

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance on use of Producer Statements (formerly page 2) is available at www.engineeringnz.org)

ISSUED BY: Design Station Limited
(Design Firm)

TO: KiwiSpan South Taranaki
(Owner/Developer)

TO BE SUPPLIED TO: South Taranaki District Council
(Building Consent Authority)

IN RESPECT OF: KiwiSpan Shed (DSL Reference: KS19823)
(Description of Building Work)

AT: 27 County Drive
(Address)

Town/City: Hawera **LOT** 42 **DP** 412125 **SO**
(Address)

We have been engaged by the owner/developer referred to above to provide:

Structural design of the steel structure, foundations and floor slab

(Extent of Engagement)

services in respect of the requirements of Clause(s) **B1/VM1 & VM4, B2/AS1** of the Building Code for:

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

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

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment **B1/VM1 & VM4, B2/AS1** or
(verification method/acceptable solution)

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:

KiwiSpanNZ Arthur Brown Construction and numbered **1,5-9,F1,2,A20,21,41,91,B2,30,C10** together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions **See attached Schedule to PS1**
(ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ☐ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☒ as per agreement with owner/developer (Architectural)

I, **Kerry McCollum** am: ☒ CPEng **184622** # ☐ Reg Arch #
(Name of Design Professional)

I am a member of: ☒ Engineering New Zealand ☐ NZIA and hold the following qualifications: **BE(Hons)**

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

The Design Firm is a member of ACENZ: ☐

SIGNED BY: **Kerry McCollum** (Signature) **Kerry McCollum**
(Name of Design Professional) Digitally signed by Kerry McCollum
Date: 2021.09.24 12:50:50 +12'00'

ON BEHALF OF Design Station Limited **23/09/2021**
(Design Firm) Date

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

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.
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23 September 2021
 JOB NUMBER: KS19823
 JOB NAME: ARTHUR BROWN CONSTRUCTION
 27 COUNTY DRIVE
 HAWERA
 LOT: 42 DP: 412125

SCHEDULE to PS1

1. Foundation Notes:

- Foundation ground improvements for Ribraft: RED JACKET, Ref: CAL-4104-01, Date: 25 November 2020.

The following specification is recommended:

- 1. Use 300mm thick hardfill raft.
- 2. Proof roll subgrade before laying AP65. Compacted AP65 Hardfill. Compact in 150mm layers. Top with crusher fines to produce smooth surface for damp proof membrane. Extend hardfill 1000mm beyond building footprint.
- 3. Suitably qualified engineer to inspect cleared subgrade and final compaction.
- Following from recommendations in above Geotech Report the foundations have been designed for an ultimate foundation bearing capacity of 135kPa at subgrade.
- Earthworks and Inspections as per above Document.
- The PS1 does not cover the suitability of the site, stability, sub-soil conditions, or any other Geotechnical information that may affect the foundation design.

2. Design has been based on the following site specific and/or building specific items:

- Building Importance Level = "1"
- Design Life for structural elements = 50 years
- Design Wind Speed = 37.3m/s (for design of the Building)(Wind Zone = "High") - in accordance with AS/NZS1170.2:2011
- Earthquake Zone = "1" in accordance with NZS3604:2011
- Corrosion Zone = "C" in accordance with NZS3604:2011

3. Weathertightness:

- The PS1 does not cover weathertightness.

4. Construction Monitoring:

- All building inspections to be carried out by the Territorial Authority – unless agreed with the owner/developer otherwise.
- Note: Design Station Ltd are not undertaking any construction monitoring – so are unable to provide a PS4 – Construction Review.

B2 COMPLIANCE

Compliance is shown on a material-by-material basis see below for compliance paths.

Structural Steel (B2/AS1 cl 3.6.1)

Life to first maintenance for Z450 Galvanized coating.

Surface-specific atmospheric corrosivity categories Appendix A. (Table 2 SNZ TS 3404:2018)

Building

External Exposed:C2, Expected Life to first maintenance = 36+ years

External Sheltered:C3, Expected Life to first maintenance = 12-36 years

Internal:C3, Expected Life to first maintenance = 12-36 years



Concrete (B2/AS1 cl 3.1.1)

Concrete covers have been selected in accordance with NZS 3101, Part 1, Section 3

Painting of Steel to Concrete Interfaces for Long-Term Durability

Additional Coating for Embedded Column / Concrete Interface (External).

(Refer to Altex Coatings Limited Specification)

Apply a band of Chem-Bar 3500 at 75um DFT (a good brushed or rolled coat) direct on to the galvanized coating after a degrease and light sand (refer to specification). The band of Chem-Bar 3500 shall extend a minimum of 50mm above and 100mm below the concrete interface for any exposed Embedded Column surface. Seal around the exposed Embedded Column / concrete interface with mastic sealant. Slope Concrete surface away from steelwork, wherever possible.

NOTE: Any damage to the galvanized coating shall be spot primed with Carbozinc 858 prior to coating with Chem-Bar 3500 (refer to specification for surface preparation).

Additional Coating for Column / Concrete Interface (External).

(Refer to Altex Coatings Limited Specification)

Apply to the underside and edges of steel plate with Chem-Bar 3500 at 75um DFT (a good brushed or rolled coat) direct on to the galvanized coating after a degrease and light sand (refer to specification). The Chem-Bar 3500 shall extend a minimum of 100mm in from the edges to the top face of the plate. Chamfer and place mastic bead when interface between steel and concrete is clearly visible.

NOTE: Any damage to the galvanized coating shall be spot primed with Carbozinc 858 prior to coating with Chem-Bar 3500 (refer to specification for surface preparation).

Limitation

This letter has been prepared solely for the benefit of KiwiSpan Ltd for building consent application. No liability is accepted by Design Station Ltd in respect of its use by any other person. Any other person who relies upon any matter contained in this letter does so entirely at their own risk.

Kerry McCollum (CPEng)

Design Station Ltd

(Part of the Donovan Group of Companies)



APPENDIX A - Extracts from SNZ TS 3404:2018

Table 2 – Surface-specific atmospheric corrosivity categories

Macroclimate corrosion category (from AS/NZS 2312.1:2014)	Typically	Location	Characterised by	Surface-specific atmospheric corrosivity				
				External			Internal	
				Exposed	Sheltered	Wet	Dry	Damp
C5-M	Within 200 metres of breaking surf on the west and south coasts of the South Island Within 100 metres of breaking surf on west and south coasts of the North Island Within 50 metres of breaking surf on all other coasts This environment may be extended inland by prevailing winds and local conditions	All coasts	Heavy salt deposits Almost constant smell of salt sea spray in the air	C5-M			C4	
C4	Within 500 metres inland of breaking surf Within 50 metres of calm salt water such as harbour foreshores This environment may be extended inland by prevailing winds and local conditions	All coasts	Medium salt deposits Frequent smell of salt sea spray in the air	C4	C5-M		C1	C3
C3	Within 20 km of breaking surf	West and south coasts of South Island	Minor salt deposits	C3	C5-M			
	Within 5 km of salt water	East coast of both islands, west and south coasts of North Island, and all harbours	Occasional smell of salt in the air		C4	C5-M		

Table 2 – Surface-specific atmospheric corrosivity categories (continued)

Macroclimate corrosion category (from AS/NZS 2312.1:2014)	Typically	Location	Characterised by	Surface-specific atmospheric corrosivity				
				External			Internal	
				Exposed	Sheltered	Wet	Dry	Damp
	More than 20 km to 50 km from salt water	West and south coasts of South Island		C2	C3	C4		
C2	More than 5 km to 50 km from salt water	East coast of both islands, west and south coasts of North Island, and all harbours	No marine influence	C2	C3	C4		C3
C2	Inland, more than 50 km from salt water	North and South Islands		C2		C3	C1	
See note 3	Close to geothermal source < 500 metres	Geothermal zone	Constant smell of hydrogen sulphide	See note 3				C4
-	Beyond 500 metres to geothermal source		Mild geothermal influence					C3

NOTE –

- (1) The atmospheric corrosivity categories given provide an indication of the environment corrosivity to assist in the selection of a suitable corrosion protection system; taking into account the macroclimate and where required microclimate effects.
- (2) For confirmation of a site-specific atmospheric corrosivity category (for example, for sites that are sheltered from marine influence by the local topography), then site-specific testing is required as described in HERA Report R4-133.
- (3) For areas in the geothermal zones, both the macroclimate and the surface-specific corrosivity categories are dependent on the level of geothermal activities and distance from the geothermal source. The corrosivity category could range up to CX with considerable variation; thus in those areas site-specific corrosivity assessment is recommended. For areas that are more than 500 metres beyond the geothermal source or boundary (such as Sulphur Bay, Rotorua), and that have been assessed using the smell test as having minimal or non-existent geothermal influence, the other corrosion zones or categories apply based on distance from the sea.



CERTIFICATE OF DESIGN WORK MEMORANDUM FROM LICENSED BUILDING PRACTITIONER



Section 300 and Section 45, Building Act 2004

The Building

Street address 27 County Drive

Suburb

Town/City HAWERA

Postcode

Building consent no.

The Owner

Name(s) Arthur Brown Construction

Email hawera@arthurbrown.co.nz

Phone 06-2785199

Address 108 Wilson Street - Hawrea

Basis for providing this memorandum

I am providing this memorandum in my role as the specialist designer who carried out or supervised specific Primary structure elements of restricted work (RBW) design work as described in this memorandum. Other designers will provide memoranda covering the remaining RBW design work. Refer to the attached PSI.

Identification of restricted building work (RBW) design work

I, Andrew Fraser, carried out or supervised the following RBW design work:

Primary structure: B1

Design work that is RBW	Description (as required) and reference to plans and specifications	Carried out or supervised
-------------------------	---	---------------------------

Foundations and subfloor framing



Foundation ground improvements for rib raft floor as designed by others

Supervised

~~Retaining walls~~



~~Beams~~



~~Portal~~



~~Bracing~~



~~Other (primary)~~



Note: SED = Elements subject to Specific Engineering Design outside of the scope of NZS 3604:2011, unless otherwise noted

Initial: 

Date: 25 November 2020

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27/09/2021 - Page 5 of 13

Waivers and modifications

Are waivers or modifications of the Building Code required? No

If yes, please provide details of the waivers or modifications:

Building Code Clause	Waiver/modification required
NA	NA

Issued by

Name	Andrew Fraser	Design entity/company	Red Jacket
Chartered status	CPEng	Chartered no.	96197
Email	info@redjacket.nz	Website	www.redjacket.nz
Phone (daytime)	06 759 0999	Phone (after hours)	
Mobile	027 257 9970		
Postal address	PO Box 904, New Plymouth, 4340		
Physical address	3 Davidson Street, New Plymouth		

Declaration

I, Andrew Fraser, LBP state that I have applied the skills and care reasonably required of a competent professional in carrying out or supervising the RBW described in this memorandum and that based on this, I certify that the RBW described in this memorandum:

- Complies with the Building Code; or
- Complies with the Building Code subject to any waiver or modification or the Building Code described in this memorandum.

Signature:




Date: 25 November 2020

**RESIDENTIAL BUILDING
27 COUNTY DRIVE
HAWERA**

STRUCTURAL CALCULATIONS

File Ref. CAL-4104-01

REV.	DATE	ISSUED FOR
A	25/11/2020	Issued for Building Consent

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27/09/2021 - Page 6 of 13

Job Name:

27 COUNTY DRIVE HAWERA

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File Ref.

CAL-4104-01

Scope of Work

Structural design for ground improvements to support the residential garage on ribraft floor foundation

Basis of Design

- ☒ AS/NZS 1170 Loading Standard
- ☐ ~~NZS 3404 Steel Structures~~
- ☐ ~~NZS 3603 Timber Structures~~
- ☐ ~~NZS 3101 Concrete Structures~~
- ☐ ~~NZS 4320 Reinforced Concrete Masonry Structures~~
- ☒ NZS 3604 Timber-Framed Buildings
- ☒ B1/VM4
- ☐

References

- Arch Drawings by Mannor Build 27 October 2020
-

Job Title 27 COUNTY DRIVE - HAWERA.

- RESIDENTIAL GARAGE IS TO BE LOCATED ON GROUND WHICH DOESN'T MEET NZS3604 'GOOD GROUND' REQUIREMENTS
- IT IS PROPOSED TO INSTALL 200mm THICK HANUFILL RAFT UNDER THE SLAB TO SUPPORT RIBRAFT SLAB AND REDUCE BEARING PRESSURE ON SUBGRADE.

LOADS

GARAGE FLOOR $G = 2.5 \text{ kPa}$
 $G_{SOL} = 0.5 \text{ kPa}$
 $Q = 2.5 \text{ kPa} \times 13 \text{ kN}$

- 13 kN point load will govern.
- ASSUME POINT LOAD WILL BEAR ON $2 \times 1.0 \text{m}$ OF RIBS $A_k = 2 \times 0.1 = 0.2 \text{ m}^2$.
- LOAD COMBINATIONS.

$$\begin{aligned} \text{ULS} &= 1.2G + 1.5Q = 1.2 \times 3 \text{ kPa} + 1.5 \times 13 \text{ kN} \\ &= 3.6 \text{ kPa} + 19.5 \text{ kN} \\ &= 23.1 \text{ kN} \end{aligned}$$

$$\therefore \frac{23.1}{0.2 \text{ m}^2} = q_{\text{ULS}} = 116 \text{ kPa} \cdot \text{ULS}$$

$$\begin{aligned} \text{SLS} &= G + 0.4Q = 3.6 + 0.4 \times 13 \\ &= 8.8 \text{ kN} \\ &\quad \underline{0.2} \end{aligned}$$

$$q_{\text{SLS}} = 44 \text{ kPa}$$

Job Title 27 COUNTY DRIVE, HAWERA.

CURRENT SUBGRADE BEARING CAPACITY

FROM TST-4101-1 SCALA AVERAGE 75mm/BLOW.

REFER ALLOWABLE BEARING PRESSURE STOCKWELL NEXT PAGE.

$$\phi q_{ult} = \frac{3 \times 45 \text{ kPa}}{2} = 68 \text{ kPa}.$$

TRY 300 THICK LAP65 RAFT WITH 100 THK RIB $B = 0.1$

$$\frac{q}{q_0} = 0.15 \quad \therefore q_{ult} \text{ AT SUBGRADE} = 116 \times 0.15 = 17.4 \text{ kPa} < \phi q_{ult}.$$

$\therefore \text{OK}.$

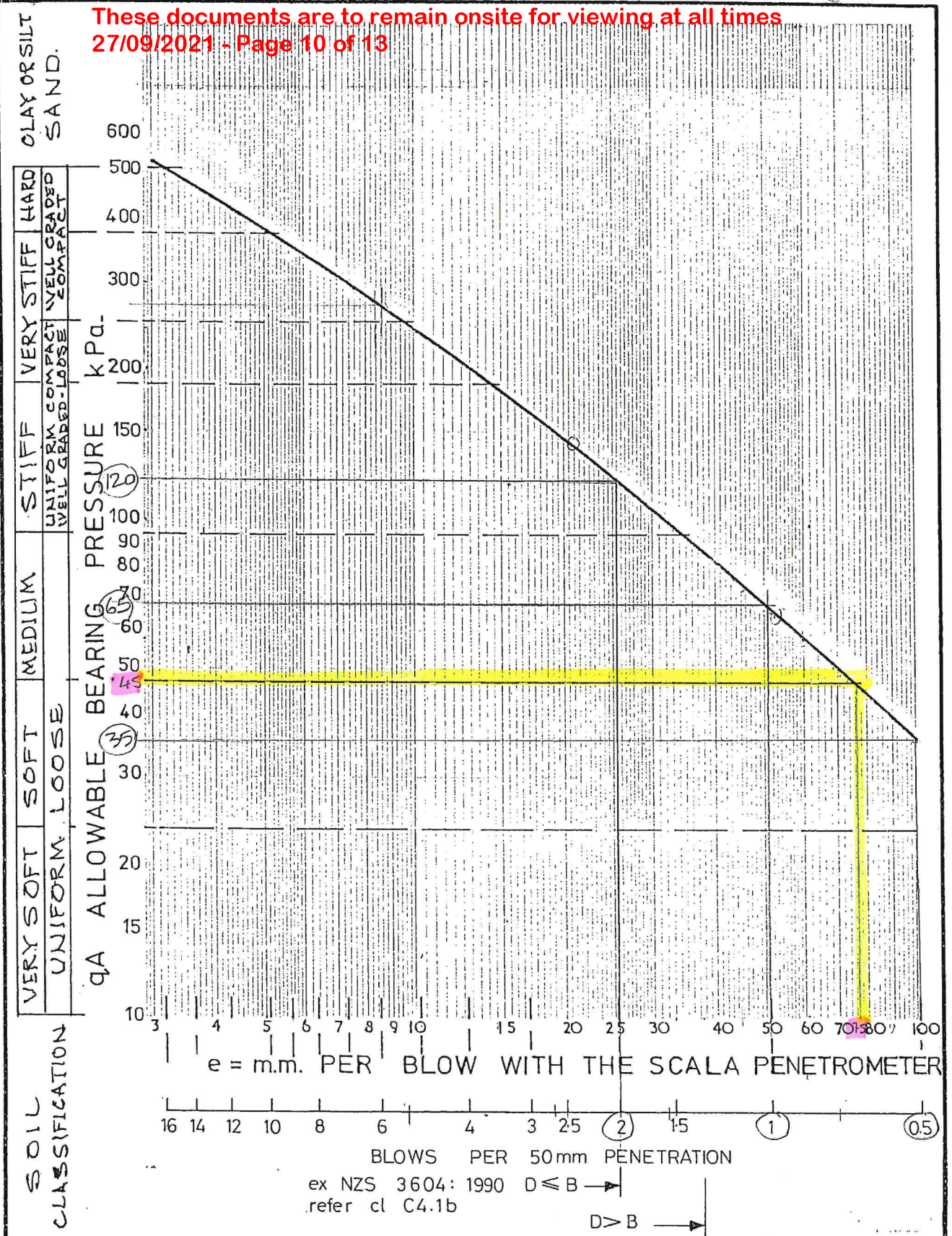
$$q_{ult} \text{ AT SUBGRADE} = 44 \times 0.15 = 6.6 \text{ kPa}.$$

$\therefore \text{OK}.$

USE 300 THK THRU-FILL RAFT.

- REFER MARKED UP PLANS ATTACHED.
- SUITABLY QUALIFIED ENGINEER TO INSPECT CLEARED SUBGRADE AND FINAL COMPACTION.

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27/09/2021 - Page 10 of 13



redjacket
Consulting Engineers

Determination of allowable
bearing pressure under
small structures

ref. N.Z. Engineering 15 June 1977
M.J. Stockwell

Pg 4
125mm/BLOW
CBR 2/3.

~20 kPa
TYRE 100 kPa
OR 60 kN/0.1 m²
= 600 kPa
120 = 30
= 0.03
3B = 1.0 m.

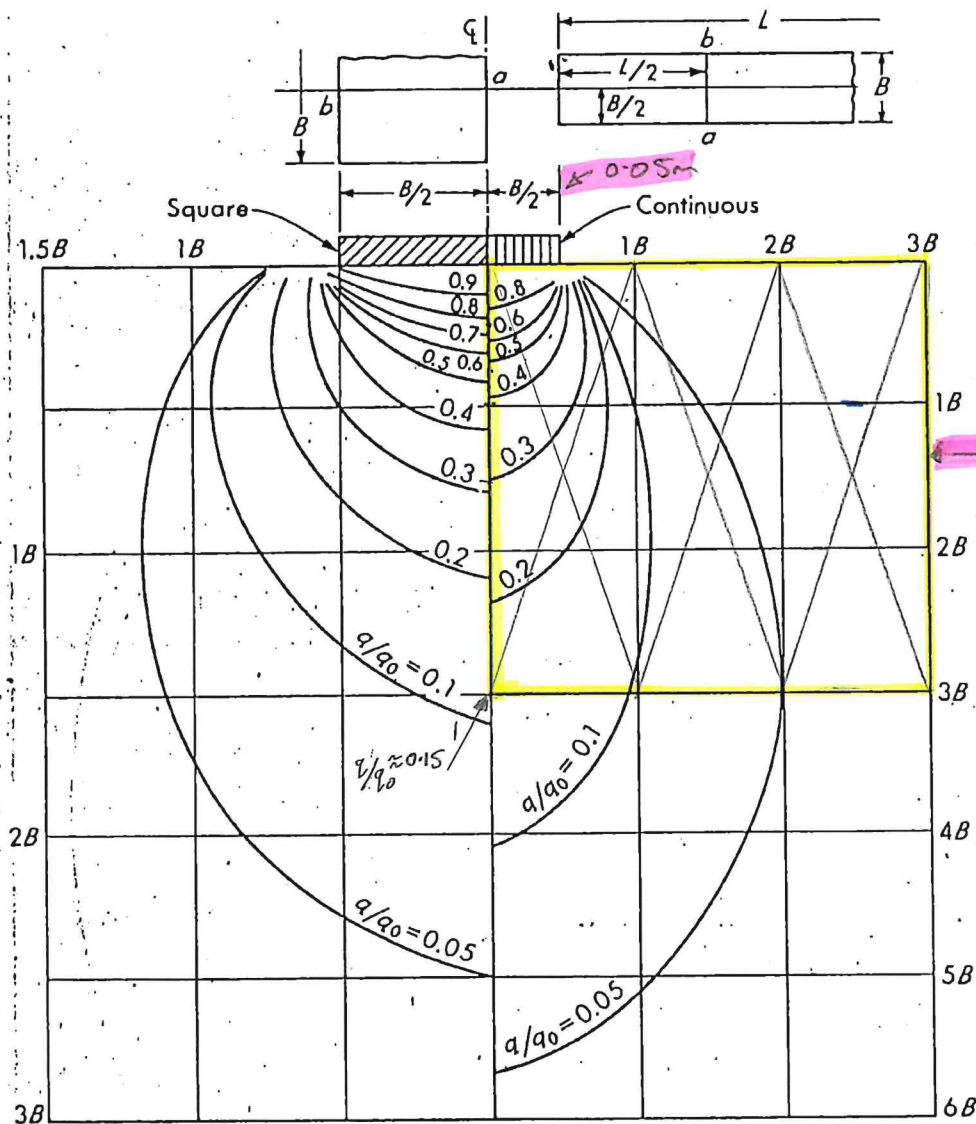


Figure 5-6. Pressure isobars based on the Westergaard equation for square and long continuous footings of dimension $B \times B$ or $B \times L$. Values for the continuous footings are at the point $L/2$ from the end. Chart constructed from Fig. 5-5 ($\mu = 0$). Applicable along line ab as shown.

