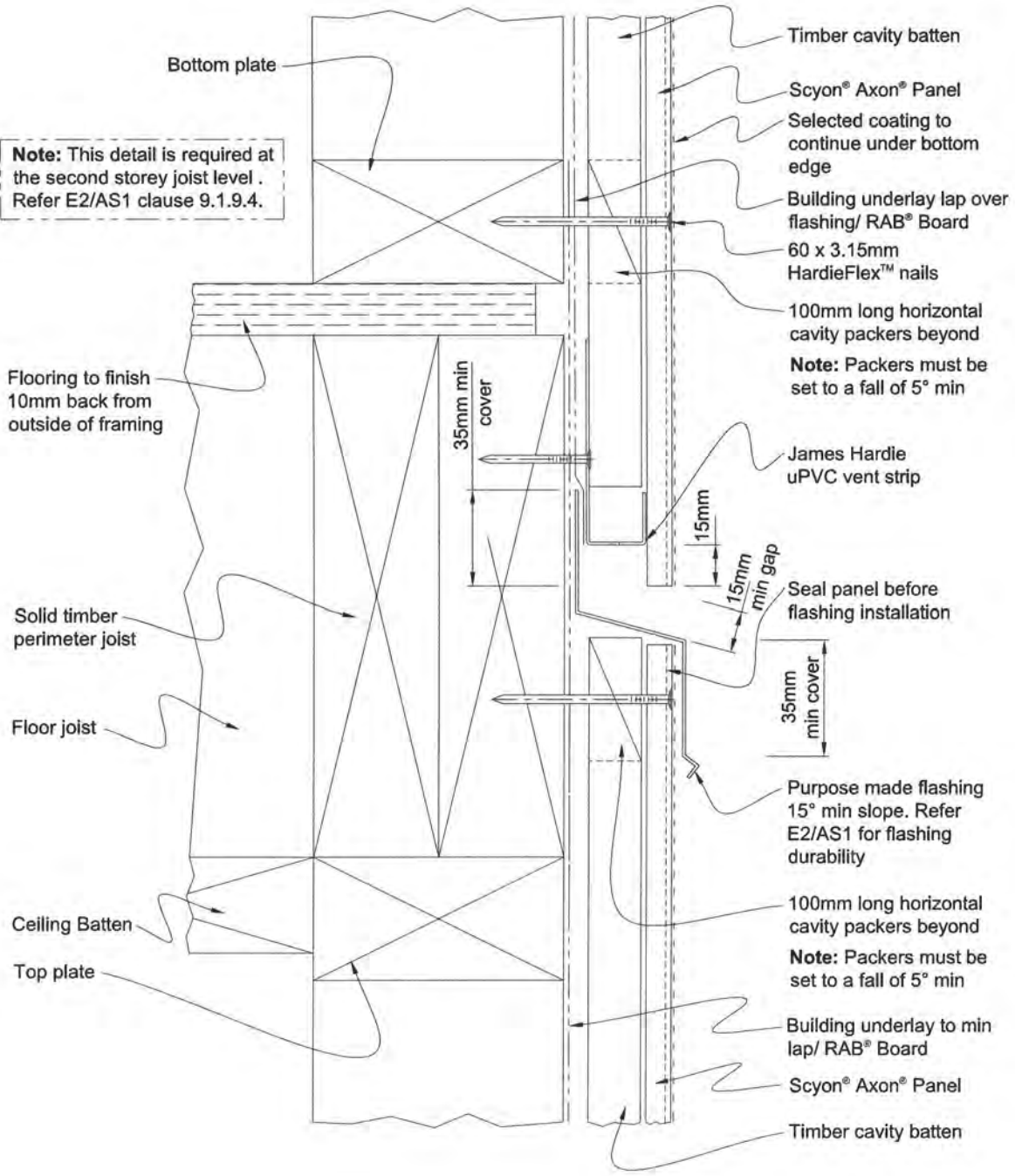
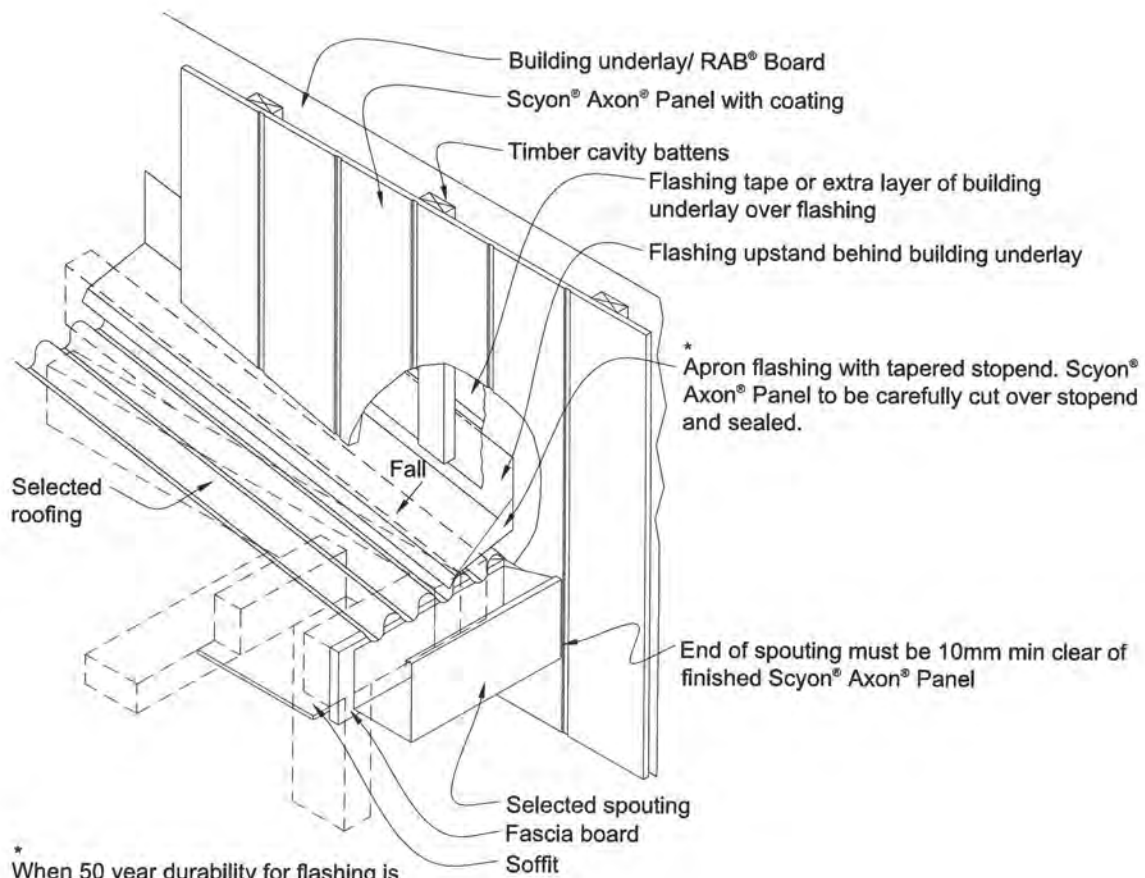


Figure 24: Cavity roof to wall junction detail



* When 50 year durability for flashing is required refer Table 20 NZBC E2/AS1 document.

Figure 25: Cavity alternative head flashing termination against batten

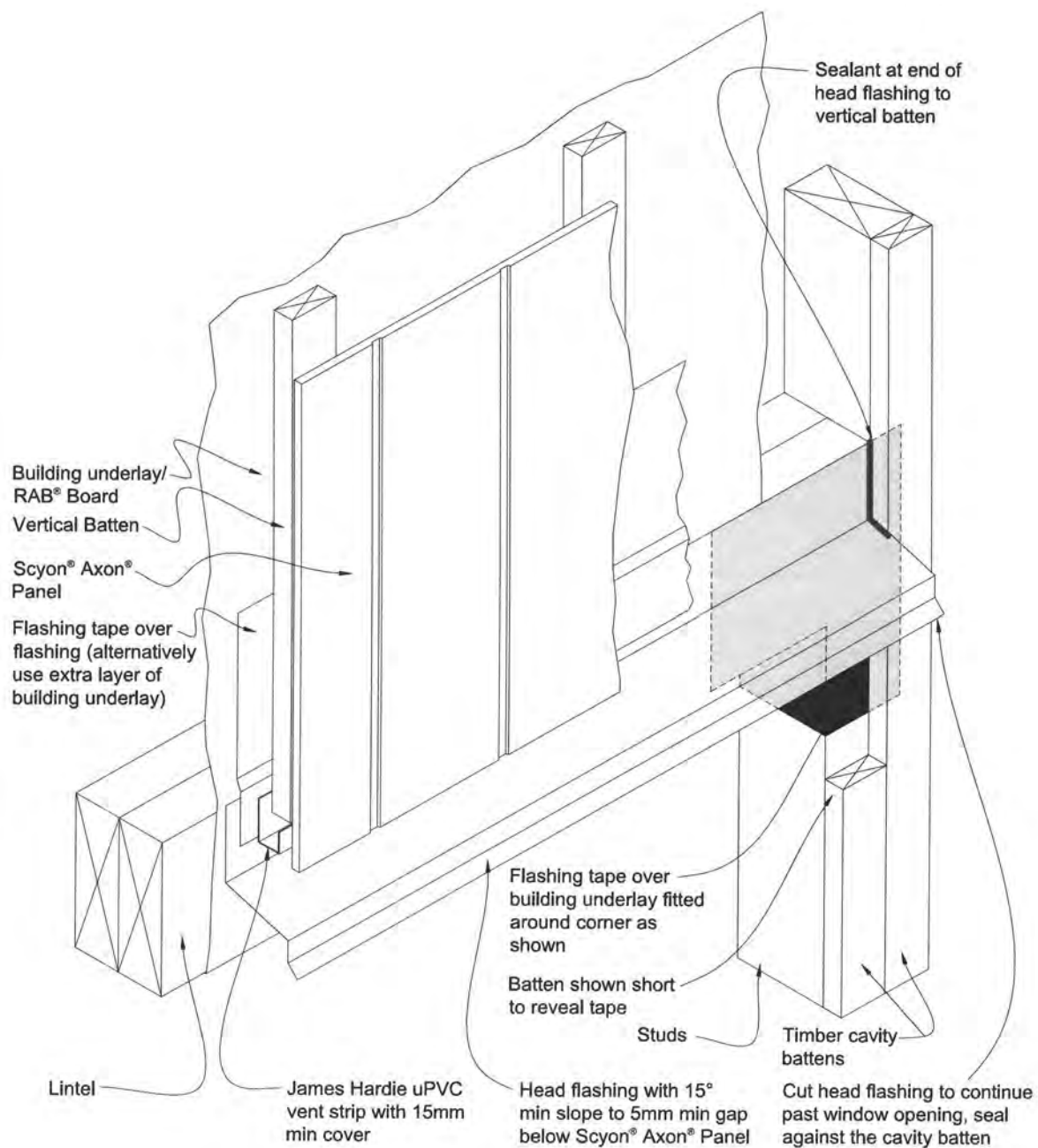


Figure 26: Cavity aluminium 'h' mould joiner

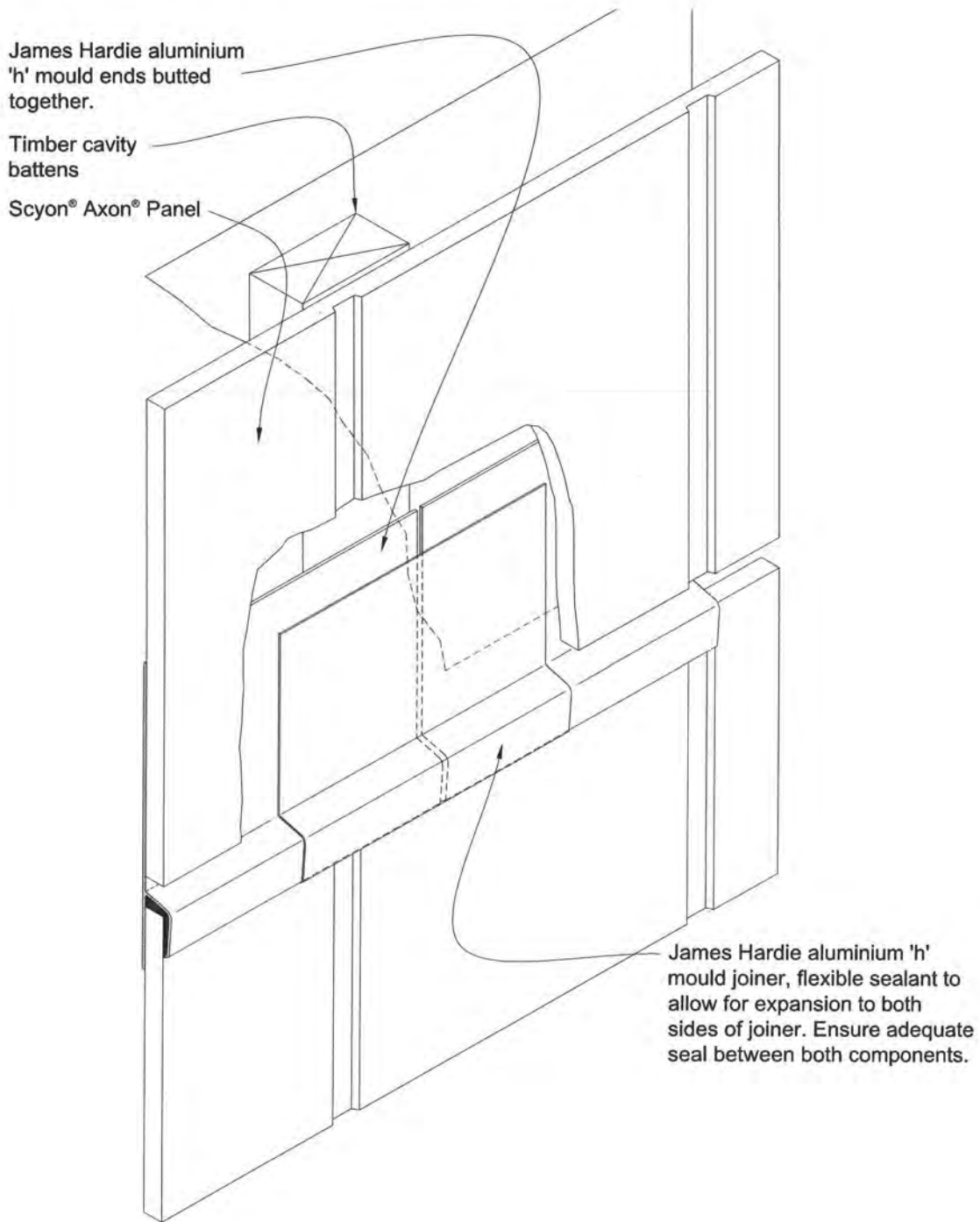
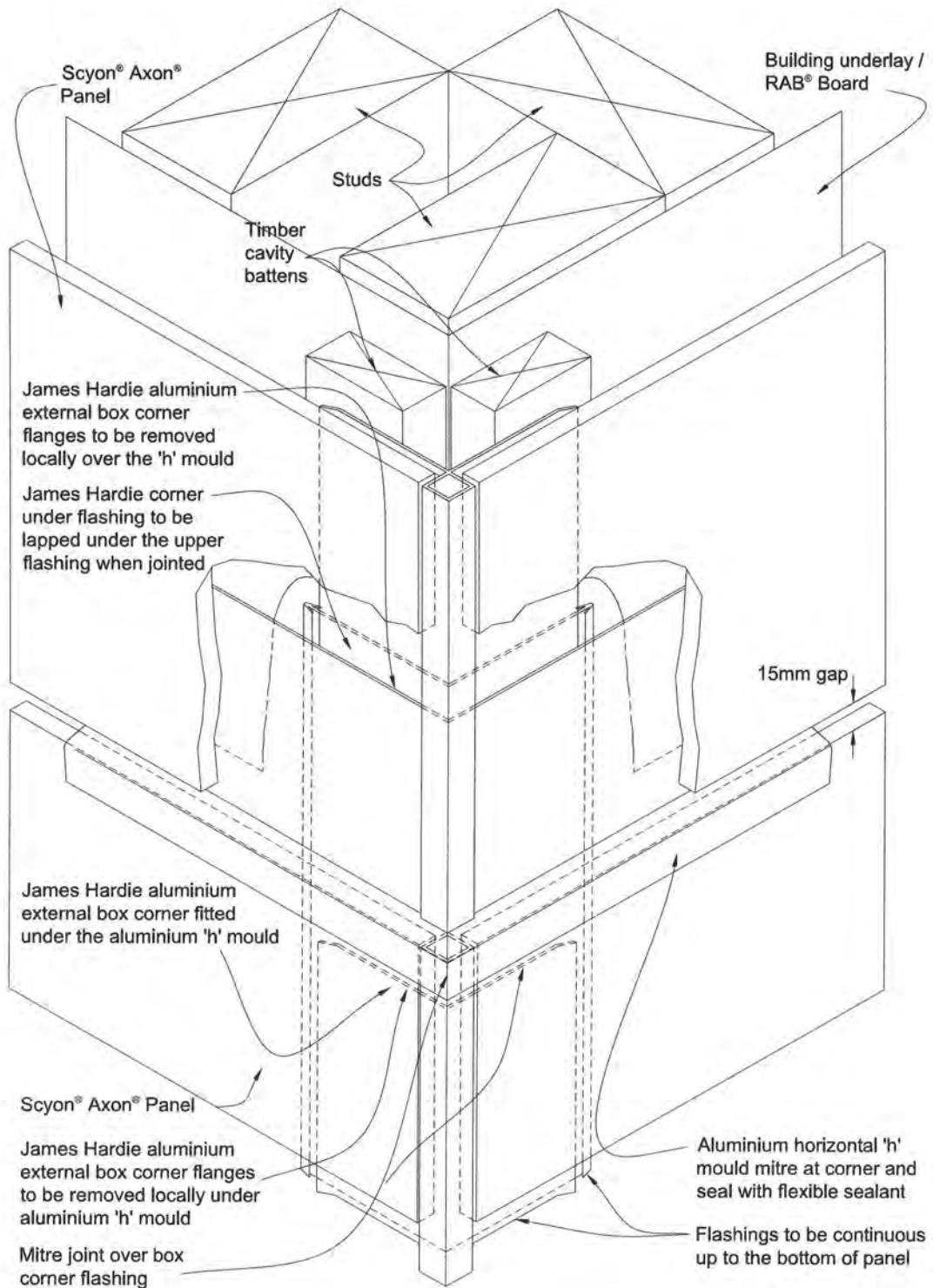


Figure 27: Cavity corner at 'h' mould joint detail



Product Warranty



July 2013

James Hardie New Zealand ("James Hardie") warrants for a period of 15 years from the date of purchase that the Scyon® Axon® Panel (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 Scyon® Axon® Panel when installed in accordance with the Scyon® Axon® Panel 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.

Copyright July 2013. © James Hardie New Zealand. All rights reserved. TM and ® denotes a Trademark or Registered Mark owned by James Hardie Technology Limited. Except for Tyvek® and Inseal® which are Registered Marks owned by their registered owners.

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



scyon®

The culmination of years of innovative research and development, Scyon's® resilient makeup challenges conventional building methods in a range of steadfast products. James Hardie® are committed to the sustainable production of building products for a tougher and greener tomorrow.

For more information about performance, installation, warranties and warnings visit scyon.co.nz

© 2013 James Hardie New Zealand.™ and ® denote a trademark owned by James Hardie Technology Limited.



James Hardie
a smarter way™

000039

September 2003

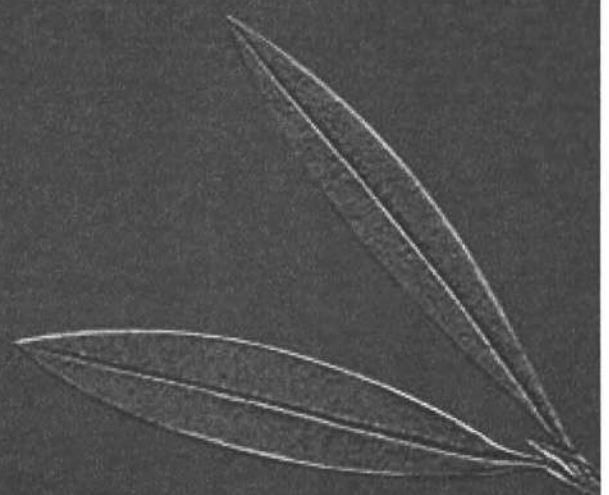
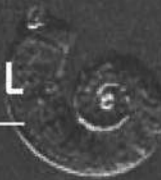
(Replaces March 2000)

RECEIVED
28 MAY 2014
S/H

This edition of the New Zealand Steel
Environmental Categories Guide supersedes
all previous editions

ENVIRONMENTAL

CATEGORIES



GALVSTEEL™

COLORSTEEL®

Zincalume®

ENVIRONMENTAL CATEGORIES AND PRODUCT RECOMMENDATIONS

INTRODUCTION

New Zealand has a wide range of environmental conditions, from the harsh West Coast beaches, to the relative shelter of the Waikato farming region. Therefore, New Zealand Steel Limited offers a range of steel products which are suitable for most locations.

VERY SEVERE – ISO CATEGORY 5

50m from high water from East Coast, 100m from high water from West Coast.

Characterised by:

- Heavy salt deposits.
- The almost constant smell of salt spray in the air.
- Close to breaking surf (typically 0-100 metres) such as is found on exposed coasts.

This environment may be extended inland by prevailing winds and local conditions.

Roofing _____

Wall Cladding _____

Gutters/downpipes _____

Fascia _____

SEVERE – ISO CATEGORY 4

Characterised by:

- Light salt deposits.
- A frequent smell of salt in the air.
- Typically 100-500 metres from breaking surf such as is found on exposed coasts.
- In the immediate vicinity of large expanses of calm salt water such as harbour foreshores.

This environment may be extended inland by prevailing winds and local conditions.

Roofing _____

Wall Cladding _____

Gutters/downpipes _____

Fascia _____

MODERATE COASTAL – ISO CATEGORY 3

Characterised by:

- Little or no salt deposits.
- The occasional smell of salt in the air.
- Typically 500-1000 metres from breaking surf such as is found on exposed coasts, OR
- In the immediate vicinity of calm salt water such as estuaries.

MODERATE INLAND – ISO CATEGORY 2

Characterised by:

- No obvious marine or industrial influences.
- Typically more than 1000 metres from the exposed coasts or more than 500 metres from industrial emissions.

Roofing _____

Wall Cladding _____

Gutters/downpipes _____

Fascia _____

COMMERCIAL WARRANTY

Such as schools, warehouses and buildings, refer to New Zealand Steel Limited for details of commercial warranties. Maximum warranty offered on commercial buildings is 15 years.

IMPORTANT

- As product use is dictated by local conditions, seek advice from your roofing supplier or fixer for the best New Zealand Steel Limited product to suit your specific environment.
- Gutters should be installed according to manufacturer's instructions.
- Unwashed and high risk areas – manual washing every 3 months.

0 metres

50 metres

Greater than 50m from breaking surf on the East Coast.
Greater than 100m from breaking surf on the West Coast.

WARRANTIES

15 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.
15 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **10 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.

MAINTENANCE

- Rain washing
- Rain washing plus manual washing every 3 months.
- Manual washing every month.
- Manual washing every month.

WARRANTIES

Not recommended

MAINTENANCE

Not recommended

15 years: covering the paint surface against flaking, peeling and excessive fade. **20 years:** against perforation as a result of corrosion.
15 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **10 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.

- Rain washing
- Rain washing plus manual washing every 6 months.
- Manual washing every 3 months.
- Manual washing every 3 months.

15 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.
No warranty
5 years: covering the paint surface against flaking, peeling and excessive fade. **10 years:** against perforation as a result of corrosion.
5 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.

- Rain washing
- Rain washing plus manual washing every 6 months.
- Manual washing every 3 months.
- Manual washing every 3 months.

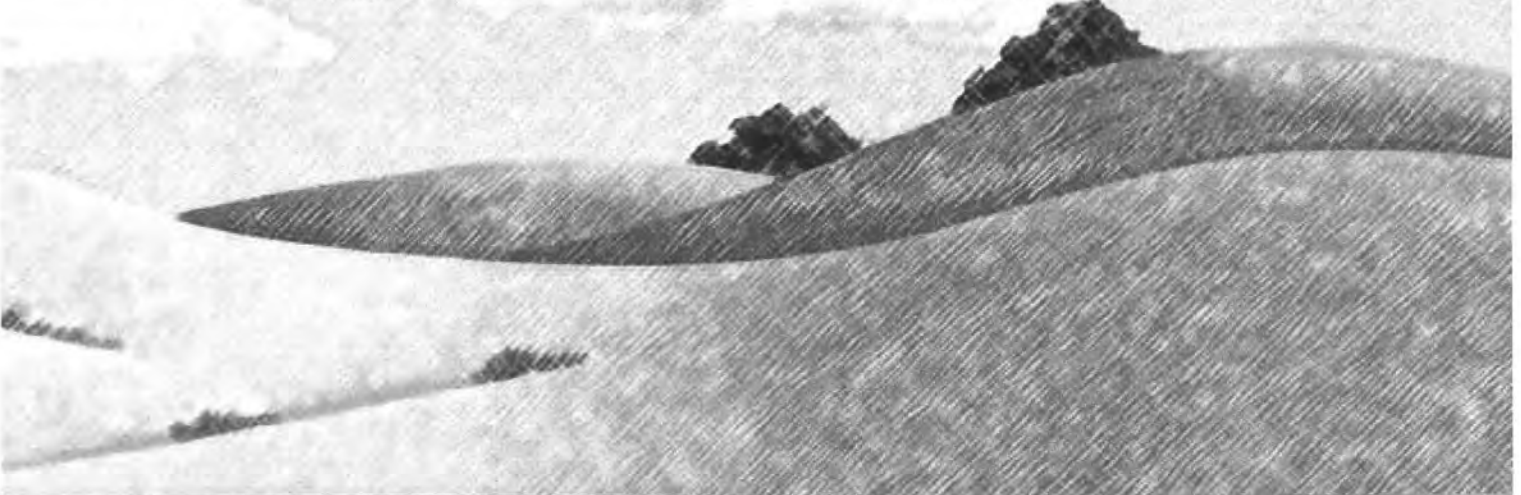
15 years: covering the paint surface against flaking, peeling and excessive fade. **30 years:** against perforation as a result of corrosion.
15 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **10 years:** against perforation as a result of corrosion.

- Rain washing
- Rain washing plus manual washing every year.
- Manual washing every 6 months.
- Manual washing every 6 months.

18 years: covering the paint surface against flaking, peeling and excessive fade. **30 years:** against perforation as a result of corrosion.
15 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **10 years:** against perforation as a result of corrosion.
10 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.

- Rain washing
- Rain washing plus manual washing every year.
- Manual washing every 6 months.
- Manual washing every 6 months.

10 years: covering the paint surface against flaking, peeling and excessive fade. **15 years:** against perforation as a result of corrosion.



VERY SEVERE COASTAL

SEVERE COASTAL

100 metres

500

WARRANTIES

Not recommended

MAINTENANCE

Not recommended

WARRANTIES

Not recommended

MAINTENANCE

Not recommended

Not recommended

Not recommended

Not recommended

Not recommended

15 years: against perforation as a result of corrosion.

- Rain washing

No warranty

- Rain washing

15 years: against perforation as a result of corrosion.

- Rain washing plus manual washing every 6 months.

- Rain washing plus manual washing every 6 months. Painting may be advisable depending on the specific location.

10 years: against perforation as a result of corrosion.

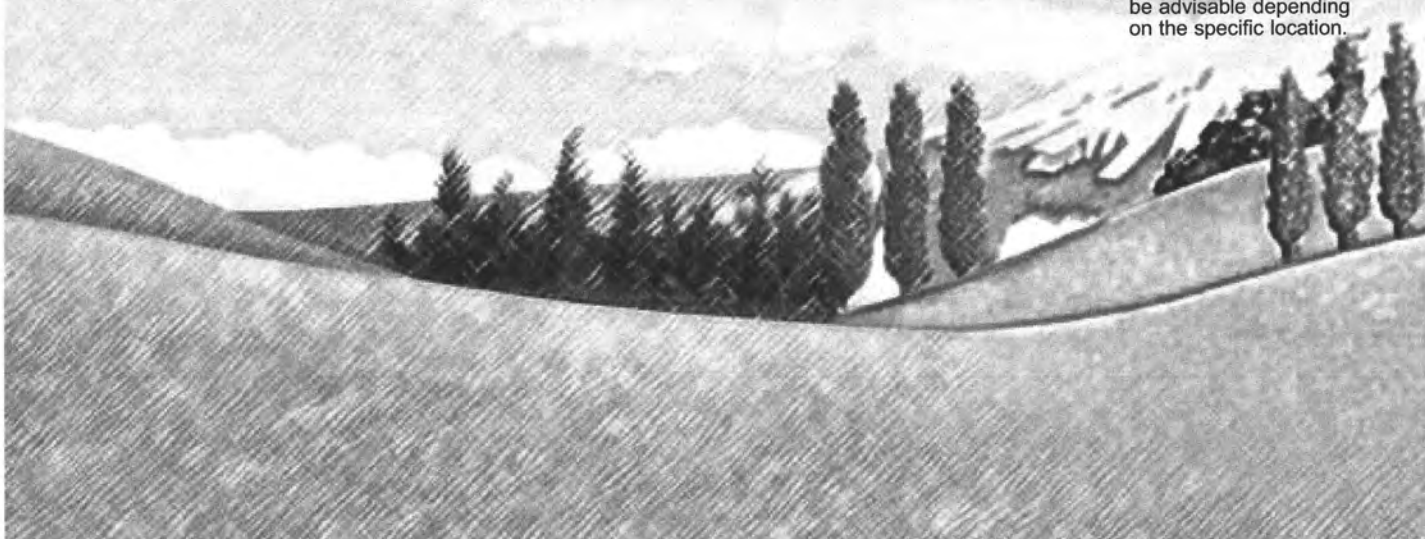
- Manual washing every 3 months.

- Manual washing every 3 months. Painting may be advisable depending on the specific location.

10 years: against perforation as a result of corrosion.

- Manual washing every 3 months.

- Manual washing every 3 months. Painting may be advisable depending on the specific location.



MODERATE COASTAL

MODERATE INLAND

metres

1000 metres



SPECIAL ENVIRONMENTS

In New Zealand there are areas where local conditions create an increased likelihood of corrosion. Special consideration should be given to material selection in these areas. They include:

1. Geothermal Areas

Hydrogen sulphide associated with geothermal activity creates a corrosive environment. Variations in natural activity or draw-off from steam bores plus the effects of weather conditions make the high risk areas hard to define.

2. West Coast, South Island

In this area, smoke from the coal burning fires may cause high concentrations of sulphur dioxide in the air. The combination of this and the high rainfall for the region creates an aggressive situation which must be considered when choosing the appropriate COLORSTEEL® prepainted steel coating. The effects of a severe coastal environment aggravate the situation.

This area combines the most severe features of both industrial and coastal environments. Please contact your local supplier for the best COLORSTEEL® prepainted steel product to use.

3. Internal Environments

Some commercial or agricultural applications may create internal environments in which the build-up of pollutants or fumes is a potential source of corrosion. Similarly a corrosive environment can develop within sheds used for intensive animal farming. Please consult New Zealand Steel Limited for further details.

4. Industrial Environments

Close to corrosive industrial emissions and subject to heavy fallout from them. Please consult New Zealand Steel Limited for further details.

Further Assistance

Further advice on the selection of the appropriate product to suit your particular location can be obtained from New Zealand Steel Limited or your local COLORSTEEL® prepainted steel supplier.



VERY SEVERE SPECIAL ENVIRONMENTS



FURTHER INFORMATION

For additional information, literature or technical assistance, please contact:

Roofing and Cladding Sector
 New Zealand Steel Limited
 Private Bag 92 121, Auckland
 Telephone: 0-9-375 8999
 Facsimile: 0-9-375 8213
 Free Phone: 0800 100 523
 Email Address: info@colorsteel.co.nz
 http://www.colorsteel.co.nz

Zincalume®

ZINCALUME® is a registered trademark.

GALVSTEEL™

GALVSTEEL™ is a trademark of New Zealand Steel Limited.

COLORSTEEL® Maxx™

COLOUR FOR THE EXTREME

MAXX™ is a trademark of New Zealand Steel Limited.

COLORSTEEL® Endura™

COLOUR FOR THE FUTURE

ENDURA™ is a trademark of New Zealand Steel Limited.

COLORSTEEL®

COLORSTEEL® is a registered trademark of New Zealand Steel Limited.

THE ROOF OF NEW ZEALAND®

is a registered trademark of New Zealand Steel Limited.

NOTE: With New Zealand Steel Limited's commitment to continuous improvement, information provided in this publication may be subject to modification. At the time of publication we believe the information contained in this document is the best available. Nonetheless, we reserve the right to modify any product, technique, equipment or statement to reflect improvements in the manufacture and application of coil coated products. The information is supplied without prejudice to New Zealand Steel Limited's standard terms and conditions of sale. In the event of any conflict between this information and the standard terms and conditions, the standard terms and conditions shall prevail.

Copyright© 2003 New Zealand Steel Limited.



New Zealand Steel Limited, Private Bag 92 121, Auckland, New Zealand. Ph 0-9-375 8999 Fax 0-9-375 8213

000037

"If its made of concrete we can do it"



10,000 Litre Rain Water Recycling Package

1. Underground installation saves space on the section.
2. Pump comes installed in the tank - no pump house needed
3. No pump noise in the house when water is used.
4. Genuine concrete precast product.
5. Concrete keeps the water cooler and minimises algae growth.
6. High strength – able to be buried, with 300mm of topsoil.
7. Reputable Company manufacturing since 1935
8. 75 years in the industry
9. Provide a 25 Year guarantee
10. Proudly providing jobs in our community
11. Safe drinking water – raw materials are natural not chemical based as in plastic products.
12. Concrete is a proven material that has stood the test of time.
13. Environmentally healthier and safer option.
14. Buried will also give additional protection to your water supply.



Submersible Jet Pump Installed

1. Built in pump control system, no external controller or pressure tank.
2. Built in run-dry protection.
3. Built in test sequence every 72 hours.
4. Two pole induction motor
5. Stainless steel body, shaft and impeller for long life operation.
6. A low level top up valve is included to maintain minimum operating water level for continuous use.



437 Heads Road
WANGANUI

Phone: (06) 344 5911 Fax: (06) 344 8189

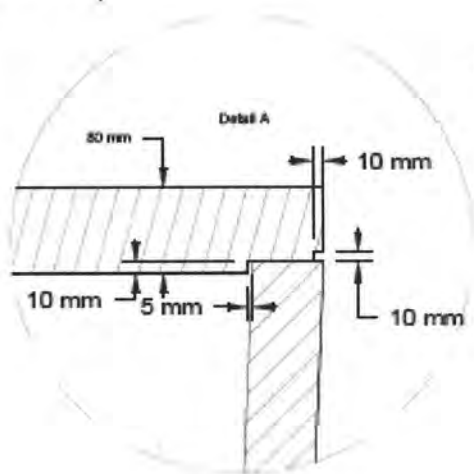
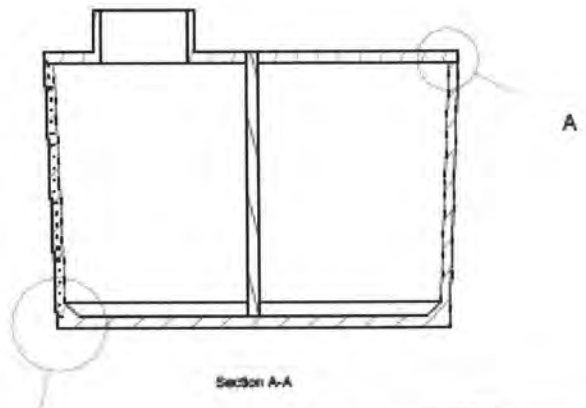
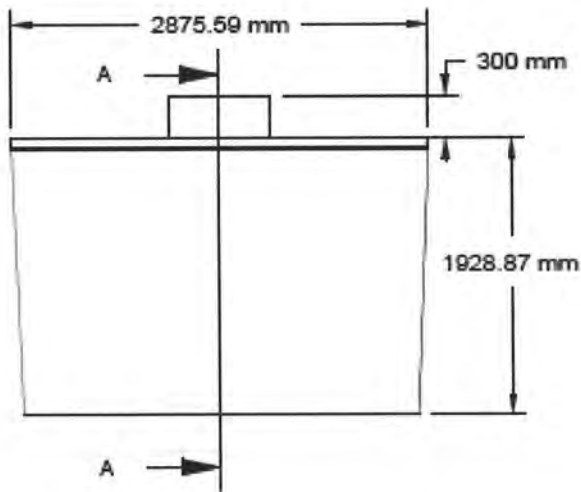
"If its made of concrete we can do it"

LARSENS

CONCRETE & DRAINAGE

WANGANUI

Dimensions



See Sheet 2 for Mesh Detail

Material
Concrete Shength 40 mpa



437 Heads Road
WANGANUI
Phone: (06) 344 5911 Fax: (06) 344 8189

"If its made of concrete we can do it"

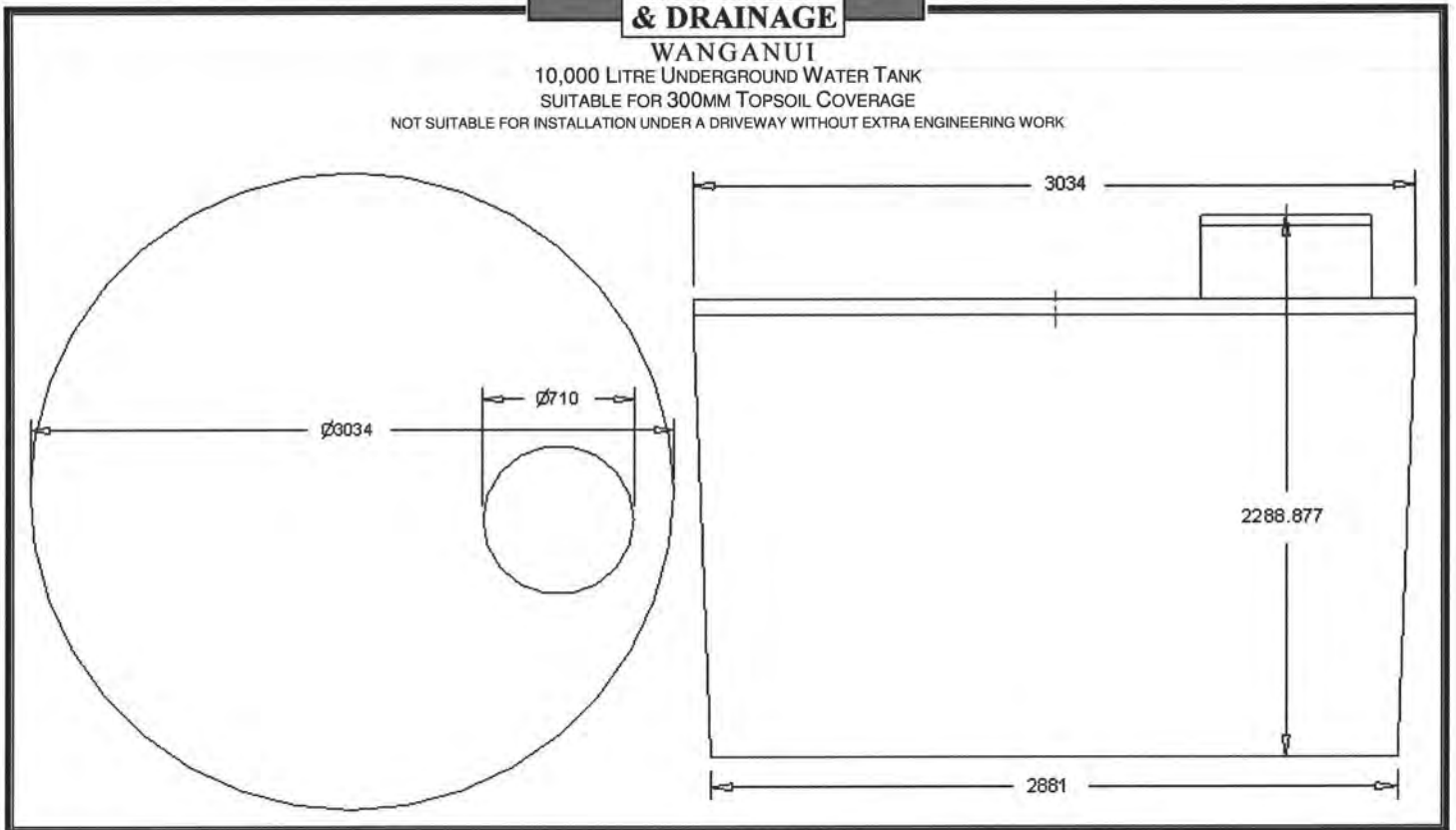
LARSENS CONCRETE & DRAINAGE

WANGANUI

10,000 LITRE UNDERGROUND WATER TANK

SUITABLE FOR 300MM TOPSOIL COVERAGE

NOT SUITABLE FOR INSTALLATION UNDER A DRIVEWAY WITHOUT EXTRA ENGINEERING WORK





10,000 Litre Concrete Tank Warranty

This Warranty is offered by Walter Larsen and Sons Ltd (Larsens)
for Eletank 10,000 Litre Precast Concrete Tank

installed at

This warranty is offered to the original purchaser (other than for purposes of resale) for a period of Eight Years.

