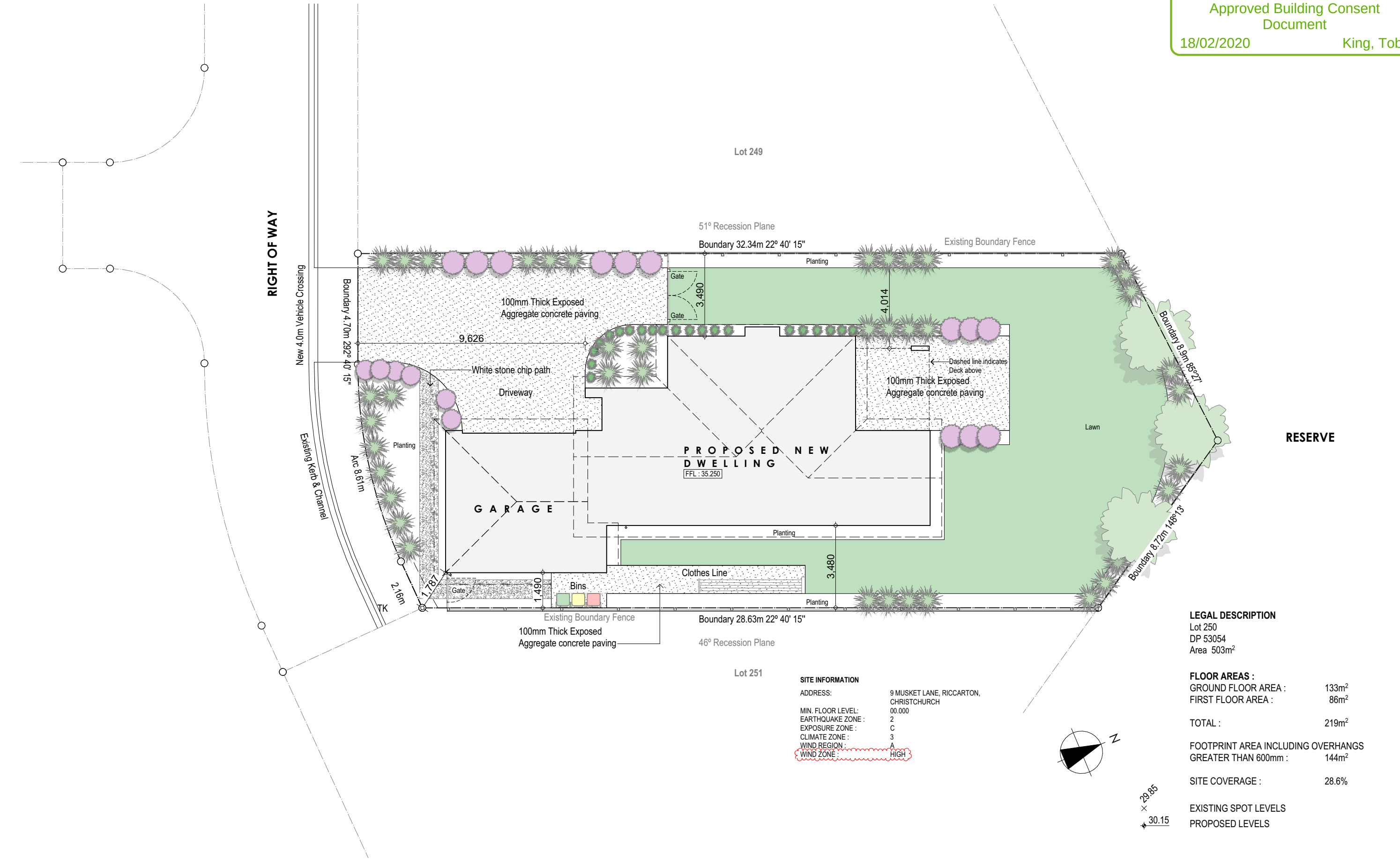
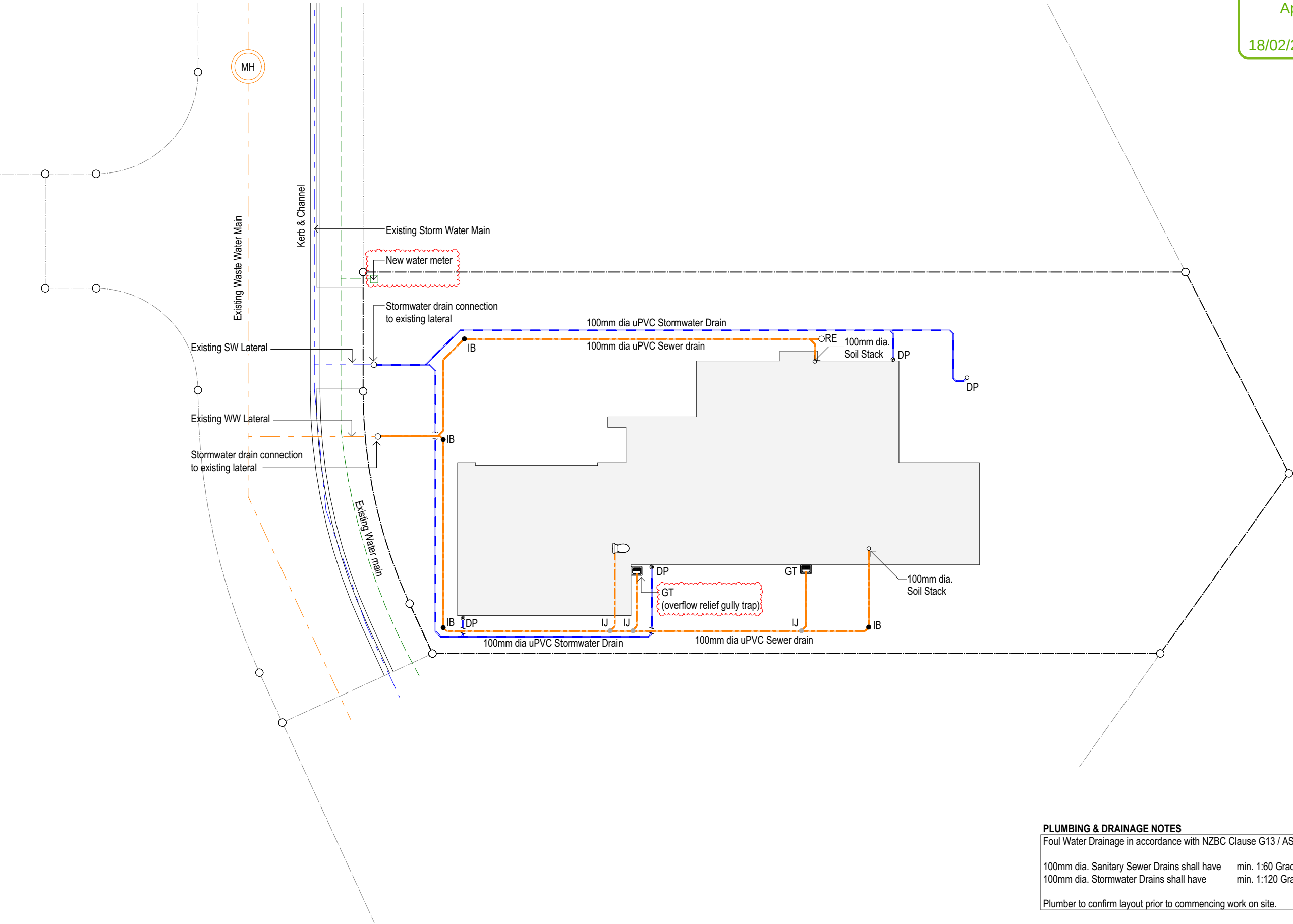




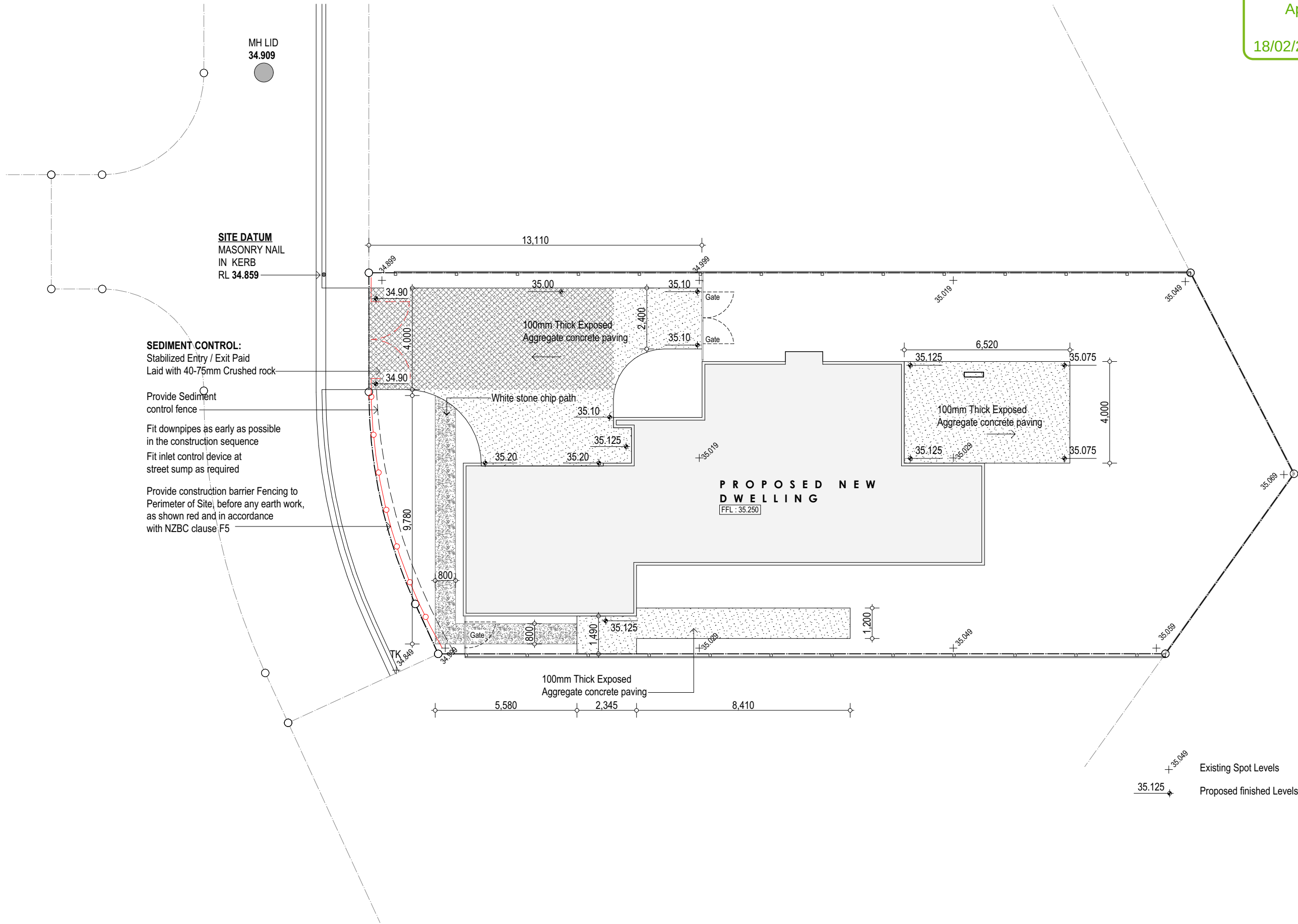


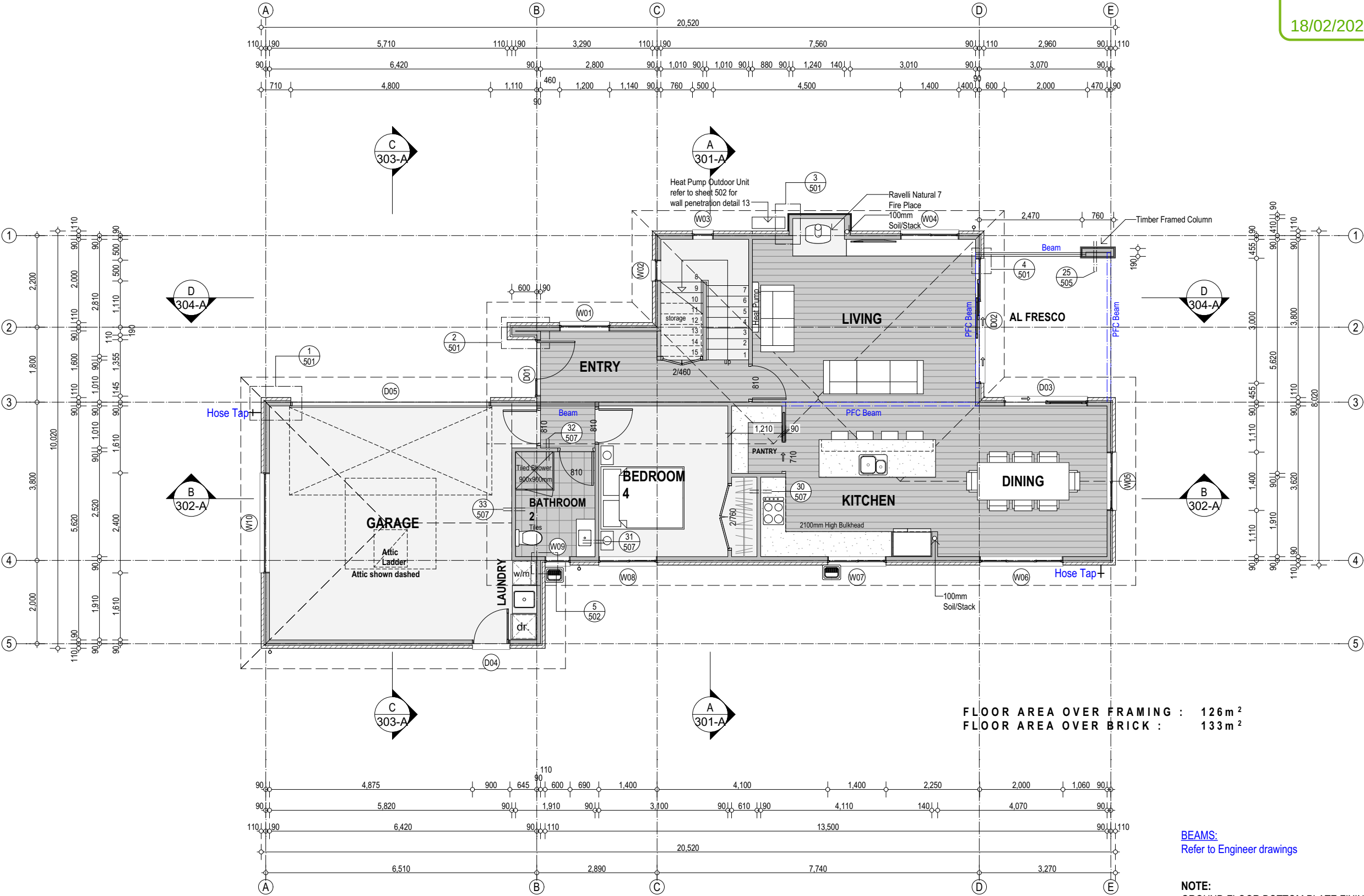
PLUMBING & DRAINAGE NOTES
Foul Water Drainage in accordance with NZBC Clause G13 / AS1

100mm dia. Sanitary Sewer Drains shall have min. 1:60 Gradient
100mm dia. Stormwater Drains shall have min. 1:120 Gradient

Plumber to confirm layout prior to commencing work on site.

