WHANGAREI DISTRICT COUNCIL

FORUM NORTH • PRIVATE BAG 9023, WHANGAREI, NEW ZEALAND. TELEPHONE 09 430 4200. FAX 09 438 7632

Issue Document

PROJECT INFORMATION MEMORANDUM No:86963
Section 34, Building Act 2004
Received:01Nov05
Issued:09Nov05

Applicant

S & S SCOTT
265 HIBISCUS COAST H/WAY
OREWA

Agent

S & S SCOTT
265 HIBISCUS COAST H/WAY
OREWA

Site Information

PROPERTY ID: 057569
STREET ADDRESS: GEORGE POINT RD, ONERAHI, WHANGAREI 0101
LEGAL DESCRIPTION: LOT 22 DP 104435

Project Information

PROJECT IS FOR: Alteration, repairs, etc
INTENDED USE(S): CONVERT CARPORT TO GARAGE AND NEW DECK
INTENDED LIFE: Indefinite but not less than 50 years
VALUE OF WORK: $10,000.00
NUMBER OF STAGES: 1

Fees

COUNCIL'S TOTAL CHARGES FOR THIS PROJECT INFORMATION MEMORANDUM ARE: $95.00
PAYMENTS RECEIVED TO DATE:
Receipt number: 3092825 Date: 01Nov05 Amount: $95.00

A PROJECT INFORMATION MEMORANDUM IS NOT A BUILDING CONSENT, NOR A RESOURCE CONSENT, NOR IS IT AN EXEMPTION FROM ANY OF THE REQUIREMENTS OF THE DISTRICT PLAN.

1: THIS PROJECT INFORMATION MEMORANDUM IS:

Confirmation that the proposed building work may be undertaken, when your Building Consent has been issued, subject to the provisions of the Building Act 1991 or the Building Act 2004 (after 31st March 2005) and any requirements of the building consent.

2: INFORMATION CONCERNING ANY SPECIAL FEATURES RELATING TO THE LAND RELEVANT TO THIS PROJECT:

This property is located in an area that maybe subject to instability, (information attached).

This property is subject to a Geotechnical Report. (Information attached).

3: DETAILS OF PRIVATE AND PUBLIC STORMWATER, SEWAGE, AND WATER UTILITY SYSTEMS ON THIS SITE AND/OR ADJACENT SITES RELEVANT TO THIS PROJECT:

Information relating to Council Utility Services for this property is attached.

A copy of the Site Drainage Plan is attached

4: ANY OTHER AUTHORISATIONS REQUIRED BY THE WHANGAREI DISTRICT COUNCIL BEFORE THE PROPOSED BUILDING WORK MAY BE UNDERTAKEN:

Based on the plans and other information submitted, the proposal appears to comply with the requirements of the Transitional Whangarei District Plan and the Proposed Whangarei District Plan.

5: OTHER INFORMATION REQUIRED:

An as-built plan is to be given to the Council Officer at final inspection of completed drainage work.

6: **ADDITIONAL INFORMATION:**

Copy of Deposited Plan attached.

7: **INFORMATION RELATING TO ANY UTILITY SERVICE OTHER THAN COUNCILS SUCH AS TELEPHONE, ELECTRICITY AND GAS, WILL NEED TO BE OBTAINED FROM THE RELEVANT UTILITY OPERATOR.**

GENERAL NOTES

PLEASE NOTE: This Project Information Memorandum will expire two years from the date of issue, unless application is made prior to expiry, for an extension as set out in the Building Regulations Act 1992.

PLEASE NOTE: Under Section 363 of the Building Act 2004, it is an offence to permit public use of a building for which no Building Consent or Code Compliance Certificate has been granted.

The WDC recommends every applicant/agent to check the title deeds of their property for any encumbrances or restrictions which may exist on the land or building; such as building line restrictions, covenants, right of way, etc. If there is any doubt or concern, we strongly suggest that you contact your solicitor for clarification.

FOUNDATIONS: Northland contains widespread areas of expansive soils which do not meet the "good ground" definition of foundations in order to comply with clause 3.1.1(a) of NZ 3604. Your attention is drawn to the requirement for foundations in these soils to be subject to specific design.

The information supplied is based on Councils existing records relating to the property. In producing this report, no current copies of certificates of title were viewed, nor was the property inspected by Council.

The applicant is solely responsible for ensuring that the land is suitable for any particular project.

If an owner or person undertaking building work believes that a PIM is incorrect or incomplete, they should advise the Whangarei District Council in writing, giving relevant details.

Unless confidentiality is specifically requested for reasons of copyright or security, information contained in your application for Building Consent may be disclosed to parties other than the Whangarei District Council (Section 27 of the Building Act).

The Historic Places Act 1993 provides for the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand.

"Except pursuant to an authority granted under Section 14 of this Act, it shall not be lawful for any person to destroy, damage, or modify, or cause to be destroyed, damaged, or modified, the whole or part of any archaeological site, knowing or having reasonable cause to suspect that it is an archaeological site." (Section 10, Historic Places Act 1993)

For initial advice, contact: The Department of Conservation P O Box 842, Whangarei. Ph: (09) 430-2470.

Should any artifact, taonga, koiwi, or cultural or archaeological material be unearthed or otherwise discovered during development work, the party undertaking the development (in the case of private work), or the party responsible for letting the contract (in the case of commercial work), i.e. the employer, the contractor, and/or any other party, shall undertake the following actions:

(i) All development work shall cease immediately around the affected area until all the following actions have been taken.

(ii) The Whangarei District Council shall be notified immediately by the developer or other appropriate party.

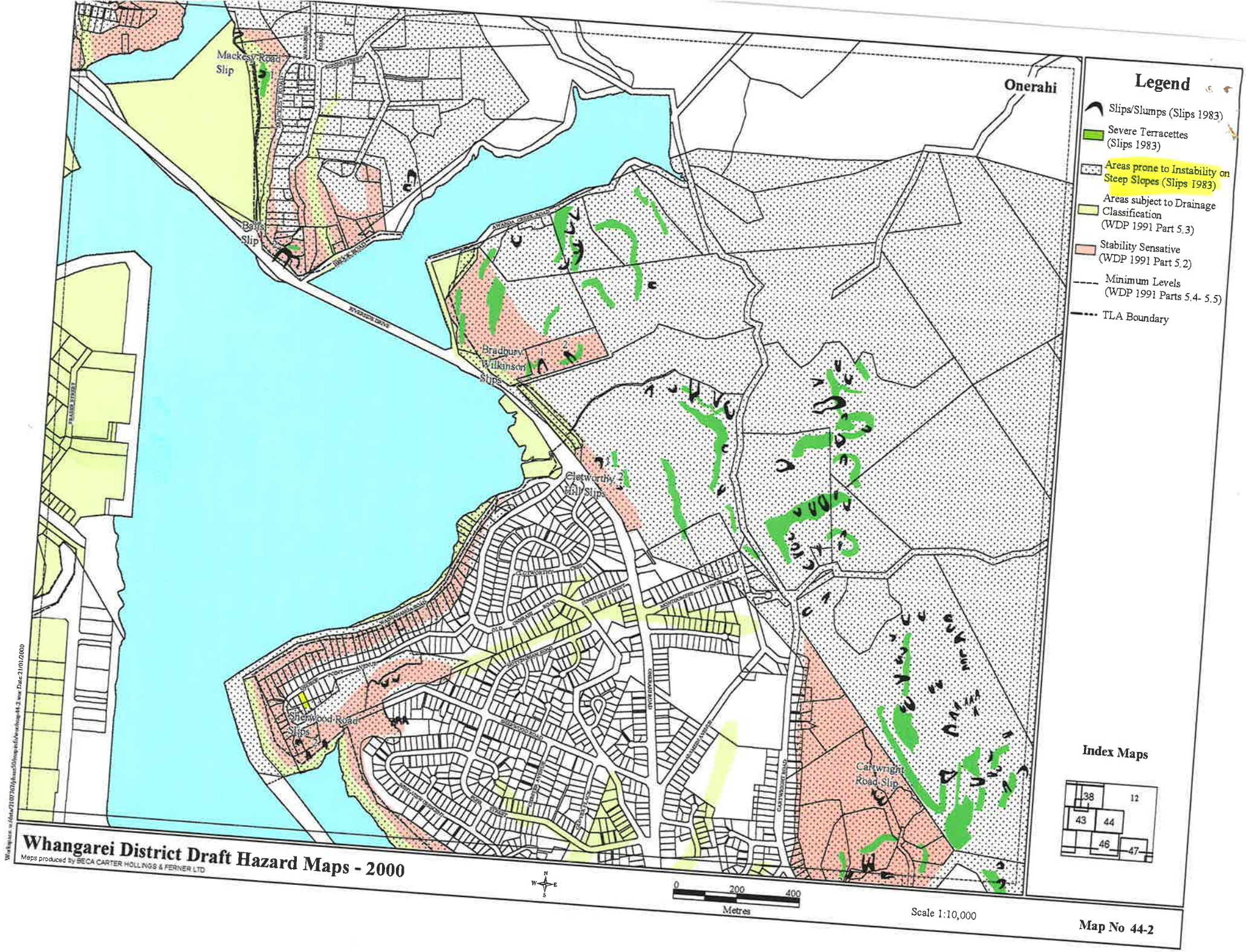
(iii) The New Zealand Historic Places Trust shall be notified immediately by the developer or appropriate party.

(iv) The relevant iwi authorities shall be notified immediately by the developer or appropriate party. The relevant authorities can be obtained from the Council`s Resource Consents Division.

(v) Consultation shall be undertaken with the Whangarei District Council, the New Zealand Historic Places Trust, and the relevant iwi authorities concerning the most appropriate manner for dealing with the material at issue. Consideration will be given to the cultural and spiritual values of iwi, the historical and archaeological values of the material, and the needs of the developer and the development work in question.

The requirements outlined in this note are in addition to any obligation imposed by statute with regard to objects or places of a historical or cultural nature.

signed for and on behalf of the Council


Onerahi
Mackesy Road Slip
Balls Slip
Bradbury Wilkinson Slips
Eletworthy Hill Slips
Sherwood Road Slips
Cartwright Road Slip
Legend
Slips/Slumps (Slips 1983)
Severe Terracettes (Slips 1983)
Areas prone to Instability on Steep Slopes (Slips 1983)
Areas subject to Drainage Classification (WDP 1991 Part 5.3)
Stability Sensative (WDP 1991 Part 5.2)
Minimum Levels (WDP 1991 Parts 5.4- 5.5)
TLA Boundary
Index Maps
38
12
43
44
46
47
Whangarei District Draft Hazard Maps - 2000
Maps produced by BECA CARTER HOLLINGS & FERNER LTD
0
200
400
Metres
Scale 1:10,000
Map No 44-2

The following is a brief outline of specific slip prone areas, and a description of the more important slips that are mapped. (Sheets 1, 2, 3 and 4 refer to the slip location maps).

D Sheet 4

1 Jessie Street Memorial & Panorama Drives

Onerahi formation, overlain by Dacite and Basalt. Two JD 75/83 slips have occurred in Panorama Drive. The slip in Jessie Street is 50m wide and has moved onto the road. The scarp at top and sides is from 1-2m high.

2 Mackesy Road

Onerahi formation overlain by a Basalt Cap. A large slip at the end of this bluff, above Riverside Drive, is very deep-seated ad has in fact caused the road to swell up. Slump was probably initiated when the toe of the slope was excavated during construction of the road. A property above the slump was endangered.

3 Area East of Clotworthy Hill, Cartwright Road, Boeing Road – Onerahi

This area is a mosaic of slips with well developed Terracette series. There are almost 100 slips mapped. Very few of these, however, are within the City boundary. Most of the slips visible on the 1975 Aerial Photograph appear to be very fresh, and most are not visible now. They are therefore likely to be the result of one event, but his indicates the unstable nature of this sandstone-underlain area.

4 Beach Road, George Point Road, Sherwood Road Hillsides – Onerahi

Here Onerahi formation rocks are overlain by the Onerahi Basalt cap. As discussed previously, this situation can be especially susceptible to instability due to over-steepening of the underlying strata.

The beach Road hill slope is heavily built upon, and a recent example of the unstable nature of the slip occurred when excavation of a site at 150 Beach Road caused major fractures to open up and a house above the site was endangered. Movement was halted by infilling the excavation with 1000m^3 of rock and metal, compacted with a bulldozer.

David I Campbell 14/1/1983

S591955

ER 133

WHANGAREI CITY COUNCIL

COOK MULDOWNEY COSTELLO

CONSULTING ENGINEERS

D. M. COOK, M.N.Z.I.E., A.I.Q., REG. ENGR.
F. S. MULDOWNEY, B.E., M.N.Z.I.E., REG. ENGR.
T. N. COSTELLO, B.E., M.N.Z.I.E., REG. ENGR.

19 Lower Tarewa Road,
Whangarei
Tel. 89-529

Ref. 1261/05

22 May 1980

The General Manager
Whangarei City Corporation
Private Bag
Whangarei

Attention: MR H.C. FENNEL

Dear Sir

Re: WAIMAHUNGA NO. 2 BLOCK
H.H. GEORGE SUBDIVISION

Further to our recent discussions about our report of the 15th April 1977, we have obtained copies of the Amended Subdivision from Simpson Shaw & Partners.

The total number of lots has been reduced by 3 and lot 7 to be vested as reserve has been increased in size.

The length of road has been reduced and lots 13 and 14 brought further up on the plateau area. This leads to the amendments to our report listed below.

Lots previously restricted and requiring buildings to be specifically designed by a Registered Engineer were lots 14, 17 and 26. These have now become lots 12, 15 and 23 and lots 12 and 15 vary considerably in their position from the original lots and provide much better building sites.

However parts of lots 1-6 and parts of lots 12-17 and lots 21 to 23 inclusive are steep and unsuitable for building. The attached plan shows the building sites suitable for building without restriction on these lots.

While the building site on lot 23 (old lot 26) is greatly improved it is considered that a building on this lot would need to be specifically designed by a Registered Engineer.

The other recommendations from the original report are unchanged.

It is noted that while depths of up to 2.6 m. of basalt derived bouldery clays were proved in the original report most of the hand bored holes stopped on boulders.

From general knowledge of the area based on site investigations and inspections of adjacent subdivisions and buildings under construction and from a number of test pits dug on lots immediately below in Waimahunga Road (W.G. Roper) it is considered probable that the junction of the Onerahi Series and the volcanic material is approximately at contour 30 and any instability problems possible in this location are well clear of the recommended building sites.

The slip circle analysis on the old lot 26 is based on Pilcon Shear Vane measurements of the basalt clays and is on basalt derived materials above the Onerahi assumed to be weakened by high ground water levels.

I trust that this provides adequate clarification of the points you raised.

Yours faithfully
COOK MULDOWNEY COSTELLO

T.N. Costello

c.c. Simpson Shaw & Partners

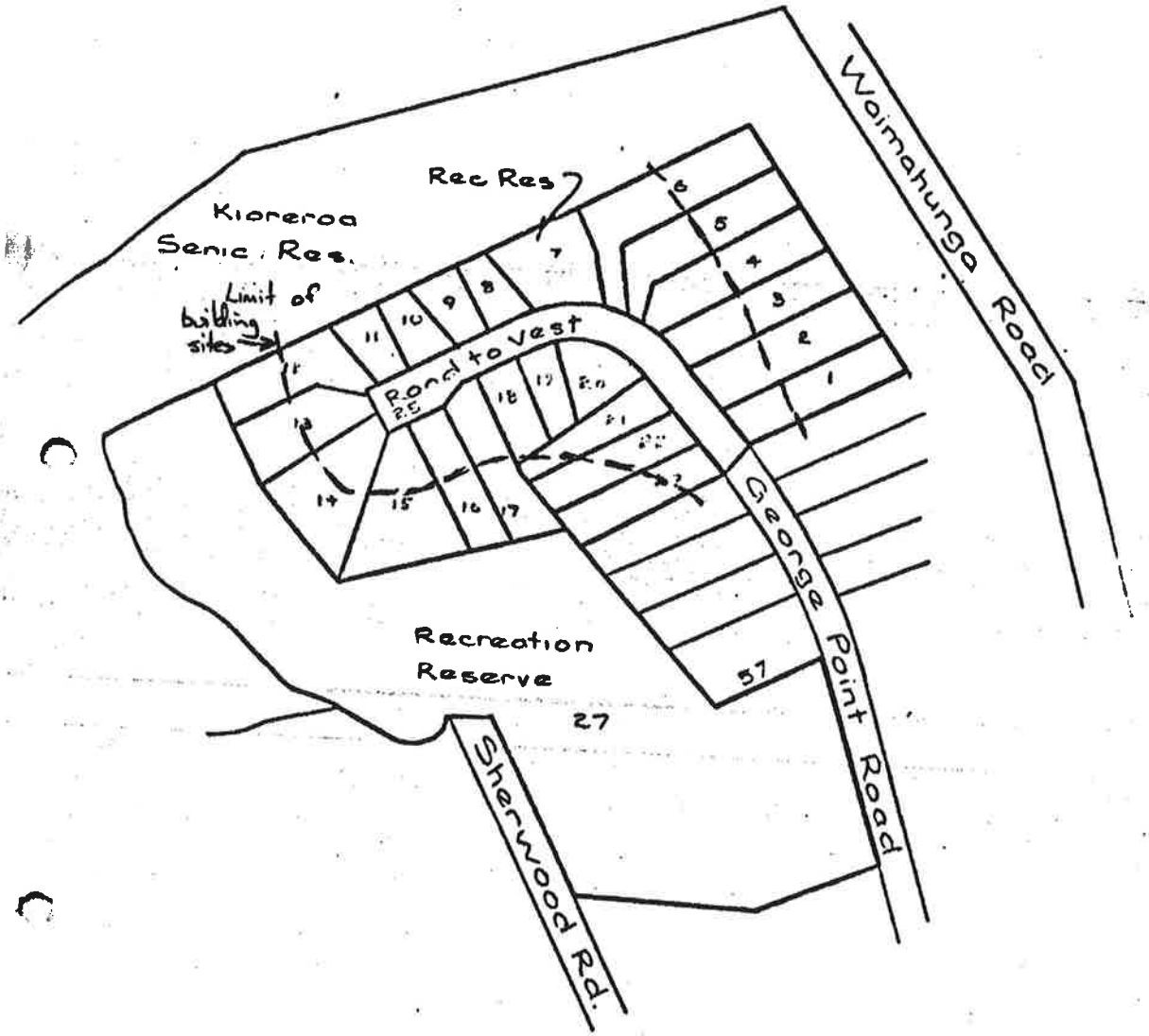


DIAGRAM SHOWING BUILDING AREAS

H.H. GEORGE SUBD'N

COOK MULDOWNEY COSTELLO

CONSULTING ENGINEERS

D. M. COOK, M.N.Z.I.E., A.I.Q., REG. ENGR.
F. S. MULDOWNEY, B.E., M.N.Z.I.E., REG. ENGR.
T. N. COSTELLO, B.E., M.N.Z.I.E., REG. ENGR.

19 Lower Tarewa Road,
Whangarei
Tel. 89-529
Ref.

15 April 1977

REPORT TO: Messrs Simpson, Shaw & Partners,
Registered Surveyors.

ON: Suitability of Waimahunga No. 2 Block,
H.H. George, for Residential Development

INTRODUCTION

The block comprises 6.18 hectares of ridge at the end of George Point Road. It is proposed that the area be subdivided into 26 residential lots off a 200 metre cul de sac. The road curves around the high part of the ridge to generally give the lots good building sites on the flatter land at the crest of the ridge.

This report examines the suitability of this land for the development proposed.

SITE DESCRIPTION

The block is well elevated and provides excellent building sites with good views. The grades over the site are generally between 1 in 15 and 1 in 10 over the substantially flat area where the road and building sites are located, but go up to 1 in 2 over the very steep lower slopes of the ridge, particularly on the eastern or seaward side of the block. It is proposed that 2½ hectares of the site (Lot 29) which includes the bush and stream areas and has seaward frontage becomes reserve.

The soils of the site are the deeply weathered and friable loams derived from Horeke basalts which cover the underlying silt stones and sandstones of the Onerahi chaos brechia to very considerable depths. These latter materials are observable in the lower parts of the edges of the basin and while they are generally unpredictable and unstable, are unlikely to effect the building sites chosen.

SITE INVESTIGATION

The attached borelogs show the positions and materials disclosed where hand augered bore holes were put down. Grades over the steeper portions of the site where these could possibly effect building sites were measured with an Abney clinometer to enable stability checks to be carried out. These are shown on pages 9 and 10 of the appendix material.

CONCLUSION AND RECOMMENDATION

The basalt derived clay loams of the site go to very considerable depths below the top of the ridge and the building lots are well clear of the interface between this material and the Onerahi chaos where problems could possibly arise. While the materials of the ridge are free draining and prima facie very suitable for septic tank drainage, the nature of the site with the steep drops off the side of

the ridge make it desirable that the ground water level be kept as low as possible. Thus all sewage must be piped clear of the sites and stormwater be provided at the lowest practical levels to allow the greatest area of the sites to be serviced. The stormwater must be piped clear of the block. Preliminary investigations indicate that sewerage from the site can be discharged into the Whangarei City Council sewer at MH 78 or 74 just north of Sherwood Road. This will involve the construction of a feeder sewer of about 400m from which it would be possible to extend to the existing Lots 10 - 13 DP 56917 and the balance Lot 30 of this subdivision. The substantial pipe bridge required across the stream would probably be impractical, but as an alternative it may be economic to provide a pumping station.

The site is generally stable apart from the progressive erosion from the lower parts of the slopes. It is considered suitable for residential development subject to the following provisos:

1) All sections must be sewered.

2) A stormwater system should be provided to take all street stormwater and to give a stormwater system serving as much of the sections as possible.

3) Dwellings on Lots 14, 17 and 26 will require specific design by a Registered Engineer experienced in soil mechanics and foundation engineering.

T.N. COSTELLO
COOK MULDOWNEY COSTELLO

APPENDIX I

BOREHOLE LOGGING : STANDARD TERMS AND ADJECTIVES

Grain Size

Very Coarse
Coarse
Medium Coarse
Medium Fine
Fine
Very Fine

Grain Shape

Angular
Subangular
Subrounded
Well rounded

Gradation

Very Uniform
Uniform
Poorly Graded
Fairly well graded
Well graded

Description Terms for Quantities of a Given Size Fraction

Per Cent Passing	Term
1 - 10	Trace
10 - 20	Little or few
20 - 35	Some
35 - 50	And

Other Gradation Adjectives

Gravelly
Sandy
Silty
Clayey

Plasticity

Degree of Plasticity	Plasticity Index
Non Plastic	0 - 1
Slight (trace) plasticity	1 - 5
Low plasticity	5 - 10
Medium plasticity	10 - 20
High Plasticity	20 - 35
Very high plasticity	Greater than 35

Cohesiveness Near Plastic Limit

Very weak
Weak
Firm
Medium Tough
Tough
Very Tough

Dry Strength

Very slight
Slight
Medium
High
Very high

Compactness (Granular Soils)

Very Loose
Loose
Medium dense
Dense: compact
Very dense: well compacted

Consistency (Cohesive Soils)

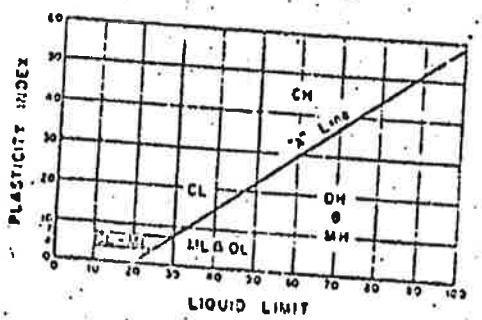
Consistency Grading	Unconfined Compression Strength (KPa)	Observed Condition or Behaviour
Very Soft	Less than 25	Exudes between fingers.
Soft	25 - 50	Easily moulded
Medium stiff; firm	50 - 100	Can be moulded with strong finger pressure
Stiff	100 - 200	Impossible to mould with fingers
Very stiff	200 - 400	Impossible to mould with fingers
Hard or Extremely stiff	Greater than 400	Brittle or very tough

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 1/2 of soil > no 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > no 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction < no 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no 200 sieve size)	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

CLASSIFICATION CHART
(Unified Soil Classification System)

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U S Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76 2
GRAVEL	3" to No 4	76 2 to 4 76
coarse	3" to 3/4"	76 2 to 19 1
fine	3/4" to No 4	19 1 to 4 76
SAND	No 4 to No 200	4 76 to 0 074
coarse	No 4 to No 10	4 76 to 2 00
medium	No 10 to No 40	2 00 to 0 420
fine	No 40 to No 200	0 420 to 0 074
SILT & CLAY	Below No 200	Below 0 074

GRAIN SIZE · CHART



PLASTICITY CHART

METHOD OF SOIL CLASSIFICATION

COOK MULDOWNEY COSTELLO - Consulting Engineers

COOK MULDOWNEY COSTELLO
CONSULTING CIVIL & STRUCTURAL ENGINEERS
19 LOWER TAREWA RD.
WHANGAREI.

RECORD OF BORING.

Job No. 1261/5

Job Description: H.H. GEORGE SUBDIVISION GEORGE POINT ROAD

Bore Hole No: (1) Date: 12/4/77 By: T. COSTELLO

Location: 15M SW of Boundary of existing dwelling. 18M back from road Boring Method: 8" HAND AUGER

Ground Level: 27.3

Datum: ASSUMED

Log	Depth	Classification	Sample Method	Description of Strata	M/C	Strength and test Method	Dry Density
	0	P1		Dark brown topsoil loose. Some roots.			
		P1					
	300mm	CH		Red-brown volcanic clay firm friable with weathered rock fragments			
		CH					
	2.000m	CH		Red-brown volcanic clay firm friable with weathered rock fragments - very wet			
		CH					
	2.600m	CH		Many weathered rock fragments.			

Key: Soil classification in accordance with Unified Soil Classification system
Sampling method
UD undisturbed
DT double tube
P plug
SB split barrel
WB wash bored

COOK MULDOWNEY COSTELLO
CONSULTING CIVIL & STRUCTURAL ENGINEERS
19 LOWER TAREWA RD.
WHANGAREI.

RECORD OF BORING.

Job No. 1261/5

Job Description: H.H. GEORGE SUBDIVISION GEORGE POINT ROAD

Bore Hole No: (2) Date: 12/4/77 By: T. COSTELLO

Location: Middle Building Site Lot 25 Boring Method: 8" HAND AUGER

Ground Level: 29.0

Datum: ASSUMED

Log	Depth	Classification	Sample Method	Description of Strata	M/C	Strength and test Method	Dry Density
	0	P1		Dark brown topsoil - some roots			
		P1					
	1.50	CH		Red-brown volcanic clay friable hard.			
	1.000m	CH		Red-brown volcanic clay friable hard.			

Key: Soil classification in accordance with Unified Soil Classification system
Sampling method

UD	undisturbed
DT	double tube
P	plug
SB	split barrel
WB	wash bored

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CONSULTING CIVIL & STRUCTURAL ENGINEERS
19 LOWER TAREWA RD.
WHANGAREI.

RECORD OF BORING.

Job No. 1261/5

Job Description: H.H. GEORGE SUBDIVISION GEORGE POINT ROAD

Bore Hole No: (3) Date: 12/4/77 By: T. COSTELLO

Location: Middle building site Lot 5 Boring Method: 8" HAND AUGER

Ground Level: 30.2

Datum: ASSUMED

Log	Depth	Classification	Sample Method	Description of Strata	M/C	Strength and test Method	Dry Density
	0	P1		Dark Brown topsoil some roots			
		P1					
	250	CH		Red-brown volcanic clay firm-hard friable			
		CH					
	1.1	CH		Red-brown volcani clay firm-hard friable			

Key: Soil classification in accordance with Unified Soil Classification system

Sampling method

UD	undisturbed
DT	double tube
P	plug
SB	split barrel
WB	wash bored

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19 LOWER TAREWA RD.
WHANGAREI.

RECORD OF BORING.

Job No. 1261/5

Job Description: H.H. GEORGE SUBDIVISION GEORGE POINT ROAD

Bore Hole No: (4) Date: 12/4/77 By: T. COSTELLO

Location: Right of way Lot 14 Boring Method: 8" HAND AUGER

Ground Level: 24.8

Datum: ASSUMED

Log	Depth	Classification	Sample Method	Description of Strata	M/C	Strength and test Method	Dry Density
	0	P1		Dark brown topsoil some roots			
		P1					
	300	CH		Brown clay friable Firm			
		CH					
	500	CH		Worn Basalt Stones			

Key: Soil classification in accordance with Unified Soil Classification system
Sampling method
UD undisturbed
DT double tube
P plug
SB split barrel
WB wash bored

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CONSULTING CIVIL & STRUCTURAL ENGINEERS
19 LOWER TAREWA RD.
WHANGAREI.