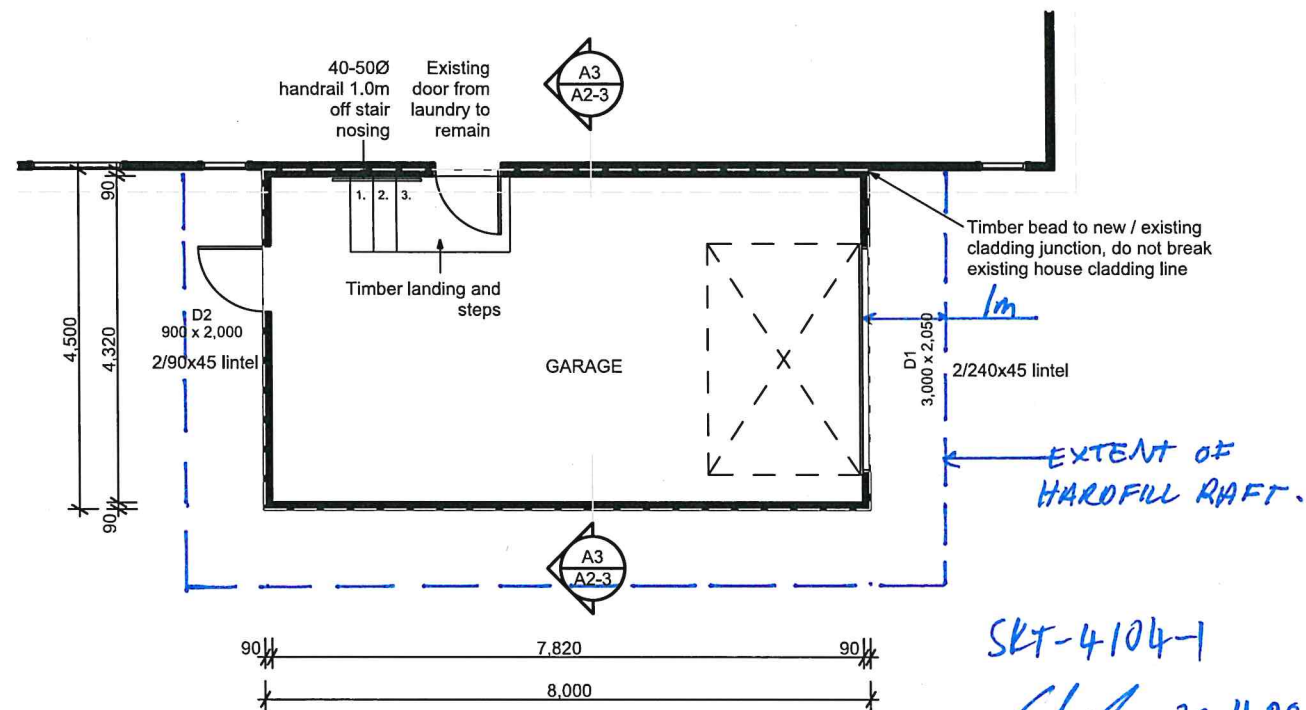
AB scale shown on the chart, and thus the chart includes only 160 of the 200 units used to establish the influence value.

Figure 5-6 is a set of isobars prepared from Fig. 5-5 to obtain stresses at a point beneath continuous and square foundations. Figure 5-5 may be used for round contact areas.

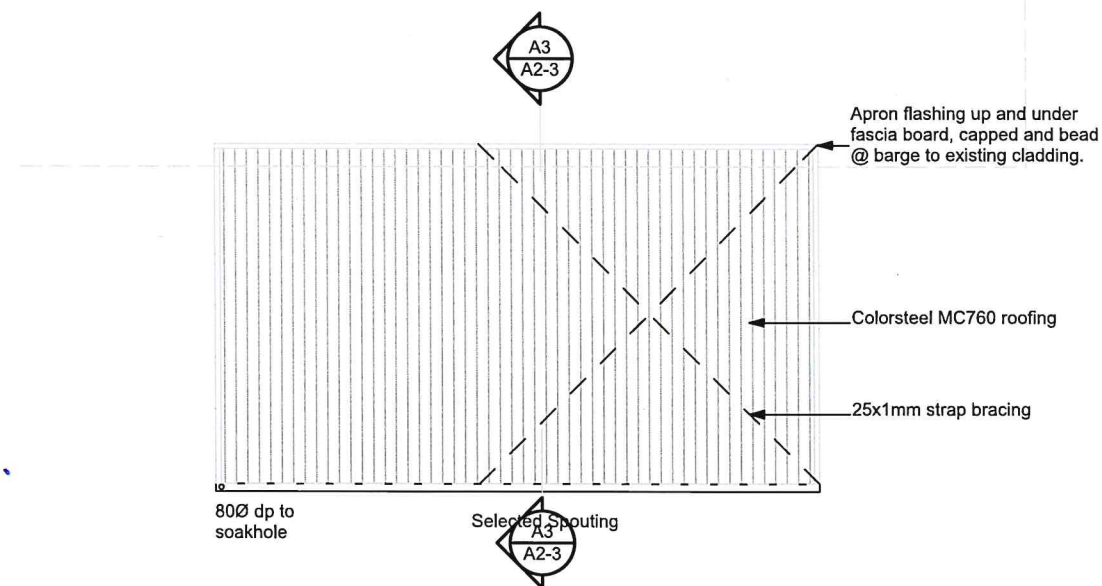
A numerical procedure may be used to solve Eq. (5-8) on the computer in a similar manner to the Boussinesq equation.

In comparing the Boussinesq and Westergaard methods for vertical stresses, one finds that

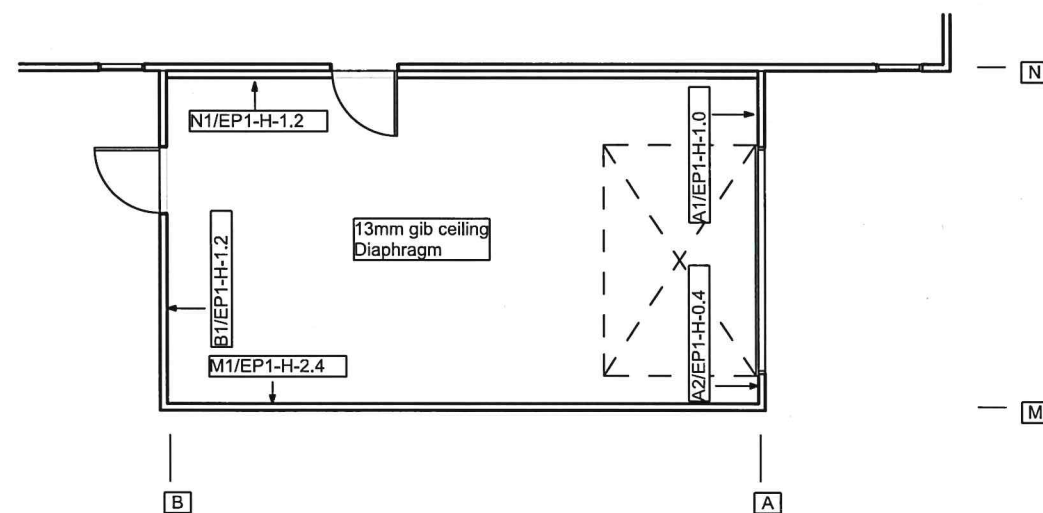
1. At small r/z (close to footing) the Boussinesq equation gives larger stress intensity.
2. At r/z about 1.8 both values are approximately equal.
3. At r/z greater than 1.8 the Westergaard equation gives larger stresses.



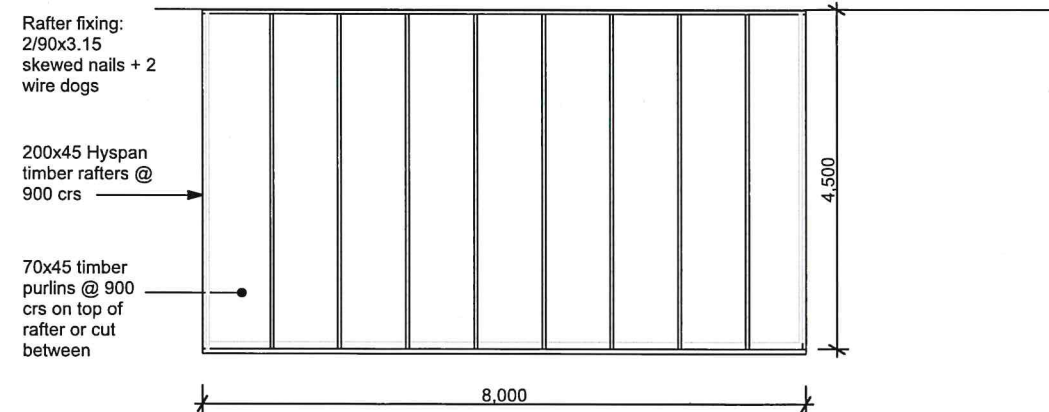
FLOOR PLAN
Scale 1:100



ROOF PLAN
Scale 1:100



BRACING PLAN
Scale 1:100



ROOF FRAMING PLAN
Scale 1:100



NEW PLYMOUTH
40 Ocean View Parade | New Plymouth
t: + 64 6 757 5842
FREECALL: 0800 MANORGROUP
www.manorbuild.co.nz | e: sales@manorbuild.co.nz

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#Notes

client:
LOWE

project:
RELOCATE PERMIT

design by: Manor Build

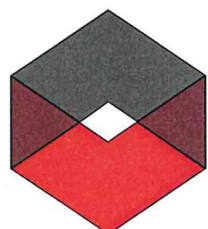
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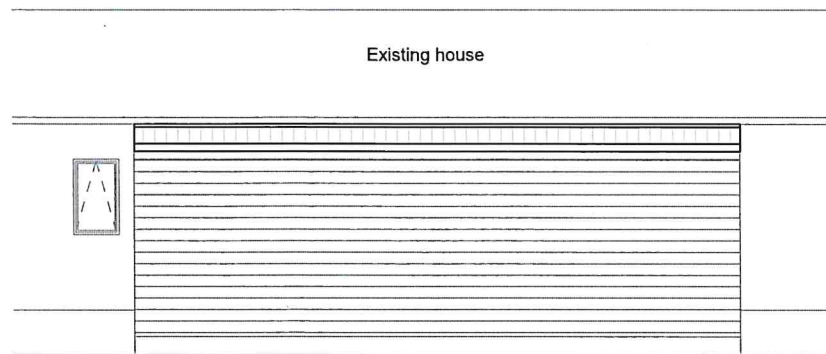
PLANS

job no:
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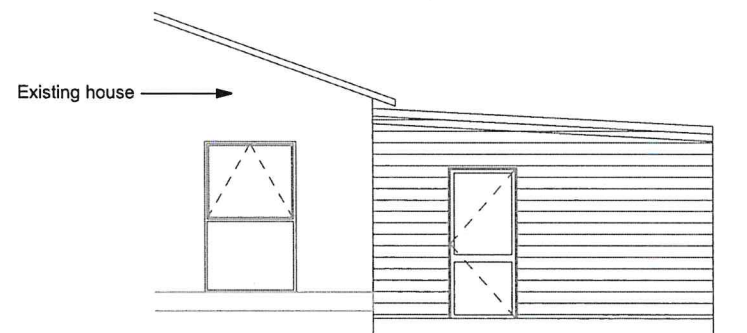
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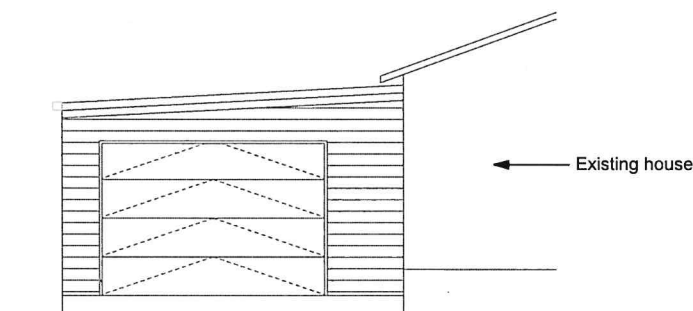
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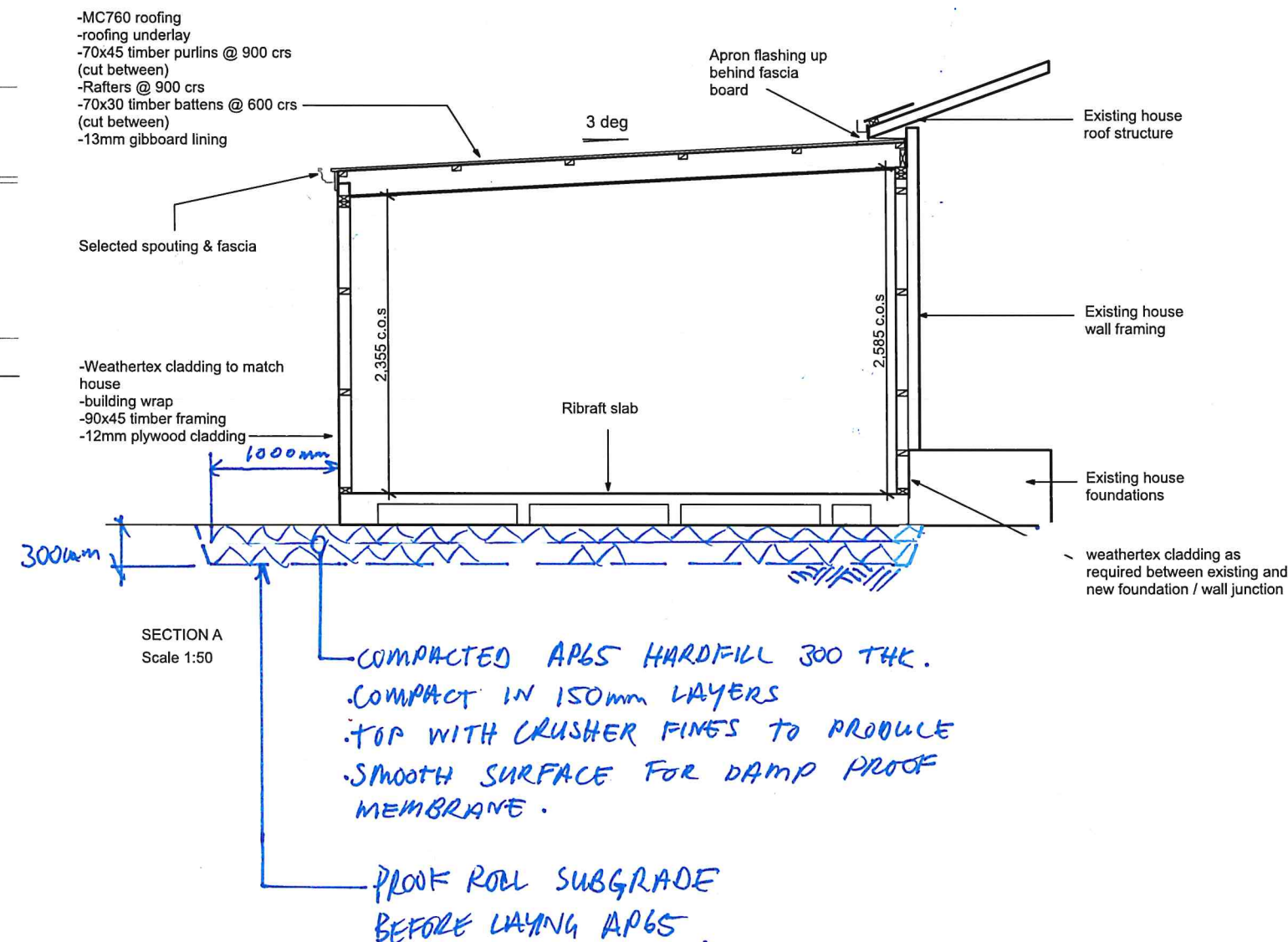
ELEVATION E1
Scale 1:100



ELEVATION E2
Scale 1:100



ELEVATION E3
Scale 1:100



26.11.20 SKT-4104-1
ghl



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#Notes

client:
LOWE

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RELOCATE PERMIT

design by: Manor Build

scale: As Noted

date: 27/10/2020

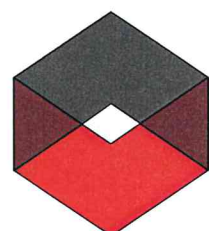
ELEVATIONS

job no:

MG181

sheet no:

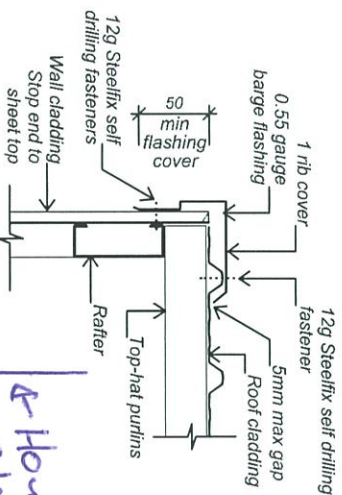
A2-3



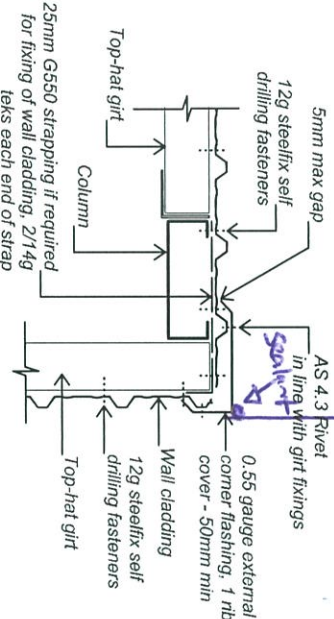
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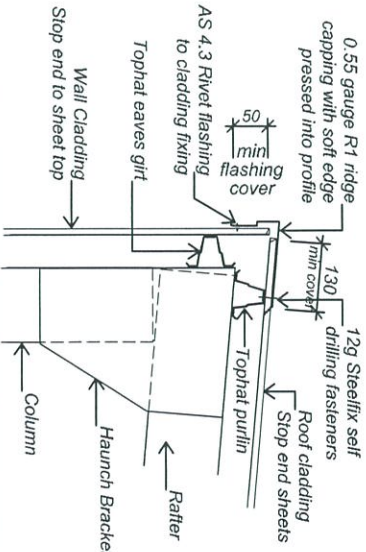
HOUSE NOT PART OF PERMIT



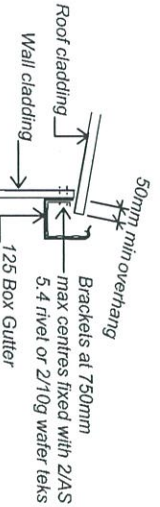
BARGE FLASHING (Detail 02)



CLAD WALL CORNER FLASHING (Detail 05)

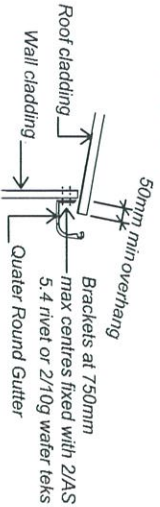


APEX FLASHING (Detail 06)



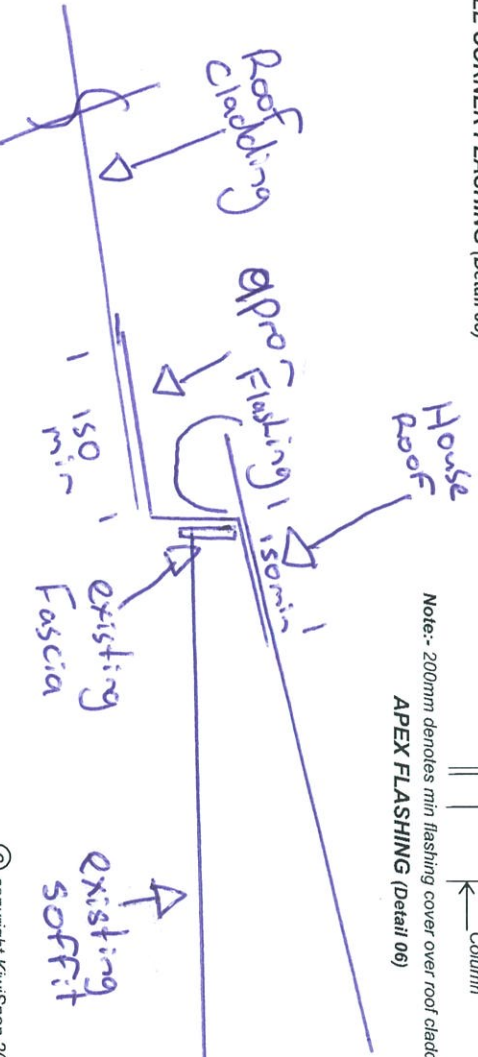
GUTTER VERGE (Detail 07)

Note:- For Snow Loading fix brackets and snow straps at 600mm max centres



GUTTER VERGE (Detail 07)

Note:- For Snow Loading fix brackets and snow straps at 600mm max centres



FLASHING AND FIXING DETAILS
- LOW, MEDIUM AND HIGH WIND ZONES

file no.	B71
original size	231019
A3	

Customer : Arthur Brown Construction
Site Address : 27 County Drive

drawing no.	B71
date:	
page no.	



Design has been based on the following site specific and/or building specific items:

- Building Importance Level = “1”
- Design Life for structural elements = 50 years
- Design Wind Speed = 37.3m/s (for design of the Building)(Wind Zone = “High”) - in accordance with AS/NZS1170.2:2011
- Earthquake Zone = “1” in accordance with NZS3604:2011
- Corrosion Zone = “C” in accordance with NZS3604:2011

Design Assumptions:
Kiwispan part and House part are designed as seperate structures and deflections kept low to not transfer the loads to the other part.