GT	Gully Trap
MV	Main Vent 80mm dia.
IB	• Inspection Bend
IJ	• Inspection Junction
RE	Rodding Eye
DP	Down Pipe

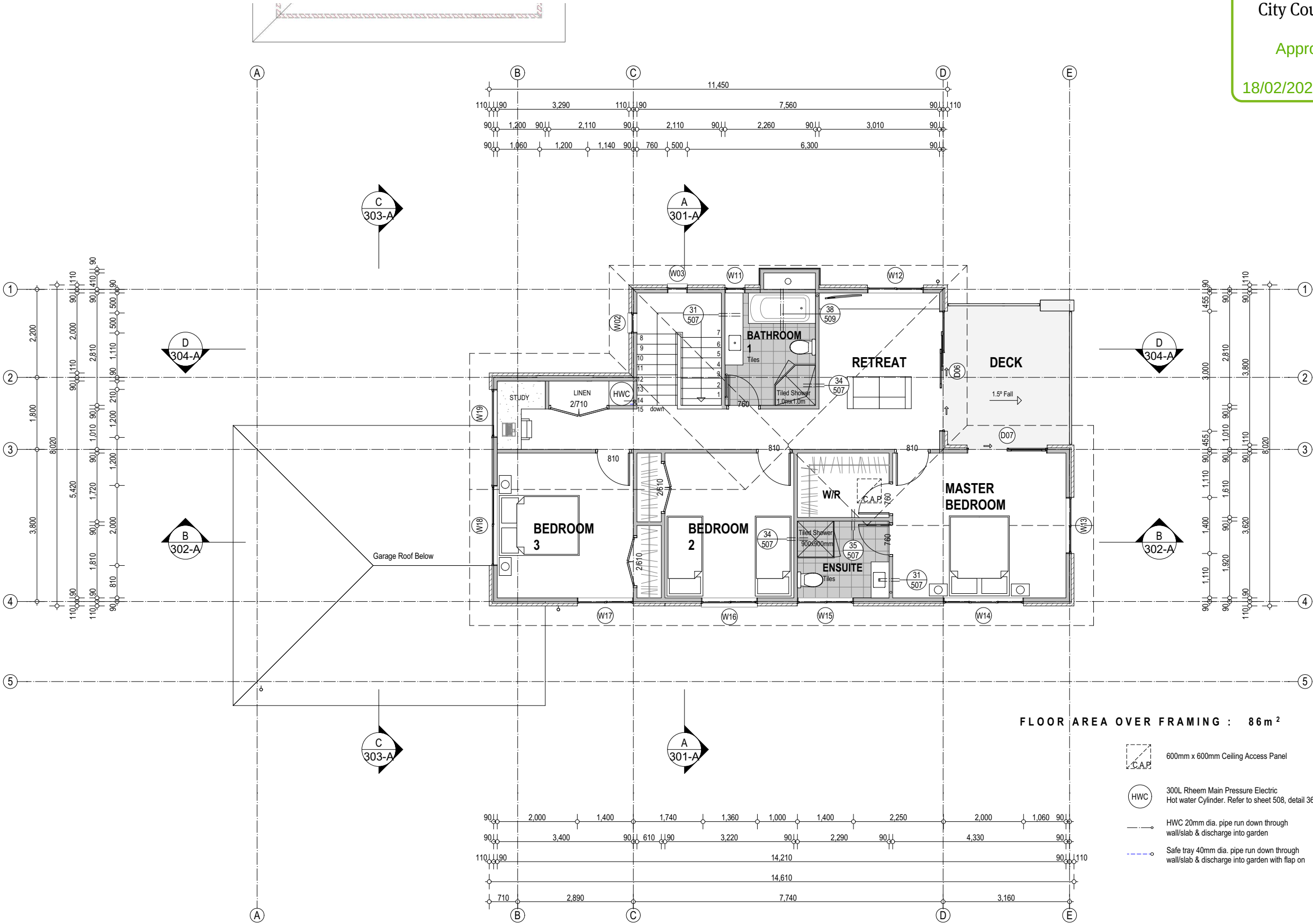


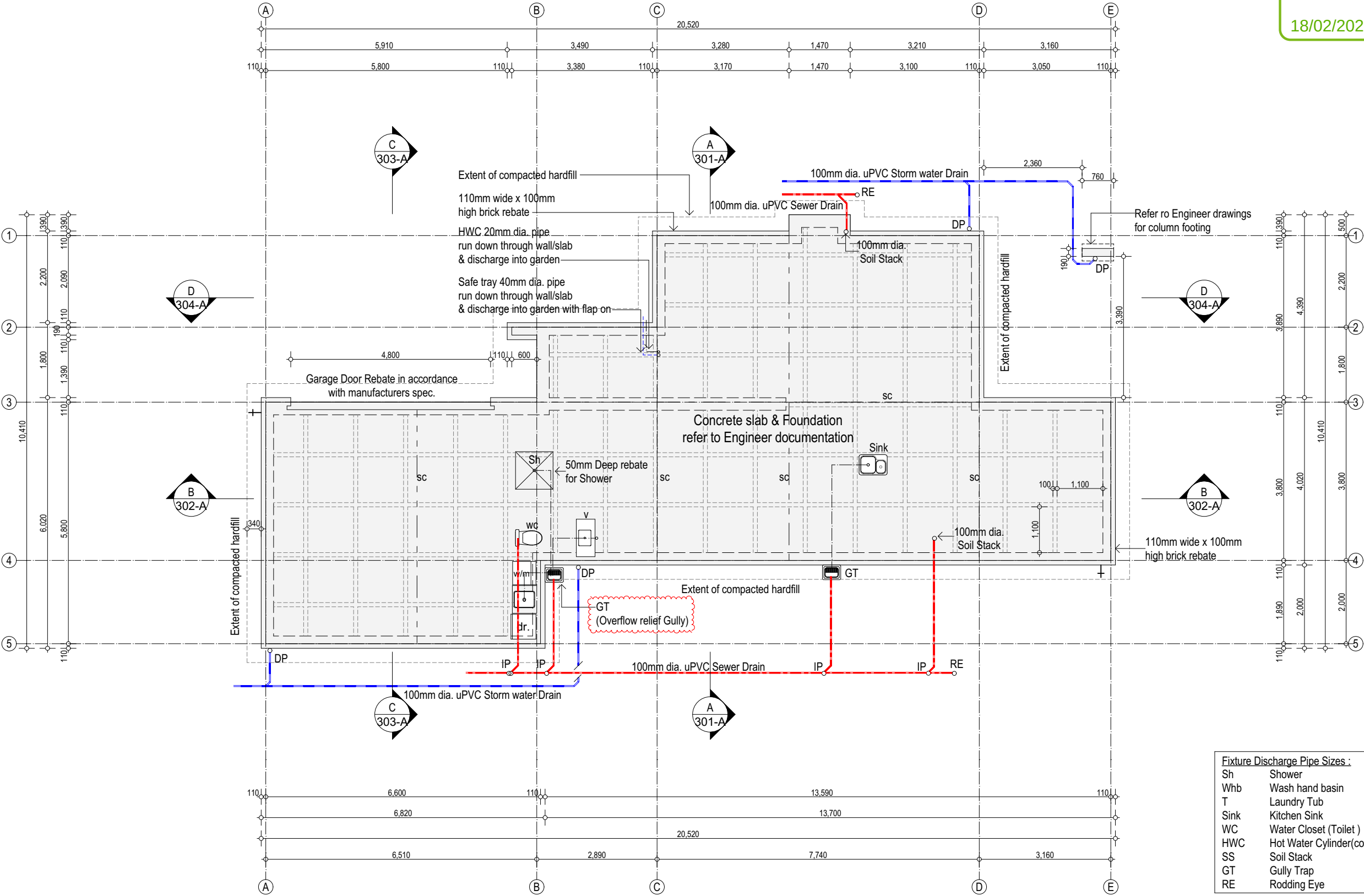


FLOOR AREA OVER FRAMING : 126 m²
FLOOR AREA OVER BRICK : 133 m²

BEAMS:
Refer to Engineer drawings

NOTE:
GROUND FLOOR BOTTOM PLATE FIXINGS :
M12 Trubolts within 150mm of each end of the plate
and @600mm crs max, with 50 x 50mm square Washers





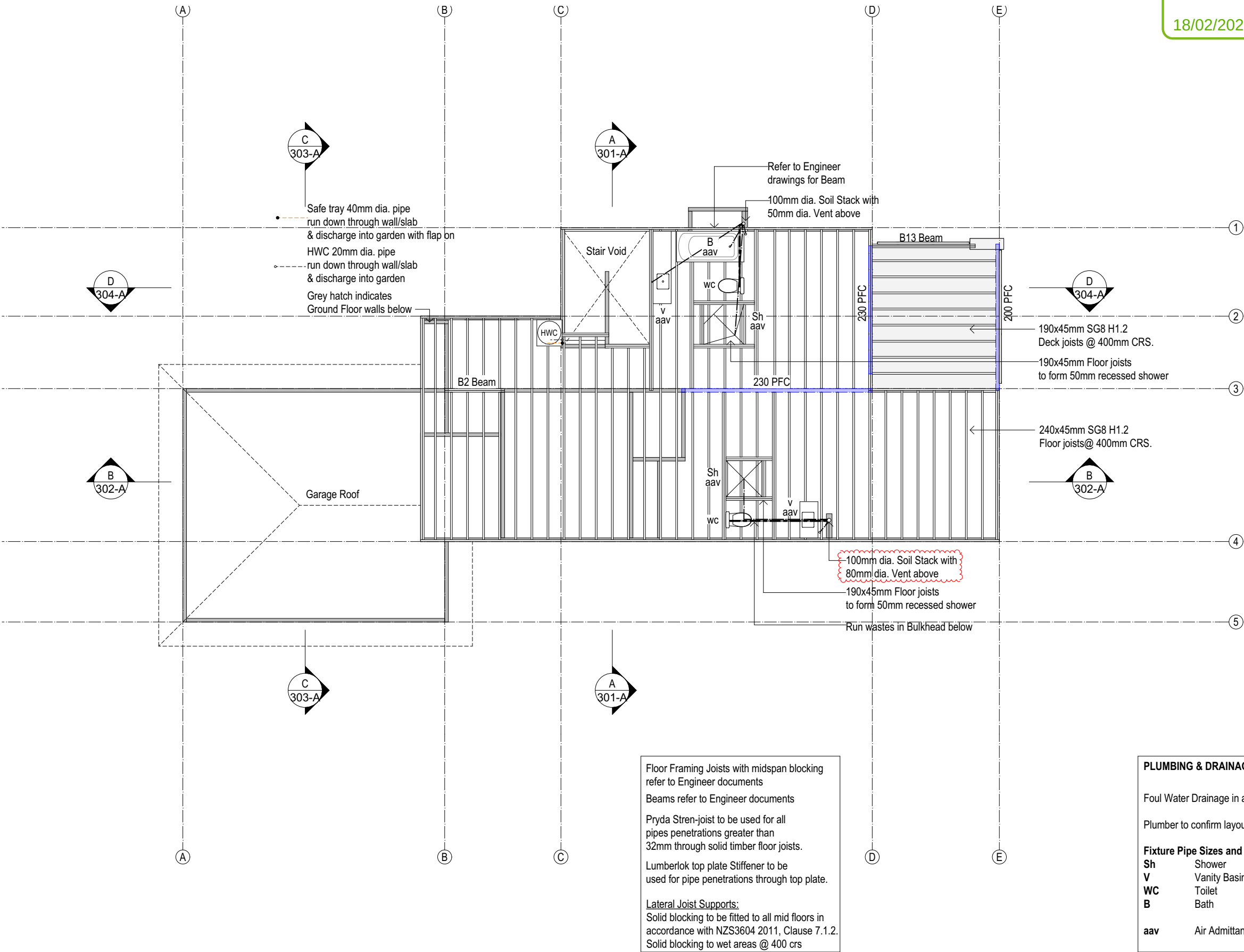
Fixture Discharge Pipe Sizes :		
Sh	Shower	40mm dia. 1:40
Whb	Wash hand basin	32mm dia. 1:20
T	Laundry Tub	40mm dia. 1:30
Sink	Kitchen Sink	40mm dia. 1:40
WC	Water Closet (Toilet)	100mm dia. 1:60
HWC	Hot Water Cylinder(copper)	20mm dia.
SS	Soil Stack	100mm dia.
GT	Gully Trap	
RE	Rodding Eye	

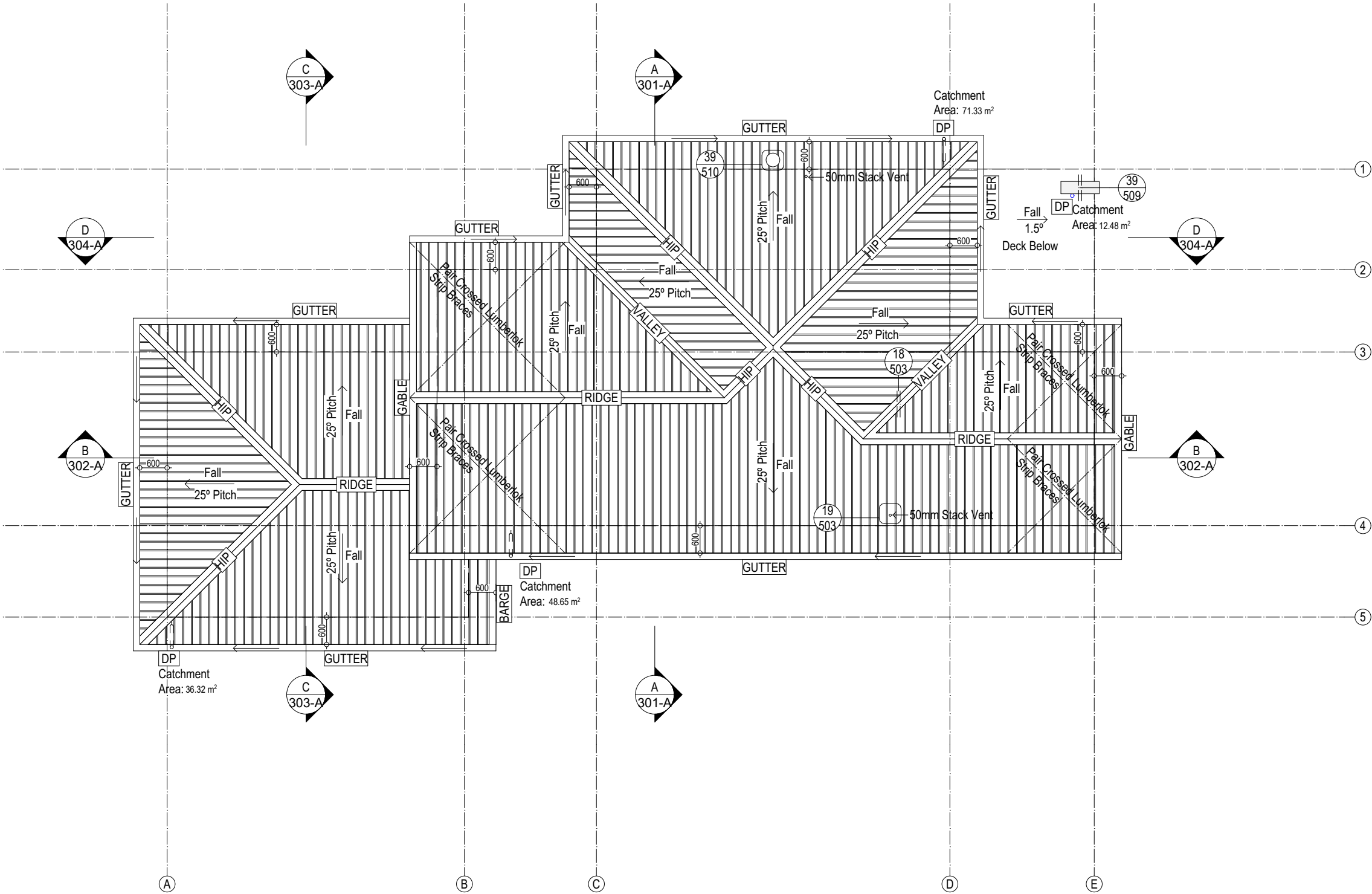
Surface Water Drainage in compliance with NZBC E1

Min. Gradients for S/W Pipe sizes as follows :
100mm dia. 1:120
Minimum Gradients for Sewer Pipe sizes as follows
100mm dia. 1:60

Foul Water Drainage to comply with NZBC G13.