RECORD OF BORING.

Job No. 1261/5

Job Description: H.H. GEORGE SUBDIVISION GEORGE POINT ROAD

Bore Hole No: (5) Date: 12/4/77 By: T. COSTELLO

Location: Boundary of Lots 17 & 18 8m from road boundary Boring Method: 8" HAND AUGER

Ground Level: 24.8

Datum: ASSUMED

Log	Depth	Classification	Sample Method	Description of Strata	M/C	Strength and test Method	Dry Density
	0	P1		Dark brown topsoil some roots			
		P1					
	300	CH		Basalt Rocks			

Key: Soil classification in accordance with Unified Soil Classification system

Sampling method

UD	undisturbed
DT	double tube
P	plug
SB	split barrel
WB	wash bored

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CONSULTING CIVIL & STRUCTURAL ENGINEERS
19 LOWER TAREWA RD.
WHANGAREI.

RECORD OF BORING.

Job No. 1261/5

Job Description: H.H. GEORGE SUBDIVISION GEORGE POINT ROAD

Bore Hole No: (6) Date: 12/4/77 By: T. COSTELLO

Location: Boundary Lots 19 & 20 8m back from road boundary Boring Method: 8" HAND AUGER

Ground Level: 26.9

Datum: ASSUMED

Log	Depth	Classification	Sample Method	Description of Strata	M/C	Strength and test Method	Dry Density
	0	P1		Dark brown topsoil some roots			
		P1					
	300	CH		Brown volcanic clay weathered rock inclusions Firm			
		CH					
	1.100m	CH		Brown volcanic clay weathered rock inclusions Firm Some stones			

Key: Soil classification in accordance with Unified Soil Classification system
Sampling method

UD	undisturbed
DT	double tube
P	plug
SB	split barrel
WB	wash bored

H. GEORGE SUBDIVISION GEORGE PT ROAD

ANALYSIS OF POSSIBLE SLIP CIRCLES

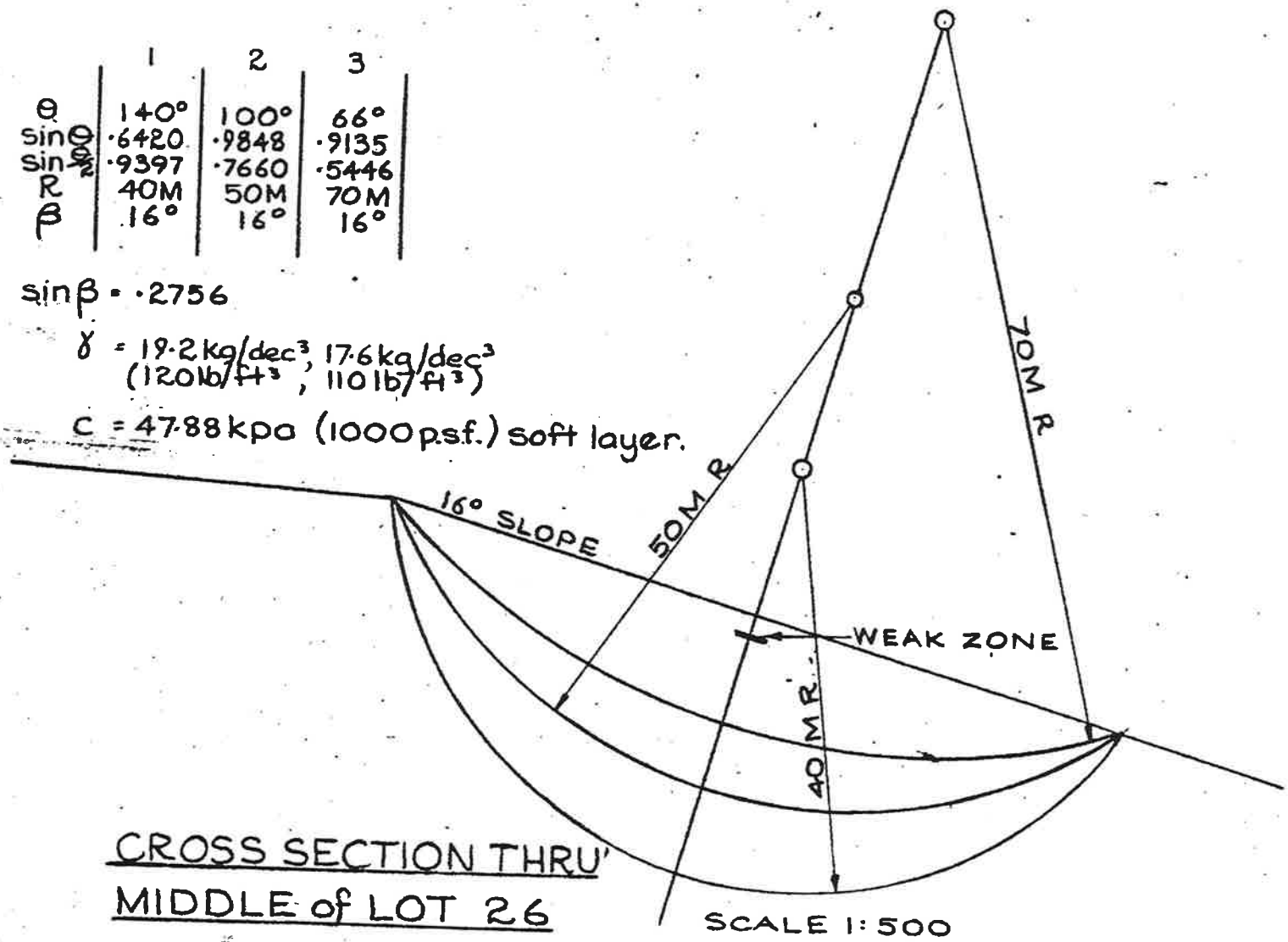
COOK MULDOWNEY COSTELLO
CONSULTING ENGINEERS
WHANGAREI

	1	2	3
θ	140°	100°	66°
$\sin\theta$	·6420	·9848	·9135
$\sin\frac{\theta}{2}$	·9397	·7660	·5446
R	40M	50M	70M
β	16°	16°	16°

$\sin\beta = ·2756$

γ = 19·2 kg/dec^3, 17·6 kg/dec^3
(120 lb/ft^3, 110 lb/ft^3)

C = 47·88 kpa (1000 p.s.f.) soft layer.



CROSS SECTION THRU'
MIDDLE of LOT 26

SCALE 1:500

COOK MULDOWNEY COSTELLO
CONSULTING ENGINEERS
WHANGAREI TEL. 89-529

PROJECT H.H.George Subdivision George Point Rd.

PROJECT NO. 1261/05

ENGINEER

DATE

PAGE

Slip Circle Analysis.

1

```
                    X
        140         S
      0.642         S
R       40          S
     0.2397         S
 24.877552          A0
1446.400000         B0
     0.2756         S
 6.746013           A0
          0         S
          0         S
 0.0000000          A0
          0         S
          0         S
γ        17.6       S
c        47.88      S
1876.92.600000      C0
                    .4
1876.92.600000      A0
1211730.824372      D0
fs   1.0922929      A0
     98.000000      C0
```

2

```
                    X
    100.00          S
   0.29848          S
R       50          S
    0.2766          S
                    X
    100.00          S
   0.29848          S
        50          S
    0.2766          S
 39.137962          A0
9861.500000         B0
    0.2756          S
 10.791934          A0
          0         S
          0         S
 0.0000000          A0
          0         S
          0         S
γ        17.6       S
c        47.88      S
2044.75.000000      C0
                    .4
2044.75.000000      A0
1816.76.733729      D0
Fs   1.1153015      A0
     87.500000      C0
```

3

```
                    X
     66.00          S
   0.29135          S
R       70          S
                    X
     66.00          S
   0.29135          S
        70          S
    0.5446          S
 42.429137          A0
5911.675000         B0
    0.2756          S
 17.204092          A0
                    S
          0         S
 0.0000000          A0
          0         S
          0         S
γ        17.6       S
c        47.88      S
2709.76.960000      C0
                    .4
2709.76.960000      A0
1791.84.467958      D0
fs   1.1512531      A0
     80.850000      C0
```

COOK MULDOWNEY COSTELLO
CONSULTING CIVIL & STRUCTURAL
ENGINEERS
19 LOWER TAREWA RD.
WHANGAREI.

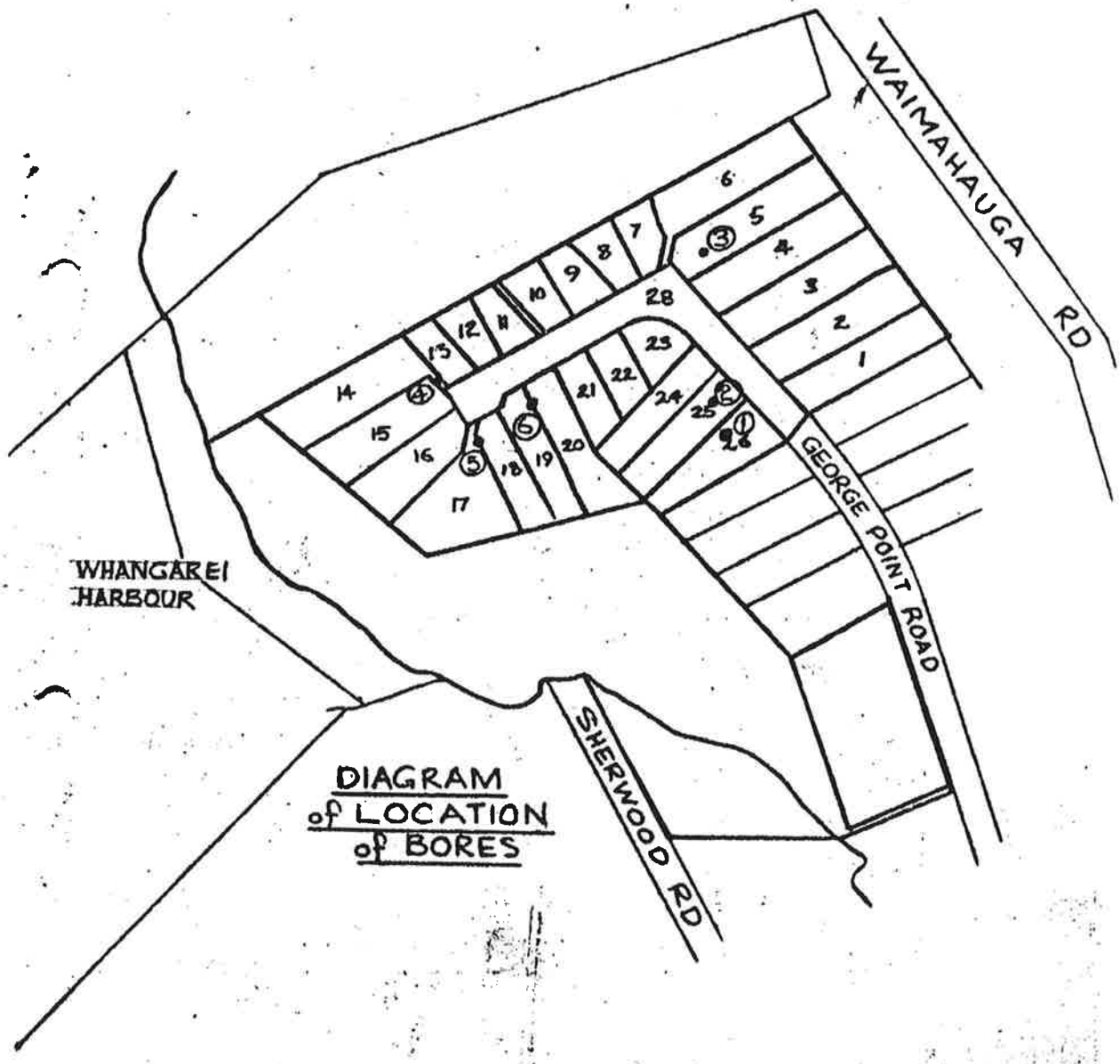


DIAGRAM of LOCATION of BORES

ER 135

COOK MULDOWNEY COSTELLO

CONSULTING ENGINEERS

D. M. COOK, M.N.Z.I.E., F.I.Q., REG. ENGR.
F. S. MULDOWNEY, B.E., M.N.Z.I.E., REG. ENGR.
T. N. COSTELLO, B.E., M.N.Z.I.E., REG. ENGR.

19 Lower Tarewa Road,
Whangarei
Tel. 89-529
Ref. 2161/06

REPORT

on

SUBDIVISION ENGINEERING DEVELOPMENT OF

WAIMAHUNGA NO.2 BLOCK

INTRODUCTION:

This report supplements the suitability report of 15th April '77 and reviews the final building sites layout in light of the site investigation information, evidence of nature of material disclosed in engineering work and final engineering design.

REVIEW OF PREVIOUS REPORT:

The recommendations of the previous report were;

" 1. All sections must be sewered.

2. A stormwater system should be provided to take all street stormwater and serving as much of the sections as possible.

3. Dwellings on lots 14, 17 and 26 will require specific design by a Registered Engineer experienced in Soil Mechanics and foundation engineering."

Recommendations 1 & 2 have been fully complied with in the final layout of the subdivision and stormwater connections are available to each property to take yard and roof stormwater.

Numbering of the sections has been altered so that the lots 14, 17 and 26 become 12, 14, 22 and 23. The proviso in respect of these lots stands.

Inspection of trenches and excavations carried out extensively over the site disclosed no variation from the soil types and descriptions from the borelogs as in the previous report.

..../2

The interface of the Horeke basalt and Onerahi sandstones and siltstones is well down the slopes at the rear of the sections where building is impractical. However, it would be desirable that all bush on the lots clear of the building sites be preserved and upgraded with additional planting.

Earthworks carried out have improved the utility of building sites and improved the stability of slopes.

SUMMARY AND CONCLUSIONS:

The engineering works on the subdivision have been carried out in accordance with the recommendations of our report of April '77.

Good building sites have been achieved and the attached plan defines the limits of the recommended building area.

Subject to the following provisos the subdivision is considered to provide safe stable building sites with good foundation conditions, (undrained shear strength of bouldery clay better than 120 kPa) free from flooding or drainage problems.

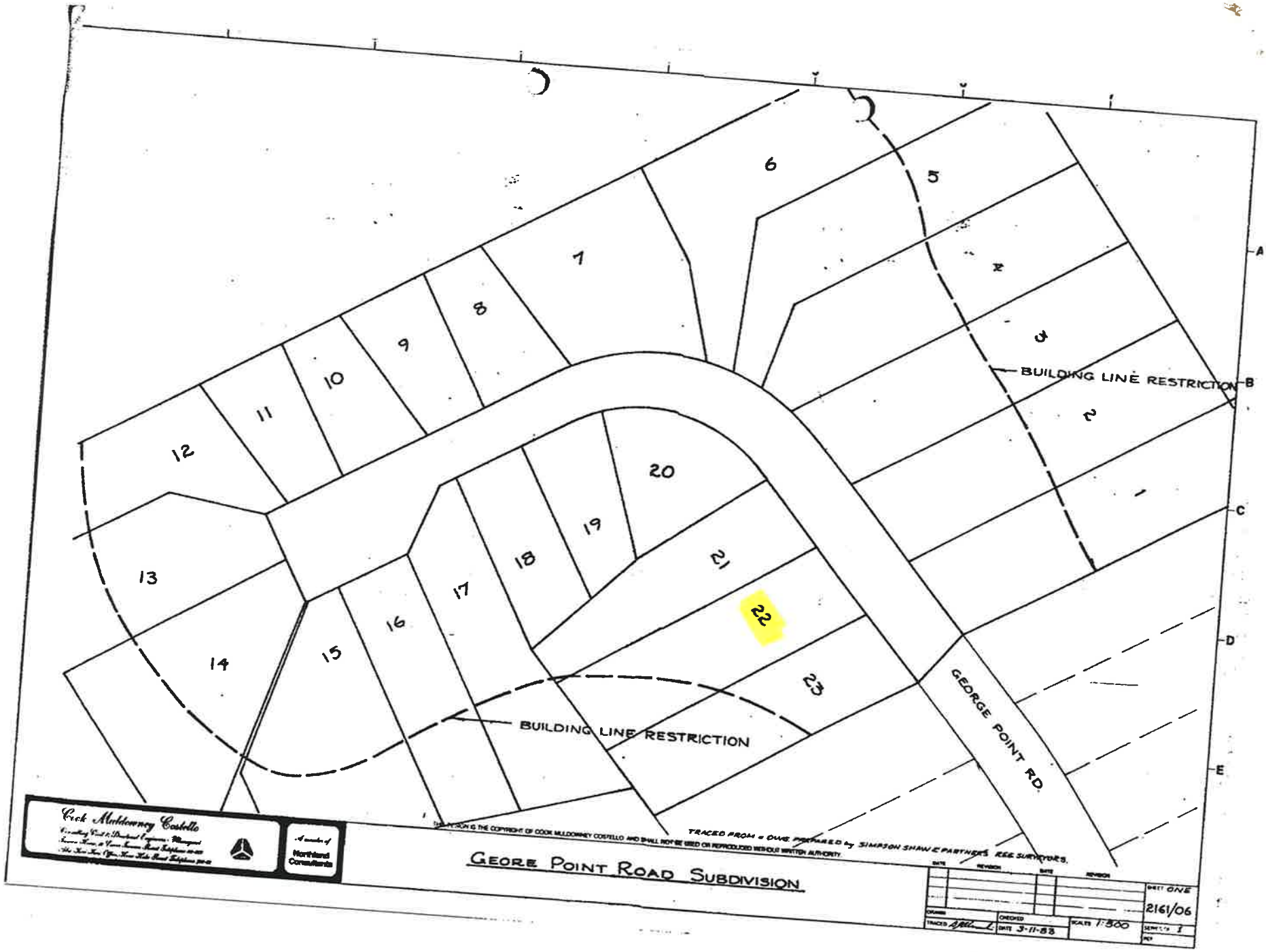
1. Residential buildings should be sited above the delineated lower building limit shown on the attached plan and connected to the sewer.

2. All stormwater from yards and rooves should be connected into the piped stormwater drainage system.

3. Buildings on lots 12,14,22 and 23 should be subject to specific design by a Registered Engineer experienced in soil mechanics and foundation engineering.

Mcostello.

T.N. Costello.
COOK MULDOWNEY COSTELLO
NOVEMBER '83


6
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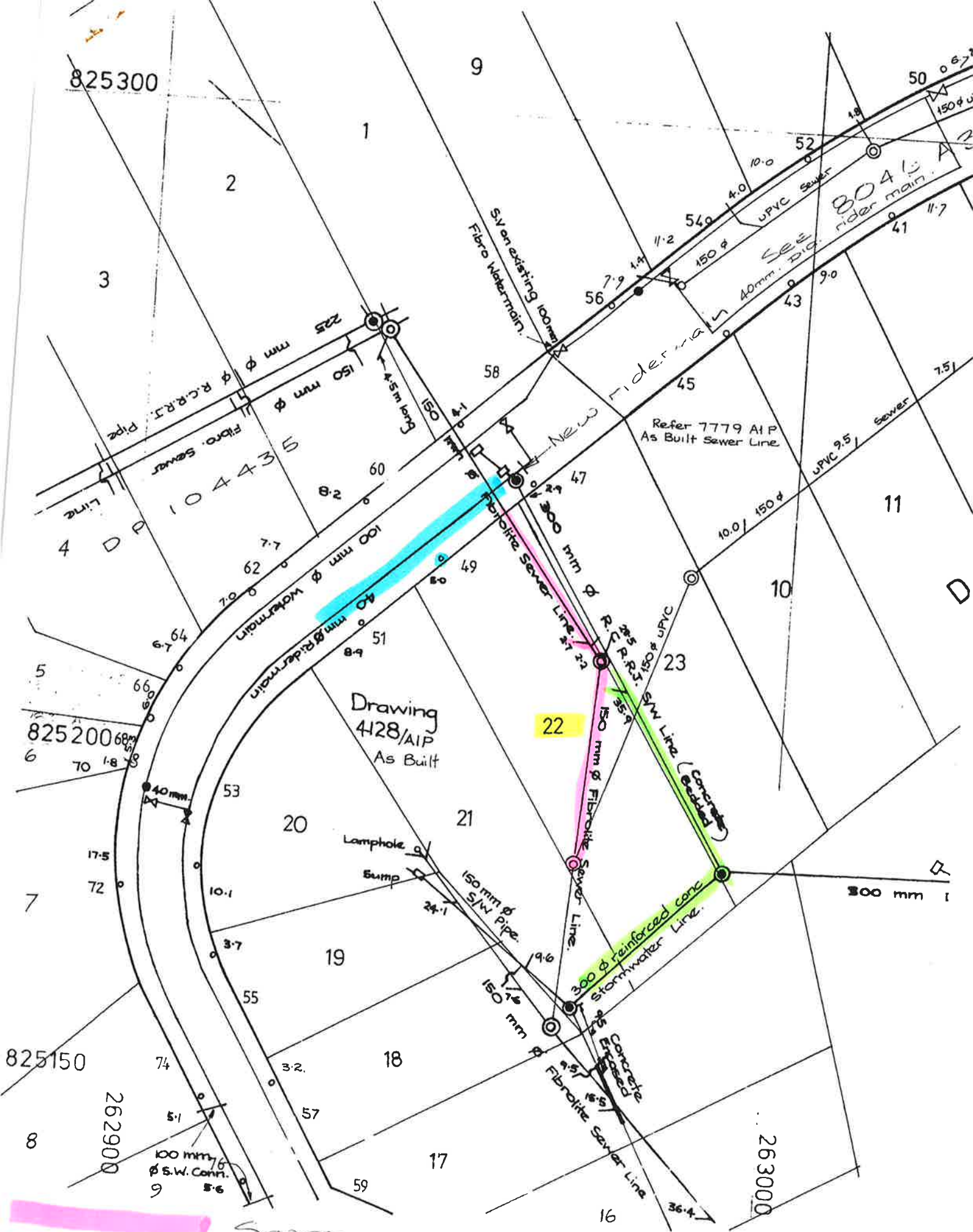
14
13
BUILDING LINE RESTRICTION
BUILDING LINE RESTRICTION
GEORGE POINT RD.
A
B
C
D
E
Cook Molldowney Costello
A member of Northland Consultants
THIS PLAN IS THE COPYRIGHT OF COOK MULDOWNEY COSTELLO AND SHALL NOT BE USED OR REPRODUCED WITHOUT WRITTEN AUTHORITY.
TRACED FROM a DWG PREPARED by SIMPSON SHAW & PARTNERS REG SURVEYORS.
GEORGE POINT ROAD SUBDIVISION
DATE
REVISION
DRAWN
CHECKED
TRACED
DATE 3-11-88
SCALE 1:500
SHEET ONE
2161/06


825300
825200
825150
262900
263000
DP 104435
Drawing 4128/AIP As Built
Refer 7779 AIP As Built Sewer Line
SV on existing 100mm Fibro Watermain.
New Fidelmain
See 8041 A2 rider main.
40mm dia
Fibrolite Sewer Line
150 mm ø Fibrolite Sewer Line
300 mm ø R.C.R.R.J.
S/W Line (concrete encased)
300 ø reinforced conc stormwater Line.
150 mm ø S/W pipe.
Lamphole
Sump
100 mm ø S.W. Conn.
40 mm ø Fidelmain
100 mm ø Watermain
225 mm ø R.C.R.R.J. Pipe
150 mm ø Fibro. Sewer Line
4.5m long
150 mm ø
150 ø uPVC
uPVC Sewer
22
Sewer
Stormwater
Water
T 25

WHANGAREI CITY

SITE DRAINAGE PLAN

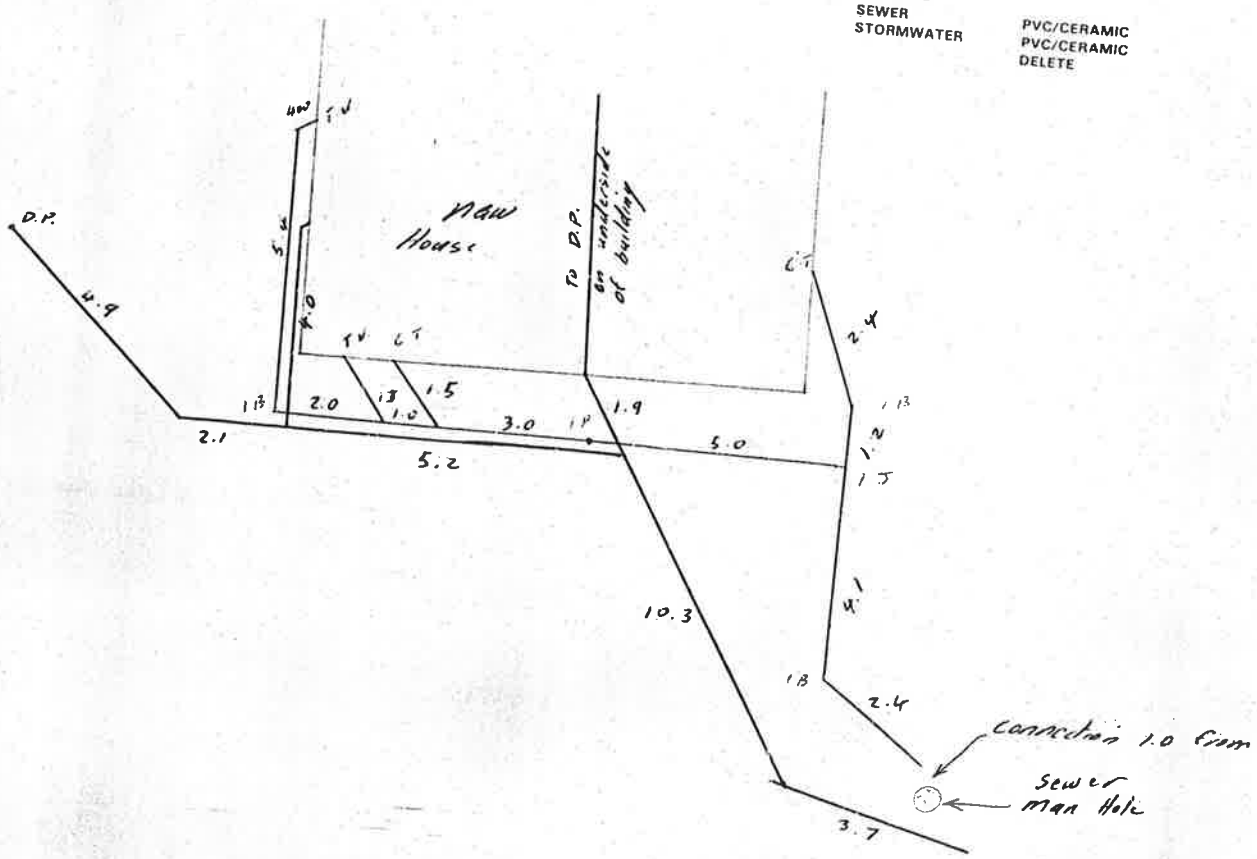
DRAINLAYER Gordon Breeden

Permit No.

Date 14-12-89

ACTUAL measurements between inspection pipes, changes of direction, etc, are to be clearly shown. This applies to stormwater drains also. The DEPTH of all cleaning eyes, is also to be shown.

