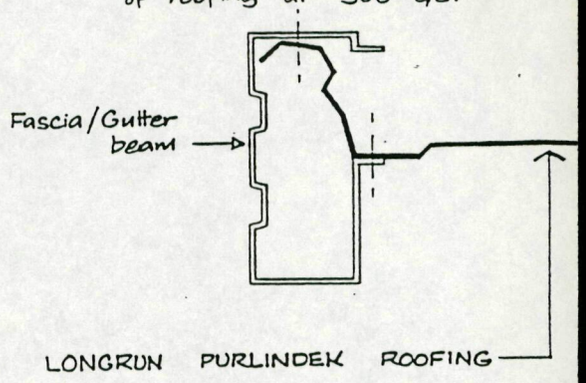
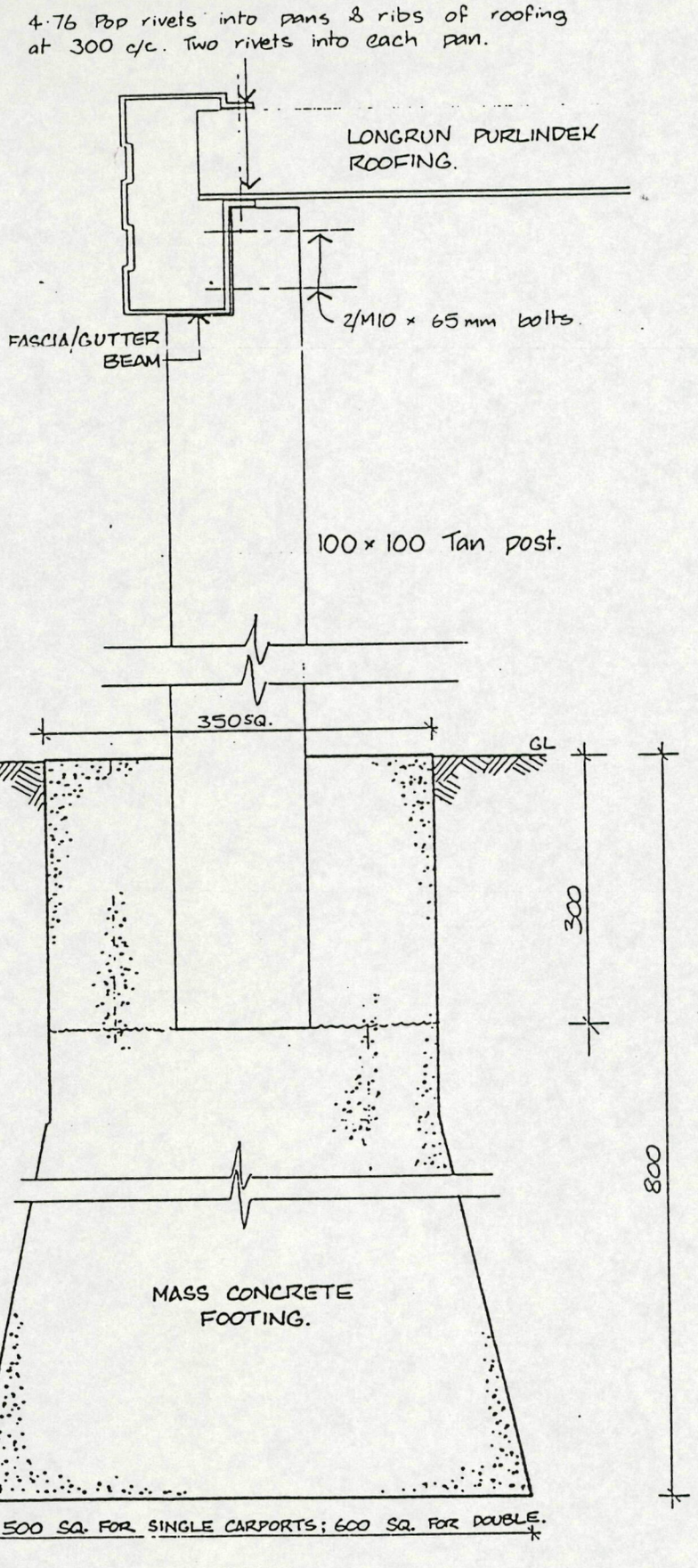
End Fascia Section.