This Warranty covers manufacturing defects in materials and workmanship, which occur within the duration of the warranty period.

This Warranty does not cover-

1. Any incidental, indirect, or consequential loss, damage or expense that may result from any defect, failure or malfunction of the warranted product.
2. Any failure that results from an accident, purchaser's abuse, neglect, use in association with corrosive chemical or solvents, operation in excess of stated maximum working pressure and temperature or failure to operate and maintain the warranted product.
3. Items or service that is normally required to maintain the product (eg. Reseal inner surface)
4. Any product not actually manufactured by Larsens. Components supplied with the tank are covered by their respective manufacturers warranties. Larsens obligation shall consist only of passing on to the Customer any warranty indemnification payment actually received by Larsens from the original manufacturer so far as Larsens is permitted to do so.

Responsibilities of Larsens are to-

Repair or replace at Larsens option the affected concrete tank that has failed as a result of faulty manufacture, within the duration of the warranty period. If repair or replacement is not feasible, Larsens may at its option refund the purchase price.

Responsibilities of Purchaser are to-

1. Provide access to the concrete tank. Travel costs or any costs associated with providing access to the tank, if incurred must be borne by the purchaser.
2. Use reasonable care in the operation and maintenance of the product
3. Report any faults within 30 days of becoming aware of the defect so that it can be remedied with a minimum of fuss and costs.
4. for warranty service, send a written description of the defect with a copy of your invoice to-

Larsens Concrete
437 Heads Road
Castlecliff,
Wanganui 4501



Building Code Clause(s)

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on the reverse side)

ISSUED BY: BUMI RESOURCES LTD (Design Firm)

TO: LARSENS CONCRETE & DRAINAGE (Owner/Developer)

TO BE SUPPLIED TO:

IN RESPECT OF: LARSENS ELE 10000 LITRE WATER TANK (Description of Building Work)

AT:

..... LOT..... DP..... SO.....

We have been engaged by the owner/developer referred to above to provide STRUCTURAL DESIGN TO REINFORCED CONCRETE TANK services in respect of the requirements of

Clause(s) 6.7 of AS/NZS 1546.1:1998 of the Building Code for

All or Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

Compliance Documents issued by Department of Building & Housing (verification method / acceptable solution) OF

Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled..... and numbered..... together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions
- (ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code.

I, DAVID MCKELLOAN am: CPEng #

(Name of Design Professional)

Reg Arch #

I am a Member of: IPENZ NZIA and hold the following qualifications:

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000.

The Design Firm is a member of ACENZ YES NO

SIGNED BY: [Signature] ON BEHALF OF BUMI RESOURCES LTD (Design Firm)

Date: 15/2/2010 (signature) DAVID MCKELLOAN

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.

This form is to accompany Form 2 of the Building (Forms) Regulations 2004 for the application of a Building Consent.

Submersible jet pump GPS-X-AJE

Application

Self-priming jet water pumps with a very high hydraulic performance and a considerable pressure capacity. Able to operate at suction lifts of up to 8 metres, and work perfectly even in aerated water. Suitable for submerged or surface installation. Typically this pump is used to pressurise the water supply into to small dwellings or pump water from retention tanks into reuse systems from underground water storage tanks.

Suitable for use as a domestic pressure system in-conjunction with or without a small pressure tank a electronic flow control system automatically switches the pump on and off as water is demand request.

Special Features

- Built in pump control system, no external control system required for automatic operation
- Built in run dry protection
- Built in self test sequence every 72 hours
- Adjustable starting pressure, preset to 2.2bar

Operating conditions

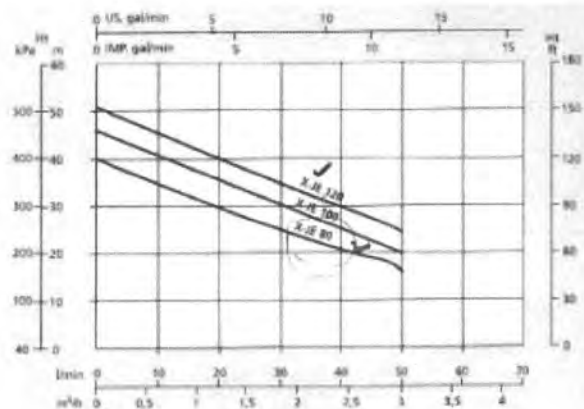
- Liquid temperature between 2 and 37°C
- Ambient temperature up to 40°C
- Total suction lift up to 8m
- Pumped liquid to be free of solids and abrasives

Motor

- Two pole induction motor (2850rpm)
- Water cooled, by pumped liquid
- Insulation - class F
- Protection IP68

Materials

- Pump body - stainless steel 304
- Motor body - stainless steel 304
- Back bracket - stainless steel 304
- Shaft - stainless steel 416
- Impeller - stainless steel 304
- Diffuser - techno-polymer
- Mechanical seal - silicon/silicon
- Power cable - 10m
- Electronic board with microprocessor
- Flow sensor with cobalt Samario magnets



Technical Data GPS-X-AJE

Type	Voltage	Power P ₂		Capacitor		Full load current	Capacity (litres per minute)							
		kW	Hp	uF	Volt		Amps	L/m	0	10	20	30	40	50
X-AJE080	230	0.60	0.8	16	450	4.5	Total Head (metres)							
X-AJE100	230	0.75	1.0	18	450	5.3	H (m)	40	33	30	24	20	15	
X-AJE120	230	0.90	1.2	20	450	5.9		47	40	35	30	25	20	5
								51	45	40	34	30	24	8

000041

RECEIVED

28 MAY 2014

BY:

Product

1.1 AquaBlok Interior Waterproofing Membranes are single and two part waterproofing membranes for use under ceramic or stone tile finishes in internal wet areas.



BRANZ Appraised
Appraisal No.724 [2011]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 724 (2011)**

Amended 31 January 2012

AQUABLOK INTERIOR WATERPROOFING MEMBRANES

Construction Technologies
Australia Pty Ltd
2 Prime Drive
Seven Hill 2147
NSW
Australia

Tel: +61 2 9674 1004
Fax: +61 2 9674 2002



BRANZ
BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



CTA™
CONSTRUCTION
TECHNOLOGIES
AUSTRALIA



Aqua Blok

Scope

2.1 AquaBlok Interior Waterproofing Membranes have been appraised for use as waterproofing membranes for internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particleboard, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by ceramic or stone tile finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360th of the span.

2.2 The use of AquaBlok Interior Waterproofing Membranes on concrete slabs where hydrostatic or vapour pressure is present from below is outside the scope of this Appraisal.

2.3 Movement and control joints in the substrate must be carried through to the tile finish. The design and construction of the substrate and movement and control joints is specific to each building, and therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.

2.4 The ceramic or stone tile finishes are outside the scope of this Appraisal.

2.5 The membranes must be installed by trained applicators, approved by Construction Technologies Australia Pty Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, AquaBlok Interior Waterproofing Membranes if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. AquaBlok Interior Waterproofing Membranes meet this requirement. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating AquaBlok Interior Waterproofing Membranes will meet this requirement. See Paragraphs 11.1- 11.6.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. AquaBlok Interior Waterproofing Membranes meet this requirement and will not present a health hazard to people.

This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Materials supplied by Construction Technologies Australia Pty Ltd are as follows:

AquaBlok SBR

- AquaBlok SBR is a styrene-butadiene copolymer-based, one-part, ready-to-use, liquid-applied membrane supplied as a thixotropic paste in 4 and 15 litre pails.

AquaBlok 2 Part

- AquaBlok 2 Part is a quick drying, latex based, two-part, flexible, cementitious-based, liquid-applied membrane. It is supplied as AquaBlok Part A liquid in 10 litre pails and AquaBlok Part B powder in 15 kg bags. When dry, the membrane is light grey in colour.

Eco Prime WB Primer

- Eco Prime WB is a synthetic, latex based liquid which is used for priming a variety of substrates prior to the application of the AquaBlok Waterproofing Membranes. It is supplied in 5 litre and 20 litre containers.

Elasto-Joint Bandage and Corners

- Elastomeric bond-breaker tapes are used at movement and expansion joints, and elastomeric formed corner sections for use at internal and external corner wall/floor junctions as set out in the Technical Literature. The tapes are available in rolls 50 m long x 120 mm wide. The corner sections are approximately 150 mm long and are available for internal corner/floor junctions (90°) and external corner/floor junctions (270°).

Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and out of freezing conditions. The membrane products have a shelf life of 12 months from date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the AquaBlok Interior Waterproofing Membranes. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

7.1 AquaBlok Interior Waterproofing Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.

7.2 The membranes must be protected from physical damage by the application of ceramic or stone tile finishes.

7.3 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ "Good Practice Guide Tiling".

7.4 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

Substrates

Plywood

8.1 Plywood must be a minimum of 17 mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3 (CCA treated). **LOSP treated plywood must not be used.** The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction and fixed with 10 g x 50 mm stainless steel countersunk head screws at 150 mm centres on the edges and 200 mm through the body of the sheets.

Fibre Cement Compressed Sheet / Fibre Cement Sheet Tile Underlay

8.2 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area substrate. Fibre cement sheet tile underlay must be suitable for use in internal wet areas. Installation must be in accordance with the instructions of the manufacturer.

Particleboard

8.3 Particleboard must be specified for the end use in accordance with NZS 3602.

Concrete and Concrete Masonry

8.4 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101, concrete slab-on-ground to NZS 3604, and concrete masonry to NZS 4229 and NZS 4230.

Wet Area Wall Linings

8.5 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.

8.6 Fibre cement sheet must be suitable for use in wet areas.

Durability

Serviceable Life

9.1 AquaBlok Interior Waterproofing Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design service life of 15-25 years.

Maintenance

10.1 No maintenance of the membranes will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grouts and sealants.

10.2 In the event of damage to the membranes, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.

10.3 Drainage outlets must be maintained to operate effectively, and ceramic or stone tile finishes must be kept clean.

Internal Moisture

11.1 AquaBlok Interior Waterproofing Membranes are impervious to water and when appropriately designed and installed will avoid the likelihood of water penetrating behind linings or entering concealed spaces.

11.2 AquaBlok Interior Waterproofing Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of Code Compliance for overflow is given in NZBC Acceptable Solution E3/AS1 Paragraph 2.

11.3 Surfaces must be finished with ceramic or stone tile finishes. A means of Code Compliance to NZBC Clause E3.3.3 and E3.3.4 is given in NZBC Acceptable Solution E3/AS1 Paragraph 3.1.1 (b), 3.1.2 (b) and 3.3.1 (b).

11.4 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1500 mm out from the shower rose. Floor wastes and drainage flanges must be provided and the floor must fall to the outlet.

11.5 The waterproofing membranes must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, BRANZ "Good Practice Guide Tiling", and flooring and wallboard manufacturers.

11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must flash over the membrane a minimum of 30 mm.

Installation Information

Installation Skill Level Requirement

12.1 Installation of the membranes must be completed by trained applicators, approved by Construction Technologies Australia Pty Ltd.

12.2 Installation of substrates must be completed by tradespersons with an understanding of internal wet area construction, in accordance with instructions given within the Construction Technologies Australia Pty Ltd Technical Literature and this Appraisal.

Preparation of Substrates

13.1 Substrates must be dry, clean and stable before installation commences. With surfaces that are even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.

13.2 The relative humidity of the concrete must be 75% or less before membrane application. Concrete substrates can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 424.

13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have reinforcing mesh installed as set out in the Technical Literature.

13.4 Porous substrates must be primed with Eco Prime WB Primer and allowed to dry fully before the membranes are installed.

Membrane Installation

14.1 Installation must not be undertaken where the substrate surface temperature is below 5°C or above 35°C.

14.2 AquaBlok Part B liquid and AquaBlok Part A powder must be mixed and left to stand for 5 minutes before re-mixing, then applying. AquaBlok must be thoroughly stirred before application.

14.3 The membranes must be applied in a minimum of two coats at the rates set out in the Technical Literature to give a total minimum finished thickness of 1.2 mm. Subsequent coats must be applied in an opposite direction to the previous coat.

14.4 Application can be made by roller (medium/long nap), brush (long bristle), or a non-edge serated flat steel trowel.

14.5 In all situations, reinforcement provisions as set out in this Appraisal and the Technical Literature apply.

14.6 Clean up may be undertaken with water.

Tiling

15.1 The membranes must be fully cured before tiling. The cured membranes must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.

15.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Tiling Practice Guide. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or Construction Technologies Australia Pty Ltd.

Inspections

16.1 Critical areas of inspection are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the membrane.
- Acceptance of the substrate by the membrane installer prior to application of the membrane.
- Installation of the membrane to the manufacturer's instructions, particularly installation to the correct thickness and use of reinforcement.

- Membrane curing and integrity prior to the installation of tiles including protection from mechanical damage during curing and prior to tile installation.

Health and Safety

17.1 Safe use and handling procedures for the membranes are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

18.1 The following testing of AquaBlok Interior Waterproofing Membranes has been undertaken by the following organisations:

- Amdel Limited, Australia – water absorption; tensile strength and elongation; shore A hardness; water vapour transmission; accelerated weathering and low temperature flexibility.
- CSIRO, Australia – mass per unit area and gravimetric thickness; tensile strength and elongation at break; tensile strength and elongation at break after UV exposure, including immersion in water, bleach and detergent; loss on heating; moving joint test and cyclic strain.

Test methods and results have been reviewed by BRANZ and found to be satisfactory.

18.2 The following testing of AquaBlok Interior Waterproofing Membranes has been undertaken by Amdel Limited, Australia – wet area durability testing in accordance with AS/NZS 4858 covering immersion in water, bleach, detergent, and heat ageing; UV ageing; water absorption; low temperature flexibility and water vapour transmission. Test methods and results have been reviewed by BRANZ and found to be satisfactory.

18.3 Although not required by the standard AS/NZS 4858 as water vapour transmission testing had already shown compliance, additional testing of AquaBlok Interior Waterproofing Membranes was also undertaken by Amdel Limited for suitability over particleboard in accordance with AS/NZS 4858, Appendix C, and found to be satisfactory.

Test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of AquaBlok Interior Waterproofing Membranes by BRANZ technical experts.

19.2 Site inspections were carried out by BRANZ to examine the practicability of installation.

19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

20.1 The manufacture of the membranes has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

20.2 The quality management system of the membrane's manufacturer has been assessed and found to be satisfactory.

20.3 The quality of supply to the market is the responsibility of Construction Technologies Australia Pty Ltd.

20.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and the substrates.

20.5 Quality on site is the responsibility of the trained applicators, approved by Construction Technologies Australia Pty Ltd.

20.6 Building owners are responsible for the maintenance of the ceramic tiles in accordance with the instructions of Construction Technologies Australia Pty Ltd.

Sources of Information

- AS 2908.2: 2000 Cellulose-cement products - flat sheet.
- AS 3740 – 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 1991 Guide to the installation of ceramic tiles.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2008 Plywood - Structural.
- AS/NZS 4858 - 2004 Wet area membranes.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3602: 2003 Timber and wood-based products for use in buildings.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229:1999 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230:1990 Code of practice for the design of masonry structures.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.
- Good Practice Guide Membrane Roofing, BRANZ , October 2003.



BRANZ

In the opinion of BRANZ, AquaBlok Interior Waterproofing Membranes are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Construction Technologies Australia Pty Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. Construction Technologies Australia Pty Ltd:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
 - d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by Construction Technologies Australia Pty Ltd.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Construction Technologies Australia Pty Ltd or any third party.

For BRANZ

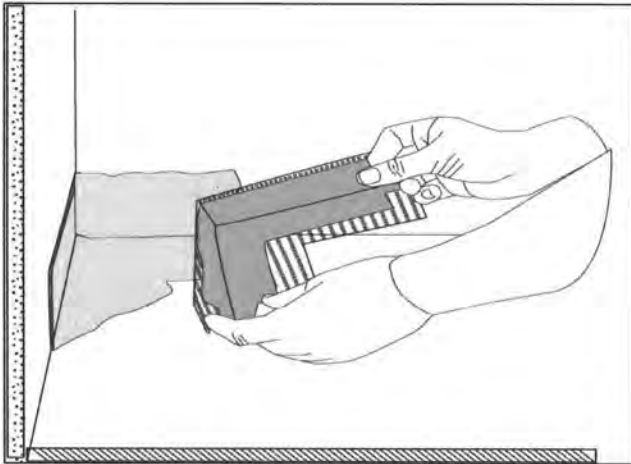
P Burghout
Chief Executive

Date of issue: 5 April 2011

Amendment No. 1, dated 31 January 2012.

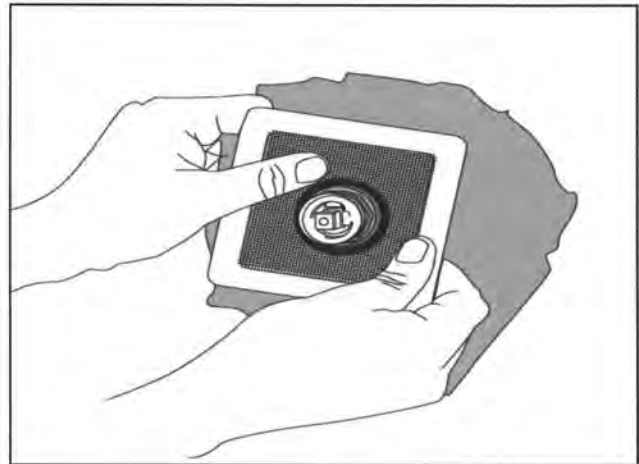
This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011.

Aqua Blök



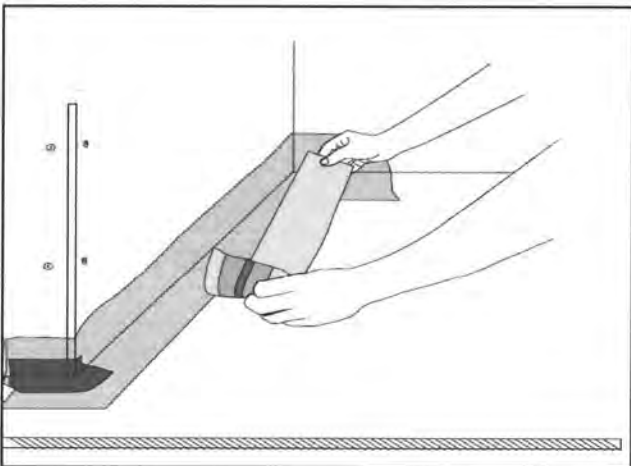
Aqua Blok Elasto-Joint Corners

Aqua Blok Elasto-Joint Corners provides a superior, flexible long term sealing protection for internal 90° and external 270° corner intersections. Aqua Blok Elasto-Joint Corners offer a simplified solution over other sealing methods at critical corner intersections. Elasto-Joint Corners are used in conjunction with the Elasto Joint Band to ensure a flexible, seamless elastic seal.



Aqua Blok Elasto-Tap Sleeve

Aqua Blok Elasto-Tap Sleeves provide simple, effective sealing around penetrations including pipes, drainage outlets, and cabling by creating a permanent tight, flexible waterproof seal.



Aqua Blok Elasto Joint Band

The Aqua Blok Elasto-Joint Band provides long term protection at volatile joint intersections and movement zones. Constructed of high strength flexible rubber compound, the Aqua Blok Elasto Joint Band is rupture, chemical and water resistant, and can accommodate movement over joints with up to 95% elastic recovery. As an approved bondbreaker system conforming to AS 3740 The Aqua Blok Elasto-Joint Band provides for a simplified, superior sealing method at volatile areas whilst offering time saving efficiencies over conventional bond breaking tapes, foam rods, and sealants.

RECOMMENDED FOR

- Wall/floor junctions.
- Movement and expansion Joints.
- Sheeting/substrate abutments
- Corner intersections
- Pipe penetrations, drainage outlets
- Internal and external applications
- As an approved bond breaker for use in areas covered by AS3740-2010.

PRODUCT FEATURES

- * Approved bond breaker system in accordance with AS 3740
- * Easy, time saving application
- * Superior sealing system over traditional bond breaking methods
- * Superior movement capabilities - able to withstand movement in both longitudinal and lateral directions.
- * Made from a unique high strength rubber with excellent water, chemical and rupture resistance



APPLICATION

1. Apply a liberal coat AquaBlok SBR or AquaBlok 2-Part membrane to internal and external corner intersections approximately 150mm wide.
2. Embed Aqua Blok Elasto-Joint Corners into wet membrane, ensuring full saturation of the fabric edges. Remove any air pockets, voids or creases that may have formed behind the fabric edges using a brush or spatula.
3. Measure and cut AquaBlok Elasto-Joint Band for all wall/floor junction areas. Ensure Joint Band is measured to allow for a minimum 50mm overlap onto AquaBlok Elasto-Joint Corners
4. Apply a liberal coat of AquaBlok SBR or AquaBlok 2-Part membrane to the surface approximately 150mm on walls and floors at the junction.
5. Embed AquaBlok Elasto-Joint Band into wet membrane, ensuring full saturation of the fabric edges. Remove any air pockets, voids or creases that may have formed behind the fabric edges using a brush or spatula.

IMPORTANT

- * When installing the Aquablok Elasto Joint Band, ensure enough wet membrane is applied behind the band to achieve proper adhesion to substrate.
- * Joint Band must be bedded into a wet film of waterproofing membrane. Do not allow membrane to skin or dry before bedding in position
- * Lengths of AquaBlok Elasto-Joint Band are to be overlapped and adhered a minimum of 50mm onto AquaBlok Elasto-Joint Corners using the selected AquaBlok membrane
- * After installation of the bandage and corners, total area may be covered over with AquaBlok WPU, AquaBlok SBR or AquaBlok 2 Part waterproofing membranes.

PACKAGING

AquaBlok™ Elasto-Joint Band
120mm x 50m roll

AquaBlok™ Elasto-Joint Corner
100mm x 100mm
10 x units per carton

AquaBlok™ Elasto-Tap Sleeve
120mm x 120mm
10 x units per carton

LIMITATIONS

- * AquaBlok Elasto-Joint Band must not be used over joints greater than 20mm wide.
- * AquaBlok Elasto-Joint Band must not to be used over joints with expected movement greater than 50% of the original joint width.
- * AquaBlok Elasto-Joint products must only be used in conjunction with AquaBlok SBR, AquaBlok WPU and AquaBlok 2 Part waterproofing membranes.
- * AquaBlok Elasto-Joint products must not be used with any solvent based membranes or coatings.
- * AquaBlok Elasto-Joint is not designed as an exposed joint sealant for external applications
- * Contact **CTA Technical Department** for further information.

GUARANTEE

CTA Pty Ltd guarantees this product for 12 years provided the application is in accordance with the manufacturer's written directions for use and the Australian Standard for waterproofing AS3740-2010 "Waterproofing of domestic wet areas.". The representations and recommendations regarding the products are based on tests which CTA believes to be reliable. However, no guarantee of their accuracy can be made because of the great range of field conditions and variations encountered in raw materials, manufacturing equipment and methods. Thus the products are sold with a limited warranty only and on the condition that the purchasers will make their own tests to determine the suitability of the product for their particular purposes. Under no circumstances will CTA Pty Ltd be liable to anyone except for replacement of the products or refund of the purchase price.

QUEENSLAND

70 Platinum Street Crestmead QLD 4132
PO Box 1135 Browns Plains BC QLD 4118
T : (07) 3489 3000
F : (07) 3489 3099

NEW SOUTH WALES

2 Prime Drive (Cnr Powers Road) Seven Hills
NSW 2147
T : (02) 9674 1004
F : (02) 9674 2002

WESTERN AUSTRALIA

Unit 2 / 51 Wittenberg Drive
Canning Vale WA 6155
T : (08) 9256 1074
F : (08) 9256 1076

SOUTH AUSTRALIA

PO Box 872
Brighton SA 5048
T : (08) 8387 2356
F : (08) 8387 9268

Aqua Blok

PRODUCT HIGHLIGHTS

- Low VOC content
- Permanently flexible - accommodates cracking in substrate
- Excellent adhesion to a wide variety of substrates
- Dries to a keyed finish to promote adhesion with tile adhesives
- Single pack
- Quick drying
- Safe and easy to use
- No priming required
- Designed for use with a 12mm bond-breaker



BEST FOR:

- Shower recesses
- Bathroom floor areas
- Laundries
- Kitchens
- Balconies
- Patios
- Steel (suitably primed)
- Concrete, cement render, plaster
- Wet area wall lining board
- Hardie/CSR sheet flooring
- Brick
- Light weight aggregate block
- Plasterboard, MDF
- Plywood sheet flooring

Aqua Blok is a waterborne flexible waterproof membrane designed for use under tiled finishes that is capable of accommodating expected structural movement.

SURFACE PREPARATION

All surfaces to be waterproofed must be firm, clean, dry, sound and smooth. All grease, oil, wax, curing compounds, dust, droppings, loose material, paint and any other contaminants must be removed. Fibrous cement sheeting, water resistant plasterboard, marine ply and level 3 treated ply must be fixed in accordance with the manufacturer's installation directions. Concrete must be allowed to cure for 28 days and cement render and sand / cement screeds must be allowed to cure for 7 days prior to the application of Aqua Blok. Porous substrates must first be primed using an appropriate water based primer. Damp or moist substrates and dense non - porous substrates must be primed using "Aqua Blok Epoxy Seal".

Apply an appropriate neutral cure silicone as a bond breaker to the wall/wall joints, the wall/floor joints, and wherever there is a change in the direction of the substrate. All sheet joints and fixings must also be filled with neutral cure silicone before applying a coat of Aqua Blok over all sheet joints, extending 100mm either side of the joints.

Static crack treatment

For cracks less than 1mm, clean thoroughly before filling with an appropriate neutral cure silicone. Aqua Blok cannot span gaps. For dynamic cracks/expansion joints and control joints contact the CTA Technical Department for further advice.

APPLICATION - Internal Wet Areas

Aqua Blok must be applied using a brush or roller.

A minimum thickness of 1mm dried film thickness of Aqua Blok is required for optimum waterproofing properties. The surface onto which Aqua Blok is applied must be continuous. Aqua Blok cannot span gaps. A minimum of two coats of Aqua Blok is required.

Shower Recesses

Apply Aqua Blok to the internal vertical corners of the shower using a brush extending at least 100mm either side of the joint. Ensure the corner is well coated. This must extend past the height of the shower rose. It is important to coat around the tap protrusions in the wall. The wall/floor joint must be coated with Aqua Blok. The membrane must extend onto the floor at least 100mm and onto the wall 100mm. Aqua Blok must extend a minimum of 25mm above the height of the hob. The walls should then be coated. Once the wall/wall junctions, wall/floor junctions, tap protrusions and walls are coated, then the shower floor must be coated. When coating the floor, the Aqua Blok must be dressed down into the floor waste a minimum of 50mm. The floor must be coated with the Aqua Blok ensuring a minimum dry film thickness of 1mm is achieved. Apply a final coat to ensure there are no imperfections in the membrane.

manufactured by:



Queensland
70 Platinum Street
Crestmead QLD 4132
T 07 3489 3000
F 07 3489 3099

South Australia
T 08 8387 2356
F 08 8387 9268

New South Wales
118A Long Street
Smithfield NSW 2164
T 02 9756 0066
F 02 9756 0060

www.ctaustralia.com.au

Walls of Wet Areas (excluding joints)

Aqua Blok must be applied at 0.5 litre per M² per coat. The minimum dry film thickness must be a minimum of 0.5mm.

Floors of Wet Areas

Apply Aqua Blok to the wall/floor joints and sheet flooring joints and fixings using a brush, extending at least 100mm either side of the joints. Once these areas are dry, the entire floor area can be coated. Sufficient Aqua Blok must be applied onto the surface to achieve a 1mm dried film thickness. Aqua Blok must be applied at 1 litre per M² per coat. Two coats are required.

Roofs

Aqua Blok is recommended as a waterproofing membrane for non-trafficable areas. Application is recommended as for "Floors of Wet Areas". There must be sufficient falls for effective drainage to eliminate ponding.

DRYING

Allow 4 – 6 hours between coats. Allow 48 hours to dry prior to tiling. Allow longer in adverse weather conditions.

CLEAN UP

Clean tools and equipment with warm water and detergent while the membrane is still wet.

PACKAGING

15 litre plastic pails

COVERAGE

Floors - 2 litres per M² at 1mm dry film thickness

Walls – 1 litre per M² at 0.5mm dry film thickness

TILING

Use an appropriate CTA Pty Ltd recommended tile adhesive

SHELF LIFE

Unopened pails can be stored for up to 12 months in a cool, dry and weatherproof environment. Bags must be stored off the floor.

SAFETY DIRECTIONS

CTA supports best practice in material handling: gloves, mask, safety goggles and protective clothing should be worn. If the product comes into contact with the skin, wash off with warm soapy water. Avoid inhaling the dust by wearing a suitable dust mask and provide adequate ventilation. If swallowed drink plenty of water and seek medical advice. In case of contact with the eyes, rinse with an eye wash or wash away with plenty of water.

FIRST AID

If poisoning occurs, contact a Doctor or Poisons Information Centre (Phone Australia: 13 11 26, New Zealand: 0800 764 766). EMERGENCY INFORMATION: 1800 033 111 (ALL HOURS). SEE THE MATERIAL SAFETY DATA SHEET FOR ADDITIONAL INFORMATION.

LIMITATIONS

- Aqua Blok is not designed to stop a hydrostatic head of water pressure
- Aqua Blok must not be used over damp, wet or contaminated substrates
- Aqua Blok must not be applied if it is raining or if rain is imminent
- Aqua Blok must not be applied directly over protective coatings
- Aqua Blok must not be applied over the recommended coverage of 1 litre per m²
- To eliminate possible surface contamination or damage, it is recommended that tiling be carried out as soon as the membrane has cured
- Timber and particleboard flooring must be overlaid with fibrous cement sheeting
- Aqua Blok must not be used as a wearing surface for foot or vehicle traffic
- Aqua Blok must only be used as recommended
- Do not apply where the surface temperature is below 10°C or greater than 35°C

GUARANTEE

CTA Pty. Ltd. guarantee this product for 12 years provided application is in accordance with manufacturer's written directions for use and the Australian Standard for Tiling Practice (AS3958.1-2007). The representations and recommendations regarding the products are based on tests which we believe to be reliable. However, no guarantee of their accuracy can be made because of the great range of field conditions and variations encountered in raw materials, manufacturing equipment and methods. Thus, the products are sold with a limited warranty only, and on the condition that purchasers will make their own tests to determine the suitability of the product for their particular purposes. Under no circumstances will CTA Pty Ltd. be liable to anyone except for replacement of the products or refund of the purchase price.

manufactured by:





RIBRAFT® TECHNICAL MANUAL

CBI 3100/3111/3112/4711

JAN 2012



This Manual consists of three Sections:

Section 1: Firth RibRaft Floor System Design Information

Section 2: Firth RibRaft Floor System Installation Information

Section 3: Firth RibRaft Floor System Verification

Section 1 contains information principally useful for the specifier or building designer. Section 2 is primarily aimed at the person on site installing the Firth RibRaft Floor system. While Section 3 describes the required verification checks.

This document contains design and installation information. A variation to any of the information given requires specific engineering design and is hence beyond the scope of this document.

Firth RibRaft Floor System can be constructed for all slab-on-ground concrete floors for domestic or residential buildings that fall within the scope of NZS 3604:2011 “Timber Framed Buildings” and Clause 3 “Scope” of Section 1 of this Manual. The design and installation details in this Manual shall be used to design and construct such a floor.

The Firth RibRaft Floor System is covered by the DBH Codemark®. This is conditional on the system being used as described in CertMark Australasia certification decision, which in turn requires design in accordance with Section 1 and installation in accordance with Section 2 of this Manual and on site Verification in accordance with Section 3.

Note that a DBH Codemark means that if this manual is rigidly followed the relevant Building Control Authority will automatically provide a building permit without the need for producer statements. To comply with the manual does mean that Firth Concrete must be used.

CONTENTS

SECTION 1

1	GENERAL.....	4
2	TECHNICAL DESCRIPTION	4
2.1	Overview	4
2.2	Pods.....	4
2.3	Steel.....	4
2.4	Concrete.....	4
3	SCOPE	5
3.1	Structure Limitations	5
3.2	Live Loading	6
3.3	Dead Loading	6
3.4	Building Types	6
3.5	Foundation Soils	6
3.6	Flow Diagrams.....	6
4	CONSTRUCTION DETAILS.....	8
4.1	Pod Layout.....	8
4.2	Edge Beam Width and Reinforcement..	9
4.3	Internal Ribs (non load bearing) Width and Reinforcement	9
4.4	Internal Ribs (load bearing) Width and Reinforcement.....	9
4.5	Mesh Reinforcement	9
4.6	Re-entrant Corners	9
5	LATERAL RESISTANCE	10
5.1	Earthquake Resistance.....	10
5.2	Wind Resistance	10
5.3	Shear Keys	11
6	OTHER DESIGN DETAILS.....	11
6.1	R-Values.....	11
6.2	Shrinkage Control	12
6.3	Services Detailing	12

SECTION 2

1	GENERAL	15
2	SITE REQUIREMENTS.....	15
2.1	General	15
2.2	Temporary Excavations.....	15
2.3	Surface Water	15
3	INSTALLATION PROCEDURE	16
3.1	Site Preparation	16
3.2	Earthworks.....	16
3.3	Shear Keys	16
3.4	Plumbing and Services	16
3.5	Sand Blinding	17
3.6	Damp Proof Membrane	17
3.7	Edge Formwork	17
3.8	Laying the Pods and Spacers	17
3.9	Reinforcing Steel.....	18
3.9.1	Edge Beam Steel	18
3.9.2	Rib Steel.....	18
3.9.3	Mesh Reinforcing	19
3.9.4	Re-entrant Corner Steel	19
3.10	Concrete Installation.....	19
3.10.1	Placing.....	19
3.10.2	Finishing	19
3.10.3	Curing.....	20
3.11	Shrinkage Control Joints.....	20
3.12	Removal of Formwork	20
3.13	Brick Veneer.....	20
3.14	Landscaping/Paving.....	20
3.15	Ongoing Maintenance	20
4	SHEAR KEYS	20

SECTION 3

1	DESIGN	22
2	CONSTRUCTION	22

FIRTH RIBRAFT FLOOR SYSTEM

SECTION 1: DESIGN INFORMATION

1 GENERAL

This Section of this Manual contains design information not requiring specific engineering input for the Firth RibRaft Floor System (the system). Full information on the installation procedures is described in Section 2 of this Manual (Installation Information). Where Standards are referenced in this manual, these shall include the latest amendments.

2 TECHNICAL DESCRIPTION

2.1 Overview

The Firth RibRaft Floor System is a reinforced concrete waffle raft floor slab-on-ground. It consists of an 85mm thick slab supported by a grid of ribs normally 100mm wide at 1200mm x 1200mm centres. The overall depth is 305mm. Edge beams and ribs under load bearing walls are 300mm wide to provide for the extra load carried by these members. Where heating coils of less than 25mm diameter are embedded in the topping, the slab concrete thickness shall be 110mm meaning the overall thickness is 330mm.

2.2 Pods

Firth RibRaft polystyrene pods 1100mm square and 220mm thick are placed directly on levelled ground and are arranged in such a way as to form a reinforced concrete floor slab with a grid of reinforced concrete ribs and edge beams when concrete is placed onto them. Pods may be cut to suit specific architecture layout and also to accommodate services. (300mm thick pods are available if needed for deeper edge beams and internal ribs for construction following specific engineering design. Such uses are outside the scope of this document.)

2.3 Steel

Reinforcing steel in the slab shall consist of Welded Reinforcing Mesh complying with AS/NZS 4671:2001 with a minimum weight of 2.27kg/m², a lower

characteristic stress of 500MPa, square configuration of orthogonal bars between 150 to 300mm centres, and ductility class L or E, hereafter referred to as "665 mesh, or mesh". The reinforcing bars in the ribs and edge beams shall conform to AS/NZS 4671:2001 "Steel Reinforcing Materials". Specifically designed spacers are used to position the polystyrene pods and the rib and edge beam reinforcing steel bars in a secure manner until the concrete is placed. The reinforcing mesh is held in place by mesh chairs. Conventional timber or steel formwork is used to form the edge of the slab.

2.4 Concrete

One of the following Firth concrete products shall be used in the system:

- 1) Raftmix – a 20MPa 100mm slump structural mix available in either a 13mm or more usually a 19mm nominal aggregate size. This mix is normally placed in the floor straight from the concrete truck chute and if necessary by wheelbarrow over planks set up over the pods.
- 2) Raftmix Pump – a 20MPa 100mm slump pump mix available in either a 13mm or more commonly a 19mm nominal aggregate size. The selection of aggregate size may be determined either by the capability of the available concrete pump or by the concrete placer's preference.

The exception being for buildings constructed in the 'sea spray zone' (i.e. within 500m of the sea including harbours, within 100m of tidal estuaries or inlets, on offshore islands and elsewhere as defined as exposure zone D in 4.2.3.3 of NZS3604) in which case one of the following Firth concrete products shall be used in the system:

- 1) Raftmix25 – a 25MPa 100mm slump structural mix available in either a 13mm or more usually a 19mm nominal aggregate size. This mix is normally placed in the floor straight from the concrete truck chute

and if necessary by wheelbarrow over planks set up over the pods.

- 2) Raftmix Pump25 – a 25MPa 100mm slump pump mix available in either a 13mm or more commonly a 19mm nominal aggregate size. The selection of aggregate size may be determined either by the capability of the available concrete pump or by the concrete placer's preference.

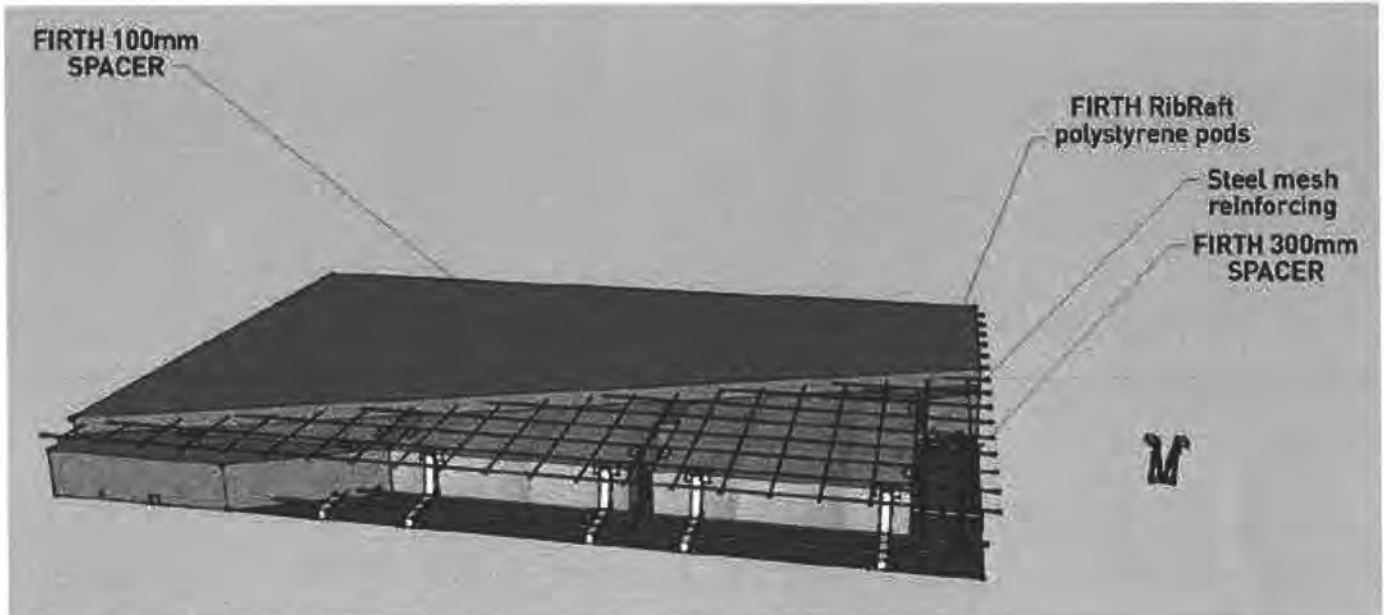


Figure 1 *The RibRaft System*

3 SCOPE

This Clause sets out the limitations that apply to the use of the system to ensure that specific engineering input is not required. The concrete floor slab for buildings or ground conditions that do not meet this scope must be subjected to specific engineering design to comply with the requirements of the New Zealand Building Code.

3.1 Structure Limitations

Specific engineering input shall not be required only where the structure supported by the system complies with the following criteria:

- The structure supported by the system is constructed in a location where the Seismic Hazard Factor Z (defined in NZ1170.5) is less than or equal to 0.45 (refer to figure 6).
- The system is laid level, and is not stepped.
- The structure supported by the system has no basement, part basement or foundation walls.
- The total height from the lowest ground level to the highest point of the roof shall not exceed 10m.
- The structure supported by the system has a roof pitch limited to 60 degrees maximum from the horizontal.
- The maximum height of each storey of the structure supported by the system is 3m.
- Only ground floor walls of the structure supported by the system are permitted to be "heavy external walls" (as defined in Clause 3.3).
- The roof truss span shall be less than or equal to 12m when the roof and ceiling loads are supported entirely by the external walls.
- Where internal load bearing walls are used to support the roof or floors, the loaded dimensions stated in Tables 8.2 and 14.10 of NZS3604:2011 shall apply, and the load bearing wall shall be supported on a 300mm wide load bearing rib as detailed in this manual.
- Floors may be of unlimited size provided that the maximum dimension between free joints shall not exceed 30m. Where free joints are required they should be detailed in accordance with NZS3604:2011.