New Sewerdrains	RED	———
Stormwater	DOTTED BLACK	- - - - -
Old Drains	FULL BLACK	———
Material Used		
SEWER	PVC/CERAMIC	
STORMWATER	PVC/CERAMIC	
	DELETE	



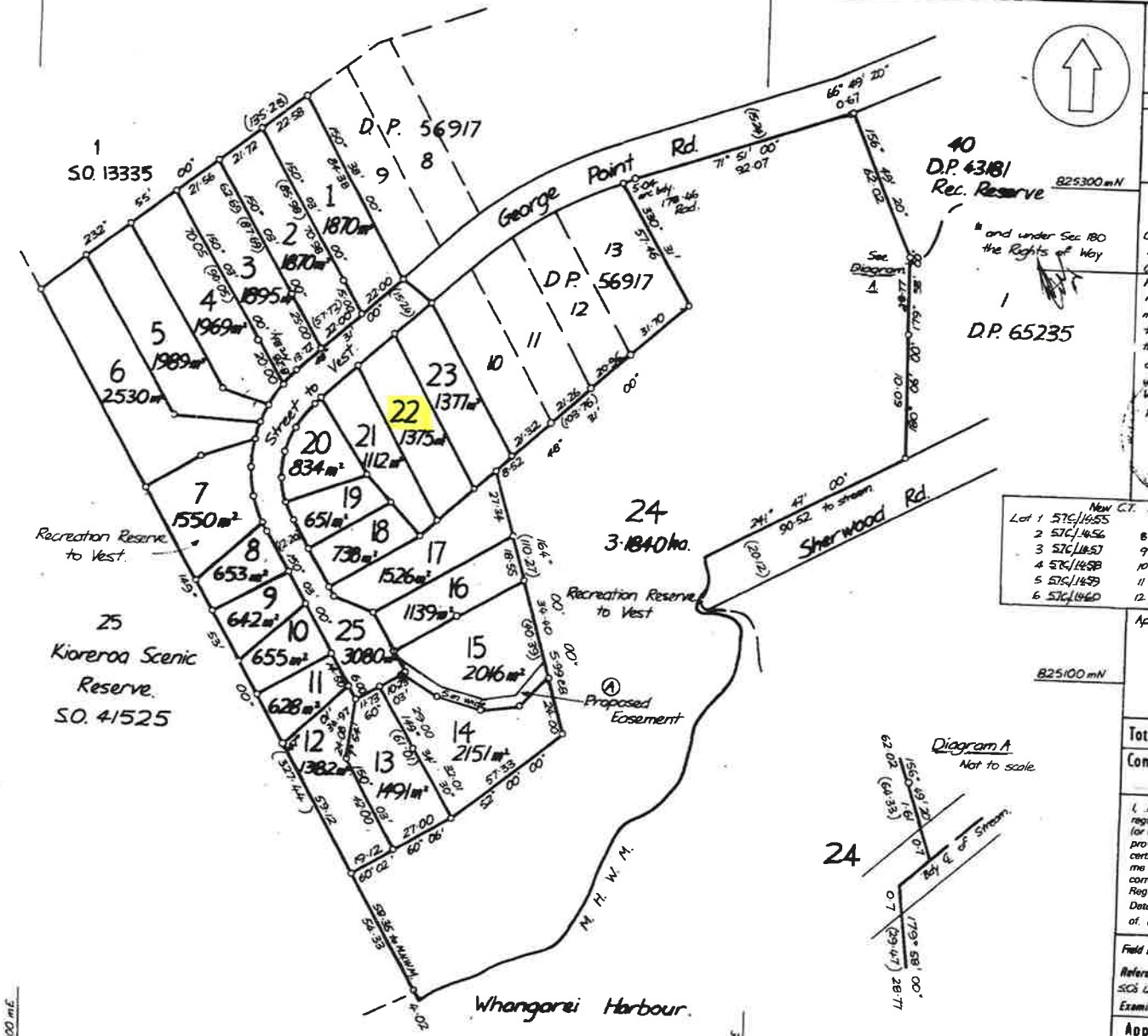
SCALE 1 TO 100

Greg Smith

George Pt. Rd.

LOT No.

DP No.



Roads shown are legal.

Memorandum of Easements in Gross.

Nature	Shown	Serv. Ten.	Grantee
R.O.W Electricity Drainage Water	Ⓐ	Pt Lot 15	Whangarei City Council.

and under Sec. 180 the Rights of Way

Pursuant to a resolution of the Whangarei City Council passed on the [illegible] day of [illegible] 1984 approving under Sec. 257 of the Municipal Corporations Act 1954 the subdivision shown hereon conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifying that the survey plan is in accordance with the requirements and provisions of the operative district scheme for the area to which the survey plan relates the Common Seal of the Whangarei City Council was affixed hereto in the presence of

Mayor

City Manager.

New C.T. Allocated.

Lot 1 57C/1455	8 57C/1461	Lot 13 57C/1466	Lot 19 57C/1472
2 57C/1456	9 57C/1462	14 57C/1467	20 57C/1473
3 57C/1457	10 57C/1463	15 57C/1468	21 57C/1474
4 57C/1458	11 57C/1464	16 57C/1469	22 57C/1475
5 57C/1459	12 57C/1465	17 57C/1470	23 57C/1476
6 57C/1460		18 57C/1471	

Approved:

Registered Owner.

Total Area 6·6963 ha.

Comprised in C.T. 31D/828 (Pt)

I, Richard Thomas O'Flaherty of Whangarei registered surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to the proviso to section 33 (2) of the Surveyors Act 1966) hereby certify that this plan has been made from surveys executed by me or under my directions, and that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972.

Dated at Whangarei this 31st day of July 1984. Signature R.T. O'Flaherty

Field Book p. Traverse Book p.

Reference Plans D.P.S. 4361, 5357A, 5287, 5866, CS 235, ML 9097, SOS 12356, 13335, 23057, 38209, 44425, 48593, 50329

Examined C. Mann Correct

Approved as to Survey

5 / 8 / 85

Chief Surveyor

Deposited this 10 day [illegible] 1986

District Land Registrar

File

Received

Instructions

D.P. 104435

LAND DISTRICT North Auckland

SURVEY BLK. & DIST. XIII, Whangarei

NZMS SHEET No. Onerahi I

Lots 1 to 25 being a Subdivision of Pt Waimahanga No 2 Block

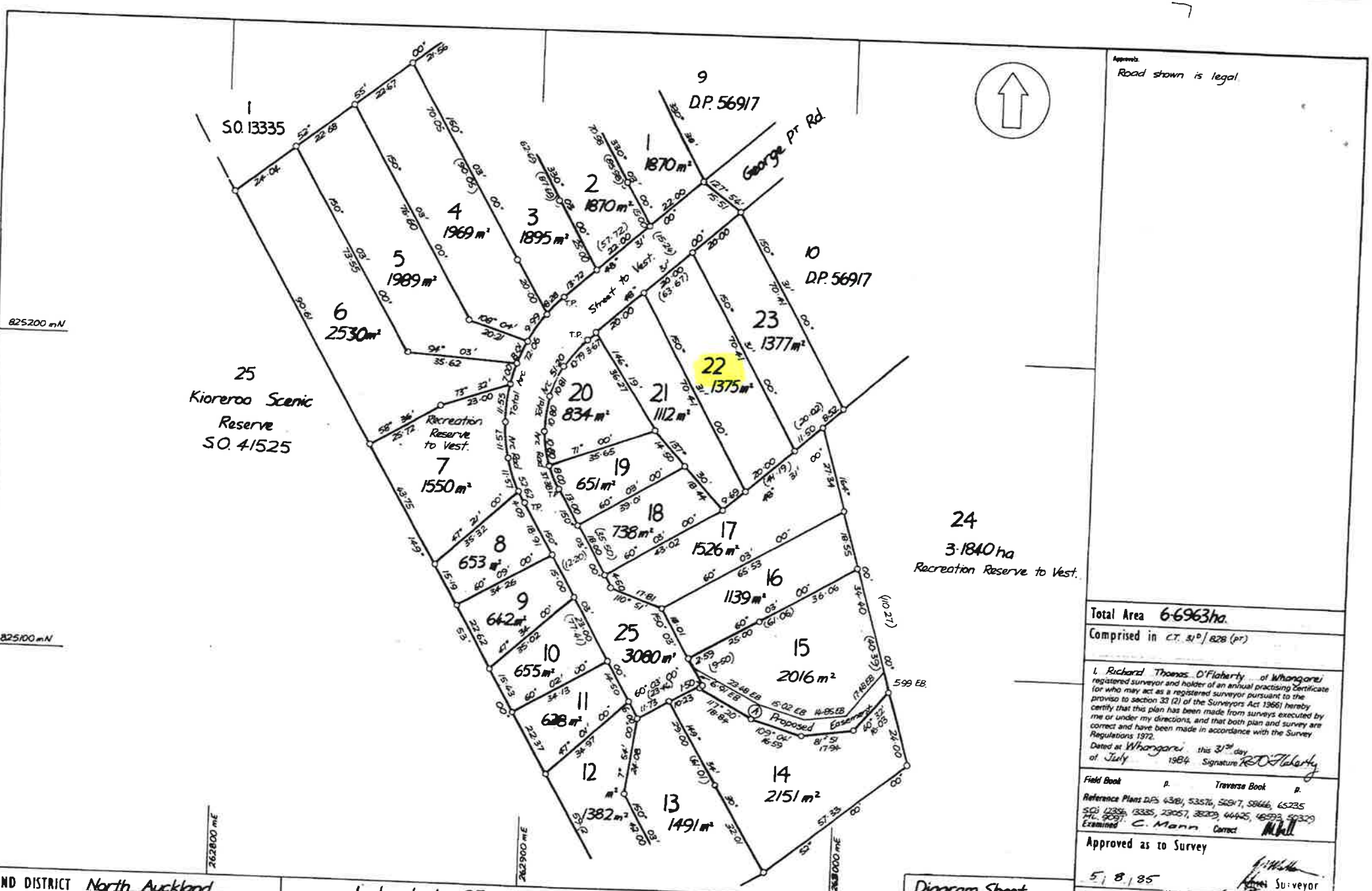
LOCAL AUTHORITY Whangarei City

Surveyed by Hodges & Elrick

Scale 1:1250 Date July 84

Surveyor-General, Department of Lands and Survey, Wellington

LAS FORM 6 93



Approvals.
Road shown is legal

Total Area 6·6963ha.

Comprised in C.T. 31D/828 (pt)

I, Richard Thomas O'Flaherty of Whangarei registered surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to the proviso to section 33 (2) of the Surveyors Act 1966) hereby certify that this plan has been made from surveys executed by me or under my directions, and that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972.

Dated at Whangarei this 31st day of July 1984 Signature R.T. O'Flaherty

Field Book p. Traverse Book p.

Reference Plans D.P.'s 4381, 53576, 56917, 58666, 65235 S.O.'s 12356, 13335, 23057, 38209, 44425, 48693, 50329 Plt. 9081

Examined C. Mann Correct

Approved as to Survey

5.8.85

Deputy Surveyor

Deposited this 10 day of February 1986

Assistant Land Registrar

File

Received

Instructions

D.P. 104435

LAND DISTRICT North Auckland
SURVEY BLK.& DIST. XIII, Whangarei
NZMS SHEET No. Onerahi 1

Lots 1 to 25 being a Subdivision of Pt Waimahanga No 2 Block.

LOCAL AUTHORITY Whangarei City
Surveyed by Hodges & Elrick
Scale 1:750 Date July 1984

Diagram Sheet 1 of 1

Surveyor-General, Department of Lands and Survey, Wellington

L&S FORM # 93

WHANGAREI
DISTRICT COUNCIL

BUILDING CONSENT No:87336
Section 51, Building Act 2004

Issued:22Nov05
Project Information Memorandum No 86963

The Building

Street Address of building: GEORGE POINT RD, ONERAHI, WHANGAREI 0101
Legal Description of land where building is located:
LOT 22 DP 104435
LLP No 057569

The Owner

Name of owner: S & S SCOTT
Mailing Address: 265 HIBISCUS COAST H/WAY
OREWA

Contact Person: S & S SCOTT
Mailing Address: 265 HIBISCUS COAST H/WAY
OREWA

Street address/registered office: GEORGE POINT RD
ONERAHI
WHANGAREI 0101

Building Work

The following building work is authorised by this consent:

Project: Alteration

Intended Use: **CONVERT CARPORT TO GARAGE AND NEW DECK**

Creating the ultimate living environment

Forum North, Private Bag 9023
Whangarei, New Zealand
Telephone: +64 9 430 4200
Facsimile: +64 9 438 7632
Email: mailroom@wdc.govt.nz
Website: www.wdc.govt.nz

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

1: CONDITION: ORP to be installed outside deck line.

2: General - No Requirements.

3: Dust Nuisance

The applicant must control dust nuisance created by any site or building works.

4: Toilet Facilities

Toilet facilities must be provided within reasonable distance of the construction site. Ground discharge is no longer acceptable.

5: Smoke Alarms

Smoke alarms are to be installed in compliance with the building code.

Compliance Schedule

A compliance schedule is not required for the building.

(C E Blakeley)

Signature

COMPLIANCE SUPPORT ASSISTANT

Position

On behalf of: Whangarei District Council

Date: 22 November 2005

BUILDING CONSENT NO 87336

BRANZ
THE RESOURCE CENTRE FOR BUILDING EXCELLENCE

SHEET A

Name: S. & S. Scott

1

Location of STOREY	foundation (single) upper of two lower of two
SITE WIND ZONE: (Table 2.4)	low / (medium) high / very high
EARTHQUAKE ZONE: (Fig 2.2, Table 2.3)	A / B / (C)

SITE ADDRESS

City/Town or District: ONEHUNGA

Street and Number: 49 GEORGE ST. Hons

or

LOT and D.P. Number: Lot 22 D.P. ic 4435

2 **FOR EARTHQUAKE**

Roof weight :	(light) / heavy	E = 18 B.U.'s/m²
Average Roof Pitch:	15°	
Type of Cladding:	(light) / heavy	
Earthquake zone:	C	
Storey in Roof space:	yes / (no)	

3 **FOR WIND**

Building Height:	3.2 m	W = B.U.'s/m
Roof Height	1.0 m	~~Across~~ : 24
Storey Height	2.4 m	Along : 34
Design Wind Speed	: M.	

4

ROOF or BUILDING LENGTH	BL = 6.0	m
ROOF or BUILDING WIDTH	BW = 4.3	m
GROSS ROOF or BUILDING PLAN AREA	GPA = 26	m²

5

EARTHQUAKE LOAD (ACROSS and ALONG)	E x GPA = 18 x 26	= 47	B.U.'s
WIND LOAD: ACROSS	W x BL = 24 x 6.0	= 144	B.U.'s
WIND LOAD: ALONG	W x BW = 34 x 4.3	= 146	B.U.'s

ALONG

LOCATION OF STOREY	Wall or Bracing Line		Bracing Elements Provided				
1	2	3	4	5	6	7	8
foundation single upper storey lower storey	Line Label	Minimum B.U.'s Required	Bracing Element NO.	Bracing Type	Rating B.U.'s	Length of Element (m)	B.U.'s Achieved
Total Bracing Units Required for foundation or this storey	A B C D E		1	GIB/G	50	2.1	105
			2	GIB/G	50	2.1	105
			PLUS EXISTING WALLS				
for EARTHQUAKE (from sheet A)					TOTAL		210
47							
for WIND (from sheet A)	A B C D E		1	GIB/G	55	2.1	115
			2	GIB/G	55	2.1	115
			PLUS EXISTING WALLS				
					TOTAL		230
144							

ACROSS

LOCATION OF STOREY	Wall or Bracing Line		Bracing Elements Provided				
1	2	3	4	5	6	7	8
foundation single upper storey lower storey	Line Label	Minimum B.U.'s Required	Bracing Element NO.	Bracing Type	Rating B.U.'s	Length of Element (m)	B.U.'s Achieved
Total Bracing Unirs Required for foundation or this storey	M N O P Q		3	BR4	85	1.1	93
			4	BR4	85	1.1	93
for EARTHQUAKE (from sheet A)			PLUS EXISTING WALLS				
					TOTAL		186
47							
for WIND (from sheet A)	M N O P Q		3	BR4	100	1.1	110
			4	BR4	100	1.1	110
			PLUS EXISTING WALLS				
					TOTAL		220
144							

NAME: S+S Scott

GARAGE ADDITION

ADDRESS: 49 Geo[illegible] Dr Ho
ONERAHI

Table 2: Building envelope risk matrix
Paragraph 3.1.2, Figure 1

Risk factor	Risk severity: LOW	score	MEDIUM	score	HIGH	score	VERY HIGH	score	Subtotals for each risk factor
Wind zone (per NZS 3604)	0		(0)		1		2		0
Number of storeys	(0)		1		2		4		0
Roof/wall intersection design	(0)		1		3		5		0
Eaves width	0		(1)		2		5		1
Envelope complexity	(0)		1		3		6		0
Deck design	(0)		2		4		6		0
							Total risk score:		1

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3: Suitable wall claddings
Paragraphs 3.1.2, 3.4.1.1, 3.4.2.1, 3.4.2.2, 3.4.3.2, 9.1.1, 9.4.1.2, 9.4.1.3, 9.6, Figure 1

Risk Score	Suitable wall claddings[1]	
	Direct fixed to framing	**Over nominal 20 mm drained cavity**
0 – 6	a) Timber weatherboards – all types b) Fibre cement weatherboards c) Vertical profiled metal [3] – corrugated and symmetrical d) Fibre cement sheet [4] e) Plywood sheet f) *EIFS*	a) *Masonry veneer* [2] b) *Stucco* c) Horizontal profiled metal [3] – corrugated and *trapezoidal* only
7 – 12	a) Bevel-back timber weatherboards b) Vertical timber board and batten c) Vertical profiled metal [3] – corrugated only	a) *Masonry veneer* [2] b) *Stucco* c) Horizontal profiled metal – corrugated and *trapezoidal* only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) *EIFS*
13 – 20	a) Vertical profiled metal [3] – corrugated only	a) *Masonry veneer* [2] b) *Stucco* c) Horizontal profiled metal – corrugated and *trapezoidal* only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) *EIFS* i) Bevel-back weatherboards
Over 20	a) Redesign the *building* to achieve a lower score, or b) Specific design – The design may need changing to reduce the risk – The *building consent authority* may require more comprehensive details and documentation providing evidence of *weathertightness* – The *building consent authority*, designer or *owner* may require more inspections – A third party audit of the design may be required.	

Amend 2 Jul 2005

NOTES: (1) **The wall claddings in this table are limited to those covered in this Acceptable Solution.**
(2) Traditional *masonry veneer* as per SNZ HB 4236, with minimum 40 mm cavity.
(3) Refer Figure 38 for profiles.
(4) Except *stucco* over a fibre cement backing.

NAME: S. & S. SCOTT

ADDRESS: 49 GEORGE ST. RD. OVERAKI.

EXISTING CARPORT/GARAGE

Table 2: Building envelope risk matrix
Paragraph 3.1.2, Figure 1

Risk factor	Risk severity: LOW	score	MEDIUM	score	HIGH	score	VERY HIGH	score	Subtotals for each risk factor
Wind zone (per NZS 3604)	0		(0)		1		2		0
Number of storeys	(0)		1		2		4		0
Roof/wall intersection design	0		(1)		3		5		15
Eaves width	0		1		2		(5)		
Envelope complexity	(0)		1		3		6		0
Deck design	(0)		2		4		6		0
							Total risk score:		6

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3: Suitable wall claddings
Paragraphs 3.1.2, 3.4.1.1, 3.4.2.1, 3.4.2.2, 3.4.3.2, 9.1.1, 9.4.1.2, 9.4.1.3, 9.6, Figure 1

Risk Score	Suitable wall claddings[1]	
	Direct fixed to framing	**Over nominal 20 mm drained cavity**
0 – 6	a) Timber weatherboards – all types b) Fibre cement weatherboards c) Vertical profiled metal [3] – corrugated and symmetrical d) Fibre cement sheet [4] e) Plywood sheet f) *EIFS*	a) *Masonry veneer* [2] b) *Stucco* c) Horizontal profiled metal [3] – corrugated and *trapezoidal* only
Amend 2 Jul 2005 **7 – 12**	a) Bevel-back timber weatherboards b) Vertical timber board and batten c) Vertical profiled metal [3] – corrugated only	a) *Masonry veneer* [2] b) *Stucco* c) Horizontal profiled metal – corrugated and *trapezoidal* only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) *EIFS*
13 – 20	a) Vertical profiled metal [3] – corrugated only	a) *Masonry veneer* [2] b) *Stucco* c) Horizontal profiled metal – corrugated and *trapezoidal* only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) *EIFS* i) Bevel-back weatherboards
Over 20	a) Redesign the *building* to achieve a lower score, or b) Specific design – The design may need changing to reduce the risk – The *building consent authority* may require more comprehensive details and documentation providing evidence of *weathertightness* – The *building consent authority*, designer or *owner* may require more inspections – A third party audit of the design may be required.	

Amend 2 Jul 2005

Amend 2 Jul 2005

Amend 2 Jul 2005

Amend 2 Jul 2005

Amend 2 Jul 2005

APPROVED
18 NOV 2005

NOTES: (1) **The wall claddings in this table are limited to those covered in this Acceptable Solution.**
(2) Traditional *masonry veneer* as per SNZ HB 4236, with minimum 40 mm cavity.
(3) Refer Figure 38 for profiles.
(4) Except *stucco* over a fibre cement backing.

Design Steps 4 and 5 – Bracing Units Achieved (Wind and Earthquake)

TABLE 2: Bracing Unit ratings for 9.5mm Gib® Braceline and 9.5mm or 12.5mm Gib® Toughline.

Type	Minimum length (m)	Lining Requirement	Additional Requirement	Bracing Units per metre (wind)	Bracing Units per metre (Earthquake)
9.5mm Gib® Braceline bracing systems (these ratings also apply to 9.5mm or 12.5mm Gib® Toughline)					
BR1a	1.8-2.4	Gib® Braceline one face, fixed horizontal or vertical	diagonal brace	70	60
BR1b	Over 2.4			90	75
BR2a	1.8-2.4	Gib® Braceline one face, fixed vertical	N/A	75	60
BR2b	Over 2.4			85	60
BR3a	1.8-2.4	Gib® Braceline one face, fixed horizontal	N/A	60	45
BR3b	Over 2.4			95	65
BR4	0.9-1.2	Gib® Braceline one face, fixed vertical or horizontal*.	6kN connections	100	85
BR5	1.2	Gib® Braceline one face, fixed vertical or horizontal*.	6kN connections	115	85
BR6	1.2	Gib® Braceline one face, Standard 9.5mm Gib® plasterboard on the other, fixed vertical or horizontal*.	12kN connections	150	110
BR7	0.9	Gib® Braceline one face, 7.5mm plywood on the other, fixed vertical or horizontal*.	6kN connections	145	145
BR8	0.9	Gib® Braceline one face, 4.75mm hardboard on the other, fixed vertical or horizontal*.	6kN connections	120	95
BR9	0.6	Gib® Braceline one face, fixed vertical or horizontal*.	6kN connections	110	95

Notes:

1) Where linings are specified on both faces (Systems GIB2, GIB3, GIB11, UL2, BR6, BR7, BR8) each face must be fastened as a braced element. Refer page 12 for fastening systems relating to Plywood and Hardboard.

2) See notes on Hold-Down Strap Placement, Page 12.

*3) For horizontal fixing of linings in Systems BR4, BR5, BR6, BR7, BR8, BR9, see page 18.

Construction Details

Framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604. Winstone Wallboards recommends the use of kiln-dried machine stress graded framing (KD MSG). To achieve the published bracing performance the minimum actual framing dimensions are 90 x 35mm for external walls and 70 x 35mm for internal walls. System BR9 always requires a minimum of 90 x 35mm framing.
Wall bracing tests on Gib® Systems were undertaken without nogs. Nogs are not considered to add to the bracing performance of the wall.

Fastening Gib® Plasterboard Linings

Standard 9.5mm and 12.5mm Gib® plasterboard, 9.5mm Gib® Ultraline, 9.5mm Gib® Noiseline and 12.5mm Gib® Toughline may all be fastened using 32mm x 6g Gib® Grabber drywall screws or 30 x 2.8mm Gib® Nails. Gib® Braceline and 9.5mm Gib® Toughline must be fastened with 32mm Gib® Grabber Braceline screws, or 30mm Gib® Braceline nails and washers.
Gib® linings for designated bracing elements are fastened at 150mm centres around the perimeter of the bracing element. **The first fastener is always placed 50mm away from the sheet corner. See detail page 16.**
Fastening in the field of the bracing element is conventional and the screw and glue method is recommended. (See Fastener Layout details, pages 14, 15).
When fixing part sheets of Gib® plasterboard, a minimum width of 300mm is recommended for bracing elements.
Full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs (or over the studs where horizontal fixing is permissible) and fastened at 200mm centres. Alternatively, the sheet end butt joints may be back-blocked.

Plywood (BR7) and Hardboard (BR8)

'Plywood' specified in BR7 is a grade C-D 7.5mm construction plywood manufactured to AS/NZS 2269:1994, fixed with 30 x 2.8mm Gib® Nails at 150mm centres around the perimeter of the bracing element and at 300mm centres to intermediate framing.
'Hardboard' specified in BR8 is 4.75mm standard or oil tempered hardboard manufactured by Fletcher Wood Panels Ltd., fixed with 30 x 2.8mm Gib® Nails at 150mm centres around the perimeter of the bracing element and at 300mm centres to intermediate framing.

Fire Resistance Ratings

9.5mm Gib® Braceline, 9.5mm Gib® Aqualine, 9.5mm Gib® Noiseline, 9.5mm Gib® Ultraline and 9.5mm Gib® Toughline may be substituted for 9.5mm Gib® Fyreline in fire rated constructions.
The fastener length for the fire rated system applies. The field of the braced element must also be fastened in accordance with the fire rated specification (adhesive not permitted).

Jointing and Stopping

All sheet joints must be paper tape reinforced and stopped in accordance with the publication entitled, "Gib® Living Solutions Site Guide", April 1999.

Fastening the Bracing Element to Timber Floors

Fastening of the bottom plate of a Gib® wall bracing element to a timber framed floor must be in accordance with NZS3604 with pairs of 100 x 3.75mm nails at 600mm centres. In addition 6 or 12kN connections must be installed when specified for the particular bracing element type.

Fastening the Bracing Element to Concrete Slabs

Fastening of the bottom plate of a Gib® wall bracing element to concrete floors must be in accordance with NZS3604 for external walls, which includes a 12mm bolt (complete with a 50 x 50 x 3mm square washer) or a proprietary fixing with equivalent performance within 150mm (90mm for BR6) from both ends of the wall bracing elements.
On internal bracing lines, the bottom plate of Gib® Bracing elements may be fixed using 3.8mm shot fired fasteners fitted with 16mm discs, spaced at 150mm and 300mm from the end studs and thereafter at 600mm centres. This method only applies to Systems Gib1, 2, 3, 10, 11 and BR1, 2, 3.

Hold-Down Strap Placement (Refer Illustrations Pages 17 and 18)

Where 6kN connections are specified in the 'Additional Requirements' column, they are required only if the bracing element terminates within 1.2 metres from a door or window opening (see illustration, page 18).
Where 12kN connections are specified they must be installed at both ends of the bracing element in all cases.

GIB

Openings in Bracing Elements

Openings are allowed within the middle third of a wall bracing element's length and height. Neither opening dimension shall be more than one third of the element height. Wall linings are fixed to opening trimmers at 150mm centres. Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element.

Angle Braces

Angle braces serve to keep frames square during transport and construction. They also act as part of the temporary bracing of a building under construction. Angle braces contribute only a fraction to the bracing of a completed structure. The performance of a completed building depends mainly on the wall linings and their fixings.

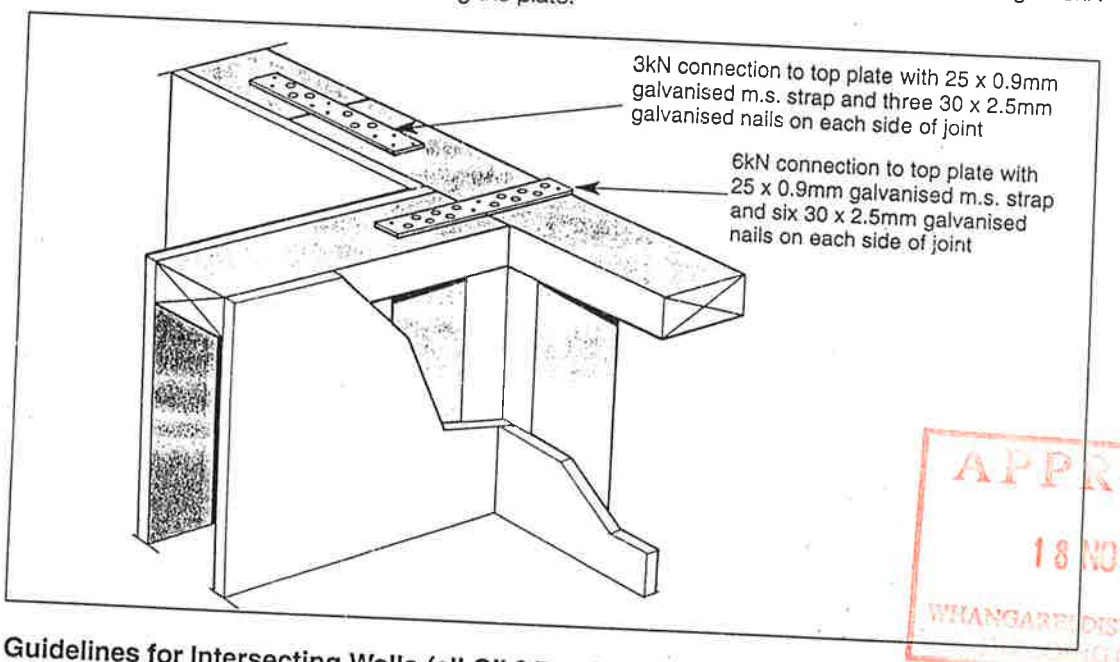
Where specified, metal angle braces must be placed at an angle no steeper than 55 degrees, and within the designated length of the bracing element. For elements longer than 3.6 metres, pairs of angle braces (in opposite directions) are required. Fixing of angle braces is with three 30 x 2.8mm Gib® nails to top and bottom plates, and two 30 x 2.8mm nails to intermediate framing.