Scale 1:5





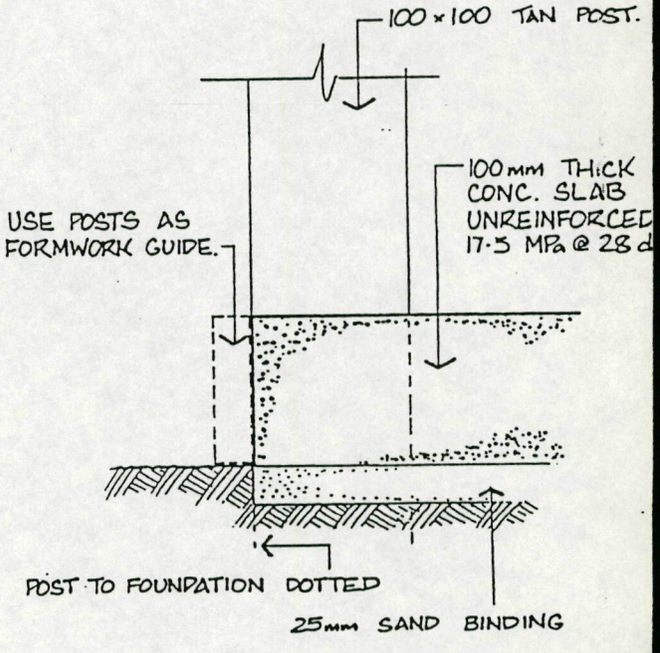
Standard Cross Section

Scale NTS

This drawing is in accordance with my calculations where applicable.

RICHARDSON, STEVENS CONSULTANTS LTD.
CONSULTING ENGINEERS
2 Seaview Road, Whangarei

per .....
Registered Engineers



CONCRETE FLOOR FOOTING

scale 1:5

TAURANGA DISTRICT COUNCIL
APPROVED BUILDING CONSENT PLANS

Steel Farm CARPORTS

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AGENT:

TITLE:	REVISION:	PAGE:
Standard details	Aug90	3

DESIGN CERTIFICATE

To SENIOR ENGINEER

re FORMSTEEL CARPORTS
(Project Title)

I, ROGER L RICHARDSON, being a Registered Engineer and holding a current Annual Practising Certificate and being a Member of the Association of Consulting Engineers New Zealand and a Principal/Director of RICHARDSON STEVENS CONSULTANTS hereby certify that:

- This Consulting Practice has been engaged to design and execute the appropriate engineering calculations for POSTS, BEAMS, FOOTINGS
(Description & Type of Structure)
proposed to be constructed for GENERAL STANDARD DESIGN
(Name of Owner)
located at V WIND 50 yr = 33 m/sec
(Street Address)
on
(Legal Description of Site)

- The accompanying 5 (Number) sheets of Drawings titled and numbered A4 Aug 90 and dated Aug 90 and Specification Sections numbered adequately illustrate the design of the structure.

- I have exercised reasonable control over the design processes for the works defined above which have been designed in accordance with sound and widely accepted engineering principles to support the loads specified in NZS 4203 AS1250 and various aspects of the design are in accordance with the following relevant authorities

- I believe the stresses in the various materials of construction and force resisting elements of the structure including the foundation strata under the above loads are such as to ensure the safety and stability of the structure if the works are constructed in accordance with the above described drawings and specifications.

The name and qualification of the principal structural designer are G TAYLOR MIPENZ RE

Signature of ACENZ Member R L Richardson Date 7/3/91

Professional Qualifications CENG MISTRUCTE MIPENZ Registration No. 4332

For and on behalf of:

Leese and Richardson Consulting Engineers
2 Seaview Road
Whangarei

ASSOCIATION OF
CONSULTING ENGINEERS NEW ZEALAND
A Division of the Institution of Professional Engineers New Zealand

This Design Certificate is Valid Only for a Building Permit Application Made Within One Year of the Date of Issue of This Certificate

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

① File No. .....
Plan Ref. No. .....
Calculated by ...G.T.....
Checked by .....
Date ..16/3/88.....