3.2 Live Loading

The live loading cases of structures covered by these designs are:

- 1.5kPa and 3.0kPa as per NZS 3604:2011 "Timber Framed Buildings".
- 13kN concentrated load in garage over area of 0.3 x 0.3m (vehicle limited to 2500kg gross).

3.3 Dead Loading For Use With This Manual

The dead load cases of structures covered by these designs are:

- Light external walls with total mass not exceeding 60kg/m² – e.g. timber framing with weather boards and interior wall linings.
- Heavy external walls with total mass greater than 60kg/m² but not exceeding 290kg/m² – e.g. timber framing with masonry veneer or partially filled 20 series masonry blocks.
- Internal walls with total mass not exceeding 45kg/m² – e.g. timber framing and linings.
- Light roofs with total mass not exceeding 45kg/m² – e.g. ceiling linings and metal roof, including framing.
- Heavy roofs with total mass greater than 45kg/m² but not exceeding 85kg/m² – e.g. ceiling lining and concrete tiles or slates, including framing.
- Mid-floors with total mass not exceeding 60kg/m² – e.g. timber framing and flooring, including ceiling linings.
- Heavy internal walls and/or load bearing internal walls supported on a load bearing rib.

3.4 Building Types

The designs given in this Manual are limited to where the system supports Building Types A to D as described in Table 1. The classification of wall weights is as detailed in Clause 3.3 of this Section. Single and two storey shall be as defined in NZS 3604:2011.

Table 1 Building Identifier

Building Type	Description	Ground Floor External Walls	Second Storey External Walls
A	Single Storey	Light	
B	Single Storey	Heavy	
C	Two Storey	Light	Light
D	Two Storey	Heavy	Light

3.5 Foundation Soils

The system may be used when the supporting ground meets the definitions of "good ground" given in Section 3 of NZS 3604:2011: (as modified by B1 of the Building Compliance Documents). In addition, the system shall not be used for damp sites i.e. where it can be reasonably expected that the ground water level could come within 600mm of the underside of the system. The acceptability of the ground shall be verified in accordance with Clause 3.1.3 of NZS 3604:2011.

Where the ultimate bearing capacity required of the supporting ground is verified by Scala Penetrometer testing in accordance with Clause 3.3 of NZS 3604:2011. The bearing capacity shall be considered adequate when the number of blows per 300mm depth of penetration below the underside of the system at each test site, exceeds the values given in Table 2 below. For RibRaft foundations compliance with Table 2 allows ultimate bearing capacities of less than 300kPa. However, with the exception of bearing capacity all other requirements in NZS3604:2011 for "good ground" shall be complied with.

Table 2 Scala Penetrometer Blows Required For Determining Ultimate Bearing Capacity

Building Type	Min. blows per 300mm depth
A	6
B	7
C	8
D	9

3.6 Flow Diagrams

The flow diagrams on the following pages (adapted from NZS 3604:2011) will help in determining whether the non-specific details for the system can be used for the purposes of the concrete floor slab construction. There are two checks in the process. The first is to determine whether the proposed building complies with the requirements set out in this Manual (Building Check), and the second is to determine whether the site complies with the requirements set out in this Manual (Site Check).

(Note: NZS 3604:2011 provides for parts of buildings

to be considered as individual buildings. These flow diagrams apply to those parts of the building where slab-on-ground is being considered and where the part of the building can be considered as an individual building under NZS 3604:2011).

Figure 2 Building Check Flow Diagram

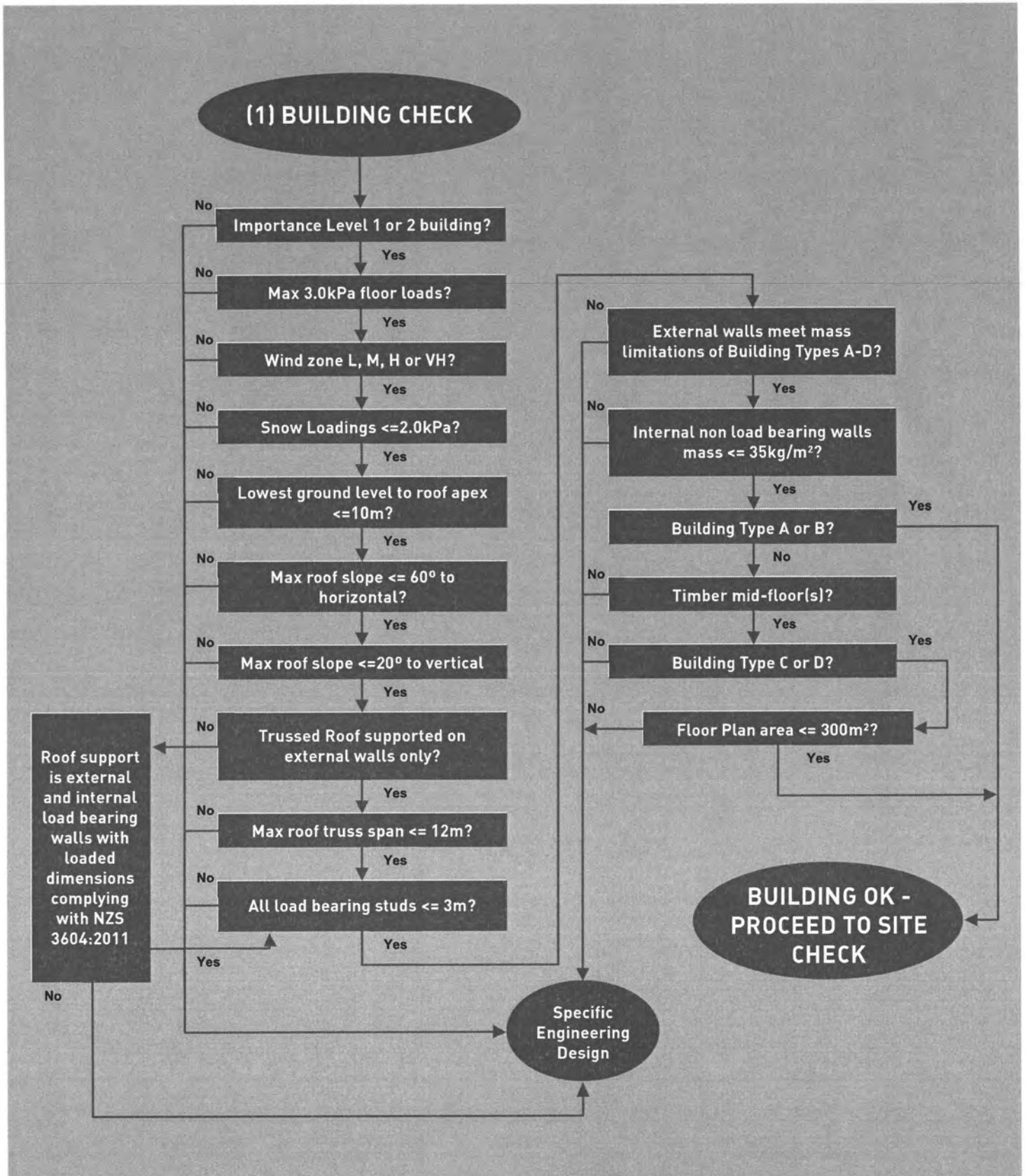
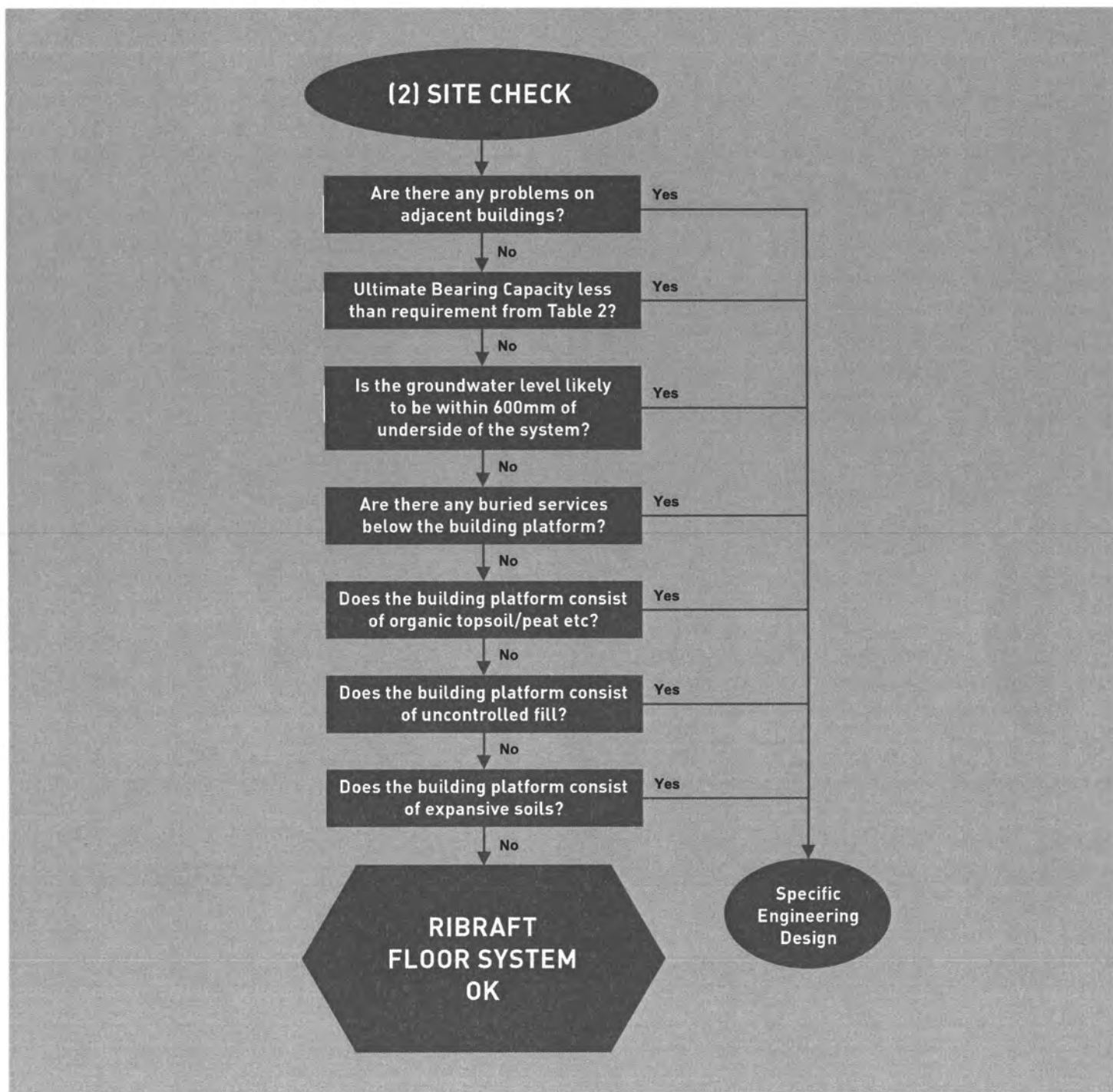


Figure 3 Site Check Flow Diagram



4 CONSTRUCTION DETAILS

Standard construction details for the system are provided here for buildings that fall within the above scope.

4.1 Pod Layout

RibRaft polystyrene pods supplied by Firth (1100 x 1100 x 220mm thick) shall be placed on levelled ground and arranged in a waffle pattern. The pods are used as void formers while the concrete is curing. These pods are an integral component of the system and shall not be substituted.

Pods shall be placed so as to provide the necessary spacing between the edge beams and ribs as described below. The first rib out from the edge beam shall have a maximum clear separation of 1100mm however in all other cases the centre to centre distance between the ribs, whether they are 100mm or 300mm wide, shall be 1200mm. In the case of 100mm ribs this centre to centre spacing is achieved by the 1100mm square pods however between 100mm and 300mm ribs, or between two 300mm ribs, the pods shall be cut down to suit. Pods may be cut down to size but shall not be added to, where this is necessary to suit the building layout,

penetrations or orientation of beams and ribs.

Figure 4 below shows a typical layout of the pods and ribs. Note the part pods around the edge, where the building shape dictates, and adjacent to the 300mm rib.

Firth suggests that when drawing the building plan, a generic RibRaft grid (100mm wide ribs at 1200mm centres) is set out using the corner of the building as a starting point. The location of any load bearing ribs are identified and pods cut to establish 300mm wide ribs. The most cost effective solution being a simple grid layout which requires minimum cutting of the pods. Ribs can be used at less than 1200mm centres, however it is more cost effective to use the 1200mm centres wherever practicable.

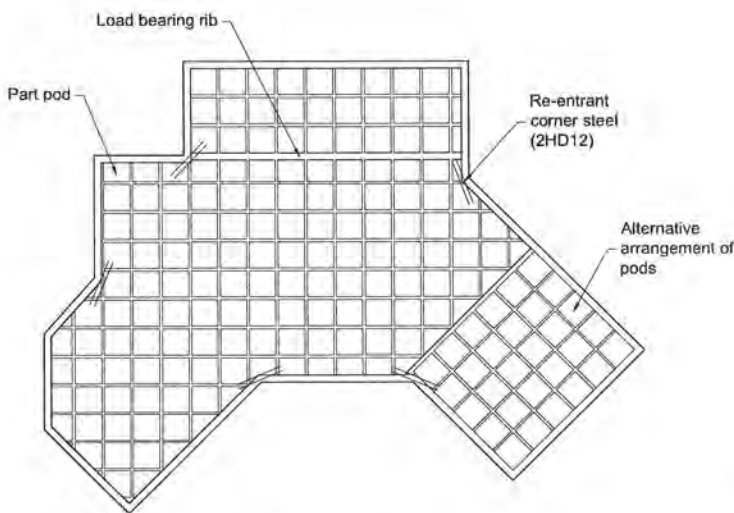


Figure 4 Typical RibRaft Plan

4.2 Edge Beam Width and Reinforcement

Edge beams around the perimeter of the floor slab shall be 300mm to provide bearing capacity for external load bearing walls, and contain 2-HD12 bars (Grade 500E) as bottom steel and 1-HD12 bar (Grade 500E) in the top. This top bar shall be tied to the underside of the reinforcement mesh. Refer Figure 5, below for construction details. The edge beam shall be rebated for brick veneers where necessary as shown in Figure 5(C).

4.3 Internal Ribs (non load bearing) Width and Reinforcement

Each standard internal rib shall be 100mm wide and shall contain 1-HD12 steel bar (Grade 500E) held in place at the bottom of the rib by a Firth spacer. Refer Figure 5E for construction details.

4.4 Internal Ribs (load bearing) Width and Reinforcement

For all load bearing walls and heavy internal walls, the pods shall be cut to create a 300mm wide rib directly under the load bearing wall, with 2-HD12 (Grade 500E) steel bars as bottom steel. Refer Figure 5(D) for construction details under load bearing walls.

Where the load bearing ribs meet and terminate at an edge beam or internal rib the bottom reinforcement from the load bearing rib shall be bent into the adjacent rib and tied together. The reinforcement shall lap for at least 720mm.

4.5 Mesh Reinforcement

The entire floor slab shall be reinforced with 665 Mesh supported on 40mm mesh chairs sitting on the polystyrene pods.

4.6 Re-entrant Corners

In order to limit cracking at the re-entrant, or internal corners, extra steel shall be placed on top of the mesh. These shall be 2-HD12 bars (Grade 500E), 1200mm long tied to the top of the mesh at 200mm centres, with 50mm cover from the internal corner – refer Figure 4.

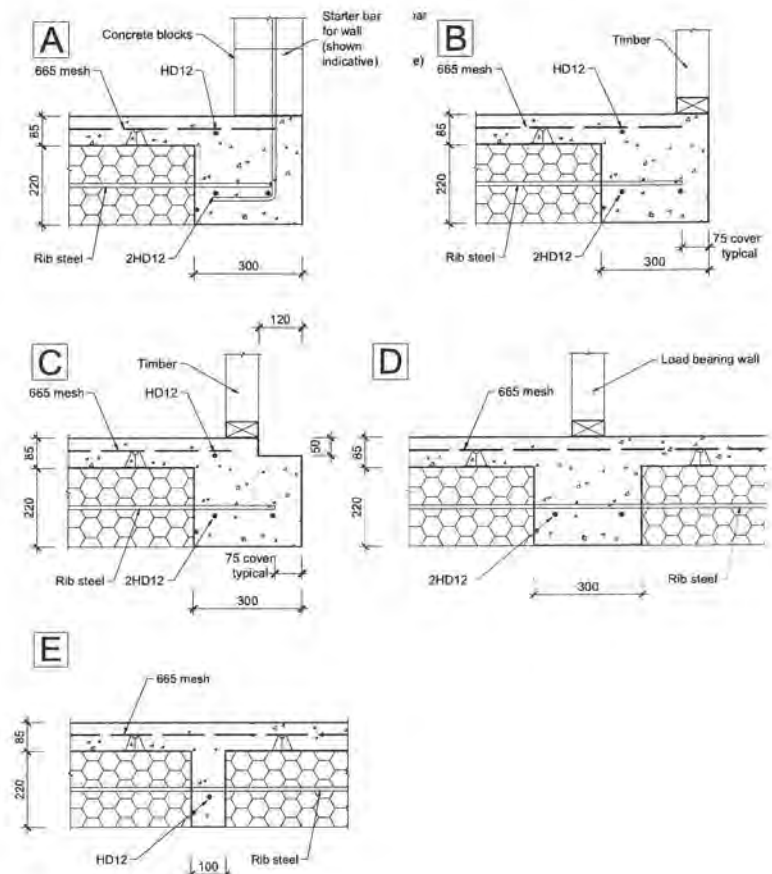


Figure 5 Standard RibRaft Construction Details

5 LATERAL RESISTANCE

5.1 Earthquake Resistance

Unlike conventional foundation systems, the Firth RibRaft system is not embedded into the ground. Sliding resistance to horizontal seismic loads is provided by frictional contact with the soil.

In locations where the Seismic Hazard Factor, Z is greater than 0.45, shear keys may be required to resist seismic loads. Such buildings require specific engineering design and are outside the scope of this document. Refer to figure 6.

Depending on the wind zone and the weight of the building elements this frictional resistance may not be sufficient to provide sliding resistance to wind loads, and specific shear keys may be required, as detailed in clause 5.2.

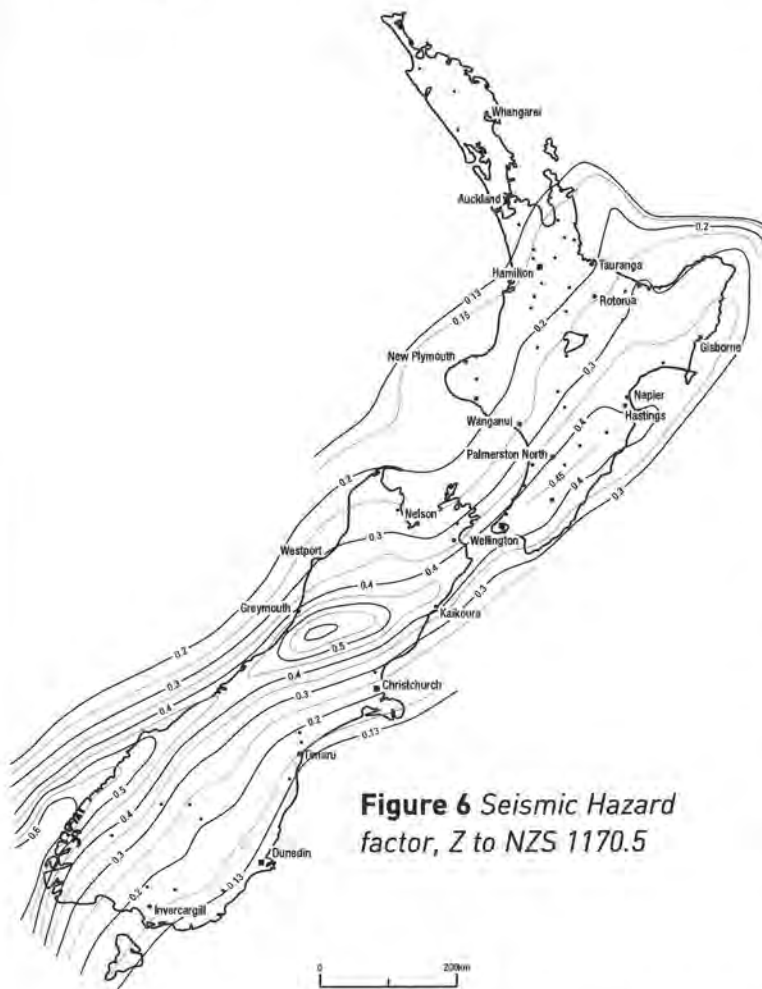


Figure 6 Seismic Hazard factor, Z to NZS 1170.5

For the purposes of this Manual, the ground shall be classified as clay or sand according to the following descriptions:

Clay: retains shape when moulded under hand pressure; may stick to boots and hands; cracks and becomes hard, but retains shape, when dried in direct sunlight; and when dug with a spade the cut vertical surface stands.

Sand: Individual particles visible to the unaided eye; when dry will run through the fingers and forms a conical mound if poured; when moist quickly dries out under direct sunlight; and when dug with a spade the vertical surface does not stand for long.

5.2 Wind Resistance

The building's bracing demand from wind loading shall be assessed from Section 5 of NZS 3604:2011 for both directions (i.e. along and across the building). The bracing capacity of the system must exceed the greater of the bracing demands determined.

The bracing capacity of the system shall be determined as the sum of the bracing capacity provided by frictional resistance (i.e. friction between the system and the ground) and the bracing capacity provided by the shear keys (if any) necessary to meet the requirements of Clause 5.2.

The bracing capacity provided by frictional resistance shall be determined from Table 6 depending on the building type, roof weight, and floor live loading.

The bracing capacity provided by the shear keys shall be the sum of the bracing capacity of the individual shear keys determined as follows. If the shear key is in clay, each shear key shall be considered to contribute 170 BU's. If the shear key is in sand, each shear key shall be considered to contribute 200 BU's.

If the bracing capacity of the system, determined from the frictional resistance and the shear keys as described above, is less than the bracing demand further shear keys shall be added until the bracing demand is met.

Building Type	Roof Type	BUs provided per 100m ² for live loading of:	
		1.5kPa	3.0kPa
A	Light	1150	1267
A	Heavy	1267	1383
B	Light	1800	1917
B	Heavy	1917	2033
C	Light	1617	1833
C	Heavy	1717	1950
D	Light	2267	2483
D	Heavy	2367	2600

Table 6 Bracing Capacity provided by Frictional Resistance per 100m² of ground floor area.

5.3 Shear Keys

Shear key piles required by Clause 5.2 must be uniformly distributed around the perimeter of the building, and be located at the edge beam/internal rib junction. Where a shear key is required, the minimum number of shear keys shall be two per floor plan. Where two shear keys are used they shall be placed at diagonally opposite ends of the floor plan.

Construction details of the shear keys shall be as shown on Figure 7 below. Shear keys shall be a minimum of 900mm long. The holes shall be over-drilled at least 100mm and a polystyrene RibRaft Shear Key Support placed into the bottom of each hole. This will support only the plastic (wet) concrete and then allow movement of the shear key if settlement of the supporting ground occurs. The effective end bearing of the shear keys is therefore eliminated.

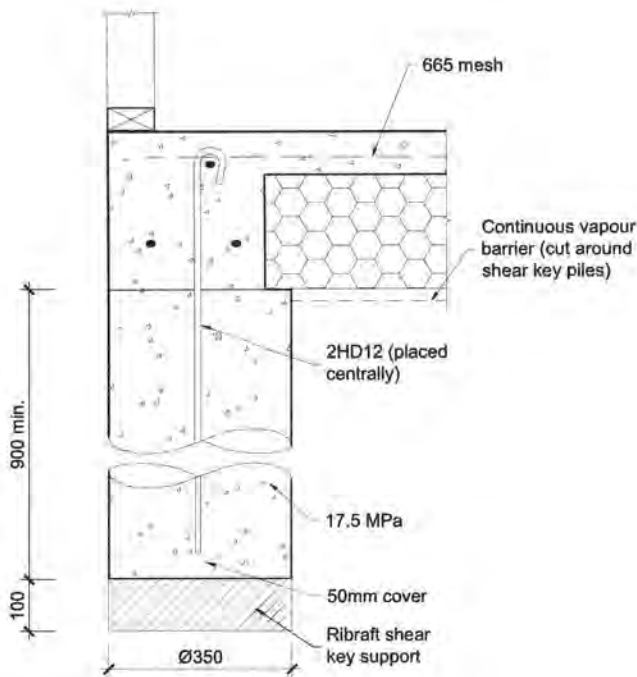


Figure 7 RibRaft Shear Key

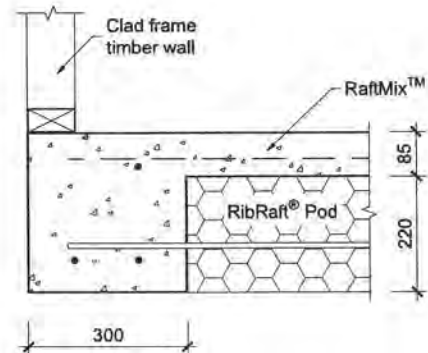
6 OTHER DESIGN DETAILS

6.1 R-Values

The insulation performance of a building element is measured by the "R-Value". The schedule method is the simplest method to achieve compliance with Clause H1 of the Building Code. Using this method the minimum R-Values required for floors are R1.3 for light timber frame construction, and typically R1.5 for masonry construction. R values of R1.3 can be used for masonry construction if glazing with greater insulation is used (refer NZBC, Clause H1). If in-floor heating is used the

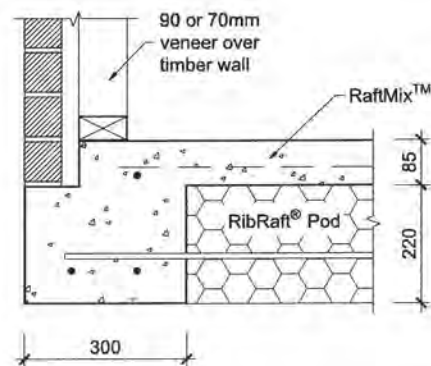
minimum required R-Value is increased to R1.9, and the resistance to thermal movement into the room must be one tenth of that to the outside environment.

The R-Value of a RibRaft floor is dependent on the floor area to perimeter ratio, and the details of the floor perimeter. The R-Value for various solutions are illustrated below. The R-Values have been independently calculated using NZS4214:2006 "Methods of Determining the Total Thermal Resistance of Parts of Buildings," though modified for perimeter heat loss using recommendations from the Building Research Establishment.



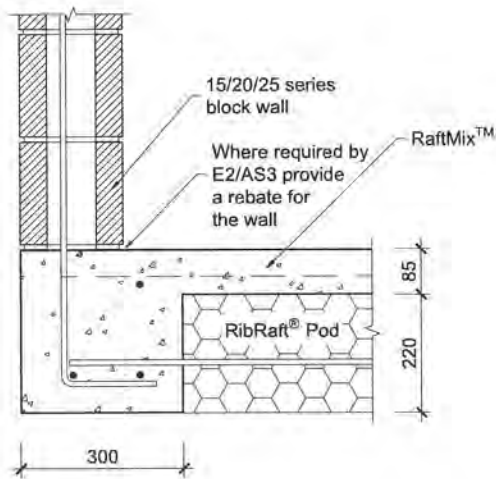
R-value m ² °C/W	Floor Area To Perimeter Ratio m ² /m									
	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
	1.48	1.52	1.64	1.75	1.86	1.97	2.07	2.17	2.38	2.57

Figure 8 RibRaft R-Values for 90mm thick walls on the floor edge.



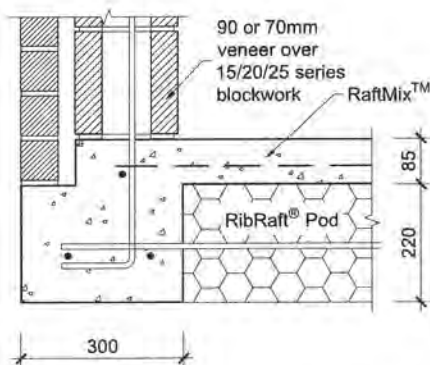
R-value m ² °C/W	Floor Area To Perimeter Ratio m ² /m									
	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
	1.54	1.67	1.80	1.93	2.05	2.17	2.28	2.40	2.62	2.84

Figure 9 RibRaft R-Values for 70-90mm thick veneer, cavity, and 90mm walls.



R-value $m^2 \text{ } ^\circ\text{C/W}$	Block	Floor Area To Perimeter Ratio m^2/m									
		1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
	15 series	1.48	1.60	1.73	1.85	1.96	2.08	2.19	2.30	2.51	2.72
	20 series	1.54	1.67	1.80	1.93	2.05	2.17	2.28	2.40	2.62	2.84
	25 series	1.59	1.73	1.86	1.99	2.12	2.24	2.37	2.49	2.72	2.95

Figure 10 RibRaft R-Values for various thicknesses of masonry walls.



R-value $m^2 \text{ } ^\circ\text{C/W}$	Block	Floor Area To Perimeter Ratio m^2/m									
		1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
	15 series	1.59	1.73	1.86	1.99	2.12	2.24	2.37	2.49	2.72	2.95
	20 series	1.64	1.78	1.92	2.06	2.19	2.32	2.44	2.56	2.81	3.04
	25 series	1.69	1.83	1.98	2.11	2.25	2.38	2.51	2.64	2.88	3.12

Figure 11 RibRaft R-Values for 70-90mm thick veneer, cavity, and various thicknesses of masonry walls.

6.2 Shrinkage Control

Shrinkage control joints reduce the risk of unwanted cracks, and their placement needs to be carefully considered where cracking could be unacceptable. Factors to consider are the type of floor finish, the location of ribs and ground beams, underfloor heating and the effect of piles restraining shrinkage. Shrinkage control joints shall be saw cut after hardening. The saw cuts shall be cut to a depth of 25mm and shall be cut no later than 24 hours. The shrinkage control joints shall be positioned to coincide with major changes in floor plan. Where the concrete is to be exposed, or brittle covering placed over, the maximum intermediate bay sizes shall be limited to 6m.

Bay dimensions formed by shrinkage control joints shall be limited to a maximum ratio of length:width of 2:1.

Shrinkage control joints shall be placed over 100mm wide internal ribs wherever possible. Where a shrinkage control joint runs along the line of a 300mm wide load bearing rib then the joint shall be located directly above one edge of the 300mm rib.

Supplementary reinforcing using 2-HD12 bars (Grade 500E) shall be used at all re-entrant corners as shown on Figure 4. These bars shall be 1200mm long, 200mm apart, tied to the top of the mesh, with 50mm side cover and shall not be placed across any shrinkage control joints.

6.3 Services Detailing

Ideally, services ducts shall be conveyed underground to their plan location then brought up through the polystyrene pod and the concrete floor slab, but this may not always be possible. Services shall not be placed within any concrete except to cross that section of concrete i.e. services shall not run along ribs or edge beams.

The maximum diameter of the services shall be as outlined in Table 7.

Table 7 Maximum Diameter of Pipe Services

Element	Vertical Services	Horizontal Services
300mm wide edge beam	50mm in a duct 50mm larger diameter than pipe	50mm in a duct 50mm larger diameter than pipe unless detailed as per note 2
500mm localised wide edge beam ⁽¹⁾	100mm in a duct 50mm larger diameter than pipe	50mm in a duct 50mm larger diameter than pipe, see note 2
300mm wide internal load bearing rib	50mm in a duct 50mm larger diameter than pipe	50mm in a duct 50mm larger diameter than pipe, see note 2
100mm wide internal rib	Nil	50mm in a duct 50mm larger diameter than pipe, see note 2
Slab	110mm in a duct 50mm larger diameter than pipe or for large services 450mm square ⁽⁴⁾ see also note 2.	Nil

Notes

(1) For situations where a 100mm diameter pipe is required to pass through the edge beam, the edge beam shall be locally increased in width to a minimum of 500mm wide. This shall be achieved by keeping flush the outside face of the edge beam and removing 200mm from the pod. The width shall remain at 500mm for a distance of 600mm beyond the service pipe. Refer to figure 12 for details.

(2) The need for a duct 50mm larger than the service diameter can be deleted when the pipe work does not cross the interface between the bottom of the RibRaft system and the ground at any point along its length. An example would be services laid within the plane of the pods and passing through the edge beam and discharging to a gully trap or similar. In these cases the diameter of the service can be increased to a maximum of 100mm and a service duct is not required. The pipe work shall be wrapped in denso tape where it crosses concrete elements to prevent adhesion between the concrete and pipe work.

(3) Where a gas pipe line runs through the RibRaft floor system, in addition to the requirements above, the pipeline shall enter the building through the outside face of the perimeter foundation beam and be located in the plane of the pods. The aim being to ensure that damage to the gas pipe will most likely occur outside the building envelope should movement occur between the ground and RibRaft in a large earthquake.

(4) Larger penetrations or voids up to 450mm square (e.g. for shower waste/traps) are permitted through the slab provided all the conditions of this paragraph are met. These openings shall be trimmed with 1 HD12 (Grade 500E) bar 1500mm long placed along each side of the opening, tied to the mesh. One set of parallel bars shall be placed on top of the mesh and the other set placed under

the mesh. These openings shall not be placed over a rib or edge beam. If necessary, the rib spacing shall be reduced or the pod layout altered to ensure that the opening occurs solely in the slab above a polystyrene pod. Penetrations such as these shall not be installed in garages or other areas where large (>3kN) point loads could be present. Only one penetration greater than 110mm is permitted in the slab above any single pod or part pod. Where two large openings are required to be in close proximity, an internal rib shall separate them. For these large penetrations/voids in the slab, the services shall not be within 25mm of the edges of the void through which they pass, and the opening shall be sealed to prevent materials entering the subfloor cavities. (This type of opening is normally only required for a shower waste/trap and the installation of the shower will ensure that the void is sealed/covered).

Any services crossing ribs or the edge beam horizontally shall be placed only within the middle third of the member. Except as noted in figure 12, services crossing the ribs vertically shall also be constrained to the middle third of the width of the edge or internal load bearing rib. Except as noted in figure 12 at no stage shall any of the reinforcement bars be relocated or cut to allow for the services (it is acceptable, however to cut the mesh). In some instances this will dictate the location of the ribs. The pods shall be cut to allow for this and if necessary, the spacing of the ribs shall be decreased locally. There shall be 600mm minimum clear spacing in each direction between penetrations through the system.

Except as noted in table 7, all services shall be placed centrally within an opening 50mm greater in diameter than the service duct/pipe, where they pass through the system. This is to allow seismic tolerances to reduce the probability of shearing of the services during a seismic event. Where the services pass through the slab, the opening shall be sealed to prevent materials entering the subfloor cavities. (This can be achieved with Denso tape

and a type of easily compressible foam). A pictorial of some of the above requirements is illustrated in figure 12:

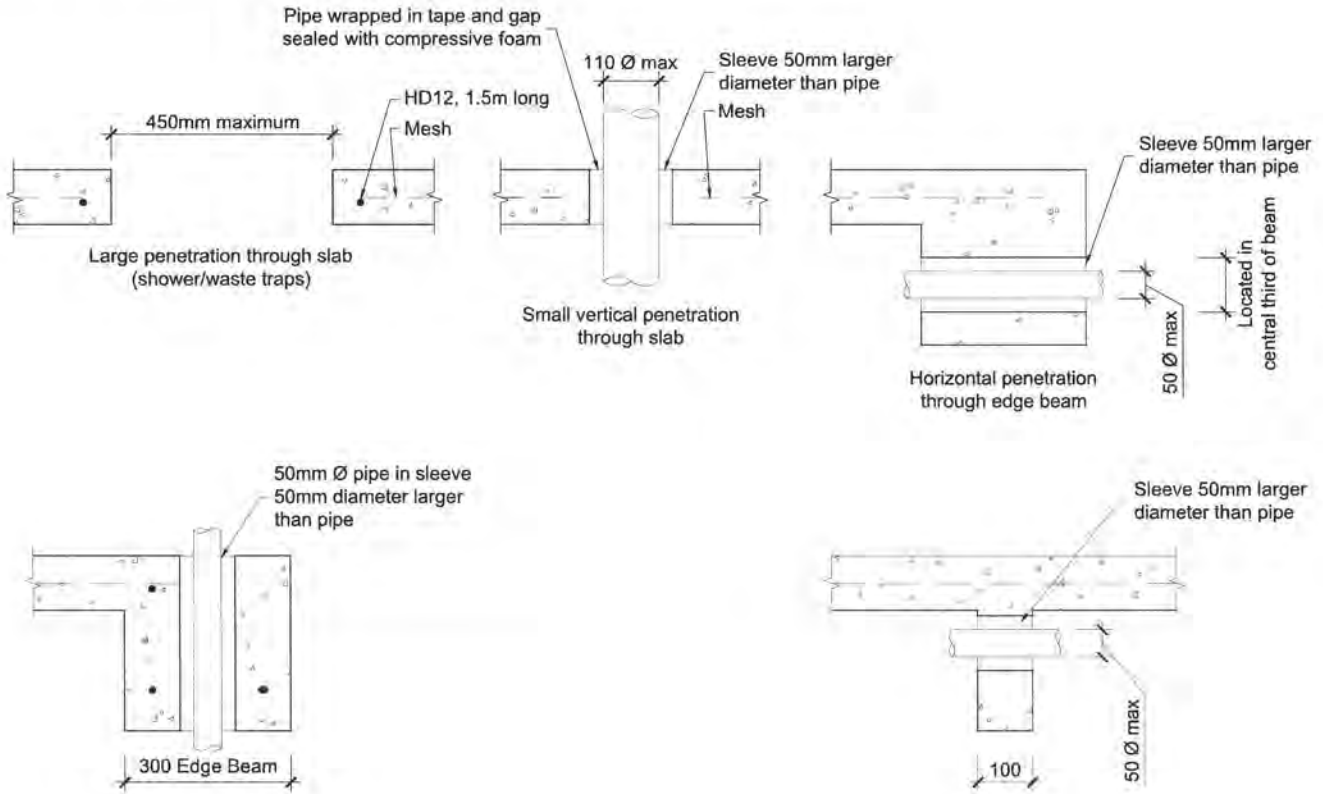


Figure 12 Example of detailing requirements for services

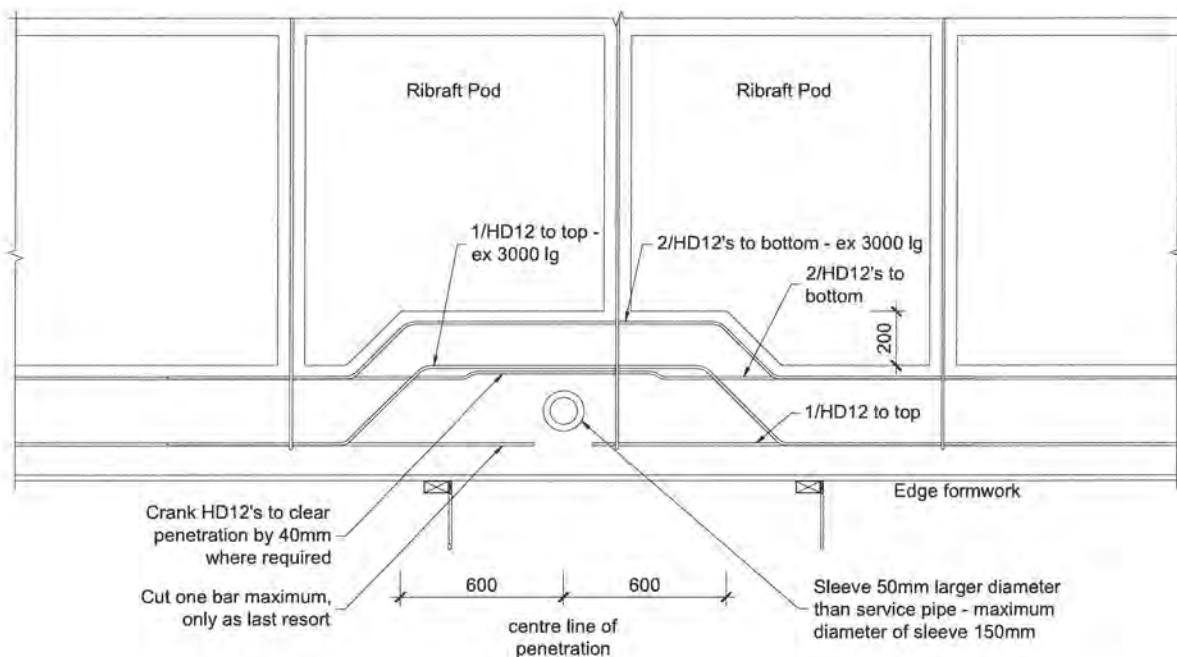


Figure 13 Localised increase in width at edge beam where vertical services up to 100mm diameter are required

FIRTH RIBRAFT FLOOR SYSTEM

SECTION 2: INSTALLATION INFORMATION

1 GENERAL

This Section details the installation information required for the Firth RibRaft Floor System (the system). Full information on the design procedures not requiring specific engineering input, and requirements for the site assessment are described in Section 1 of this Manual (Design Information). Where standards are referenced in this manual these shall include the latest amendments.