Member Schedule Summary

End Column (EC):	C15012 Single C15019
End Rafter (ER):	C15012 Single C15019
Internal Column (IC):	C20019 Single
Internal Rafter (IR):	C20019 Single
End Wall Mullion (EWM):	NA
Knee Brace (KB):	NA
Apex Brace (AB):	NA
End Roller Door Post:	C15019 Single
Eave Purlin (EP):	TH100075
Open Bay Column:	C20019
End Wall Girt (EWG):	TH100075 (Max Spacing: 1200, Over Lap: 15%)
Side Wall Girt (SWG):	TH100075 (Max Spacing: 1450, Over Lap: 15%)
Roof Purlins (RP):	TH100075 (Max Spacing: 1450, Over Lap: 15%)
Wall Cladding Type:	Slimclad 0.40
Roof Cladding Type:	Trimrib 0.40
Wall Colour:	Endura, TBC
Roof Colour:	Endura, TBC
Barge Colour:	Endura, TBC
Gutter Colour:	Endura, TBC
Downpipe Colour:	Endura, TBC

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

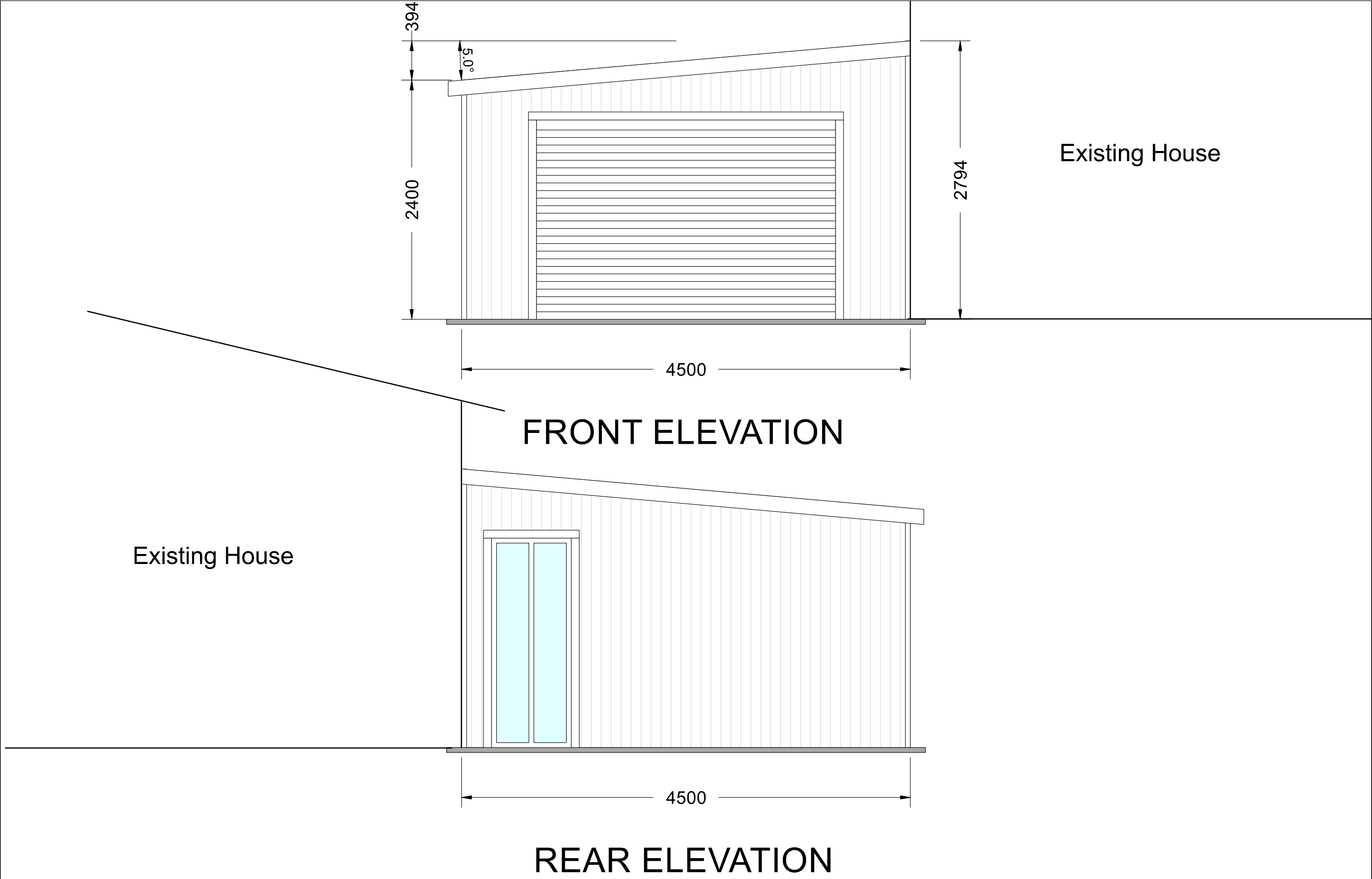
Signed:




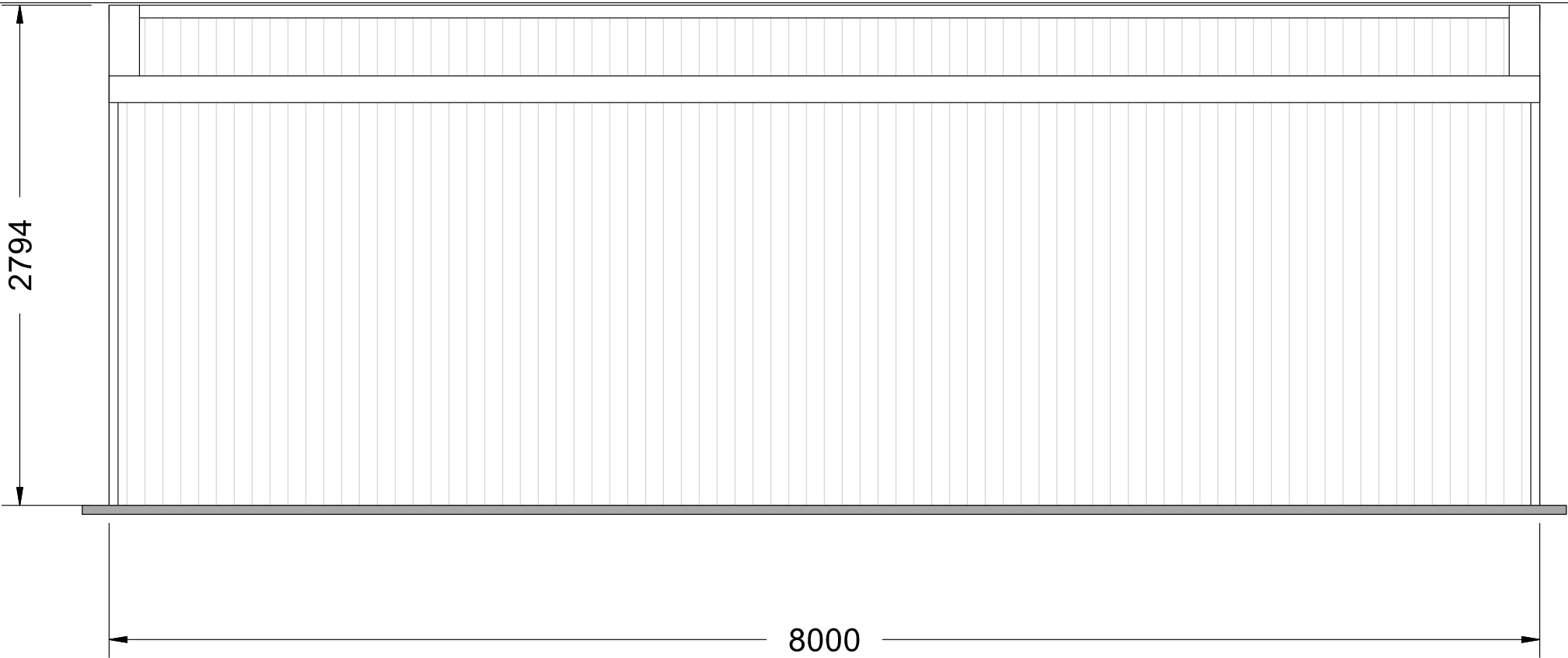
Date: 15/06/2021

Kerry McCollum
CPEng 184622
DESIGN STATION LIMITED

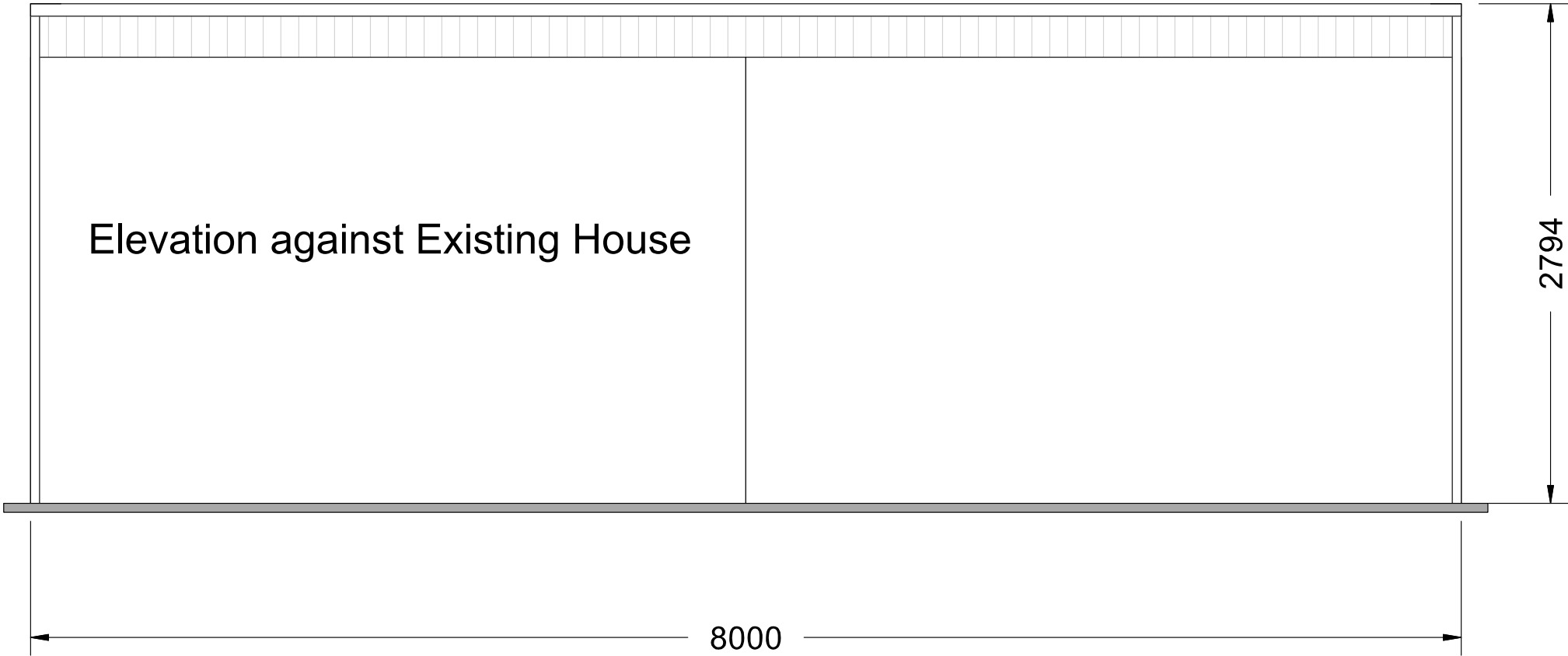
- This specific design, engineering calculations and connection details are the exclusive property of KiwiSpan 2017 Ltd and is licensed to the client for use on this project.
- The contractor shall verify all dimensions on site prior to commencing construction.
- Do not scale dimensions from these drawings. If in doubt, ask.
- Reproduction for other purposes without the permission of KiwiSpan 2017 Ltd is Prohibited.



		Customer Name: Arthur Brown Construction Site Address: 27 County Drive	Job Number: SZI210316103515	
	Scale: 1:34		Date: 1/06/2021	
	Original Size: A3		Page Number: 2 of 9	

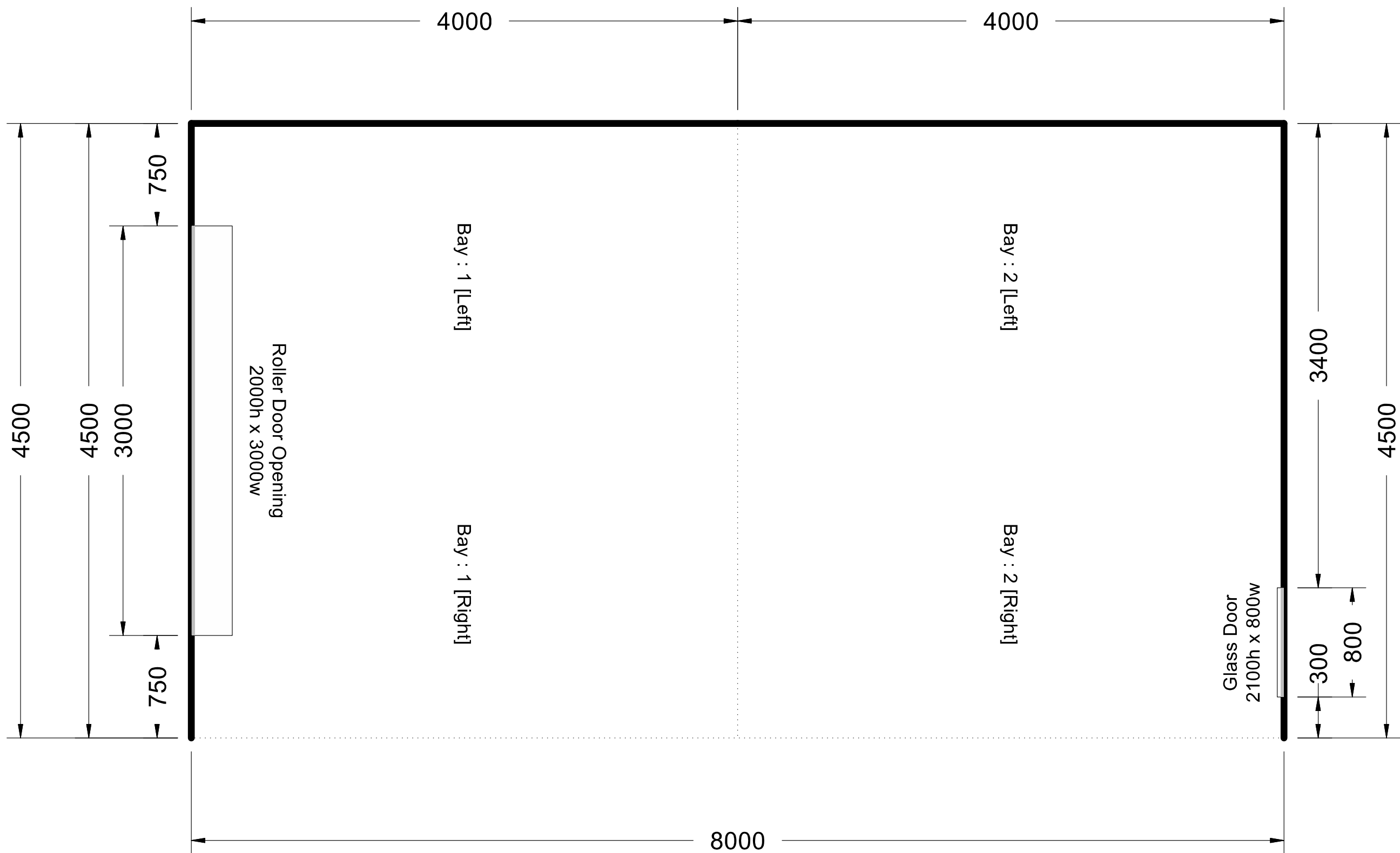


LEFT ELEVATION



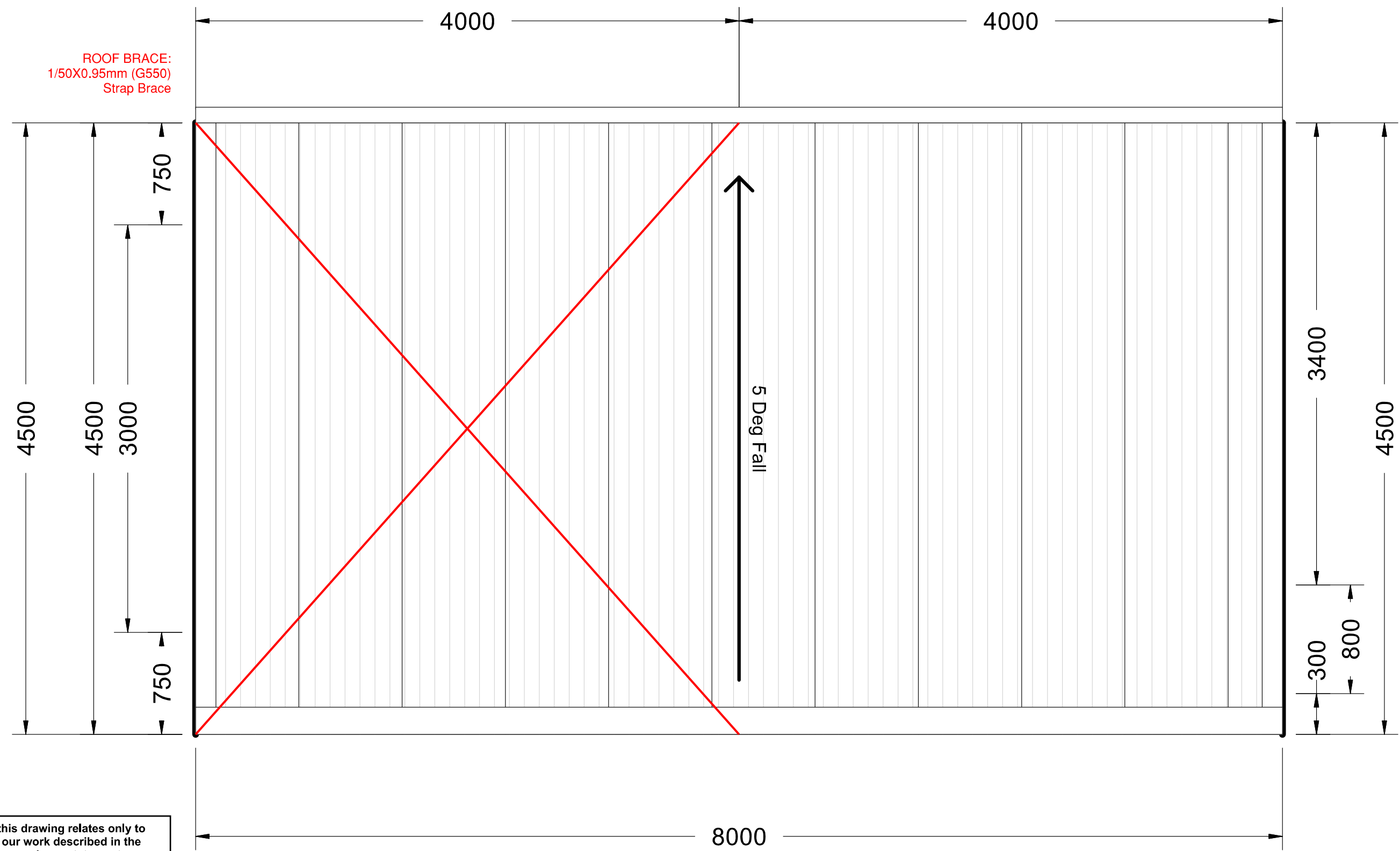
RIGHT ELEVATION

		Side Elevations	Job Number: SZI210316103515	
	Scale: 1:33		Date: 1/06/2021	
	Original Size: A3	Customer Name: Arthur Brown Construction Site Address: 27 County Drive	Page Number: 3 of 9	




FLOOR PLAN

		<i>Floor Plan</i> (Unlined Building)	Job Number: SZI210316103515	
	Scale: 1:30		Date: 1/06/2021	
	Original Size: A3	Customer Name: Arthur Brown Construction Site Address: 27 County Drive	Page Number: 4 of 9	