Refers to 6.0x3.0 and 6.0x6.0 Carports
Client Formtech - Kingsley Brabe

1) Foundations

Uplift Critical

For Auckland $V = 35 m/s$

Take $S_1 = 1.0$
$S_2 = 0.64$

$\Rightarrow q = 0.273 kPa$

For Roof
$C_p = 2.0$ max

1) $\Rightarrow$ Uplift /post @ 6.0x6.0 Carport
$= 2.0 \times 0.273 - 2.4 \times 3.0 = \underline{3.93 kN}$

Resisted by 0.7DL + Pile Friction

0.7DL. Foundation $0.7 \times [0.35 \times 0.35 \times 0.4 + 0.475 \times 0.475 \times 0.4]$ Conc. $\times 24 kN/m^3$

Soil $+ 0.7[(0.6^2 - 0.35^2) \times 0.4 + (0.6^2 - 0.475^2) \times 0.4] \times 16 kN/m^3$

$= 3.22 kN$

Add Pile Friction

Conservatively Assume.
Loose Sand
$\phi = 30°$
Take $K = 1.0$

Then
Equiv. $C_f = \frac{0.8}{2} \times K \times 16 \tan\phi$
$= 3.70 kPa$

$\Rightarrow Q_f = 3.70 \times 0.5 \times 4 \times 0.8 = 5.92 kN$

$\Rightarrow$ FOS against Uplift $= \frac{(5.92 + 3.22)}{3.93} = \underline{2.3}$ OK

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(3)

Refers to .....

Client .....

File No. .....

Plan Ref. No. .....

Calculated by .....

Checked by .....

Date .....

(b) For 6.0 × 3.0 Carport

Uplift/post = 2 × 0.273 × 1.5 × 3.0 = 2.50 kN

Resisted by 0.7 DL + Pile Friction

0.7 DL.

Foundation $0.7(0.35^2 + 0.425^2) \times 0.6 \times 24$

Soil $+ 0.7(0.5^2 - 0.35^2) \times 0.4 \times 16$

$+ 0.7(0.5^2 - 0.425^2) \times 0.4 \times 16$

$= \underline{2.92}$ kN

Then Eqn $C_f = \frac{0.8}{2} \times 1.0 \times 16 \tan\phi = 3.70$ kPa.

$Q_f = 3.7 \times 0.5 \times 4 \times 0.8 = 5.92$ kN

$\Rightarrow$ FOS $= \frac{5.92 + 2.92}{2.50} = 3.54$ OK

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2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

Refers to .....

Client .....

Plan Ref. No. .....