2.1 General

The site requirements of this Manual are concerned solely with the soil conditions under or immediately adjacent to the system. If a site does not comply with this Manual, the system shall be subject to specific engineering design.

This Section shall only apply for building sites such that:

- The ground is as specified in Section 1 of this Manual;
- Any system erected at the top of a slope (whether fill compacted in accordance with NZS4431, or natural ground) shall be located as shown in Figure

1 so that the finished ground is always outside the dashed line shown. (The vertical distance, V, shall be measured to 50mm below the underside of the slab).

Where the finished ground does not comply with Figure 1, the slope shall be retained by a specifically designed retaining wall.

2.2 Temporary Excavations

No excavation shall take place at a location or in a manner where the stability of the foundation material is likely to be compromised. The backfilled material shall match the compaction and strength of, and have similar properties to, the surrounding material. The sides of the excavation shall be propped as necessary.

Temporary excavations shall be open for no longer than 48 hours and shall take place only above the critical depth line as shown on Figure 2. Should temporary excavations be required below this line, specific engineering design is required.

2.3 Surface Water

Surface water from the site shall not flow across the slab platform. For example, on cut and fill sites the ground uphill from the system shall be graded to direct

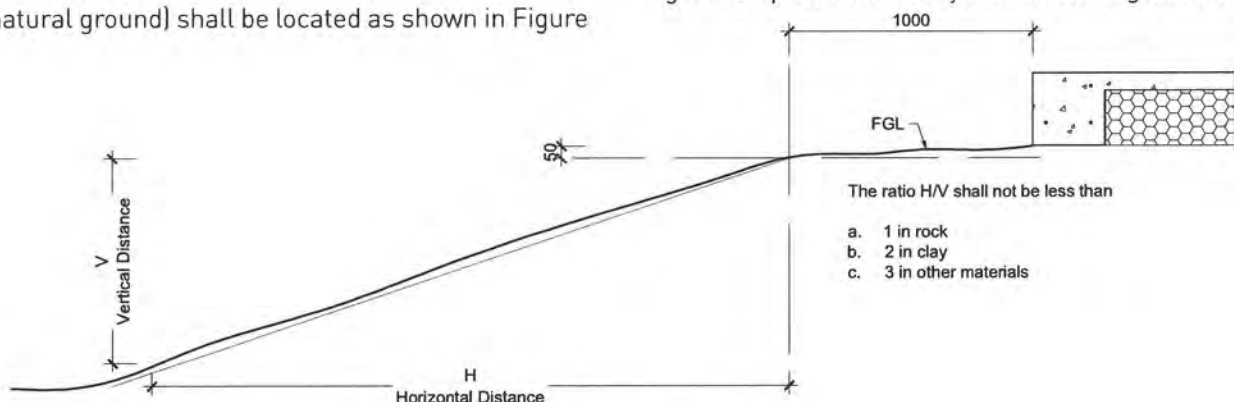


Figure 1 Relationship of RibRaft to Sloping Ground Surface

any surface run-off away from the system as shown in Figure 3.

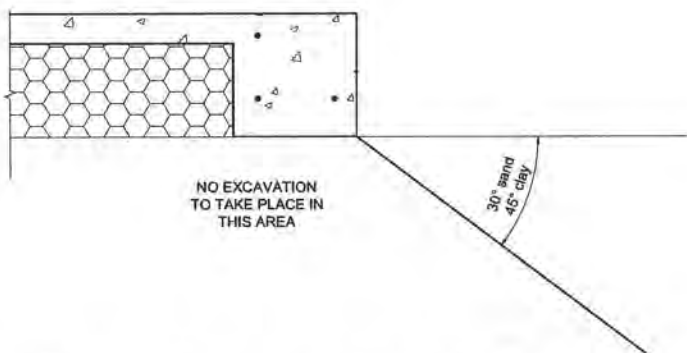


Figure 2 Temporary Excavation Limited

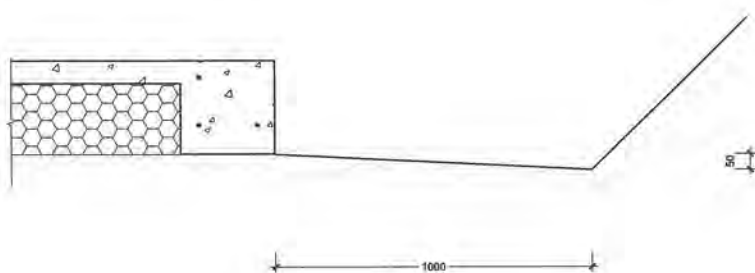


Figure 3 Site Grading

5 INSTALLATION PROCEDURE

3.1 Site Preparation

All vegetation, topsoil and other organic or deleterious material shall be removed from the area to be covered by the building [formation area] prior to commencing construction of the system.

3.2 Earthworks

The formation area shall be cut or filled to a level approximately 330mm below finished floor level. Where fill is required to achieve this level, the fill shall be certified by a geotechnical engineer (outside the scope of this Manual) or shall be granular fill in accordance

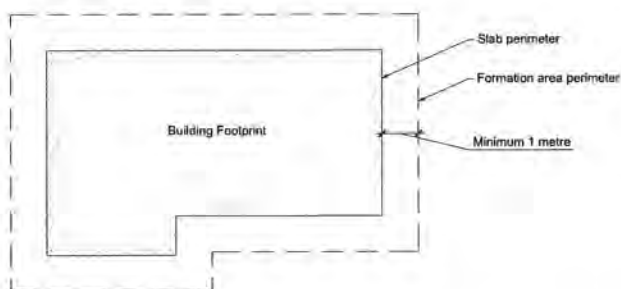


Figure 4 Plan of Formation Area

Buildings". The formation area shall also extend a minimum of 1000mm beyond the slab perimeter as shown in Figure 4 below. The installer shall confirm the acceptability of the ground over the entire building platform before proceeding with the construction. Refer to Clause 3.5 of Section 1 (Design Information) for requirements.

3.3 Shear Keys

Where shear keys are required, the holes shall be drilled following the site clearing and earthworks, in accordance with Clause 4 below, and prior to the construction of the system commencing.

3.4 Plumbing and Services

Plumbing and services required beneath the system should preferably be conveyed underground to their plan location then brought up through the system. The trenching, placing, and bedding of the pipes/ducts and the backfilling of the trenches shall conform to the requirements of the consent documentation. Services shall not be placed within any concrete except to cross that section of concrete i.e. services shall not run along ribs or edge beams. The maximum diameters of the services/ducts shall be as dictated in clause 6.3 of Section 1.

Where required, the services can be installed by removing unnecessary polystyrene and placing pipes within the pod depth. All pipes shall be held firmly in place and have temporary end covers. Any services crossing ribs or the edge beam horizontally shall be placed only within the middle third of the member. Except as noted in figure 12 (section 1) services crossing the ribs vertically shall also be constrained to the middle third of the width of the edge or internal load bearing rib. Except as noted in figure 12 (section 1) at no stage shall any of the reinforcement bars be relocated or cut to allow for the services (it is acceptable, however to cut the mesh). In some instances this will dictate the location of the ribs. The pods shall be cut to allow for this and if necessary, the spacing of the ribs shall be decreased locally. There shall be 600mm minimum clear spacing in each direction between penetrations through the system.

Except as noted in 6.3 of section 1, services shall be placed centrally within an opening 50mm greater in diameter than the service duct/pipe, where they pass through the system. This is to allow seismic tolerances to prevent shearing of the services during a seismic event. Where the services pass through the top of the system, the opening shall be sealed to prevent materials entering the subfloor cavities. (This can be achieved with Denso tape and a type of easily

compressible foam).

Larger penetrations or voids that are required, up to 450mm square (e.g. for shower waste/traps), shall be installed in accordance with all the conditions of this paragraph. These openings shall be trimmed with 1 HD12 bar (Grade 500E) 1500mm long placed along each side of the opening, tied to the mesh. One set of parallel bars shall be placed on top of the mesh and the other set placed under the mesh. These openings shall not be placed over a rib or edge beam. If necessary, the rib spacing shall be reduced or the pod layout altered to ensure that the opening occurs solely in the slab above a polystyrene pod. Penetrations such as these shall not be installed in garages or other areas where large (>3kN) point loads could be present. Only one penetration greater than 110mm is permitted in the slab above any single pod or part pod. Where two large openings are required to be in close proximity, an internal rib shall separate them. For these large penetrations/voids in the slab, the services shall not be within 25mm of the edges of the void through which they pass, and the opening shall be sealed to prevent materials entering the subfloor cavities. (This type of opening is normally only required for a shower waste/trap and the installation of the shower will ensure that the void is sealed/covered).

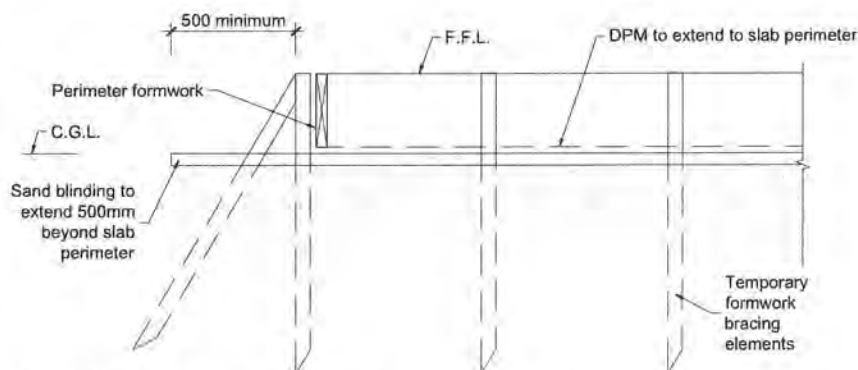


Figure 5 Sand Blinding/DPM/Formwork Details

3.5 Sand Blinding

A layer of sand shall be placed, screeded and compacted over the building platform, extending to at least 500mm beyond the system perimeter – refer Figure 5. The maximum thickness of this blinding layer shall be 50mm. The surface shall be level and a minimum of 305mm below finished floor level. A small plate compactor, vibrating roller or similar, should be used to compact the sand blinding layer. When the building platform is clay, it is essential that the blinding sand is compacted onto a clay surface that has not been softened by construction activities. If the clay has been softened (i.e. has a muddy surface layer due to construction activities), remove the softened material from under the RibRaft ribs before placing the sand. If excavation lowers the clay surface to more than 50mm

below the underside of the RibRaft, fill shall be placed in accordance with Clause 7.5.3 of NZS 3604:2011 “Timber Framed Buildings”. *The sand is required to be level to ensure that pods remain stable throughout the installation of the system.*

3.6 Damp Proof Membrane

The damp proof membrane (DPM) material shall be polyethylene sheet in accordance with NZS 3604:2011. The DPM shall be laid over the entire building platform directly on top of the sand blinding layer, extending to the outside of the edge beam – refer Figure 5 below. The joints shall be lapped not less than 150mm and sealed with pressure sensitive tape not less than 50mm wide. All penetrations of the DPM by plumbing and services or punctures during construction shall also be sealed with pressure sensitive tape. The DPM may extend beyond the edge of the slab i.e. underneath the formwork, or may be folded and stapled up the inside of the formwork. The minimum requirement is that the DPM extends to the outside of the edge beam. It is very important that the DPM is not bunched up at the formwork. The installer shall ensure a square and tidy finish at the underside and at all corners of the edge beam.

3.7 Edge Formwork

The edge formwork shall be constructed ensuring that the requirements of NZS 3109:1997 “Concrete Construction” are adhered to. The formwork shall be adequately supported and braced to prevent any buckling or warping. If the wall is to be constructed in masonry veneer, formwork for a masonry veneer rebate should be adequately fixed to the perimeter formwork.

Thorough cleaning of re-useable formwork and the use of release agents enhances the life and performance of formwork and maintains a quality surface finish.

3.8 Laying the Pods and Spacers

The Firth RibRaft polystyrene pods shall be laid out over the DPM in a regular waffle pattern ensuring direct contact with the ground across the entire pod. The edge beam shall be formed using the Firth approved 300mm spacers (refer figure 9). These shall be placed at a maximum of 1200mm centres along the perimeter of the slab and one per pod or part pod. Ribs supporting a load bearing wall shall be formed using a minimum of one Firth approved 300mm spacer along the edge of each pod or part pod.

Except where a 300mm wide rib is required, each pod or part pod shall always be separated by 100mm using a minimum of one Firth approved 100mm spacer along each edge of each pod or part pod. The ribs in both directions shall form a waffle pattern throughout the slab. It is essential that the ribs and edge beams are straight when the concrete is poured, i.e. the pods need to be lined up. Figure 6 shows a detailed layout of the pods and spacers.

Where the shape of the house plan dictates, it may be more practical to consider the floor to be made up of different segments. The pods in each segment shall be in a regular waffle pattern – refer right hand side of Figure 7. Where these segments meet, the pods shall be cut to suit and the ribs made to join. The non right-angle rib junctions created by this approach are acceptable.

Alternatively, it is also acceptable to keep the orientation of the pods constant throughout the plan and have non right-angle junctions between the ribs and edge beam – refer left hand side of Figure 7.

As can be seen from Figure 7, it is not necessary for the pods to line up perfectly with the edge beam. It is acceptable to cut the pods (i.e. use part pods).

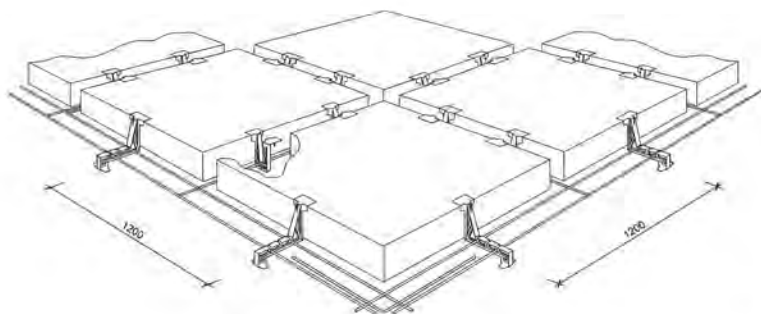


Figure 6 Detailed Layout of Pods and Spacers (mesh and top steel omitted for clarity)

3.9 Reinforcing Steel

Reinforcing bars shall conform to NZS 4671:2001 "Steel Reinforcing Materials". All bars shall be of deformed type (Grade 500E). All bends shall be made cold without fracture and in accordance with the bend diameters given in NZS 3109 "Concrete Construction". Welded lap joints are not permitted.

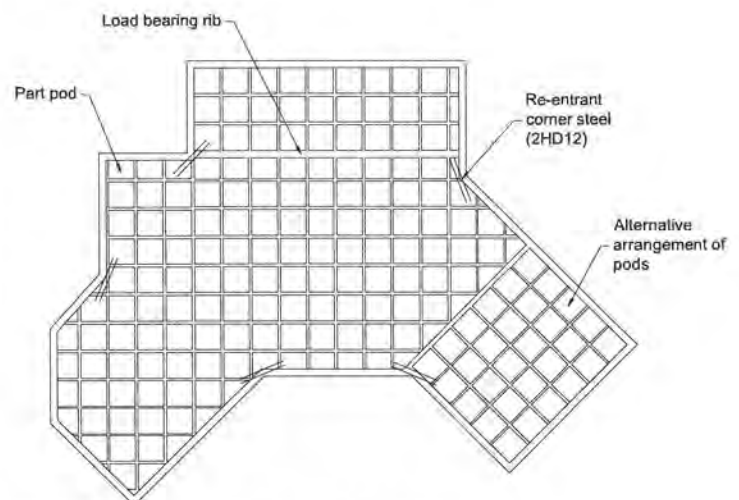


Figure 7 Typical Pod and Rib Layout

Reinforcing steel in the slab shall consist of Welded Reinforcing Mesh complying with AS/NZS 4671:2001 with a minimum weight of 2.27kg/m², a lower characteristic stress of 500MPa, square configuration of orthogonal bars between 150 to 300mm centres, and ductility class L or E, hereafter referred to as "665 mesh, or mesh".

Figure 10 shows the detailed layout of the spacers and the steel in the edge beam and the standard ribs.

3.9.1 Edge Beam Steel

Two edge beam reinforcing bars shall be placed in the bottom of the edge beam and supported in the correct position by the Firth spacers, as shown in Figure 10. One edge beam bar shall be tied below the mesh at the perimeter of the area covered by the polystyrene pods as shown in Figure 10.

All steel shall be lapped a minimum of 60 bar diameters (720mm for 12mm steel). Tying of the edge beam steel is only required at corners. Figure 8 shows the layout for the edge beam bottom steel bars at the corner. The inner bottom bars and the top bars shall cross each other and extend to 75mm from the outside face of the edge beam as shown. These bars shall be tied together where they cross.

3.9.2 Rib Steel

Rib reinforcing steel shall be placed in the bottom of the internal ribs and supported in the correct position by the Firth or Wilton Joubert spacers (WJ). Figure 9 shows the detail of the Firth and WJ spacers, and Figure 10 shows a detailed section identifying how the steel is located in the spacers. The 300mm spacer shall be used for the 300mm wide internal ribs. These spacers ensure that cover to DPM below the base is greater than 45mm and cover to the exterior perimeter is 75mm.

All steel shall be lapped a minimum of 60 bar diameters (720mm for 12mm steel). At the junction with the edge beam, each rib steel bar shall sit on top of the edge beam bars, and extend to the outermost bar. The 75mm cover to the edge of the beam shall still be allowed for. One HD12 bar (Grade 500E) shall be placed in each 100mm wide rib and two HD12 bars (Grade 500E) shall be placed in the bottom of each 300mm wide rib. For perimeter 300mm Ribs a HD12 bar is also required in the top at the beam.

3.9.3 Mesh Reinforcing

665 Mesh reinforcing shall be placed over the pods and supported on 40mm mesh chairs spaced at a minimum of 1200mm centres, with at least two mesh chairs placed per pod and at least one per part pod. The mesh shall be lapped 225mm minimum and tied at all laps.

3.9.4 Re-entrant Corner Steel

Two HD12 bars (Grade 500E), 1200mm long shall be placed across the corner, tied to the top of the mesh at re-entrant corners at 200mm centres, with 50mm cover from the internal corner as detailed in Figure 7 (this steel is to control cracking at this potential weak point).

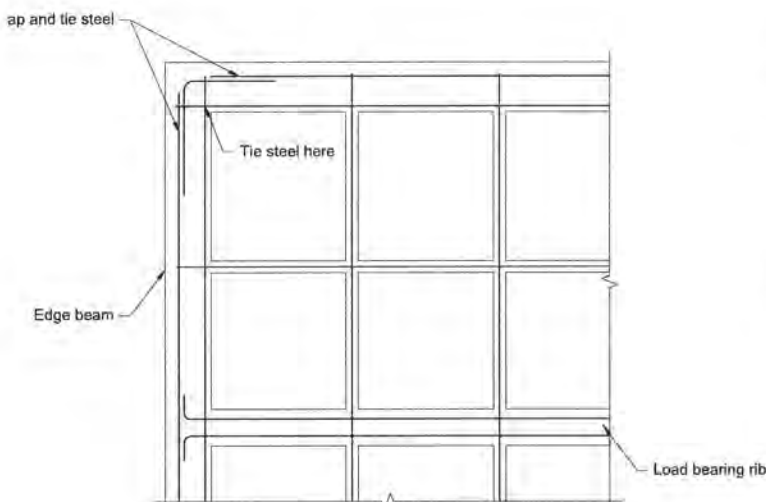


Figure 8 Corner Steel Layout
3.10 Concrete Installation

Concrete placing, finishing and curing shall be in accordance with NZS 3109:1997, Clause 7.

3.10.1 Placing

Only Firth Raftmix, Raftmix Pump, Raftmix25 or Raftmix Pump25 concrete shall be used in the floor.

These two different concrete mixes shall be used in the following instances:

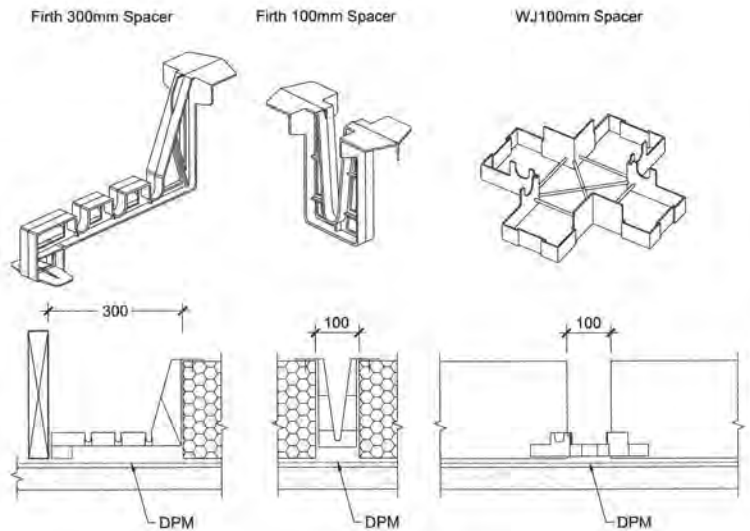


Figure 9 Spacer Details

- Raftmix – For placement in the floor directly from the concrete truck chute.
- Raftmix Pump – For placement in the floor by concrete pump.

Refer 2.4 of Section 1 for locations where RaftMix 25/ Raftmix 25 Pump is required.

The concrete supplied by Firth shall be poured in such a way to ensure that the pods remain in position during placing (Firth recommends that small amounts of concrete be placed on top of the pods prior to the ribs being filled). The concrete shall be compacted with the use of an immersion vibrator around all steel and into all corners of the formwork.

3.10.2 Finishing

Screeding with the aid of a level shall commence immediately after compaction. Unless specifically installed as a screeding datum, the top of the formwork shall not be assumed as level and thus shall not be used for screeding purposes. Final finishing with a trowel shall take place after all the bleed water has evaporated. The edge of the slab and rebates shall be tooled to prevent chipping of the top of the slab.

Early age care of the slab shall be in accordance with good trade practice appropriate for the weather conditions. The surface shall be a blemish free surface to class U3 finish (refer NZS 3114:1987 "Specification for Concrete Finishes").

3.10.3 Curing

Proper curing of the concrete must take place immediately after finishing the concrete. One of the following methods of curing is recommended:

- Ponding or continuous sprinkling of water.
- Placing a wet covering or plastic membrane over the slab.
- The use of liquid membrane curing compounds.

When warm sunny days are followed by cool nights, the change in temperature can cause cracking. Immediate and continuous wet curing to reduce the maximum temperature and/or raise the minimum temperature can reduce the risk of this type of cracking.

3.11 Shrinkage Control Joints

Shrinkage control joints shall be saw cut after hardening. The saw cut shall be cut to a depth of 25mm and shall be cut no later than 24 hours in summer, or 48 hours in winter. The shrinkage control joints shall be positioned to coincide with major changes in floor plan. Where the concrete is to be exposed or brittle covering placed over, the maximum intermediate bay sizes shall be limited to 6m. Bay dimensions formed by shrinkage control joints shall be limited to a maximum ratio of length:width of 2:1.

Shrinkage control joint shall be placed over 100mm wide internal ribs wherever possible. Where a shrinkage control joint runs along the line of a 300mm wide load bearing rib then the joint shall be located directly above one edge of the 300mm rib. Supplementary reinforcing bars shall not be placed across any shrinkage control joints.

The formwork shall not be removed prior to 12 hours after the slab has been finished. No installation loads are to be placed on the system before adequate curing has taken place.

3.13 Masonry Veneer

Where the building is to be clad with masonry veneer, the rebate in the edge beam shall be waterproofed with a bituminous sealer due to the possibility of ponding of water. Firth recommends a Flintcote® or equivalent coating on both the vertical and horizontal faces of the rebate.

3.14 Landscaping/Paving

Landscaping and/or paving adjacent to the slab shall be kept as a minimum the specified distance below finished floor level as required by NZS 3604:2011. The landscaping shall allow for large trees to be kept sufficiently away from the edge of the slab. This is to prevent the tree roots from disturbing the soil moisture conditions under the slab. As a guide, trees should be as far away from the edge of the slab as they are tall when fully grown.

3.15 Ongoing Maintenance

The building owner shall ensure that the ground surrounding the system be maintained so that the integrity of the system is not jeopardised. In other words, at no time shall the ground immediately adjacent to the system be allowed to settle away to expose the underside of the slab.

This can also be ensured by maintaining the landscaping or providing a paved surface or similar around the edge of the building.

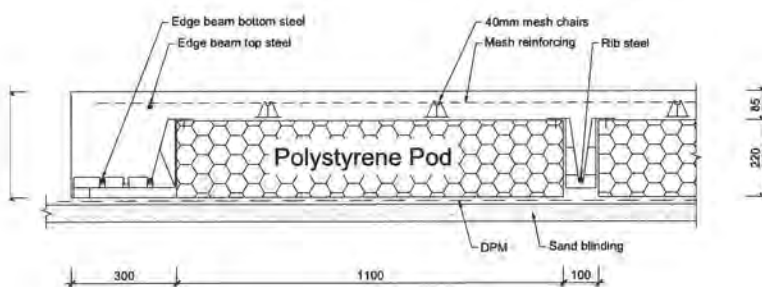


Figure 10 Detailed Section Removal of Formwork

Shear keys, if required, shall be provided to conform to the requirements of Section 1 of this Manual. Holes for the shear keys shall be drilled at least 1000mm deep. Into the bottom of each hole a RibRaft Shear Key Support shall be placed. Every precaution shall be taken to ensure that the shear key support is laid level and at the base of the hole. The minimum depth of concrete placed on the support shall be 900mm. Refer to Figure 11 for construction details.

The connection steel (2HD12 Grade 500E) shall be secured in place and held during pouring to ensure the bars are correctly located. The concrete for the shear keys shall be placed separately to the rest of the

floor and shall be finished level to the top of the sand blinding layer. The top surface of the shear key shall be finished rough to ensure a good join to the Raftmix concrete in the system and the DPM shall be neatly cut around the shear keys.

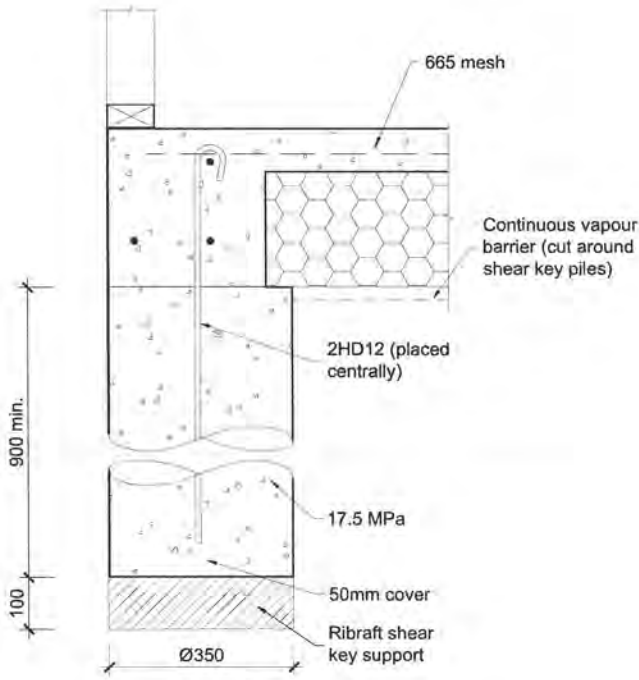


Figure 11 Shear Pile Construction Detail

FIRTH RIBRAFT FLOOR SYSTEM

SECTION 3: VERIFICATION

1 DESIGN

Verification that the design complies with the structural limitation outlined in this Manual is the responsibility of the designer, and shall be confirmed by the Building Control Authority issuing the Building Consent. Solutions outside the limitations outlined in this Manual will require specific engineering design.

2 CONSTRUCTION

The RibRaft foundation system has been designed to accommodate structures complying with the non specific design standards NZS3604 or NZS4229. With these types of structures the Building Control Authority specifies the inspections required and often conducts these. A similar construction verification process shall be applied to the RibRaft system.

To assist inspection the following checklist has been prepared for structures complying with the limitation:

Pre-pour Inspection Check list

	Confirmed
Good Ground confirmed as per NZS3604, clause 3.1.3.	
Vegetation, topsoil, organic or deleterious material removed.	
Proximity to slope-ground surface is always above dash line shown in figure 1.	
Shear piles (where required) in place and reinforcement protruding.	
Formation area extends at least 1m beyond building footprint.	
No steps in the formation.	

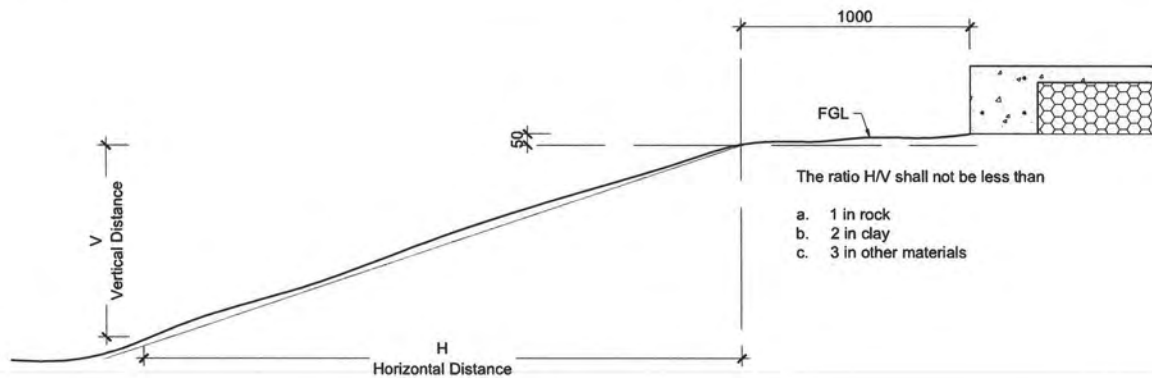


Figure 1 Relationship of RibRaft to Sloping Ground Surface

Pre-layout Inspection Check list

	Confirmed	
Damp proof membrane in place.		
Perimeter foundation	Width 300mm ⁽¹⁾ .	
	Reinforcement 2 x HD12 bottom, 1 x HD12 top.	
	Firth supplied spacer used at 1.2m maximum centres.	
Internal Ribs	Width 100mm.	
	Reinforcement 1 x HD12.	
	Firth supplied spacer, max spacing of one per pod or part pod.	
Load Bearing ribs	Width 300mm.	
	Reinforcement 2 x HD12 bottom.	
	Firth supplied spacer, max spacing of one per pod or part pod.	
Pods	Firth supplied RibRaft pod.	
Mesh	40mm chairs, 1.2m max centres, min two per pod or one per part pod.	
	Mesh in place and 665 or equivalent area.	
	Mesh laps minimum of 225mm.	
Reinforcement	2 x HD12 bars 1.2m long provided at re-entrant corners.	
	Laps for 12mm reinforcement minimum of 720mm.	
Concrete	Cover to pods minimum of 85mm or 110mm if infloor heating used.	
	Firth Raftmix ordered.	
Service penetrations	No reinforcement (with exception of mesh) cut to allow passage of service pipes. Refer clause 6.3 of Section 1 for exceptions.	
	Diameter of opening for services 50mm greater than service pipe. Refer clause 6.3 of Section 1 for exceptions.	
	Diameter/size of penetrations as per Table 7, Section 1 of this manual.	

(1) At locations of service penetrations the width of the perimeter foundation maybe locally increased. Refer figure 12 section 1 for details.



SUSTAINABILITY: THE FIRTH CONCRETE & CONCRETE MASONRY SUSTAINABILITY LIFECYCLE

- Environmentally compliant manufacturing plants
- Surplus water and some aggregates recycled
- Low transport impacts
- Leftover concrete returned from construction sites
- Passive solar heated thermal mass makes completed buildings more energy-efficient

- Most wash water returned from construction sites
- Highly durable, low maintenance buildings and no rot
- High degree of noise control
- Inherent fire resistance
- Overall longer effective building life
- Demolished concrete can be recycled as hard fill or aggregate

For more on Firth's contribution to building a sustainable tomorrow today, visit www.firth.co.nz or call us on 0800 800 576 for our free brochure.

© Copyright Firth 2012 - All information within this document is copyright Firth 2012. Please contact Firth for prior consent should you wish to reproduce or utilise any of this information.

Jan 2012 Chalis FIR2096



Available in

PRODUCTSPEC

www.productspec.net

0800 800 576
www.firth.co.nz

Available in

masterspec

www.masterspec.co.nz



CODEMARK™

CERTIFICATE OF CONFORMITY

This is to certify that

RibRaft™ Floor System



Product Description

The Rib Raft Floor System comprises of polystyrene pods, steel reinforcing rods, plastic spacers and Firth RaftMix™ concrete.

Product Purpose or Use

The RibRaft Floor System is an innovative method of concrete floor construction, offering an insulated floor with a quick, practical and efficient construction method.

Certificate Holder

Fletcher Concrete and Infrastructure Ltd T/A Firth Industries
585 Great South Road
Penrose Auckland
New Zealand 1061

CodeMark Certification Body

CertMark Australasia Pty Ltd
JAS-ANZ Accreditation No. Z4450210AK
PO Box 231
Tuakau NZ 2121
www.certmark.com.au

Complies with the Building Code of New Zealand :

1. B1 Structure
2. B2 Durability
3. E2 External Moisture
4. F2 Hazardous Building Materials
5. H1 Energy Efficiency

Subject to the following conditions and limitations:

1. Must be installed according to RibRaft Technical Manual (CBI3100/3111/3112/4711) (Jan 12)
2. Specified products must be supplied by Firth Industries or an approved agency.

John Thorpe
Director
CertMark Australasia Pty Ltd

22-05-2012

Date of issue

22-05-2015

Date of expiry

CMNZ-2012-0522

Certificate Number



JAS-ANZ



WWW.JAS-ANZ.ORG/REGISTER

This certificate is issued by an independent certification body accredited by the product certification accreditation board appointed by the Chief Executive of the Department of Building and Housing under the Building Act 2004. The Department of Building and Housing does not in any way warrant, guarantee or in any way represent that the building method or product the subject of this certificate conforms with the New Zealand Building Code, nor accepts any liability arising out of the use of the building method or product. The Department of Building and Housing disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages, and costs arising as a result of the use of the building method(s) or products (s) referred to in this certificate. This certificate may only be reproduced in its entirety.

000030



**ISP CONSULTING
ENGINEERS LTD**

Civil & Structural
Seismic Risk Analysis
Building Compliance

Lower Hutt Office
Tel: 04 566 8004
Fax: 04 566 8037
Level 1, ISP Centre
14 Laings Road
P.O. Box 30 535
Lower Hutt 5010

Paraparaumu Office
Tel: 04 902 5750
Level 1 Office 24
Kayel Building
Margaret Road
Raumati Beach
P.O. Box 537
Paraparaumu 5254

Email: email@isp.co.nz
Web: www.isp.co.nz

Structural Calculations

For

Proposed Residence

12 Matuhi Street, Waikanae

These calculations are in accordance with:

AS/NZS1170:2004 Structural Design Actions
NZS3101:2006 Design of Concrete Structures
NZS3603:1993 Design of Timber Structures
NZS3604:2011 Timber Framed Buildings

Engineer:
Stuart Preston
David Blair
Shannon O'Leary

Initials:
SRNP
DIB
SOL

Preamble:

Specific foundation design & construction details.

Date:
28 April 2014

Job No.
25894





Building Code Clause(s)... B1.....

J25894

PRODUCER STATEMENT - PS1 - DESIGN
(Guidance notes on the use of this form are printed on the reverse side*)

ISSUED: ISP Consulting Engineers Ltd.

TO: Urban Building Services Ltd.

(Owner / Developer)

TO BE SUPPLIED TO: Kapiti Coast District Council.

(Building Consent Authority)

IN RESPECT OF: Proposed Residence

(Description of Building Work)

AT: 12 Matuhi Street

(Address)

LOT.....5.....DP..... 413488.....

We have been engaged by the owner/developer referred to above to provide structural design services and construction monitoring of specifically designed elements in respect of the requirements of Clause B1 (B2 of specifically designed elements) of the building code for

All

Part only as specified of building work (outside the scope of NZS3604:2011)
• Specific foundation design & construction details in accordance with the Rib-Raft technical manual.

The design carried out by us has been prepared in accordance with Compliance Documents issued by Department of Building & Housing B1, VM1, VM4

The proposed Building work covered by this producer statement is described on ISP calculations dated April 2014 & drawings titled '12 Matuhi Street' and numbered 'S1, S2'

On behalf of the Design Firm, and subject to:

- (i) All proprietary products meeting their performance specifications requirements;

I Believe on reasonable grounds the building, if constructed in accordance with the drawings, specifications, and other documents provided will comply with the relevant provisions of the building code.

I, John O'Hagan am CPEng #179947

I am a member of: IPENZ and hold the following qualifications: BE(Hons), NZCE(Civil), MIPENZ, CPEng

The design firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$ 500,000*.

The Design Firm is a member of ACENZ

SIGNED BY John O'Hagan ON BEHALF OF ISP Consulting Engineers Ltd

Date **28 April 2014** (Signature).....

Note: this statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provide to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000*.

This form is to accompany Form 2 of the Building (Forms) Regulations 2004 for the application of a Building Consent.

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1992. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional Engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suite of producer statements has been revised as at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking

PS1 Design

Intended for the use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review

Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction

Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:20031 ; or Schedules E1/E2 of NZIA's SCC 2007 2

PS 4 Construction Review

Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.
This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence-based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ) or the New Zealand Institute of Architects (NZIA) provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

Professional Indemnity Insurance

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to \$500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-5)3 (OL1-OL4)2. The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2003

2 NZIA Standard Conditions of Contract SCC 2007 (1st edition)

3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

www.acenz.org.nz

www.ipenz.org.nz

www.nzia.co.nz

Memorandum from licensed building practitioner:

J25894

Certificate of design work

Section 45 and Section 30C, Building Act 2004

THE BUILDING

Street address: 12 Matuhi Street

Suburb:

Town/City: Waikanae

Postcode:

THE OWNER

Name(s):

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the **Specialist** designer who supervised specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work.

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I, John O'Hagan, supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is restricted building work	Description (as required)
Specific Foundations (✓)	
Specific Walls (outside the scope of NZS 3604:2011) (*)	
Specific Retaining Walls (*)	
Specific Beams (*)	
Specific Columns (*)	
Specific Bracing (*)	
Other (*)	

WAIVERS AND MODIFICATIONS

No waivers or modifications of the building code are required.

ISSUED BY

Name: John O'Hagan

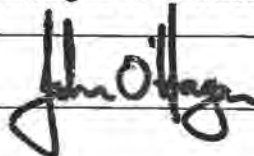
CPEng number: 179947

DECLARATION

I, John O'Hagan, LBP, state that I have applied the skill and care reasonably required of a competent design professional in supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code; or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature:



Date: 28 April 2014

ISP CONSULTING ENGINEERS LTD

Civil & Structural
Seismic Risk Analysis
Building Compliance

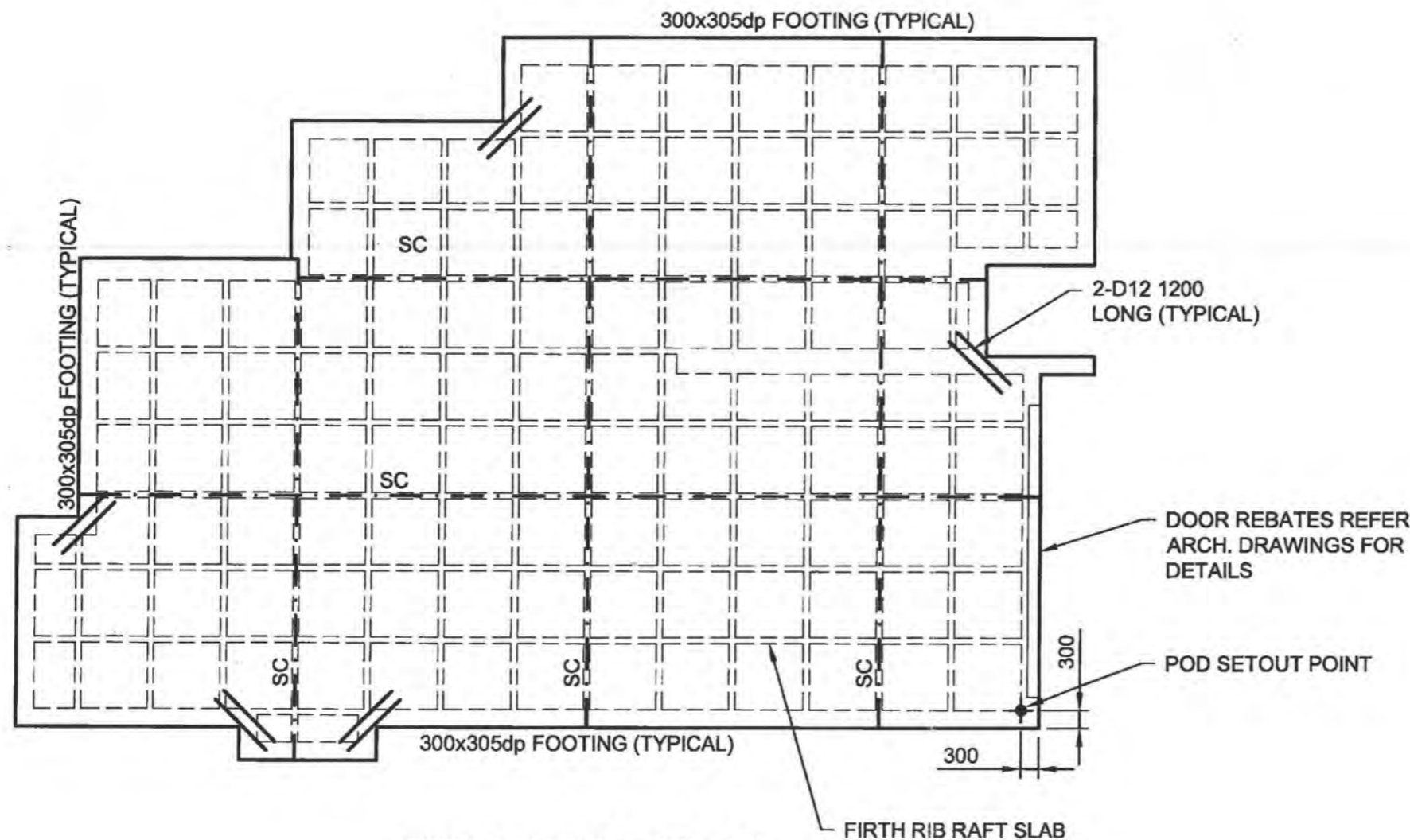
Lower Hutt Office
Tel: 04 566 8004
Fax: 04 566 8037
Level 1, ISP Centre
14 Laings Road
P.O. Box 30 535
Lower Hutt 5010

Paraparaumu Office
Raumati Beach
P.O. Box 537
Paraparaumu 5254

Email: email@isp.co.nz
Web: www.isp.co.nz



ISO 9001



RIBRAFT FOUNDATION PLAN
SCALE 1:100

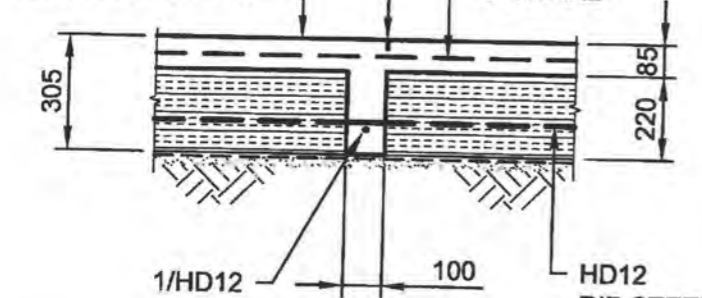
S.C. = SAWCUT.