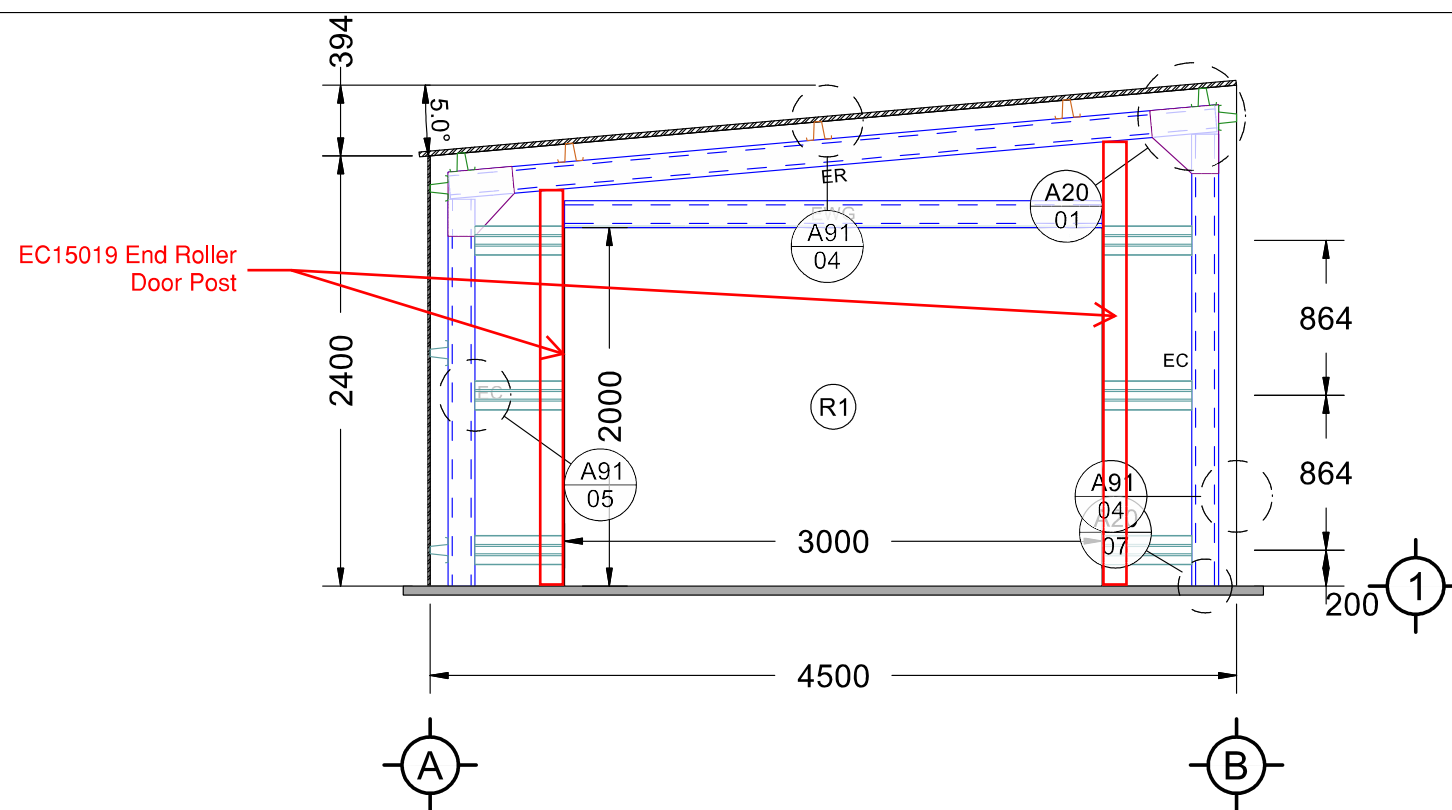
Roof Elevation

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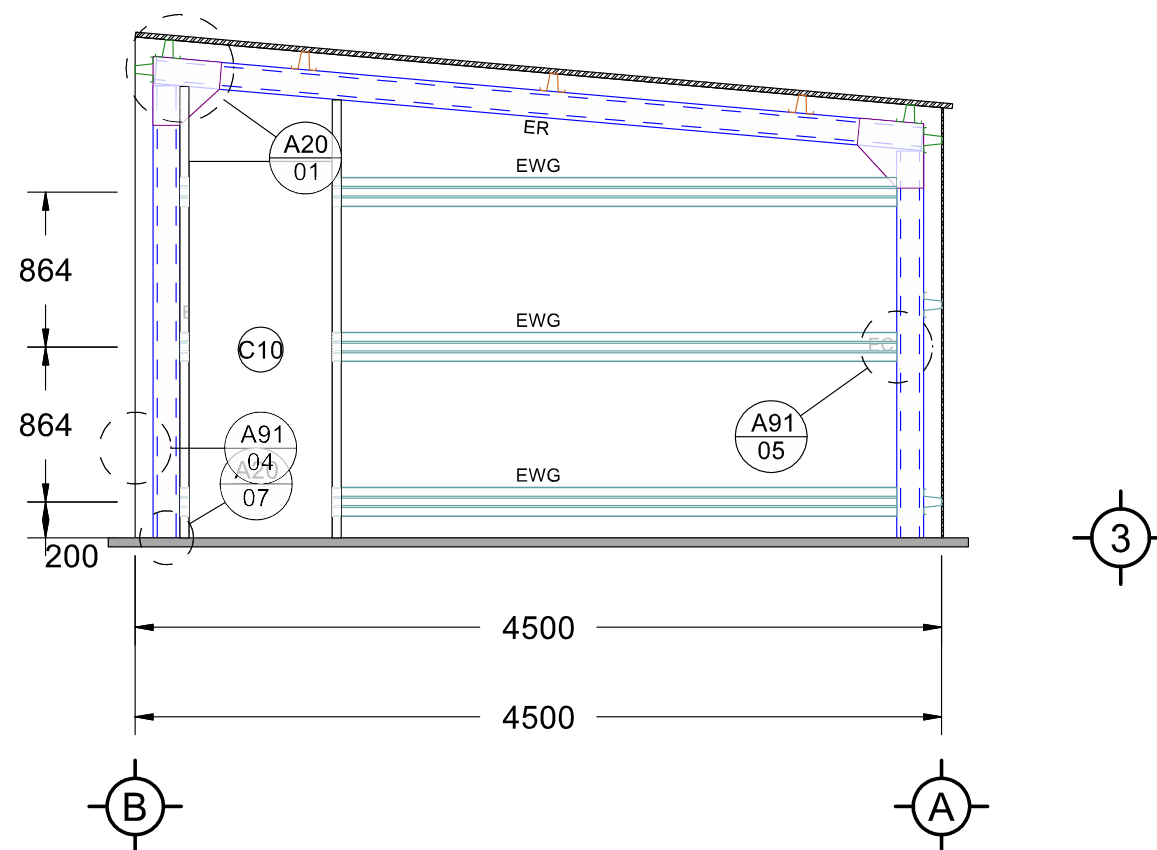
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		ROOF ELEVATION	Job Number: SZI210316103515	
	Scale: 1:30		Date: 1/06/2021	
	Original Size: A3	Customer Name: Arthur Brown Construction Site Address: 27 County Drive	Page Number: 5 of 9	



FRONT ELEVATION



REAR ELEVATION

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Scale: 1:42
Original Size:
A3

Customer Name: Arthur Brown Construction
Site Address: 27 County Drive

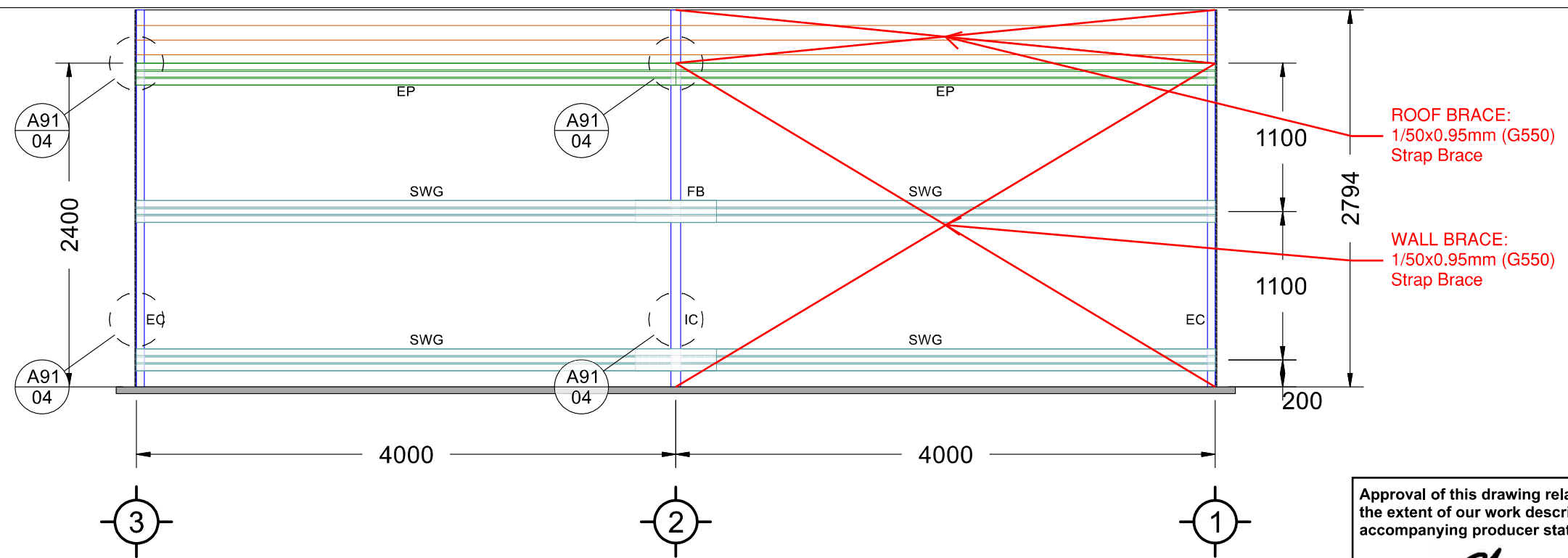
End Frame Elevations

Job Number:
SZI210316103515

Date: 1/06/2021


Page Number:
6 of 9



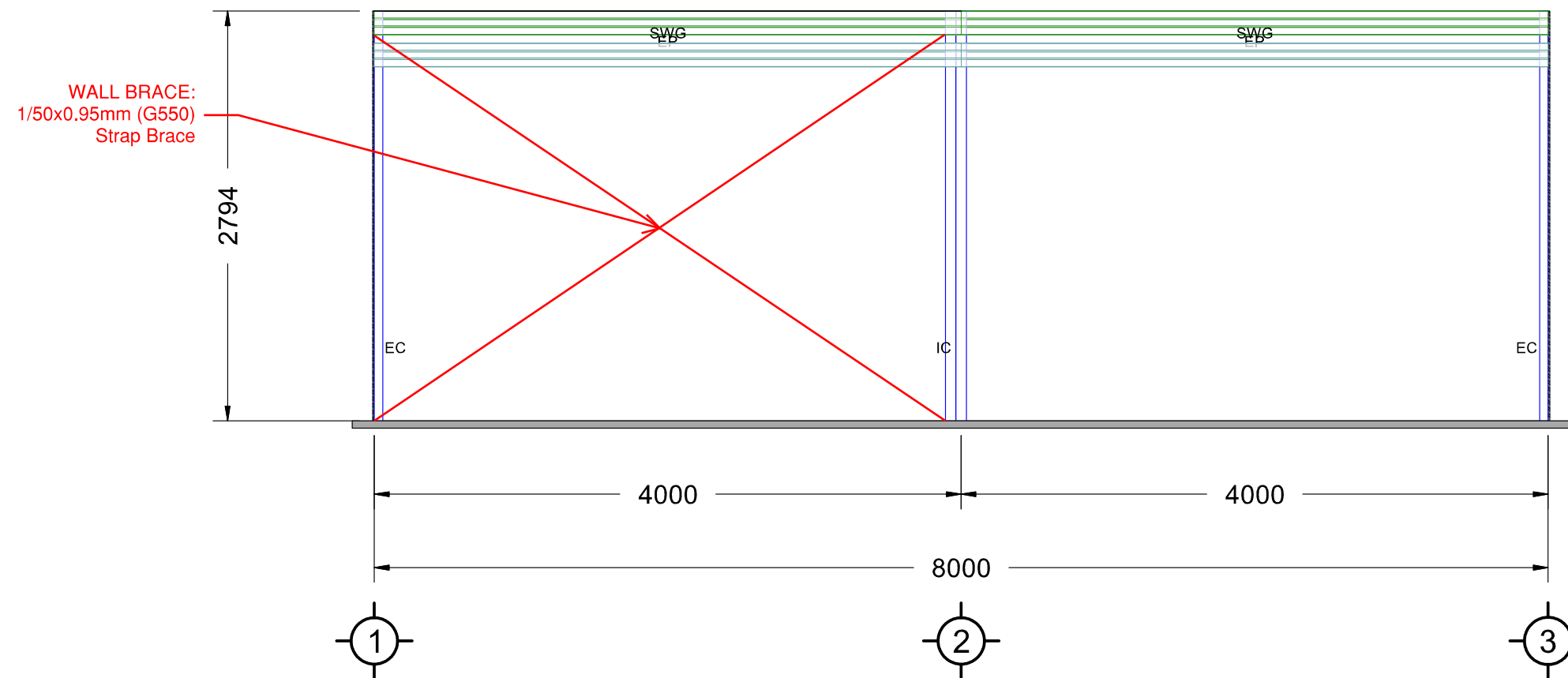


LEFT ELEVATION

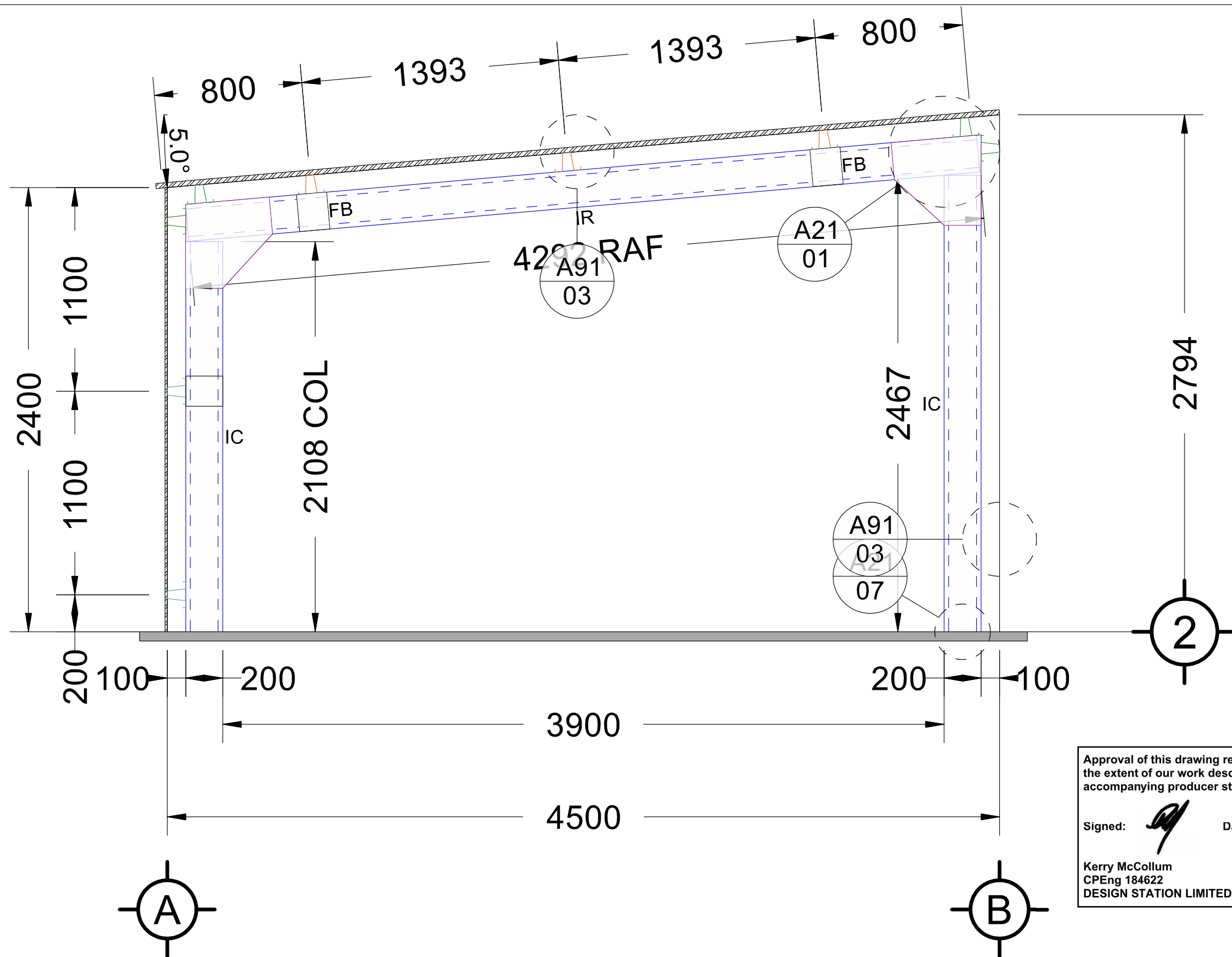
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RIGHT ELEVATION




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INTERMEDIATE ELEVATION

		Customer Name: Arthur Brown Construction Site Address: 27 County Drive	Job Number: SZI210316103515 Date: 1/06/2021 Page Number: 8 of 9	
	Scale: 1:22			
	Original Size: A3			


Cross Section (2)

•Foundation ground improvements for Ribraft: RED JACKET, Ref: CAL-4104-01, Date: 25 November 2020.

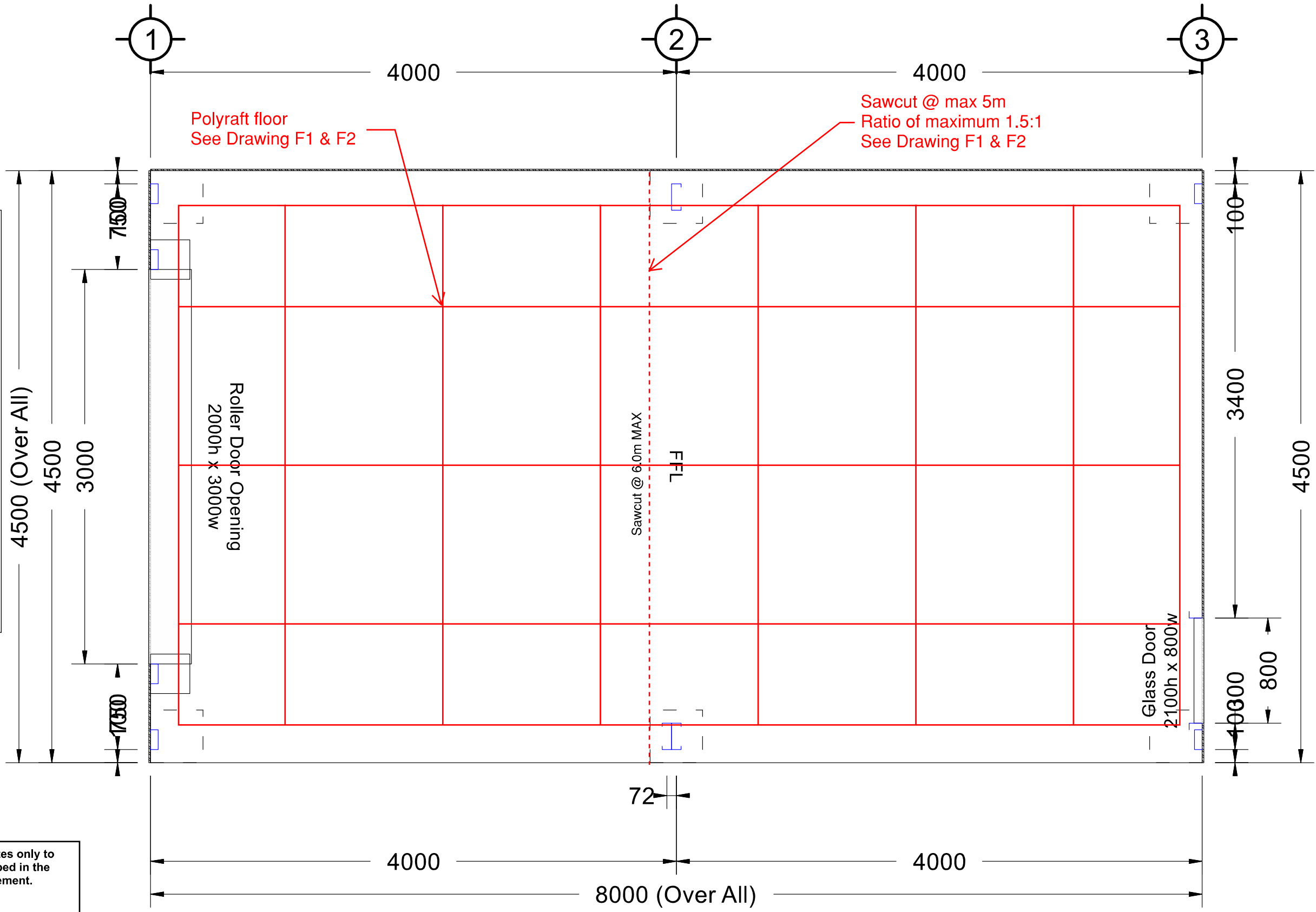
The following specification is recommended:
•1. Use 300mm thick hardfill raft.
•2. Proof roll subgrade before laying AP65. Compacted AP65 Hardfill. Compact in 150mm layers. Top with crusher fines to produce smooth surface for damp proof membrane. Extend hardfill 1000mm beyond building footprint.
•3. Suitably qualified engineer to inspect cleared subgrade and final compaction.

•Following from recommendations in above Geotech Report the foundations have been designed for an ultimate foundation bearing capacity of 135kPa at subgrade.
•Earthworks and Inspections as per above Report.
•The PS1 does not cover the suitability of the site, stability, sub-soil conditions, or any other Geotechnical information that may affect the foundation design.

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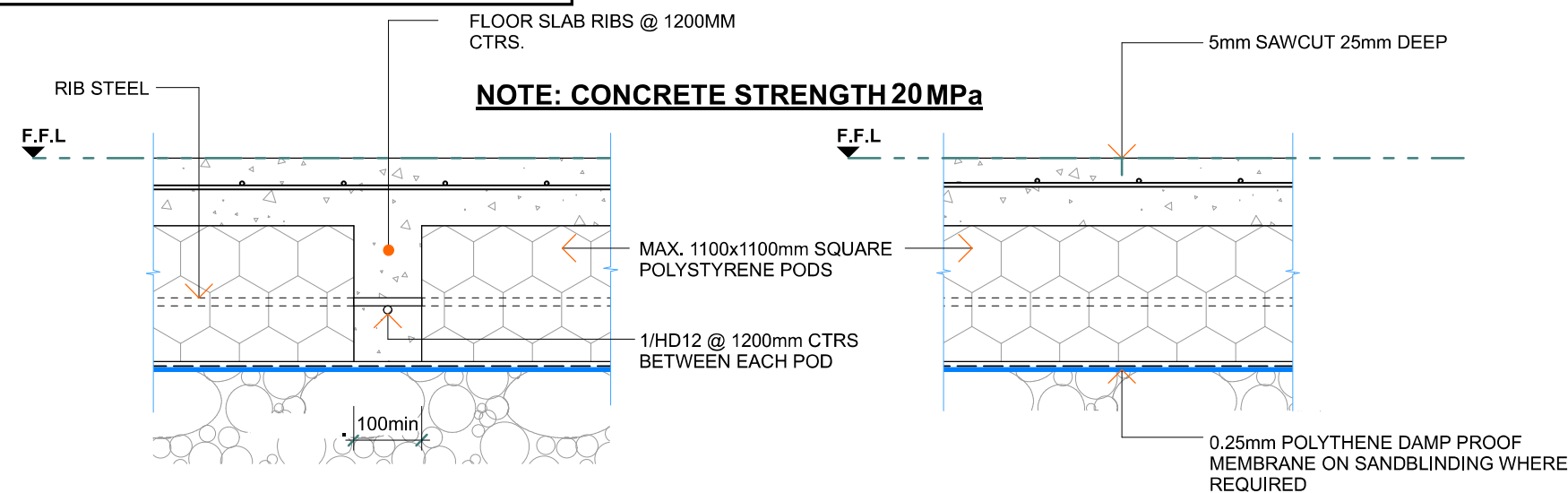
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FOUNDATION PLAN

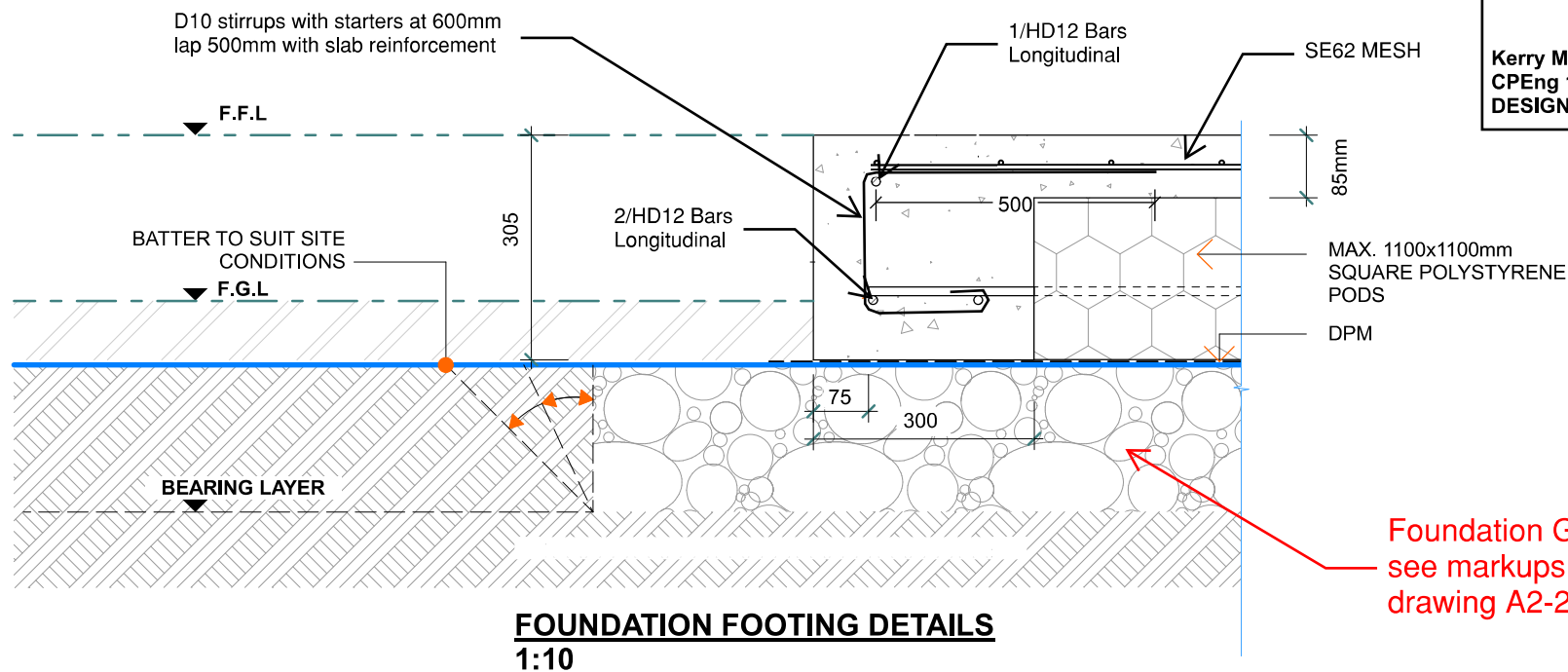
	<i>Foundation Plan</i>		Job Number: SZI210316103515	
	Scale: 1:31	Customer Name: Arthur Brown Construction Site Address: 27 County Drive	Date: 1/06/2021	
	Original Size: A3		Page Number: 9 of 9	

Foundation Notes:
See Foundation Plan.