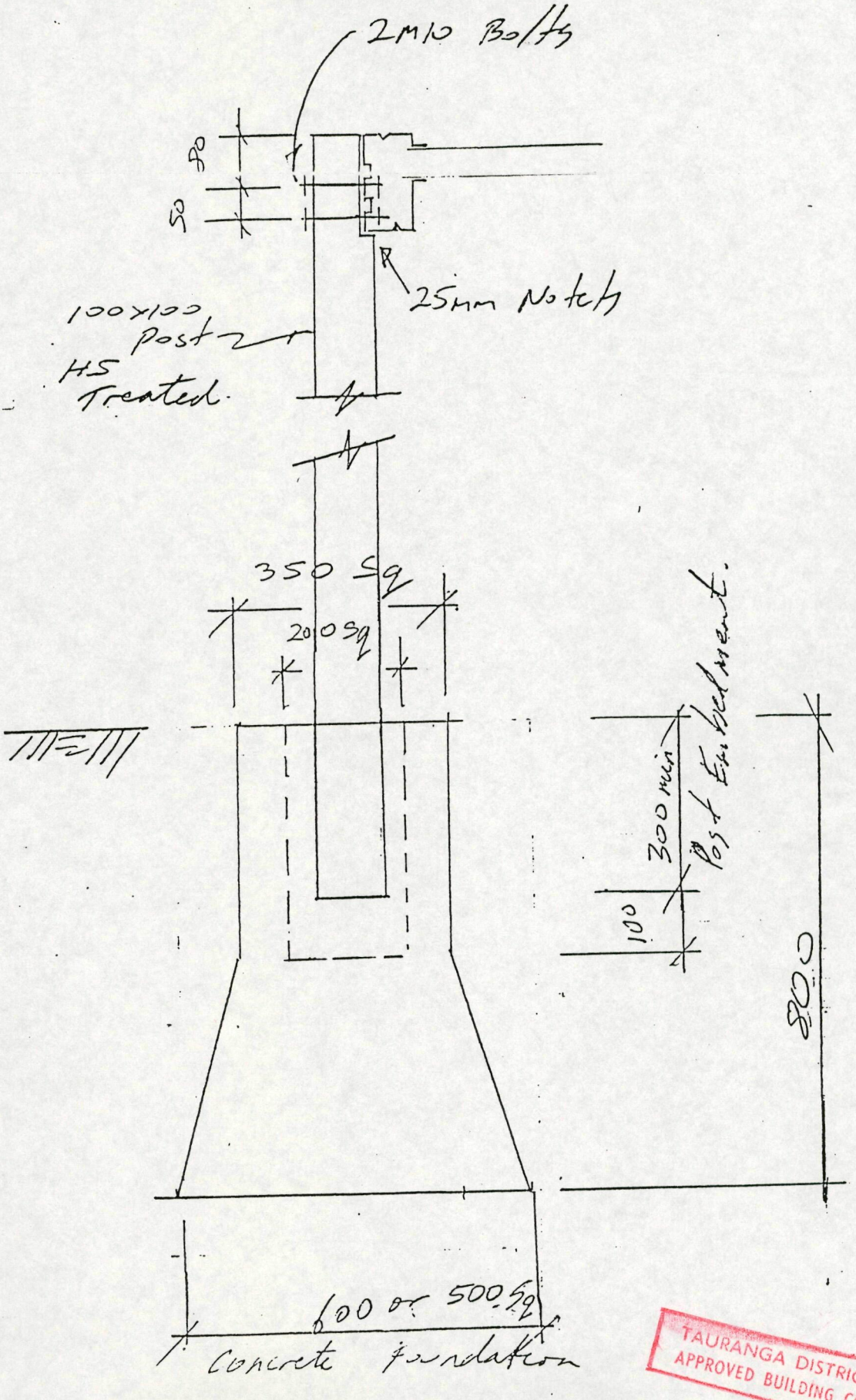
Calculated by .....

Checked by .....

Date .....

2

POST BEAM CONNECTION AND FOUNDATION DETAIL



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(4)

File No. .....
Plan Ref. No. .....
Calculated by .....
Checked by .....
Date .....

Refers to .....

Client .....

3/ Side Beams

$t = 0.8mm$; $f_y = 250 MPa$

$F_b = 0.6 f_y = 165 MPa$.

Wind $1.33 \times 165 = 220 MPa$.

$$I_{xx} = \frac{[165 - (2 \times 0.8)]^3 \times 0.8}{12} + 0.8 \times 75 \times 2 \times (82.1)^2$$

$$= 0.811 \times 10^6 mm^4$$

$$\Rightarrow Z_{xx} = 0.811 \times 10^6 \times \frac{2}{165} = 9.83 \times 10^3 mm^3$$

For 6.0×6.0 Carport

Max Span = 2.4m.

load/m $= 2.0 \times 0.273 \times 3.0 = 1.64 kN/m$

$\Rightarrow M_{max} = 1.18 kN-m$

$\Rightarrow f_b = 120 MPa$ OK

For 3.0×3.0 Carport Span = 4.2m

+ve $M_{ss} = 2.0 \times 0.273 \times 1.5 \times \frac{(4.2)^2}{8} = 1.81 kN-m$

-ve $M_{cantilever} = 2.0 \times 0.273 \times 1.5 \times \frac{(0.9)^2}{2} = 0.33 kN-m$

$\Rightarrow M_{max} = 1.48 kN-m$

$\Rightarrow f_b = 150 MPa$ OK

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2 SEAVIEW ROAD, WHANGAREI. PHONE: 483-273

(5)

Refers to .....