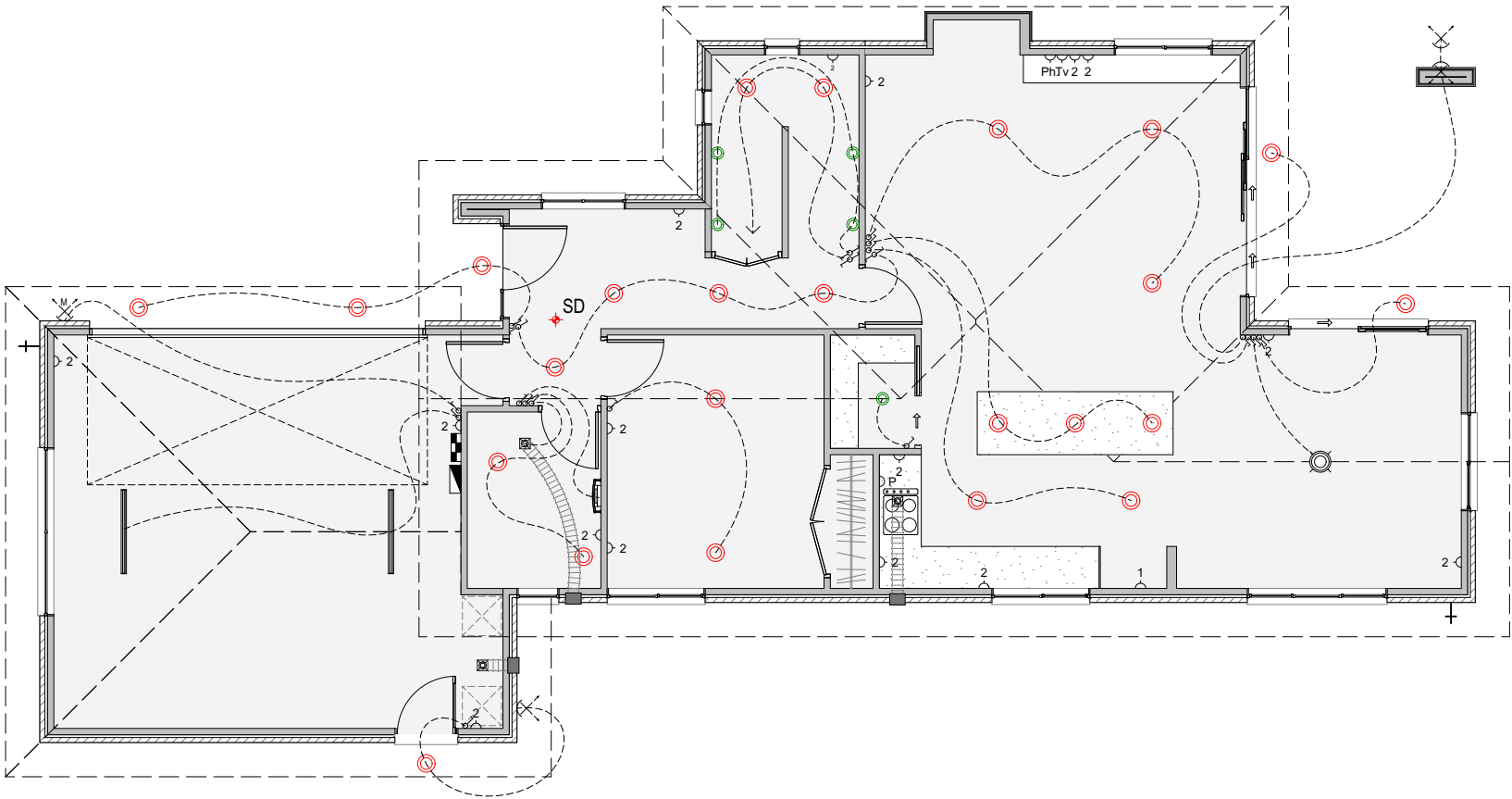
Plumber to confirm layout prior to commencing work on site.





ROOF PLAN NOTES

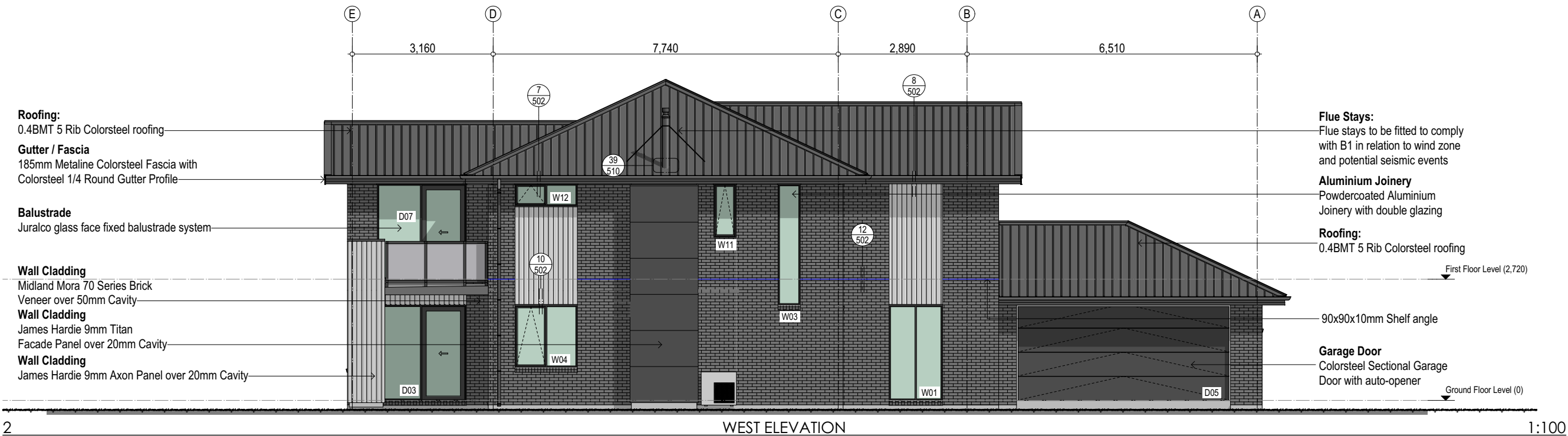
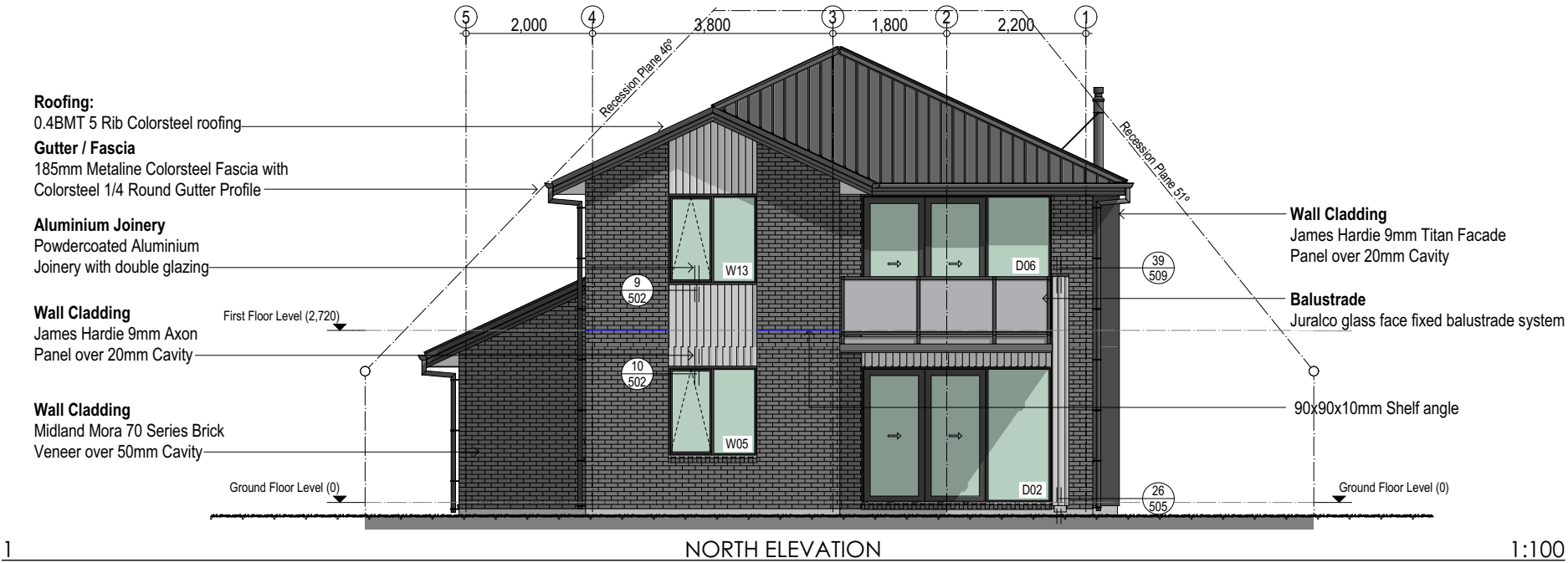
- Longrun Roofing:**
0.4BMT Five Rib Colorsteel Roofing with matching Accessories
- Underlay:**
Thermakraft 215 Self-Supporting
- Purlins:**
70x45mm H1.2 SG8 @ 900mm crs
2.4kN Fixing required : 1 no. 80 x 10 gauge. LUMBERLOK BLUE SCREW
- Gable:**
Spacing to end purlins as required by E2/AS1, Table 14 - 900mm CRS intermediate & 600mm CRS to top & bottom purlins(from ridge & eaves).
- Downpipes:**
80mm dia. Colorsteel
- Fascia:**
185mm Colorsteel
- Gutter:**
Continuous colorsteel 1/4 round Profile



ELECTRICAL LEGEND	
	Ceiling Mounted LED Baton
	Mini Recessed LED Light
	Recessed LED Light
	Pendant Light
	Exterior Wall Light
	Exterior Wall Light with motion sensor
	Extract Fan ducted to exterior
	Double Socket Outlet (horizontal)
	Single Socket Outlet
	Switch
	Two-Way Switch
	Permanent Connection
	Telephone Outlet
	TV Outlet
	Main Switchboard
	Smart Meter Board
	Heated Towel Rail
	Fan Wall Heater mounted above
	Smoke Detectors with hush facility (hard-wired)

NOTE:
Electrician must make a time to walk through house under construction with the owners prior to commencing any work, to confirm and finalize the location of all electrical outlets, lighting and switching

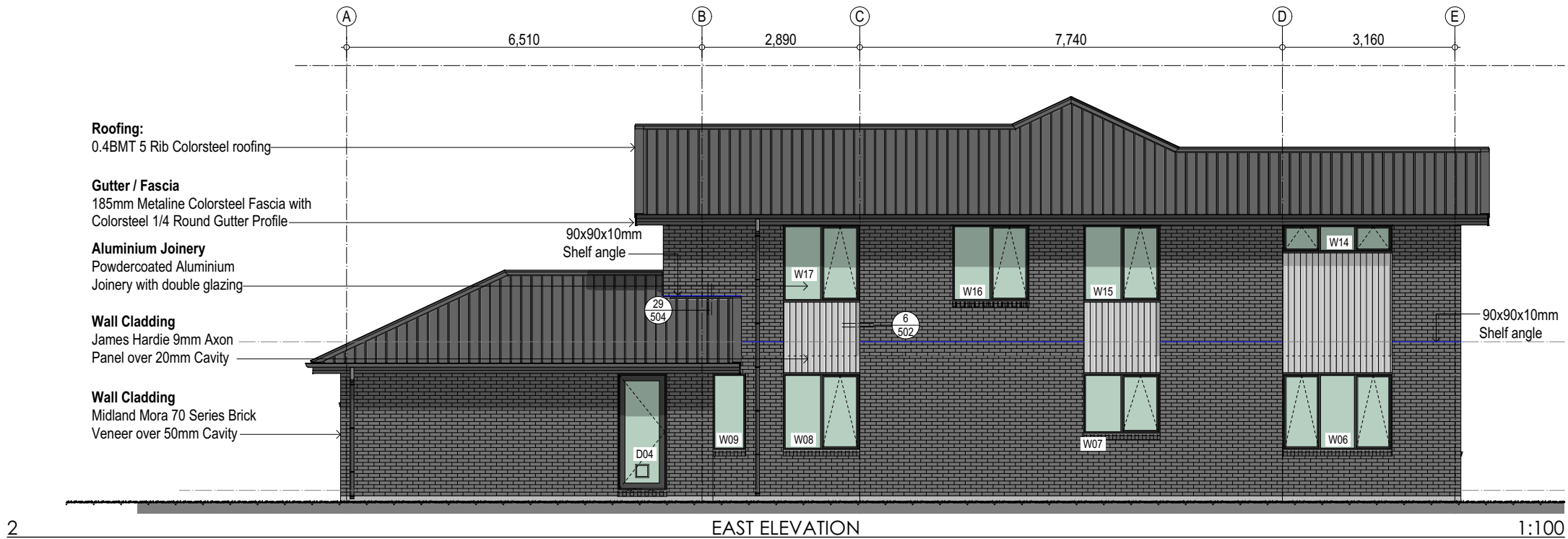
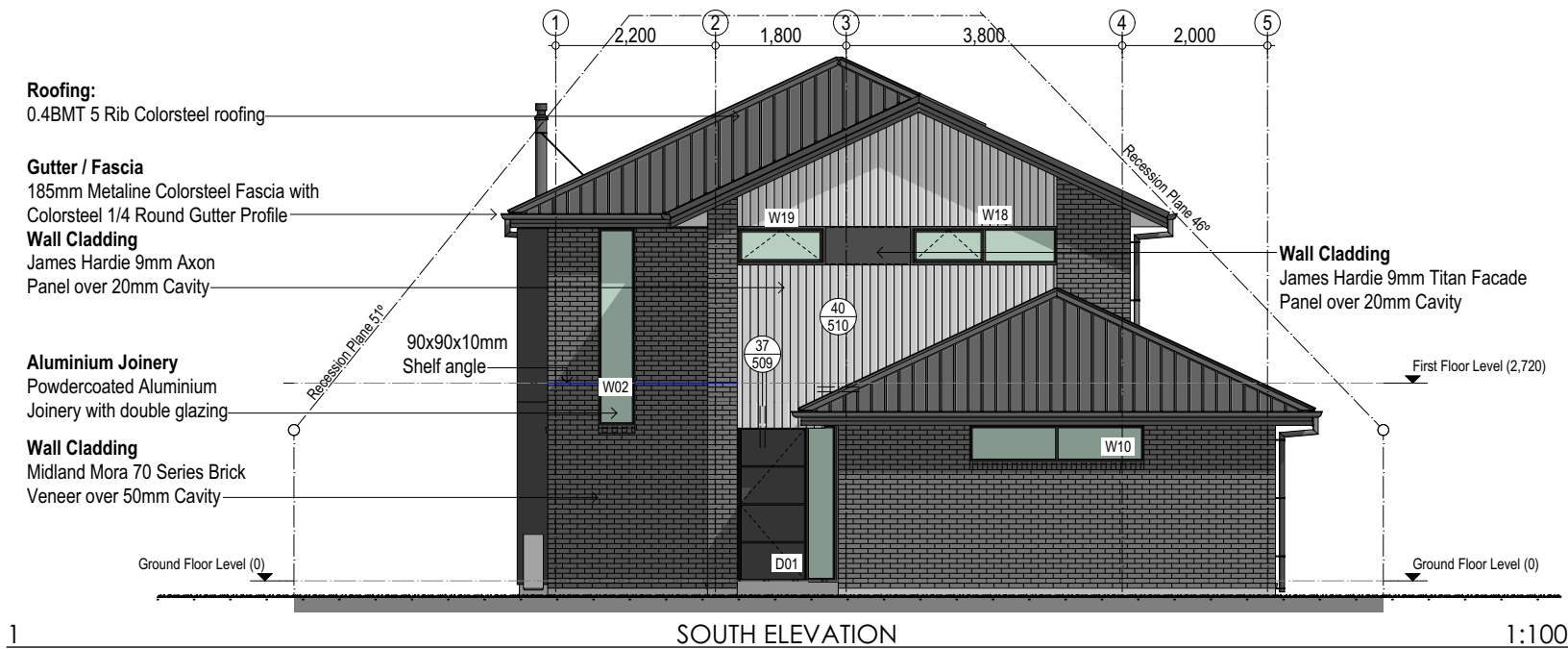
All recessed light fittings are ICF rating