TYPICAL RIB DETAIL
1:10

TYPICAL SAW CUT DETAIL
1:10



FOUNDATION FOOTING DETAILS
1:10

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CONCRETE NOTES:

1. All construction detailing shall comply with NZS 3604:2011, unless modified within the structural drawings.
2. Consolidate the base of all excavations for foundations by compacting plate, rollers or other appropriate methods
3. Any fill material shall be fit for purpose, placed and compacted in layers of no greater than 150mm to a maximum fill depth of 600mm unless modified within the structural drawings.
4. All concrete and workmanship shall comply with, NZS 3109 concrete construction.
5. Concrete shall have a minimum 28 day strength of 20MPa unless the site is within a seaspray zone where 25MPa concrete strength shall be adopted.
6. Higher strength concrete may be required for industrial and commercial use buildings, refer to the engineer.
7. Reinforcing bars are denoted by the following:-
 - D - grade 300E, Deformed bar
 - H - grade 500E, Deformed bar
 - R - grade 300E, Plain bar
 - HR -grade 500E, Plain bar
8. Reinforcing cover shall be as follows:
 - Concrete Cast against natural ground 75mm
 - Concrete Cast against formwork in ground or against DPM 50mm
 - Internal cover for bars & mesh for
 - T = 85mm, provide 30mm cover
9. Reinforcing and mesh shall be supported on plastic 'chairs' or 'spacers' to maintain the required cover.
10. Slab reinforcement SE62 MESH
11. DPM shall consist of a single layer of polyethylene not less than 0.25mm thick. Lap joints shall be not less than 150mm wide, sealed with pressure sensitive plastic tape not less than 50mm wide
12. Curing of the concrete slab must take place immediately after finishing the slab by ponding or continuous sprinkling of water for a minimum period of 7 days. Buildings may be constructed on the slab within 7 days with due care not to overtighten fixing anchors.
13. Shrinkage control joints, free joints, construction joints and saw cuts shall be located as shown on the drawings.
14. Sawcuts are to coincide with major changes of plan and placed at a maximum spacing of 5m. Sawcuts shall be placed to create slab panels with length:width ratios of no greater than 1.5:1 Sawcuts are to be made no later than 24 hours following the slab pour. Sawcuts shall be 5mm wide x 0.25 slab thickness unless noted otherwise. Shrinkage control joints shall be placed over 100mm wide internal ribs wherever possible.
15. A free joint (or use of a propriety dowel joint system) shall be provided at a maximum of 30m spacing.
16. Polyraft floor in accordance with Firth Ribraft manual unless noted otherwise

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Ribraft Details

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drawing no.

F1

date:

page no.



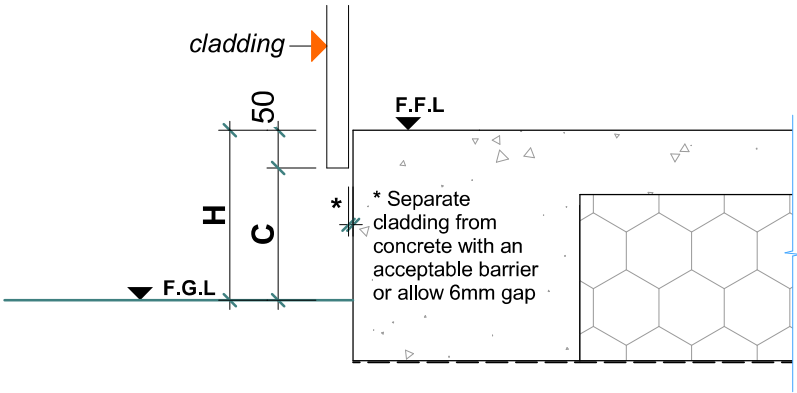
Foundation Notes:
See Foundation Plan.

MINIMUM CLEARANCE DIMENSIONS

BUILDING & FGL TYPE	H	C
Unlined Building- Unpaved ground	125	75
Lined Building- Paved surface	150	100
Habitable Building- Paved surface	150	100
Lined Building- Unpaved ground	225	175
Habitable Building- Unpaved ground	225	175

(Measurements in mm)

THICKENING	
COLUMN	*L
150	300
200	350
250	400
300	450
350	500
400	550

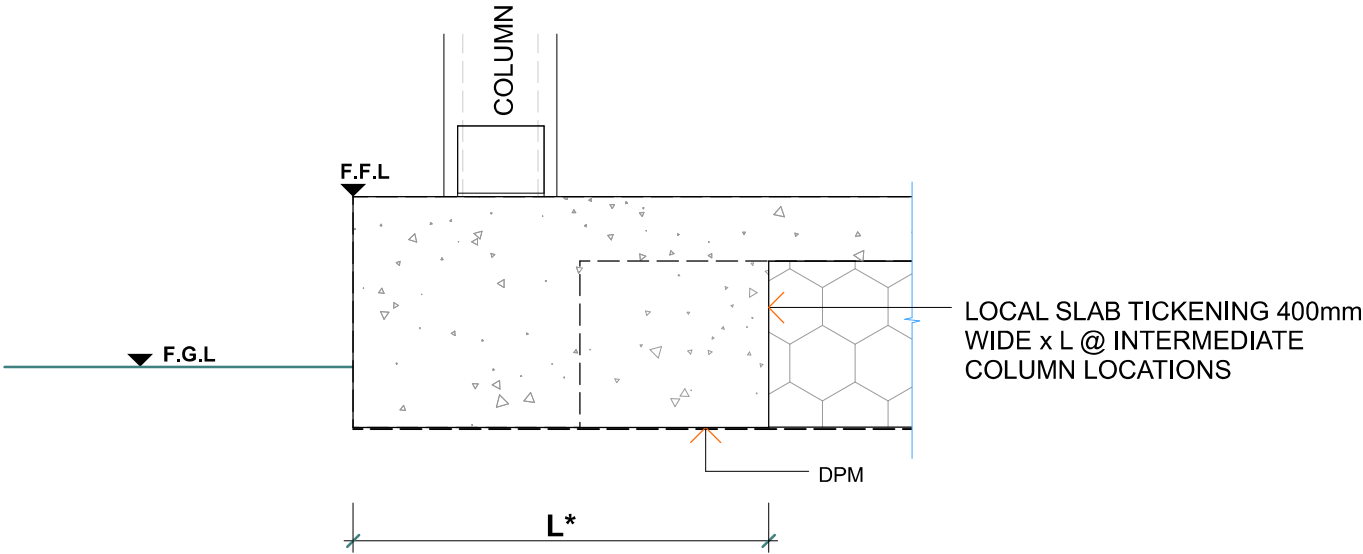


GROUND CLEARANCE DETAILS

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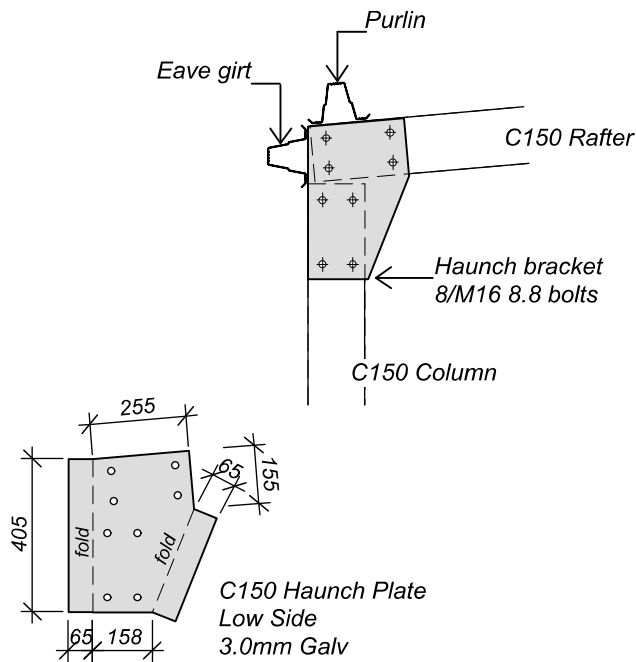
COLUMN FOUNDATION DETAILS

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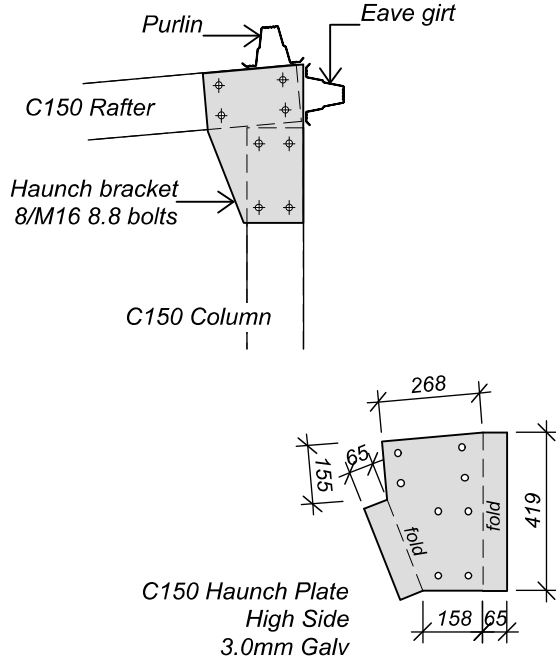
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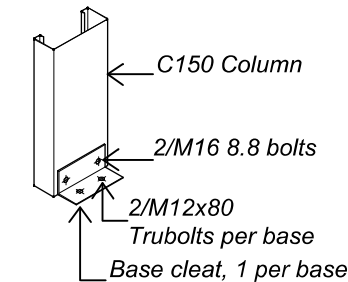
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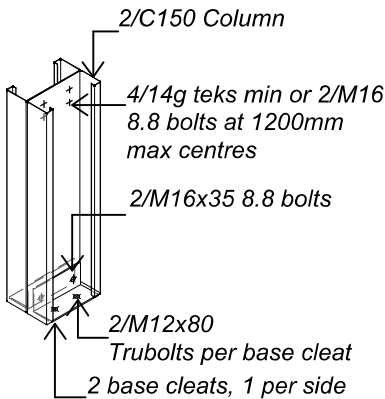
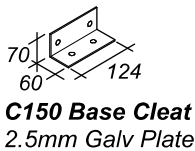
LOW SIDE HAUNCH BRACKET AND CONNECTION (Detail 01)



HIGH SIDE HAUNCH BRACKET AND CONNECTION (Detail 02)



BASE CLEAT AND CONNECTION SINGLE COLUMN (Detail 07)



BASE CLEAT AND CONNECTION DOUBLE OPEN COLUMN (Detail 08)

NOTES:
Cold formed C-sections shall comply with AS 4203:1992 and AS/NZS 1252:1996. Buildings may be constructed on concrete floor slab within 7 days with due care not to over tighten fixing anchors. Structure to be maintained in a stable condition with due care not to overstress any part during construction. All dimensions are in millimeters unless otherwise stated. Tek screws and 8.8 bolts to be installed as per manufactures instructions. 8.8 bolts to be fully tensioned by snug tightening then fully tensioned another 1/3 turn rotation of nut. Fly bracing fixed to closest girt/purlin from Eave Purlin, then every second row thereafter. Roof and wall cladding to be fixed as per manufactures instructions. Engineering responsibility only covers items shown in these drawings.

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BRACKET CONNECTIONS - C150 Monopitch

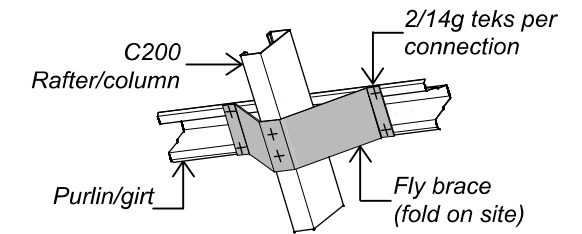
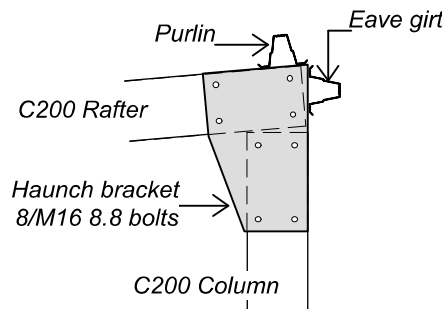
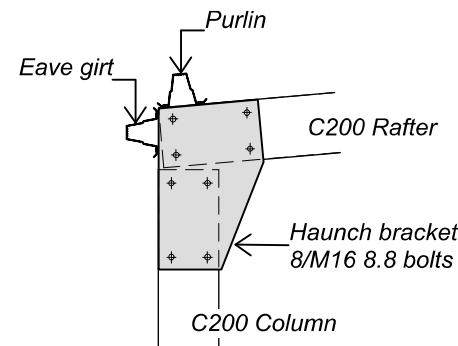
Customer : Arthur Brown Construction
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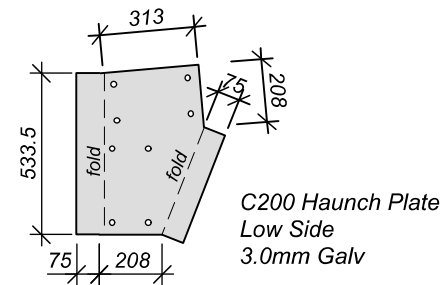
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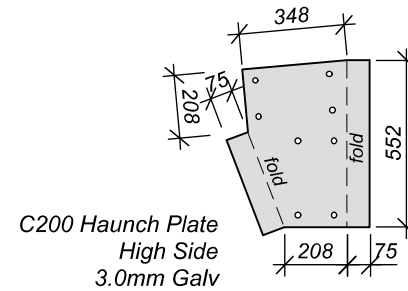




FLY BRACE CONNECTION (Detail 04)




LOW SIDE HAUNCH BRACKET AND CONNECTION (Detail 01)

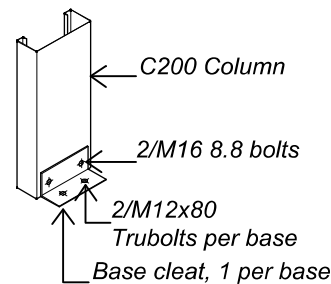


HIGH SIDE HAUNCH BRACKET AND CONNECTION (Detail 02)

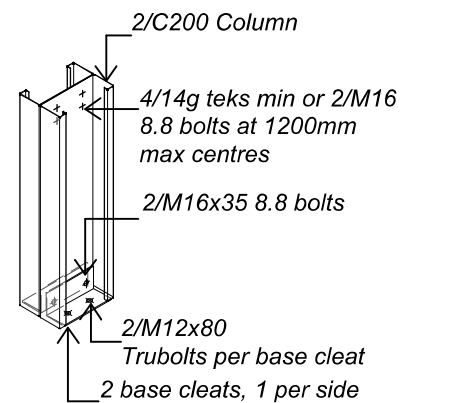
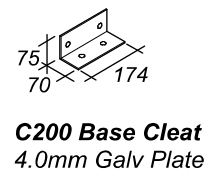
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BASE CLEAT AND CONNECTION SINGLE COLUMN (Detail 07)



BASE CLEAT AND CONNECTION DOUBLE OPEN COLUMN (Detail 08)

NOTES:
Cold formed C-sections shall comply with AS 4203:1992 and AS/NZS 1252:1996. Buildings may be constructed on concrete floor slab within 7 days with due care not to over tighten fixing anchors. Structure to be maintained in a stable condition with due care not to overstress any part during construction. All dimensions are in millimeters unless otherwise stated. Tek screws and 8.8 bolts to be installed as per manufactures instructions. 8.8 bolts to be fully tensioned by snug tightening then fully tensioned another 1/3 turn rotation of nut. Fly bracing fixed to closest girt/purlin from Eave Purlin, then every second row thereafter. Roof and wall cladding to be fixed as per manufactures instructions. Engineering responsibility only covers items shown in these drawings.

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BRACKET CONNECTIONS - C200 Monopitch

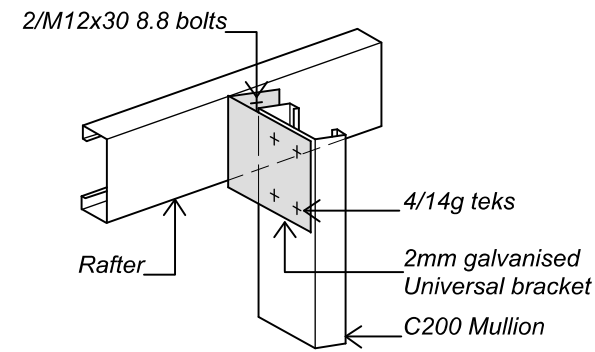
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drawing no.
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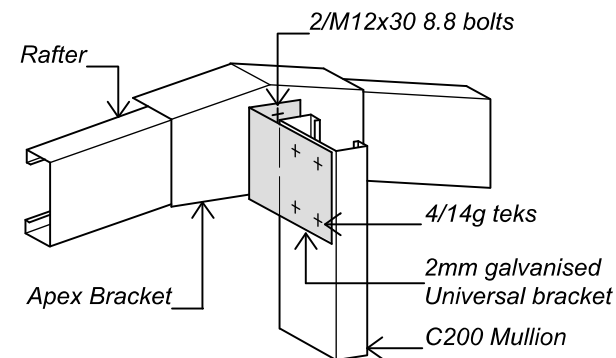
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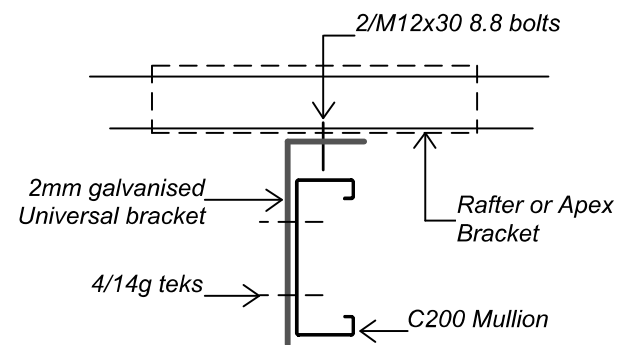




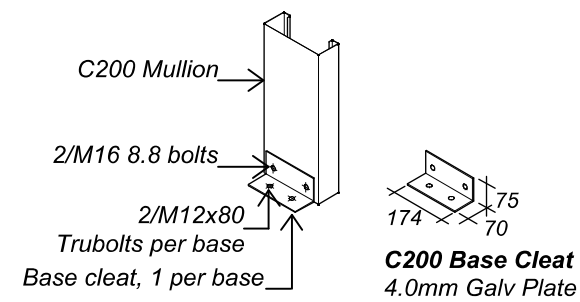
MULLION/RAFTER CONNECTION



MULLION/APEX CONNECTION



MULLION TOP CONNECTION (Detail 2b)



MULLION BASE (Detail 2a)

C200 MULLION (Detail 2)

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MULLION CONNECTIONS

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drawing no.
A41

date:

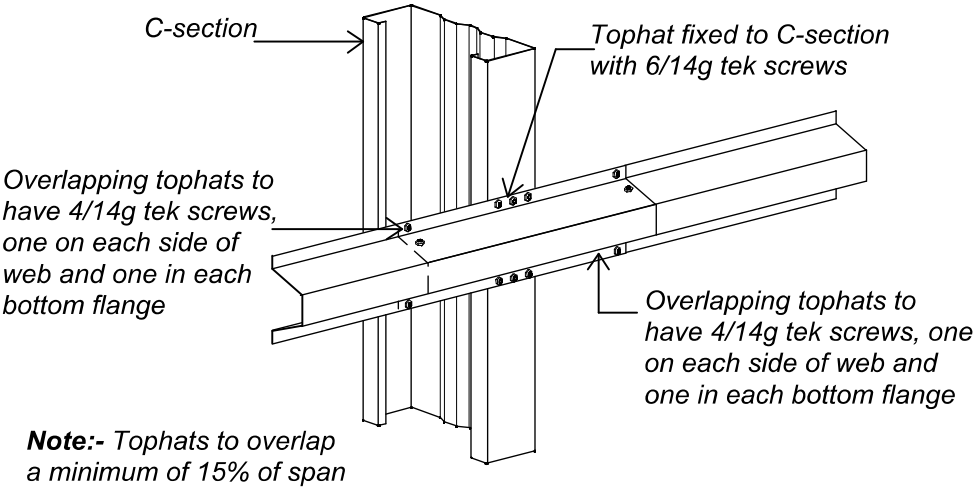
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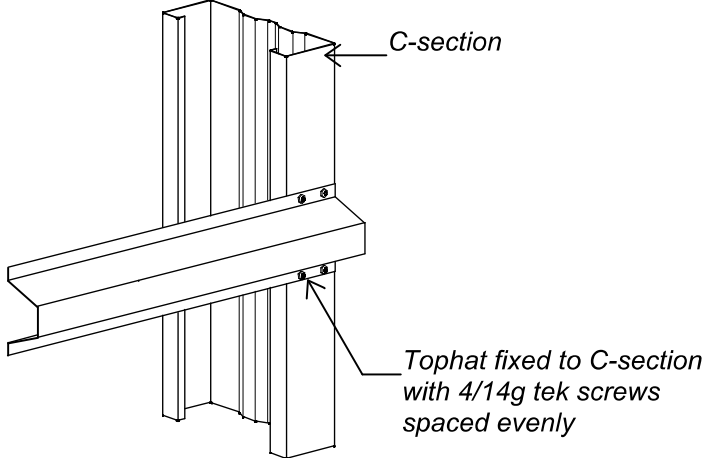
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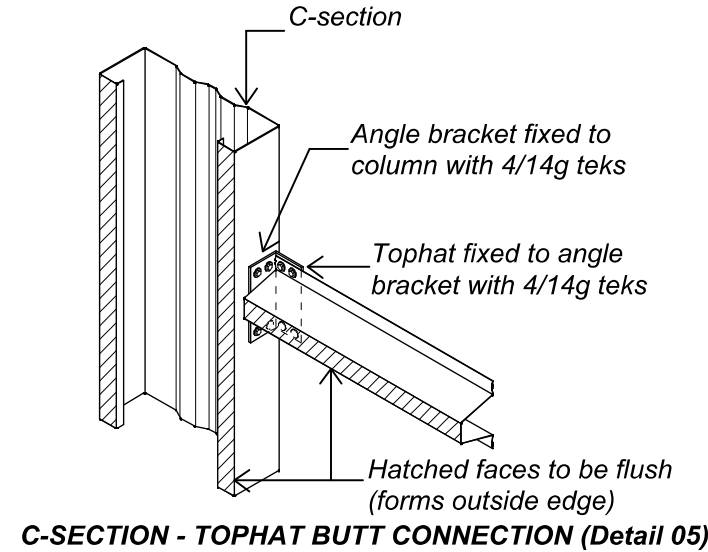
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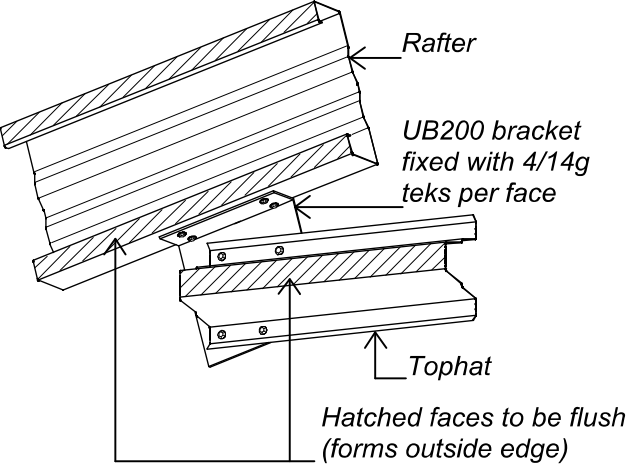
SINGLE C-SECTION - LAPPED TOPHAT (Detail 03)



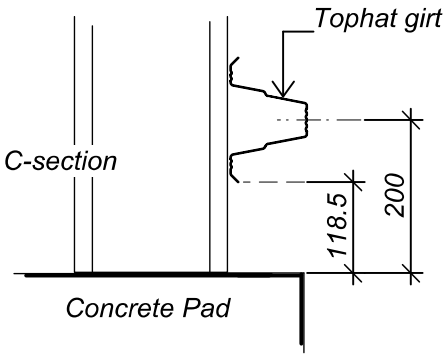
SINGLE C-SECTION - SINGLE TOPHAT (Detail 04)



C-SECTION - TOPHAT BUTT CONNECTION (Detail 05)



RAFTER/GIRT CONNECTION (Detail 06)



GIRT LOCATION (Detail 07)
Typical distance to first tophat girt from Finished Floor Level

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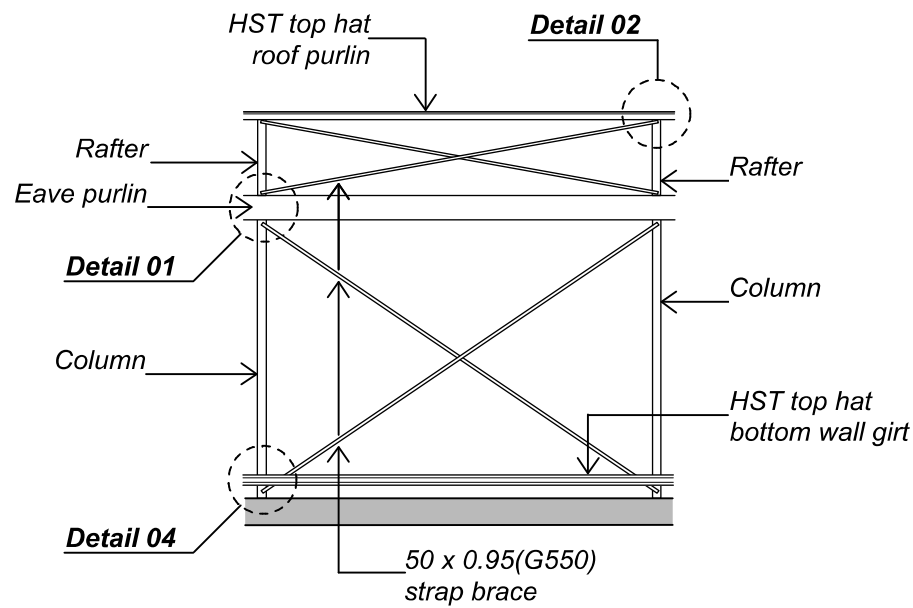
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original size
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TOPHAT CONNECTIONS - 100mm

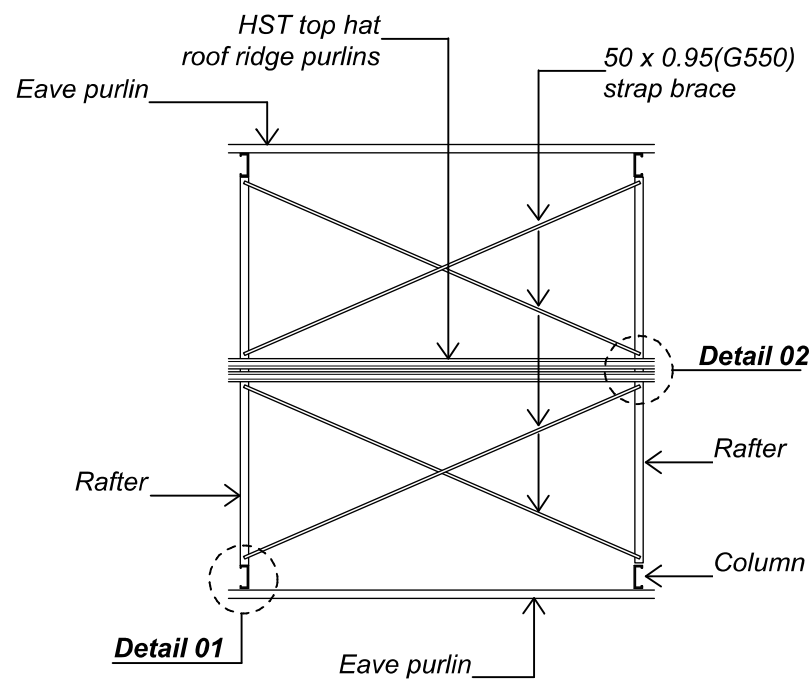
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Site Address : 27 County Drive

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page no.

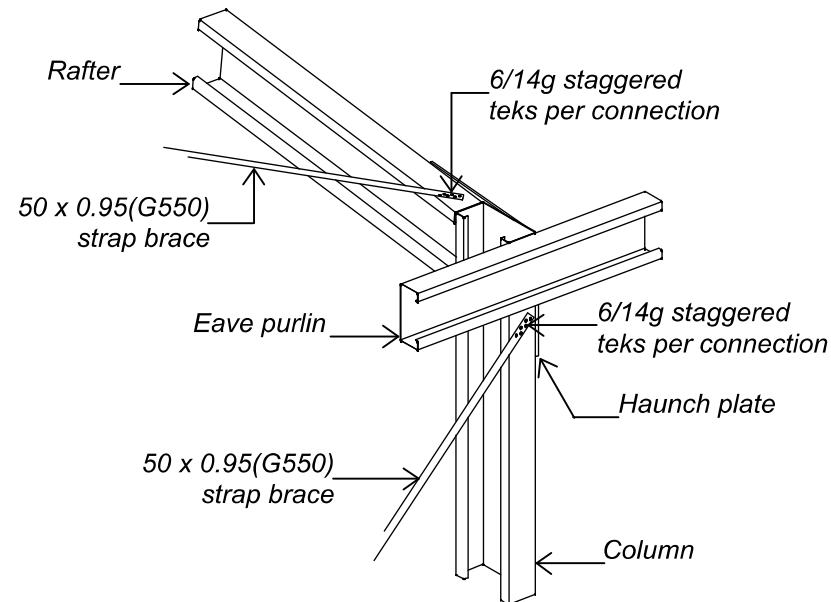




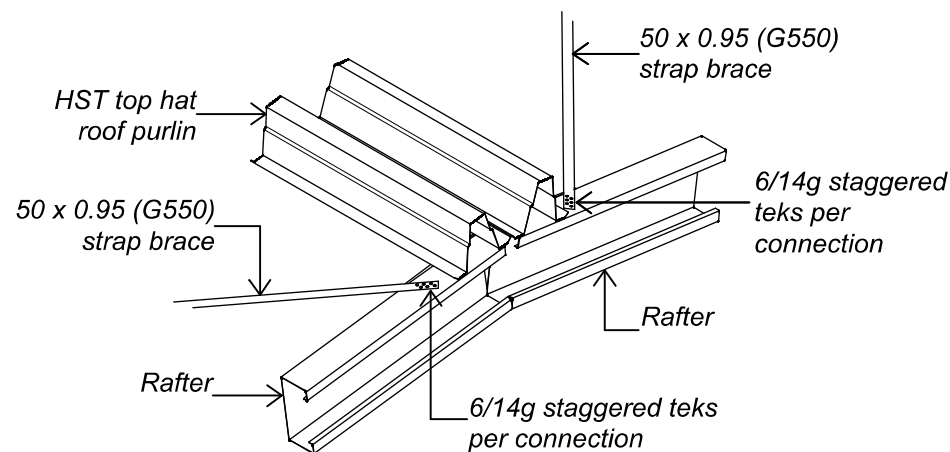
WALL BRACE CONNECTIONS Note: Additional wall girts removed for clarity



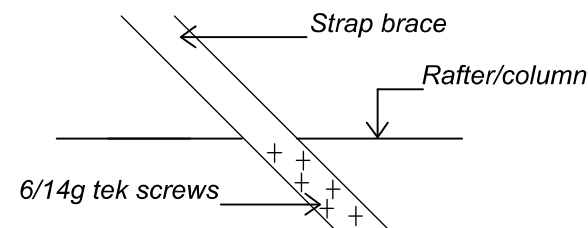
ROOF BRACE CONNECTIONS Note: Additional roof purlins removed for clarity



BRACE CONNECTION TO COLUMN AND RAFTER (Detail 01)




BRACE CONNECTION TO RAFTERS AT APEX (Detail 02)

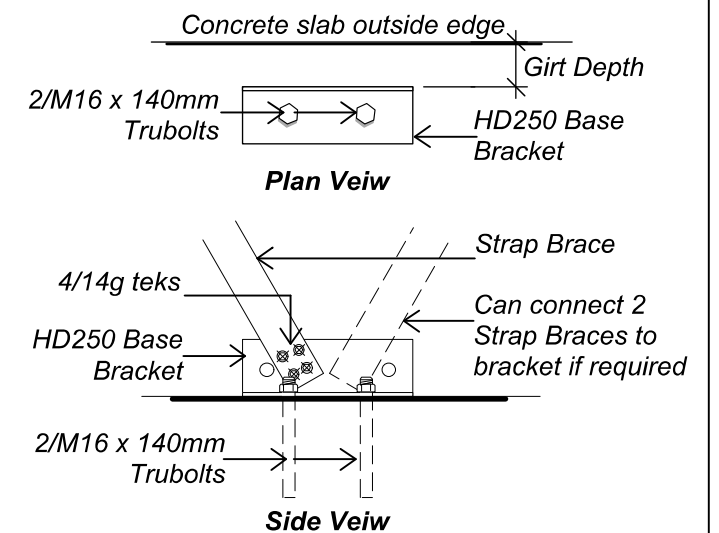


STAGGERED TEK PATTEN (Detail 03)

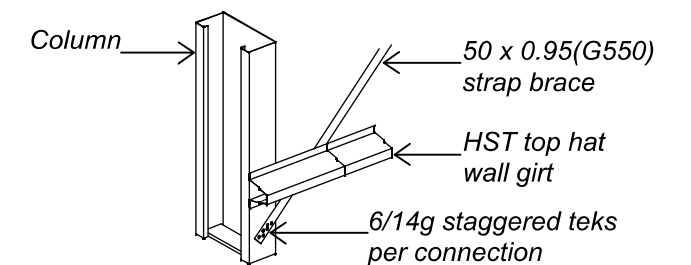
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BRACE BRACKET DETAIL (Detail 05)



BRACE CONNECTION TO FOOT OF COLUMN (Detail 04)

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STRAP BRACE CONNECTION (50 x 0.95mm G550 STRAP BRACING)

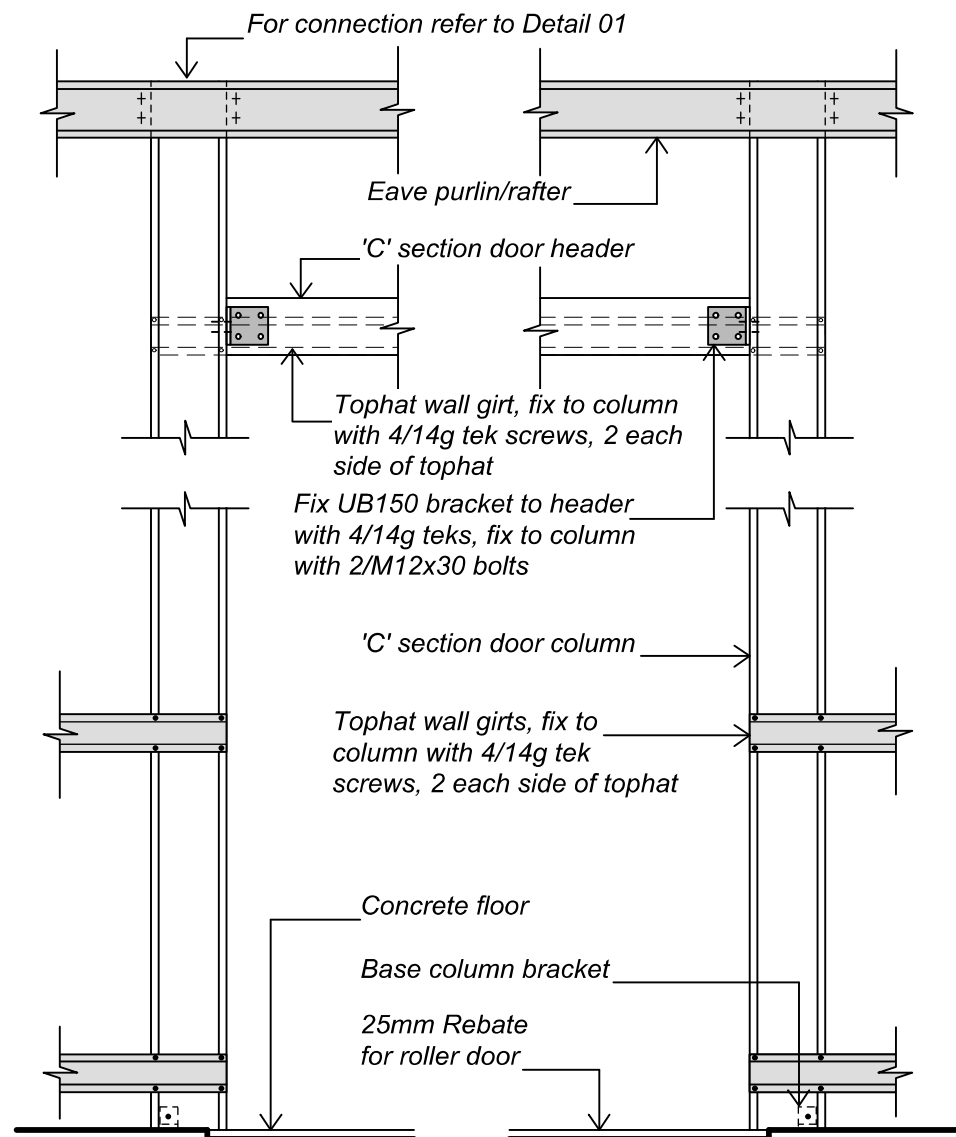
Arthur Brown Construction
27 County Drive

drawing no.
B2

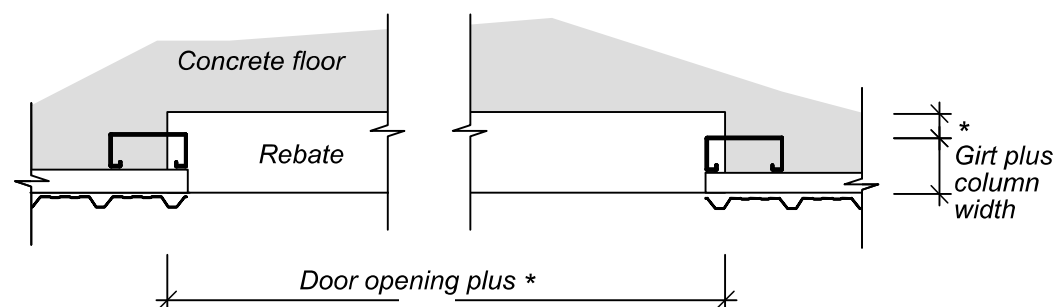
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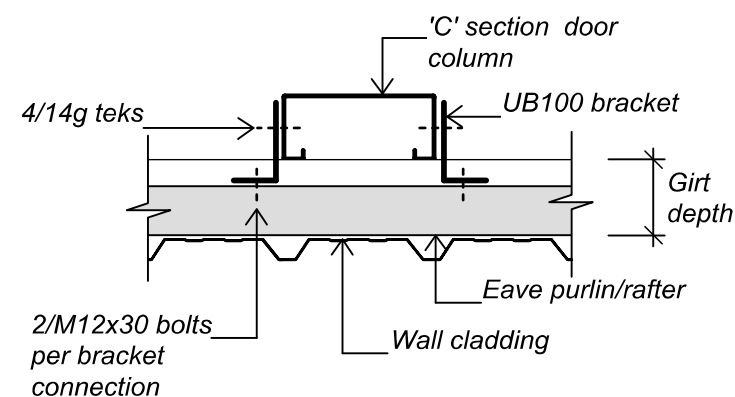


ELEVATION VIEW

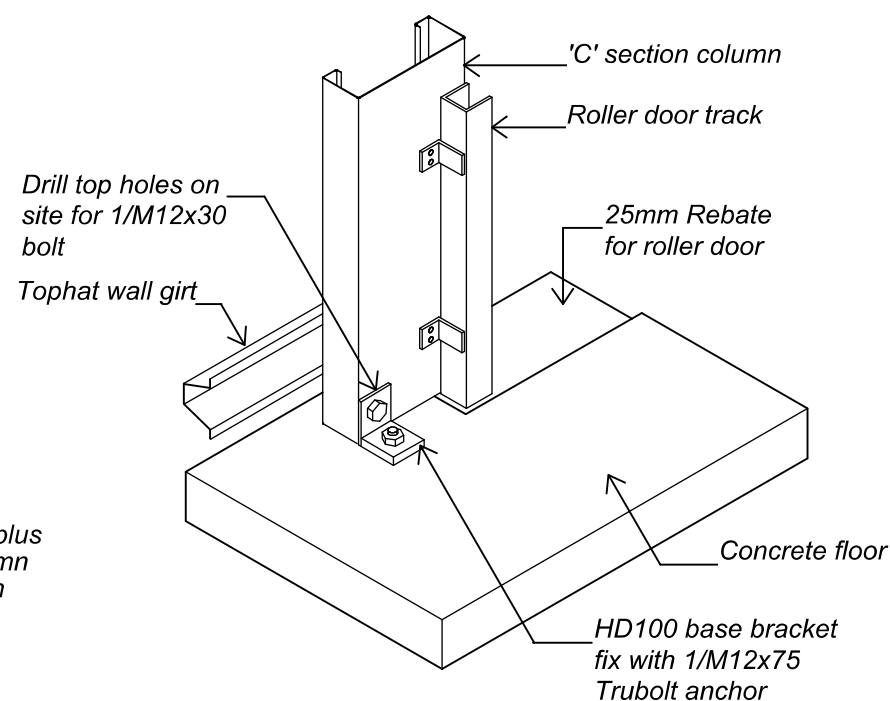
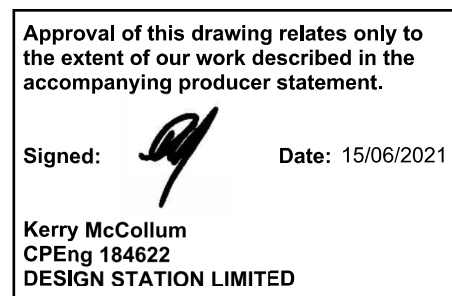