Top Plate Connections

The top plate of a wall that contains one or more wall bracing elements shall be jointed according to the rating of the highest-rated individual wall bracing element as follows:

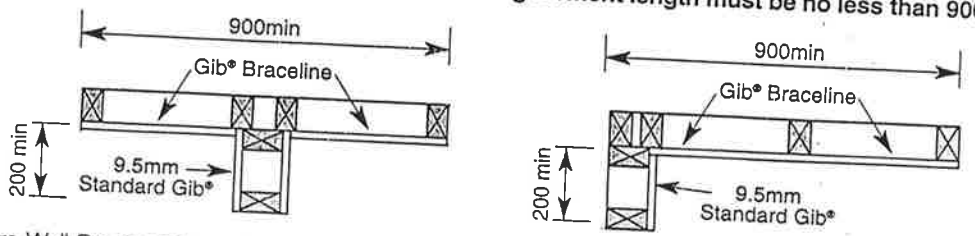
(a) Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;

(b) Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.



Guidelines for Intersecting Walls (all Gib® Bracing Sheet Types)

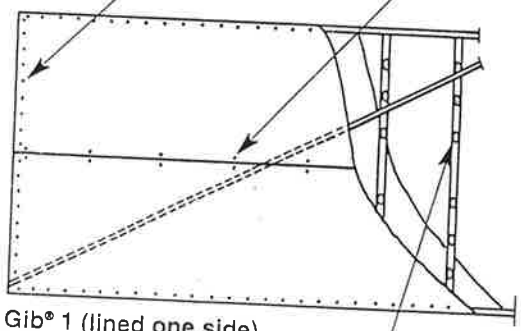
Gib® Bracing Elements may have intersecting walls with a minimum length of 200mm. Bracing element sheets shall be fixed and jointed as given on pages 14 and 15. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions (illustrated below) shall be fixed and jointed as specified for intermediate sheet joints. **The bracing element length must be no less than 900mm.**



Where Wall Bracing Elements are interrupted by T or L junctions (as illustrated in the 900mm example above) they should be considered as follows:

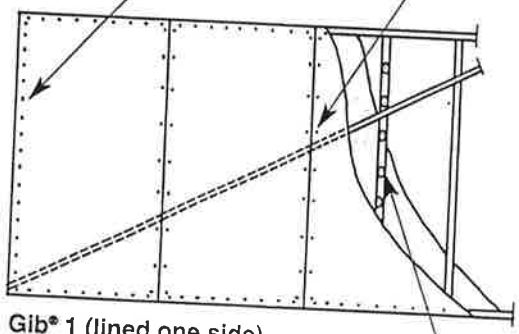
The bracing element has been cut to accommodate the junction. Nevertheless, in respect of calculating Bracing Units, the Bracing Element is deemed to be continuous for the whole length (900mm in this particular case).

Fastener Layouts



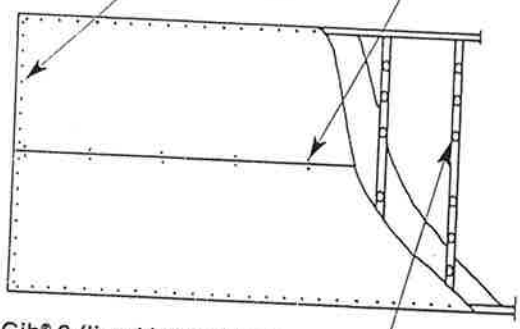
Gib® 1 (lined one side)
Gib® 2 (lined both sides)
(Horizontal Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



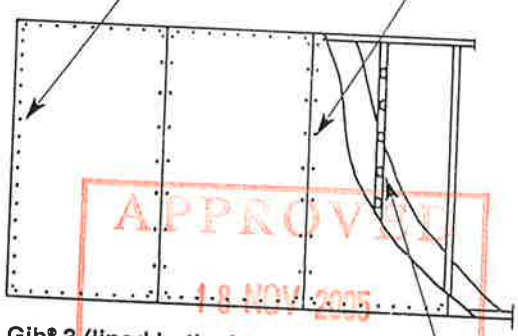
Gib® 1 (lined one side)
Gib® 2 (lined both sides)
(Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



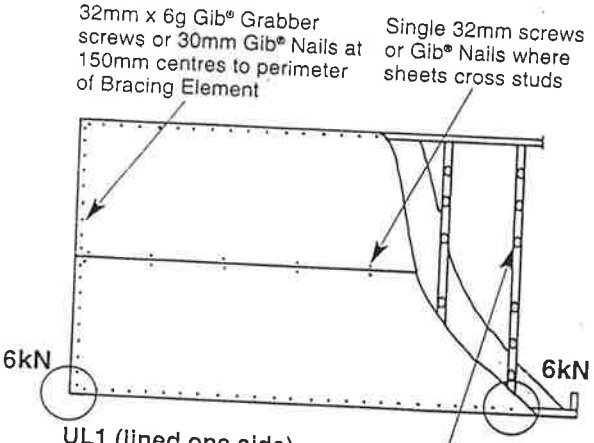
Gib® 3 (lined both sides)
Gib® 10 (lined one side)
Gib® 11 (lined both sides)
(Horizontal Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



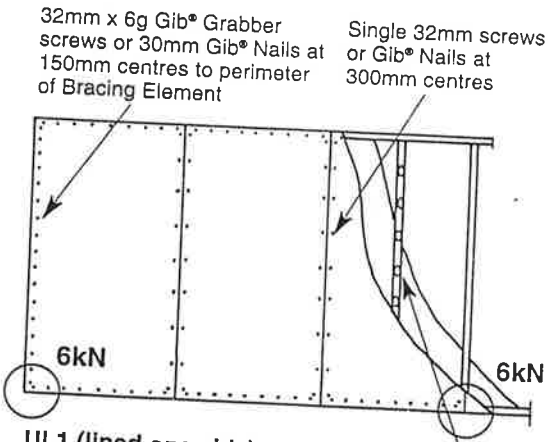
Gib® 3 (lined both sides)
Gib® 10 (lined one side)
Gib® 11 (lined both sides)
(Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



UL1 (lined one side)
UL2 (lined both sides)
(Horizontal Fixing)

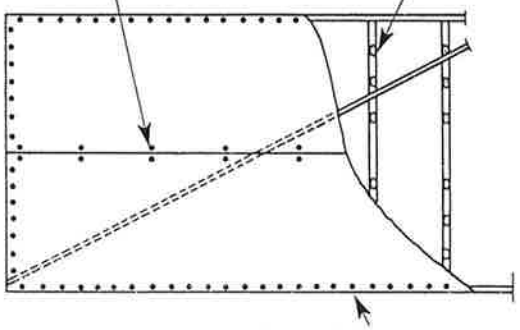
Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



UL1 (lined one side)
UL2 (lined both sides)
(Vertical Fixing)

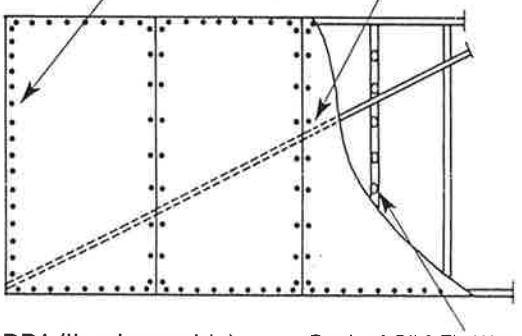
Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs

Fastener Layouts – continued



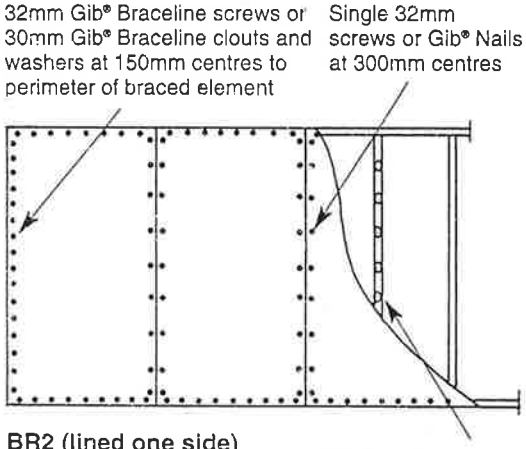
BR1 (lined one side) (Horizontal Fixing)

32mm Gib® Braceline screws or 30 mm Gib® Braceline clouts and washers at 150mm centres to perimeter of braced element



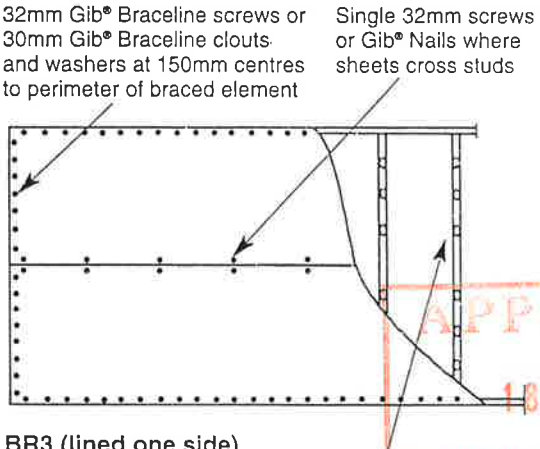
BR1 (lined one side) (Vertical Fixing)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs



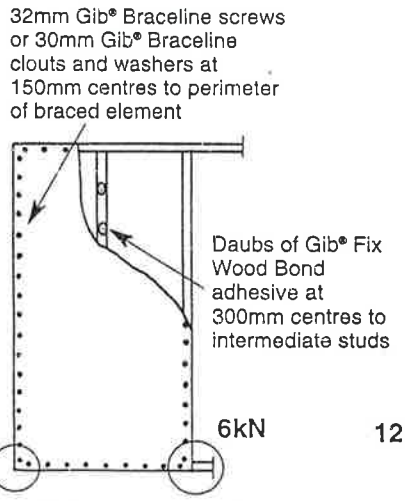
BR2 (lined one side) (Vertical Fixing Only)

Daub of Gib® Fix Wood Bond adhesive at 300mm centres to intermediate studs

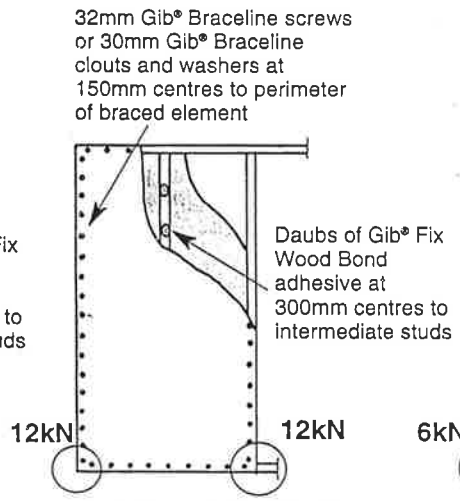


BR3 (lined one side) (Horizontal Fixing Only)

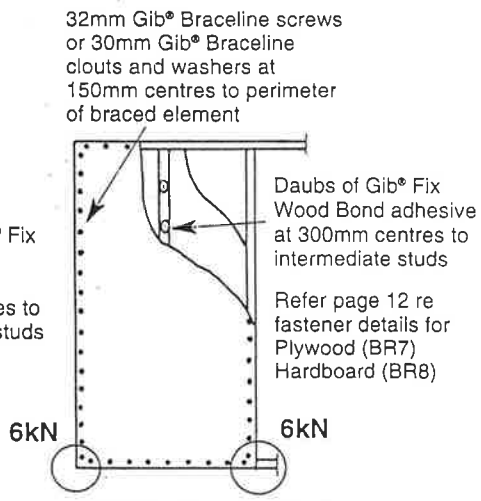
Daub of Gib® Fix Wood Bond adhesive only at 300mm centres to intermediate studs



BR4 (lined one side)
BR5 (lined one side)



BR6 (lined both sides)

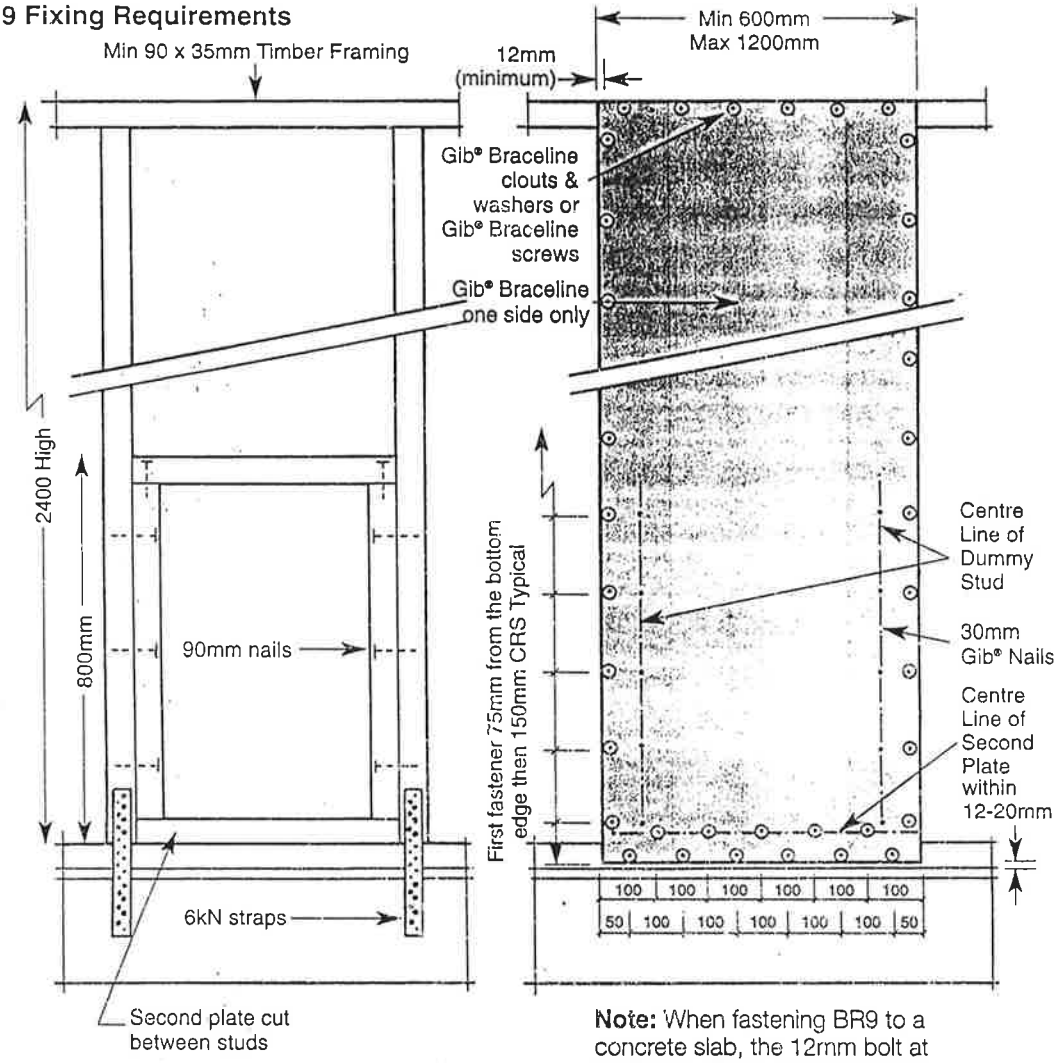


Refer page 12 re fastener details for Plywood (BR7) Hardboard (BR8)

BR7 (lined both sides)
BR8 (lined both sides)

Note: If the length of the braced element using systems BR4, BR5, BR6, BR7 and BR8 exceeds 1.2m, then the sheet edges within the element are secured with single screws or nails at 300mm centres.

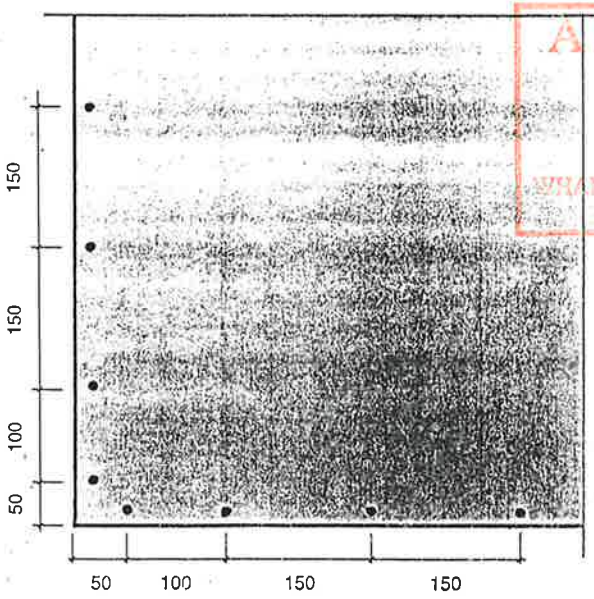
BR9 Fixing Requirements



Note: When fastening BR9 to a concrete slab, the 12mm bolt at each end of the element passes through both bottom plates.

IMPORTANT
Corner Fastening Details

This pattern applies to ceiling diaphragms and to all wall bracing elements except BR9.



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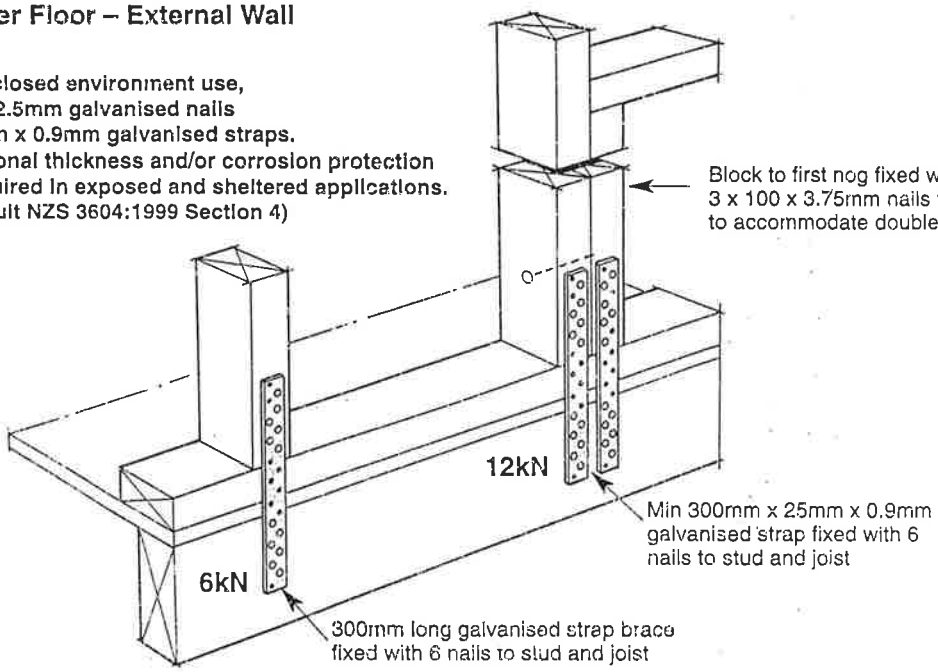
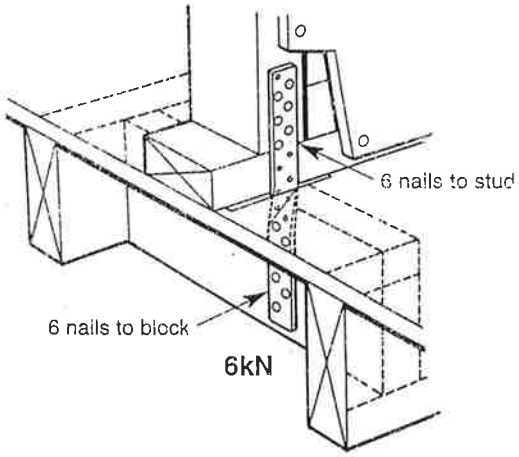
Hold-Down Straps

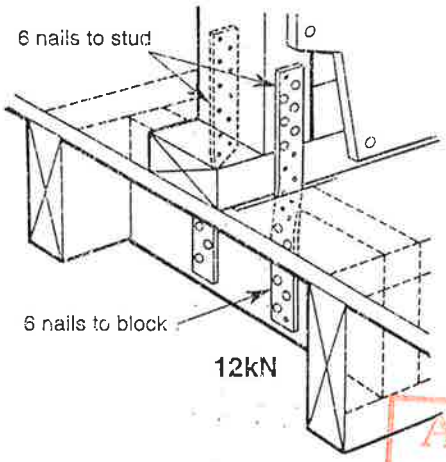
Timber Floor – External Wall

For a closed environment use,
• 30 x 2.5mm galvanised nails
• 25mm x 0.9mm galvanised straps.
Additional thickness and/or corrosion protection is required in exposed and sheltered applications. (Consult NZS 3604:1999 Section 4)

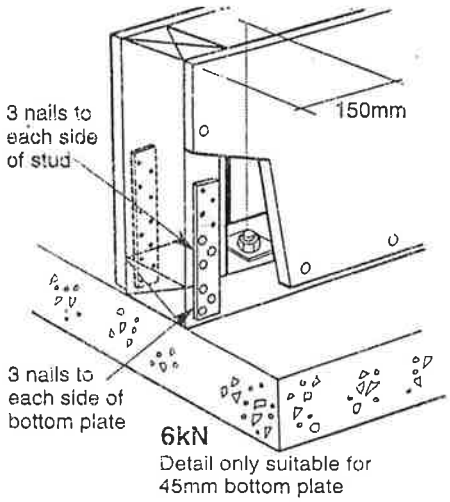


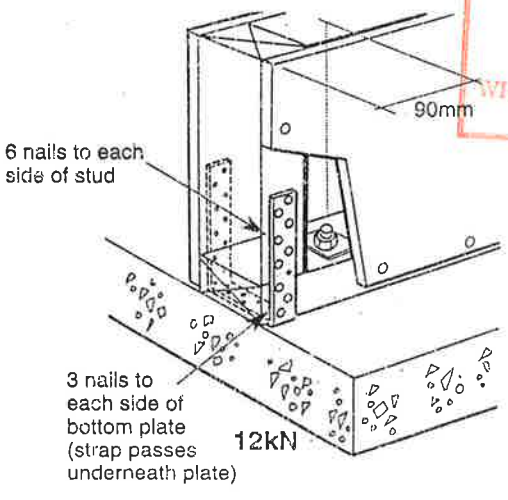
Timber Floor – Internal Wall





Concrete Floor

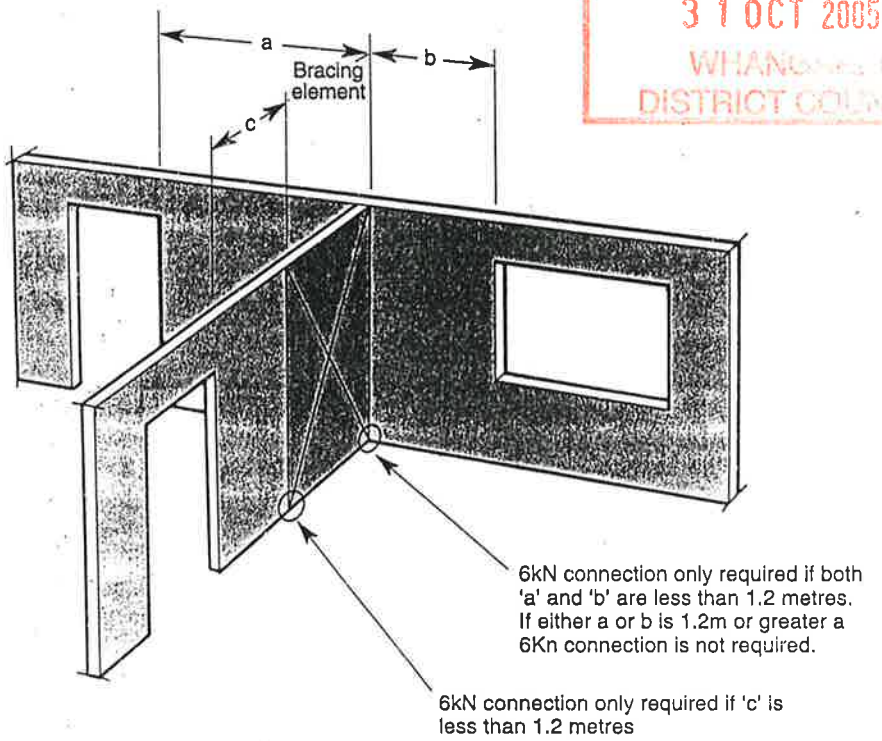




6kN Connections – UL1, UL2, BR4, BR5, BR7, BR8 & BR9
12kN Connections – BR6

Applies to UL1, 2, BR4, 5, 7, 8, 9

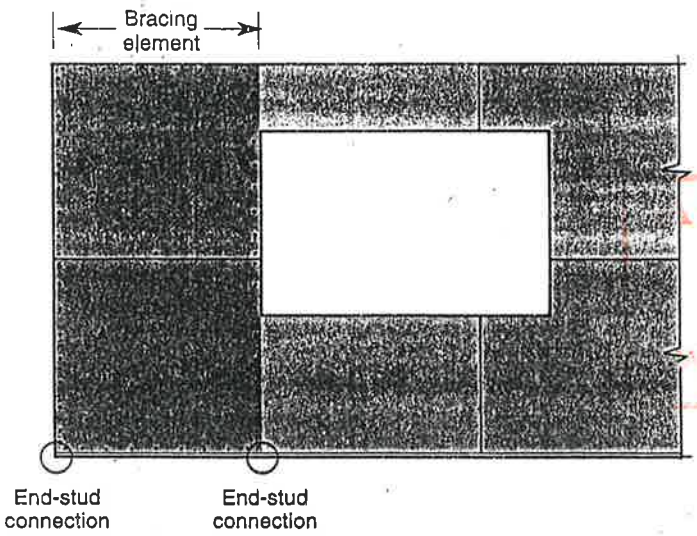
Hold-Down Strap Placement



Note: **Where 12kN connections are specified (BR6) they must be installed at both ends of the bracing element in all cases.**

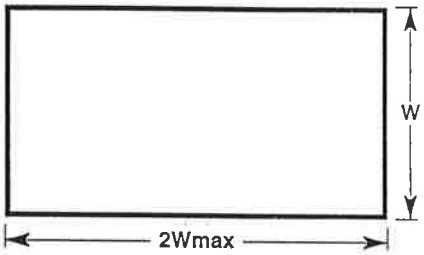
Horizontal Fixing (BR4, 5, 6, 7, 8, 9)

Gib® Braceline linings in systems BR4, 5, 6, 7, 8, 9 may be fixed horizontally when linings extend under/over door or window openings. Gib® Braceline fasteners are provided around the perimeter of the bracing element.



Ceiling Diaphragms

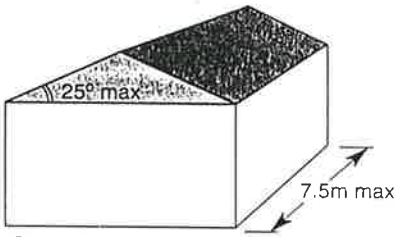
Gib® ceiling diaphragms are strong and stiff horizontal bracing elements which effectively transfer loads over large distances. They may be used to space bracing lines further apart than 5 metres (single top plate), or 6 metres (double top plate).
A ceiling diaphragm may be square or rectangular. Its length shall not exceed twice its width. The width being measured horizontally between supporting walls.
Ceiling diaphragms under light and heavy roofs are required to comply with NZS3604:1999.