NOTES:

1. REFER ARCHITECT'S DRAWINGS FOR DIMENSIONS, UNLESS NOTED OTHERWISE AND FOR DETAILS OF ALL SERVICES TO BE CAST IN SLAB. DO NOT SCALE OFF THIS DRAWING.
2. ALL CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENTS OF NZS3109:1997
3. CONCRETE SHALL BE:
 - SLABS & FOOTINGS FIRTHS RIBRAFT MIX (25MPa)
4. MAXIMUM SLUMP TO BE 100mm UNLESS NOTED OTHERWISE
5. HD12 BARS LAP LENGTH IS 600mm
6. CONCRETE FINISHES SHALL BE:
 - SLABS U3
 - EXPOSED FOOTINGS F4
10. CONCRETE COVER
 - 25mm MIN. INTERIOR
 - 40mm MIN. EXTERIOR
 - 75mm MIN. IN CONTACT WITH GROUND.
11. ALL REINFORCEMENT SHALL COMPLY WITH AS/NZS4671:2001 (HD BARS SHALL NOT BE REBENT)
12. REFER RIB RAFT SPECIFICATIONS FOR SAWCUTS AND SHRINKAGE CONTROL JOINTS
13. BASECOURSE AS REQUIRED TO BRING SITE LEVEL. ANY SOFT SPOTS ARE TO BE EXCAVATED AND REPLACED WITH BASECOURSE.
14. ENGINEER TO INSPECT PRIOR TO POURING CONCRETE. ENGINEER REQUIRES 24 HOURS NOTICE BEFORE ANY VISIT

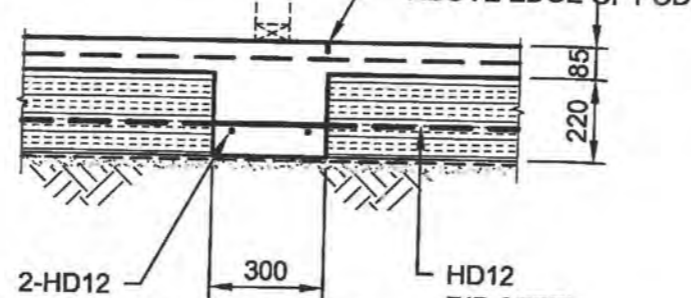
CLIENT		
URBAN BUILDING SERVICES LTD.		
PROJECT		
12 MATUHI STREET WAIKANAЕ		
 Lower Hutt Office Tel: (04) 566-8004 Fax: (04) 566-8037 Kapiti Office Tel: (04) 902 5750	DATE: APRIL 2014	
	DRAWN: BV	
JOB No:	APPROVED: HF	
25894	SHEET No: S1 REV: 0	

25 MPa FIRTH RAFT MIX AS STANDARD
 25mm DEEP SAW CUT ABOVE EDGE OF RIB (REFER PLAN FOR LOCATIONS)



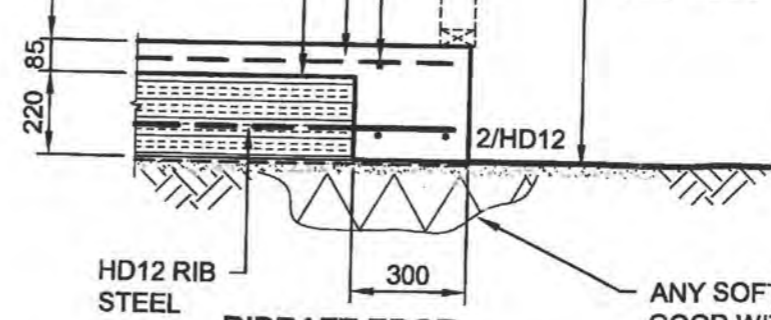
RIBRAFT SAW CUT JOINT RIB DETAIL
 SCALE 1:20

LOAD BEARING WALL
 25mm DEEP SAW CUT ABOVE EDGE OF POD



RIBRAFT INTERNAL LOAD BEARING RIB DETAIL
 SCALE 1:20

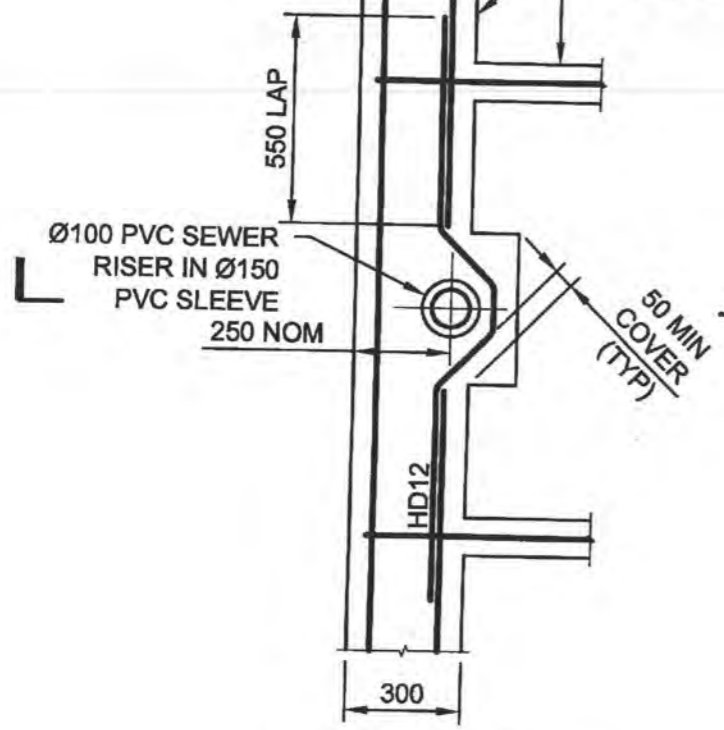
SE62 MESH
 POLYSTYRENE PODS
 HD12
 25 THICK SAND BLINDING EXTEND 500 PAST SLAB EDGE



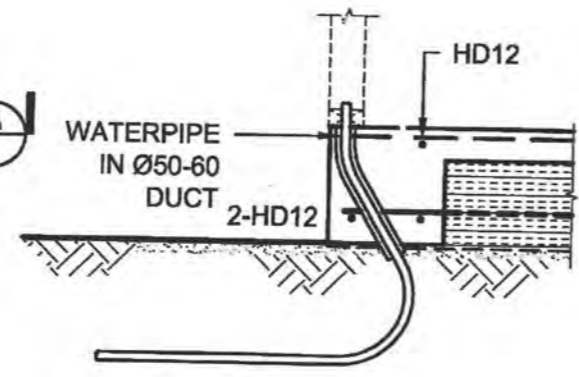
RIBRAFT EDGE BEAM DETAIL
 SCALE 1:20

ANY SOFT SPOTS TO BE MADE GOOD WITH BASECOURSE.

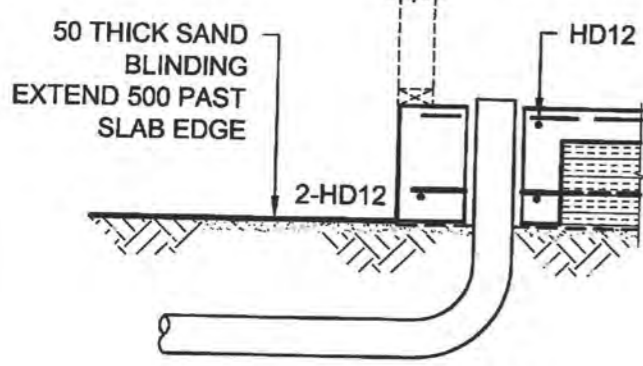
INDICATIVE RIB POSITIONS (REFER SPECIFIC SLAB PLAN)



RIB RAFT SLAB SEWER PENETRATION DETAIL
 SCALE 1:20



RIB RAFT SLAB PENETRATION DETAIL
 SCALE 1:20



SECTION A
 SCALE 1:20

CLIENT
URBAN BUILDING SERVICES LTD.

PROJECT
**12 MATUHI STREET
 WAIKANAЕ**

 Lower Hutt Office Tel: (04) 566-8004 Fax: (04) 566-8037 Kapiti Office Tel: (04) 902 5750	DATE: APRIL 2014
	DRAWN: BV
	APPROVED: HF
JOB No: 25894	SHEET No: S2 REV: 0

DIB/DIB/25894

28th April 2014

Urban Building Services
C/o Alan Wood
A1 Homes Waikanae,
P O Box 80 Waikanae 5250

Via e-mail: alan.wood@a1homes.co.nz

Dear Alan,

**Report on Ground Conditions
12 Matui Street, Waikanae**

We confirm we have investigated the above site with respect to the proposed residential development and carried out Scala Penetrometer soil tests. The results of those tests are appended.

The Scala test results indicate that the soil has a minimum dependable ultimate bearing capacity of 200kPa at the existing ground level.

In our opinion foundations designed in accordance with the non specific design standard NZS3604:2011 – "Timber Framed Buildings" will be adequate for the proposed dwelling.

We trust this meets your requirements. Feel free to contact us with any further queries or comments.

Yours sincerely,

ISP CONSULTING ENGINEERS LIMITED

Shannon O'Leary
Designer
Email: shannon@isp.co.nz



**ISP CONSULTING
ENGINEERS LTD**

Civil & Structural
Seismic Risk Analysis
Building Compliance

Lower Hutt Office
Tel: 04 566 8004
Fax: 04 566 8037
Level 1, 14 Laings Rd
Hutt City Dental Centre
P.O. Box 30 535
Lower Hutt 5040

Kapiti Office
Tel: 04 902 5750
Level 1, Kayel Building
Margaret Road
Raumati Beach
Paraparaumu 5032

Email: email@isp.co.nz
Web: www.isp.co.nz



ISO 9001



Lower Hutt Office
Tel: (04) 566-8004
Fax: (04) 566-8037

EP CONSULTING
ENGINEERS LTD.

Paraparaumu Office
Tel: (04) 902 5750

SCALA PENETROMETER TEST LOCATION PLAN

CLIENT

PROJECT 12 Matuhi Street, Waikanae

DATE 4 April 2140

SCALE NTS

DRAWN SOL

DWG No.

JOB No 25894

Job Number 25894 **Signed** _____
Date 3-Apr-14
Location 12 Matuhi Street, Waikanae
Client 0

ISP Consulting Engineers Ltd
Scala Penetrometer Results Sheet
 ISP Centre, 14 Laings Road
 P O Box 30535, Lower Hutt
 Tel (04) 566 8004 Fax (04) 566 8037

Notes	Probe Number 1				Probe Number 2				Probe Number 3				
	Depth	No.	0	5	10	15	Depth	No.	0	5	10	15	
50	2					50	2					50	2
100	2					100	2					100	2
150	2					150	4					150	9
200	4					200	20					200	5
250	18					250	0					250	20
300	0					300	0					300	0
350	0					350	0					350	0
400	0					400	0					400	0
450	0					450	0					450	0
500	0					500	0					500	0
550	0					550	0					550	0
600	0					600	0					600	0
650	0					650	0					650	0
700	0					700	0					700	0
750	0					750	0					750	0
800	0					800	0					800	0
850	0					850	0					850	0
900	0					900	0					900	0
950	0					950	0					950	0
1000	0					1000	0					1000	0
1050	0					1050	0					1050	0
1100	0					1100	0					1100	0
1150	0					1150	0					1150	0
1200	0					1200	0					1200	0
1250	0					1250	0					1250	0
1300	0					1300	0					1300	0
1350	0					1350	0					1350	0
1400	0					1400	0					1400	0
1450	0					1450	0					1450	0
1500	0					1500	0					1500	0
1550	0					1550	0					1550	0
1600	0					1600	0					1600	0
1650	0					1650	0					1650	0
1700	0					1700	0					1700	0
1750	0					1750	0					1750	0
1800	0					1800	0					1800	0
1850	0					1850	0					1850	0
1900	0					1900	0					1900	0
1950	0					1950	0					1950	0
2000	0					2000	0					2000	0
2050	0					2050	0					2050	0
2100	0					2100	0					2100	0
2150	0					2150	0					2150	0
2200	0					2200	0					2200	0
2250	0					2250	0					2250	0
2300	0					2300	0					2300	0
2350	0					2350	0					2350	0
2400	0					2400	0					2400	0
2450	0					2450	0					2450	0
2500	0					2500	0					2500	0
2550	0					2550	0					2550	0
2600	0					2600	0					2600	0
2650	0					2650	0					2650	0
2700	0					2700	0					2700	0
2750	0					2750	0					2750	0
2800	0					2800	0					2800	0
2850	0					2850	0					2850	0
2900	0					2900	0					2900	0
2950	0					2950	0					2950	0
3000	0					3000	0					3000	0
3050	0					3050	0					3050	0
3100	0					3100	0					3100	0
3150	0					3150	0					3150	0
3200	0					3200	0					3200	0
3250	0					3250	0					3250	0
3300	0					3300	0					3300	0
3350	0					3350	0					3350	0
3400	0					3400	0					3400	0
3450	0					3450	0					3450	0
3500	0					3500	0					3500	0

Job Number 25894 **Signed** _____ **ISP Consulting Engineers Ltd**
Date 3-Apr-14 **Scala Penetrometer Results Sheet**
Location 12 Matuhi Street, Waikanae **ISP Centre, 14 Laings Road**
Client _____ **P O Box 30535, Lower Hutt**
Tel (04) 566 8004 Fax (04) 566 8037

		Probe Number 4				Probe Number 5				Probe Number 6							
Notes																	
Depth	No.	0	5	10	15	Depth	No.	0	5	10	15	Depth	No.	0	5	10	15
50	2					50	0					50	0				
100	3					100	0					100	0				
150	3					150	0					150	0				
200	4					200	0					200	0				
250	4					250	0					250	0				
300	20					300	0					300	0				
350	0					350	0					350	0				
400	0					400	0					400	0				
450	0					450	0					450	0				
500	0					500	0					500	0				
550	0					550	0					550	0				
600	0					600	0					600	0				
650	0					650	0					650	0				
700	0					700	0					700	0				
750	0					750	0					750	0				
800	0					800	0					800	0				
850	0					850	0					850	0				
900	0					900	0					900	0				
950	0					950	0					950	0				
1000	0					1000	0					1000	0				
1050	0					1050	0					1050	0				
1100	0					1100	0					1100	0				
1150	0					1150	0					1150	0				
1200	0					1200	0					1200	0				
1250	0					1250	0					1250	0				
1300	0					1300	0					1300	0				
1350	0					1350	0					1350	0				
1400	0					1400	0					1400	0				
1450	0					1450	0					1450	0				
1500	0					1500	0					1500	0				
1550	0					1550	0					1550	0				
1600	0					1600	0					1600	0				
1650	0					1650	0					1650	0				
1700	0					1700	0					1700	0				
1750	0					1750	0					1750	0				
1800	0					1800	0					1800	0				
1850	0					1850	0					1850	0				
1900	0					1900	0					1900	0				
1950	0					1950	0					1950	0				
2000	0					2000	0					2000	0				
2050	0					2050	0					2050	0				
2100	0					2100	0					2100	0				
2150	0					2150	0					2150	0				
2200	0					2200	0					2200	0				
2250	0					2250	0					2250	0				
2300	0					2300	0					2300	0				
2350	0					2350	0					2350	0				
2400	0					2400	0					2400	0				
2450	0					2450	0					2450	0				
2500	0					2500	0					2500	0				
2550	0					2550	0					2550	0				
2600	0					2600	0					2600	0				
2650	0					2650	0					2650	0				
2700	0					2700	0					2700	0				
2750	0					2750	0					2750	0				
2800	0					2800	0					2800	0				
2850	0					2850	0					2850	0				
2900	0					2900	0					2900	0				
2950	0					2950	0					2950	0				
3000	0					3000	0					3000	0				
3050	0					3050	0					3050	0				
3100	0					3100	0					3100	0				
3150	0					3150	0					3150	0				
3200	0					3200	0					3200	0				
3250	0					3250	0					3250	0				
3300	0					3300	0					3300	0				
3350	0					3350	0					3350	0				
3400	0					3400	0					3400	0				
3450	0					3450	0					3450	0				
3500	0					3500	0					3500	0				

000045



Alan Wood

From: Warren & Edite O'Keeffe <edandwarren@gmail.com>
Sent: Tuesday, 27 May 2014 9:11 a.m.
To: Alan Wood
Subject: CT No. O'Keeffes

Hi Alan

Have got correspondence from our lawyer which confirms that we are the new owners of the property but don't seem to have a Certificate of Title document as such. We have a search copy with an Identifier No. 466499 which we are assuming may be the CT number. However our solicitors letter states that we are the registered proprietors so if you need to do a title search then we should be shown as the owners.

Hope this all makes sense. We are in Martinborough currently and can be contacted on my cellphone 0211164846.

Cheers

Edite O'Keeffe

8 December 2014



Urban Building Services Ltd
A1 Homes
PO Box 30389
Lower Hutt

Re: Waterproofing 12 Matuhi Street, Waikanae
Applicators Producer Statement.

Francis Bognuda (NZ132), being an applicator of Aqua Blok waterproof membranes, confirms that we have applied Aqua Blok to install waterproof membrane to the floors in the bathroom and ensuite plus the bathbox in the bathroom.

For more details please refer to building inspection BC140363

This work was undertaken in accordance with the manufacturers written application instructions AS3740-2004 and clauses E2, E3 and B2 of the current NZ Building Code.

We are satisfied that the substrate over which the system has been applied has been suitably prepared and the materials have been properly installed.

I Trust that the information supplied above is satisfactory for your requirements.

Regards,

A handwritten signature in black ink, appearing to read 'Francis Bognuda', with a long horizontal stroke extending to the right.

Francis Bognuda
Company Director

RECEIVED
28 MAY 2014
SJT



SPECIFICATION

PART A - Preliminary and General

Standard of Construction and Materials

Mr and Mrs O'Keeffe

at

12 Matuhi Street, Waikanae

NOTE: If there should be any discrepancy or conflict between the quote and this specification, then the quote shall take precedence in all cases.

PART A
PRELIMINARY & GENERAL

General

This section relates to the following specifications as a whole; to each specification for any work to which a separate contract is let by the Client, and to the work of all Subcontractors.

Regulations and Standards

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

The Contractor and Subcontractors undertaking this work shall obtain copies of the relevant sections of the New Zealand Building code and documents relating to acceptable solutions and verification methods, and shall be conversant with their contents. The following is a list of Approved Documents referred to in this Specification;

B1/AS1	Structure - general
B1/AS2	Structure - timber barriers
B1/AS4	Foundations
B2/AS1	Durability
C2/AS1	Means of Escape
C3/AS1	Spread of Fire
C4/AS1	Structural Stability during fire
D1/AS1	Access routes
E1/AS1	Surface water
E2/AS1	External Moisture
E3/AS1	Internal moisture
F1/VM1	Hazardous agents on site
F2/AS2	Hazardous substances and processes
F4/AS1	Safety from falling
F5/AS1	Construction and demolition hazards
G1/AS1	Personal hygiene
G2/AS1	Laundrying
G3/AS1	Food preparation
G4/AS1	Ventilation
G6/AS1	Airborne and impact sound
G7/AS1	Natural light
G8/VM1	Artificial light
G9/VM1	Electricity
G10/AS1	Piped services
G11/AS1	Gas as an energy source
G12/AS1	Water Supplies
G13/AS1	Foul water - sanitary plumbing
G13/AS2	Foul water - drainage
H1/AS1	Energy efficiency

Standards

Throughout this specification, references are made to Standards produced by the Standards Association of New Zealand and other associations as well as various Acts and Regulations. The latest edition at the date of contract applies, unless stated otherwise. It is the responsibility of The Contractor or the Subcontractor to be informed of the material in those publications which are referred to in this specification.

Scope of Work

The scope of work is to construct, completely finish and maintain for a specified time the various works described or indicated on the plans and in the specifications.

Documents

The Contractor and its subcontractors shall be deemed to have familiarised themselves with all the documents comprising the contract including any amendments thereto.

Consents, Permits and Certificates

The Client will lodge a Building Consent Application with the Territorial Authority and pay all fees in connection therewith. Work in all trades shall be in accordance with consents and the New Zealand Building Code.

All Subcontractors are to obtain all other necessary permits and give all necessary notices.

Where Producer Statements are required by the Territorial Authority prior to the issue of a Code Compliance Certificate the Supplier or Subcontractor shall obtain and provide such required statements to the Client.

The Contractor shall uplift a Code Compliance Certificate (covering the whole of the building work) from the Territorial Authority or the Building Certifier as applicable on completion of the contract.

Inspections

The Contractor shall establish from the Territorial Authority or Building Certifier, before construction commences, a list of their required site inspections during the construction process. The Contractor (unless otherwise agreed) shall notify them at

Specification Part A

least 24 hours prior to a scheduled inspection item being available for a site inspection.

Drawings and Specifications

The drawings, with all notes and explanations, the specifications and the general conditions of contract as present at the time of the signing of the contract must be signed when the contract is executed. A copy of all drawings and specifications shall be kept on the site at all times.

In the event of there being differences between the drawings and this specification, the drawings shall take precedence.

Trade Names and Approvals

Where any article or material is referred to by a tradename this shall be deemed to mean the article or material mentioned. The Client, at its discretion, may substitute other brands or materials as the Client deems suitable.

Dimensions

Figured dimensions shall be taken in preference to scale measurements and large scale details in preference to those of small scale. Where dimensions are not shown on the drawings and cannot be deduced from other drawn details they shall be agreed with the Client.

Boundaries

The Client shall arrange for the location of appropriate survey pegs to be established.

Setting out of work

The Contractor shall accurately set out the building in accordance with the site plan and shall take full responsibility for the accuracy of such setting out. Any error shall be made good at the Contractors expense.

In case of alteration to the drawings being found necessary, the Contractor shall immediately report the matter to the Client.

Tradesmanship

The whole of the work is to be carried out in a thoroughly tradesmanlike manner to the true intent and meaning of the plans and this specification.

Protection of Property

The Contractor shall be held solely responsible for all damage to any adjoining buildings or property caused by him or his

employees during the execution of the contract and shall indemnify the Client against all claims on account thereof.

Temporary Vehicular Crossings

The Contractor shall provide such temporary crossings (where required by the Territorial Authority) as are necessary for the protection from damage of all kerbs, channels, footpaths, berms, and public utility services over which vehicles in any way connected with the supply of materials or services for the contract are likely to pass.

Site Access

The Client shall provide access before work commences.

The Contractor shall take all possible measures to maintain safe and clear access to all neighbouring buildings at all times during the currency of this contract and in particular, to avoid construction vehicles or processes blocking thoroughfares or pedestrian routes adjoining the site.

Toilets

The Contractor shall provide toilet facilities.

Water and Power

The Contractor shall arrange and pay for all temporary supply of water and power as required to be used during the construction of the works.

Rubbish Removal

The Contractor shall ensure that all work sites are cleaned regularly and all rubbish is removed.

EARTHWORKS AND EXCAVATIONS:

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work specified in this section consists of clearing the site, earthworks for site development, excavations, trenching and trimming, etc., necessary to prepare the site as specified and indicated on the drawings.

The Contractor shall arrange to check existing site levels before commencing work, as no claim will be entertained in respect of any discrepancy on levels or amount of variation from what may have been anticipated, once the work has started.

Where a geotechnical investigation report is available the Contractor shall obtain a copy of this report and be fully familiar with its contents and recommendations.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

- B1 Structure
- E1 Surface Water
- F1 Hazardous Agents on Site
- F5 Construction & Demolition Hazards

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design.

Trees to be retained

Mark trees which are required to be retained using suitable non-injurious, easily visible and removable means of identification. Remove the identification on completion.

Protect from damage trees which are required to be retained. Do not remove topsoil from the area within the drip line of the trees and keep this area free of construction material and debris.

If excavating near trees required to be retained, use hand methods to locate, expose and cleanly remove the roots on the line of excavation.

[i] EARTHWORKS

Site Clearance

Demolish and remove from the site all existing structures, vegetation and rubbish as may be necessary for the proper conduct of the construction work. Provided that all such items as are mentioned in Part B hereof shall be protected, reclaimed or preserved from damage.

Topsoil

Strip all topsoil from all such areas as is necessary to construct the work or as is shown on the drawings and stockpile as directed for future use. The topsoil will remain in the ownership of the Client.

Cut to Fill

Cut to fill and compact all such subsoil material as may be necessary to construct the subgrade to correct levels for building platforms, parking areas, driveways, footpaths and landscaping features as are shown on the plans.

Before any fill is placed the subgrade shall be inspected and approved by the Client (or its nominated consultant).

Under areas to be metalled and paved, excavate down to subgrade level and trim off a true, even surface.

Sound material from the excavations may, where approved, be used for building up low areas and yards, etc., but not under building foundations or floor slabs.

Imported Filling

Where the quantity of cut material on the site is insufficient to complete all required filling, the Contractor shall import additional fill material to make up the deficiency. All such imported fill shall be fit for the purpose for which it is intended and where the work is under the observation of the Client (or its nominated consultant) then it is to be to the approval of the Client (or its nominated consultant).

Specification Part A

Unsuitable Subgrade

Where any subgrade materials are unstable or have insufficient strength to carry the loads required of them, the Contractor shall excavate and remove from the site all such material.

Wet Conditions

Where the presence of ground water in the subsoil is detrimental to the stability of the site, the Contractor shall construct such remedial works as are necessary to stabilise the site, before proceeding with any cut to fill or backfilling operation.

Compaction

All fill and backfill materials shall be placed and compacted in layers in accordance with NZ Building Code B1/VM4

All imported fill shall be truck-spread to avoid segregation of particle sizes or be remixed and machine-spread in the appropriate layer before compaction.

The whole of the area to be paved shall be compacted to optimum density and present a homogeneous and stable surface with no signs of movement or weaving under a 10-12 tonne roller. This requirement shall apply to the compaction of the surface or cut areas formed for pavement subgrades.

Hardfill

Except where permitted in yard areas, all bulk filling shall be hardfill, which shall be broken rock or all scoria of an approved grading.

Compaction shall be by rolling with an 8-10 tonne smooth-wheel roller or approved vibrating equivalent, until a firm unyielding base is obtained.

Clay Fill

In yard areas where clay filling is permitted, material shall be placed and compacted in accordance with NZ Building Code B1/VM4

Fill Under Floor Slab

In areas where the ground is required to support a floor slab backfilling shall be all in scoria or broken rock.

Unless instructed otherwise placing and compaction shall be in compliance with NZS 3604; Appendix E5.

Surface or Filled or Cut Areas

Under concrete slabs the finished level shall at no point be more than +0 or -28mm in height to the correct level. This shall include the depth of granular fill as required for concrete floor slab on ground.

Under yards and roads the tolerance allowed on the finished subgrade shall be +12mm and -25mm and at no point shall the surface hold water.

[(ii)] EXCAVATIONS

Foundations Generally

Construct, form and trim all foundation excavations true to shape, line, level and profile, as shown on the drawings. Allow sufficient work space .

Unsuitable Foundations

Where unsuitable material is encountered in foundation excavations, the Contractor shall notify the Client (or its nominated consultant) forthwith and seek its instructions upon how to proceed.

For the purpose of this clause "unsuitable material" shall include all topsoil, organic material and any soft, wet or uncompacted material whose bearing strength appears to be lower than that required to carry the design loadings.

Protection of Open Excavations

The Contractor shall at all times protect from damage and deformation all open excavations. The Contractor shall provide adequate means of ensuring that water is not allowed to accumulate or remain in any excavation and shall keep all such excavations clear of any rubbish, soil or other detritus.

Excavated Material

All excavated unsuitable material shall be disposed of off the site.

All other excavated material shall be stockpiled well clear of excavations and disposed of as directed.

Site Concrete

Site concrete for use in foundation excavations shall be as specified generally in the Concrete section of this specification or as

directed by the Client (or its nominated consultant).

Specification Part A

Slab Foundations

Refer to specification for Floor Slab on Ground Construction.

Backfilling Foundation and Walls

After completion of foundation footings and walls, other construction below elevation of final grades, removal of forms, inspection and approval of proofing membranes and prior to backfilling, clean the excavation of rubbish and debris. Use approved excavated material for backfilling. Place backfill in horizontal layers not exceeding 150mm in thickness and compact with approved machine tampers to a density not less than 95% of its maximum. Allow for anticipated settlement and shrinkage.

In the case of retaining walls backfill shall be of granular material between the angle of the cut area and the back face of the retaining wall. The type of granular material shall be as detailed on the drawings.

Protection of Adjacent Structures

Provide all necessary supports, shoring, strutting, underpinning, etc., to ensure the stability of structure, in or adjacent to the site until such times as the permanent work is completed.

Underpinning of foundations shall be designed by a Registered Engineer employed by the Client.

Existing Services

Refer to the plans provided, to the "Project Information Memorandum", and to the relevant Territorial and Network Utility Operator for the positions of existing services.

Care shall be taken not to damage any existing drains that are to be retained but all superfluous drains shall be grubbed up and sealed. Protect any existing retained drains under the new building with concrete to the satisfaction of the Regional or Territorial Authority.

Live services damaged in any way shall be made good at the Contractor's expense. Should it be necessary to remove any services to make way for new work, then new alternatives shall be properly installed before

disturbing the existing services which shall then be removed and suitably stopped off. No drains shall be removed without the approval of the Client (or its nominated consultant).

Trenching

All trenches for new underground services shall be excavated true to line and gradient and shall be of the minimum width necessary to permit the convenient construction of the service for which it is intended.

Ensure a minimum of disturbance to surrounding ground during all trenching operations.

Services Construction

Construct all services, connections and fittings as shown on the drawings to the best trade practice and in accordance with the New Zealand Building Code, and with the Territorial Authority or Network Utility Operator's specifications as appropriate.

Backfilling of Trenches

Backfill all trenches under paved areas, foundations and concrete floor, with hardfill and all other trenches with material excavated therefrom and compact to the same standard as the surrounding subsoil. Where hardfill is placed over services, the services shall be protected from damage by a layer of sand or equivalent to a minimum depth of 300mm over the top of the services.

Do not backfill trenches before services have been inspected and tested.

Dispose of all surplus material off the site.

Reinstatement

Upon completion and acceptance of construction work the Contractor shall forthwith restore all surfaces as appropriate to the same condition as that which was immediately precedent to the commencement of the construction of the service utilities.

Acceptance

Upon completion of construction work on each service utility the Contractor shall obtain from the Network Utility Operator a certificate to the effect that the work complies with the requirements of the Building Consent and shall supply a copy of that certificate to the Client (or its nominated consultant).

CONCRETE WORKS:

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work covered by this specification is to provide all materials and execute all work necessary for the construction of the concrete floor slabs and other concrete works as detailed in the drawings and as described in this specification.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

- B1 Structure
- B2 Durability
- E1 Surface Water
- E2 External Moisture
- F5 Construction & Demolition Hazards
- G15 Solid Waste

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design.

Site

The site shall be levelled within an accuracy of ± 0 or -28 mm to a height of at least 200mm below the finished floor level in preparation for the granular fill.

Granular Base, Vapour Barrier, Reinforcement, etc

The granular base, vapour barrier, reinforcement etc., shall comply with the requirements of the New Zealand Building Code as listed above and NZS 3604; Appendix E.

Surface Finish

The surface finish of all concrete slabs is to be in accordance with NZS 3114:1987 or as specified on the drawings. Consideration shall be taken of the type of covering to be applied to the slab - eg carpet, vinyl, etc

MASONRY CONSTRUCTION:

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

Work covered by this specification is to provide all materials and execute all work necessary for the completion of the masonry content of the contract work.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

B1	Structure - general
B2	Durability
E1	Surface Water
E2	External Moisture
F5	Construction & Demolition Hazards

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design

Registered Mason

Masonry constructed to this specification shall be carried out by or under the continuous supervision of a Registered Mason.

A Registered Mason is a mason who is accepted for registration by the New Zealand Masons' Registration Committee and is a holder of a current registration certificate.

Masonry construction done under the supervision of A Registered Mason shall be carried out by tradespeople skilled in masonry construction.

Workmanship

Workmanship inspections and details of construction, unless specifically detailed on the plans and in this specification, shall be in accordance with NZ Building Code B1, E1 and

NZS 3604; Appendix F and shall be approved as conforming to good trade practice.

Brick Veneer

Brick Veneer construction shall be as described in NZ Building Code B1, E1 and NZS 3604 as applicable. Where required by these codes or their commentaries, horizontal, seismic and vertical movement details between the brick veneer and its supporting structure shall be provided.

Bracing

The Subcontractor shall ensure that all masonry walls are adequately braced during erection as required for safe construction against wind, earthquakes, etc. His work shall be sufficiently strong at all times to resist all strains and stresses to which it may be subjected.

Attendance on Other Trades

The Contractor shall provide chases, openings and raglets, and install anchors, bolts, hangers, etc., where required to accommodate the work of other trades.

Starter Bar Positioning for Concrete Masonry

Refer to the New Zealand Concrete Research Association Information Bulletin 1B 047 for the correct placement of starter bars.

Finishing Up

On completion of work, all surfaces shall be thoroughly cleaned down using methods approved by the Client (or its nominated consultant). The site shall be cleared of plant and rubbish and left in first class order.

CARPENTER AND JOINER:

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work covered by this section includes all work shown on the plans and in the specifications normally executed by carpenters, including all temporary work, preparatory work, fixing of metalwork, hardware and finishing etc., and attendance, and setting out and finishing for other trades.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

- B1 Structure - general
- B2 Durability
- C3 Spread of Fire
- C4 Structural Stability during Fire
- D1 Access Routes
- E1 Surface Water
- E2 External Moisture
- E3 Internal Moisture
- F2 Hazardous Building Materials
- F4 Safety from Falling
- F5 Construction & Demolition Hazards
- G1 Personal Hygiene
- G2 Laundering
- G3 Food Preparation and Prevention of Food Contamination
- G4 Ventilation
- G5 Interior environment
- G6 Airborne and impact sound
- G7 Natural Light
- H1 Energy Efficiency

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design.

Setting Out

The Contractor shall be responsible for setting out of all carpentry work in this section. All dimensions to be checked and any

discrepancy notified to the Client (or its nominated consultant).

Workmanship

The whole of the work is to be carried out in a thoroughly tradesmanlike manner to the true intent and meaning of the plans and this specification.

Stability of Structure

The Contractor shall in all cases use proper care and diligence in bracing and supporting all parts of his work. He shall also protect the work from damage by water. His work shall be self-supporting, absolutely strong and fully equal to resisting all strains and stresses to which it may be subjected.

Quality of Internal Wall Finishes

The Contractor shall provide a timber framed wall with an in-service wall lining surface appropriate to the general acceptable level of finish and decor of the wall surface specified in the Painter and Paperhanger and Fibrous Plasterer and Gibraltar Board Stoppers.

The Contractor shall also ensure that he installs wall linings in accordance with the manufacturer's recommendations for the level of finish specified for the final decoration of the wall.

Wall Lining

All wall linings and bracing panels shall be installed in accordance with the manufacturer's installation instructions in the locations indicated on the drawings.

INTERIOR LININGS AND EXTERIOR CLADDINGS

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work required under this specification is the supply of all cladding and/or lining material and its installation in the building.

NZ Building Code .

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

B2	Durability
C3	Spread of Fire.
E2	External Moisture
F2	Hazardous Building Material
G1	Personal Hygiene
G3	Food Preparation and Prevention of Food Contamination
G6	Airborne and impact sound
H1	Energy Efficiency

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design

Workmanship

All workmanship shall be in accordance with the best trade practice and shall be carried out by a skilled tradesman. The installer shall be a Plumber, Carpenter, Wall Board Fixer depending on the type of cladding or lining specified.

Trade Literature

The tradesman undertaking the installation of the cladding or lining material shall obtain the manufacturer's written installation instructions (in the form of trade literature or other) and shall adhere rigidly to those instructions. Installation instructions obtained shall be kept

on site and freely available to the Client (or its nominated consultant), the Building Certifier and/or Territorial Authority Inspector.

Quality of materials

Cladding and lining materials shall be new, best quality materials, of the manufacture or brand specified. No seconds or second hand materials will be accepted.

Installation

The Contractor shall be familiar with the contents of the finishes schedules.

Cladding and lining materials shall be installed in strict accordance with the manufacturer's specifications and to a grade of surface suitable to accept the specified finish.

Completion

On completion of work the Contractor is to tidy up, remove all rubbish associated with his work, and leave the work in 'as new' condition ready to accept the decorative or protective finish as specified

PLUMBER

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work required under this specification is the provision of all materials and execution of all works necessary for the proper completion of the plumbing work.

Provide and install all special items and equipment, etc., as detailed on the drawings and/or as specified.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

B2	Durability
C1	Outbreak Of Fire
C3	Spread of Fire
E1	Surface Water
E2	External Moisture
G1	Personal Hygiene
G2	Laundrying
G3	Food Preparation and Prevention of Food Contamination
G4	Ventilation
G5	Interior environment
G6	Airborne and impact sound
G10	Piped Services
G12	Water Supplies
G13	Foul Water
G14	Industrial Liquid Waste
G15	Solid Waste

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZ Standard Plumbing & Drainage
AS Standard Plumbing & Drainage

Flashings, Waterproofing and Rainwater Plumbing

All work shall be carried out by skilled plumbers, sheetmetal works and/or specialists to provide full weather tightness.

Sanitary Plumbing and Water Supply

The sanitary plumbing and water supply work shall be executed by licensed plumbers in accordance with the appropriate regulations and bylaws.

Workmanship

All work to be completed according to New Zealand Plumbing and Drainage Standards AS/NSC/3500

All piping to be installed in accurate lines and uniform grades. Piping to be arranged so as free from vibration, while allowing for thermal movement. Ensure no direct contact between incompatible metals and keep the number of joints to a minimum.

All water pipes are to be held under test at main pressure during construction.

Where possible, all piping and fittings are to be concealed within non-habitable enclosed spaces, while allowing inspection access.

Adjacent pipelines are to be at least 25mm apart and subfloor pipelines are to be at least 150mm clear of the ground.

Any piping which passes through building elements is to be adequately protected or sleeved.

Any exposed piping emerging from wall, floor or ceiling finishes is to be cover-plated with stainless steel or any nonferrous metal.

Any fixings for stays to vent pipes shall be sealed watertight at the point of penetration. Vent pipes must be terminated with bird-proof vent cowls made of the same material and colour as the vent

Cold water taps are to be to the right of, or below the hot water taps.

Ensure installation of accessories and fittings necessary for the proper functioning of the plumbing systems, including valves, taps, outlets, pressure and temperature control devices, strainers, gauges and pumps.

Specification Part A

Water heaters are to be located so as to allow maintenance or replacement without damaging adjacent structures, fixtures or finishes. The maximum water temperature at ablution outlets is to be 50 degrees Celsius, and it is recommended that a thermally activated safety device (eg. Butylene Aquafuse) diverts hot water in excess of 70 degrees Celsius to an open drain.

If a fire hose reel is serviced by the general reticulation system, the total pipe work shall be of copper and/or galvanised iron.