Client .....

Plan Ref. No. .....

Calculated by .....

Checked by .....

Date .....

1/ POSTS.

Try 100 x 100 Posts.

Horiz Load.

Take as $\left| \frac{2.0 + \tan\alpha}{2} \times 0.273 \right| \times 6.0 \times 6.0 \times \sin\alpha$

For 6.0 x 6.0 Carport + $0.17 \times 0.273 \times 1.3 \times 6.0$

$= 0.4x$ kN

For 6 posts $= 0.075$ kN.

$\Rightarrow M_{max} = 0.16$ kN-m

$\Rightarrow$ 100 x 100 Post. OK

For 6.0 x 3.0 Carport — Total Horiz load = 0.40 kN

For 4 posts = 0.1 kN

$M_{max} = 0.21$ kN-m

$\Rightarrow$ 100 x 100 Post OK.

Check Under Eq Take Nominally $V = 0.2 W.G$

$= 0.2 \times 0.15 \times 6.0 \times 6.0$

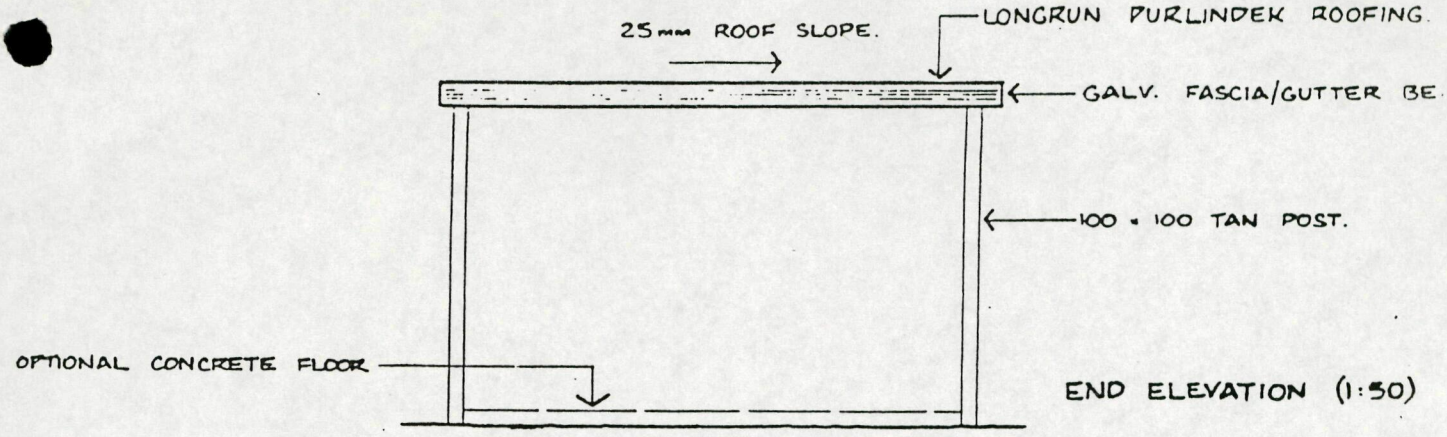
$= 1.08$ kN

or M/post $= \frac{1.08}{6} \times 2.1 = 0.38$ kN-m

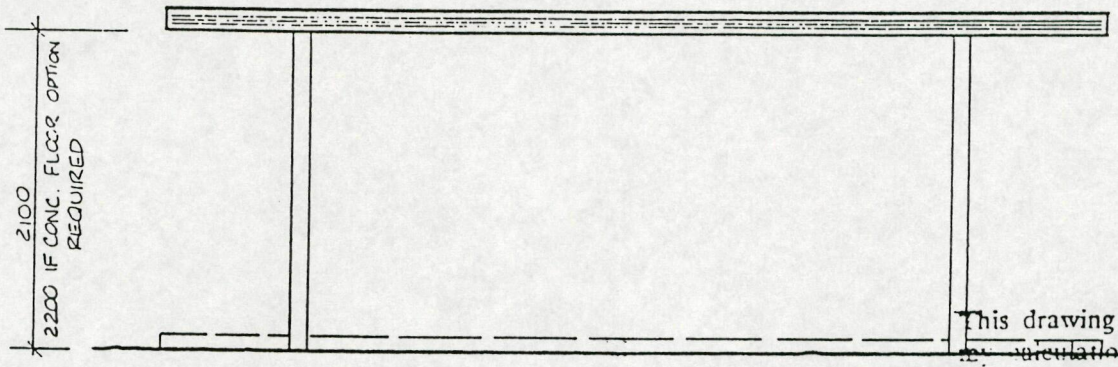
or $\Rightarrow$ 100 x 100 Posts OK

175 Treated

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APPROVED BUILDING CONSENT PLANS



END ELEVATION (1:50)