Limitations for Standard 9.5mm or 12.5mm Gib® plasterboard Ceiling Diaphragms

- Diaphragms not steeper than 25 degrees to the horizontal shall not exceed 7.5 metres in length.
- Standard 9.5mm or 12.5mm Gib® plasterboard is fastened at 150mm centres to the boundary members around the entire perimeter of the diaphragm.

  Fasteners - 32mm x 6g Gib® Grabber drywall screws or 30mm x 2.8mm Gib® Nails.

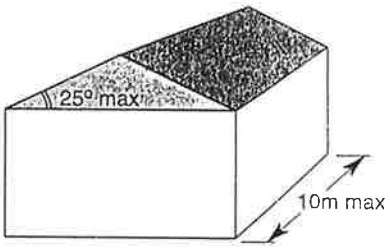


Standard Gib® plasterboard Diaphragms

Limitations for 9.5mm Gib® Ultraline Ceiling Diaphragms

- Diaphragms not steeper than 25 degrees to the horizontal shall not exceed 10 metres in length.
- Gib® Ultraline is fastened at 150mm centres to the boundary members around the entire perimeter of the diaphragm.

  Fasteners - 32mm x 6g Gib® Grabber drywall screws or 30mm x 2.8mm Gib® Nails.

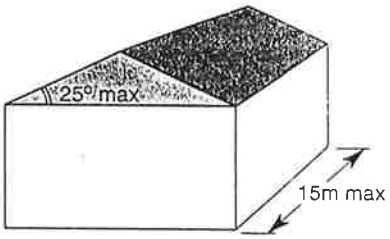


Gib® Ultraline Diaphragms

Gib® Braceline Ceiling Diaphragms

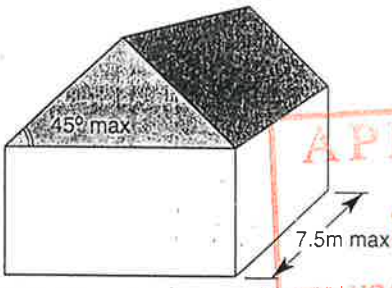
- Diaphragms not steeper than 25 degrees to the horizontal shall not exceed 15 metres in length.
- Diaphragms not steeper than 45 degrees to the horizontal shall not exceed 7.5 metres in length.
- Gib® Braceline is fastened at 150mm centres to the boundary members around the entire perimeter of the diaphragm.

  Fasteners - 32mm Gib® Grabber Braceline screws or 30mm Gib® Braceline nails and washers.



General Fixing Requirements for Gib® Ceiling Diaphragms

- Linings shall be installed over the entire area of the diaphragm.
- Fastening shall be no less than 12mm from sheet edges.
- Sheets shall be supported by framing members (e.g., ceiling battens) spaced at no more than 450mm centres for standard 9.5mm Gib® plasterboard and Gib® Braceline and at no more than 600mm centres for 12.5mm Gib® plasterboard and Gib® Ultraline.



Gib® Braceline Ceiling Diaphragms

- Sheets within the diaphragm area may be fastened and finished conventionally in accordance with the publication entitled, "Gib Living Solutions Site Guide" 1999. All joints shall be paper tape reinforced and stopped. It is recommended that sheet butt joints are formed off framing using Gib® back-blocking.
- Full width sheets with a length not less than 1800mm shall be used at the ends of the diaphragm. In the middle third of the diaphragm the sheet width may be reduced.
- Openings are allowed within the middle third of the diaphragm's length and width. Fixing of sheet material to opening trimmers shall be at 150mm centres. Neither opening dimension shall exceed a third of the diaphragm width. Larger openings, or openings in other locations, require specific engineering design.

Note: See Corner Fastening Detail, page 16.

Ceiling Diaphragms - Steel Battens

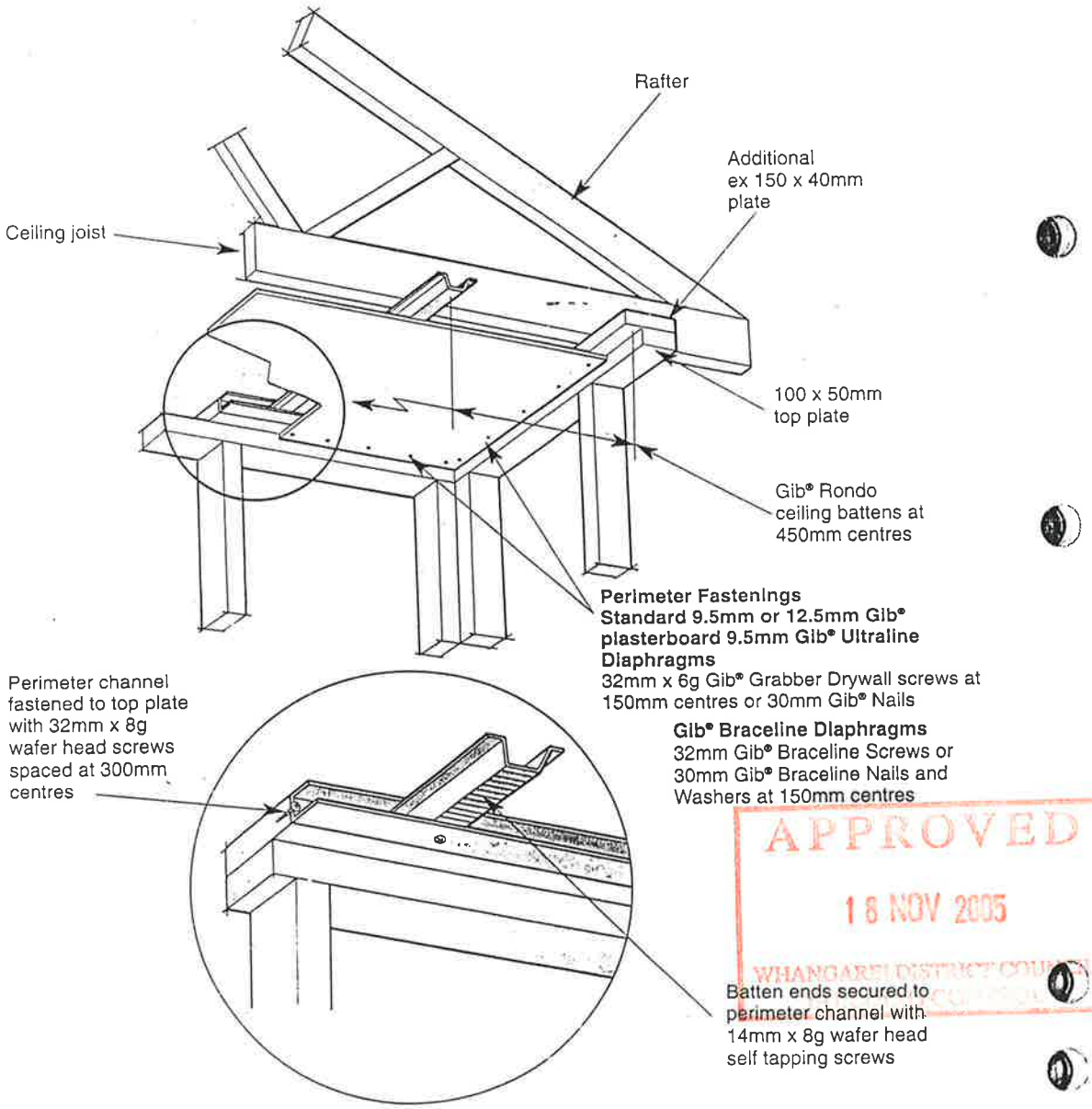
Steel Battens

The Gib® Rondo and USG DONN Screwfix (FC37 and FC50) battens may be used to construct Standard Gib® plasterboard, Gib® Ultraline and Gib® Braceline ceiling diaphragms

- The battens shall be spaced at 450mm centres maximum for standard 9.5mm Gib® plasterboard or 9.5mm Gib® Braceline and at no more than 600mm centres for 12.5mm Gib® plasterboard or Gib® Ultraline. The battens are fastened through both flanges directly to the ceiling framing with 32mm x 8g Wafer Head screws.
- A steel perimeter channel is required at the perimeter of the diaphragm. The channel shall be fastened to the top plate with 32mm x 8g Wafer Head screws spaced at 300mm centres maximum.
- The linings are fastened to the perimeter channel at 150mm centres maximum with 25mm x 6g self tapping screws
- Within the diaphragm area sheets may be fastened as described in "General Fixing Requirements for Gib® Ceiling Diaphragms" (page 19).

Alternative Double Top Plate Detail

- Alternatively, should an additional top plate (ex 150 x 40mm) be used, Gib® Rondo steel battens (35mm deep) shall be installed as detailed below.



9.8 Plywood Sheet

Plywood-sheet *claddings* shall be either *direct fixed* to *framing* over a *building wrap* or fixed over a *drained cavity* as per Paragraph 9.1.8.

Based on the *risk score* for an *external wall*, calculated as per Paragraph 3.1, the sheet *cladding* may require the inclusion of a *drained cavity*.

9.8.1 Limitations

This Acceptable Solution covers the following types of plywood panel *claddings*:

a) Vertical lapped and grooved sheets,

b) Vertical sheets with jointers,

c) Vertical sheets with battened joints, and

d) Vertical sheets with exposed joints.

9.8.2 Materials

Vertical lapped and grooved plywood shall have a weathergroove to the lap as shown in Figure 118.

Batten-jointed panels shall have weather-grooved timber battens as shown in Figure 119.

Plywood panels shall be:

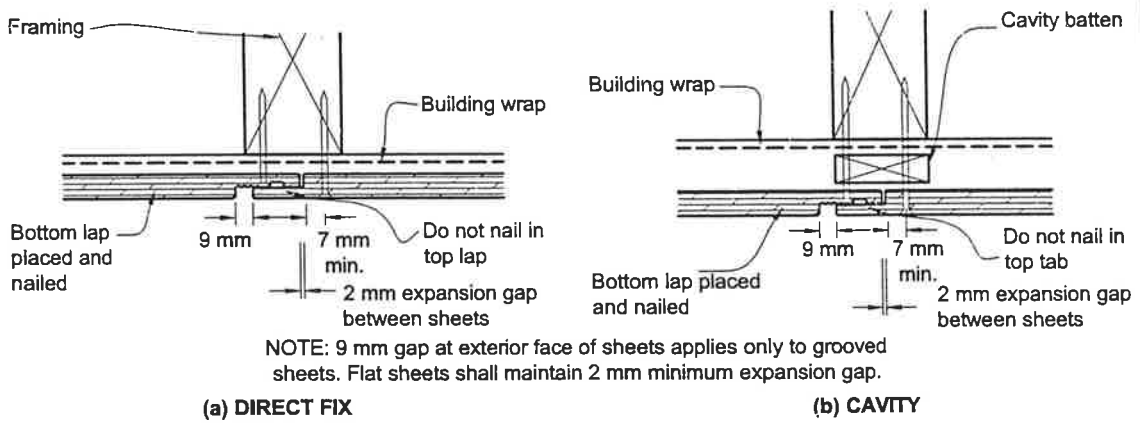
a) Manufactured to AS/NZS 2269, grade CD,

b) A minimum of 5 ply,

c) A minimum of 12 mm in thickness, and

d) Treated as required by NZS 3602.

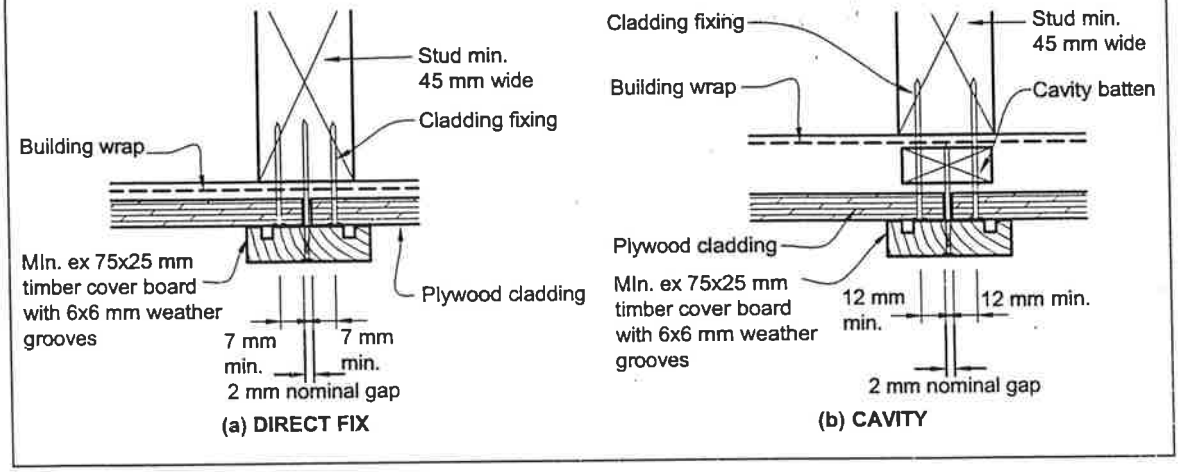
Figure 118: Vertical lapped joints for plywood sheet
Paragraphs 9.8.2 and 9.8.3.2 c)



NOTE: 9 mm gap at exterior face of sheets applies only to grooved sheets. Flat sheets shall maintain 2 mm minimum expansion gap.

(a) DIRECT FIX **(b) CAVITY**

Figure 119: Battened joints for plywood sheet
Paragraphs 9.8.2 and 9.8.3.2 c)



9.8.3 Installation

A *building wrap*, as specified in Table 23, shall be installed behind plywood sheet *claddings*.

9.8.3.1 Fixings

Plywood sheets shall be fixed through the *building wrap* into the wall *framing* with fixings as required in Table 24.

9.8.3.2 Joints

All joints shall be detailed to shed moisture outside the *cladding*, and shall:

a) Be made only over supports, and

b) If horizontal, incorporate a 10 mm expansion gap, and be fitted with a *flasning*, as shown in Figure 121, or

c) If vertical, be detailed as shown below:
   i) lapped joints – refer Figure 118,
   ii) battened joints – refer Figure 119, or
   iii) open joints – refer Figure 120.

Figure 120: Expressed joints for plywood sheet
Paragraph 9.8.3.2 c)

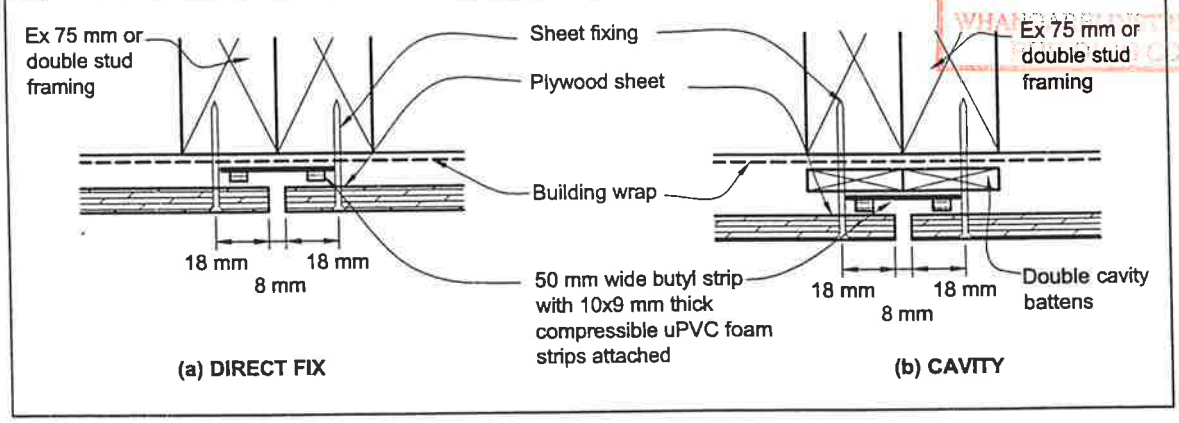
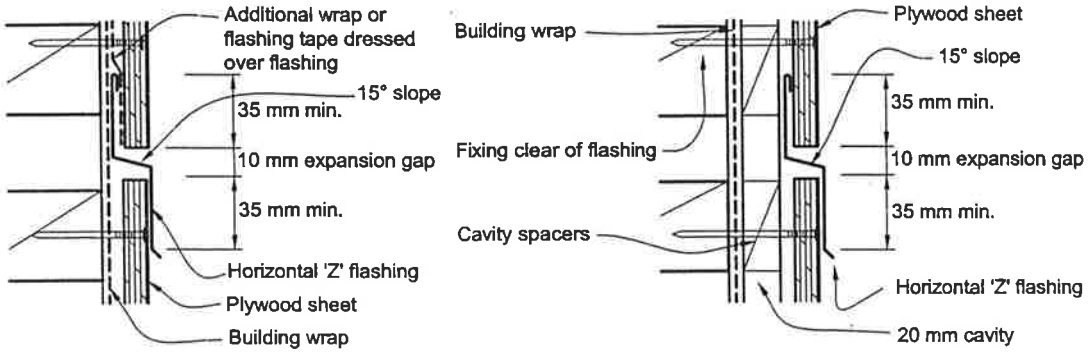


Figure 121: Horizontal joints for plywood sheet
Paragraph 9.8.3.2 b)

NOTE: (1) Detail (b) is only suitable for *drained cavities* over 2 *storeys* in height.
(2) For *drained cavities* over 2 *storeys* in height – refer Figure 70.



9.8.4 Corners

9.8.4.1 External corners

All external corners shall be fitted with *flashings* or timber battens, as shown in Figure 122.

9.8.4.2 Internal corners

All internal corners shall be fitted with *flashings* or timber battens, as shown in Figure 123.

9.8.5 Flashing material

Flashings shall be selected in accordance with Table 20 to Table 22.

9.8.6 Soffit details

Soffits shall be as shown for fibre cement sheet *cladding* in Figure 114.

9.8.7 Parapets and enclosed balustrades

Parapets shall be in accordance with Paragraph 6.0.

Enclosed balustrades shall be in accordance with Paragraph 7.4.

9.8.8 Windows and doors

Windows and doors shall be installed in accordance with Paragraph 9.1.10.

9.8.8.1 Windows: direct fixed

Windows shall be detailed as shown for fibre cement sheet *cladding* – refer Figure 115.

9.8.8.2 Windows: with cavity

Windows shall be detailed as shown for fibre cement sheet *cladding* – refer Figure 116.

COMMENT:
The same principles of window installation apply to both fibre cement and plywood sheet *cladding*.

9.8.9 Finishes

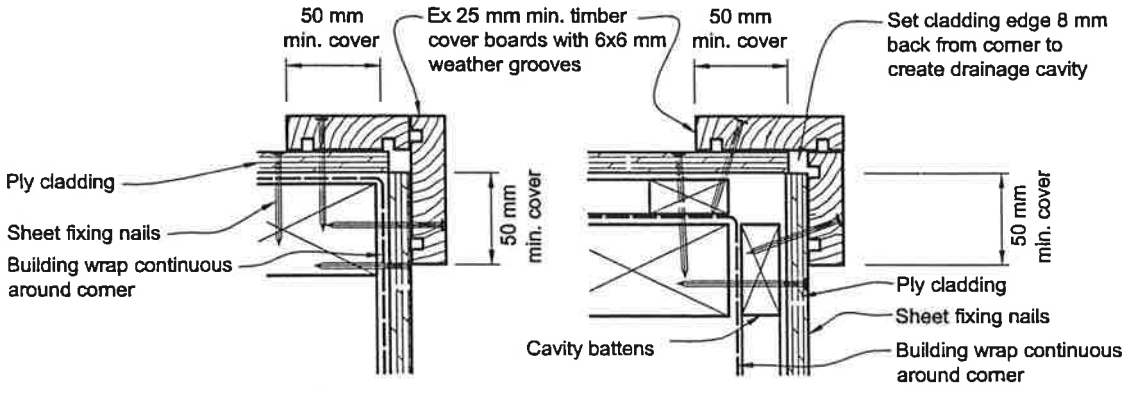
For *claddings* required to have a 50-year *durability*, plywood treated to H3.1 (LOSP) shall be painted on all edges and the outer face with a latex exterior paint system complying with any of Parts 7, 8, 9 or 10 of AS 3730.

A solution of 12.5% copper naphthenate or tin naphthenate preservative in white spirits, and/or mineral turpentine shall be brushed on to any edges cut after treatment.

COMMENT:
Regular maintenance of the paint finish is essential to ensure the 50-year *durability* is achieved.

While H3.2 (CCA, ACQ or copper azole) plywood can be left unpainted, it is likely to develop checking and mould growth on the surface.

Figure 122: External corners for plywood sheet
Paragraph 9.8.4.1



NOTE: Corner battens shall be sized to provide 50 mm minimum cover over *cladding*.

Figure 123: Internal corners for plywood sheet
Paragraph 9.8.4.2

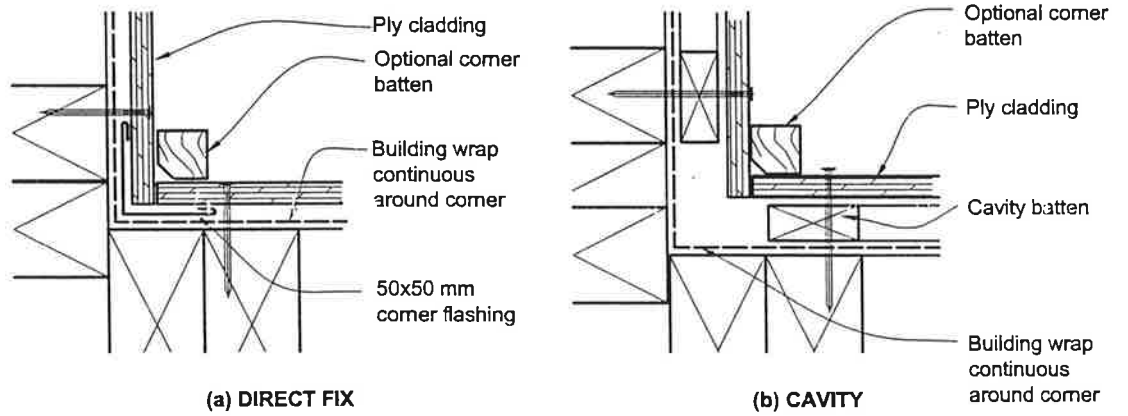
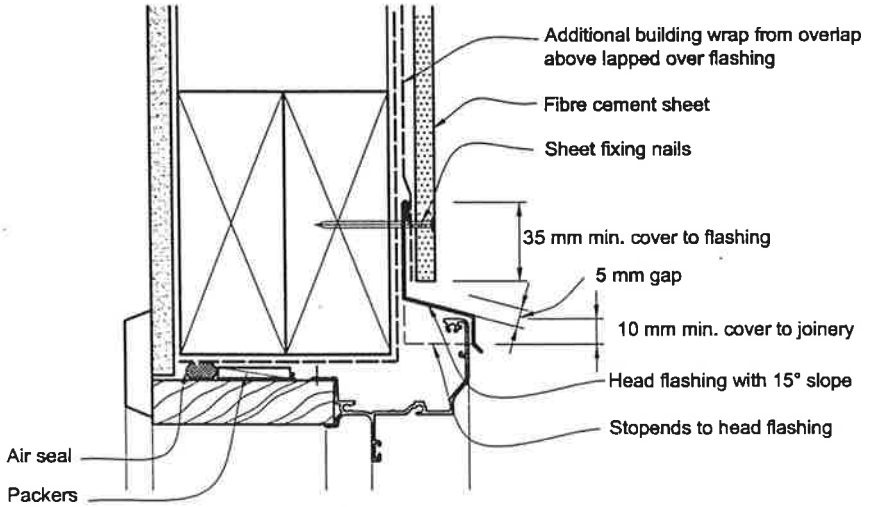
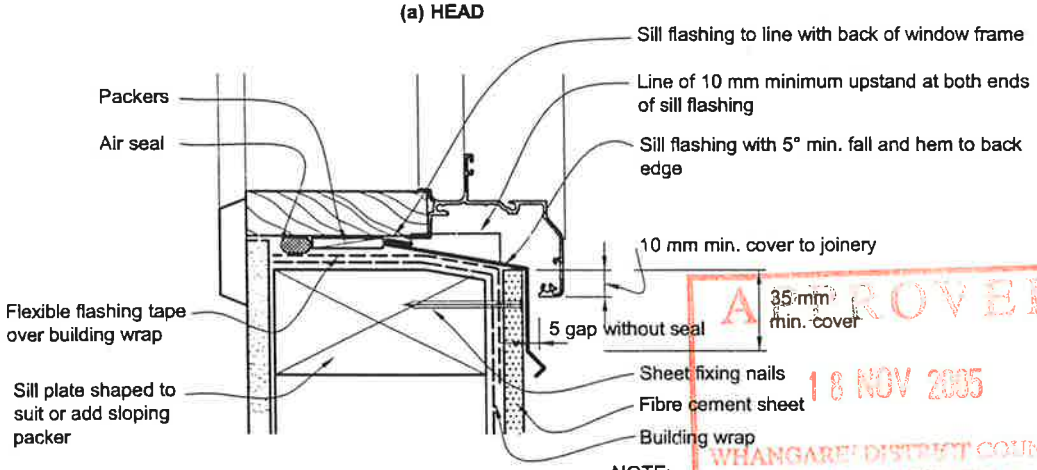


Figure 115: Windows for direct fixed fibre cement sheet
Paragraphs 9.7.7.1 and 9.8.8.1, Figure 71

GENERAL: (a) Refer Figure 72 for wrapping of framed opening prior to window installation.
(b) Sliding and bi-fold windows will require specific design.
(c) A minimum of 8 mm effective cover at sills shall be permitted where necessary to allow for tolerances.

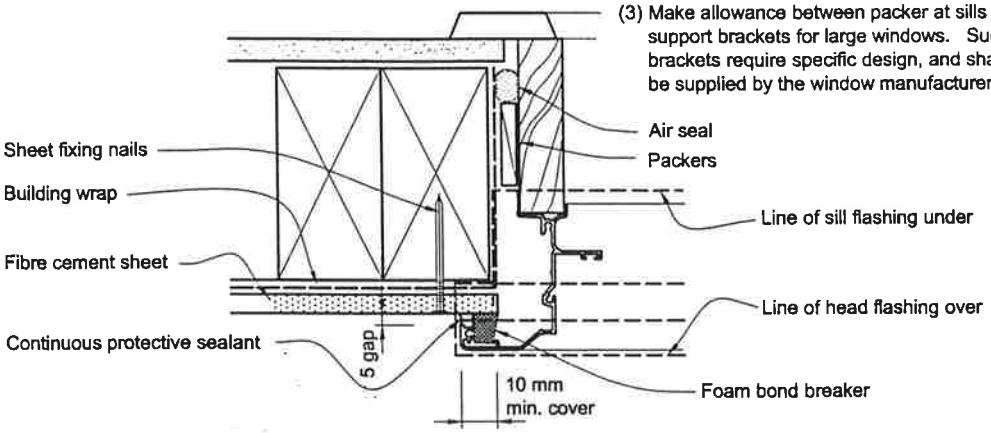


(a) HEAD



(b) SILL

NOTE:
(1) Window profile to be selected to achieve cover shown in details.
(2) Architraves are shown for consistency only, detail may be used with rebated liner.
(3) Make allowance between packer at sills for support brackets for large windows. Such brackets require specific design, and shall be supplied by the window manufacturer.