H1 ENERGY EFFICIENCY NOTES:

WINDOW AREA OF EAST, SOUTH AND WEST WALLS OF ALL UNITS <30% OF TOTAL WALL AREA - R VALUES OF ALL COMPONENTS MEET OR EXCEED SCHEDULE MINIMUMS - PROPOSAL COMPLIES WITH SCHEDULE METHOD (NZS4218 AND H1)

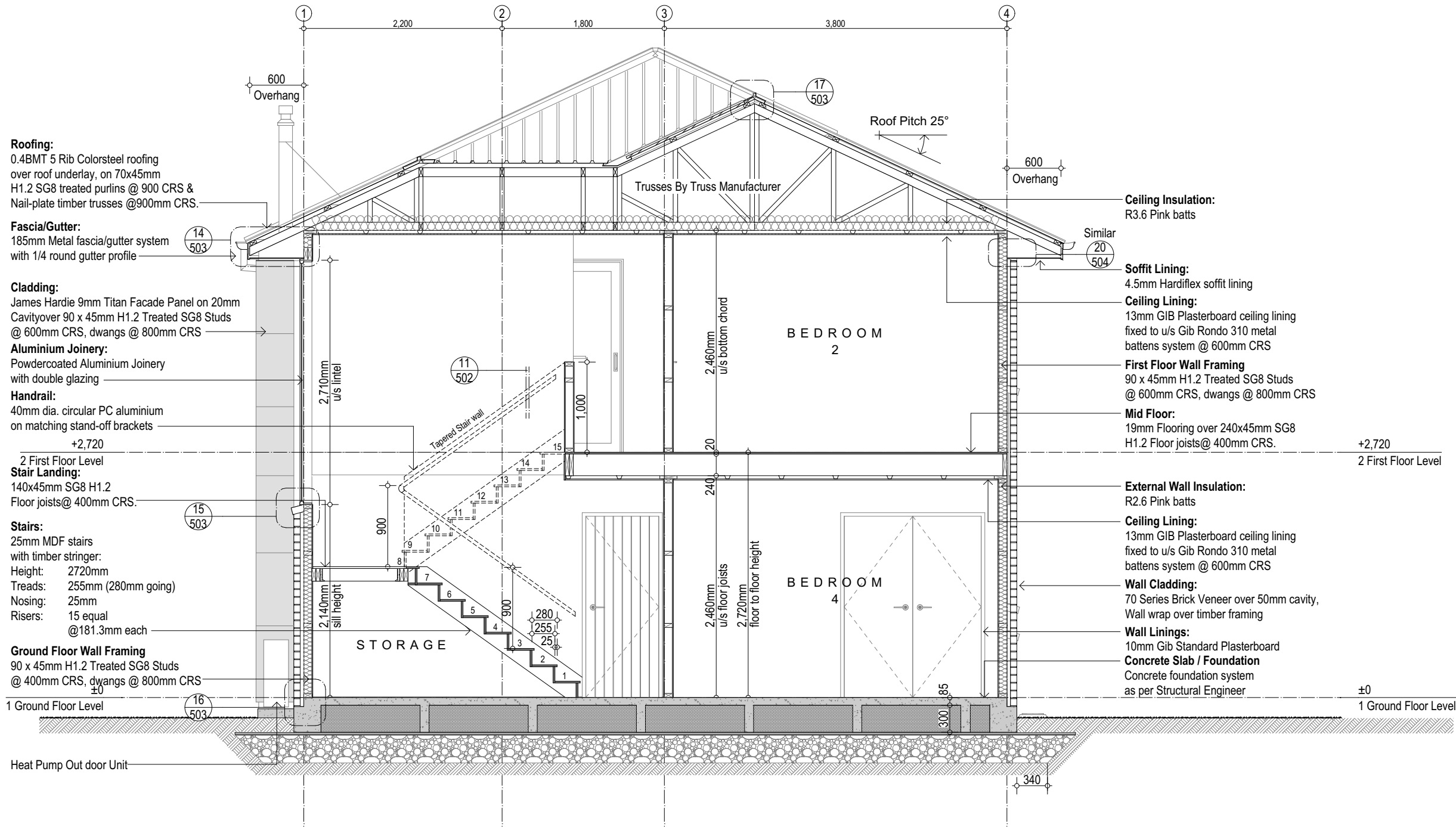
BUILDING ENVELOPE RISK MATRIX		
ELEVATION		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Medium risk	1
Roof/wall intersection design	High risk	3
Eaves width	Medium risk	1
Envelope complexity	High risk	3
Deck design	High risk	4
Total Risk Score:		13

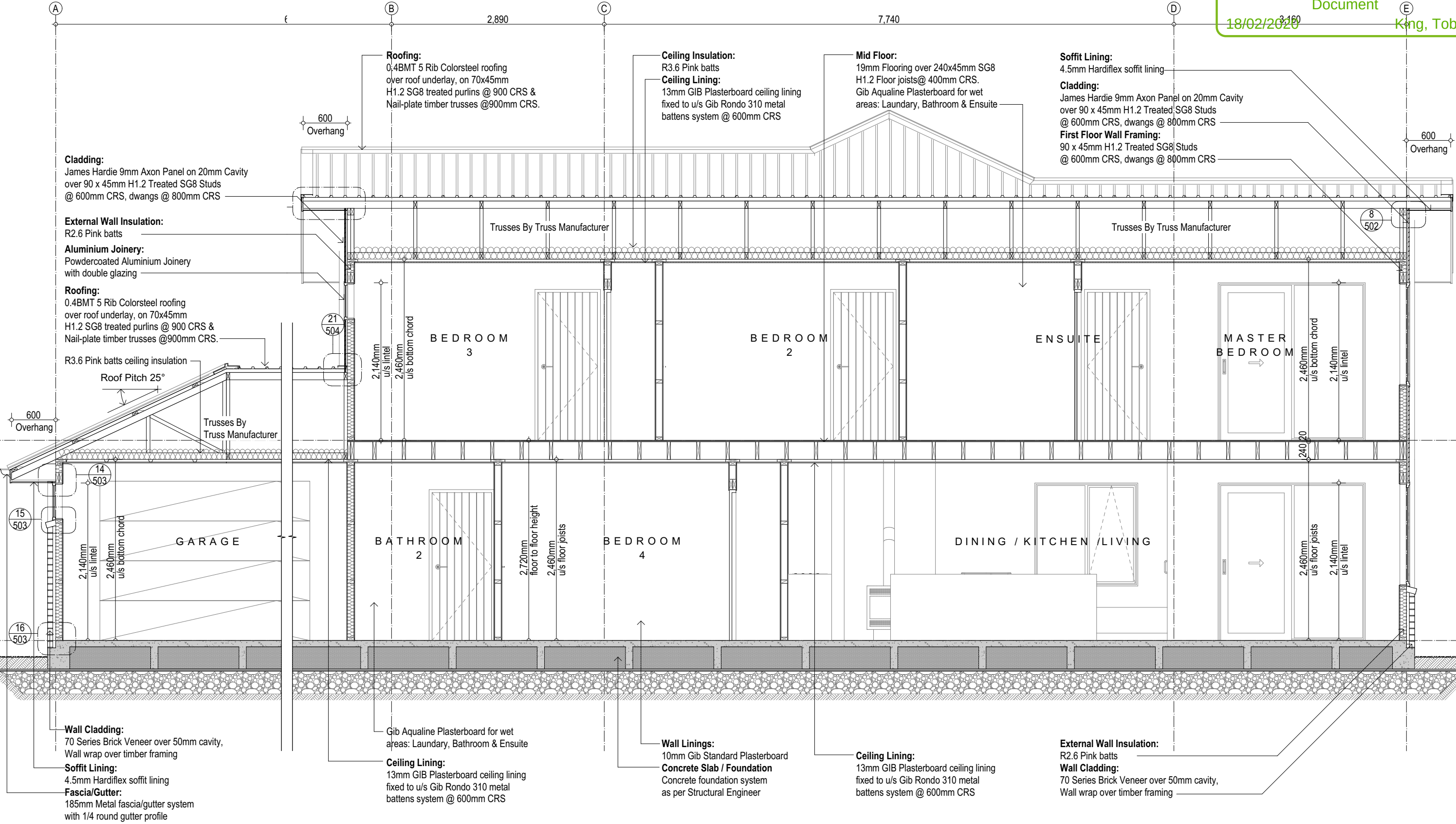


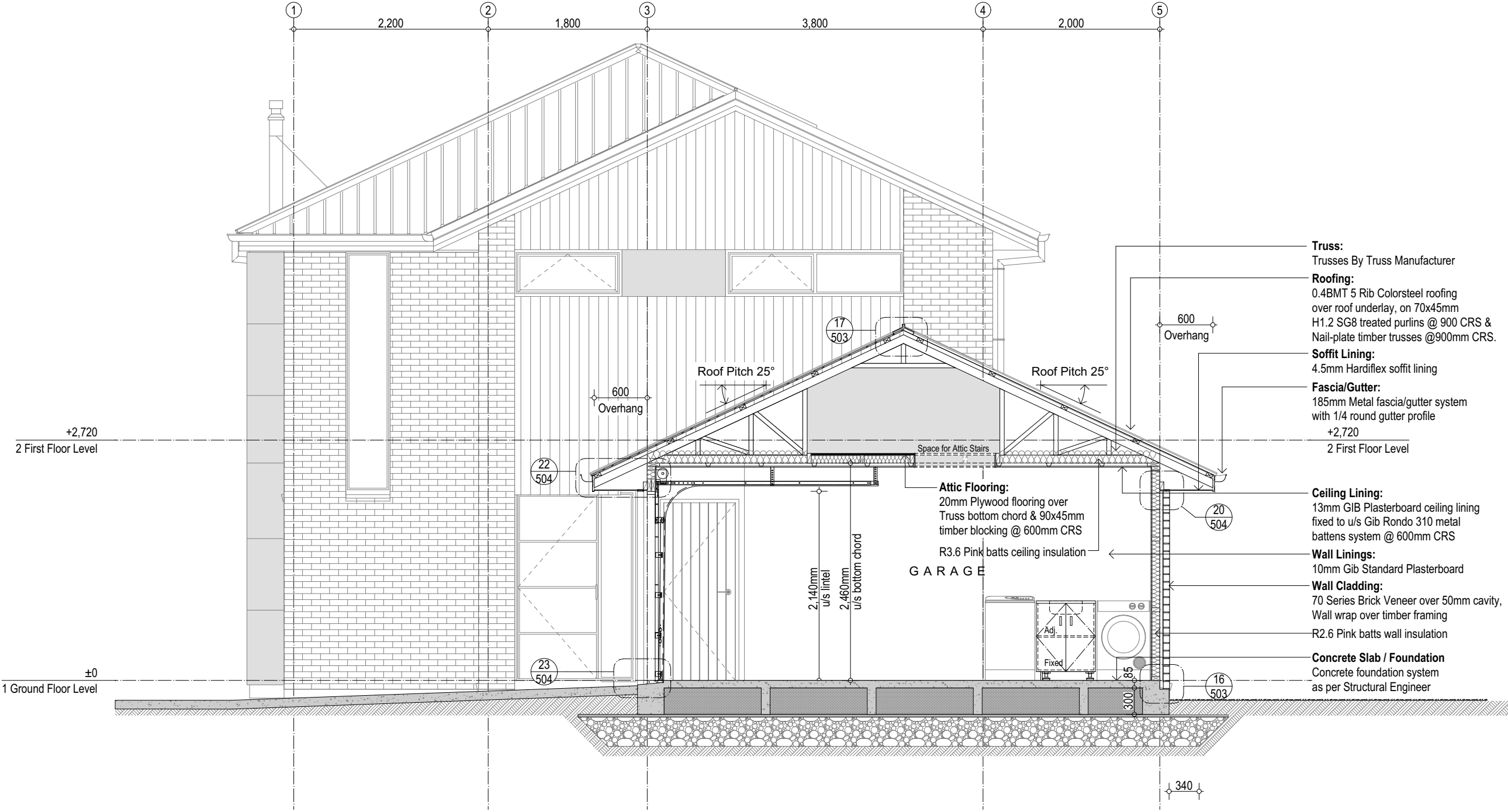
H1 ENERGY EFFICIENCY NOTES:

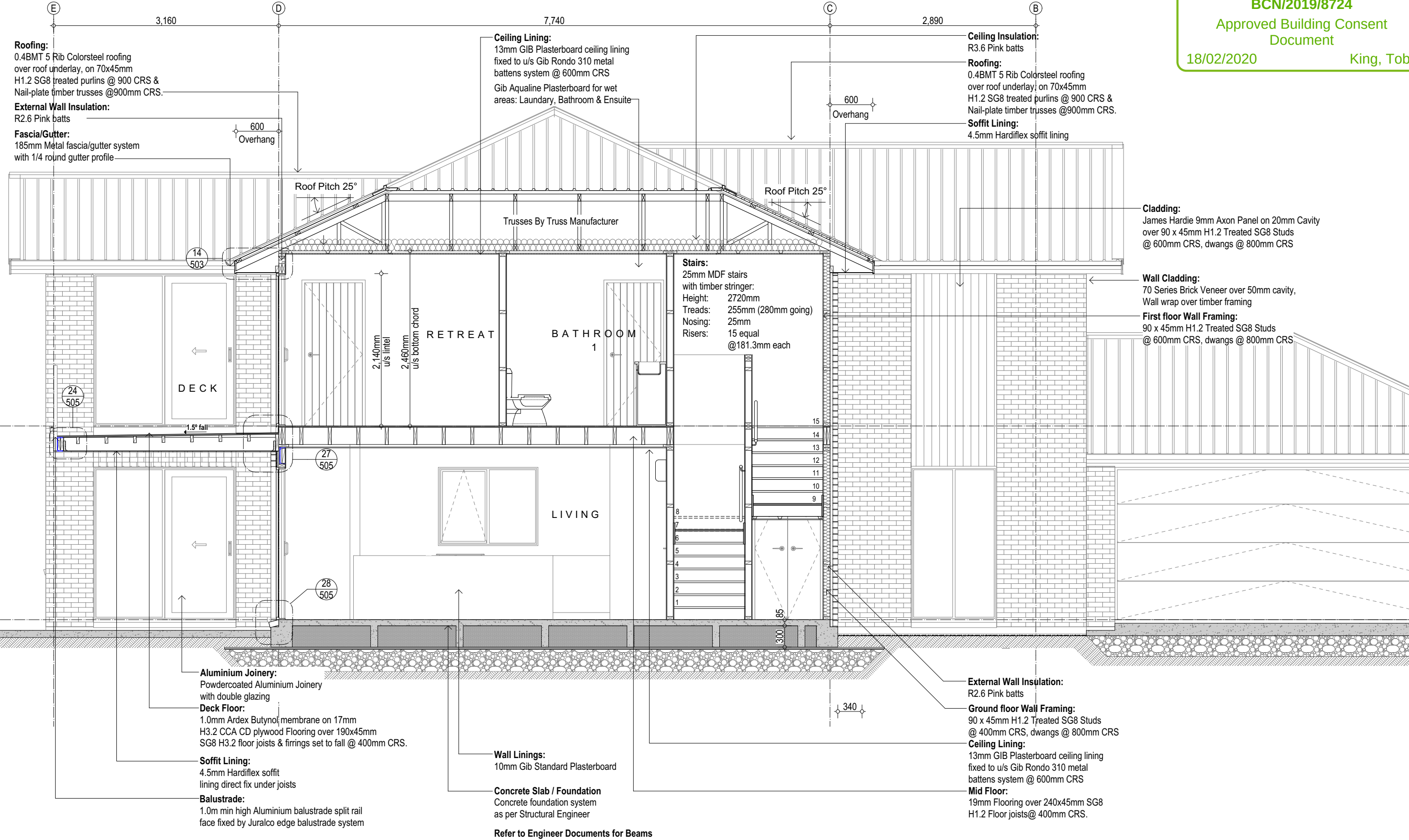
WINDOW AREA OF EAST, SOUTH AND WEST WALLS OF ALL UNITS <30% OF TOTAL WALL AREA - R VALUES OF ALL COMPONENTS MEET OR EXCEED SCHEDULE MINIMUMS - PROPOSAL COMPLIES WITH SCHEDULE METHOD (NZS4218 AND H1)