On Completion

On completion of any freshwater pipeline plumbing, the pipes are to be flushed with water and left clean.

The subcontractor must tidy up, remove all rubbish associated with his work from the site and leave the work in "as new" condition, upon completion of the plumbing work.

DRAINLAYER

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work covered by this section comprises the supply of all the materials and execution of all works described on the plans and in the specifications necessary to complete the drainage work.

The Contractor shall provide lights, guards, fencing and notices, etc., as may be necessary for the protection of the drainage work and for the protection of the public

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

B2	Durability
C1	Outbreak Of Fire
C3	Spread of Fire
E1	Surface Water
E2	External Moisture
G1	Personal Hygiene
G2	Laundering
G3	Food Preparation and Prevention of Food Contamination
G4	Ventilation
G5	Interior environment
G6	Airborne and impact sound
G10	Piped Services
G12	Water Supplies
G13	Foul Water
G14	Industrial Liquid Waste
G15	Solid Waste

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZ Standard Plumbing & Drainage
AS Standard Plumbing & Drainage

Workmanship

All workmanship shall be in accordance with the best trade practice and shall be carried out by licensed, skilled tradesman.

Water in Excavations

- **Standard**

All work to be completed according to New Zealand Plumbing and Drainage Standards AS/NSC/3500.

- **Stormwater/Wastewater Excavations**

During construction openings are to be provided with temporary covers to keep the systems free of debris and upon completion to be flushed and left clean.

All excavation trenches are to be kept free of water.

Pipelines are to be laid with the spigot ends in the direction of the flow.

Drain branch pipelines are to be turned up so that down-pipe connections are 50mm above finished ground or pavement level.

- **Subsoil drains.**

Connect subsoil drains to the stormwater drainage system.

Minimum trench width 450mm.

Proprietary perforated plastic pipes are to be used.

Filter fabric: use a polymeric fabric formed from a plastic yarn containing stabilisers to make the filaments resistant to ultraviolet light deterioration.

Filter sock: use a polyester permeable sock capable of retaining particles of 0.25mm size. The sock is to be securely fitted at each joint.

Backfilling of Trenches

Refer to "Earthworks and Excavation" section for specific requirements relating to backfilling under floor slabs, foundations and pavement areas.

Trenches shall not be backfilled until inspected and approved by the Territorial Authority Inspector or the Building Certifier or the Client's nominated Consultant, and any defects made good.

The Contractor shall also notify (when applicable) those persons appointed by the Client to provide the Territorial Authority with a "Construction Review Producer Statement".

The Contractor shall ensure that the required "as-built" measurements are obtained for the Territorial Authority prior to backfilling. A copy of such "as-builts" shall also be provided for the Client's records.

Backfill with 20mm nominal sized washed screenings to the following levels;

- to the underside at the bases of overlaying structures such as pavements, slabs and channels
- to within 75mm of the finished surface of unpaved or landscaped areas.

Pit Covers

Covers or gratings are to be located flush with any paved area, or 25mm above the finished surface of any landscaped area, and must be set to receive any run-off without ponding.

Septic Tanks

Any septic tank is to be made of precast concrete or glass fibre reinforced plastic.

When a septic tank system is to be installed the type of tank and method of effluent disposal shall be as designed by a Registered Consulting Engineer, and approved by the Territorial Authority.

Completion

On completion the Contractor shall return the ground surface to its original condition, dispose of surplus spoil to the satisfaction of the Client (or its nominated consultant), remove all debris and leave the site clean and tidy.

PAINTER AND PAPERHANGER

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

Work covered by this Specification is to provide all materials and execute all work necessary for the completion of the building decoration and includes all painting, varnishing, staining and polyurethaning, etc., and paperhanging

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

B2	Durability
C3	Spread of Fire
E1	Surface Water
E2	External Moisture
E3	Internal Moisture
G1	Personal Hygiene
G5	Interior environment

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

- NZS 7703:1985 The Painting of Buildings
- NZS 5807:1990 Industrial Identification by Colour Working or other coding
- BS 5252:1976 Standard Colour Range
- NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design

Materials

Paint materials shall be delivered in sound and sealed containers, labelled clearly by the manufacturer stating:-

1. The type of product
2. Brand name
3. Directions for use
4. The Manufacturer's batch number

Workmanship

• Standard

All work shall be completed in accordance with the requirements of the New Zealand Building Code and New Zealand Standard Painting practices NZC 7703 and manufacturer's instructions.

• Painting

Before commencing any painting, all exposed hardware, fittings, furniture, switch plates, light fittings and other fixtures shall be removed and carefully stored ready for refixing in "as new" condition on completion of the painting.

Clear timber finishes are to be completed prior to the commencement of opaque paint finishes in the same area.

Marks, paint spots and stains are to be progressively cleaned and any touch ups are to be done with the paint batch used in the original finish.

Apply the first coat of paint as soon as possible after preparation of the substrate and ensure that each coat or paint or clear finish is uniform in colour, gloss, thickness and texture and free of runs, sags, blisters or other discrepancies.

Apply a first coat to any exposed timber roof trim, timber doors (including tops and bottoms), window frames, trims and scribes prior to fixing.

Steel is to receive a priming coat of zinc based paint.

Timber and cork floors are to be finished with three (3) coats of clear floor sealer.

Paperhanging

All walls to be papered shall be sized or sealed after stopping.

All wallpapers shall be trimmed, cut straight and true, butt jointed and hung plumb with

patterns correctly matched. Each drop of paper shall be hung in one piece over its entire length. Cut-in patches will not be accepted unless approved by the Client (or its nominated consultant).

Paste shall be an approved brand of prepared paste with a fungicide incorporated by the manufacturer.

Completion

Remove all scaffolding, planks, rubbish and debris, thoroughly sweep up, clean windows both inside and out, replace all hardware removed during the course of the work and leave the premises ready for occupation.

WINDOWS AND GLAZING

General

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

Scope

The work done under this section comprises the supply and glazing of all windows and doors normally supplied by the window manufacturer, glazing of interior door panels where applicable, decorative glass and mirrors.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

- B2 Durability
- C3 Spread of Fire
- E1 Surface Water
- E2 External Moisture
- F2 Hazardous substances and processes
- F4 Safety from Falling
- G1 Personal Hygiene
- G5 Interior environment
- G7 Natural Light

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design

Materials

All glass provided shall be of approved manufacture, in accordance with the requirements of the New Zealand Building Code and suitable for its end use. Refer to the drawings and/or Part B of this specification for glass types, window materials and window finish.

Protection and Cleaning

Precautions are to be taken to prevent glazing from damage during and after installation, cracked or broken panes are to be replaced. All glazed surfaces inside and out are to be thoroughly cleaned, free from marks and paint spots and in perfect condition on completion.

ELECTRICIAN

General

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

Handbook to the Electrical Wiring Regulations: 1976

[Building Code reference G9/VM1]

Scope

Supply of all materials and fittings and the execution of all work necessary for the proper completion of the electrical installation.

The Contractor shall give all necessary notices, obtain all permits and pay all fees or charges as required.

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

- B2 Durability
- C3 Spread of Fire
- F3 Hazardous Substances and processes
- G5 Interior environment

Handbook to the Electrical Wiring Regulations: 1976

[Building Code reference G9/VM1]

Circuit Wiring

Circuit wiring shall be carried out with concealed TPS cables.

Wiring in concrete and concrete blockwork shall be TPS cables run through PVC conduit.

Interior Lighting

The placement of light fittings shall be as shown on the plans.

Where no lighting plan is provided the placement of light fittings and illumination from such fittings shall be in accordance with the requirements of the New Zealand Building Code Approved Documents. The design shall be undertaken by a person competent in the field of lighting design.

Switches, Sockets, Roses, etc

All switches, sockets and ceiling roses shall be of approved manufacture.

Responsibility for Correct Completion

Where any work does not comply with the drawings and this specification the Contractor shall correct such noncomplying work at their own expense.

Testing and Completion of Work

The Contractor shall carry out all testing as required by Regulations and the Network Utility Authority. The electrical work shall be deemed completed when all requirements of the regulations and this specification have been met in full and the installation passed by the Network Utility Authority's Inspector.

ROOFER

(Incorporating Concrete Roof Tiles, and Metal Wall Claddings)

General

Refer to Preliminary & General and other sections which may have clauses affecting work done under this section.

Scope

The work covered by this section comprises the supply of all the materials and execution of all works described on the plans and in the specifications necessary to complete the roofing work.

The Contractor shall provide lights, guards, fencing and notices, etc., as may be necessary for the protection of the roofing work and for the protection of the public

NZ Building Code

All work and materials shall be in accordance with the requirements of the Building Regulations 1992 and with the New Zealand Building Code Handbook and Approved Documents.

- B2 Durability
- C3 Spread of Fire
- E1 Surface Water
- E2 External Moisture
- E3 Internal Moisture
- G4 Ventilation
- G12 Water Supplies

Where applicable the following standard and related documents and subsequent amendments shall form part of this specification:

NZS 3604:1999 Code of Practice for Light Timber Framed Buildings Not Requiring Specific Design

Workmanship

All workmanship shall be in accordance with the best trade practice and shall be carried out by licensed, skilled tradesman.

Advice of licensed building practitioner(s)

Owner must notify names of licensed building practitioners before restricted building work commences

Send or deliver this form to:

Building Control, Kapiti Coast District Council, Private Bag 60-601, Paraparaumu 5254.
For enquiries, phone (04)296 4700. eMail: kapiti.council@kapiticoast.govt.nz

Council use only:
BC Application #

The building (project location)

Building name (if applicable)	
Building street address	12 Matuhi st Waikanae

The project

Building consent number	140363
-------------------------	--------

The owner (must be completed and all details must be the owner's)

Owner's name (for individuals, state the preferred form of title, e.g. Mr, Mrs, Ms, Miss, Dr. For companies, trusts and other organisations provide a contact person's name)	Mr & Mrs O'Keefe	
Address	39c Exchange st Upper Hut	Date: 14/7/4
Owner's contact details	Landline: Mobile: After hours:	Fax: Email:

Licensed building practitioners engaged to carry out/supervise restricted building work

Particular work to be carried out or supervised	Name	Licensing class	Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act)
Carpentry	John Peard	Carpentry	BP105910
Roof	Aaron Arthur	Roof	BP127133

Note: Continue over page if necessary

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING	
Street address: 12 Matuhi St	
Suburb: Waikanae	
Town/City:	Postcode:

THE PROJECT
Building consent number: 140363

THE OWNER(S)	
Name(s):	
Mailing address:	
Suburb:	PO Box/Private Bag:
Town/City:	Postcode:
Phone number:	Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick <input checked="" type="checkbox"/>	If necessary, describe the restricted building work.	Tick <input checked="" type="checkbox"/> whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Walls <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Roof <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Columns and beams <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Bracing <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Other <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick <input checked="" type="checkbox"/>	If necessary, describe the restricted building work.	Tick <input checked="" type="checkbox"/> whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Roof cladding or roof cladding system <input checked="" type="checkbox"/>	Installed corrugated iron roof as per consented plan and NZ Steel hand book	<input checked="" type="radio"/> Carried out <input checked="" type="radio"/> Supervised
Ventilation system (for example, subfloor or cavity) <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Wall cladding or wall cladding system <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Waterproofing <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Other <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: **Aaron Arthur**LBP number: **BP127133**

Class(es) licensed in:

Carpentry

Plumbers, Gasfitters and Drainlayers registration number (if applicable):

Mailing address (if different from below):

Street address/Registered office:

Suburb: **Lower Hutt**Town/City: **Wellington**PO Box/Private Bag **30389**

Postcode:

Phone number: **977 3501**Mobile: **027 527 8487**

After hours:

Fax:

Email address:

Website:

DECLARATION

I, **Aaron Arthur** carried out or supervised the restricted building work recorded on this form.

Signature: *A. Arthur*Date: 1-12-14*Validity authenticated**18 DEC 2014*Signature: *[Signature]*

Memorandum from licensed building practitioner:

Record of Building Work

Section 88, Building Act 2004

THE BUILDING

Street address: 12 Matchi Street.

Suburb: Waikanae

Town/City: Kapiti

Postcode: 5250

THE PROJECT

Building consent number: 140363.

THE OWNER(S)

Name(s): W + O Okede

Mailing address: 12 Matchi Street.

Suburb: Waikanae.

PO Box/Private Bag:

Town/City: Kapiti

Postcode:

Phone number:

Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick <input checked="" type="checkbox"/>	If necessary, describe the restricted building work	Tick <input checked="" type="checkbox"/> whether you carried out the work or supervised someone else.
Foundations and subfloor framing	<input checked="" type="checkbox"/> RB raft floor.	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised
Walls	<input checked="" type="checkbox"/> 100x50 pre nail frames	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised

PRIMARY STRUCTURE			
Roof	<input checked="" type="checkbox"/>	<p>Framed out with Trusses + Purlins.</p> <hr/> <hr/> <hr/>	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised
Columns and beams	<input checked="" type="checkbox"/>	<p>Constructed Timber Column with 100x100 + lined with lining on a cavity.</p> <hr/> <hr/> <hr/>	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised
Bracing	<input checked="" type="checkbox"/>	<p>G15 bracing as per Drawing.</p> <hr/> <hr/> <hr/>	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised
Other	<input type="checkbox"/>	<hr/> <hr/> <hr/> <hr/>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS			
Damp proofing	<input type="checkbox"/>	<hr/> <hr/> <hr/> <hr/>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Roof cladding or roof cladding system	<input type="checkbox"/>	<hr/> <hr/> <hr/> <hr/>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Ventilation system (for example, subfloor or cavity)	<input type="checkbox"/>	<hr/> <hr/> <hr/> <hr/>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS CONTINUED

Wall cladding or wall cladding system	<input checked="" type="checkbox"/> <u>Linea weatherboard over Timber cavity system.</u>	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised
Waterproofing	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Other	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: John Lead LBP number: 105910

Class(es) licensed in: Carpentry

Plumbers, Gasfitters and Drainlayers registration number (if applicable): _____

Mailing address (if different from below): _____

Street address/Registered office: 2 Koromiko Road

Suburb: Waikanae Town/City: _____

PO Box/Private Bag: P.O. Box 365 Postcode: _____

Phone number: 0275446448 Mobile: _____

After hours: _____ Fax: _____

Email address: jplbuilding.jpe@gmail.co Website: _____

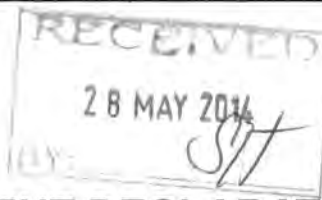
Validity authenticated
 Signature: [Signature]
 18 DEC 2014

DECLARATION

John Lead carried out or supervised the restricted building work recorded on this form.

Signature: [Signature] Date: 8-12-14

000034



WATER DEMAND MANAGEMENT DECLARATION OF COMPLIANCE



In 2009 Council required all new homes built in urban areas to provide an alternative source of water for flushing toilets and outdoor irrigation. This form is to be submitted with all applications for a Project Information Memorandum/Building Consent for new or relocated dwellings on land zoned residential.

Address of Project	12 Matuhi Street, Waikanae
Number of Dwellings	ONE.
Building Consent Number	(Office Use Only)

1. Water Demand Management Solution:

All dwellings subject to this development (new or relocated) will use one of the following water demand management solutions in accordance with the District Plan (please tick one box):

<input checked="" type="checkbox"/>	Rainwater storage tanks with a total volume of not less than 10,000 litres, for each house in the development.
<input type="checkbox"/>	Rainwater storage tanks with a total volume of not less than 4,000 litres, for each house in the development, and a complying greywater diversion device.
<input type="checkbox"/>	The application is made with an alternative solution (note that a discretionary resource consent will be required).
<input type="checkbox"/>	The application is made without provision for water demand management (note that a notified resource consent will be required).

2. For All Applications where Water Demand Management Will be Provided:

Volume of rainwater storage tanks:

I confirm all the following:

<input checked="" type="checkbox"/>	That the rain water tank volume complies with selected water demand management option and have provided a certificate from the manufacturer demonstrating the tank volume.
<input checked="" type="checkbox"/>	That there will be no direct connection from the reticulated water supply to any outside taps.
<input checked="" type="checkbox"/>	That there will be a direct connection from the rainwater storage tanks to all internal toilet cisterns and any external taps.
<input checked="" type="checkbox"/>	That there will be no direct connection from the reticulated water supply to any toilet cistern.
<input checked="" type="checkbox"/>	I understand that the toby or manifold may have to be replaced with a dual feed manifold at my expense. <i>A dual feed manifold has one supply for the house a separate restricted supply to connect to the rainwater tank.</i>
<input checked="" type="checkbox"/>	I have completed Kāpiti Coast District Council Form 159: "Water Supply Connection / Alteration Application Form". <i>An applicant is required to submit this form to Kāpiti Coast District Council Water and Wastewater Team if a new water connection or alteration of existing connection is required.</i>

3. For Applications Where a Greywater Diversion Device is to be Installed:

Size of Disposal Field:

(Note that this needs to be marked on the site plan or the plumbing and drainage plan submitted to Council).

NA

I confirm all the following:

- That greywater will be collected from all laundry and bathroom drains (excluding toilets) and channelled to a greywater diversion device for use in outdoor irrigation.
- The greywater worksheet is attached and confirms that greywater diversion is suitable on the lot.
- That the device will be installed by an approved installer and that a certificate demonstrating this will be available to Council on request after installation.

4. Signatures

Name:

Alan J Wood

Signed:

AJ Wood.

Date:

27 / 5 / 14 .

CODE COMPLIANCE CERTIFICATE REVIEW CHECKSHEET

Criteria: All building work except for minor works or major projects.
Refer QAS: B14, B15, B16



Address of Project: 12 matuhī st, waikanae	
Date: 18-12-14	BC No: 140363

	N/A	Yes	No
Application for Code Compliance Certificate (Form 278) completed?		✓	
Confirm all required inspections and been completed and passed		✓	

If Inspections have been missed, what supporting info and method of verification has been provided to compensate for missed inspections?

	N/A	Yes	No
Work in accordance with approved consent and approved amendments		✓	
If no, has NTF been issued?			
Have items of non-compliance been resolved and NTF uplifted?			

Note: If work is not in accordance with consent, (and approved amendments) or NTF matters have not been resolved, suspend application for Code compliance Certificate.

Supporting documentation required in building consent addenda. Form completed during BC Approval process			
<i>Tick indicates yes, N/A indicates considered – but not applicable</i>	Req'd	Supplied	Accept
Copy of electrical certificate	✓	✓	✓
Copy of gas certificate	✓	✓	✓
An "as-built" drainage plan	✓	✓	✓
Plumbing (Form 125) for pressure test and installation piped services	✓	✓	✓
Drainage (Form 126) for stormwater installation	✓	✓	✓
Drainage (Form 127) for private sewer installation	✓	✓	✓
A Construction Review (PS4) statement for Structural engineering	✓	✓	✓
A Construction Review (PS4) statement for Fire engineering	N/A		
A Construction Review (PS4) statement for Geo-technical engineering	✓		✓
Roof cladding warranty	✓	✓	✓
Solar water heating technical specifications	N/A		
Wall cladding/texture coating installation applicator warranty			
A copy of the lift certificate			
A certificate from the fire alarm installer			
A certificate from the sprinkler certifier			
A copy of wet-area membrane installers warranty			
A copy of deck membrane manufacturer's installers warranty/guarantee			
FPIS (verifier) Fire Systems Certification			
Specified Systems – Make - Model - Location			
A copy of windows			
A copy of water tank warranty 12,000 lt installed cert	✓	✓	✓
A copy of septic tank warranty	N/A		
Record of work	✓	✓	✓

If specified supporting documentation has not been provided, what alternative information or verification method has been provided to compensate. (describe):

Compliance Schedule	Yes	No
Is a new or amended compliance schedule required?		<input checked="" type="checkbox"/>
If "Y" Has it been issued? (Refer note below)		
If the new/ revised compliance schedule has not been issued, what action has been taken to ensure it will be issued? Outline:		

Note: If the draft/ revised compliance schedule has not been issued, the Code Compliance Certificate cannot be issued. Suspend issuing CCC until this matter is addressed.

Building Consent Requirements	Yes	No
Are there any item specified in the building consent or PIM that have not been completed. Outline:		
Are there any development impact fees to be paid outstanding? (if Yes, CCC cannot be issued)	Yes	No
Are there any other outstanding fees? (if Yes, CCC cannot be issued)	Yes	No

Decision
Issue Code Compliance Certificate? <input type="checkbox"/> or Refuse Code Compliance Certificate? <input type="checkbox"/>
Give reasons for decision:

Building officer:	Co-reviewer:	
Signature: <i>Ch Watson</i>	Signature:	
Date: <i>18-12-14</i>	Date:	
Name: <i>WATSON</i>	Name:	
Copies	Yes	No
File: Compliance Schedule, Compliance Schedule Statement, and CCC placed on file.		
Applicant: Copies of Compliance Schedule, Compliance Schedule Statement sent out with the CCC		
Inspection Pack: Add copies of Compliance Schedule, Compliance Schedule Statement and CCC		

VEHICLE CROSSING INSPECTION FORM

Building Consent: 140363

Date: _____

To: Building Inspectors

Owner: _____

Address: 12 Matuni Street
Waikanae

Can you please inspect the above Vehicle Crossing, footpath and berm and return the completed form to me signed.

Thank you

Inspected by:	
Date Inspected:	
Approved:	<input type="checkbox"/> YES <input type="checkbox"/> NO

COMMENTS:

BUILDING CONSENT PROCESSING CHECKLIST



Proposal: New Dwelling
 Address: 12 Matuhi St
Waikanae

BC: 140363
 Category:
 Residential Commercial

Key	
N/A <input type="checkbox"/>	Not Applicable to this application. (The deletion of whole sections as N/A is permitted. For alternatives comment below each section).
No <input type="checkbox"/>	Plans, specifications & documentation not complying with the Building Code &/or Bld Act (The reason specified alongside each prompt)
Yes <input type="checkbox"/>	Plans, specifications & documentation complying with Category Bld Code &/or Bld Act (The reason specified alongside each prompt)
Note	The further information requests are identified by hand written numbers and corresponding on FIR letters / e-mails sent

Site Plan (NZS 3604 Sec 3.4, 4.5 Code clB1, B2,E1, E2 F1&F2 Sect. 72, 75 BA04)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Comments	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Wind zone High V/ High Specific (GIS) Site specific (3604) <u>HIGH WIND ZONE</u> <u>GIS</u>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Flooding / ponding hazards (GIS) <u>to Rear - covered in Resource Consent / easement</u>
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Slippage / fault line hazards (GIS)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Erosion, river & coastal hazards (GIS)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Subsidence / soft soil hazards (Site inspection notes)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Corrosion zone Zone D or Zone C <u>ZONE C</u> <u>GIS</u>
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Soil contamination (F1 GIS)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Distances to boundaries / siting (District plan)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Floor levels / contours (E2/AS1 & NZS 3604 E1)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Two or More Allotments (Sec 75 - 83 Bld Act)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Noise / sound insulation (airport & highway)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	CT/221 notice reviewed
Additional Comments	

Specific Design (Verified Online PS2, B1, B2, VM1)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Comments	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	PS1 Design Certificate (B1 B2 VM1) <u>Ribraft Foundation ; Inss Design</u>
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	PS2 Peer Review (B1 B2 VM1)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Calculations (VM1)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	CPEng (Verified Online) <u>JOHN O'HAGEN 179947 ; In Ling Ng 146585</u>
Additional Comments	

Concrete / Foundation Plan (NZS 3604, NZS 4210 & 4229 E2/AS1)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Comments	
Layout	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Layout dimensions (NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Control joints (NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Slab thickening (NZS 3604, cl 7.5) <u>85mm</u>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Alternative (specify reason) <u>RIF RAFT FOUNDATION</u>

Section	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Depth & width (NZS 3604) 305 x 300 4 50sq x 600 deep for post
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Reinforcement (NZS 3604;B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Plate fixings (NZS 3604;B2 cl 7.5)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	DPM (NZS 3604;B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Engineer design and Calcs (B1;B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Concrete strength (B1;B2 cl 4.8.2) 25 MPa
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Foundation wall tanking (B2, E2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Alternative (specify reason)
Additional Comments	ENGINEER DESIGN - RIB RAFT FOUNDATION

Timber/Subfloor (NZS3604 NZS 3602 & 3640, B1, B2)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Comments
Layout	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Layout dimensions
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bearers details (B1,B2) N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Joist details (B1;B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Section	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Foundation type/size (NZS 3604;B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Piles post sizes & treatment (NZS 3604;3602;3640;B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pile c/c (NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fixing (NZS 3604;B2) N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Coatings(durability) (NZS3604 ;B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Ventilation & Access to sub floor spaces (NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
* If the addition is an upper storey show details on upgrading existing foundations, joints, piles, etc (may require Engineer design)	
Additional Comments	

Floor plans / layout (B1, B2, C1-4, D1, E3, F7, G1, G2, G12 G3, G9, G11, G13)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Comments
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Room dimensions
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Sectional lines
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Location of partitions
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	All designated spaces
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Lintels (NZS 3604;B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Beams (NZS 3604, B2 by engineer) 290x90 veranda beam + Bowman P85 post
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Point loads by engineer or preailer (B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Smoke detectors (F7) on electrical Plan
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Wet areas / WCs (D1, Table 2; B2) Bathroom / ensuite, laundry
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Kitchen (G3)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
* Changes to existing work requires both an existing floor plan & a proposed floor plans. * Facility provided for washing utensils / food G3, Section 1.1 & Figure 1: * Preparation Area and Access to Facility Paragraphs 1.1.2 and 1.5	
Additional Comments	

Wall Framing (B1, B2, B3)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Comments
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Identify engineering / Structural items/ portals (B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	By preailer or to NZS 3604 (B1 B2) 90x45 H1.2 external
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Fixing types (NZS 3604 B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Stud c/c as per wind zone (NZS 3604 B1 B2) 600cfs
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Wall Cladding section
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Stud heights of rooms (NZS 3604 B1 B2) 2420
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Roof (NZS 3604, 3602 & 3640 B1B2E2 E2/AS1).	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Comments
Trussed / by preailer or Framed roof (NZS 3604)	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Fixing layout & details (B1 B2) Truss H1.2 900cfs
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Correct layout (B1)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Max span (12m or Engineer) (B1)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Purlin or batten c/c (B1 B2) 75x45 H1.2 900cfs
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Rafters / Beams (B1 B2) Rondo Battens
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Ceiling joists, ceiling battens Rondo Battens
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Roof cladding - Metal ; Profiled Metal; Masonry, Membranes (Code E2, E2/AS1 B2)	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Pitch / profile / grade (E2) 9° + 9° Endura
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Underlay (E2) Thermakraft 215
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Flashings (E3; E2, B1 B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Parapets (B1 E2 B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Membrane Roofs and substrate (Code E2/AS1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Gutters, Barges & Fascias detail (Refer E2, section 8.3, cl 8.3.9)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
<i>Installation of profiled metal roof cladding shall be by trained installers, approved by the tile manufacturer or NZ agent. In some cases experienced builders undertake installation, refer E2, section 8.4, cl 8.4.2 'General'</i>	
Additional Comments	

Claddings (Code B1 & B2 E2/AS1, Branz good practice Guides & Weather tightness Vol 12&3)	
N/A No Yes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Comments
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Risk matrix Cavity or direct (E2/AS1) Highest 7
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Building wrap (E2/AS1) Thermakraft coverup
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Brick Veneer (E2/AS1; B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Timber Weatherboard (E2 Branz Timber Guide Vol 1&2; B2) with James Hardie Saxon Axon
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stucco (B1 NZS 3604 Branz good practice guide; B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Profiled Metal (E2 Metal Roofing Practice; B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Plywood (E2; B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fibre Cement W/b (E2; B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Board & Batten (Branz good practice guide; B2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Fibre Cement Sheet (E2; B2) James Hardie Saxon 'Axon' panels
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Weathertightness details (E2; B2)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Bracing (NZS 3604 B1, B2, E3)	
N/A No Yes	
Comments	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Subfloor bracing (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Wall bracing (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Roof bracing (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Bracing calculations (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Provide bracing plan layout (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Double top plate (if > 5m) (B1 & NZS 3604. Required where ceiling lining density is less than 600kg per m3 e.g. pinex)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Indicate dragon tie (if > 6m) (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Diaphragm ceilings (if > 7.5m) (B1 & NZS 3604)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Check for distribution (B1 & NZS 3604)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Light & Ventilation B1 G4, Clause 1.2 ; G4, clause 1.3 G7, G9 F2	
N/A No Yes	
Comments	
General	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Vent 5% (G4)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Light 10%. (G7)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Electrical (G9)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Mechanical ventilation (G4) Ensuite Bathroom + Kitchen
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Exterior space for awareness (G7)
Glazing	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Safety glass (F2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Wind zone (B1. NZS 3604 NZS4223)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Visual manifestation (NZS 4223)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Insulation (BRANZ Home Insulation Guide, NZS 4218, AS/NZS 2918)	
N/A No Yes	
Comments	
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Floor (H1) 1.29
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Wall (H1) 2.12 max
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Roof (H1) 2.65
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Windows / glazing (H1) 19%
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	Design Navigator H1 60% rule.

Stairs / Landings / Handrails (D1, sec 4)	
N/A No Yes	
Comments	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stair tread & risers (D1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Landing size (D1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Handrail (D1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Riser opening (min) where children (D1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Head Height (D1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Balustrading/guarding
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Stair type: Minor Private: Max rise 220mm/Min tread 220mm., Secondary Private: Max rise 200mm/Min tread 250mm, Main Private: Max rise 190mm/Min tread 280mm. (Main private includes exterior stairs)	
Additional Comments	

Decks / Balconies / Barriers (D1, F4 & NZS 3604, Section 6 & 7)	
N/A No Yes	
Comments	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Barrier & deck fixing durability (D1 B1 B2 F4)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Top rails, balusters, bottom rails, palings (D1 B1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	If Engineer then calculations required (B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Max 3m height or Engineer (B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deck joist sizes, grade, treatment, span & spacing (D1 B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Piles & bearers the correct grade, treatment, size, spacing & span (D1 B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Slip resistance (D1)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Appropriate waterproofing membrane (B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stringer size & connections (D1 B1 B2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Thresholds (D1 E2)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Fire (Residential) (NZBC F7, Cdoc)	
N/A No Yes	
Comments	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Travel distances max 25m (C/A S1 T3.2)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Smoke detectors (F7) on plan, with 3m of bedroom
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Wood burners (F7)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Garage fire wall details (C7 (C7.10 C7.8)
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Swimming Pool & Fencing (Fencing of Swimming Pools Act 1987)	
N/A No Yes	
Comments	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Refer to Compliance for sign off
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Specific Engineering Design
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Proprietary system/design
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Section/construction
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pool backwash discharging the sewer
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fence height
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gate(s) / door(s) open outward

Ambiguity / Contradictions

N/A No Yes

Comments

<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Manufacturers Specs	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Engineer compared with Designer/Arch	N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Any Other contradictions	
Additional Comments		

Alternative Solutions

Record assessment, decision and reasons for decisions below. Has the designer substantiated why they believe the proposal complies with the building code? Is there a determination on a similar proposal? Has corroborative evidence been provided (peer review, appraisal or determination)? Include reference to comparison with acceptable solutions, other documents / standards / best practice guides / publications, expert opinion, determinations, in-service history, product certification, professional judgment, building code objectives. Refer BRANZ Bulletin # 456 (Dec 2004). List any conditions / communications / actions:

(This area is currently blank, crossed out with a diagonal line.)

This sheet relevant to plumbing & drainage only

N/A No Yes

Comments

General

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Kitchen area (G3/AS1)
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Laundry <i>in the garage area</i>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Bathrooms
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Location of sanitary fixtures
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Plumbing layout
	Plumber's Reg no..... <i>TBA</i> Drainlayers Reg no..... <i>TBA</i>
Additional Comments	

Effluent Disposal Systems

<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Engineering Site Investigation
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Design Specification & Producer Statement

The design criteria should include; Capacity based on bedroom numbers, Loading calculation, site evaluation, soil profile, site characteristics.

Additional Comments	<i>connecting to town sewer</i>
---------------------	---------------------------------

Water Supplies

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	G12 <i>external gas infinity ✓</i>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Town supply
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Private scheme <i>Roof catchment to supply wc's + exterior hose taps</i>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Type & location <i>Council full metered supply to the balance of fixtures</i>
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)

Additional Comments	<i>PC75 applies ✓ form 164 provided ✓ form 159 provided ✓ → form 159 provided to Aldrin 11/6/2014</i>
---------------------	---

Sanitary Drainage

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	G13 <i>NZ/AS3500</i> <i>O-RGV 2x Termeril vents ✓</i>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Layout
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Council availability or
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Septic tank design & calcs
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)

Additional Comments	
---------------------	--

Stormwater Drainage

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	E1
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Layout
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Council availability
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)

Additional Comments	<i>stormwater to 19000lt water storage tank overflow to kerb connection provided</i>
---------------------	--

Sanitary Plumbing

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	G13 <i>NZ/AS3500</i>
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Layout
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)

Additional Comments	
---------------------	--

Rates forms ✓ service location ✓ 221 Notice checked no P+D requirements

GIS checked ✓ P+D Pack ✓

Accessibility (D1, G5, F8, NZS 4121)	
N/A No Yes	
□ □ □ Comments	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Car parks
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Projections
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Kerb ramps
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Footpaths / Ramps / Landings
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Entrances
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Public Facilities
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Lifts
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stairs
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stair / ramp/ handrails
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Doorways / Doors / Corridors / Lobbies
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Controls
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Places of assembly / entertainment / Recreation
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Warning Systems
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Toilet Facilities / Laundering
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Food preparation / accommodation
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signs
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential Accessibility (D1)
Additional Comments	

Commercial Fire report (C/VM1, C/As1, C/AS2, C/A34, C/AS4, C/AS5, C/AS6, C./AS7, F6, F7, F8)	
N/A No Yes	
□ □ □ Comments	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Risk Group
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire cell separation /use of building
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Life rating FRR
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property rating FRR
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Occupancy numbers
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Means of escape
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Travel distances
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	External walls/unprotected areas / Cladding properties
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire resistance to supporting elements/floors/ walls
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Risks to/below escape routes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire safety systems
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Internal surface linings
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signs
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hazardous agents / materials / substances on site
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Referral to NZFS Fire Engineering unit
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Solid Waste (G15)	
N/A No Yes	
□ □ □ Comments	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Waste bin area
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Environmental health referral
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative (specify reason)
Additional Comments	

Hazardous Agents, Materials and substances (F1-F3)	
N/A No Yes	
□ □ □ Comments	
<input checked="" type="checkbox"/> □ □	Waste bin
<input checked="" type="checkbox"/> □ □	Environmental health referral
Additional Comments	N/A

Work Sheet

weathertight ^{weathertight} window, jamb, sill, head, Garage head/jamb

^{Axon} window jamb, sill, head, ^{Axon} door head, jamb, grd/slab

Barge, upstand, ^{H/S} electrical box, cladding, ^{int/ax} internal/ext

Eaves/soffit Penetrations Axon/linear junction

Post/beam details - - sheet 25

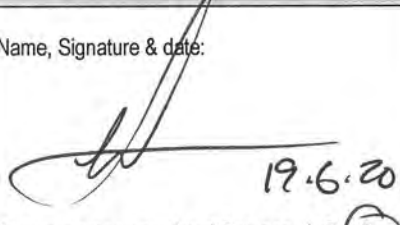
- General stamp prompts:**
- Wind Zone
 - Corrosion
 - Cladding
 - Electrical
 - Bracing Highlighted
 - Boundary setting out
 - Engineers design and addendum
 - Set Status
 - Complete checklist
 - Addendum and note re fire report
 - Section 72 / ponding
 - Set inspections

Change of Use – Sec 114: <i>(Record decisions and basis for decisions – confirm whether sec 115 applies)</i>		
Date:		
Alteration to Existing Building - Sec 112 <i>(Record decisions and basis for decisions – confirm whether sec 118 applies and if so, has it been complied with?). List conditions / communications / actions:</i>		
Date:		
Hazards – Sec 71-74 : <i>(Record decisions and basis for decisions – see under "site plan above already done")</i>		
Date:		
Compliance Schedule – Sec 100 - 107: <i>(Record if new / amended compliance schedule required, and attach copy of replica compliance schedule. Ensure that note is recorded on building consent that new / amended compliance schedule will be issued).</i>		
Date:		

<p><i>Note :- Refer to the associate code clause along side each prompt above for compliance or reason of decision</i></p> <p>Plan checked yet Unsatisfactory</p> <p>Refer to the official request for further information correspondence (letter, email or phone call) for final list of required information. For acceptance of returned information refer to addendum to form 436</p> <p style="text-align: center;">Signature, name & date</p> <p>Bldg: _____</p> <p>Plumbing: _____</p> <p>Fire: _____</p>	<p>I am satisfied on reasonable grounds that the provisions of the Building Code are met and the</p> <p>Building consent may be granted (refer Bld Act Sec 49(1))</p> <p>No Further Information Requests have been made.</p> <p style="text-align: center;">Signature, name & date</p> <p>Bldg: <i>Atterhewell Alison Atterhewell 19.06.14</i> (for all pages except those listed below)</p> <p>Plumbing: <i>Simon Lopp 1/6/2014</i> Portion only (relevant NBC clauses E1, G10, G11, G12, G13) (For pages 6 of 11 unless otherwise listed)</p> <p>Fire: (As listed on page 7 of 11)</p>
--	---

Addenda to Form 436
Allocation of work to approvals officer outside current competency

Building Category	Circle Appropriate Category	0	1	2	3
			(1)		

1) Authorised by Team Leader of delegate	Level of supervision required	Reason for decision
Name, Signature & date: Simon Copp 11/6/2014	Coaching Mentoring Peer review on completion	In training Vetting one level above competency Other
2) Approval Officer undertaking training	Record of Learning	Decision
Name, Signature & date: Alison Helliwell 19 June 2010 Current competency level Category 0, 1 or 2		I am satisfied on reasonable grounds that the provisions of the Building Code are met and the building consent may be granted (Refer Bld Act 49(1))
3) Coach / Mentor / Peer reviewer	Training needs identified	Comments
Name, Signature & date:  19.6.2014 Current competency level Category 1, 2 or 3		I am satisfied on reasonable grounds that the provisions of the Building Code are met and the building consent may be granted (Refer Bld Act 49(1))

Allocation Notes

- Categories of building are determined on receipt of application.
- All applications are re assessed for the category and allocated to each appropriate Officer at the earliest opportunity and then placed in processing shelves accordingly.
- Approvals staff are aware of their own competency level and check the allocation of work.
- Approvals staff may select, for training purpose, a consent 1 (one) category higher than their current competency for the purpose of increasing their skill level provided they gain approval from the Team Leader Building Consent Approvals. Once approval is given the Team Leader Building Consent Approvals will arrange for the appropriate supervision and final peer review.

CHECKSHEET: SINGLE RESIDENTIAL DWELLING AND ACCESSORY BUILDING

including single stand-alone dwellings, dwelling additions and/or alterations, re-piling, garages, decks, gazebos, sheds, retaining walls etc.

Kapiti Coast District Council,
175 Rimu Road, Paraparaumu 5032
Private Bag 60601, Paraparaumu 5254
For enquiries, phone 04 296 4700

000047



Address of Project: 12 Matuhi street, Waikanae.

This checksheet shows you the information that has to be supplied with your building consent application. Please attach **2 copies** of the following information (unless otherwise specified) with your completed Building Consent Application Form.

Please tick relevant box in the Customer Use column as you attach the information. If the box is not relevant to your application, write NA across the box. Please check each section carefully and complete those sections that are relevant to your project.

Once you have attached all the required information, please check for completeness as an incomplete application or lack of any supporting information will mean that your application cannot be accepted for processing.