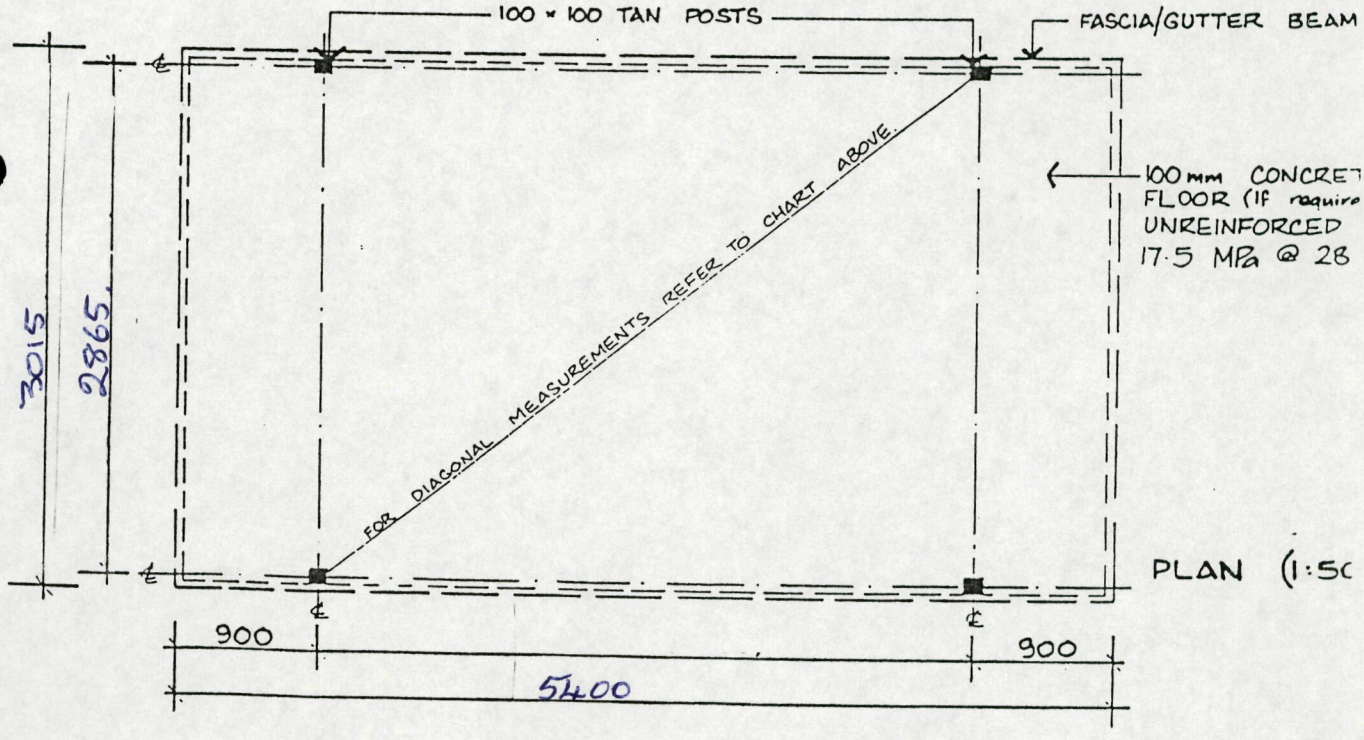
SIDE ELEV

This drawing is ~~accordance~~ with ~~regulations~~ where applicabl

RICHARDSON, STEVENS CONSULTANTS
CONSULTING ENGINEERS
2 Seaview Road, Whangarei

All dimensions in mm & are taken ~~centre to centre~~

Registered Engine



PLAN (1:5C

steel CARPORTS

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AGENT:

TITLE: Floor plan & elevation (c)

REVISION:

PAGE:

146° 05'

40.24

DRIVEWAY

NO 242 WAIHI RD.

WAIHI ROAD. 56° 05' 20.12

EXISTING HOUSE

GARAGE UNDER.

6 MET CIRCLE

N E S W

LOT 8
DP 32966.
VALN 06699/180-00

1.500

FUTURE CARPORT.

STORMWATER SOAKHOLE

PROPOSED HOUSE SITE

EXIST sewer drain

TOP OF SLOPE

12.89

6 MET. CIRCLE.