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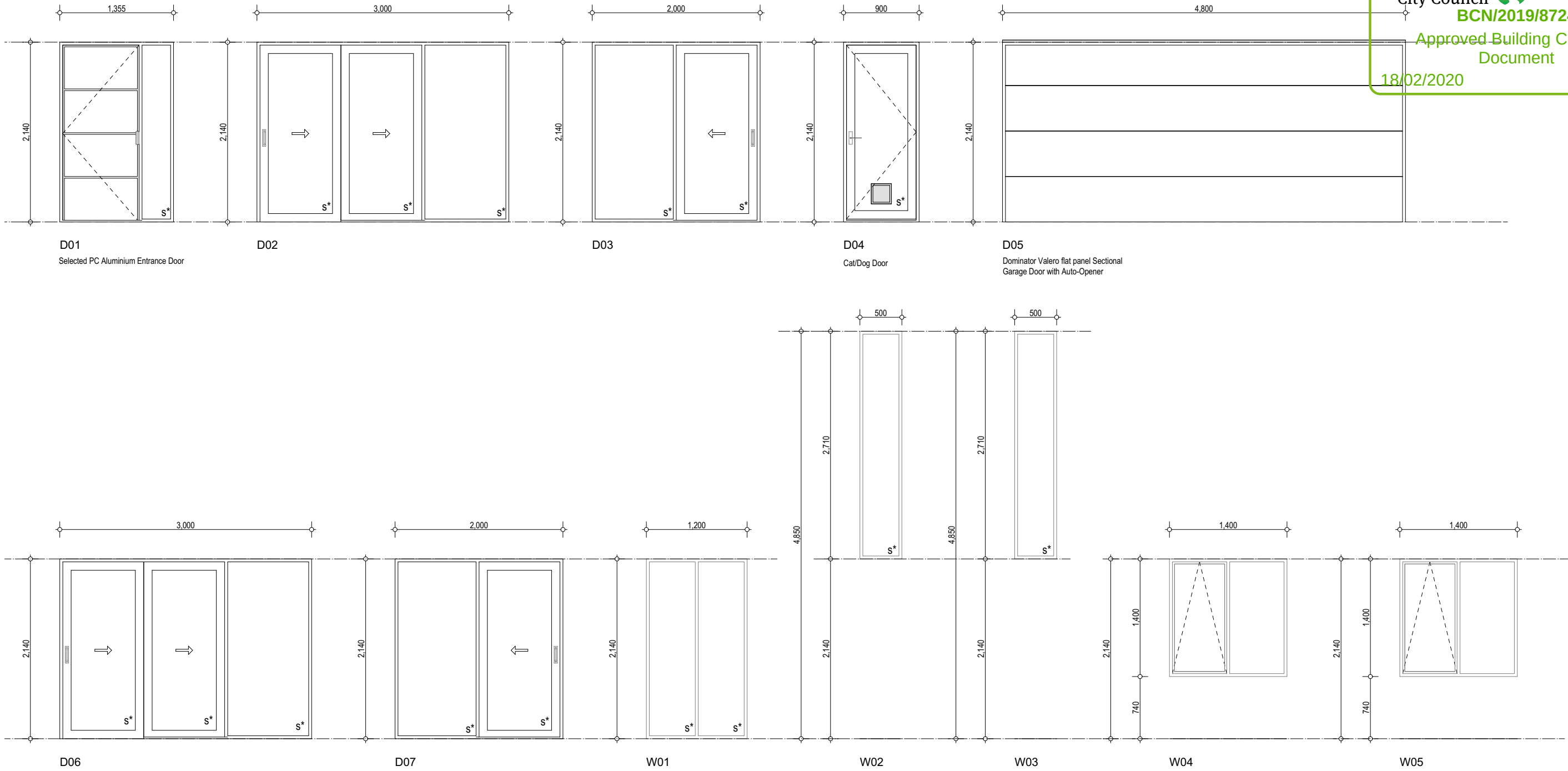
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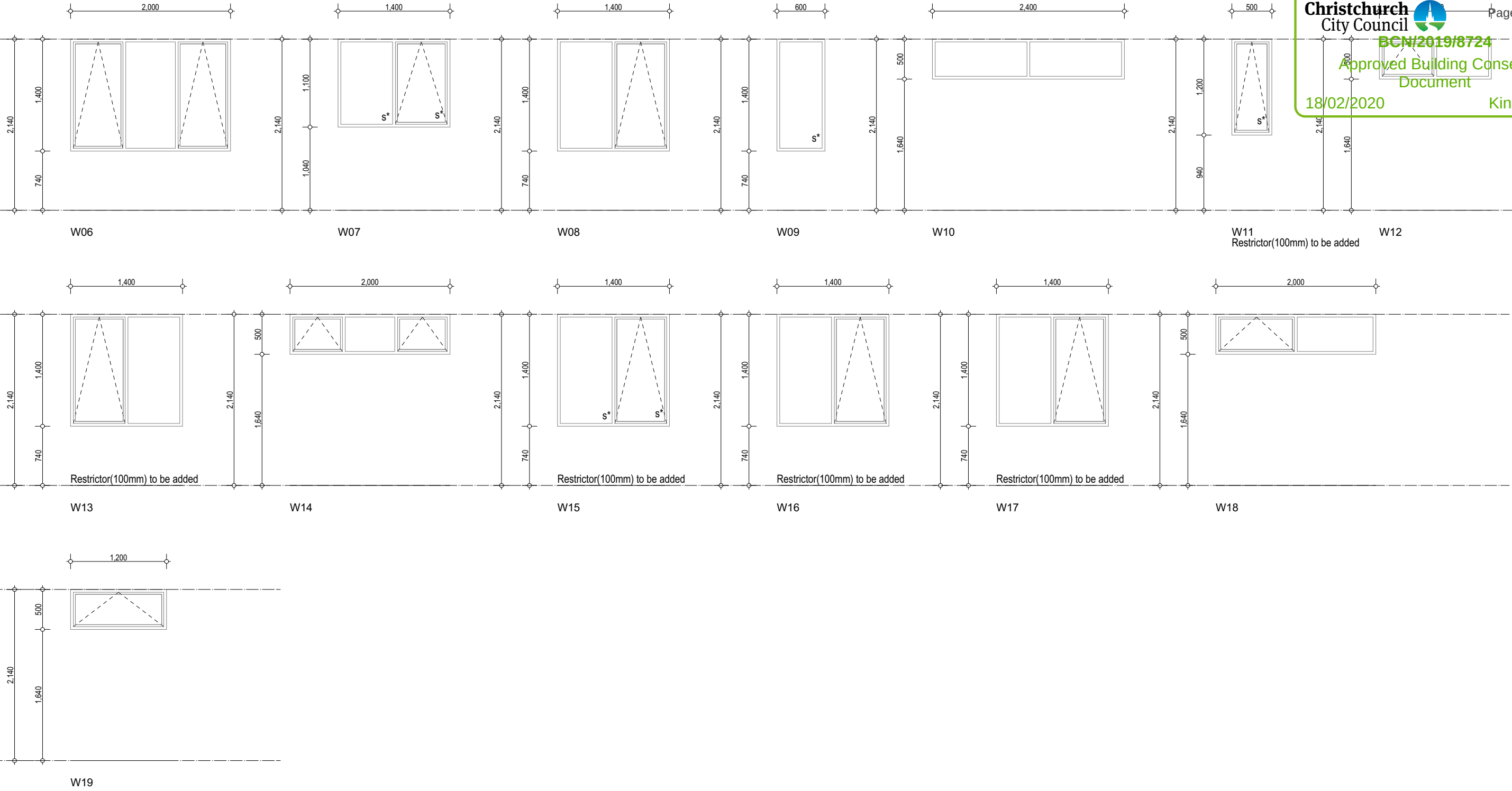
ALUMINIUM FRAMED WINDOW & DOOR NOTES

Sizes shown are Framing Rough Openings
All Openings Shall be Site Measured by the Aluminium Joiner prior to manufacture of any windows or doors

Powdercoated Aluminium Frames in either 35 or 40mm Residential Suite.

25mm H3.1 Treated Reveals with Paint Finish

*s Denotes Grade A Safety Glass in accordance with Table 3.1 NZS4223 : Glazing in Buildings



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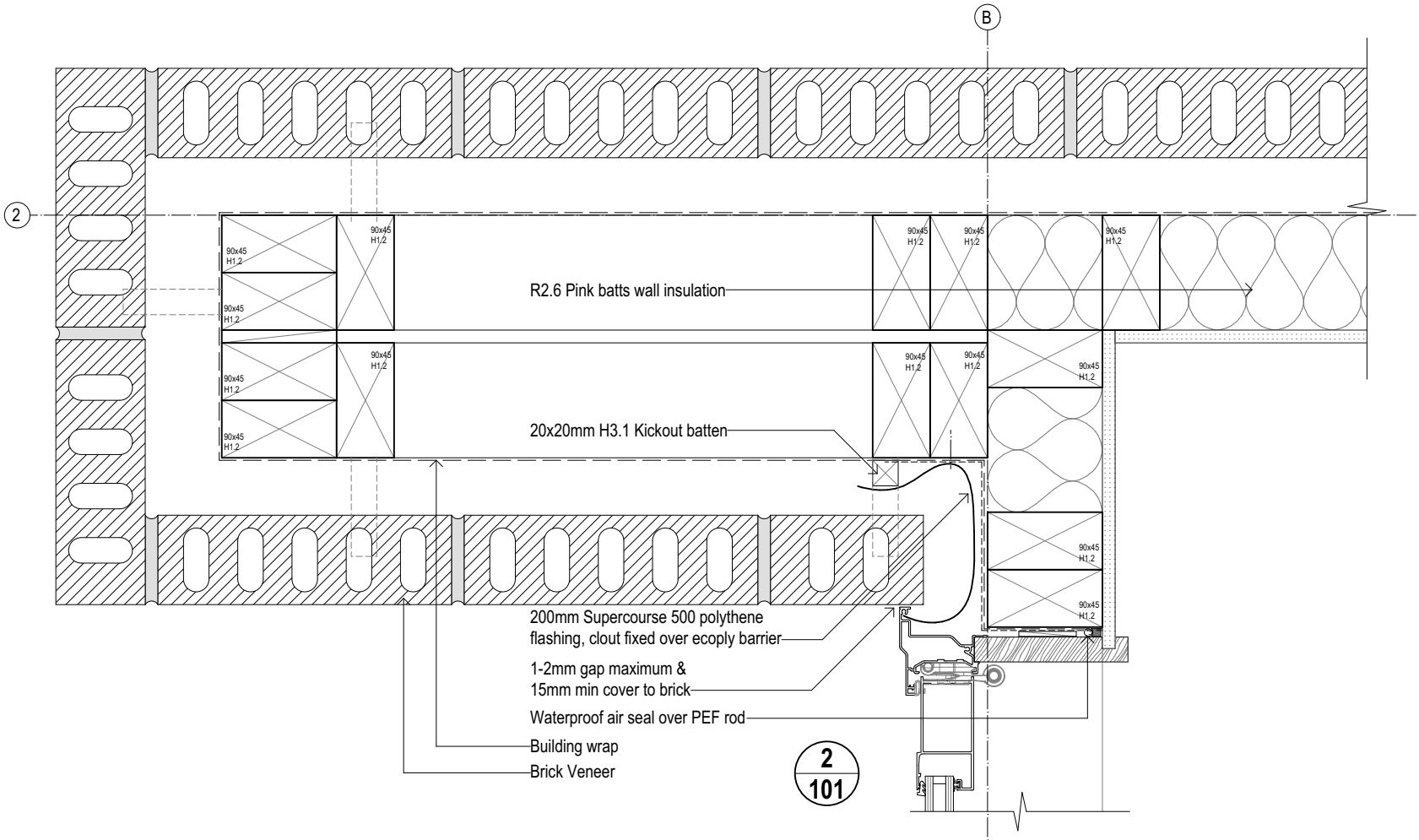
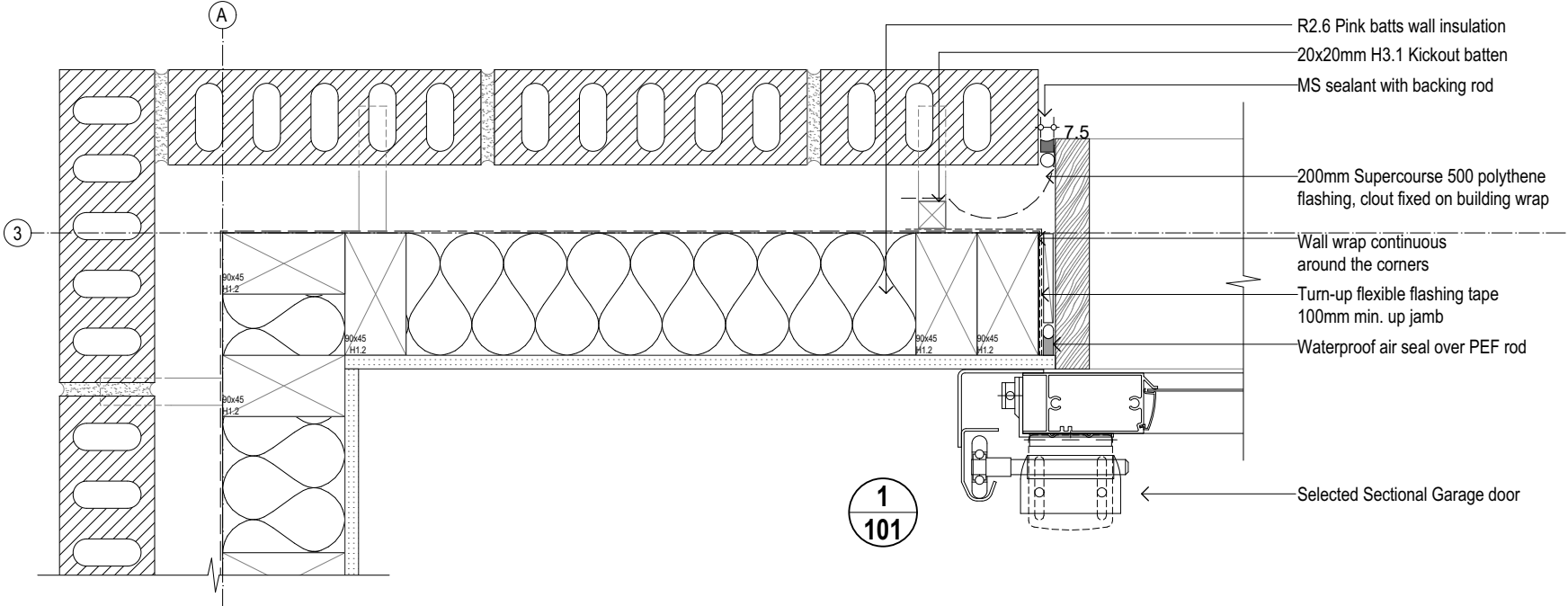
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Powdercoated Aluminium Frames in either 35 or 40mm Residential Suite.

25mm H3.1 Treated Reveals with Paint Finish

*s Denotes Grade A Safety Glass in accordance with Table 3.1 NZS4223 : Glazing in Buildings



JH 9mm panel aluminium external box corner. Corner flanges to be removed locally under aluminium 'h' mould

JH 9mm Titan Facade Panel wall cladding. Seal all site cut edges/ends of boards.