PLAN VIEW

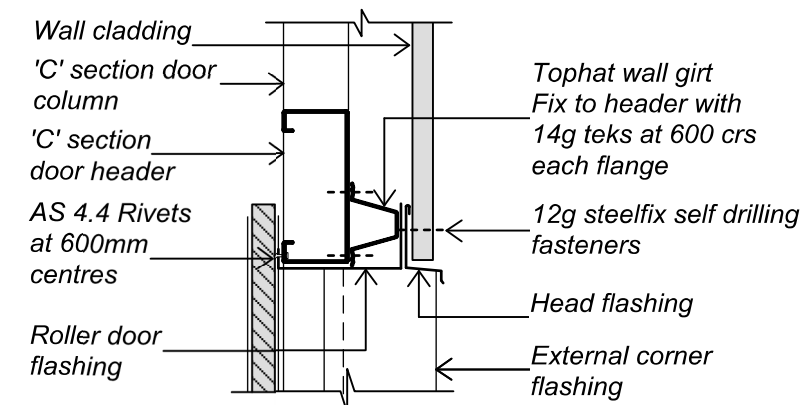
* - as per manufacturers specifications



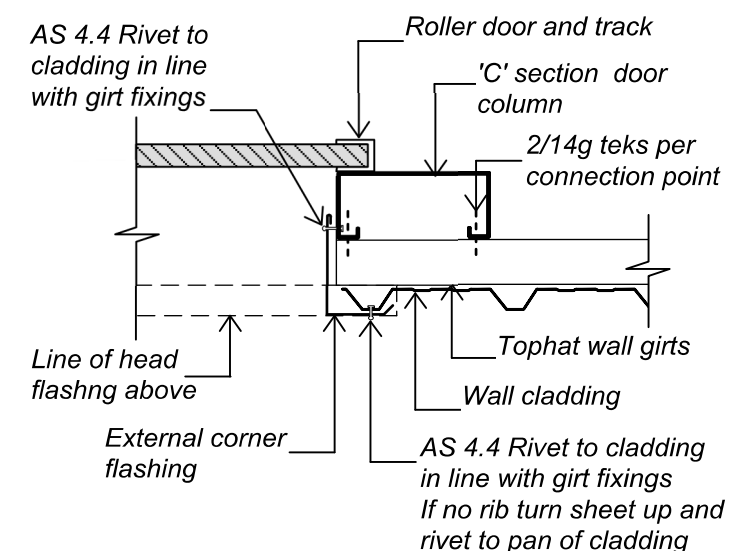
EAVE PURLIN/RAFTER FIXING (Detail 01)



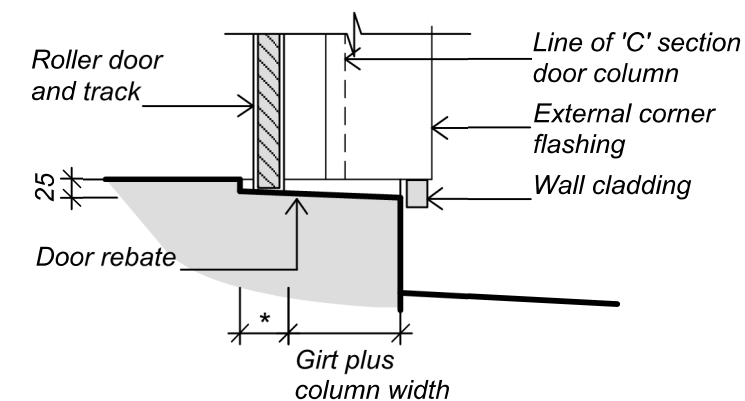
ROLLER DOOR BASE BRACKET (Detail 02)



ROLLER DOOR HEAD (Detail 03)



ROLLER DOOR JAMB (Detail 04)



ROLLER DOOR REBATE (Detail 05)

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C150 ROLLER DOOR COLUMN AND FLASHING DETAILS

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drawing no.
B30

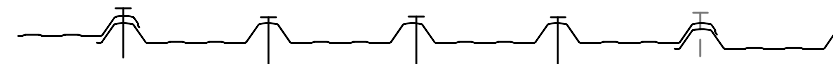
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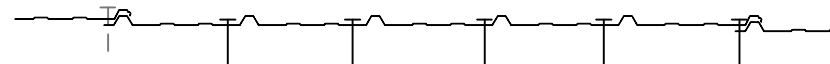




End of Sheet Fixing Pattern - Fixing to end purlin, 4 per purlin:
every rib

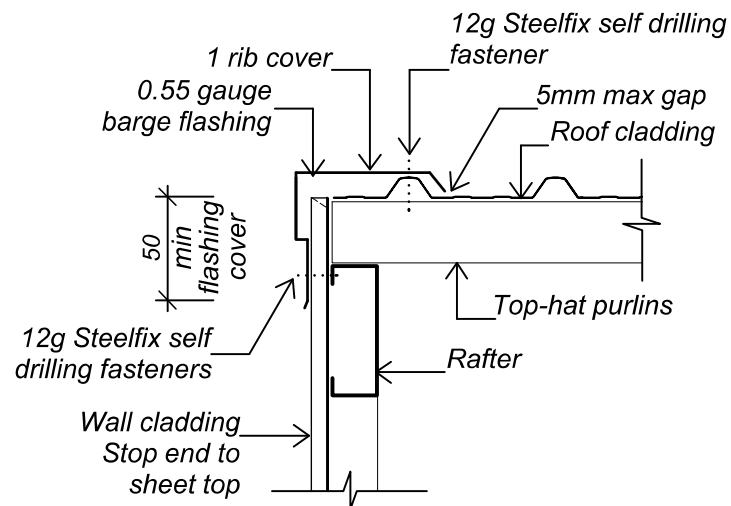


Mid Sheet Fixing Pattern - 4 per purlin: every rib
Fixing - 12g Steelfix self drilling fasteners
Purlin Spacing - End span 960mm max, intermediate span 1450mm max
ROOF SHEET FIXING - TRIMRIB 0.40BMT

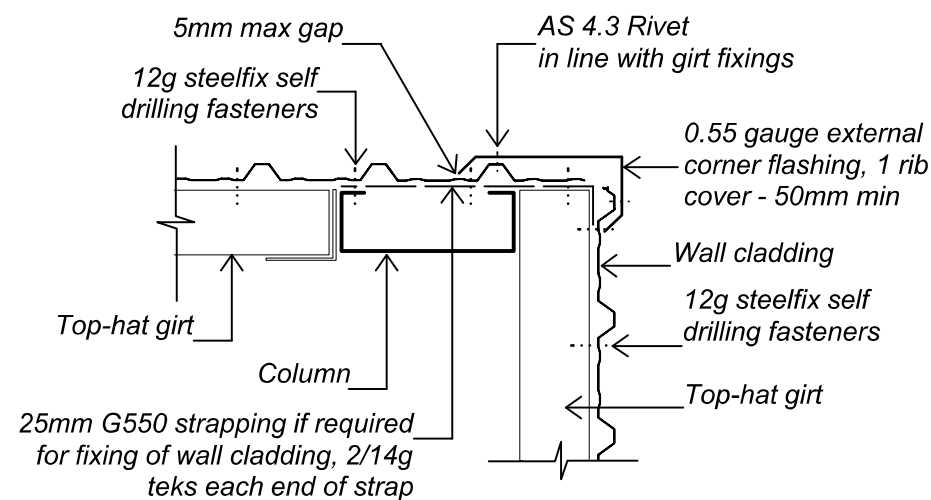


Fixing Pattern - In pan beside rib - 5 per girt: every pan
Fixing - 12g Steelfix self drilling fasteners
Girt Spacing - 1450mm max
WALL SHEET FIXING - SLIMCLAD 0.40BMT

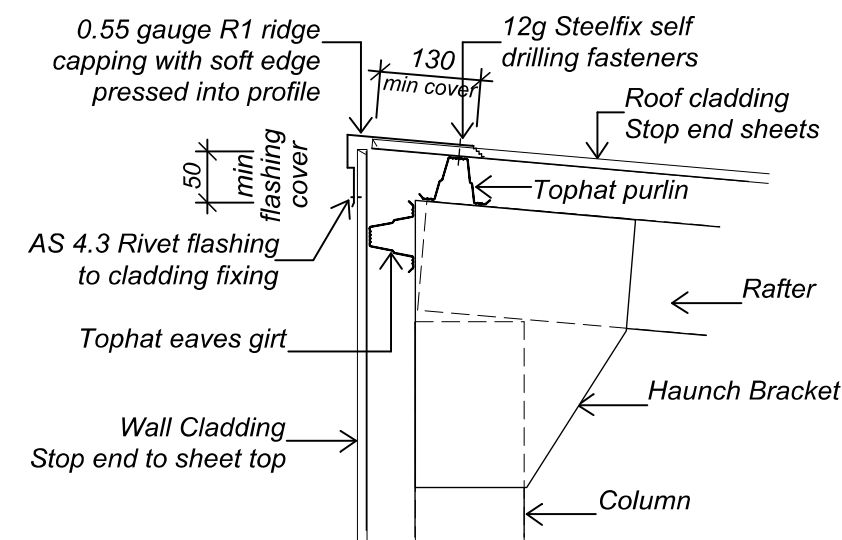
	file no. B41	ROOF AND WALL FIXING High and Very High Wind Zone	drawing no. B41	
	231019		date:	
	original size A3	Customer : Site Address : Arthur Brown Construction 27 County Drive	page no.	



BARGE FLASHING (Detail 02)

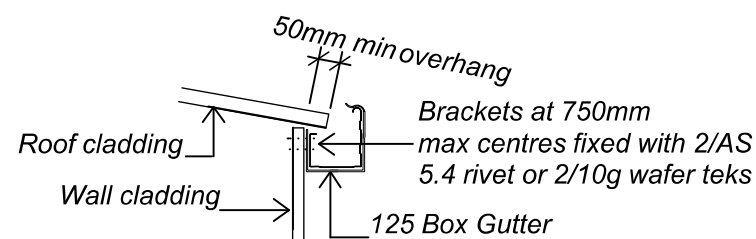


CLAD WALL CORNER FLASHING (Detail 05)



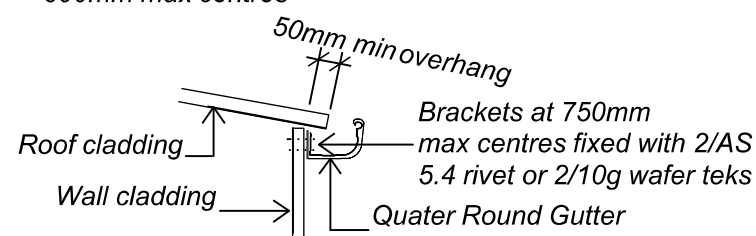
Note:- 200mm denotes min flashing cover over roof cladding

APEX FLASHING (Detail 06)



GUTTER VERGE (Detail 07)

Note:- For Snow Loading fix brackets and snow straps at 600mm max centres

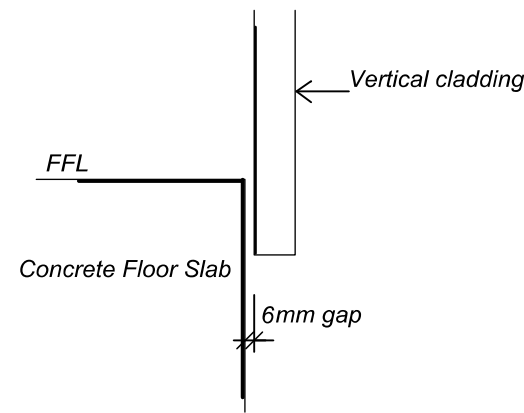


GUTTER VERGE (Detail 07)

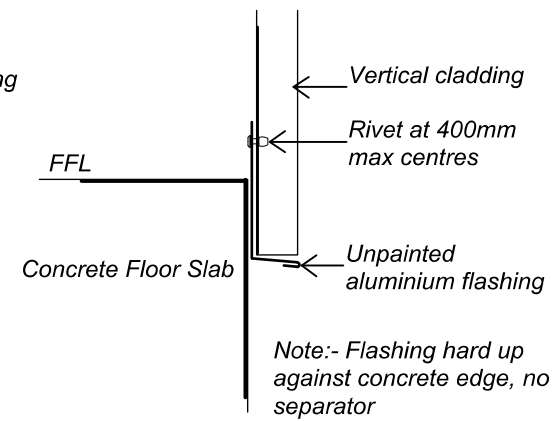
Note:- For Snow Loading fix brackets and snow straps at 600mm max centres

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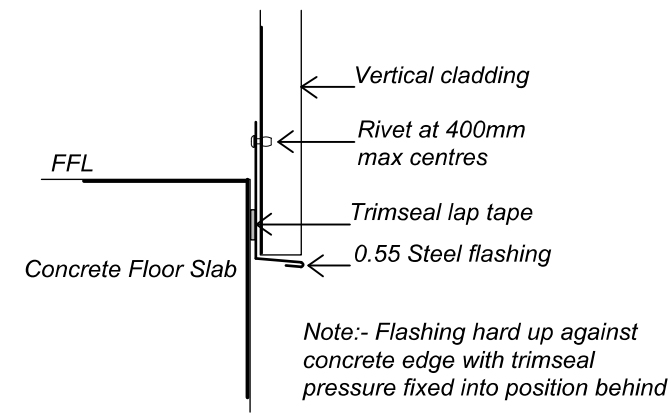
	file no. B71	FLASHING AND FIXING DETAILS - LOW, MEDIUM AND HIGH WIND ZONES	drawing no. B71	
	231019		date:	
	original size A3	Customer : Arthur Brown Construction Site Address : 27 County Drive	page no.	



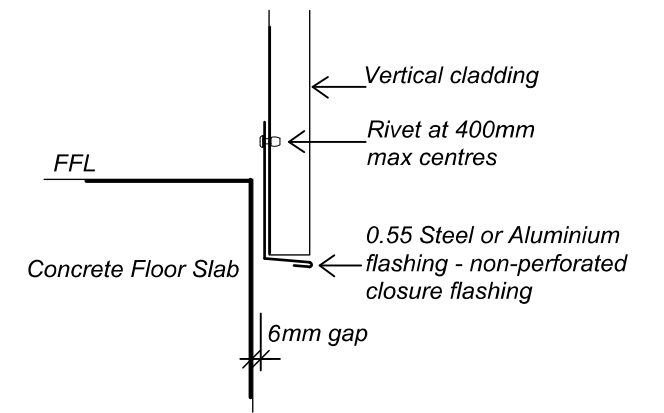
6mm GAP (Detail 01)



ALUMINIUM FLASHING ONLY (Detail 02)




0.55 STEEL FLASHING AND TRIMSEAL (Detail 03)

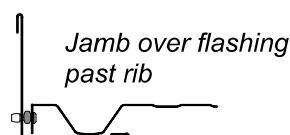
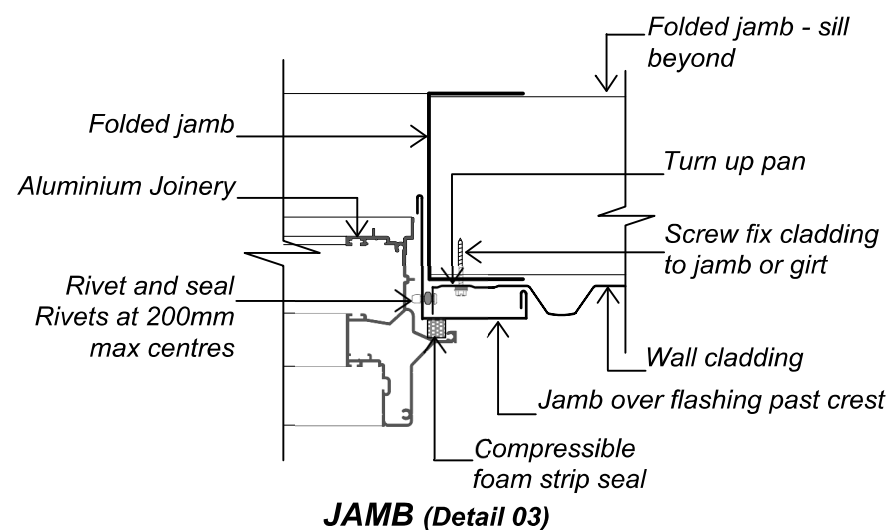
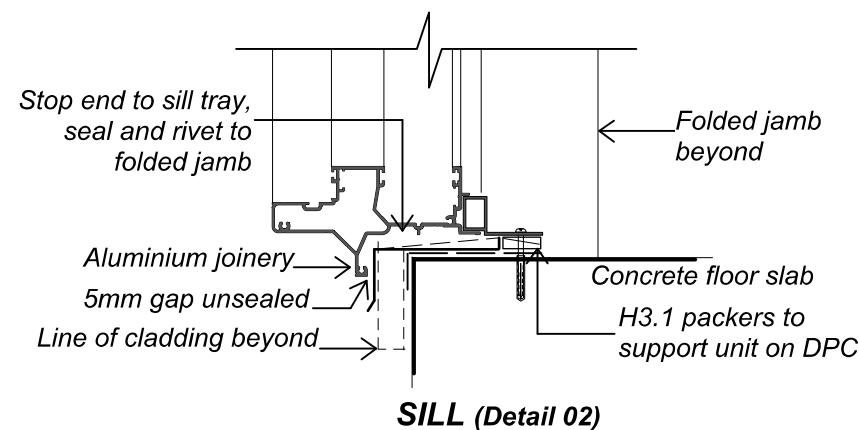
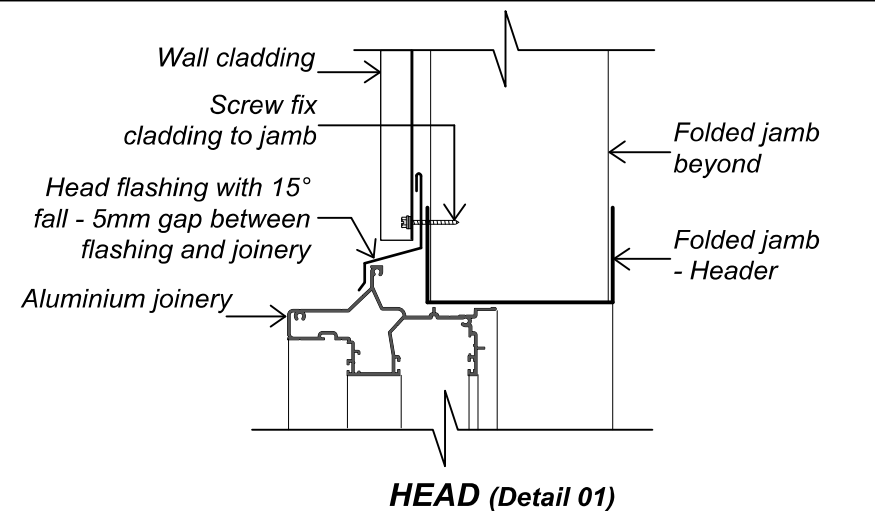


0.55 STEEL FLASHING FOR LINED AND HABITABLE BUILDINGS (Detail 04)

Note:-
 - Unlined Buildings - All Details
 - Lined Building - Detail 04


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	<i>file no.</i> <i>B80</i>	Acceptable Cladding Base Barrier	<i>drawing no.</i> A5	
	<i>231019</i>		<i>date:</i>	
	<i>original size</i> A3	Customer : Arthur Brown Construction Site Address : 27 County Drive	<i>page no.</i>	

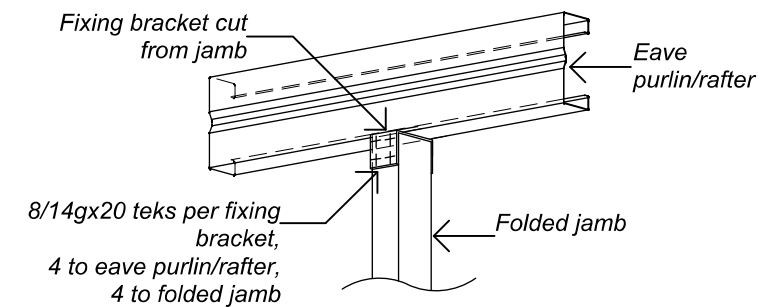


ALTERNATIVE JAMB FLASHING

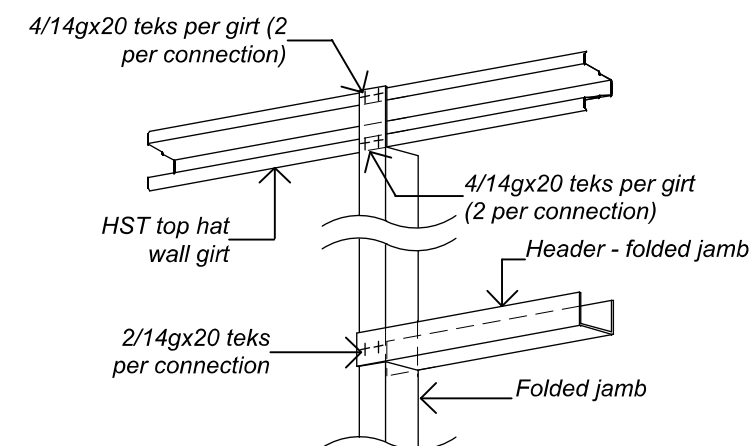
Approval of this drawing relates only to the extent of our work described in the accompanying producer statement.

Signed:  Date: 15/06/2021

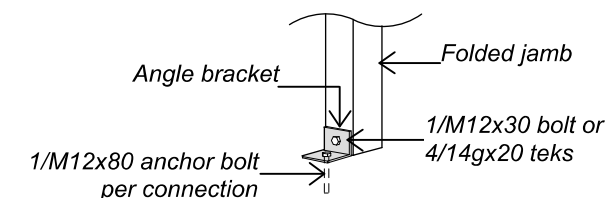
Kerry McCollum
CPEng 184622
DESIGN STATION LIMITED



DOOR JAMB TO EAVE PURLIN/RAFTER CONNECTION (Detail 04)



DOOR HEADER FIXING/WINDOW JAMB TO GIRT CONNECTION (Detail 05)



FOLDED JAMB TO FLOOR CONNECTION (Detail 06)

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DESIGN STATION LIMITED
P.O.BOX 1069, WHANGAREI
Ph: +64 9 4381562 Fx: +64 9 4381647

file no.
C10

231019

original size
A3

RANCHSLIDER/ENTRANCE DOOR FLASHING AND FIXING DETAILS (UNLINED)

Customer : Arthur Brown Construction
Site Address : 27 County Drive

drawing no.
C10

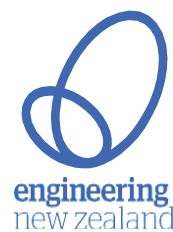
date:

page no.





CERTIFICATE OF DESIGN WORK MEMORANDUM FROM LICENSED BUILDING PRACTITIONER



Section 300 and Section 45, Building Act 2004

The Building

Street address 27 County Drive

Suburb

Town/City HAWERA

Postcode

Building consent no.

The Owner

Name(s) Arthur Brown Construction

Email hawera@arthurbrown.co.nz

Phone 06-2785199

Address 108 Wilson Street - Hawrea

Basis for providing this memorandum

I am providing this memorandum in my role as the specialist designer who carried out or supervised specific Primary structure elements of restricted work (RBW) design work as described in this memorandum. Other designers will provide memoranda covering the remaining RBW design work. Refer to the attached PSI.

Identification of restricted building work (RBW) design work

I, Andrew Fraser, carried out or supervised the following RBW design work:

Primary structure: B1

Design work that is RBW	Description (as required) and reference to plans and specifications	Carried out or supervised
Foundations and subfloor framing	<input checked="" type="checkbox"/> Foundation ground improvements for rib raft floor as designed by others	Supervised
Retaining walls	<input type="checkbox"/>	.
Beams	<input type="checkbox"/>	.
Portal	<input type="checkbox"/>	.
Bracing	<input type="checkbox"/>	.
Other (primary)	<input type="checkbox"/>	.