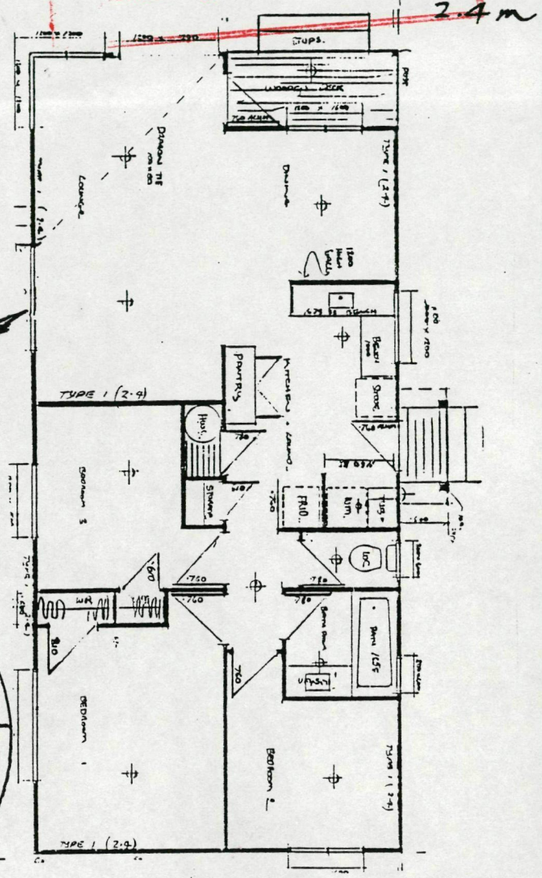
Site Suitable for proposed Building subject to confirmation of ground conditions at time of footing inspection

CN 28/11/93

Authorised Officer Date

2.4m

1.7m



PLANS APPROVED
as to compliance with the planning requirements of the Tauranga District Council

28/11/93
Authorised Officer Date

APPROVED
THESE PLANS & SPECIFICATIONS HAVE BEEN APPROVED IN ACCORDANCE WITH THE BUILDING ACT 1991 & SHALL REMAIN ON BUILDING SITE THROUGHOUT CONSTRUCTION.
APPROVING OFFICER
DATE 22-2-93
TAURANGA DISTRICT COUNCIL

HARBOUR HOMES
Box 8011 Cherrywood, ☎ 5786864
GST No. 58-914-798

PROPOSED DWELLING FOR
MR & MRS P&K MITCHELL
AT 242 WAIHI RD. TAURANGA

SITE PLAN
(AMENDED)

SCALE:- 1:100

DRAWN RBS. 22/12.