(c) JAMB

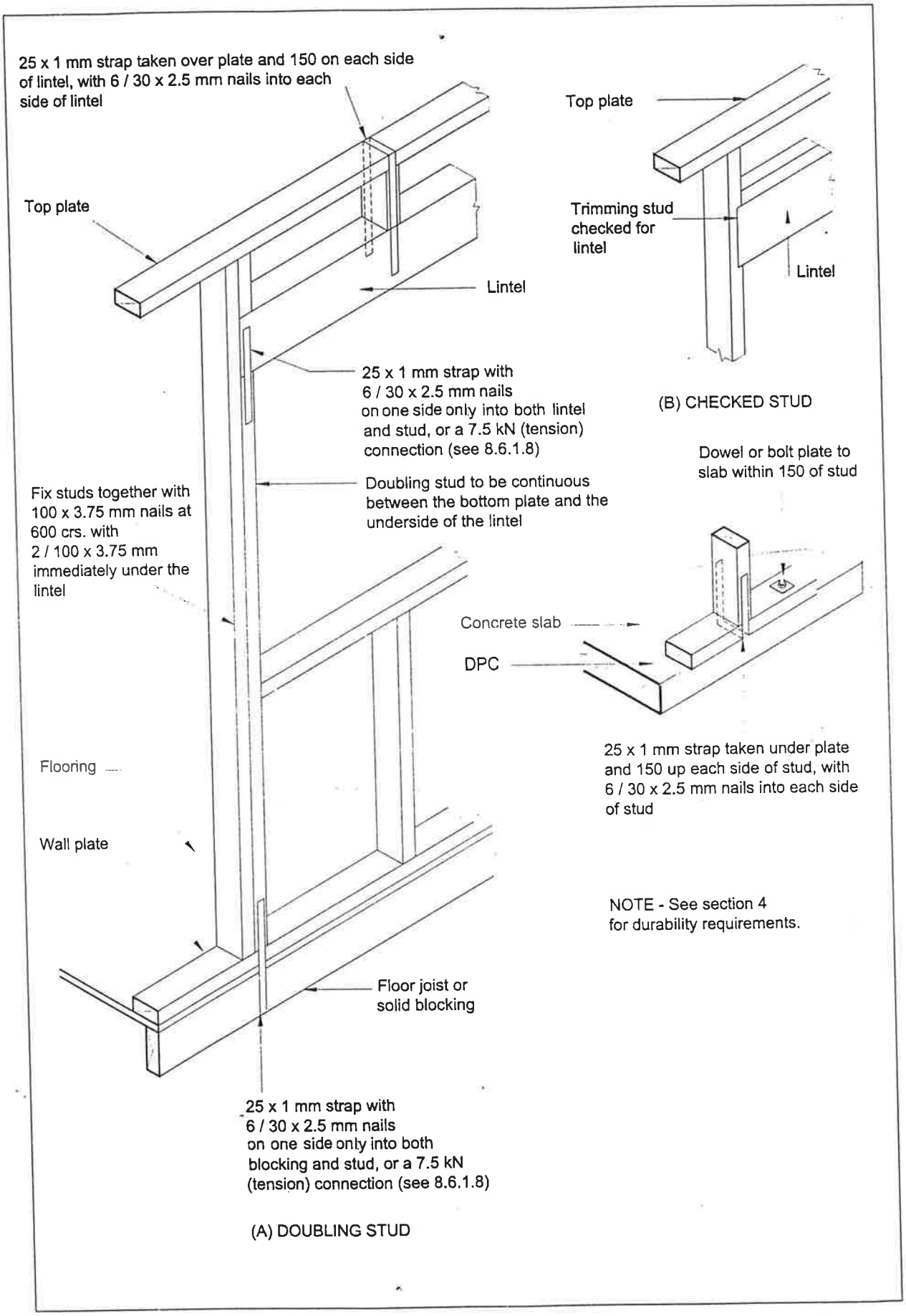


Figure 8.12 – Fixing of lintels to prevent uplift (see 8.6.1.8 and tables 8.14(A) and (B))

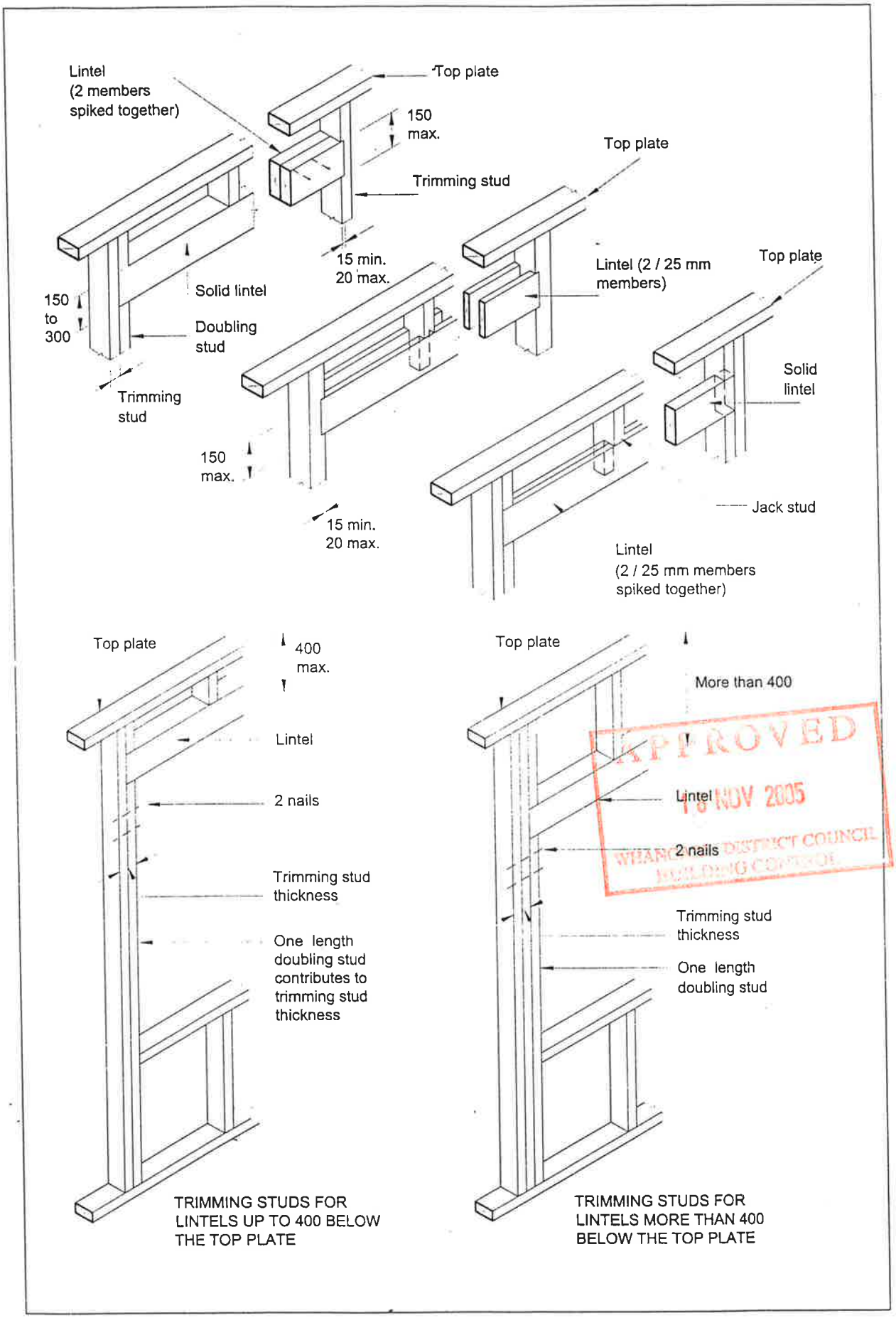


Figure 8.5 – Trimming studs and lintels (see 8.5.2.1)

Table 8.14 – Lintel fixing (see 8.6.1.7)

Wind zone	Loaded dimension of lintel (m)	Uplift fixings not required Use fixings from table 8.19	Uplift fixings required See 8.1.6.8 for fixings
		Maximum lintel span for fixings above (m)	
A. Light roof			
Low	3	2.7	4.1
	4	2.3	3.6
	5	1.8	3.6
	6	1.7	3.4
Medium	3	1.3	4.1
	4	1.2	3.6
	5	1.2	3.6
	6	1.1	3.4
High and Very High	3	NA	3.7
	4	NA	3.2
	5	NA	2.7
	6	NA	2.2
B. Heavy roof			
Low	3	3.4	*
	4	3.1	*
	5	2.9	*
	6	2.8	*
Medium	3	3.4	*
	4	3.1	*
	5	2.9	*
	6	2.8	*
High	3	2.2	3.4
	4	1.9	3.1
	5	1.4	2.9
	6	1.2	2.8
Very High	3	1.1	3.4
	4	1.0	3.1
	5	NA	2.9
	6	NA	2.8

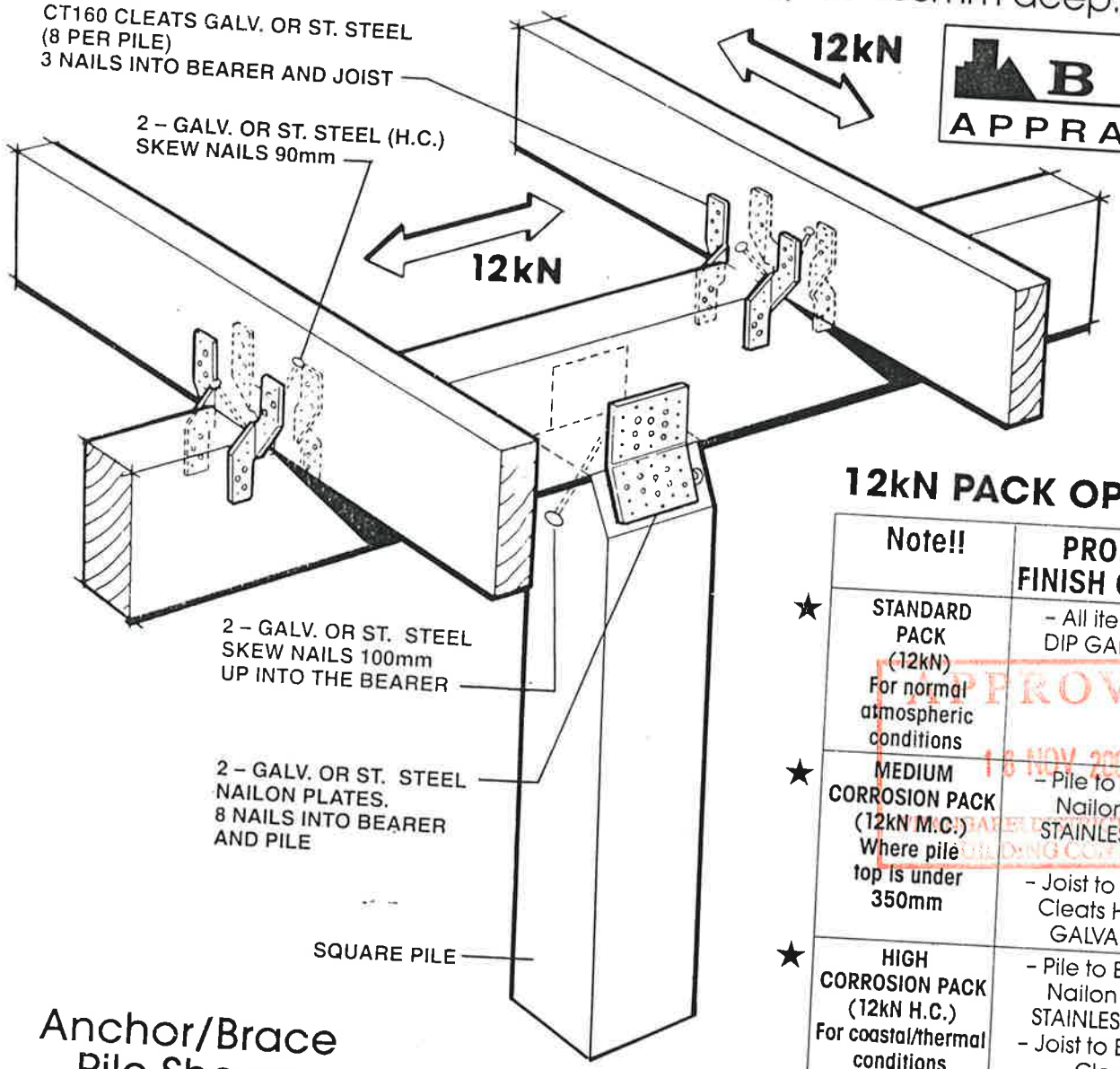
NA Not applicable.
* Table 8.19 fixings are satisfactory.

NOTE – Fixings for lintel spans greater than those shown require specific engineering design.

12kN PILE FIXING

For Braced Piles or Anchor Piles

- ★ BTL Appraisal Certificate No. 297 1994
- ★ Auckland University Tested. Test Ref. 4613
- ★ Complies with NZS-3604 1990
- ★ Suitable for Bearers and Joists up to 150mm deep.



B T L APPRAISED

Anchor/Brace Pile Shown

12kN PACK OPTIONS

	Note!!	PRODUCT FINISH OPTIONS
★	STANDARD PACK (12kN) For normal atmospheric conditions	- All items HOT DIP GALVANISED
★	MEDIUM CORROSION PACK (12kN M.C.) Where pile top is under 350mm	- Pile to Bearer Nailon Plate STAINLESS STEEL - Joist to Bearer Cleats HOT DIP GALVANISED
★	HIGH CORROSION PACK (12kN H.C.) For coastal/thermal conditions	- Pile to Bearer Nailon Plate STAINLESS STEEL - Joist to Bearer Cleats STAINLESS STEEL

★ See Over For Corrosion Table.

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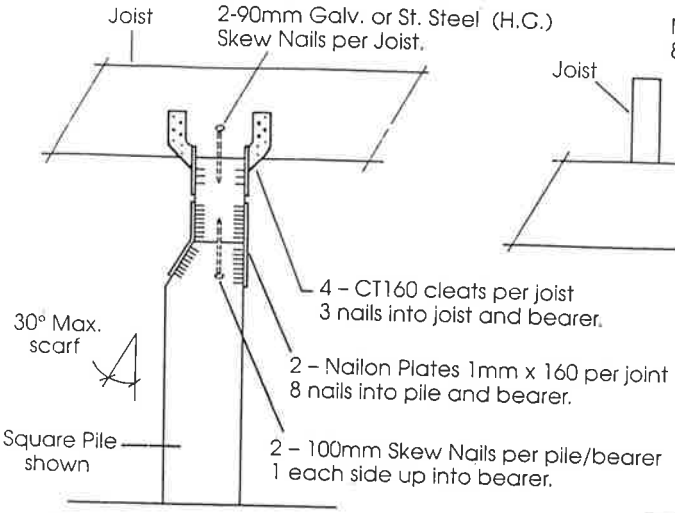
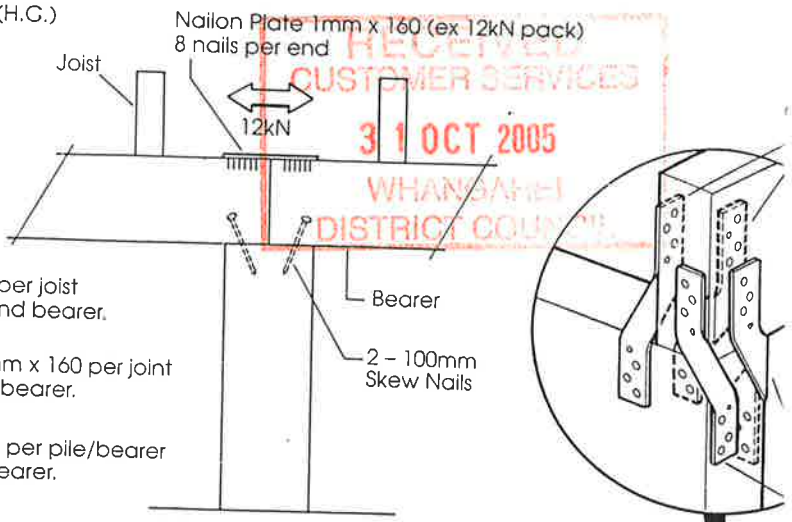
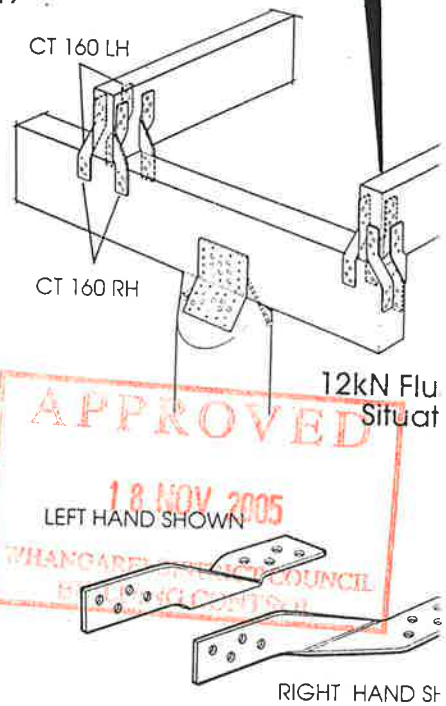


Round or Square Pile



12kN Bearer Splice
clause 4.2.4.9

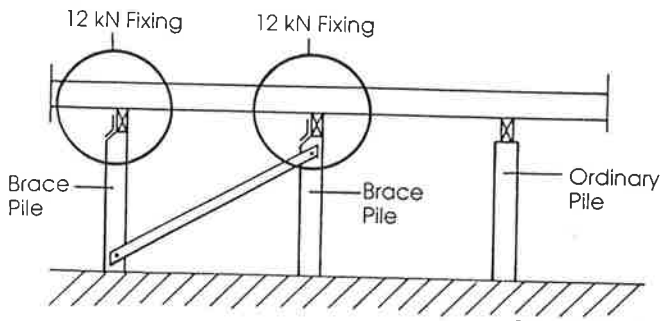
CORROSION HAZARD USE TABLE	
Standard Pack (12kN Std) – For normal atmospheric conditions – Greater than 500m from sea – Above 350mm from ground	All items hot dip galvanised
Medium Corrosion Pack (12kN MC) – Greater than 500m from sea – Pile top less than 350mm from ground	Pile to bearer fixings stainless steel (304). Joist to bearer fixings hot dip galvanised.
High Corrosion Pack (12kN HC) – Coastal / Thermal situations – Pile top less than 350mm from ground	All items stainless steel (304).
– For corrosion zone geographical areas refer to BTL Appraisal Certificate. (Figure 1.) – All above connections must be covered with a thick layer (at least 2mm) of grease after installation.	
– For details on ventilation of subfloor and other specific information, refer to BTL Appraisal Certificate.	

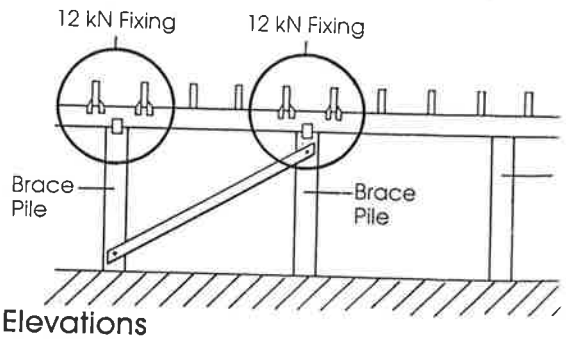


12kN Flu
Situat

LEFT HAND SHOWN

RIGHT HAND SH





Sample Subfloor Elevations

12kN Fixing – Pile to Bearer
– Joists to Bearer

12kN Joint Fixing Schedule

PILE TO BEARER
- Nailon Plate (2 per joint) 1mm x 100mm x 160mm long
- 8 nails per plate into Pile
- 8 nails per plate into Bearer
- 2 skew nails 100mm (1 per face)

JOIST TO BEARER
- CT160 cleats (4 per joist) 160mm long
- 3 nails per cleat into Joist
- 3 nails per cleat into Bearer
- 2 skew nails 90mm (1 per side). Not included in pack.

NAILS
- 80 45mm x 3.55 dia. Spiral Nails
  2 100mm x 4 dia. St. Steel Nails
  (Med. corrosion and High corrosion pack only)
- 4 90mm x 4 dia. St. Steel Nails (H.C. pack only)

12kN Pile Set Contents

Each set represents 1

(packed 4 sets per carton)

2 x Nailon Plates 160mm long
8 x CT160 cleats
80 x 45mm x 3.55 dia. Spiral Nails
2 x 100mm x 4 dia. St. Steel Angular Groove

Refer fr
for Proc
Finish C

90mm Galv. Skew
not included.

25325

18. FASCIA BOARDS ETC.

Fix fascia, barge, frieze etc. to suit roofing selected (See ROOFING CONTRACTOR).

19. POST AND BEAMS:

Where within maximum permitted by NZS 3604 secure in equivalent manner and with equivalent materials as in Clauses 7.1, 7.2 and 7.3 thereof. Owner to provide "specific design" for all other posts and beams and contractor to fix as per details given.

20. FLOORING:

Timber joisted ground floors shall be insulated with ..... (brand) type perforated aluminium foil carefully laid, lapped and drooped 100mm between joists and stapled on top side all per manufacturers instructions before laying flooring.

(a) Particle Board Flooring Shall be 21mm High Density to NZS 3608. All aspects of handling, storage, sheet layout and fixing shall be to manufacturers' recommendations.
Nailing or stapling of pre-laid particle board floorings shall be done in two (2) stages to reduce the risk of floors squeaking. First secure at perimeter of floor, along the bottom plate positions for internal walls and sufficient elsewhere to hold the sheets flat during construction. Complete remainder of fixing to manufacturers' specification after the house has been totally "closed-in" and just prior to sanding. The Contractor shall be responsible for any damage done and for cost of repair or replacement of the flooring if not closed-in sufficiently early (normally within 2 months of laying) or if the floor is not otherwise adequately protected up to completion of the house.

Heads of fixings shall be punched to allow a reasonable depth of stopping, unless otherwise stated. Ceilings below particle board (or any other flooring) shall not be secured until all nailing or stapling above has been done.

OWNER TO SPECIFY ANY ALTERNATIVES TO 20 (a) e.g.:-

i) Particle board, laid only after closing in
ii) Tongue & Grooved (T & G) flooring, with or without secret nailing.
iii) Glue laminated timber flooring
iv) As (ii) and (iii) above but also forming ceiling to a room or number of rooms below.

(b) Finishing of Particle Board Flooring
Contractor to follow manufacturer's recommendations and sequence in sanding, sealing, stopping and application of coatings to provide a minimum 3 coat flat, smooth hard wearing polyurethane finish. Contractor should also follow manufacturer's recommendations for floor areas to be covered with vinyl flooring or carpeting as advised by owner and such finish of the particle board to be approved before either is laid.

OWNER TO AMEND 20 (b) if wishing to undertake all or part of finishing personally.

21. TIMBER TERRACES:

If shown on plan construct to detail or best trade practice. All nail fixing with galvanised nails, all bolt fixing with galvanised bolts, and all timber to be treated to the correct preservative retention as specified by The Timber Preservation Authority.

22. EXTERIOR WALL COVERINGS:

(a) Breather type building paper and masonry veneer shown on drawings shall be as given under "BRICKLAYER".
NOTE 1. Other exterior wall covering shown on the drawings and mentioned in Section 8 of the NZS 3604 should be fixed in accordance with all requirements therefore. It is important to appreciate that reference is made to NZS 3602 wherein advice is given on width of timber weatherboard and finishing. Should the owner specify overwide boards and any finish other than paint and not adequately maintain, the responsibility for any resultant poor performance should not be apportioned to the "Contractor."

Continued . . .

LOCATION	SIZE MM X MM	GRADE & TREATMENT For alternatives refer to NZS 3602 or BRANZ Bulletins 130 and 175	REMARKS
WALL FRAMING - continued			
Studs	100 x 50 75 x 50	No.1 or No.2 or Building Radiata Pine as appropriate Treated	600 c/cs.
Top plates	100 x 50 100 x 50 75 x 50	PLUS 150 x 40 ALL No.1 Treated Radiata Pine	Where supporting upper floors, heavy roofs and where ceiling battens necessary
Trimming studs*	100 x 50	Treated No.1 Radiata Pine	Up to max 3m span of lintel in single storey, top storey or non load brg. wall only.
* See Remarks column for greater spans or in other locations refer to Table 15 of NZS 3604 and use doubling studs as necessary.			
Lintels (generally)	2/ 100 x 50	Treated No. 1 Radiata Pine	Select built-up lintels from Table 16 NZS 3604
dependent on span	up to 2/200 x 50		
Sill and Head		Treated No. 1 Radiata Pine	
Trimmers	same width as studs, thickness per span as follows: Span 2M .....40mm 2.4M .....50 3M .....75 3.6M .....100 or (2/50mm)		Head Trimmers shall be used instead of lintels only in non load bearing walls.
Dwangs (or noggings)	50 x 50 75 x 40	Treated No.1 Radiata Pine	Min 2 rows for 2.4 high studs except where a greater or lesser number indicated by lining or cladding manufacturer.
Bracing	100 x 25	Treated No.1 Radiata Pine	(Continuous let-in brace)
(No dog legs permitted)	75 x 40	Treated No.1 Radiata Pine	(Cut between braces in diagonally opposing pairs). (Delete both above if using continuous steel strip or steel angle).

ROOF FRAMING: To pitch and style shown on plan Note 1) Individual requirements and options permissible under NZS 3604 preclude meaningful scheduling here. Designer and Builder shall refer to NZS 3604 and dimensions drawings to satisfaction of Local Building Authority. 2) All timbers as relevant in (a) (b) or (c) below shall be treated No.1 Radiata Pine or shall be Douglas Fir. Exposed ends of Douglas Fir rafters in Type c roofs shall be capped.

(a) Trusses — To approved size and dimensions as shown on plans and manufactured by .....

or

(b) Framed (couple-close) Roofs

or

(c) Monopitch, skillion and exposed rafter roofs) as fully detailed on drawings in accord with NZS 3604. NOTE. Purlins (roof battens) on edge or on flat shall be sufficient to accomodate the thickness of thermal insulation material necessary to comply with by-laws, advise and agree with owner.

continued...

SCHEDULE OF TIMBERS (For Guidance Only)

LOCATION	SIZE mm x mm	GRADE AND TREATMENT For alternatives refer to NZS 3602 or BRANZ Bulletins 130 & 175	REMARKS
SUBFLOOR FRAMING		ALL subfloor framing No.1 Radiata Pine* Pressure Treated to Commodity	
Wall Plates	100 x 50	Specification C7 of T.P.A. Specification	Bolted or dowelled
	min 75 x 50	e.g. Tanalith or similar	For 75mm wide studs only.
Bearers supporting jackstuds	100 x 100		
on piles	min 100 x 75		Can be 2/100 x 50's.
Subfloor jackstuds	min 100 x 75		
Stud in subfloor wall	min 100 x 50		At 600 c/cs.
Ditto where doubled under bearer	2/100 x 50		
Top plate to jackstuds or subfloor wall	100 x 50		
Bearers on jackstuds or timber stud subfloor wall	100 x 100		
Stringer to side of foundation wall	125 x 50		Fixed with M12 bolts at 1M spacing for single storey only.
Subfloor braces	min 100 x 75		Not exceeding 3M Fixed with M12 bolts (or appropriate nail plates).
GROUND FLOOR FRAMING			
Floor joists for max. 1.5KPa loading	150 x 50	Treated No.1 Radiata Pine to C8 of T.P.A. Specification e.g. Tanalith or Boron Type treatments.	600c/cs. Up to 2.6m Max. span where continuous over 2 or more spans. See plan for other sizes and spans. (Along subfloor bracing lines, at right angles to joists and mid point of any span exceeding 2.5M and under load bearing walls).
Herringbone strutting	40 x 40		
Solid Blocking	150 x 50		
Boundary joists	150 x 25		At outer ends of floor joists.
FLOOR DECKING			
Refer to plans for type and location.			
a) T & G strip	100 x 22	Dressing A. Heart Rimu or Matai	Dry dressed
b) Particle board	2400 x 1200 x 20	High Density	Joins between sheets made over supports or on 50 x 50mm blocking between joists.
WALL FRAMING			
Bottom plates	100 x 50	No.1 treated Radiata Pine	Long lengths
	min 75 x 50		

continued . . .

LOCATION	SIZE mm x mm	GRADE & TREATMENT For alternatives refer to NZS 3602 or BRANZ Bulletins 130 and 175	REMARKS
ROOF BRACES			
Roof space braces	min 100 x 50)	Treated No.1 Radiata Pine	(Alternative - specify opposing pairs of continuous steel strip braces instead of 100 x 25 roof plane braces.)
Roof plane braces	100 x 25)		
Ceiling plane braces	100 x 50)		
ROOF SARKING			
Hit and Miss diagonal sarking	75 x 25	Treated No.1 Radiata Pine or Douglas Fir.	45 degrees to ridge, if used delete roof plane braces above.
Sheet Sarking (e.g. 6mm plywood or 6mm particle board)			Again, omit roof plane braces.
ROOF TILE BATTENS (or purlins)	75 x 50	Treated No.1 Radiata Pine or Douglas Fir.	Light roof, on flat at 900 c/cs.
	75 x 50		Heavy Roof, on edge at 900 c/cs.
Dragon Ties	100 x 40	Treated No.1 Radiata Pine	As required.
Eaves Framing	75 x 40	Treated No.1 Radiata Pine	
Barge & Eaves Boards	150 x 25	Treated No.1 Radiata Pine	
	up to 225 x 25		
Ceiling Battens	75 x 40		or as required by manuf. of ceiling lining.