70x19mm CLD Structural cavity battens

Polypropylene/Polythylene DPC or flashing tape to protect flexible underlay 100mm each side of corner

Building wrap continuous around the corners

R2.6 Pink batts wall insulation

Wall wrap

10mm GIB internal wall lining

Corner metal flashing

Continuous protective backing rod

70mm Series Brick veneer over drained cavity space

20x20mm H3.1 Kickout batten

R2.6 Pink batts wall insulation

10mm GIB internal wall lining

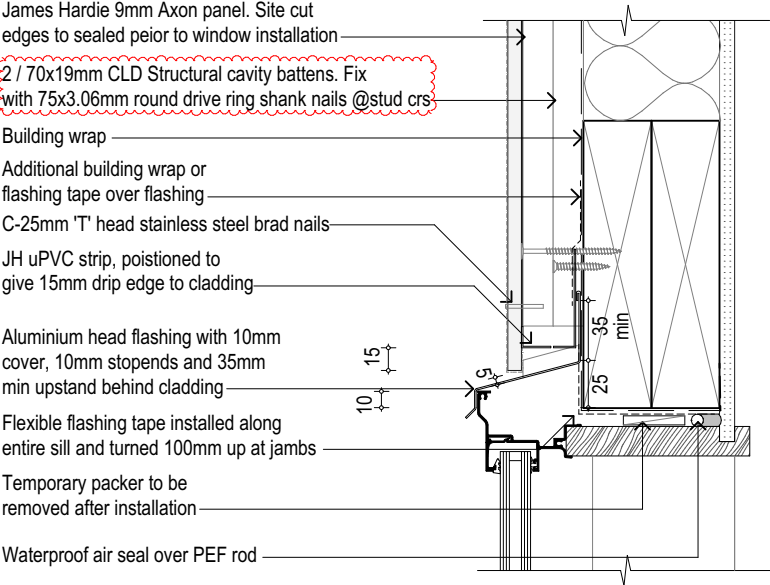
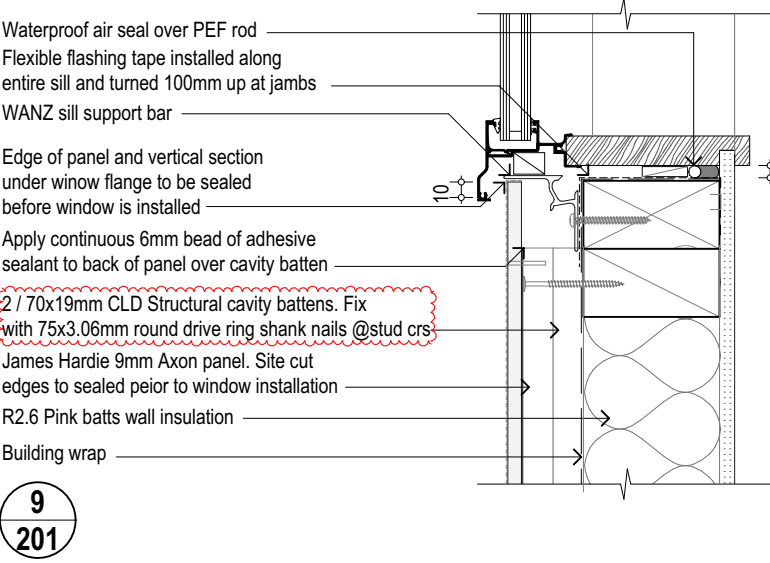
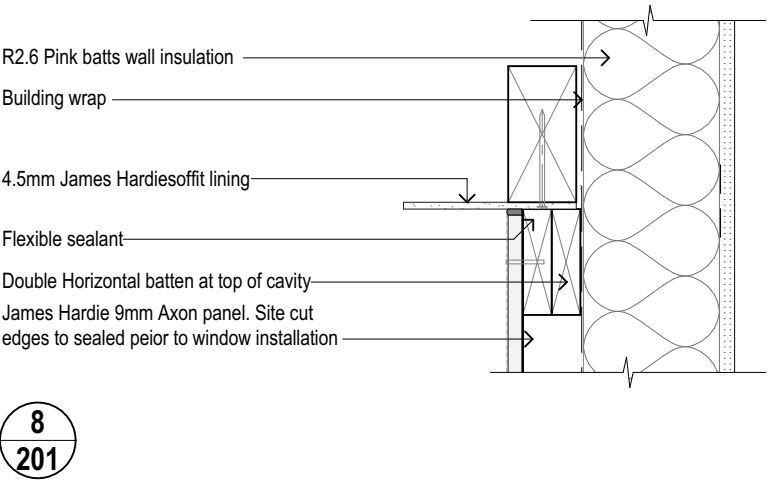
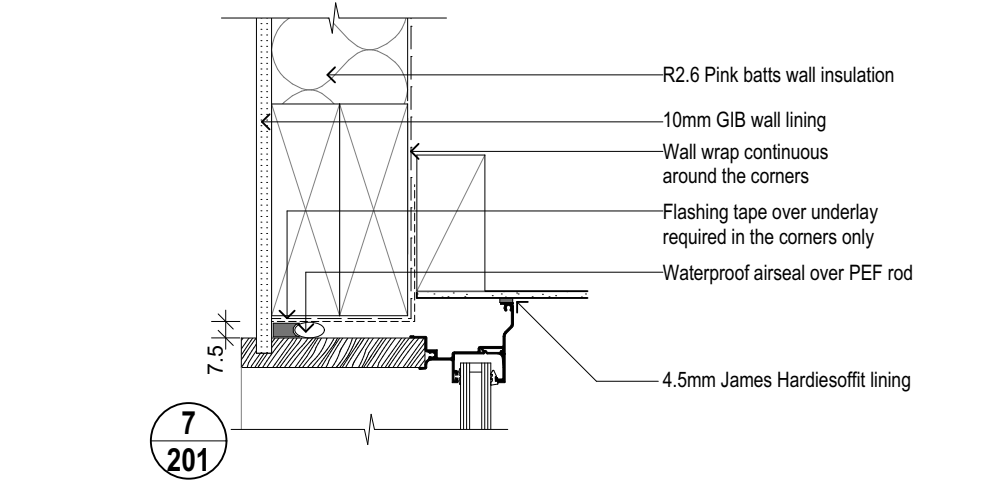
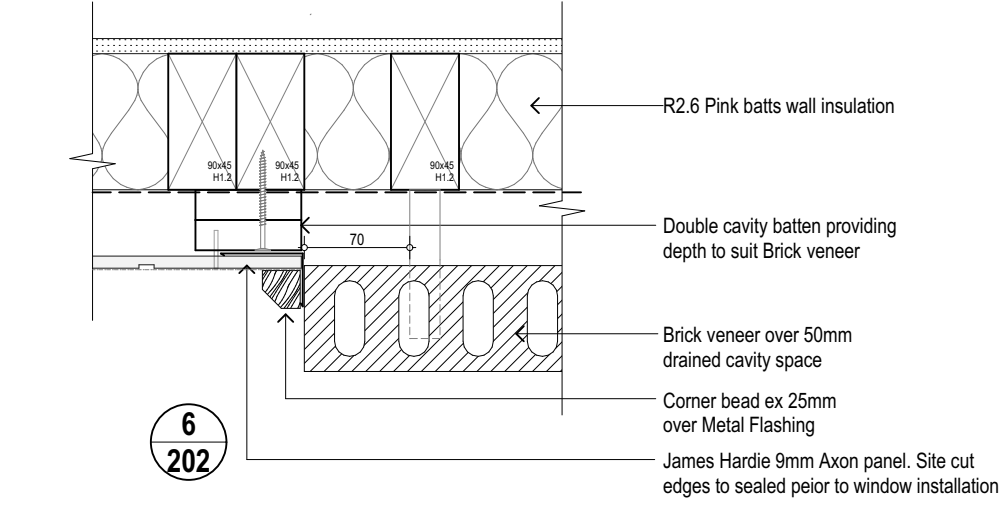
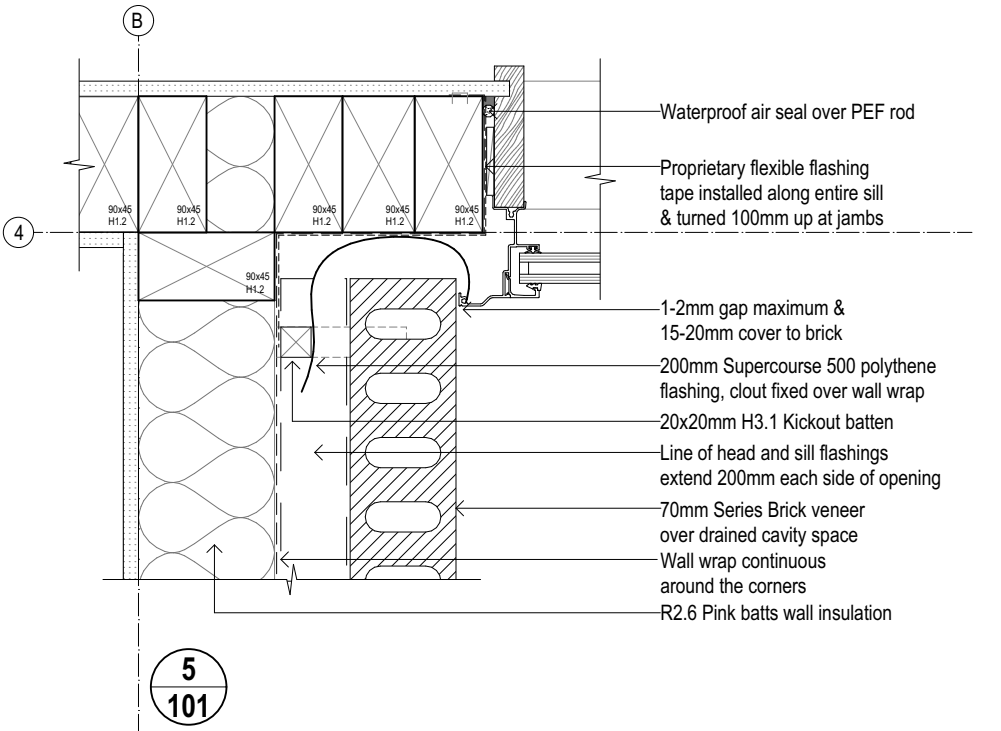
Proprietary flexible flashing tape installed along entire sill & turned 100mm up at jambs