An Application Form is attached to this checksheet — Please include this checksheet with your application

Customer Use	1	GENERAL	For Office Use Only
		Complete this section for all applications	
<input checked="" type="checkbox"/>	a	Building Consent Application Form (1 copy) Completed and signed by the owner or by an agent on behalf of the owner	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	b	Proof of Ownership (1 copy) <i>KCDC Search Release.</i> One recent copy of <u>current</u> certificates/s of title (i.e. not older than 3 months) or where applicable one copy of purchase agreement (if recently purchased) or one copy of relevant portions of current lease.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	c	Locality Plan (1:500) showing: Physical location of the subject building in relation to streets or landmarks, north point, name of building and lot and DP number.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	d	Restricted Building Work Does the application involved restricted building work? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, provide certificate(s) of design work and advise Council of your Licensed Building Practitioner(s) as per the Advise of Licensed Building Practitioners Guidance sheet.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	e	Inspections and Monitoring Details of proposed inspection regime including monitoring by council officers and other professionals e.g. architects, engineers, surveyors and certification to be supplied on completion.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	f	Site Plan (1:100) showing: Dimensions of all boundaries, north point, finished floor levels, ground contours (extended to boundaries) and/or levels, site area, street name and number, lot and DP number, outline of building, distance to boundaries and the position of swimming or spa pools. Include on the site plan the designated wind zone of the site (e.g. specific design, very high, high, medium or low).	<input checked="" type="checkbox"/>

For office use only Received on the grounds that all information appears to have been provided to enable assessment for compliance in accordance with the Building Act 2004 and the NZ Building Code:

Name:

Signature:

<input checked="" type="checkbox"/>	g	Application Fee <i>On Our Account. Please.</i> Applications will not be accepted without payment of the appropriate fees. Fees payable are set out in the published fee schedule of the council that has jurisdiction over the project site.	<input checked="" type="checkbox"/>
-------------------------------------	---	--	-------------------------------------

2	CHANGE OF USE
---	----------------------

Complete for all existing buildings where the proposal involves forming a household unit where one did not exist before.
 Example: the conversion of a garage or shed into a residential unit

<input type="checkbox"/>	a	Assessment of the Building for Compliance with the Building Code Section 115(a) of the Building Act 2004 requires that the building, in its new use, complies fully with all clauses of the Building Code.	<input type="checkbox"/>
--------------------------	---	--	--------------------------

<input type="checkbox"/>	b	Reasonably Practicable The above assessment must relate to all building code clauses. If the proposal is for the project to meet anything less than full compliance with any clauses, your application must clearly state your reasoning, with supporting documentation, and show how you will meet the highest level of compliance that can be considered reasonably practicable.	<input type="checkbox"/>
--------------------------	---	--	--------------------------

3	FOUNDATIONS / FLOOR
---	----------------------------

Complete for all new buildings, for existing buildings where the footprint of the building will change or where an additional storey is being added

<input checked="" type="checkbox"/>	a	Foundation Plan (1:100 / 1:50) showing: <ul style="list-style-type: none"> • Dimensions of all new foundations • Sub-floor, including bracing • Footing details • If a concrete slab, show basic details including reinforcing and contractions joints • Piles and footing • If the addition is an upper storey show details on upgrading existing foundations, joints, piles etc • Indicate ventilation to sub floor spaces 	<input checked="" type="checkbox"/>
-------------------------------------	---	--	-------------------------------------

<i>N/A</i> <input type="checkbox"/>	b	Subfloor Bracing Provide subfloor bracing plan and calculations for all piled structures. Where the structure is specifically engineered, this should be included with the structural calculations. Subfloor bracing plan and calculations are required where an additional storey is to be added	<input type="checkbox"/>
--	---	---	--------------------------

4	CONSTRUCTION
---	---------------------

Complete for all new structures or alterations to existing structures.

<i>N/A</i> <input type="checkbox"/>	a	Existing Floor Plan (1:100 / 1:50) showing: (For additions and alterations only) <ul style="list-style-type: none"> • All levels • All designated spaces • All removals • Sanitary fixtures • Smoke detectors 	<input type="checkbox"/>
--	---	--	--------------------------

<input checked="" type="checkbox"/>	b	Proposed Floor Plans (1:100 / 1:50) showing: <ul style="list-style-type: none"> • Room dimensions • Location of partitions • All designated spaces • All floors (new or altered) • Location of sanitary fixtures • Stairs, barriers, handrails, floor joists and beams • Floor joist layout for each level with timber floors • Smoke detectors • Note where wall will form part of the swimming pool fence 	<input checked="" type="checkbox"/>
-------------------------------------	---	---	-------------------------------------

<input checked="" type="checkbox"/>	c	Pre-nail Truss and Frames <ul style="list-style-type: none"> • Specific design wall framing requires clarification • Truss layout must be supported by design certification and design of fixing details, including consideration of load paths to ground • Lintels carrying point loads, such as from girder trusses, require specific engineering design 	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	d	Wall Bracing Plan (1:100 / 1:50) showing: <ul style="list-style-type: none"> • Bracing details and calculations for wall bracing (also required for existing lower storeys where an additional storey is being added) • Sub-floor bracing for decks projecting more than 2m from the house • Location, type and number of bracing elements to indicate compliance with NZS 3604:2011 (include calculations) • If the bracing was specifically designed by a structural engineer, provide calculations (required for specific design wind zones and lateral distribution of upper floor loads where lower storey bracing is provided in walls beyond the upper storey footprint) 	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	e	Sections and Details (1:50 / 1:20 / 1:10) showing: <ul style="list-style-type: none"> • Foundation details involving reinforcing and connections • Stairs, handrails, decks and decking • Insulation systems and materials to floors, walls and roof • Barriers providing safety from falling. Specific engineering design required where detail does not comply with NZBC B1/AS2 • Framing sizes, beams, lintels • Roof cladding, eaves, fascias, gutters • Flashings to openings • Fire rated systems on all walls – closer than 1 metre to boundary • Stud heights of rooms and total height from lowest ground floor level to top of ridge • Window and door installation details • Retaining wall details e.g. type, height of retained ground, relationship to boundary, waterproof membrane and proposed drainage 	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	f	Fire Report For domestic dwellings of 4 storeys or more, or buildings providing more than one household unit	<input checked="" type="checkbox"/>
5		EXTERNAL	<input type="checkbox"/>
Complete for new buildings or existing buildings with alternations to the external shell			
<input checked="" type="checkbox"/>	a	Elevations (1:100 / 1:50) showing: Accurate lines from boundary to boundary on each elevation, relevant District Plan daylight control lines, the maximum height on each elevation, location of door and window openings, fixed and opening sashes, sill heights, floor levels in relation to ground levels, exterior cladding nominated to all elevations, down pipes and spouting, ventilators to sub-floor area (suspended floors only)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	b	Risk Assessment <i>(Risk matrix in E2/AS1 may be used for buildings within scope)</i> Consider exposure, design and detailing to support appropriate selection of cladding	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	c	Cladding Details (1:50 / 1:20 / 1:10) Provide details around all penetrations, joinery and other junctions at a level appropriate to the level of risk e.g. roof/wall, balcony/wall, junction of different types of cladding, back flashing details for cavity systems	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	d	Production Certification Supply copies of product certificates relied on as compliance documents	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	e	Alternative Solutions If the proposal uses products or systems that are not covered in the Acceptable Solutions of clause E2 of the building code provide supporting current information including test results (fully signed reports), case studies, expert opinion (including evidence of experience/qualification, basis for forming opinion and statement of independence) etc to demonstrate compliance.	<input type="checkbox"/>

6

SERVICES

Complete for all projects with new installations or alteration of plumbing or drainage services

<input checked="" type="checkbox"/>	a	<p>Plumbing and Drainage Plan 1:100 / 1:50) showing: <i>Note: if you have supplied drainage details for surface water disposal on the site plan, no drainage plan is required.</i></p> <ul style="list-style-type: none"> • Sizes of pipe work and drains • Fixtures and fittings, hot water system(s) • If the building is more than one storey with sanitary fittings on upper floors, provide an isometric layout showing wastes, pipes and falls • Drainage layout with inspection bends and junctions indicated for both sewer and stormwater • Any other drainage on site including council mains and retaining wall field drains • Ventilation of sanitary rooms • Calculations for sizing of down pipes • Gully traps including overflow relief gullies 	<input checked="" type="checkbox"/>
-------------------------------------	---	---	-------------------------------------

7

STRUCTURAL

Complete for all projects incorporating specific structural design

<input checked="" type="checkbox"/>	a	<p>Structural Calculations If any design work required the services of a structural engineer, attach 2 copies of the calculations with this. The calculations must be prefaced with information explaining the design philosophy and justification of assumptions and methodologies used in analysis</p>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	b	<p>Expert Opinion (Producer Statements) If this application for consent relies on any expert opinion including producer statements certifying compliance with the New Zealand Building Code, a copy must be attached with this application. (Note all structural producer statements are required to have accompanying calculations.)</p>	<input checked="" type="checkbox"/>

8

SPECIFICATIONS

Complete for all applications

Note: the specification must be specific to the project and cover all aspects of the proposed work

<input checked="" type="checkbox"/>	a	<p>Specification: General</p> <ul style="list-style-type: none"> • Elements of structure (size, spacing, timber treatment) • Finish or fixings to meet durability requirements • Plumbing and drainage materials and design that installation is to comply with • Wet area surfaces • Ventilation systems • Flooring slip resistance for access routes • Glazing • Type of smoke detectors (including existing smoke detectors where they will remain) 	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	b	<p>External Claddings For each of the following claddings provide details of the product name, manufacturer, maintenance requirements and warranties offered</p> <ul style="list-style-type: none"> • Building wraps • Wall claddings • Roof claddings • Membranes (roof and decks) • Tanking • Joinery 	<input checked="" type="checkbox"/>

9		DEMOLITION / REMOVAL	<input type="checkbox"/>
Complete for all projects involving demolition of significant parts of buildings or the demolition or removal of whole buildings.			
<input type="checkbox"/>	a	Means of Barricading the Site Provide details of temporary barriers, gates which swing inwards or other means of restricting public access to the area	<input type="checkbox"/>
<input type="checkbox"/>	b	Proposed Tipping Location for Demolition Materials (address/landfill)	<input type="checkbox"/>
<input type="checkbox"/>	c	Hazardous Building Material Provide safety plan detailing the safe handling and disposal of hazardous materials	<input type="checkbox"/>
<input type="checkbox"/>	d	Site Management Plan Covering Management to control silt runoff, noise and dust	<input type="checkbox"/>
<input type="checkbox"/>	e	Proposed Destination for Relocate Building	<input type="checkbox"/>
<input type="checkbox"/>	f	Access To and From the Site (including use of kerb crossings)	<input type="checkbox"/>
<input type="checkbox"/>	g	Specify Termination of Existing Services <ul style="list-style-type: none"> • Water • Sewer • Stormwater 	<input type="checkbox"/>
<input type="checkbox"/>	h	Details About the Building such as: Number of storeys, type of materials the building is constructed (Photographs of the building would be useful)	<input type="checkbox"/>
<p>Note: You will need to contact the relevant service authorities specified below to advise them of the extent of your work: Electricity, gas, drainage, water, transport, telecommunications, cable television or any other services that may be affected.</p> <p>Transportation of Relocated Building You will be required to contact and provide details to Councils Transportation and Traffic Department.</p>			
10		OTHER APPROVALS	<input type="checkbox"/>
Complete for all projects involving demolition of significant parts of buildings or the demolition or removal of whole buildings.			
<input type="checkbox"/>		Please check Territorial Authority regarding the requirement for other approvals required and fees payable. These may include: <ul style="list-style-type: none"> • Consents under the Resource Management Act • Approvals under bylaws including earthworks, vehicle crossings, road openings and water connections. Show the location of swimming or spa pools on the property and describe how compliance with the Fencing of Swimming Pools Act will be achieved.	<input type="checkbox"/>

The issue of a building consent does not relieve the owner of any duty or responsibility under any other Act.

PLANNING PROCESSING CHECKSHEET

RECEIVED



Kāpiti Coast
DISTRICT COUNCIL
Me Huri Whakamuri, Ka Tiro Whakamua

Building Consent Number : BC 140363

28 MAY 2014

BY:

Duty Planner Pre-Check

Date: 30/5/14 Planner Name (print) Stacey Signature:

RC Identified Yes Applicant Contacted Email or Phone Date:

Property Information

Property Address: 12 matuhi st, waikanae

Legal Description: Lot 5 DP 413488

Planning Zone: Residential

Building Project: New Dwelling

	Yes	No	Action reqd	Action
Certificate of Title	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Easements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Drain stormwater</u>	
Section 221	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Include copy</u>	<u>Copy attached.</u>

District Plan Items to Check

	Yes	No	Action Reqd	Actioned
Heritage Register	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Eco-site/Native Veg	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Flood Hazards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Ponding at rear of property (Latest)</u>	
Min Floor Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>RBL () = 38.7 - 38.9m</u>	
Coastal Hazards	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Relocatable / No build	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Other Hazards	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
EQ Faults	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Airport Zones	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
45dba / Acoustic Rept	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Complies?		Action Reqd	Actioned
Yards (+water bodies)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Neighbours Approval??</u>	
HIRB	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Max Height	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Site Coverage	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Permeable Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Earthworks	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Water Tank / Siting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Water tank buried - refer^d email dated 30/5/14</u>	
Parking	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Retaining Walls	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

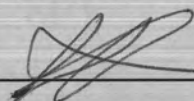
		Complies?		Action Reqd	Actioned
Designations				N/A	
Licences					
Other Provisions					
		Yes	No	Action reqd	Actioned
Does the building straddle Title/crosslease boundary			✓	Section 77 required	
Existing Resource Consent?			✓		
Resource Consent Required?			✓	Apply Section 37 and advise Plan Vetting Team.	
Section 72 Required?			✓	Advise Plan Vetting Team and send letters out.	\$ 367
Section 221 Consent Notice		✓		Advise Plan Vetting Team	
DIF Required?			✓	Advise Plan Vetting Team and send letter out. <i>Paid on RM050319</i>	
Calculate DIF Fees					Amount
				2 nd Comm / Ind Floor area X \$13.31	
				Non-residential 0.002 X area	
Invoice codes	RM			Water Supply	
	RM			Sewage	
	RM	79		Community Facilities	
	RM			Roads	
	RM			Flood Mitigation	
	RM			Reserves	
Send DIF letter out				TOTAL	

Additional Comments

* All work to be in accordance with RM050319 and S221 Consent Notice *

Decision: (delete item that does not apply)

- Application complies with District Plan requirements
- ~~Application does not comply with District Plan - BC to be issued subject to s37~~

Officer's Name & Signature:  Date: 30/5/14

Stacey Swanson

From: Alan Wood <alan.wood@a1homes.co.nz>
Sent: Friday, 30 May 2014 9:27 a.m.
To: Stacey Swanson
Subject: RE: 12 Matuhi St, Waikanae

Hi Stacey

Yes – in ground ☺

Kind Regards Alan.

From: Stacey Swanson [mailto:Stacey.Swanson@kapiticoast.govt.nz]
Sent: Friday, 30 May 2014 9:24 a.m.
To: Alan Wood
Subject: 12 Matuhi St, Waikanae

Hi Alan

I am currently undertaking the planning check on 12 Matuhi St, Waikanae. Could you please confirm whether the water tank in the front yard is buried or not?

Kind regards

Stacey Swanson
RMA Projects Officer
Āpiha Kaupapa

Kāpiti Coast District Council
Tel 04 296 4814

www.kapiticoast.govt.nz



Kapiti Coast District Council does not guarantee the accuracy or completeness of any information contained in this e-mail or attached files. Internet communications are not secure; therefore the Council does not accept legal responsibility for the contents of this message or attached files. The content of this email may express the view of the author and not the official position of the Council. Kapiti Coast District Council may monitor and store all outgoing and incoming email traffic. This e-mail is subject to copyright. Except in reply to the author, no part of it should be reproduced, adapted or communicated without the written consent of the copywriter owner. If you have received this e-mail in error, please advise the sender immediately by return e-mail, or telephone the author and delete all copies.

This e-mail message has been scanned for Viruses and Content and cleared by MailMarshal
#####

This email has been scrubbed for your protection by SMX. For more information visit smxemail.com



**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**




R.W. Muir
Registrar-General
of Land

Search Copy

Identifier 466499
Land Registration District Wellington
Date Issued 21 July 2010

Prior References

WN42D/510

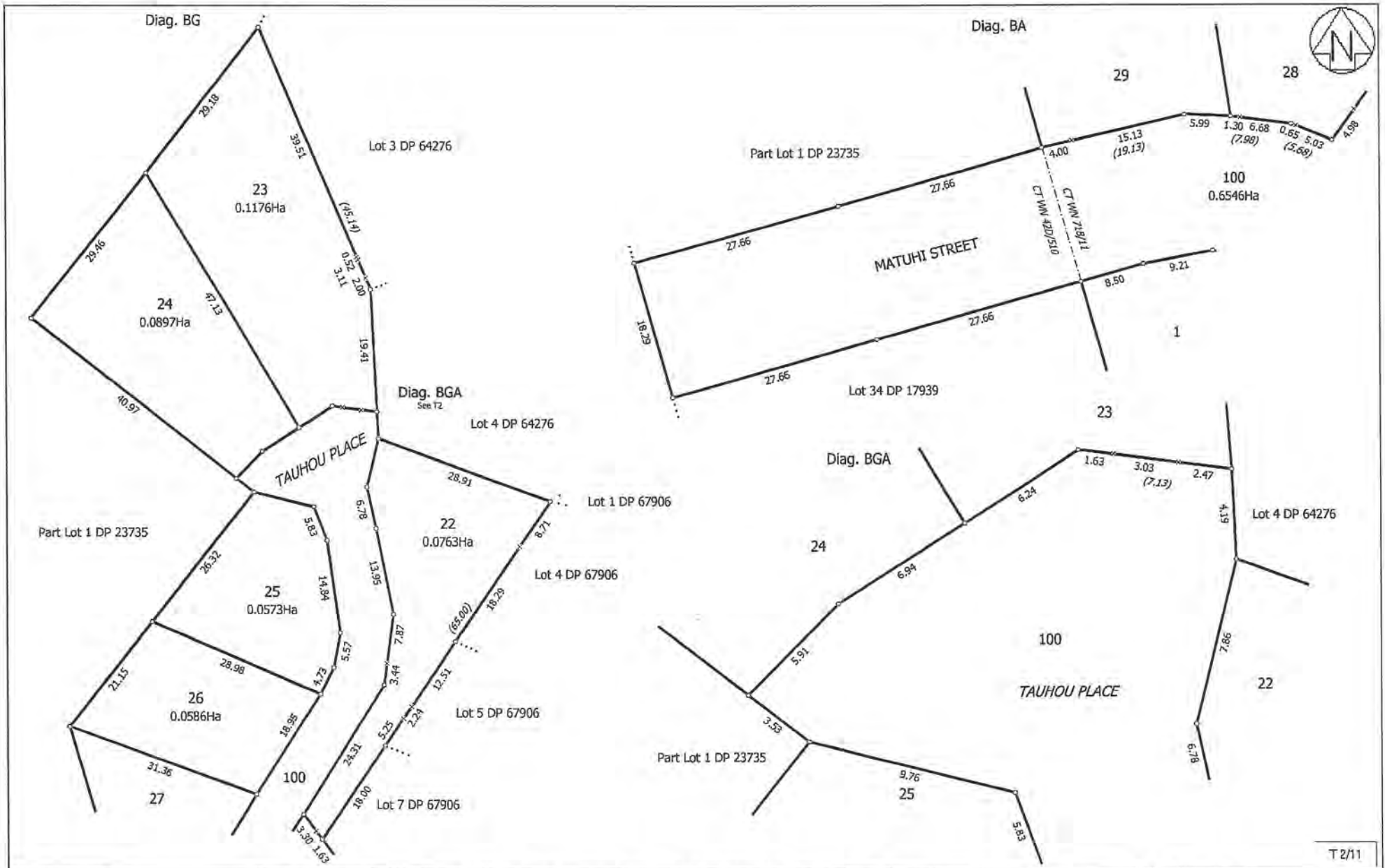
Estate Fee Simple
Area 656 square metres more or less
Legal Description Lot 5 Deposited Plan 413488

Proprietors

Warren Bernard O'Keeffe and Edite O'Keeffe

Interests

Land Covenant in Easement Instrument 7963080.2 - 20.1.2009 at 11:59 am
8546972.5 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 21.7.2010 at 4:05 pm
Subject to a right (in gross) to drain stormwater over part marked G on DP 413488 in favour of Kapiti Coast District Council created by Easement Instrument 8546972.9 - 21.7.2010 at 4:05 pm
The easements created by Easement Instrument 8546972.9 are subject to Section 243 (a) Resource Management Act 1991
Land Covenant in Easement Instrument 8546972.11 - 21.7.2010 at 4:05 pm
Land Covenant in Easement Instrument 8567999.1 - 27.8.2010 at 4:12 pm
Fencing Covenant in Transfer 8967615.2 - 10.2.2012 at 3:35 pm



<p>Land District: Wellington</p> <p>Digitally Generated Plan Generated on: 03/08/2010 08:25am Page 8 of 17</p>	<p>Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939</p>	<p>Surveyor: Nicola Kate Todd Firm: Cuttriss Consultants Ltd (Kapiti)</p>	<p>Digital Title Plan DP 413488 Deposited on: 21/07/2010</p>
--	---	---	--



Diag. BB

26

27
0.0517Ha

22

Lot 7 DP 67906

Part Lot 1 DP 23735

21
0.0685Ha

Lot 8 DP 67906

Lot 31 DP 17939

28
0.0526Ha

Part Lot 1 DP 23735

100
0.6546Ha

103

Lot 10 DP 67906

MATUHI STREET

TAUHOHU PLACE

T 3/11

Land District: Wellington

Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939

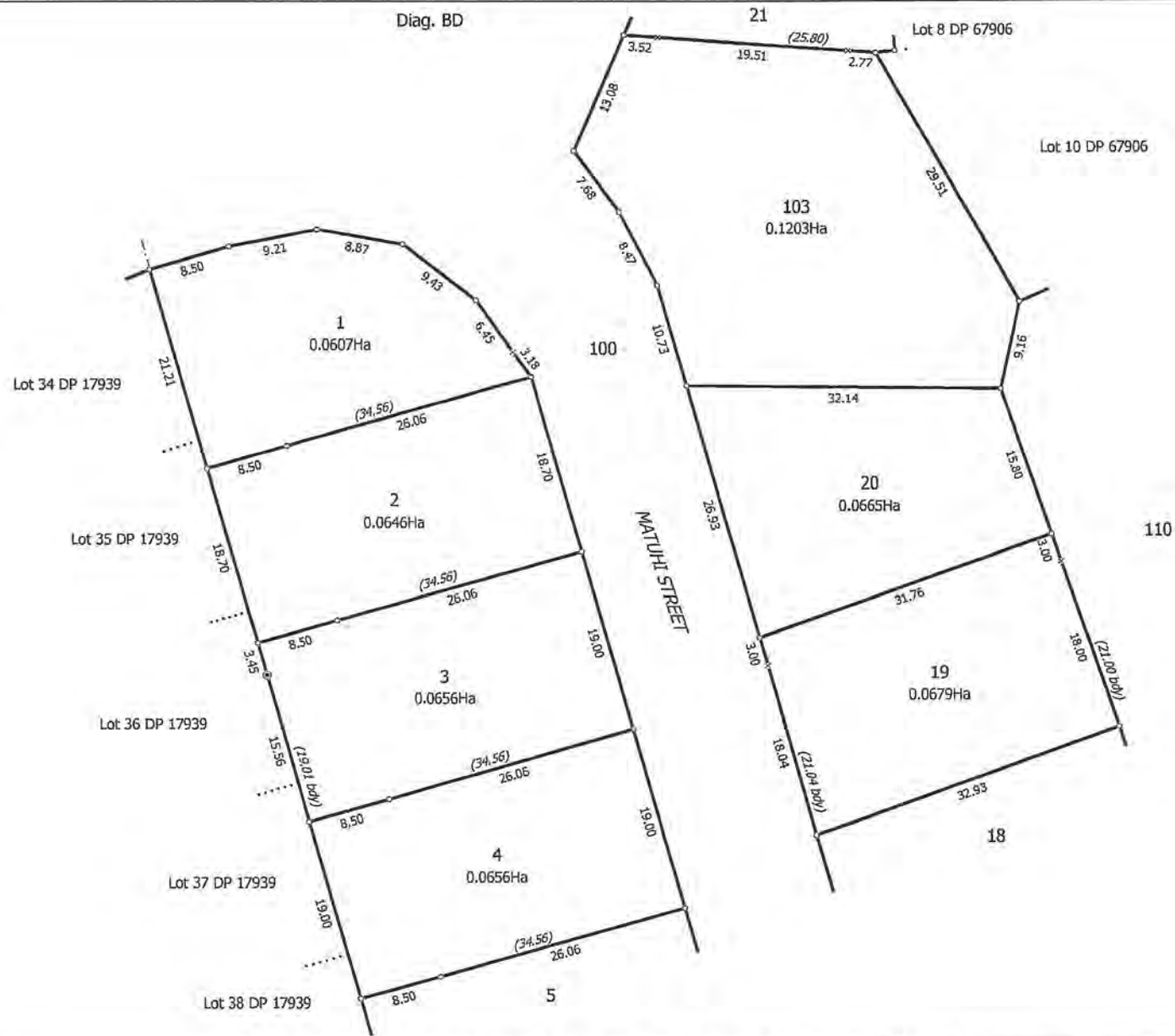
Surveyor: Nicola Kate Todd
Firm: Cuttriss Consultants Ltd (Kapiti)

Digital Title Plan
DP 413488

Digitally Generated Plan
Generated on: 03/08/2010 08:25am Page 9 of 17

Deposited on: 21/07/2010

Diag. BD



T 4/11

Land District: Wellington

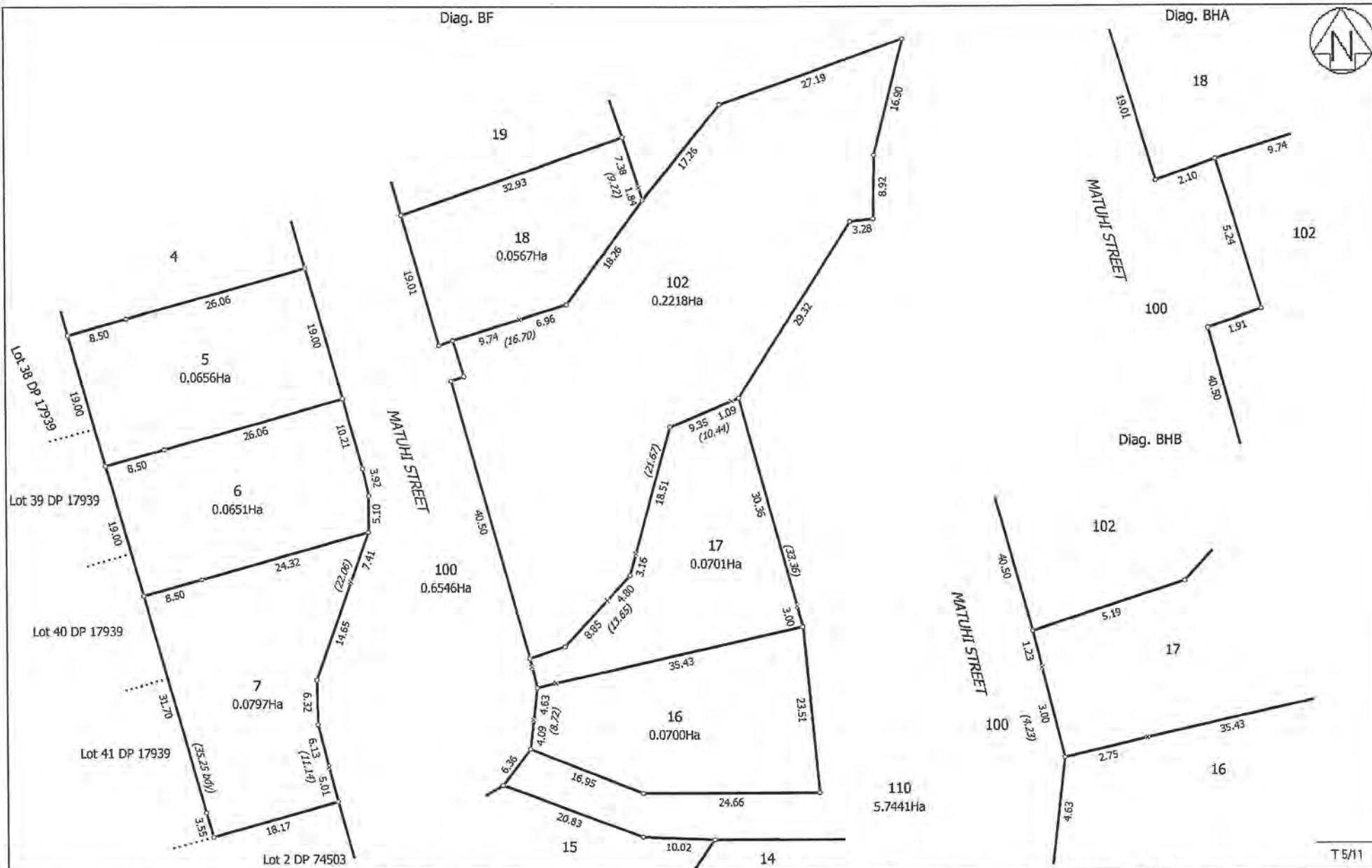
Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939

Surveyor: Nicola Kate Todd
Firm: Cultriss Consultants Ltd (Kapiti)

Digital Title Plan
DP 413488

Digitally Generated Plan
Generated on: 03/08/2010 08:25am Page 10 of 17

Deposited on: 21/07/2010



Land District: Wellington

Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939

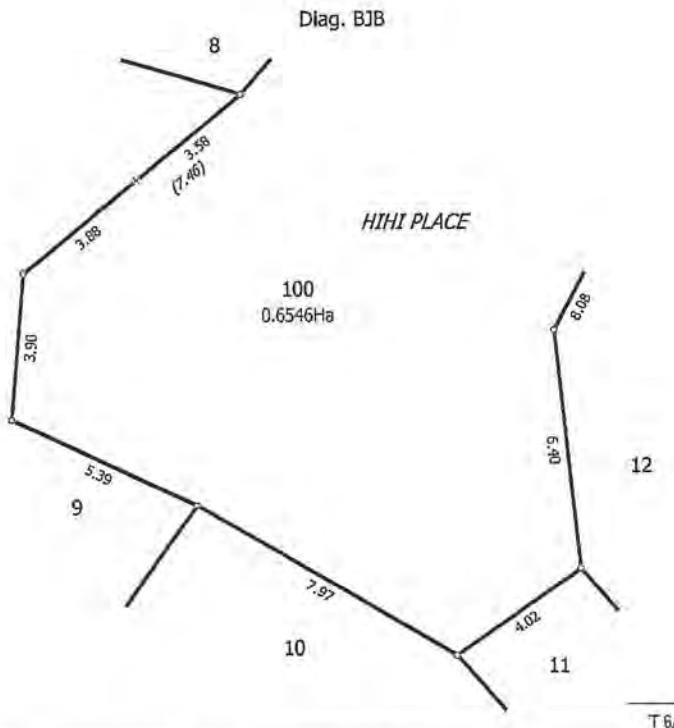
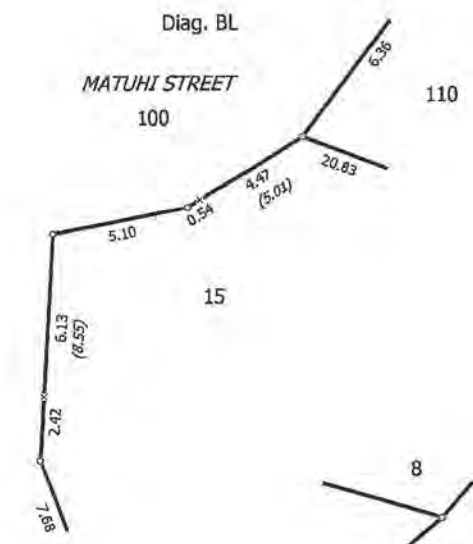
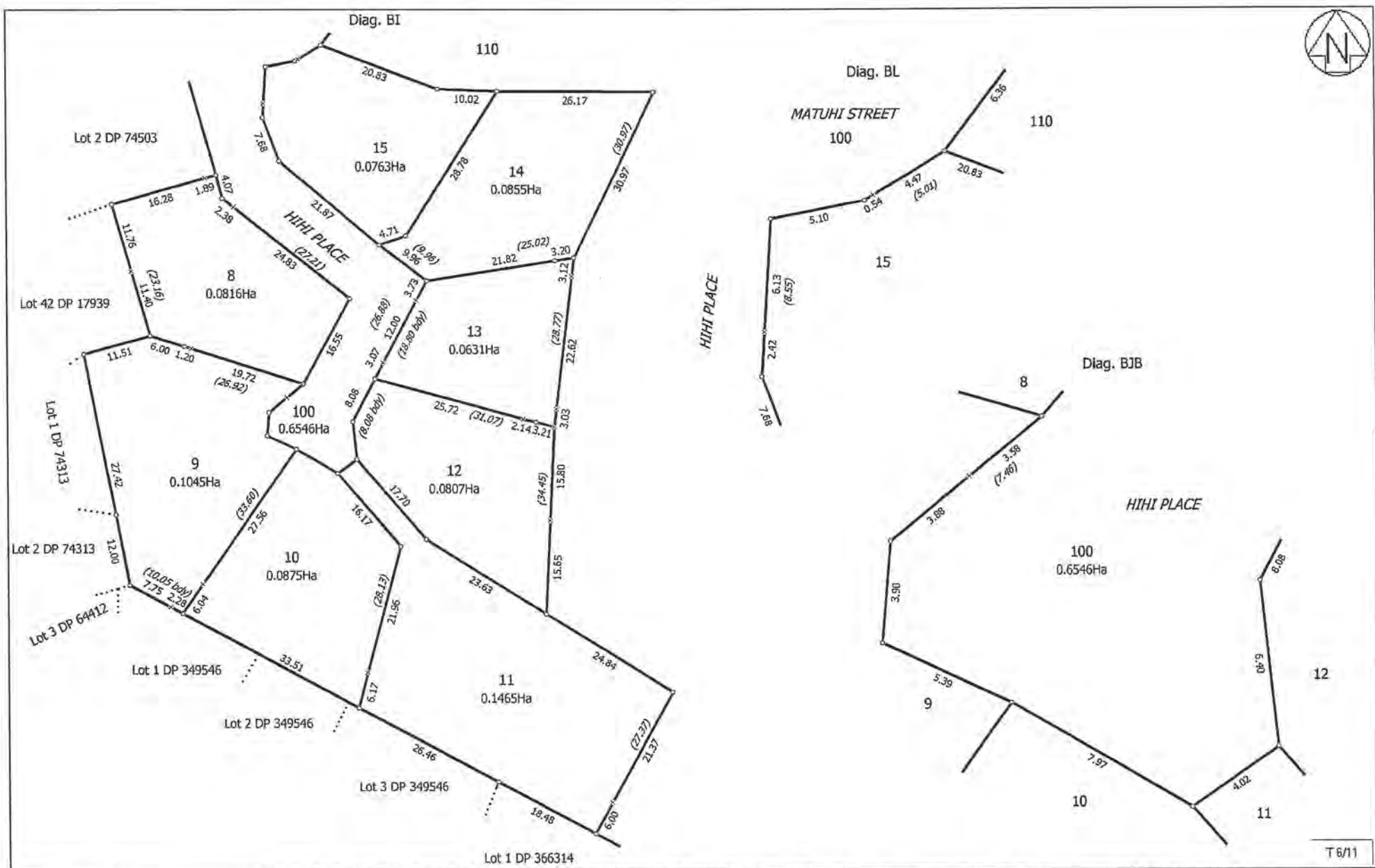
Surveyor: Nicole Kate Todd
Firm: Cuttriss Consultants Ltd (Kaiti)

Digital Title Plan
DP 413488

Digitally Generated Plan
Generated on: 03/09/2010 08:25am Page 11 of 17

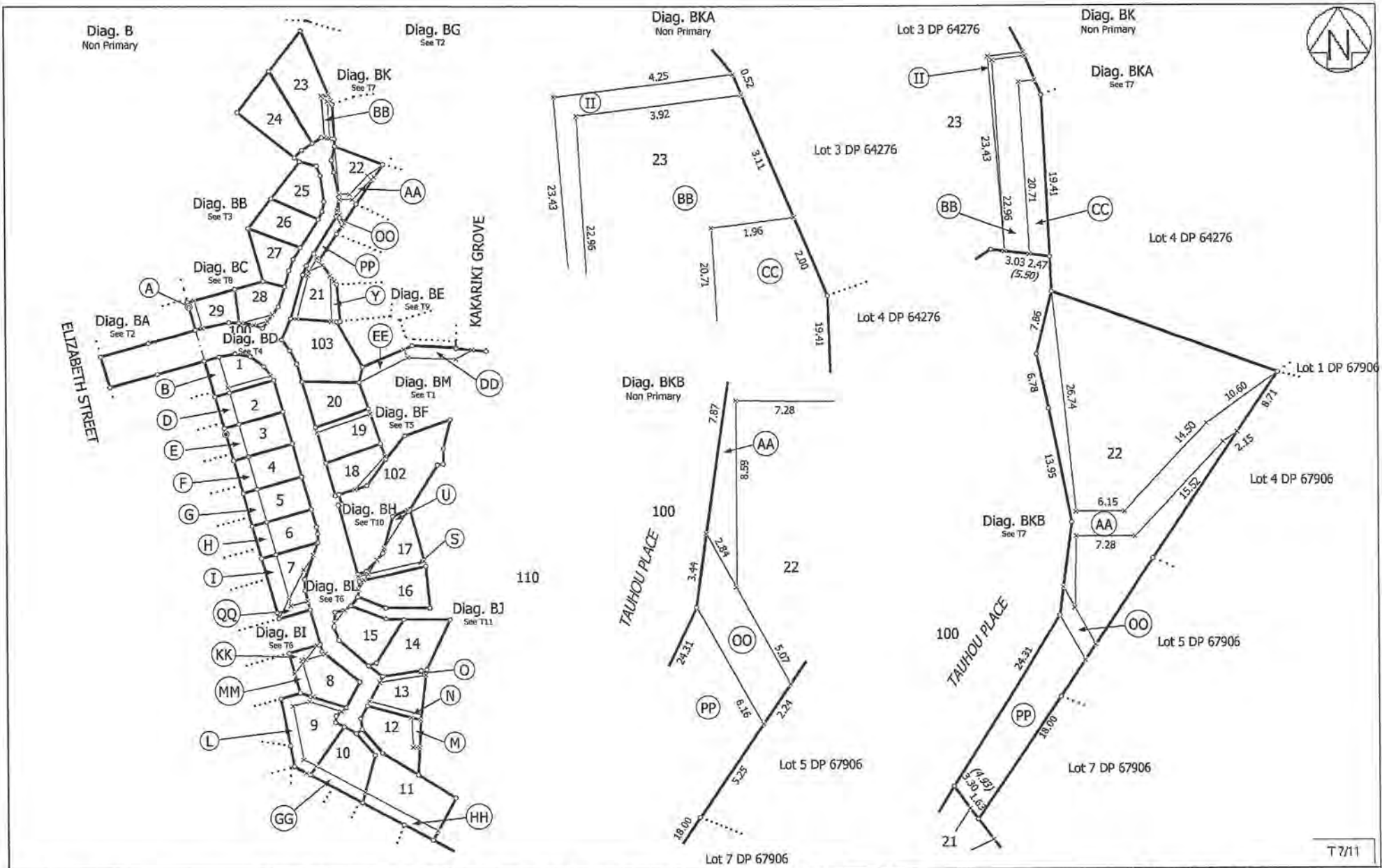
Deposited on: 21/07/2010

T 5/11



T 6/11

Land District: Wellington	Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939	Surveyor: Nicola Kate Todd Firm: Cuttriss Consultants Ltd (Kēpiti)	Digital Title Plan DP 413488
Digitally Generated Plan Generated on: 03/08/2010 08:25am Page 12 of 17			Deposited on: 21/07/2010



Land District: Wellington

Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939

Surveyor: Nicola Kate Todd
Firm: Cuttriss Consultants Ltd (Kāpiti)