Note: SED = Elements subject to Specific Engineering Design outside of the scope of NZS 3604:2011, unless otherwise noted

Initial: _____

Date: 25 November 2020

Waivers and modifications

Are waivers or modifications of the Building Code required? No

If yes, please provide details of the waivers or modifications:

Building Code Clause	Waiver/modification required
NA	NA

Issued by

Name	Andrew Fraser	Design entity/company	Red Jacket
Chartered status	CPEng	Chartered no.	96197
Email	info@redjacket.nz	Website	www.redjacket.nz
Phone (daytime)	06 759 0999	Phone (after hours)	
Mobile	027 257 9970		
Postal address	PO Box 904, New Plymouth, 4340		
Physical address	3 Davidson Street, New Plymouth		

Declaration

I, Andrew Fraser, LBP state that I have applied the skills and care reasonably required of a competent professional in carrying out or supervising the RBW described in this memorandum and that based on this, I certify that the RBW described in this memorandum:

- Complies with the Building Code; or
- Complies with the Building Code subject to any waiver or modification or the Building Code described in this memorandum.

Signature:

Date: 25 November 2020

RESIDENTIAL BUILDING
27 COUNTY DRIVE
HAWERA

STRUCTURAL CALCULATIONS

File Ref.	CAL-4104-01
-----------	-------------

REV.	DATE	ISSUED FOR
A	25/11/2020	Issued for Building Consent

Job Name:

27 COUNTY DRIVE HAWERA

File Ref.

CAL-4104-01

Scope of Work

Structural design for ground improvements to support the residential garage on ribraft floor foundation

Basis of Design

- ☒ AS/NZS 1170 Loading Standard
- ☐~~--NZS-3404--Steel Structures-----~~
- ☐~~--NZS-3603--Timber Structures-----~~
- ☐~~--NZS-3401--Concrete Structures-----~~
- ☐~~--NZS-4320--Reinforced Concrete Masonry Structures-----~~
- ☒ NZS 3604 Timber-Framed Buildings
- ☒ B1/VM4
- ☐

References

- Arch Drawings by Mannor Build 27 October 2020
-



REDJACKET

Date	28.02.20	Job No.	4104
By	GS.	Page No.	
Ref.	CAL-4104-1.		

Job Title 27 COUNTRY DRIVE - HAMMERS

- RESIDENTIAL GARAGE IS TO BE LOCATED ON GROUND WITH DOESN'T MEET NZS3604 - GOOD GROUND REQUIREMENTS

- IT IS PROPOSED TO INSTALL 200mm THICK HALLFILL RIFT UNDER THE SLAB TO SUPPORT RIBSFT SCAB AND RESULTS REMAIN PRESSURE ON SUBGRADE.

LOADS

GALLAGE FLOOR

$$G = 2.5 \text{ kPa}$$

$$G_{SLC} = 0.5 \text{ kPa}$$

$$Q = 2.5 \text{ kPa} \text{ \& } 18 \text{ kN}$$

- 13 kN point load will govern.

- ASSUME POINT LOAD WILL BEAR ON 2 x 1.0m OF RIBS $A_f = 2 \cdot 1 \times 0.1 = 0.2 \text{ m}^2$.

- LOAD COMBINATIONS.

$$ULS = 1.2G + 1.5Q = 1.2 \times 3 \text{ kPa} + 1.5 \times 13 \text{ kN}$$

$$= 3.6 \text{ kPa} \times 0.2 \text{ m}^2 = 19.5 \text{ kN}$$

$$= 23.1 \text{ kN}$$

$$\therefore \frac{23.1}{0.2 \text{ m}^2} = q_{ULS} = 116 \text{ kPa} \cdot \text{ULS}.$$

$$SLS = G + 0.4Q = 3.6 + 0.4 \times 13$$

$$= 8.8 \text{ kN}$$

$$q_{SLS} = 44 \text{ kPa}.$$



REDJACKET

Date	25.02	Job No.	4104.
By	GS.	Page No.	
Ref.	CAL-4104-1		

Job Title

27 COUNTRY DRIVE, HAWERA.

CURRENT SUBGRADE REMAINS CAPACITY.

FROM TST-4101-1 SCALP AVERAGE 75mm/80mm.

BETTER ALLOWABLE BEARING PRESSURE STACKED
NEXT PAGE.

$$q_{put} = \frac{3 \times 45 kPa}{2} = 68 kPa.$$

TRY 300 THICK APRS ASSET WITH 100 THK
R18 $B=0.1$

$$q_{s0} = 0.15 \quad \therefore q_{u1} \text{ AT SUBGRADE} = 116 \times 0.15 = 17.4 kPa < q_{put}.$$

\therefore OK.

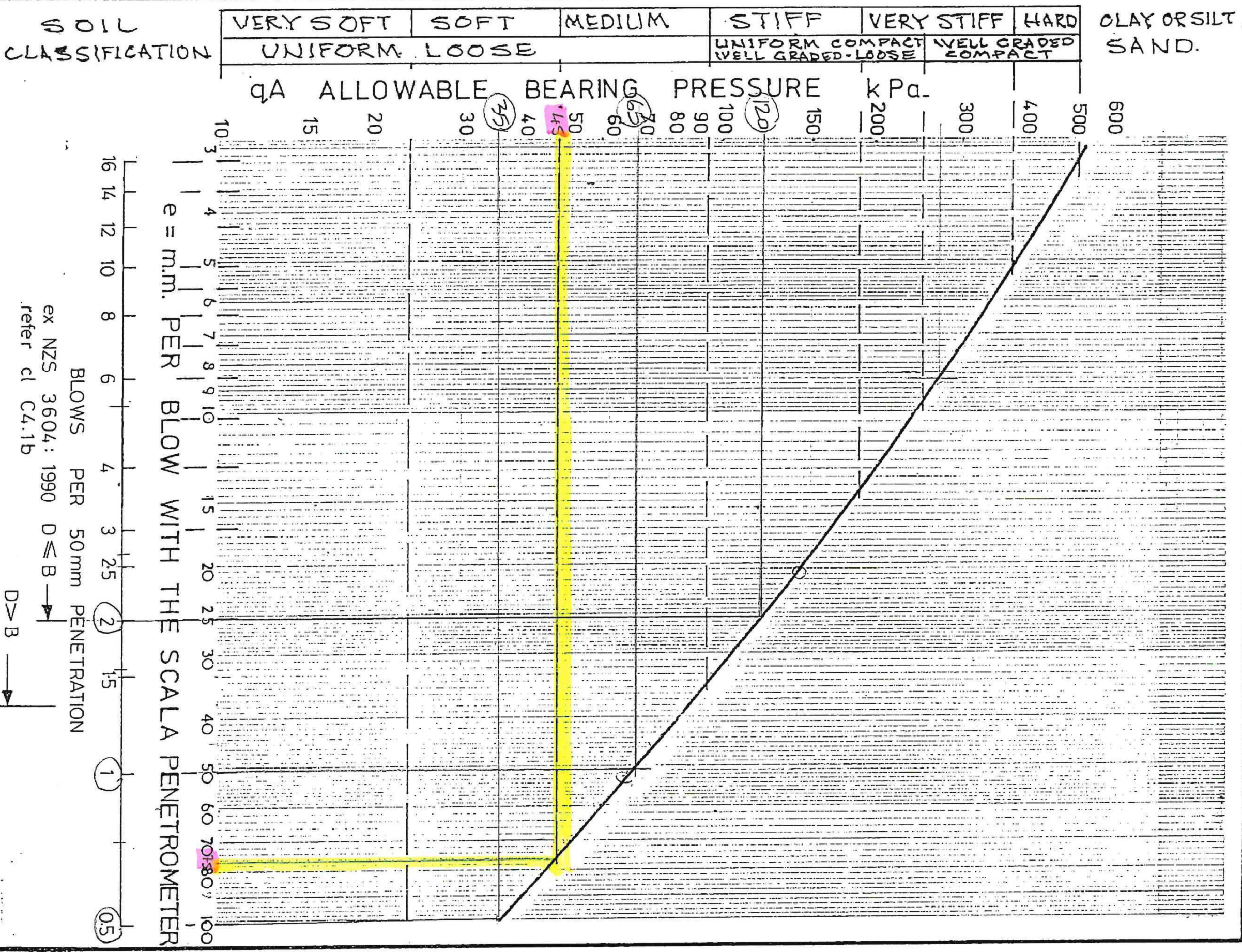
$$q_{su}^b \text{ AT SUBGRADE} = 44 \times 0.15 = 6.6 kPa.$$

\therefore OK.

USE 300THK THROFFIL RMT.

- AFTER MARKED UP PLANS ATTACHED.

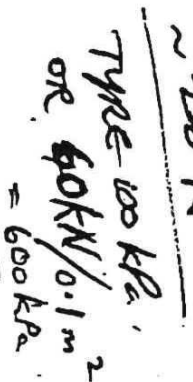
- SURVEY QUALIFIED ENGINEER TO INSPECT
CURBED SUBGRADE AND FINAL COMPLETION.



redjacket
Consulting Engineers

Determination of allowable bearing pressure under small structures

ref. N.Z. Engineering 15 June 1977
M.J. Stockwell



4-300mm COMPACT
AP65 HANDFILL

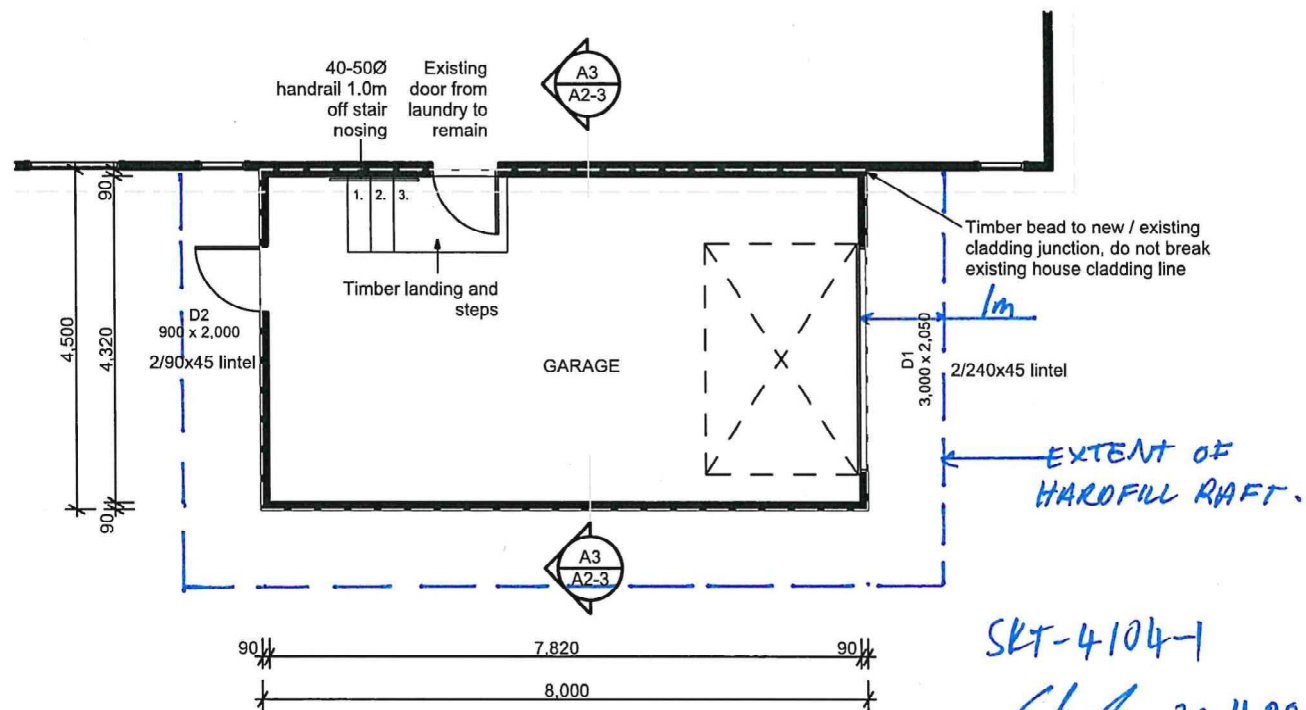
300mm COMPACT
AP65 HARDFILE

300mm COMPACT
AP65 HARDFILE

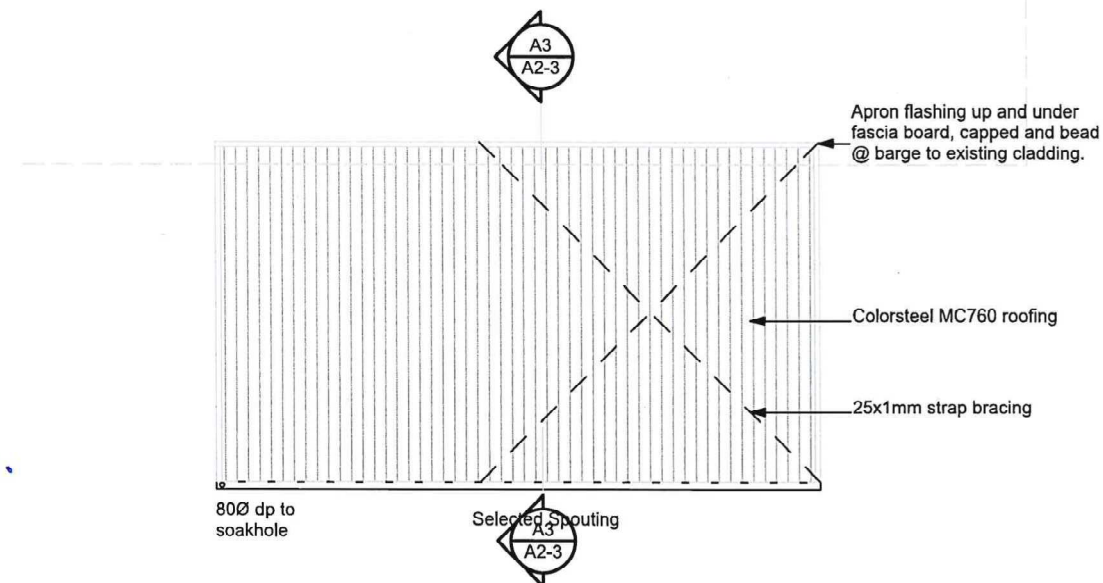
300mm COMPACT
AP65 HARDFILE

300mm COMPACT
AP65 HARDFILE

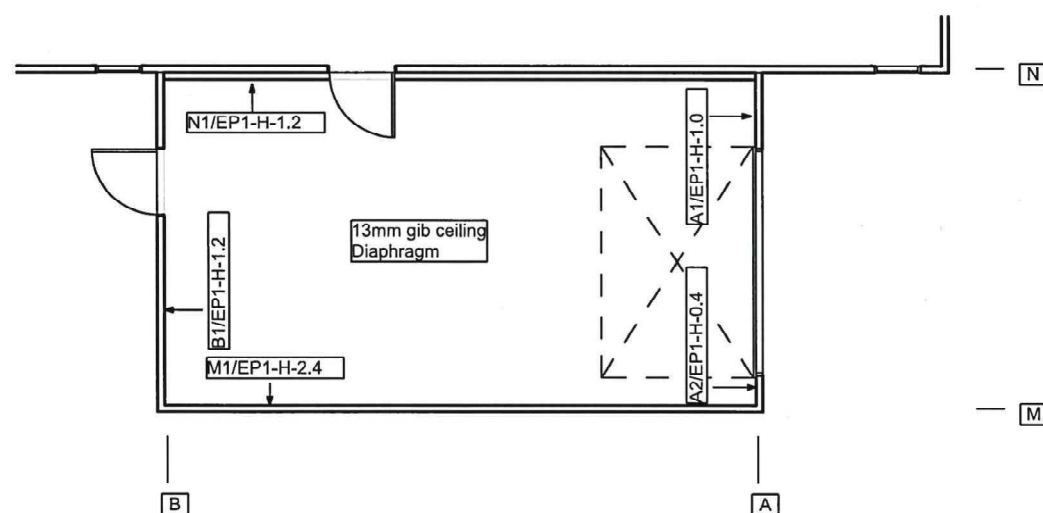
- 300mm COMPACT
AP65 HARDFILE



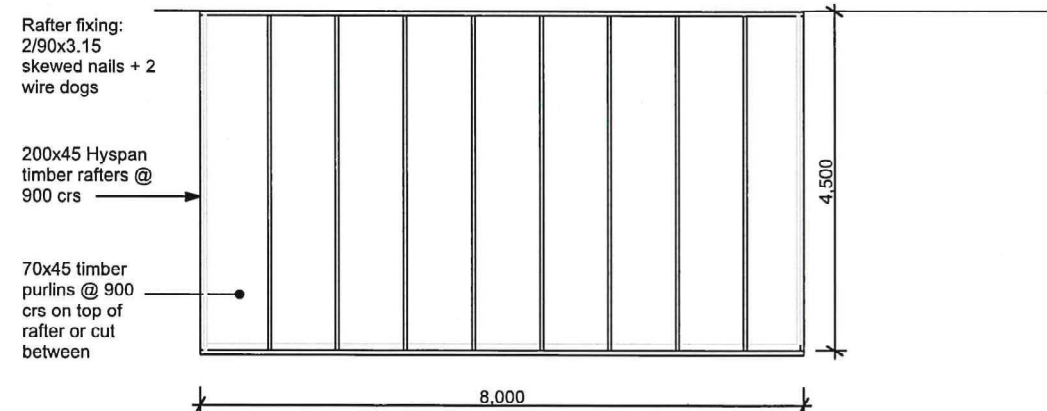
FLOOR PLAN
Scale 1:100



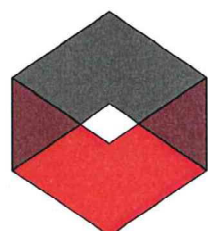
ROOF PLAN
Scale 1:100



BRACING PLAN
Scale 1:100



ROOF FRAMING PLAN
Scale 1:100



NEW PLYMOUTH
40 Ocean View Parade | New Plymouth
t: + 64 6 757 5842
FREECALL: 0800 MANORGROUP
www.manorbuild.co.nz | e: sales@manorbuild.co.nz

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#Notes

client:
LOWE

project:
RELOCATE PERMIT

design by: Manor Build

scale: As Noted

date: 27/10/2020

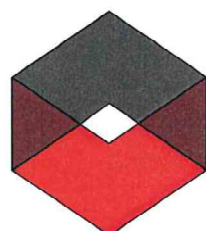
PLANS

job no:

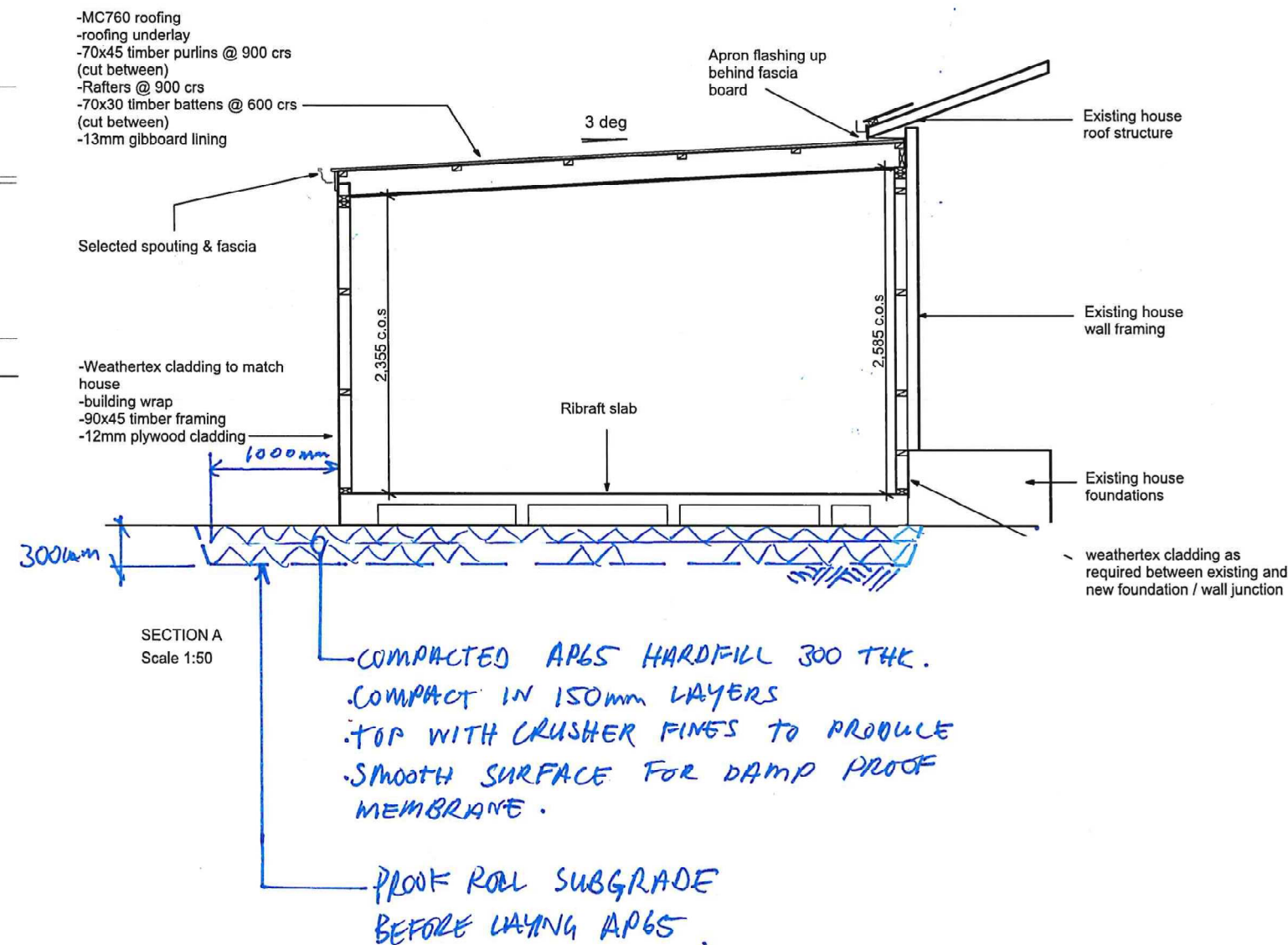
MG181

sheet no:

A2-2



HOUSE NOT PART OF PERMIT



26.11.20 SKT-4104-
ghl



NEW PLYMOUTH
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FREECALL: 0800 MANORGROUP
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#Notes

client:
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RELOCATE PERMIT

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scale: As Noted

date: 27/10/2020

ELEVATIONS

job no:

MG181

sheet no:

A2-3