Waterproof air seal over PEF rod

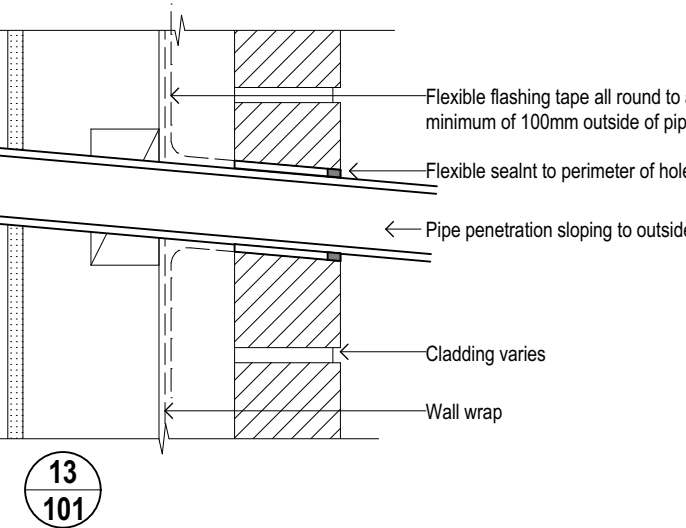
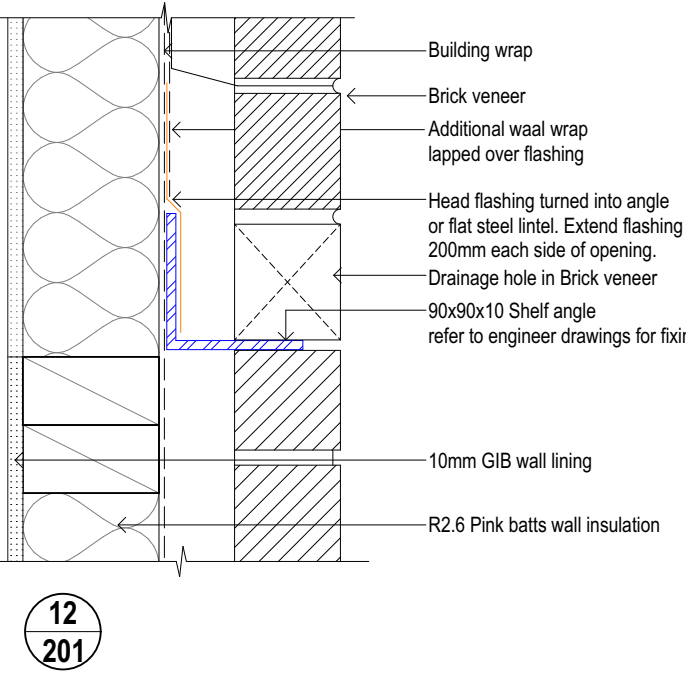
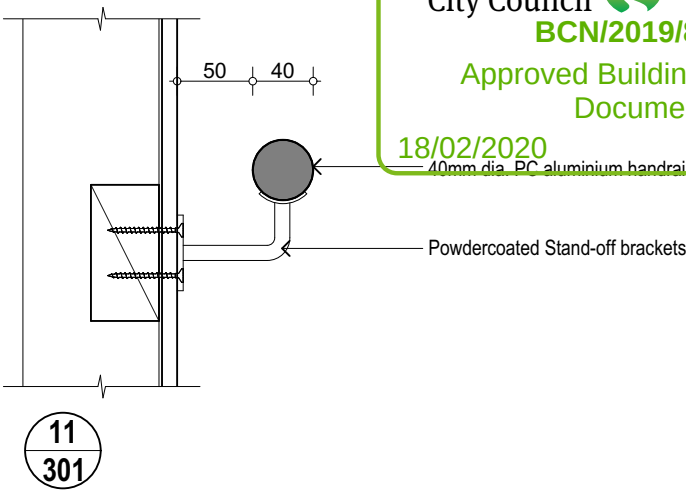
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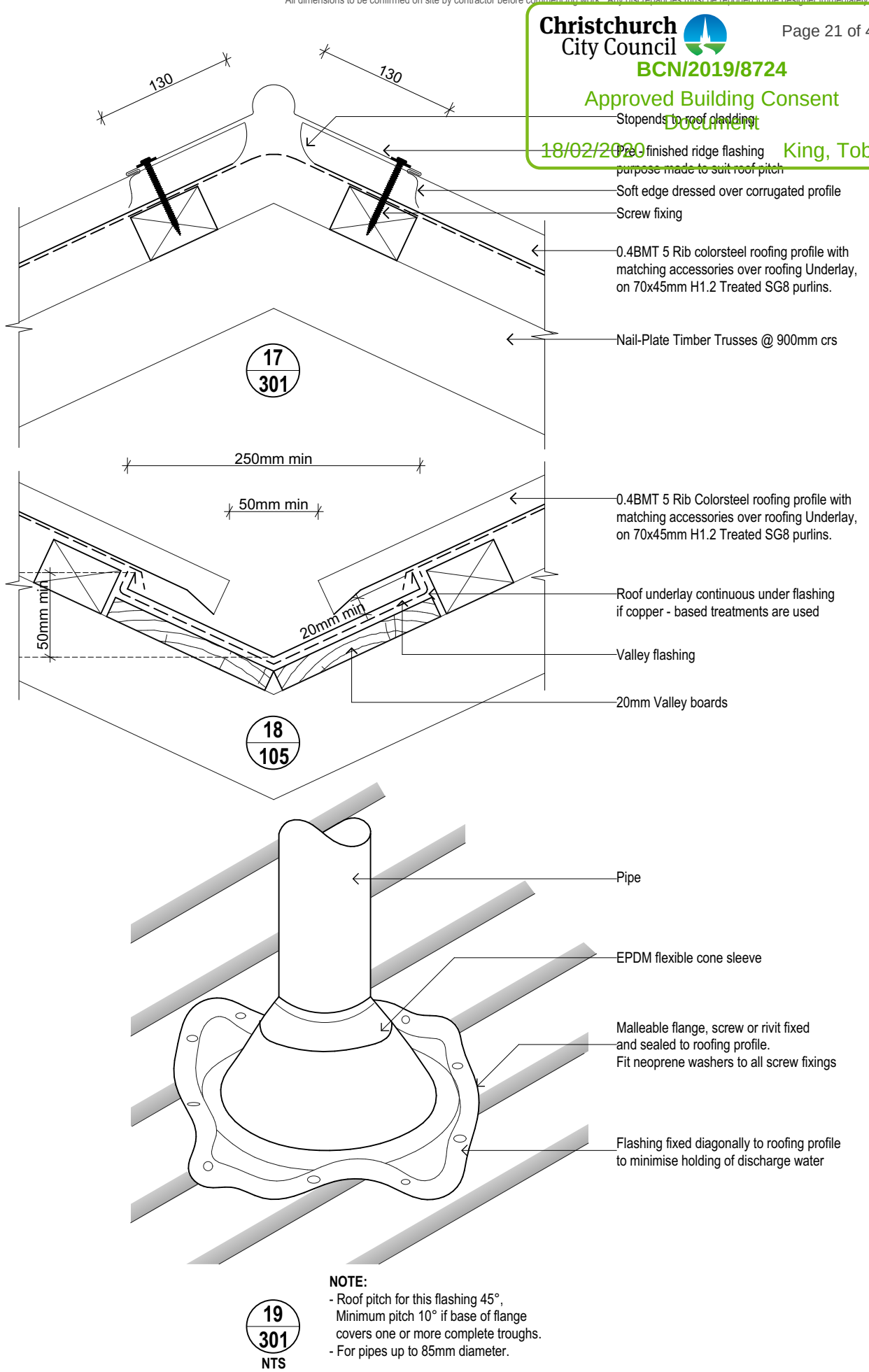
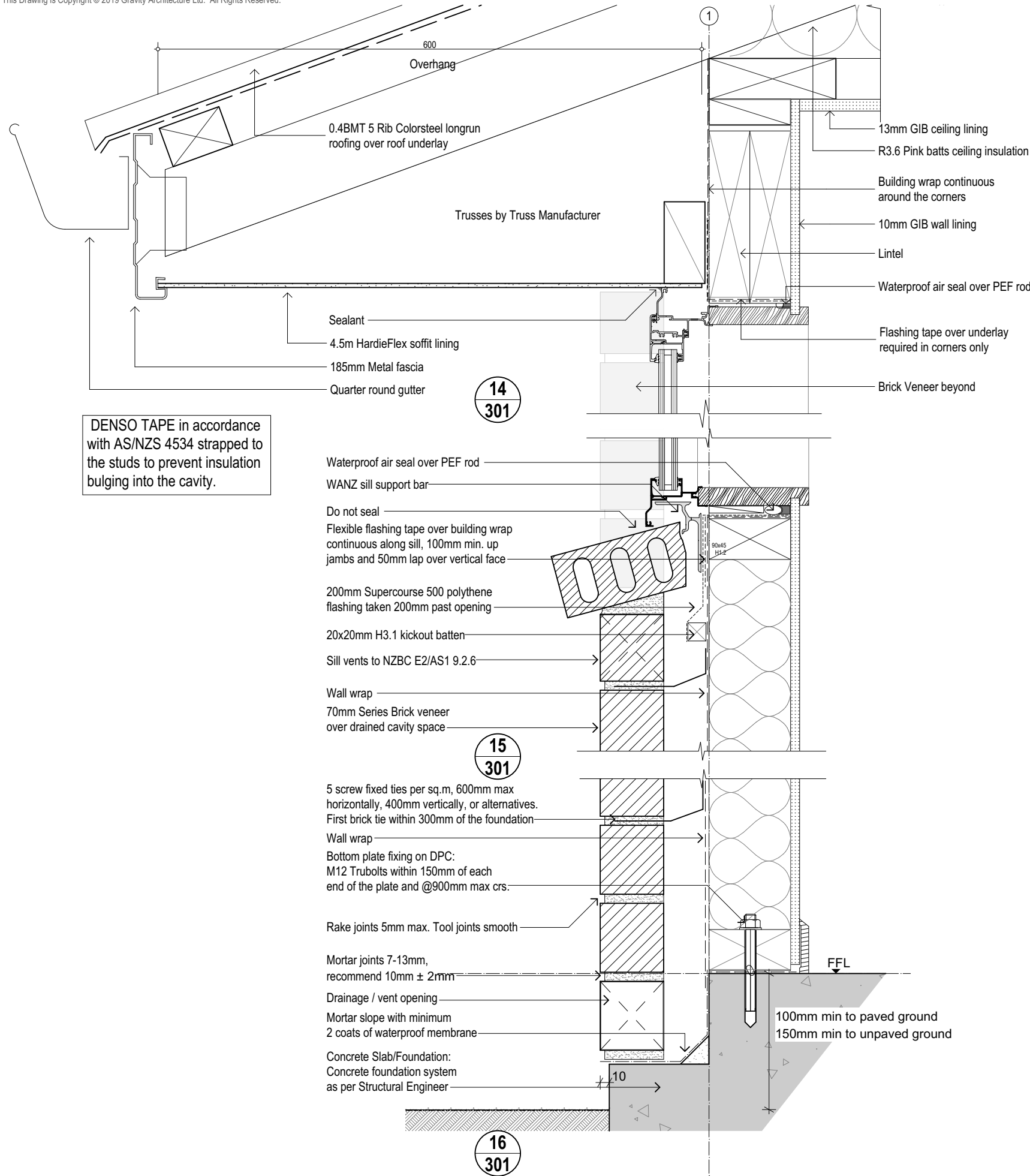
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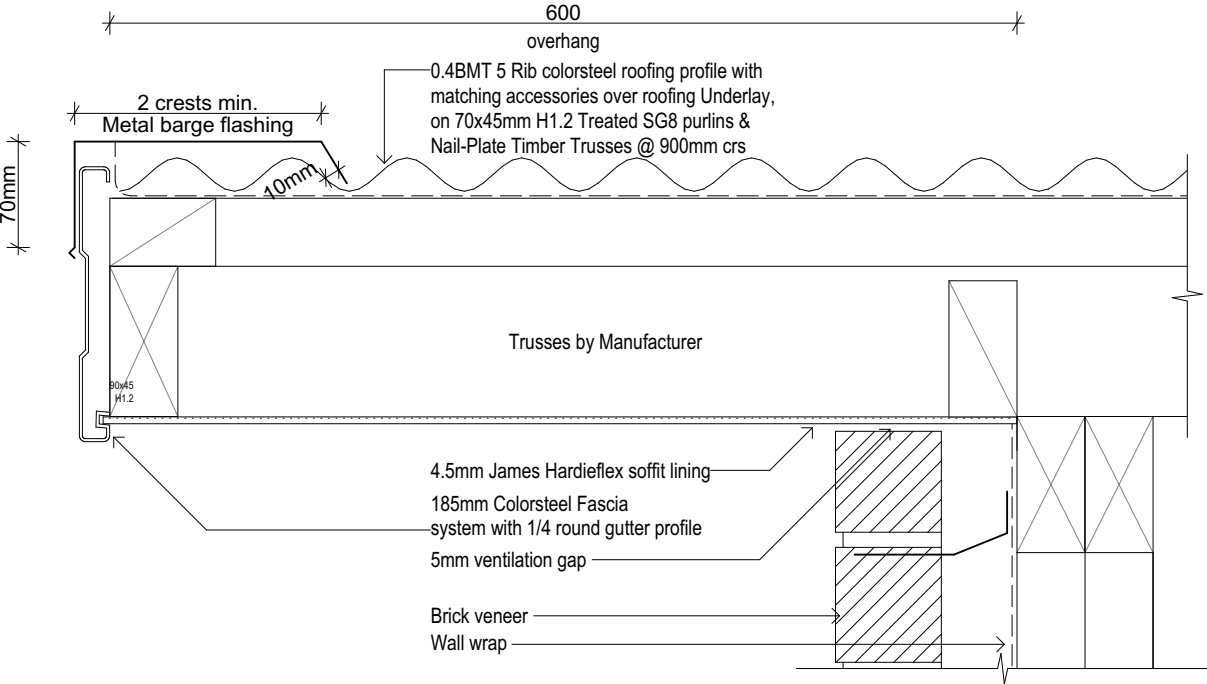
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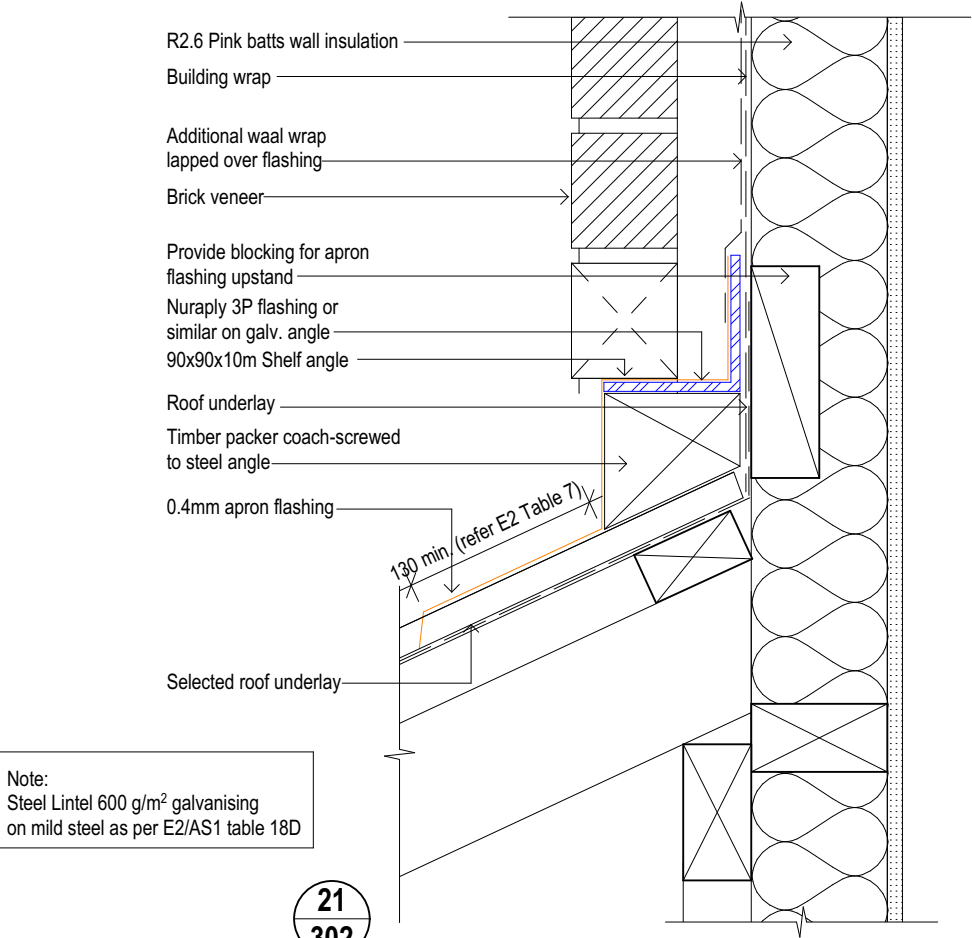
NOTE:
where 2 / 70x19mm CLD Structural cavity battens used, fixing
with 75x3.06mm round drive ring shank nails @stud crs