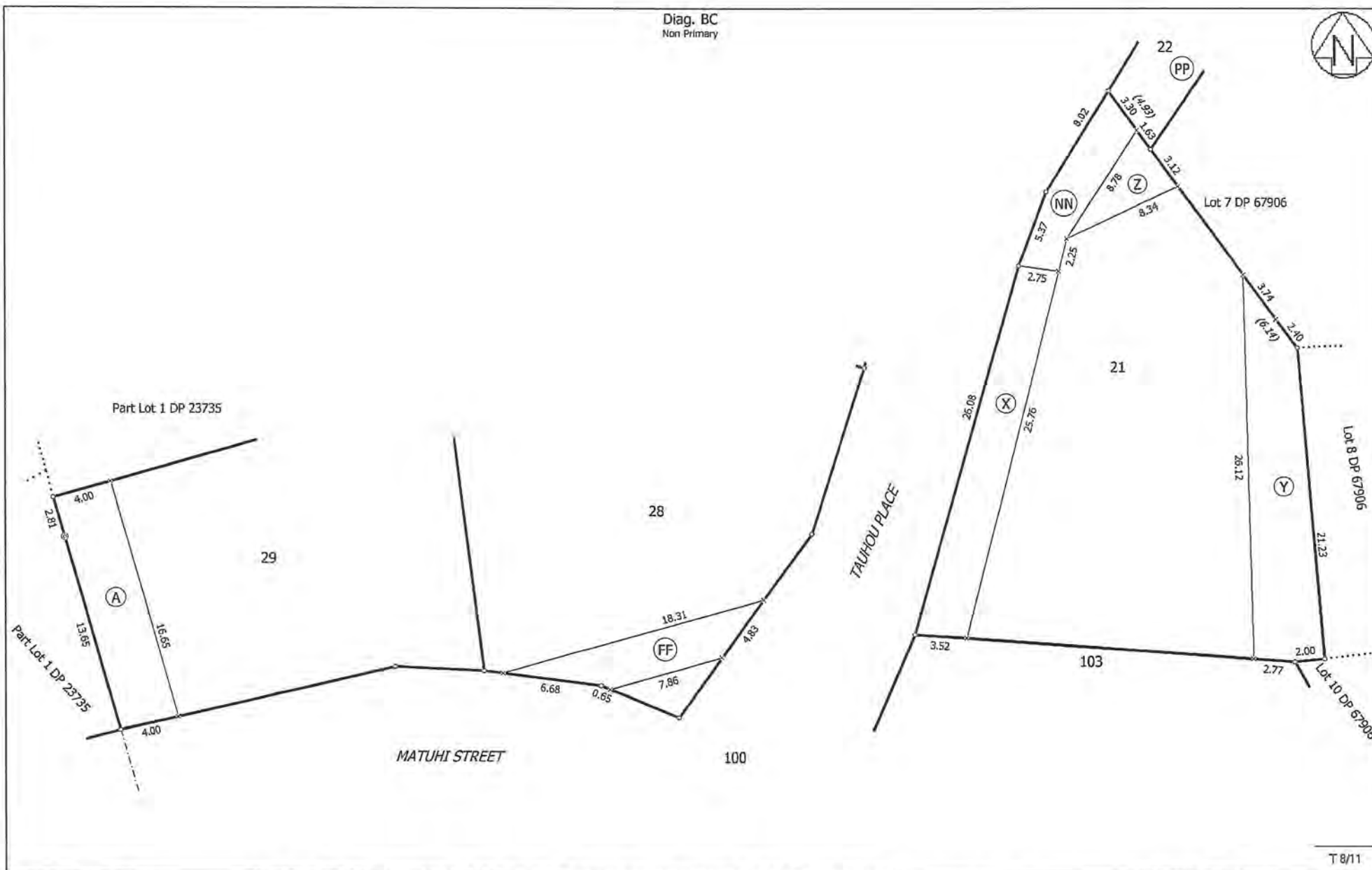
Digital Title Plan
DP 413488

Digitally Generated Plan
Generated on: 03/08/2010 08:25am Page 13 of 17

Deposited on: 21/07/2010

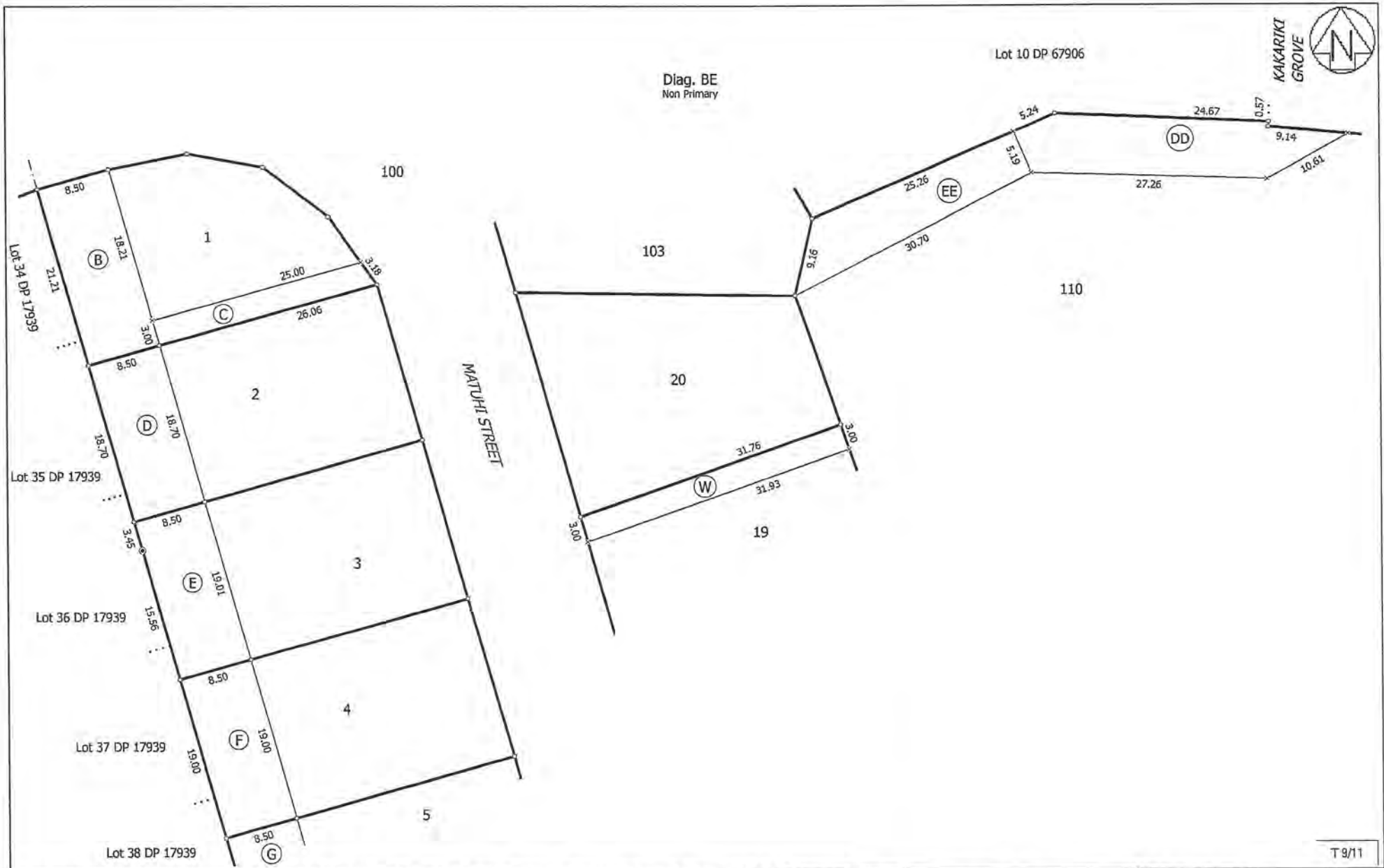
T 7/11

Diag. BC
Non Primary



T 8/11

Land District: Wellington Digitally Generated Plan Generated on: 03/08/2010 08:25am Page 14 of 17	Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939	Surveyor: Nicola Kate Todd Firm: Cuttriss Consultants Ltd (Kapiti)	Digital Title Plan DP 413488 Deposited on: 21/07/2010
---	--	---	---



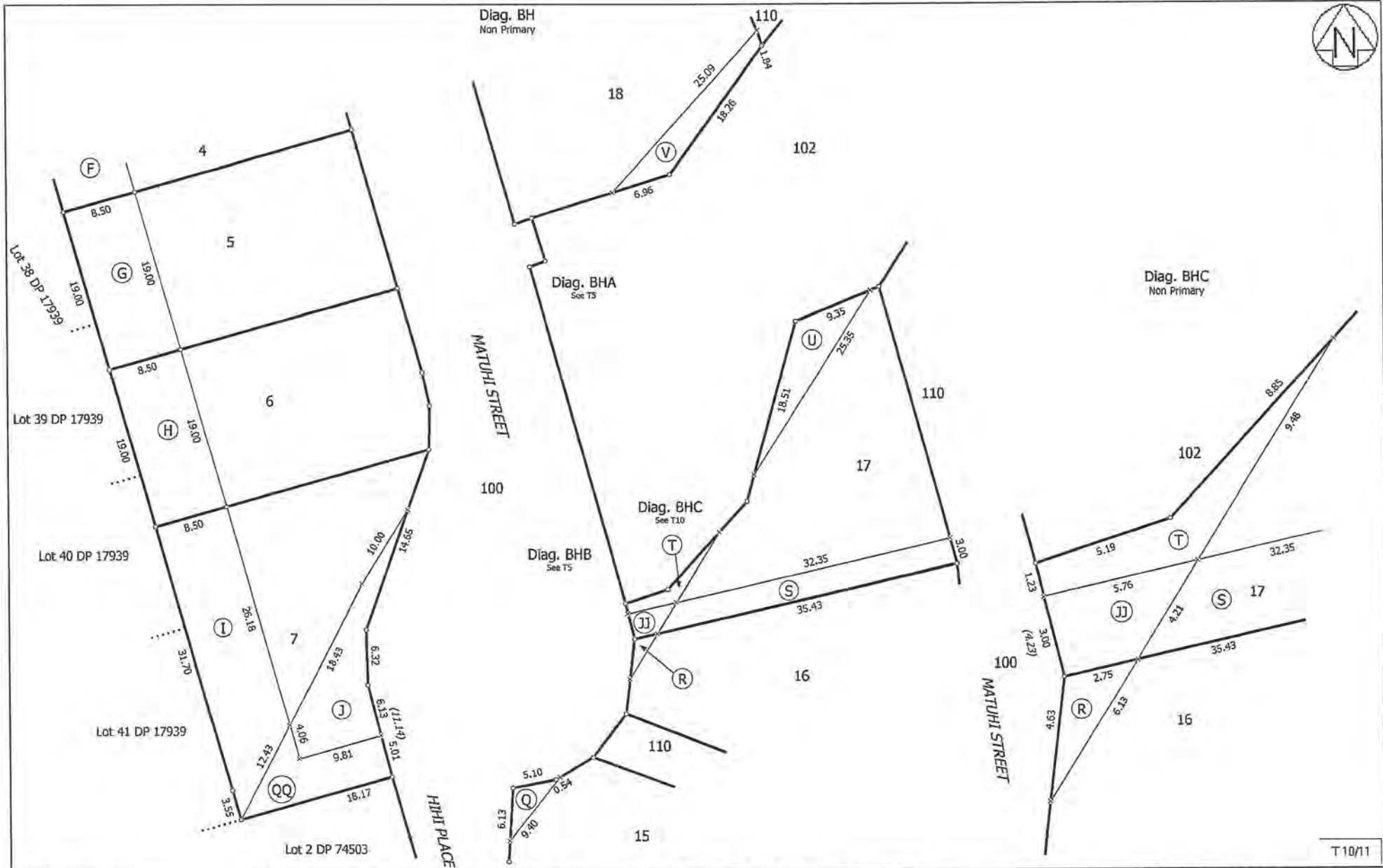
Land District: Wellington
 Digitally Generated Plan
 Generated on: 03/08/2010 08:25am Page 15 of 17

Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939

Surveyor: Nicola Kate Todd
 Firm: Cuttriss Consultants Ltd (Kapiti)

Digital Title Plan
 DP 413488
 Deposited on: 21/07/2010

T 9/11



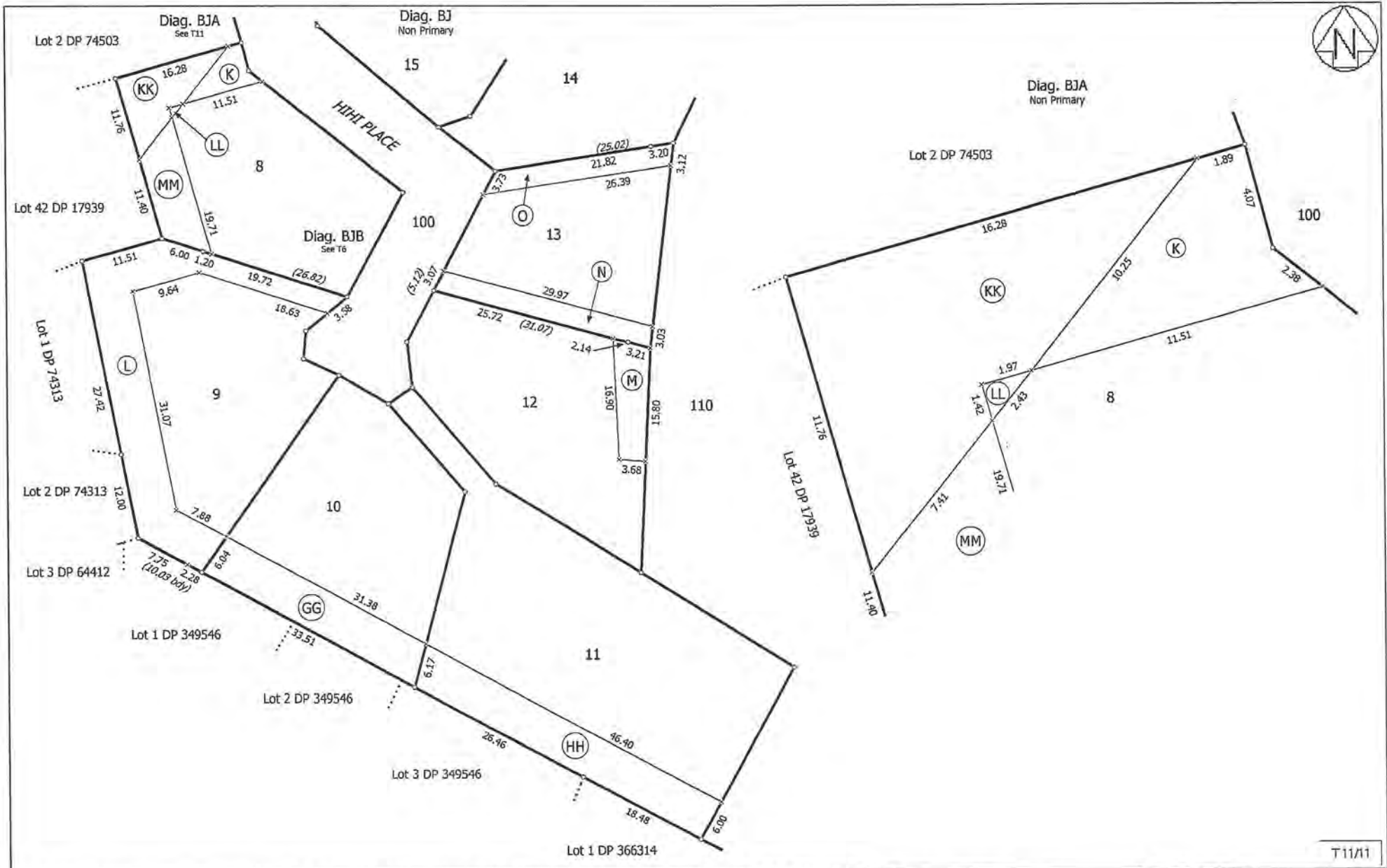
T10/11

Land District: Wellington
 Digitally Generated Plan
 Generated on: 03/08/2010 08:25am Page 16 of 17

Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939

Surveyor: Nicola Kate Todd
 Firm: Cuttriss Consultants Ltd (Kapiti)

Digital Title Plan
 DP 413488
 Deposited on: 21/07/2010



T 11/11

<p>Land District: Wellington</p> <p>Digitally Generated Plan Generated on: 03/08/2010 08:25am Page 17 of 17</p>	<p>Lots 1-29, 100, 102, 103, & 110 Being a Subdivision of Pt Lot 7-8 DP 59365 & Lot 33 DP 17939</p>	<p>Surveyor: Nicola Kate Todd Firm: Cuttriss Consultants Ltd (Kapiti)</p>	<p>Digital Title Plan DP 413488 Deposited on: 21/07/2010</p>
---	---	---	--



Kāpiti Coast District Council

Private Bag 60 601
Paraparaumu 5254
New Zealand

Tel (04) 296 4700
or 0800 486 486

Fax (04) 296 4830 ■
kapiti.council@kapiticoast.govt.nz ■
www.kapiticoast.govt.nz ■

**CONSENT NOTICE
PURSUANT TO SECTION 221 OF
THE RESOURCE MANAGEMENT ACT 1991**

**IN THE MATTER OF A PLAN LODGED FOR
DEPOSIT UNDER NUMBER 413488
AND RESOURCE CONSENT NO. RM 050319**

**(BEING THE SUBDIVISION OF PART LOTS 7 – 8 DP 59365 AND LOT 33 DP 17939),
AT KAKARIKI GROVE AND ELIZABETH STREET, WAIKANAE
FOR KAPITI VIEWS TRUST**

The Regional Regulatory Titles Officer at Wellington

PURSUANT to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and that the following conditions are to be complied with on a continuing basis:

1. **With respect to Lots 23 and 24:** The following ongoing requirements arise from the presence of High Voltage Electricity lines which cross parts of the land:
 - ♦ **Buildings and structures or any part of a building or structure must not be located within 8.5 metres vertically and 12.5 metres horizontally of the conductors of the Mangahao-Paraparaumu A and B 110kV high voltage electricity transmission lines. Please note that the distances specified must include an allowance for climatic conditions (i.e. maximum conductor swing and sag).**
Where any part of a building or structure needs to be constructed within this restricted area, the consent holder must submit to the Kapiti Coast District Council (and a copy to Transpower) a certificate from a suitably qualified electrical engineer to confirm that the buildings or structures comply with the minimum safe distances specified in Table 3 of the NZECP 34:2001.
 - ♦ **Excavated or other material shall not be stockpiled or deposited under or near the Mangahao-Paraparaumu A and B high voltage electricity transmission lines so as to reduce the distance from the ground to the conductors to a distance less than:**
 - a. **6.5 metres vertically, across or along roads or driveways or on any other land traversable by vehicles;**
 - b. **5.5 metres vertically, on any land not traversable by vehicles due to inaccessibility; and**
 - c. **3 metres in any direction other than vertical on all land.**
 - ♦ **In the case of any pole supporting any conductor no person may excavate or otherwise interfere with any land:**
 - a. **At a depth greater than 300mm within 2.2 metres of the pole or stay wire of the line; or**
 - b. **At a depth greater than 750mm, between 2.2 metres and 5 metres of the pole or stay wire; or**
 - c. **In such a way as to create an unstable batter.**

delivering on the community's plan

- ♦ All buildings and other structures constructed on site shall be located so as to not preclude existing 4-wheel drive access to any transmission line pole.
 - ♦ No fences of conductive material shall be located within 5 metres of any transmission line pole.
 - ♦ No buildings shall be located within 8 metres of any transmission line pole.
 - ♦ All mobile plant and machinery operated on the land must maintain a minimum clearance distance of 4 metres from the transmission line conductors at all times.
2. **With respect to Lots 7, 8, 15, 16, 17 and 18:** As a result of the earthquake fault (Gibbs Fault) running through parts of the sites no part of any habitable building or structure shall be located within the following areas within the respective allotments:
- Lot 7 Building excluded within areas J and QQ on DP 413488
 - Lot 8 Building excluded within areas KK and LL on DP 413488
 - Lot 15 Building excluded within area Q on DP 413488
 - Lot 16 Building excluded within area R on DP 413488
 - Lot 17 Building excluded within areas T, U and JJ on DP 413488
 - Lot 18 Building excluded within area V on DP 413488
- For clarity, subject to the obtaining of an necessary resource consent in terms of the District Plan applicable at that time, non-habitable accessory buildings located at least 1 metre from the primary dwelling house shall be able to be located within the above "Building Exclusion Zone(s)".
3. **With respect to Lots 1 to 29:** Foundation design and construction for any new building or additions and alterations to a building shall take into account the findings and recommendations within the Geotechnical Report prepared by Tonkin and Taylor Limited, titled "Kapiti Views Trust Earthworks and Building Site Certification Report Kakariki Grove Subdivision Stages 1 and 3, Waikanae, submitted to Council in relation to application No. RM050319. A copy of the report is available in Council's Office for inspection at any time the office is open to the public.
4. **With respect to Lots 1 to 7:** There shall be no buildings, structures or earthworks permitted within the swale area as defined below. The sole exception will be those earthworks necessary to plant and maintain vegetation to an appropriate standard.
- Lot 1 Swale area shown as area B on DP 413488
 - Lot 2 Swale area shown as area D on DP 413488
 - Lot 3 Swale area shown as area E on DP 413488
 - Lot 4 Swale area shown as area F on DP 413488
 - Lot 5 Swale area shown as area G on DP 413488
 - Lot 6 Swale area shown as area H on DP 413488
 - Lot 7 Swale area shown as areas I and QQ on DP 413488

Issued in respect of application No. RM 050319 on this 9th day of June, 2010.



 David Wayne Gair
 AUTHORISED OFFICER



 Colin John Bridges
 AUTHORISED OFFICER

**KAPITI COAST DISTRICT COUNCIL
APPLICATION FOR A CONNECTION TO COUNCIL WATER SUPPLY**

E + W O'Keefe (full name)
PLEASE PRINT

(postal address) hereby apply for an "ORDINARY" service to be laid from the Kapiti Coast District Council water supply to the premises owned by me at:

PROPERTY ADDRESS in full 12 Matuhi St Waikanae
(if different from above)

Lot 5 DP 413488

Fees payable (on application)

Note: All dwelling units to pay full inspection fees.
The connection fee to be divided equally between dwelling unit situated the same lot sharing a common lot.

Inspection \$
Connection \$
Total \$ owners cost

.....
Owners signature Date

THIS PART TO BE COMPLETED BY PLUMBER

I, T.B.A (full name)
of (address) being a
Licensed Craftsman Plumber apply for permission to connect the above premises to the Kapiti Coast District Council water supply. I agree to comply in every respect with the Kapiti Coast District Council Water Supply Bylaw.

NB: Connection NOT permitted until permit obtained.

(Signature) (Craftsman Licence No) (Date)

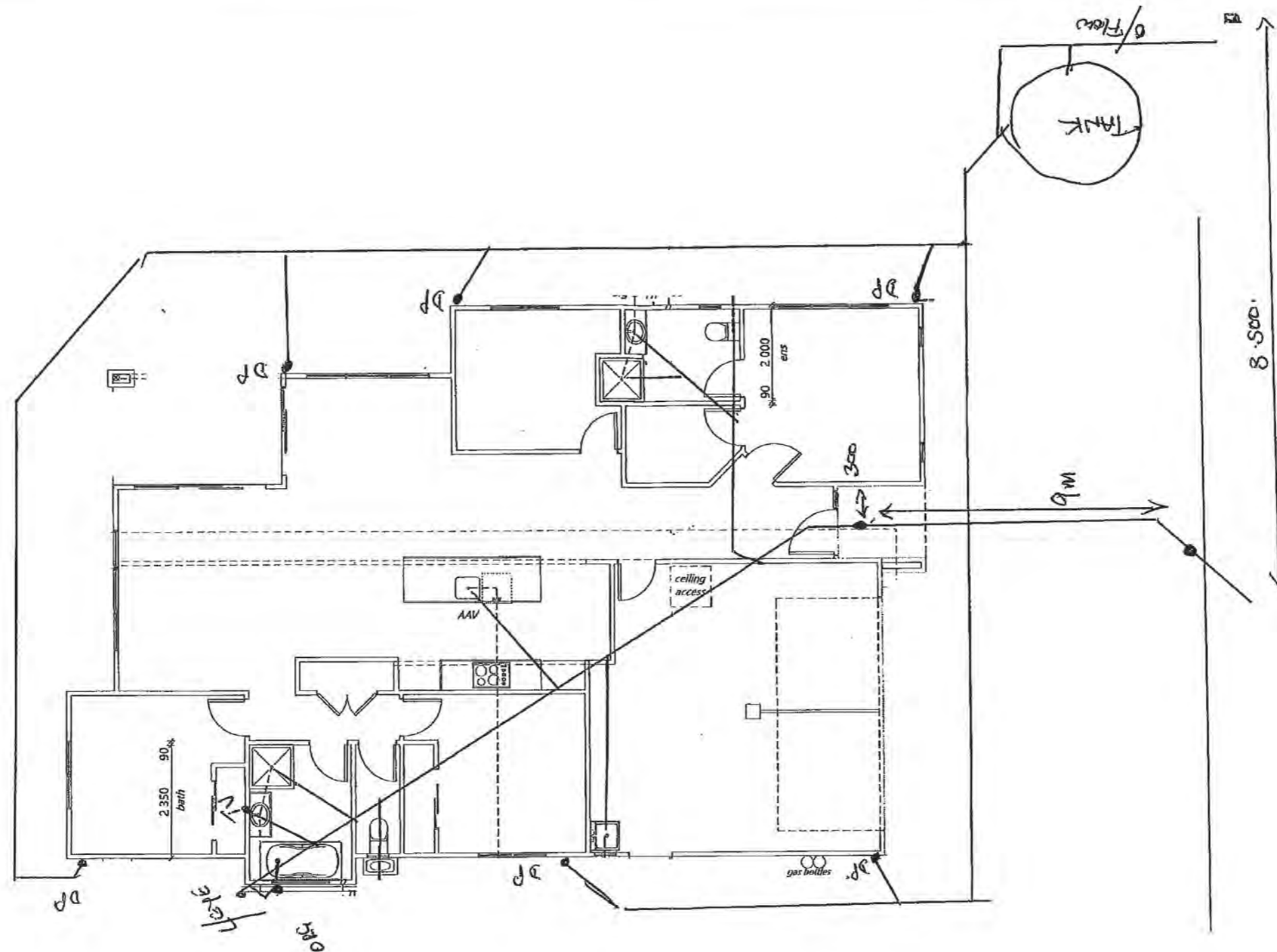
- | | |
|--|---------------------------------------|
| 1. Existing Water Supply | To be retained/dismantled |
| 2. Pressure: High/Low | "Header Tank"/Pressure Reducing Valve |
| 3. B/W cylinder type | Exhaust pipe/pressure relief valve |
| 4. Approximate age of water piping | Copper/PVC/Alkathene |
| 5. If premises have swimming pool, what capacity? | Filter Plant Yes/No |
| 6. State precisely how it is proposed to make the new connection | <u>sewer + water</u> |

new dug

Can Feb 2011

OFFICE USE ONLY

BUILDING CONSENT NO <u>140363</u>	PLUMBERS PRODUCER STATEMENT TO BE PROVIDED
Date Issued	Connection Recorded



The Certifying plumber/drain layer is to fill out drainage producer statement form and draw a neat as laid drawing and return to Council. Please show all services including under slab drainage.

<p>Client Details : Mr & Mrs O'Keeffe Address: 12 Matuhi Street Waikanae</p>
<p>Drainage Plan</p>



A CERTIFYING PLUMBER/DRAINLAYER TO FILL OUT ATTACHED PRODUCER STATEMENT FORMS AND RETURN TO COUNCIL. ALSO PROVIDE NEAT ASBUILT DRAINAGE PLAN SHOWING SEWER STORMWATER AND WATER.

BC 1406363

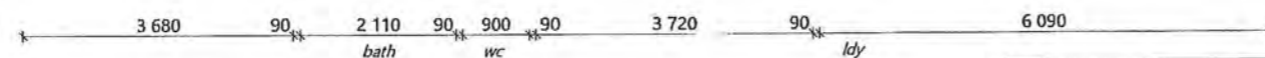
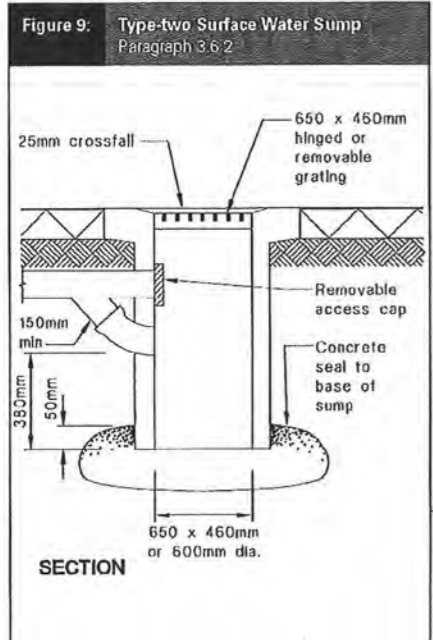
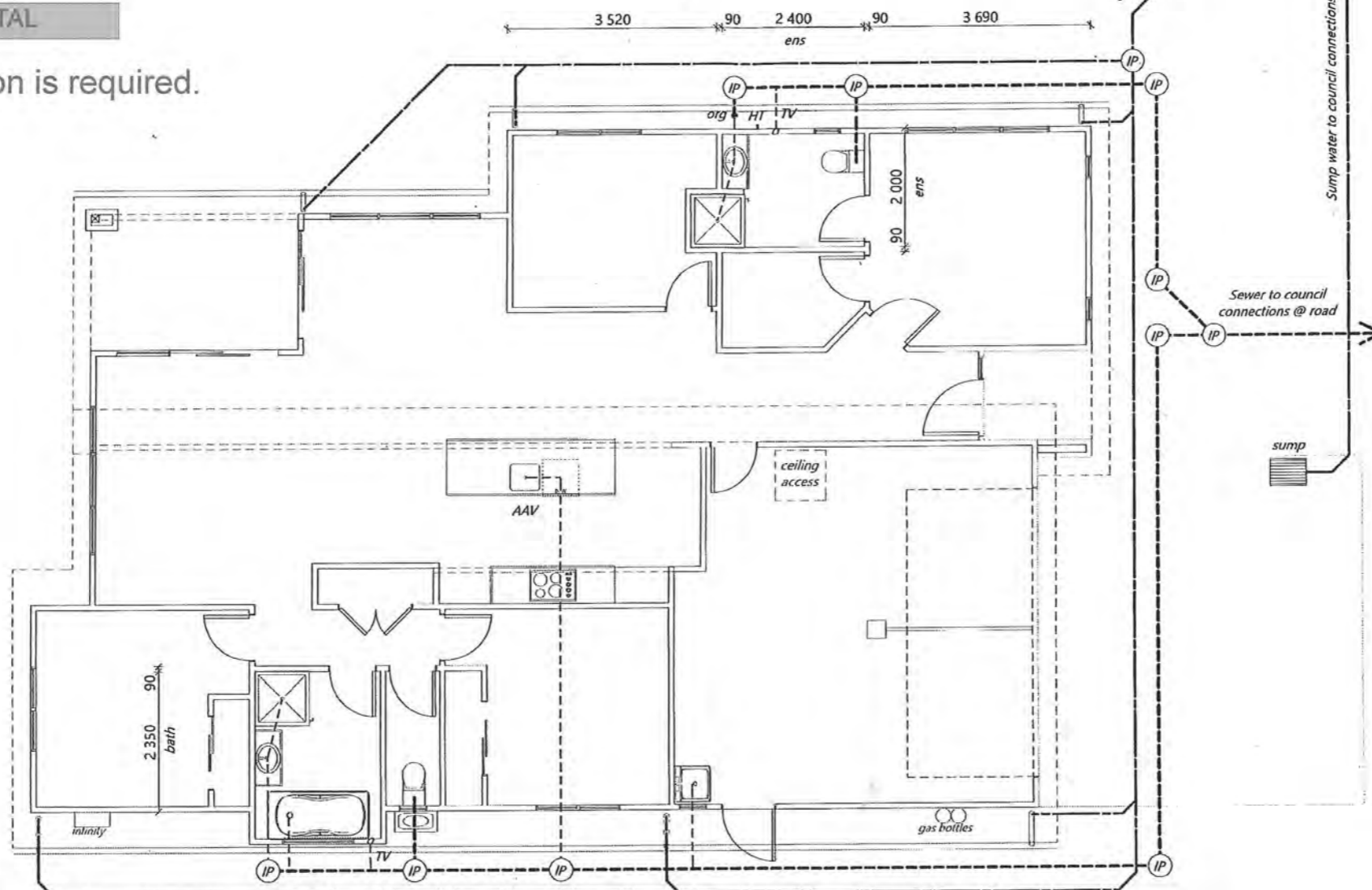
BUILDER TO ENSURE THAT PROPOSED FOUNDATION HEIGHT WILL ALLOW A SATISFACTORY DRAINAGE CONNECTION TO THE COUNCILS SEWER.

000003



BED DRAINS IN PEA METAL

A drainage inspection is required.

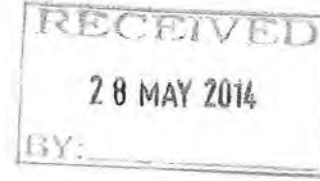


Plumbing Legend as per AS/NZS 3500

Symbol	Item	Symbol	Item
(IP)	Inspection point	---	DN100 PVC SS pipe, DN100 min water closets (ref specs) min 1:60 gradient
—	Downpipe	---	DN100 PVC SW pipe, min 1:120 gradient
HT	Hose Tap	---	min PVC fixture waste pipe sizes: DN40 basins, single head showers, baths, sinks, dishwasher & ldy tubs, DN50 multiple heads showers, DN65 unvented branch drains exceeding 2.5m long (max 5 fixture unit rating) DN65 to all wastes discharging directly into drain under slab min 1:40 gradient. 20mm HWC vent drain (copper)
Org	Overflow relief gully		
oTV	Terminal vent		
AAV	Air admittance valve		

Water supply pipe (from water tank or council mains) = DN20

Construction Notes:
 Plumbing to AS/NZS:3500.2.2 (min 1:60 pipe gradient) by qualified tradesman.
 Contractor to locate all service connections on site prior to earthworks confirm all boundary setbacks & restrictions comply with current regulations prior to commencement of foundations.
 All waste pipes PVC. Sizes, fall, venting & discharge to be confirmed by NZ qualified plumber. Confirm positions of available services cabling etc on site prior to any excavation



Water supply:
 Internal water pipes to Polybutylene.
 All pipework and pipes exposed to freezing to be lagged with closed cell foam

Fixture unit rating:
 Water Closet - 6 (x2)
 Shower - 2 (x2)
 Basin - 1 (x2)
 Bath - 4
 Dishwasher - 3
 Kitchen sink - 3
 Laundry tub - 5
 Total = 33 units

TABLE 3.5

SIZE AND RATING OF VENTS

Size of vent pipe DN	Fixture units discharging to drain	Vent rating
40	>1 ≤10	0.5
50	>10 ≤30	1
65	>30 ≤175	2
80	>175 ≤400	3
100	>400	6

Client Details: UBAW318
 Mr & Mrs O'Keefe
 Address: BH170
 12 Matuhi Street
 Waikanae

Drainage Plan

Scale: 1:100 Date: 20-May-14 Sheet no: 3
 Rev:
 Drawn: L.Janes Check: N.Davis
 Wind: High Earthq: 3 Exposure: C Snow: N1-0.0kPa
 Call 0800 A1homes 214663
 www.A1homes.co.nz

All dimensions & underground service locations to be checked prior to commencement of all works. DO NOT scale off drawings. Cross reference all drawings, confirm site levels, floor heights & restrictions prior to earthworks. If any discrepancies occur, ask the designer or contractor immediately before commencing works or ordering. COPYRIGHT; All drawings remain the property of A1 Homes Ltd and are for use as described above and may not be used or re-produced in whole or part without written permission. Any site/construction works are not to commence until Building Consent becomes unconditional.



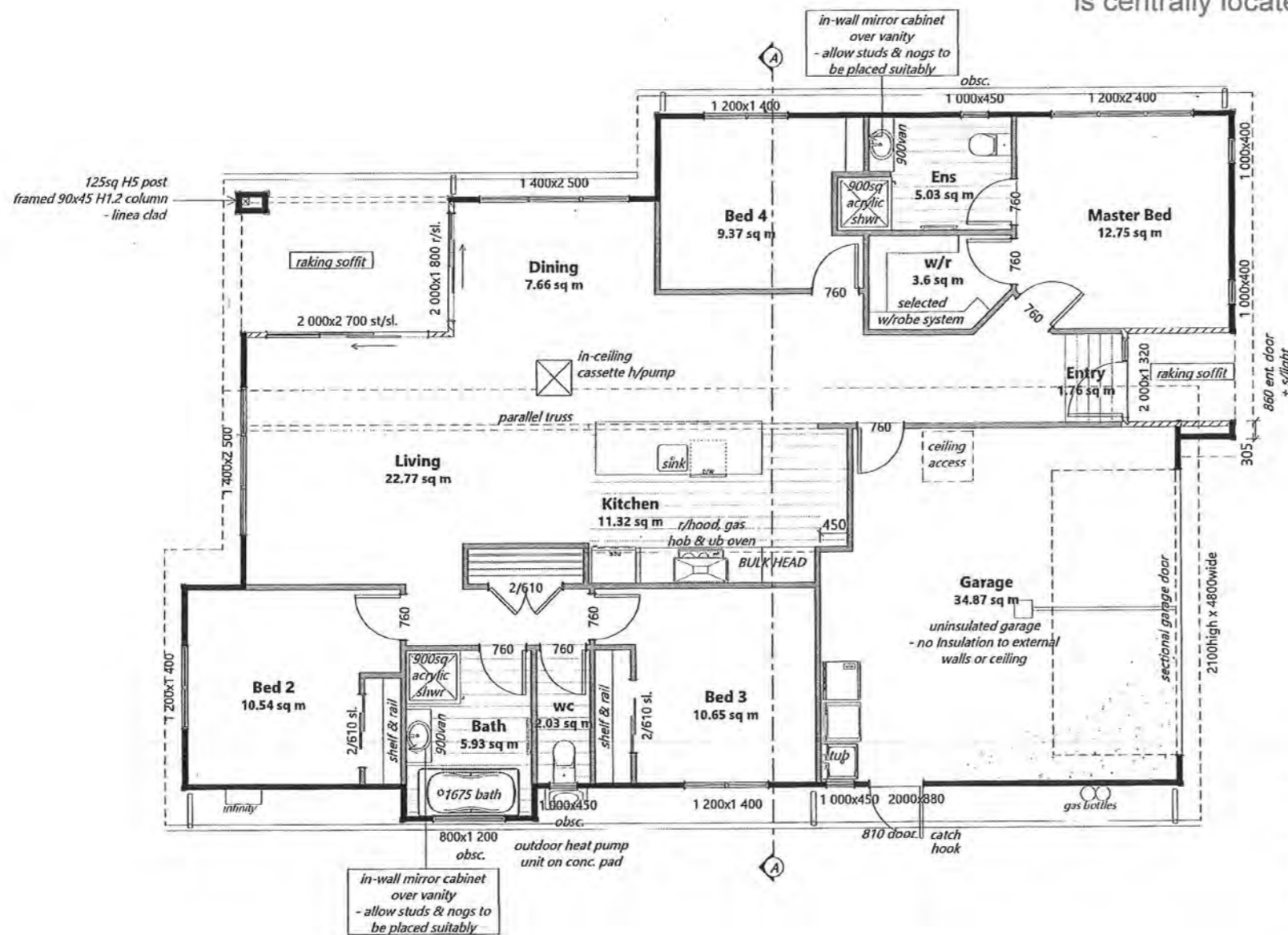
A certifying gas fitter is to provide a compliance certificate to council.

BC 1406363

All frost prone water pipes are to be lagged with a suitable type of insulation.

A preline plumbing inspection required.

APPROVED BY
PLUMBING AND DRAINAGE
Simon C
10/6/2014



G3/AS1
1.1.3 Food preparation surfaces shall be easily maintained in a hygienic condition. Stainless steel, decorative high pressure laminate, and tiles are examples of suitable materials for these surfaces.

1.6 Wall linings
Wall linings adjacent to appliances and facilities shall have surfaces that can be easily maintained in a hygienic condition. Stainless steel, decorative high pressure laminate, tiles, wallboards with painted or applied impervious coatings or films, are examples of suitable materials for these surfaces.

Ensure that the hot water heater is centrally located



Cautionary Notes:

Always cross reference the foundation plan with the framing plan prior to setting out

Joinery sizes shown are box sizes & are preliminary only. Site measure and confirm all joinery sizes, reporting to designer any changes, PRIOR to ordering joinery. No liability shall be held by designer for incorrect supply of joinery.

Refer to all written dimensions, DO NOT scale off drawings.

Construction Notes:

Gas hotwater & cooking with vented r/hood. Ensure gas appliance installation complies to NZS 5261: 2003. Polybutylene water supply pipes. Hot water supply pipes shall be thermally insulated to comply with H1/AS1 5.0

gas bottles: 2/1250high x 375Ø bottles to be mounted on conc. base & secured with seismic restraints (chains or fixed brackets) 1000mm from door, drain or air vent, 1500mm from any point of ignition, min 150mm below an opening window. (gas fitter to confirm)

gas water heater: 300mm from any opening door or window, 75mm from down pipes, 500mm fuse or electric box, 1000mm from gas bottles, 300mm from wall or corner, 1500mm from ground. (gas fitter to confirm)

Tapered edge joints in ceilings
To reduce the risk of cracks caused by substrate movement, back-blocking of tapered edge joints is required in the following situations.

- When steel battens have been used:
- Any area containing 6 or more tapered joints

Please confirm layout & fittings of kitchen & bathrooms etc before foundation commences

NZS 5261:2003 Gas Hob Installation
Cut out for hob: min. 60mm from back of bench top.
Overhead clearances: not less than 600mm from the highest part of hob to range hood
Side clearances: Where dimension from periphery of nearest burner to any vertical combustible surface is less than 200 mm, surface shall be protected to a min. height of 150 mm above hob for full dimension (width or depth) of cooking surface area. Horizontal surface shall be greater than 10 mm below surface of hob.
Protection of combustible surfaces: 5mm thick ceramic tiles or graphic glass is suitable to protect 10mm Gib board.

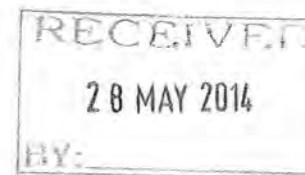
Floor Finishes:

- Carpet = 102m²
- Master Bed
- Bed 2
- Bed 3
- Bed 4
- Living
- Dining
- Hallways, cupd.s & wdrbs

- Wet Area = 24.07m²
- Bathroom
- Ensuite
- wc
- Kitchen
- Entry
- Concrete = 34.87m²
- Garage
- Laundry

Cladding Key:

- JH Linea Weatherboard
- JH Axon Panel



Floor Area:
= 171.13sqm o/frame

Client Details: UBAW318
Mr & Mrs O'Keeffe
Address: BH170
12 Matuhi Street
Waikanae

Floor Plan		Scale: 1:100	Date: 20-May-14	Sheet no: 8
Drawn: L.Janes	Check: N.Davis	Call 0800 A1homes 214663		
Wind: High	Earthq: 3	Exposure: C	Snow: N1-0.0kPa	www.A1homes.co.nz

All dimensions & underground service locations to be checked prior to commencement of all works. DO NOT scale off drawings. Cross reference all drawings, confirm site levels, floor heights & restrictions prior to earthworks. If any discrepancies occur, ask the designer or contractor immediately before commencing works or ordering. COPYRIGHT; All drawings remain the property of A1 Homes Ltd and are for use as described above and may not be used or re-produced in whole or part without written permission. Any site/construction works are not to commence until Building Consent becomes unconditional.