WEATHERBOARD: Dressing A Heart Rimu or Treated A Rimu or Matai or imported Cedar.
Horizontal or Vertical Finishing grade. Weatherside or Hardiplanks. (Delete that which is not applicable).

INTERNAL DOORS		
Jambs	25mm	(Dressing A Rimu
Architraves	75 x 12mm	(
Skirtings	75 x 12mm	(or by agreement
Sill Boards	25mm	(
Aprons	25mm	(

ALL OTHER INTERNAL FINISHING TIMBERS NOT SPECIFICALLY MENTIONED TO BE DRESSED A RIMU

Window Jambs	150 x 40mm	D.A.H. Rimu
Window Sills	150 x 65mm	D.A.H. Rimu or Matai or Cedar
Mullions	75 x 65mm	D.A.H. Rimu or Matai or Cedar
Cornices	40mm	D.A.H. Rimu or Matai or Cedar
Facings ext.	75 x 25mm	D.A.H. Rimu or Matai or Cedar
Door Sills	150 or 200 x 65	with 12mm Steel Weather Bar.
Scribers	50 x 12mm	Totara or Heart Rimu

All approved Plans, Documents, Conditions, Engineers' Reports etc. pertaining to the Building Consent must be kept on site for the Building Officer's inspections.

A folder or plastic bag is enclosed for this purpose and to keep the plans clean.

FOR RESIDENTIAL INSPECTION BOOKINGS PLEASE CONTACT THE WHANGAREI DISTRICT COUNCIL

PHONE (09) 430 4224

Richardson, Stevens Consultants Ltd. 25325

CONSULTING CIVIL & STRUCTURAL ENGINEERS

2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

Refers to Smith/Gordon House

Client S. Malone

File No. 1

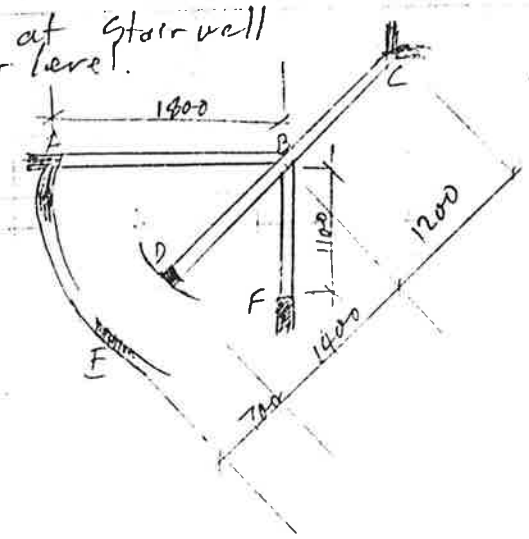
Plan Ref. No.

Calculated by J.L.B.

Checked by

Date 4-9-84

Beams at Stairwell 1st floor level.



Beam AB Span 1600.

LL+DL. Roof load $1.8 \times \frac{3.5}{4} \times (.405 + .25)$ 1032

Wall $1.8 \times 1.6 \times .2.4$ 406

DL+LL Floor. $1.8 \times \frac{3.0}{2} \times (.22 + 1.5)$ 5260

Beam 190

7.288 kN.

$M = 1.6 \times 7.288 = 11.66$

For 150×400 $f_b = 5.046$ $F_b = 6 \times 1.35 = 8.1$ OK

Beam BF Span 1100

Roof DL+LL 3210

Floor DL+LL 190

Beam 4030

Beam CBD

Load at B $\frac{1}{2}(7.29 + 6.03) = 5.66$ kN

$M_{max} = 3.81$

For 250×100 $f_b = 4.041 < 8.1$ OK.

Point at D. Load 2.74.

Col 100×100. $f_c = .274$ MPa. $F_c = 7.1 \times 1.35 \times .64 = 4.61$ OK.

JLB

Richardson, Stevens Consultants Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS
2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

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Client S. Malone

File No. 11.7
Plan Ref. No. 25325
Calculated by JLB
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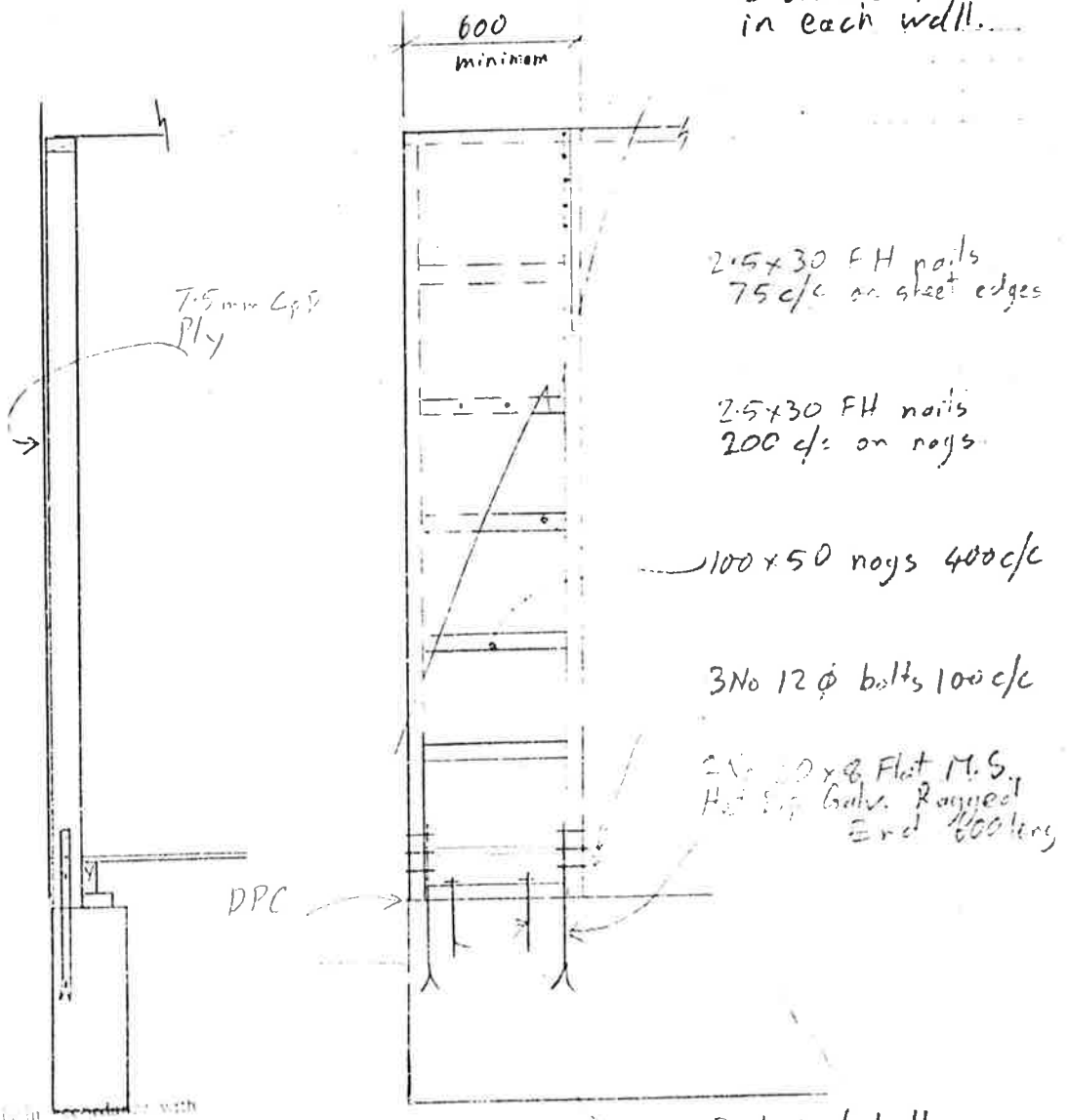
Date 5-9-69.

2 braces required in each wall.



This drawing is in accordance with my calculations where applicable
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per JL Brame
Registered Engineer

Type 10 Special Braces at Lounge and Kitchen End Walls

JL Brame.

Scale 1:20.

Richardson, Stevens Consultants Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS
2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

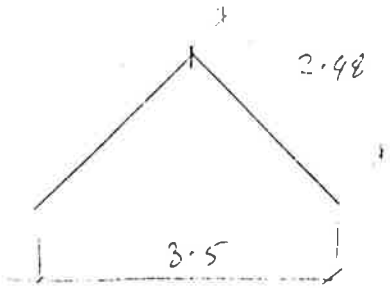
25325

Refers to S Malone

Client Gordan / Smith House.

File No. 1.7
Plan Ref. No.
Calculated by JLB
Checked by
Date 4-9-89

W/ind Bldg height h 5.5 m. V_c = S, S, V = 1.0 x .66 x 44
= 29 m/sec.
∴ med wind exposure < 30 m/sec



C_p = -.8 + .3 = -1.1
q = 516 x 1.1 = 567 Pa.
Resolved DL 203 / 364

Rafters. M = 336 N-m f_{mr} 15.0 x 50 f_b = 2.07 MPa
f_b = 6 x 1.5 x .11 = 7.92 OK.

Ridge Beam. Span. 4800
W/ind Reflan End Shear
Roof load
766

f_{mr} 250 x 50 f_b = 3.1 < 10.5 OK

D.L. Roof + ceiling
3112. F_b = 6.

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2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

Refers to Smith/Gordon House

Client S. Malone

File No. 1

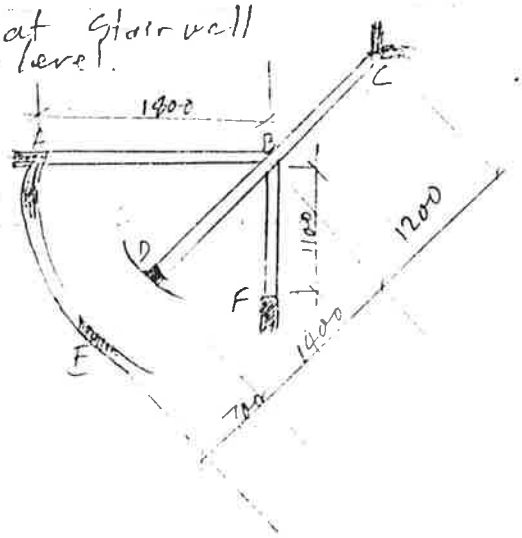
Plan Ref. No.

Calculated by J.L.B.

Checked by

Date 4-9-84

Beams at Stairwell 1st floor level.



Beam AB Span 1600.

LL+DL. Point load $1.6 \times \frac{3.5}{4} \times (.405 + .25)$ = 1.057

Wall $1.4 \times 1.6 \times .2.6$ = 4.06

DL+LL Floor. $1.6 \times \frac{2.0}{2} \times (.22 + 1.5)$ = 3.60

Beam = 1.90

7.46 k.

$M = 1.6 \times 4.66 \times \frac{1.6}{4}$ = 7.46

Try 140 x 460 R_b = 5.246 $F_b = 6 \times 1.35 = 8.1$ ok

Beam BF Span 1150

Roof DL+LL

Floor DL+LL

Beam

4.03 0

Beam CBD

Load at B $\frac{1}{2}(7.29 + 6.03)$ = 5.66 kN

M_{max} = 5.81

Try 150 x 100 R_b = 4.08 < 8.1 ok.

Point at D. Load 2.74.

Try 100 x 150. f_c = 1.74 MPa. $F_c = 7.1 \times 1.35 \times .45 = 4.01$ ok

CB

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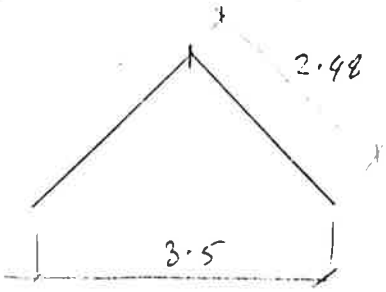
CONSULTING CIVIL & STRUCTURAL ENGINEERS
2 SEAVIEW ROAD, WHANGAREI, PHONE: 483-273

Refers to S Malcolm

Client Gordon / Smith House.

File No. 17
Plan Ref. No.
Calculated by JLB
Checked by
Date 4-9-09

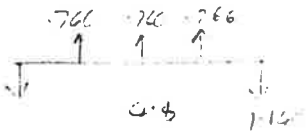
Wind Bldg height h 5.5 m. $V_s = S_s S_t V = 1.0 \times .66 \times 44$
$= 29$ m/sec.
∴ med wind exposure < 30 m/sec



$C_p = -.8 + .3 = -1.1$
$q = 516 \times 1.1 = 567$ Pa.
Resolved DL 203
364

Rafters. M = 336 N-m f_{br} 150×50 f_b = 2.07 MPa
$f_b = 6 \times 1.5 \times .0 = 7.92$. OK.

Ridge Beam. Span. 4800
Wind Rafter End Shear $\frac{1}{2} \times 3.48 \times 1.2 \times 366 = 762$ N
Ridge box load $1.5 \times .506 = 766$



f_{br} 250×50 f_b = 3.94 MPa OK.

D.L. Roof + rafters
M = 1.45 ∴ 3.112. F_b = 6.

Ok

25325

CARPENTER AND JOINER

1. PRELIMINARY AND GENERAL:
Read and note all clauses of the Preliminary and General which apply to all works of this section.

2. EXTENT OF WORK:
The work of this section shall include all labour, materials, equipment necessary to carry out and complete the carpentry as shown, or as further required by this specification. Together with any other items of work reasonably inferred as part of this section.

3. ATTENDANCE AND PROTECTION:
Attend upon all other trades providing all blockings, fixings, trims, nogging as necessary for the full completion of their respective works and make good after all trades.

4. MATERIALS AND WORKMANSHIP:
All material used shall be the best of their respective class and type specified. Any materials which in the opinion of the Owner, Loan Body or Local Authority are not up to standard, to be removed immediately from the site. All work shall be carried out in a workmanlike manner in accordance with best trade practice and as or where especially specified. Any work that is intended or implied but not specifically shown, mentioned or specified as necessary for the proper completion of the building shall be included. All work shall comply with the relevant NZS requirements, particularly NZS 3604.

5. TIMBER:
All timber used shall conform to NZS 3602 requirements, "Code of practice for specifying timber and wood — based products for use in building." Timbers shown in the Schedule of Timbers to be treated with an approved preservative process in plants licensed by the Timber Preservation Authority.

6. DAMP PROOFING:
All timber to be protected from dampness with 3-ply bituminous felt or other approved damp proofing material when in contact with concrete or brickwork, except as provided for under Clause 2.1.4 of NZS 3604.

7. PRIMING:
All exterior finishing timber, all timbers in contact with concrete blockwork and all external faces, rebate, etc. of all doors, windows, frames and all woodwork of sashes, shall be primed before fixing unless otherwise specified in Painter.

8. CLEANING:
The Contractor at the conclusion of the contract shall have all ceilings, walls and woodwork carefully dusted and wiped down. Windows washed and glass free from scratches and paint. Floors brushed and the entire building and site left in a clean condition for occupation.

9. FASTENING AND FABRICATION:
(a) The Contractor should especially note that all aspects of fastening and fabrication of timber framing members and wood-based products on this contract shall accord with the following clauses of NZS 3604:-

Clause 2.5.1 — General
Clause 2.5.2 — Adhesives for timber & wood-based products.
Clause 2.5.3 — AND APPENDIX A — for nailing and use of wire dogs.
Clause 2.5.4 — for bolting and screwing.

continued . . . . .

(e) Split Stone or Concrete Block Veneer
Cement composite bricks for external veneer and foundation wall shall be.....
.....
of the colour and type selected and shall be manufactured in accordance with NZS 3102 P "Specification for Concrete Masonry Units." Construction shall accord with all earlier relevant clauses of this section.

8. CHIMNEY:

Chimney to be brick to Owner's preference. All reinforced to Local Authority requirements. Cast in C.I. tip grate to floor of hearth. Construct fireplace with jambs in 230mm work. Line with firebrick, with slanting sides and a tilted back giving a 75 mm max. throat opening, finished 150 mm above soffit of fireplace opening. Fill behind tilted back with mortar, with concave finish to top. Gather brickwork into flue liner and parge brickwork. Cast concrete lintel with 100 mm bearing, reinforced with two 12 mm diameter rods tied with 4 mm wire at 150 mm centres. Slope back face of lintel into throat. Construct flue with internal dimensions of 300 x 300 mm and build in 230 mm diameter earthenware flue liner for full height, wrapped with heavy quality building paper.

FIREFRONT AND HEARTH:

Allow the P.C. Sum of $..... for selected firefront and hearth.

5. **BRICKLAYING:**

Bricks shall be laid in stretcher bond true to line level and plumb and in accordance with the best trade practice. All work shall be laid from the lowest corner and no corner shall be raised more than 900 mm above wall line. Corners shall be racked back. On no account will toothing be permitted. All joints will be completely filled with mortar and the bricks shall be disturbed as little as possible after initial positioning. Joints shall, unless otherwise specified, be not more than 9.5 mm thick and shall be tooled as directed as work proceeds. Where tapestry bricks are used care shall be taken to use a tool slightly smaller than joint width to prevent pushing mortar into the brick striations.

6. **BRICK FOUNDATION WALLS:**

Note where the following are shown on drawings and construct accordingly:-

(a) Reinforced clay brick masonry foundation walls not exceeding 2m in height, minimum width 130mm supporting single storey only; 190mm if supporting 2 storey or brick veneer and wall plate - all per NZS 3604.

(b) Reinforced clay brick masonry foundation walls exceeding 2m in height to NZS 1900 Chapter 6.2 or to be built by a "Registered Mason" to Specific Design.

(c) System A and System B continuous single – wythe clay masonry foundation walls, supporting single storey only – strictly in accord with Fig. 15 of NZS 3604 with extra width of concrete beam and step detail for masonry veneer.
Contractor to consult owner on size and position of access door.

7. **MASONRY VENEER:**

(a) Building Paper
Run ordinary black bituminous breather type building paper to NZS 2295 (or fire resistant breather type) horizontally and well secure to outside face of framing from bearer to top plate. Repair tears and holes before constructing veneer.

(b) Clay Brick Veneer.
Construct brick veneer with approved face fixed ties at correct spacings in accordance with Appendix F of NZS 3604 and with materials and workmanship to NZS 1900 Chapter 6.2.
A cavity of not less than 40mm and not more than 75mm shall be maintained between building paper and veneer. Where necessary weep holes shall be left every third joint for the discharge of water, as under Concrete Blocklayer. Keep the cavity and upstand clean, free from mortar protrusions and droppings. Keep pipes or electrical wire, junction boxes etc. out of the cavity. Build in the required number of subfloor vents to provide not less than 3500mm^2 of ventilation per 1m^2 of floor area. Keep top of vents below bottom of bearers. Thoroughly clean down the face of work on completion and leave free of mortar stains and efflorescence.

(c) Vermin Proofing:
Secure galvanized wire mesh to bottom plates, slope downwards and across cavity and embed each length of mesh at least 25mm in mortar joints. Vermin proof dividing wall and wherever else necessary.

(d) Sills
Sills to be brick on edge, brought to underside of wooden sills or aluminium joinery. Junction between to be filled with a suitable sealant as recommended by the Joinery Manufacturer and overpointed with cement mortar.

continued . . .

25325

6. JOINTS TO BLOCKWORK

All blockwork joints shall be neatly tooled with a 10mm rod jointer to form a neat concave recess to a good line, level and of consistant depth of approximately 6mm.

7. WATERPROOFING:

The Contractor shall ensure all blockwork above and below ground prevents the entry of water into the inside of the building. The Contractor shall provide warranties and prices for water-proofing from a number of manufacturers or their approved applicators and the type and price for the work shall be agreed. Internal strapping and lining as necessary to comply with insulation standards shall not proceed until evidence that the blockwork is free from leakage is demonstrated.

8. WEEP HOLES:

Provide weep holes in concrete blockwork at least 50mm below all bottom plates and below finished ground level, and below intermediate floor level, at approximately 800mm intervals. Drill or rake out weep holes to base of mortar bedding so as not to entrap any rain that might enter the walls.

BRICKLAYER

1. PRELIMINARY AND GENERAL:

Read and note all clauses under Preliminary and General of this specification where they apply to this trade.

2. RELEVANT SPECIFICATIONS:

All work shall be in accordance with the requirements of NZS 3604 and NZS 1900 Chapter 6.2 as appropriate.

3. MATERIALS

(a) Bricks: Bricks for external veneers and foundation walls shall be of the colour and type selected and shall comply with NZS 366 Clay Building Bricks Grade A or B. All fair face brickwork shall be laid with their best face outwards.

(b) Cement: Shall be ordinary Portland Cement and at the time of use shall comply with NZSS 3122 Portland Cement.

(c) Plasticizers: Plasticizers shall be used in accordance with the manufacturer's instructions and no other additives are to be used in conjunction with these materials. On no account will further additions be made at the time of retempering mortars.

(d) Water: Water shall be drinking quality.

(e) Sand for Mortars: Sand used shall be Mercer No. 1 sand and/or shall comply with the relevant clauses of NZSS 3103, Sands forMortar, Plasters and External Renderings.

4. PREPARATION OF MORTAR:

Mortar shall be prepared by mixing in an approved mixer. Measurement of materials shall be by volume using suitable containers. Mortar shall be mixed until a homogenous mass is obtained but for not less than 5 minutes. All mortar whether on the boards or left in the mixer shall be used within 90 minutes. Mortar not used in this time shall be discarded.

continued . . .

Richardson, Stevens Consultants Ltd.
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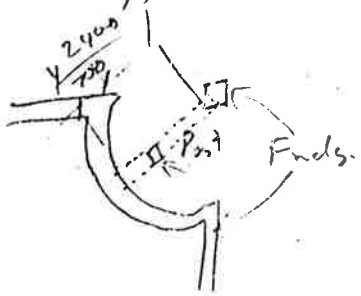
2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

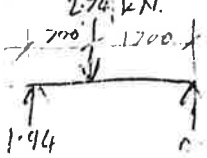
Refers to Smith / Gordon House
Client S Malone

75325

File No. 117
Plan Ref. No.
Calculated by JCB
Checked by
Date 4·9·84

Post Support under Ground Floor.





M max 5·0 kN-m

For 200 × 50 f_b = 4·61 F_b = 6 × 1·35 OK.
125 × 75 f_b = 4·34 F_b = 8.1 3% over.

Bracing
For Earthquake.

				Regd. Governs
Top storey	2 Dd/m²	×	56m²	112
Lower Storey	4 Dd/m²	×	84	336 ✓

For Wind.

Top Storey	N-S	9m	×	2.1 Dd/m	189 ✓
	E-W	9	×	21	189 ✓
Lower Storey	N-S	14·4	×	35	504 ✓
	E-W	9	×	35	315.

Dining Room Door Lintel Lounge Door Lintel
Span 2·4 Width Supported 1·9

Roof DL+LL	1·4 × (·600 + ·25)	1·19
Wall	1·4 × 1·6 × ·28	1·97
Floor	[illegible]	1·10
Lintel		·140
		64·10 kN/m

M = 4·615 kN-m

For 200 × 100 f_b = 7·82 MPa. F_b = 6 × 1·35 × 1·10 OK.

Dining Room Window seat lintel
Span 2·4 width supported 1·6 cu 6·61 kN/m.

M = 6·248 kN-m

For 250 × 100 f_b = 6·735 < 8·1 OK. JCB

Richardson, Stevens Consultants Ltd. 25325
CONSULTING CIVIL & STRUCTURAL ENGINEERS
2 SEAVIEW ROAD, WHANGAREI. PHONE 483-273

Refers to Gowan / Smith House
Client S. Malone

File No. 1.1.T
Plan Ref. No.
Calculated by JLB
Checked by
Date 5-9-89

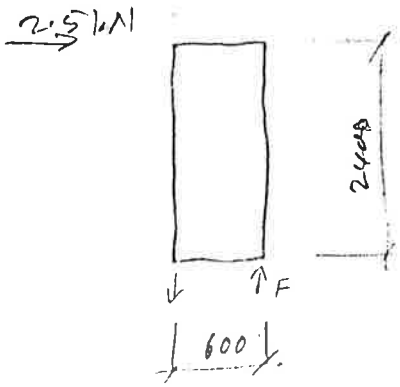
Bruce Panels End wall Lounge Ground Floor.

Earthquake.
$(\frac{5.3}{2} \times 3.4 \times 4) + (\frac{5.3}{2} \times 6 \times 2) = 67.6$.

Wind. E-W. $\frac{5.3}{2} \times 35 = 93$.

Provide min 10.0 BU. $\equiv$ 5kN.

Bruce Panels End wall Kitchen — Ground Floor.
as for lounge End wall above.



$.5OF = 2.5 \times 2.4$
$F = 12.0$ kN.

Use 12 ϕ Bolts
Allowable load = $2.07 \times 1.25 \times 1.5 = 3.88$/bolt.
$\Rightarrow$ 3 bolts needed.

Connection wall sheeting to plates.

Use 30 x 2.5 FN nails.
Load/nail = $215 \times 1.5 = 323$ N/nail
$\frac{1.5}{.323} = 7.7$ nails req'd. give 75 spacing ≤ 200 c/c
Shear in ply. $\frac{2.5}{.075 \times 6}$ = 55 kPa < 1.0 MPa.

JLB

In reply please quote: P057569

WHANGAREI
DISTRICT COUNCIL

24 August 2007

Sydney & Sandra Scott
265 Hibiscus Coast Highway
OREWA

Dear Sir/Madam

Building Consent Number: **87336**

Expiry Date: **22 November 2007**

Project: **Convert carport to garage and new deck - George Point Road, Onerahi**

Whangarei District Council wishes to advise you that the building project, BC87336 is approaching the two year completion requirement defined in the Building Act 2004 Section 93 (2) (b).

As such, the applicant/owner has two options in terms of complying with this section of the Act.

1. To complete all work prior to the two year deadline and apply for a Code Compliance Certificate (C.C.C).
2. Seek an extension of time from the Whangarei District Council to enable completion. (This is unlikely to be more than 90 days).

Enclosed with this letter is a copy of the C.C.C application form which must be completed and returned if the owner/applicant is ready for the C.C.C to be issued. All appropriate information to enable the C.C.C to be issued must be provided; such as energy work certificates etc, as well as the project being complete for final inspection.

If you require any additional information please contact Gail or Andrea (09) 4304230 ext 8406. Any requests for either option MUST be made in writing and can be applied for by email, fax or letter.

Yours faithfully

Andrea Cornwall
BUILDING COMPLIANCE
BuildingSupport@wdc.govt.nz

Creating the ultimate living environment

Forum North, Private Bag 9023
Whangarei, New Zealand
Telephone: +64 9 430 4200
Facsimile: +64 9 438 7632
Email: mailroom@wdc.govt.nz
Website: www.wdc.govt.nz

WHANGAREI CITY

SITE DRAINAGE PLAN

ACTUAL measurements between inspection pipes, changes of direction, etc. are to be clearly shown. This applies to stormwater drains also. The DEPTH of all cleaning eyes is also to be shown.

DRAINLAYER Gordon Brecken

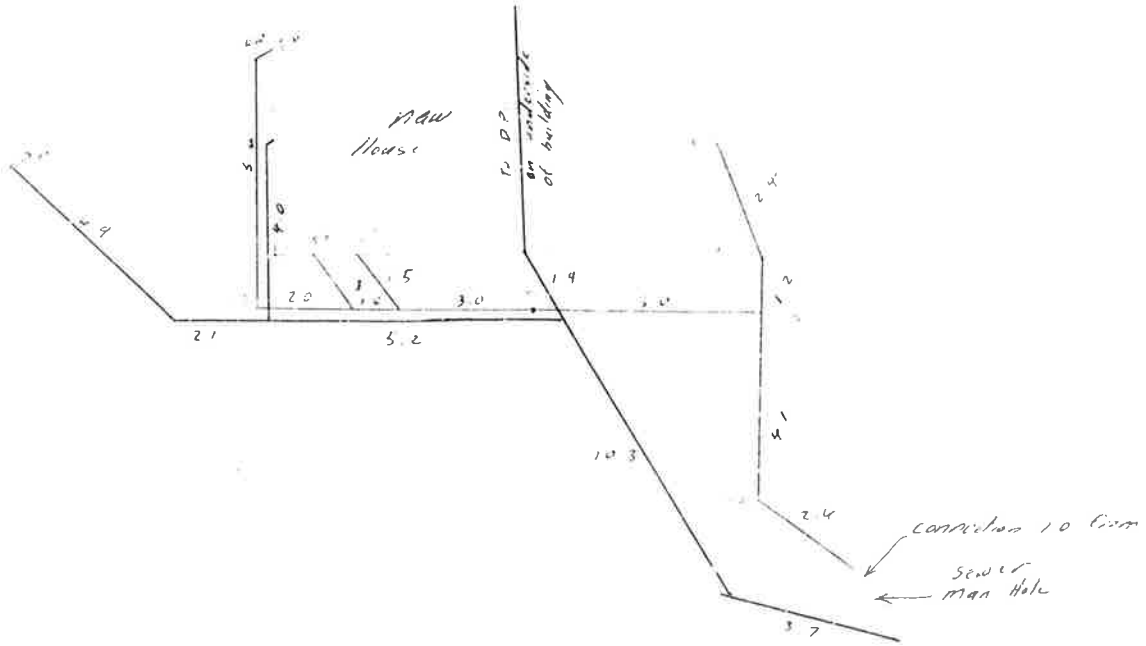
Permit No

Date 14-12-94

New Sewerdrains	RED
Stormwater	DOTTED BLACK
Old Drains	FULL BLACK

Material Used

SEWER	PVC, CERAMIC
STORMWATER	PVC, CERAMIC
	DELETE



SCALE 1 TO 100

OWNER: Greg Smith

STREET: George PT Rd

LOT No.

DP No.

WHANGAREI CITY

SITE DRAINAGE PLAN

DRAINLAYER Gordon Breckon

Permit No.

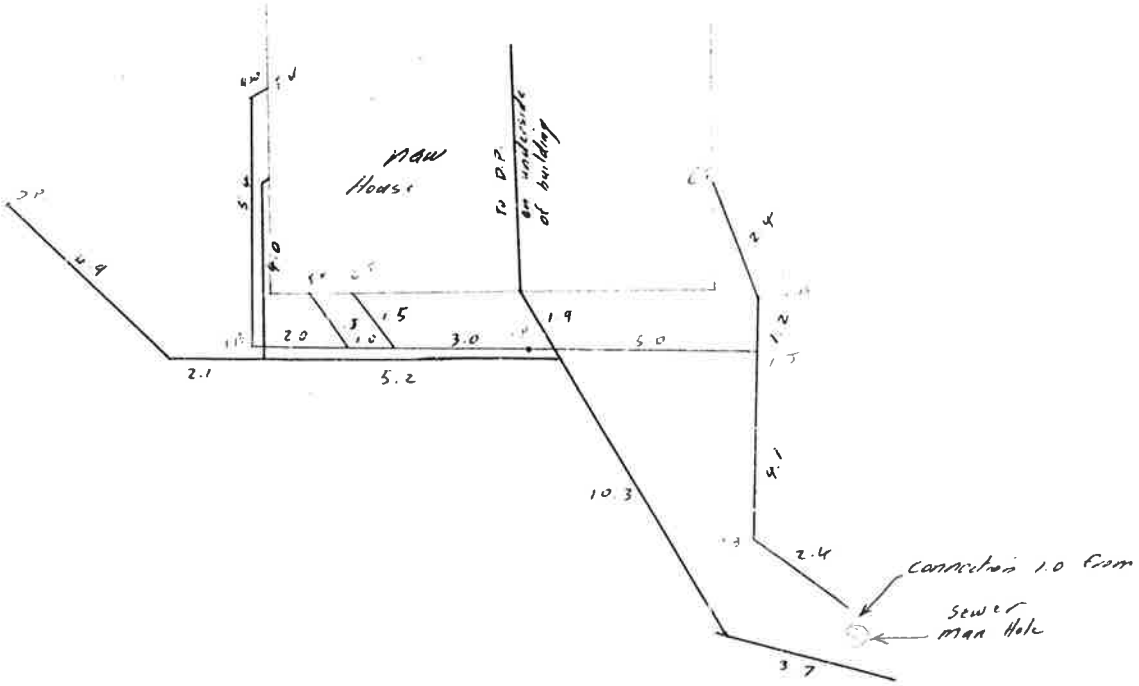
Date 14-12-84

ACTUAL measurements between inspection pipes, changes of direction, etc. are to be clearly shown. This applies to stormwater drains also. The DEPTH of all cleaning eyes, is also to be shown.

New Sewerdrains	RED
Stormwater	DOTTED BLACK
Old Drains	FULL BLACK

Material Used

SEWER	PVC/CERAMIC
STORMWATER	PVC/CERAMIC
	DELETE



SCALE 1 TO 100

OWNER: Greg Smith

STREET: George Pt. Rd.

LOT No.

DP No.

FRANK MULDOWNEY LTD

CIVIL AND STRUCTURAL ENGINEERING CONSULTANTS
PO Box 10-166, Te Mai, Whangarei
Telephone: (09) 434-7808, Fax: (09) 434-7808
Mobile: 0274 979-858
Email: FMLTD@xtra.co.nz

24/08/2005
S & S Scott
49 George Point Road
Onerahi

Dear Mr & Mrs Scott

He land on which your property is located is shown on Council's planning maps as being stability sensitive.

Having visited the site considered to proposed garage and deck extensions at the above site we consider that;

The land on which the building work is to take place is neither subject to nor likely to be subject to slippage;

And

The building work itself is not likely to accelerate or worsen as a result of slippage of that land or any other property.

As stated in our producer statement all foundations are to be taken down into solid original ground.

Yours faithfully
FRANK MULDOWNEY LTD

F S MULDOWNEY

PRODUCER STATEMENT – PS1 – DESIGN

ISSUED BY; .....Frank Muldowney.

TO; S & S SCOTT

IN RESPECT OF ..... **Miscellaneous calculations for containing wall And deck**

.....

AT; 49 George Point Road

LOT.....DP.....

FRANK MULDOWNEY LTD has been engaged by...Brent Robinson Design Ltd

.....

To provide...Engineering .....services in respect

of the requirements of Clause(s)...B1..... .....of the building regulations 1992 for the parts specified in the calculations provided. ref 20/186
The design has been prepared in accordance with
(respectively) of the approved documents issued by the Building Industry Authority and the work is described on the drawings provided by Brent Robinson Design Ltd the specification and other documents according to which the building is proposed to be constructed

As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of $200000.00, **I believe on reasonable grounds that subject to;**

1 Site verification of the following assumptions.
All foundations taken down to solid original ground

2 All proprietary products meeting the performance specification requirements, the drawings, specifications, and other documents according to which the building is proposed to be constructed comply with the relevant provisions of the building code.

Frank Muldowney BE MIPENZ C.P.E Member ID 653

P O Box 10166, TE Mai

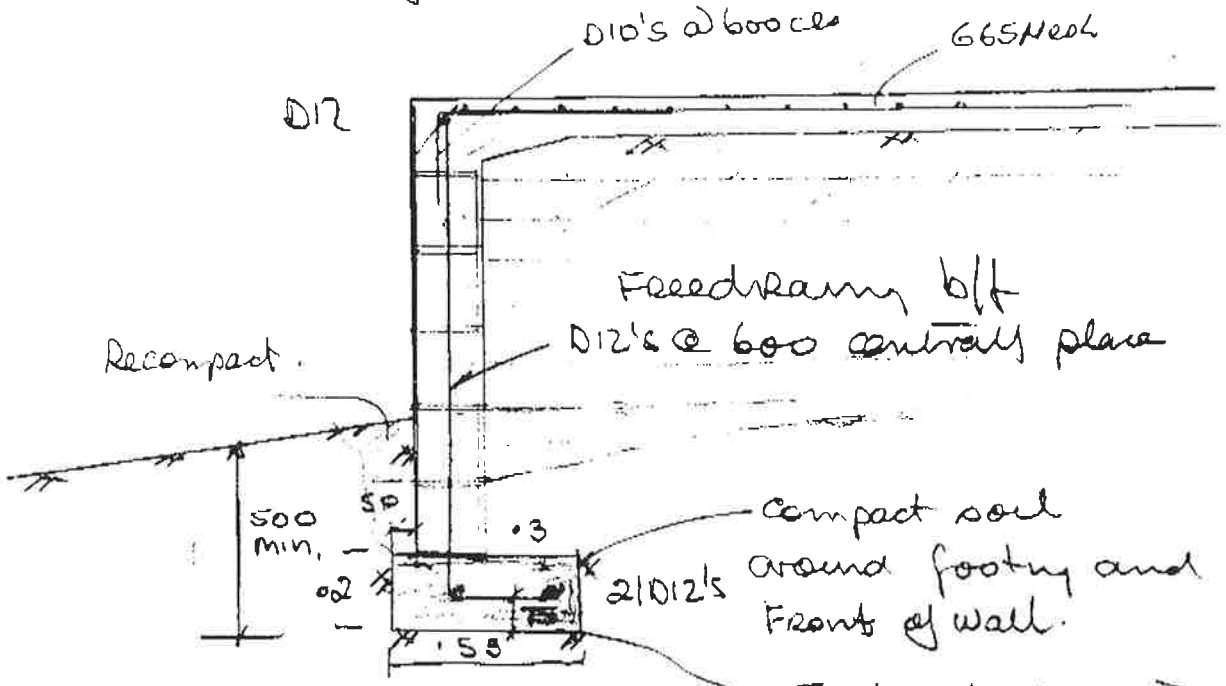
WHANGAREI Aug 05

FRANK MULDOWNEY LTD
ENGINEERING CONSULTANT
P.O. BOX 10-166
TE MAI, WHANGAREI

S+S for S & S Scott.
49 George St Road

P1
20/18

Sec - D-D.
Block Containing wall.



GRANULAR B/F $\gamma = 18 kN/m^3$
$K_a = 0.3$ LF = 1.6
Mu base of wall (cantilever)
ht = 1.1 m.

$$Mu = 1.6 \times .3 \times 18 \times \frac{1.1^3}{6} = 2 kNm$$

Use D12's @ 600 ctrs centrally placed in cell.
As = 188 a = 8mm
$M = .18 \times 188 \times 300 \times 10^{-6} (95 - 4)$
= 4.1 kNm/m.
Soil load $W = 18 \times 1 m$ max
= 18 kPa. nominal
1 m Back fill depth ok on ground.

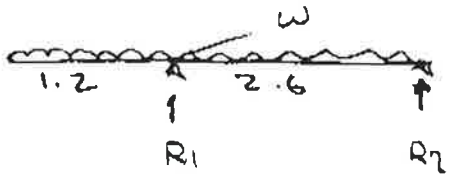
Check cantilever on deck joists
W = 0.4 = G load, Q = 2 kPa
$U = 1.2G + 1.6Q = 3.68 kPa$
Joist spacing = 400 mm
$U = 3.68 \times .4 = 1.5 kN/m$.
$Mc = 1.5 \times 1.2 = 1.8 kNm$ d = 168 mm.

FRANK MULDOWNEY LTD
ENGINEERING CONSULTANT
P.O. BOX 10-166
TE MAI, WHANGAREI

Sc S Scott
49 George St Road.

P2
20/18

Check beam



$2.6R_1 = w \times \frac{3.8^2}{2}$

$R_1 = 2.777w$

$2.6R_2 = w\left(\frac{2.6^2}{2}\right) - w \times \frac{1.2^2}{2}$

$R_2 = 1.023w.$

$\Sigma R_1 + R_2 = 3.8w = W.$

$w_u = 3.68$ kPa

$\therefore R_1 = 2.777 \times 3.68$ kN/m

10.22 kN/m

$R_2 = 3.765$ kN/m

Beam span $= 1.8$

$M = \frac{10.22 \times 1.8^2}{8}$

4.14 kNm

$d = 180$ mm

Need 200 x 100 beam

" 200 x 50 joists @ 400 crs

Check load to post

$= 10.22 \times 1.8$

18.4 kN

$q_u = 100$ $\quad A = 184 = \frac{\pi D^2}{4}$ $\quad D = 484.\phi$.

OR 450 SQ

Check load on nails

$\alpha = .5$ $\quad S_u = 100$

$C_a = \alpha S_u = 50.$

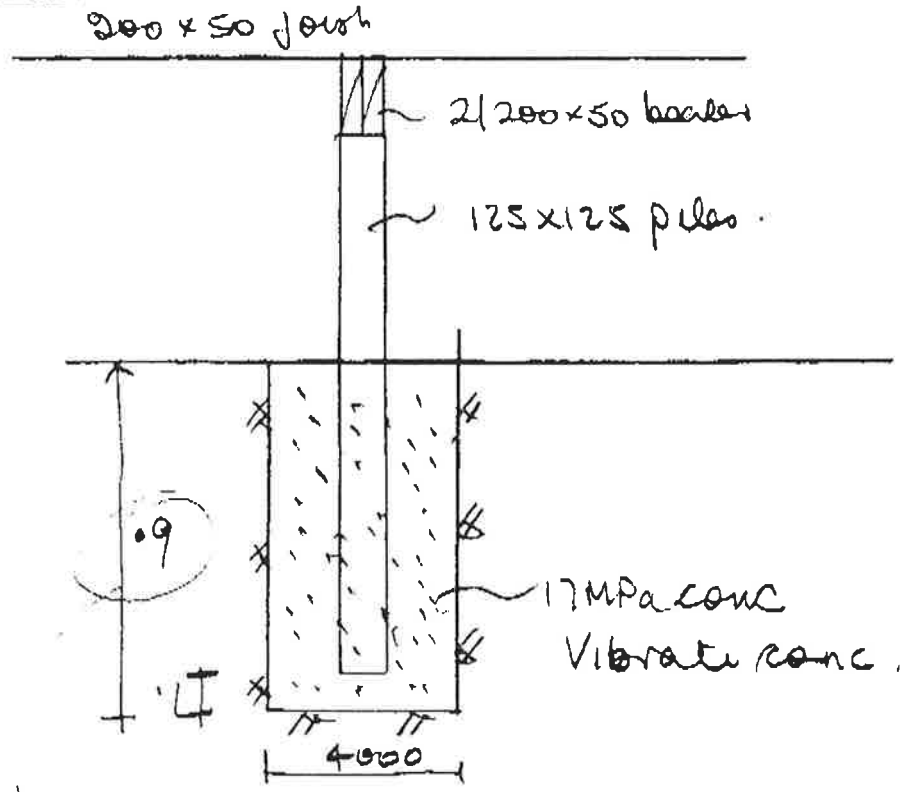
$V_{su} = C_a \times C_L$

$= 50 \times \pi D \times .6 \Rightarrow 184$ $\quad D = .195$ Use 400 ϕ.

FRANK MULDOWNEY LTD
ENGINEERING CONSULTANT
P.O. BOX 10-166
TE MAI, WHANGAREI

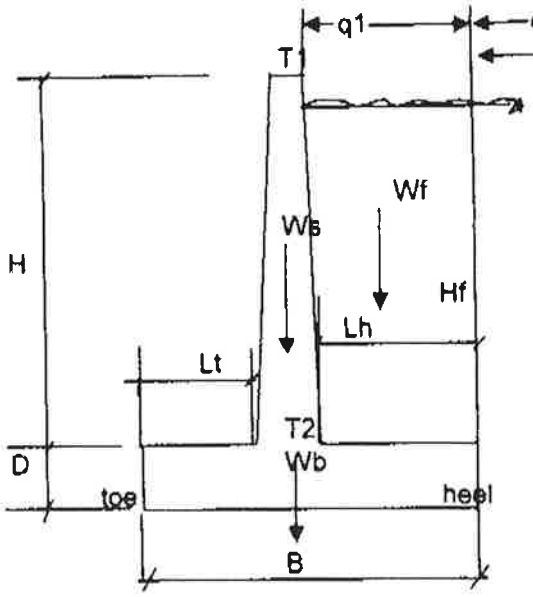
S & S Scott

P3.
20/18



Into solid ang. gr

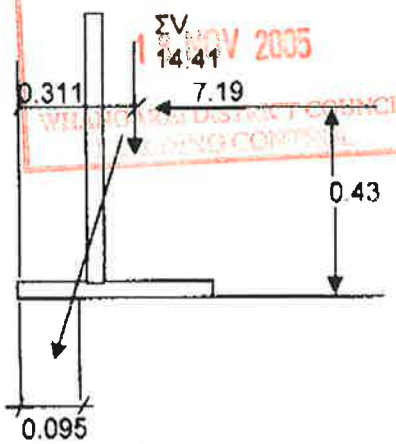
RETAINING WALL DESIGN **Client** **S & S SCOTT** **Job No.** **20/186**
49 GEORGE POINT ROAD



virtual back of wall
Hf is the height of backfill
H is the retained height of fill
D is the thickness of the base slab
Lt is the toe length
Lh is the heel length
B is the width of the base
T1 is the stem thickness at top
T2 is the stem thickness at the base
γ is the density of the backfill material
Φ is the internal friction angle
δ is the angle of wall friction
Su is the saturated shear strength of the foundation soil.
γc is the density of concrete
γs is the density of the stem material
q is a surface udl load
Wf is the weight of backfill
Ws is the stem weight
Wb is the weight of the base slab
Wq is the surcharge weight

Wall Data for analysis

Hf=	**1.1**	**D=**	**0.2**	**Lt=**	**0.05**	**Lh=**	**0.3**
B=	**0.55**	**T1=**	**0.2**	**T2=**	**0.2**	**γ=**	**18**
Φ=	**30**	**δ=**	**10**	**Su=**	**100**	**γc=**	**24**
γs=	**19**	**q1=**	**0**	**Wf=**	**5.94**	**Ws=**	**4.56**
Wb=	**2.64**	**Wq=**	**0.00**	**ΣW=**	**13.14**	**q2=**	**0**
Sin Φ=	**0.500**	**Ka=**	**0.30**	**Hf+D=**	**1.3**	**H=**	**1.2**
Sinδ=	**0.17**	**Cos δ=**	**0.98**				



Static active thrust from backfill=	4.56		
Static active thrust from q load=	0.00		
Σ=	**4.56**		
Load factor on active thrust=	1.6		
Factored static active thrust (b/f)=	7.30		
Factored static active thrust (s/c)=	0.00		
Total factored active thrust =	7.30		
Horizontal component=	**7.19**		
Vertical component= V	**1.27**		
Tot vert load =V+ΣW	14.41		
Position of resultant vert force from toe=		0.311	OM= 3.12
Leverarm for Ws=	0.15		
Lever arm for Wb=	0.275		
Lever arm for Wf=	0.4		
Lever arm for V=	0.55		
Lever arm for q=	0.4		
Position of active thrust above base=		0.43	SM= 4.48
			FOS= 1.44
Eccentricity due to moment=		0.22	
Position of resultant with toe=		0.095	
Base upon 6=		0.092	**TRUE** Pmax= 75.89

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA57C/1475**
Land Registration District	**North Auckland**
Date Issued	10 February 1986

Prior References
NA31D/828

Estate	Fee Simple
Area	1375 square metres more or less
Legal Description	Lot 22 Deposited Plan 104435

Original Proprietors
Ian Douglas Sutton and Raewyn Janice Sutton

Interests

Land Covenant in Deed B504545.3 - 10.2.1986 at 2.36 pm

Land Covenant in Transfer B613609.8 - 19.12.1986 at 9.00 am

D630543.3 Mortgage to ASB Bank Limited - 13.8.2001 at 10.20 am

References
Prior C/T 31D/828

Transfer No.
N/C. Order No. B.504545.2

Land and Deeds-69

No. 516/1475

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 10th day of February one thousand nine hundred and eightysix under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that MOIRA McKINNON of Whangarei developer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 1375 square metres more or less being Lot 22 Deposited Plan 104435 and being part Waimahanga No 2 Block situated in Blocks 1X and XIII Whangarei Survey District

DISTRICT LAND REGISTRAR NORTH AUCKLAND

Assistant Land Registrar

Interests at date of issue

B.439888.1 LIEN BY MICHAEL JOHN ELRICK, DONALD WARREN ASHBURN AND RICHARD THOMAS UNDER THE WAGES PROTECTION AND CONTRACTORS LIEN'S ACT 1939 - 24.7.1985 at 1.58 oc

B.503781.6 Mortgage to Broadbank Corporation Limited - 5.2.1986 at 2.35 oc

B.503781.7 Mortgage to ANZ Banking Group (New Zealand) Limited - 5.2.1986 at 2.35 oc

B.503781.8 Mortgage to Brown Investments Limited - 5.2.1986 at 2.35 oc

st B.504545.3 Deed of Restrictive covenant - 10.2.1986 at 2.36 oc

B.504545.4 Bond under Part XX Local Government Act 1974 (affects Plan 104435) - 10.2.1986 at 2.36 oc

B.613609.8 Transfer to Brown Investments Limited at Whangarei - 19.12.1986 at 9.00 o'c

A.L.R.

Fencing covenant contained in Transfer B.613609.8

A.L.R.

Restrictive covenant contained in Transfer B.613609.8

A.L.R.

B.854294.1 Transfer to Norman Warren Eastwood of Whangarei company director and Pamela Gaye Eastwood his wife - 20.7.1988 at 1.40 oc.

A.L.R.

C.019828.1 Transfer to Catherine Rose Gordon of Waipu kindergarten teacher - 24.7.1989 at 9.01 oc

A.L.R.

No. 516/1475

Measurements are Metric

OVER....

C.061422.1 Transfer of an undivided 1/2 share to Gregory Allan Smith of Whangarei chef - 2.11.1989 at 9.10 oc.

A.L.R.

C.061422.2 Mortgage to Post Office Bank Limited - 2.11.1989 at 9.10 oc.

DISCHARGED

A.L.R.

C.061422.3 Mortgage to The Housing Corporation of New Zealand - 2.11.1989 at 9.10 oc.

DISCHARGED

A.L.R.

C.568696.3 Transfer to Elizabeth Ann Simpson of Whangarei social work supervisor - 16.2.1994 at 2.18 oc

A.L.R.

C.568696.4 Mortgage to Bank of New Zealand - 16.2.1994 at 2.18 oc

A.L.R.

C.576100.3 Transfer to Elizabeth Ann Simpson of Whangarei social work supervisor - 9.3.1994 at 2.03 o'c

A.L.R.

C.576100.4 Mortgage to Bank of New Zealand - 9.3.1994 at 2.03 o'c

DISCHARGED FOR RGL

A.L.R.

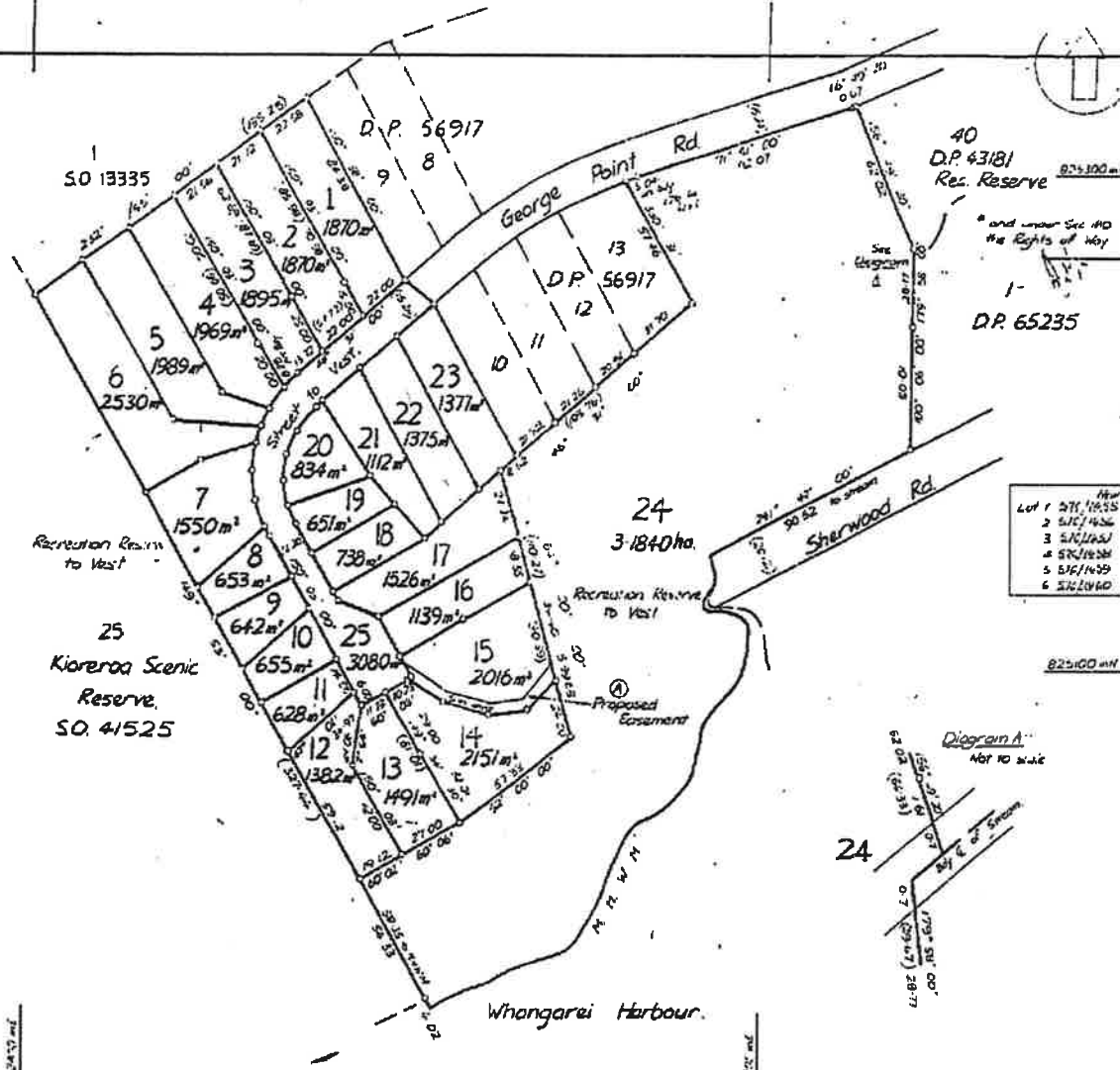
D630543.2 Transfer to Ian Douglas Sutton and Raewyn Janice Sutton

D630543.3 Mortgage to ASB Bank Limited

Both 13.8.2001 at 10.20

for RGL

CERTIFICATE OF TITLE No.



Memorandum of Easements in Certificate

Nature	Shown	Servient Tenement	Dominant Tenement
RCW Electricity Drainage Water	A		Whangarei City Council

Pursuant to a resolution of the Whangarei City Council passed on the [illegible] day of [illegible] 1984 approving under Sec 347 of the Municipal Corporations Act 1954 the subdivision shown hereon conditional upon the granting or reserving of the easements shown in the memorandum entered hereon and certifying that the survey plan is in accordance with the requirements and provisions of the operative district scheme for the area to which the survey plan relates the Common Seal of the Whangarei City Council was affixed hereto in the presence of

Mayor

City Manager

New C.T. Allocated

Lot 1	57C/1455	Lot 8	57C/1461	Lot 15	57C/1467
2	57C/1456	9	57C/1462	16	57C/1468
3	57C/1457	10	57C/1463	17	57C/1469
4	57C/1458	11	57C/1464	18	57C/1470
5	57C/1459	12	57C/1465	19	57C/1471
6	57C/1460	13	57C/1466	20	57C/1472
				21	57C/1473
				22	57C/1474
				23	57C/1475

Approved

Registered Owner

Total Area 6.6963 ha

Comprised in C.T. 31D/628 (Pt)

I, Richard Thomas O'Doherty of Whangarei registered surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to the provisions of section 33 (2) of the Surveyors Act 1965) hereby certify that this plan has been made from surveys executed by me or under my directions, and that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972.

Dated at Whangarei this 31st day of July 1984 Surveyor

Right Boot p Traverse Mark p

Reference Plans [illegible]

Examined C. Mann

Approved as to Survey

Deposited this 10th day of Dec 1985 District Land Registrar

File Received Instructions

DP 04435

LAND DISTRICT North Auckland

SURVEY BLK & DIST. XIII, Whangarei

SHEET No. Onerahi 1

Lots 1 to 25 being a Subdivision of Pt Waimahanga No 2 Block

LOCAL AUTHORITY Whangarei City

Surveyed by Hodges & Elrick

Scale 1:1250

Date July 84

35797C—50,000/6/85MK