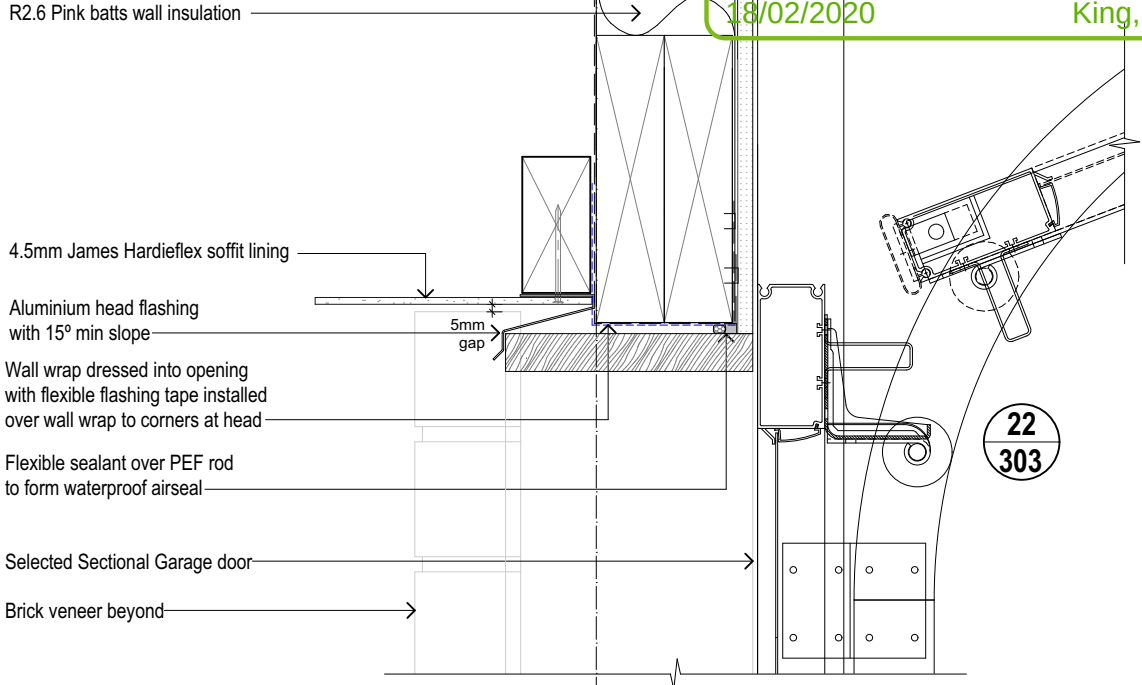




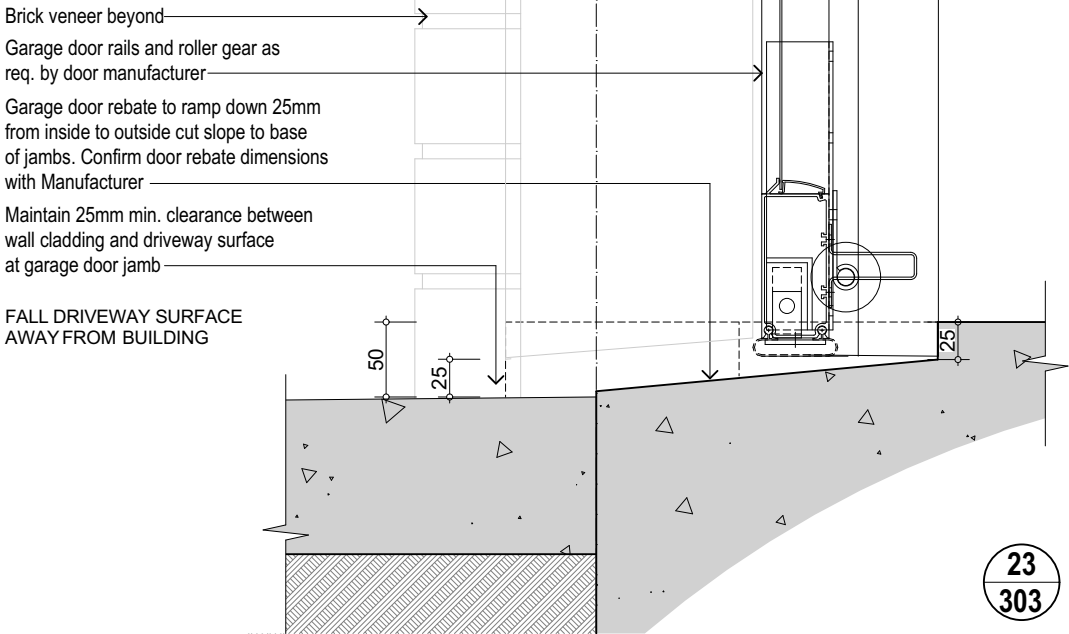
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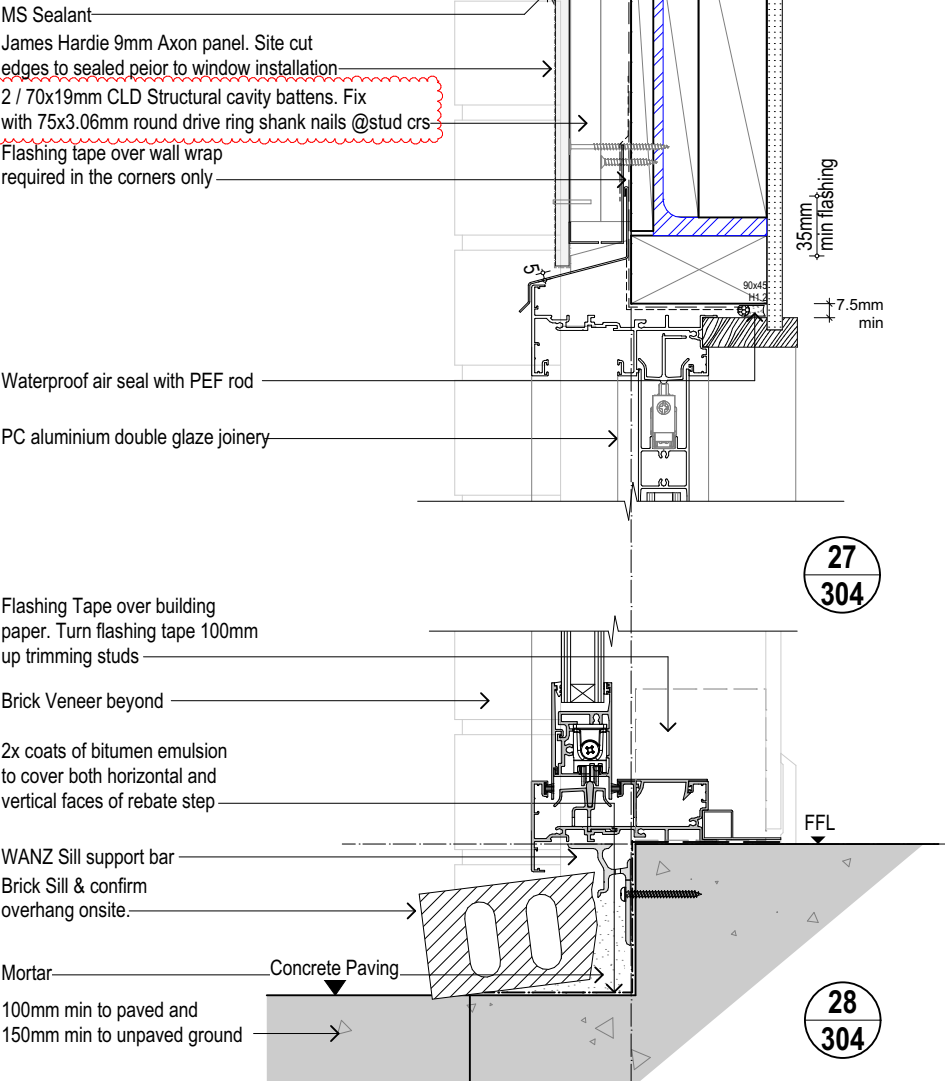
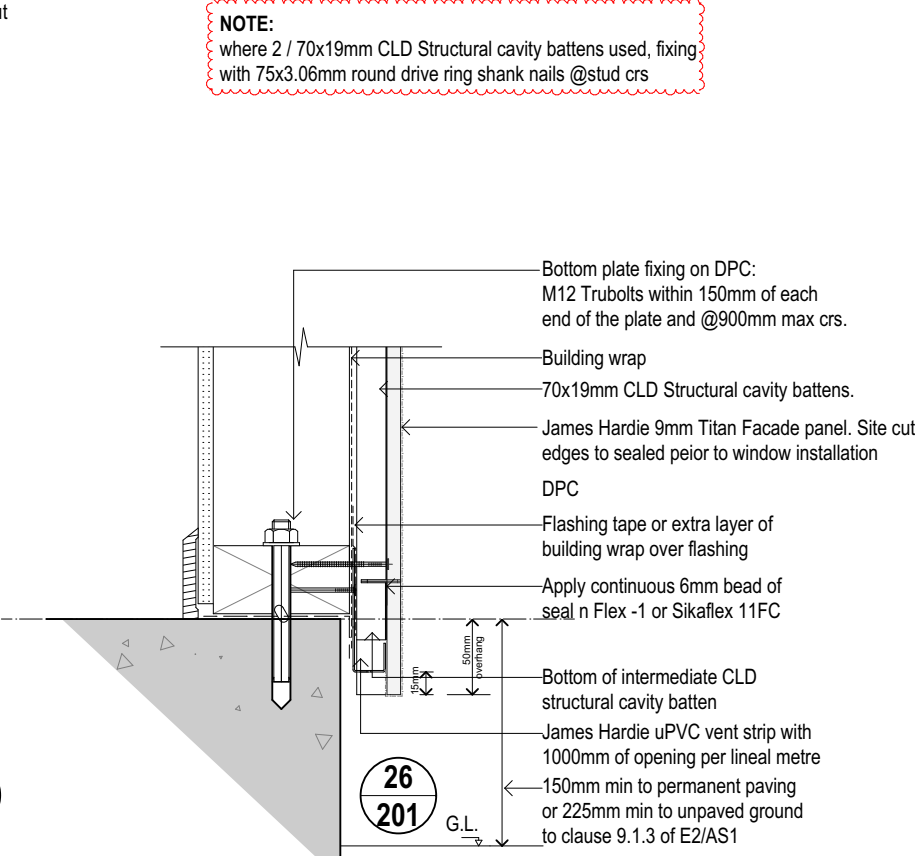
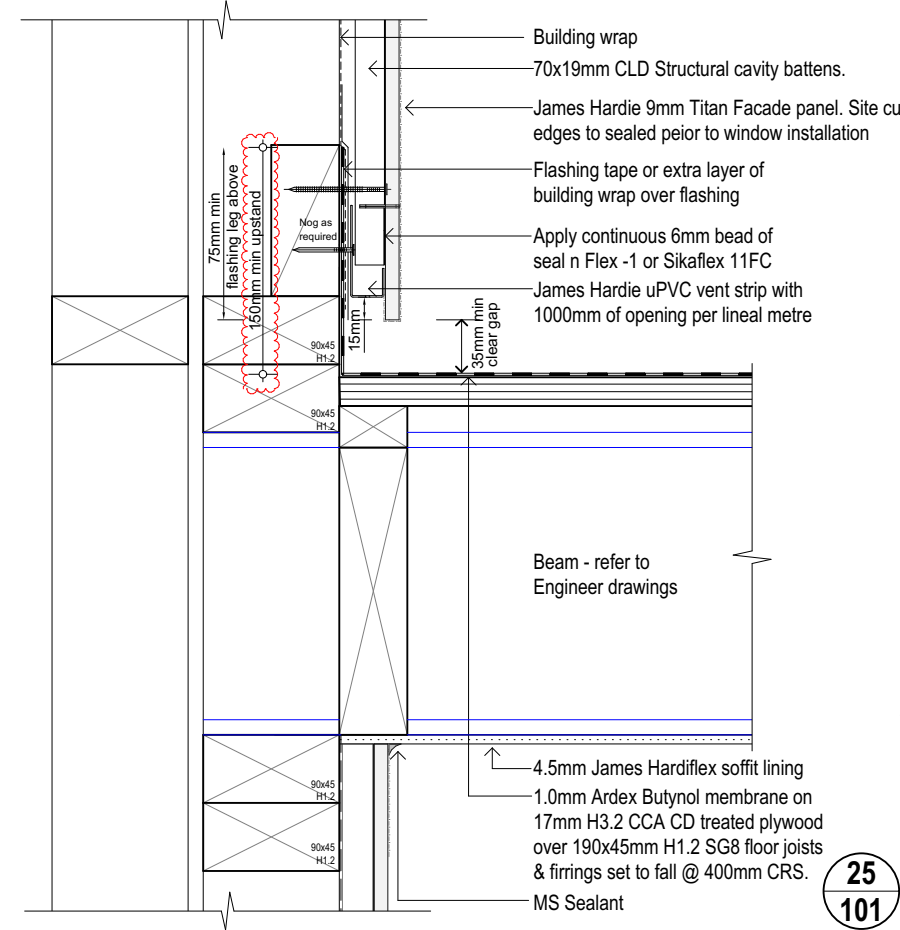
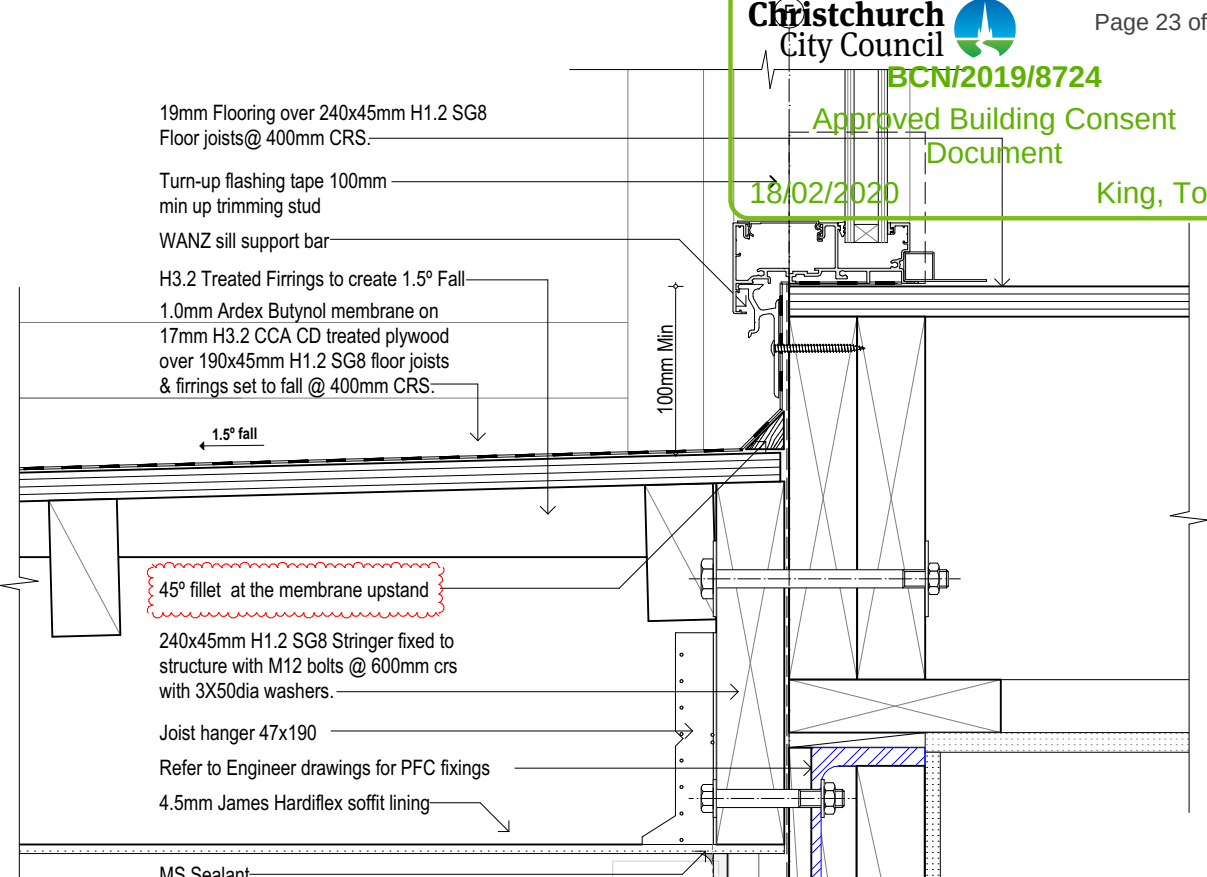
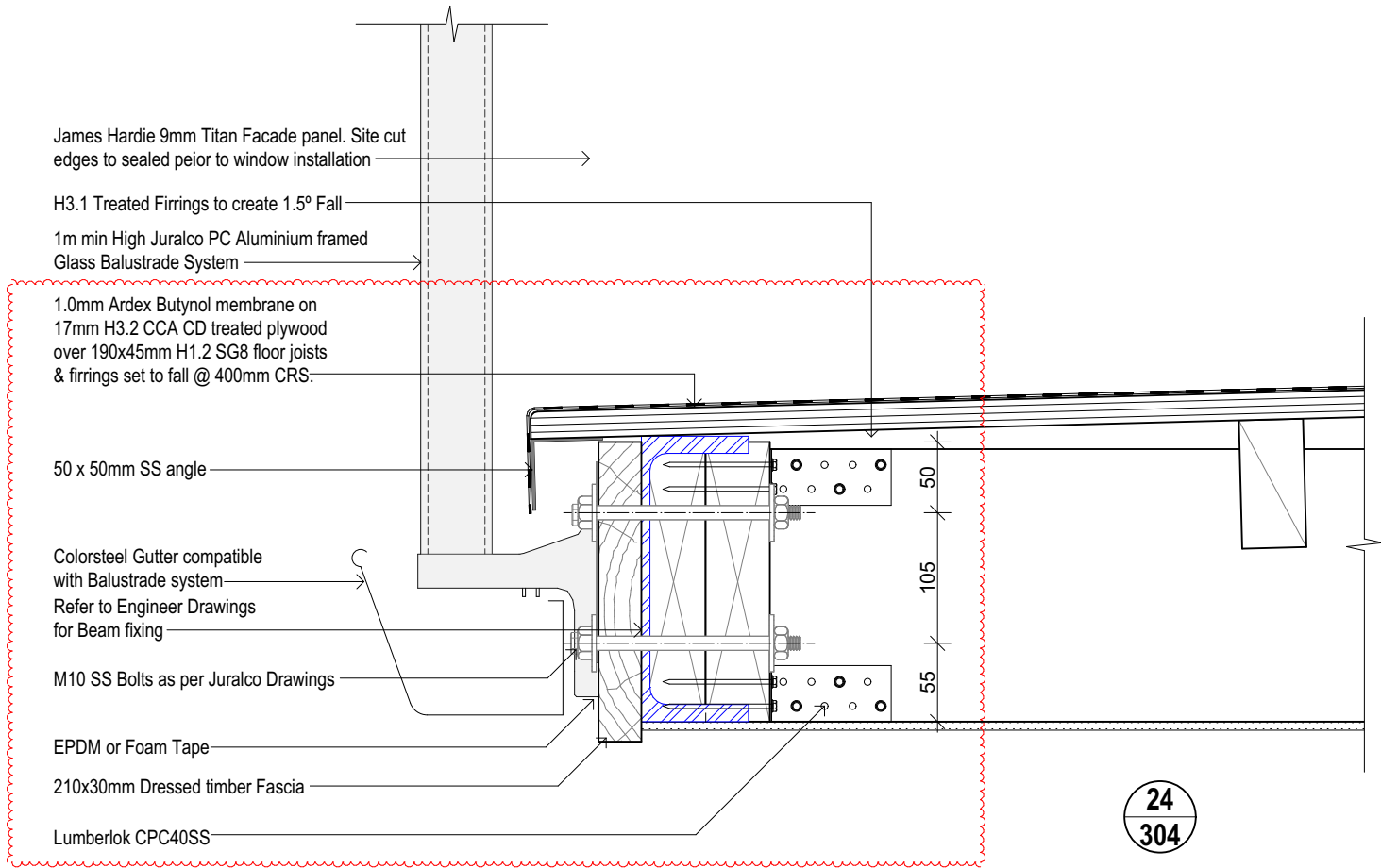
21
302



22
303



23
303



Juralco EDGE Balustrade System - Typical Fixing

NZS3604:2011 Type Fixing - Double Boundary Joists

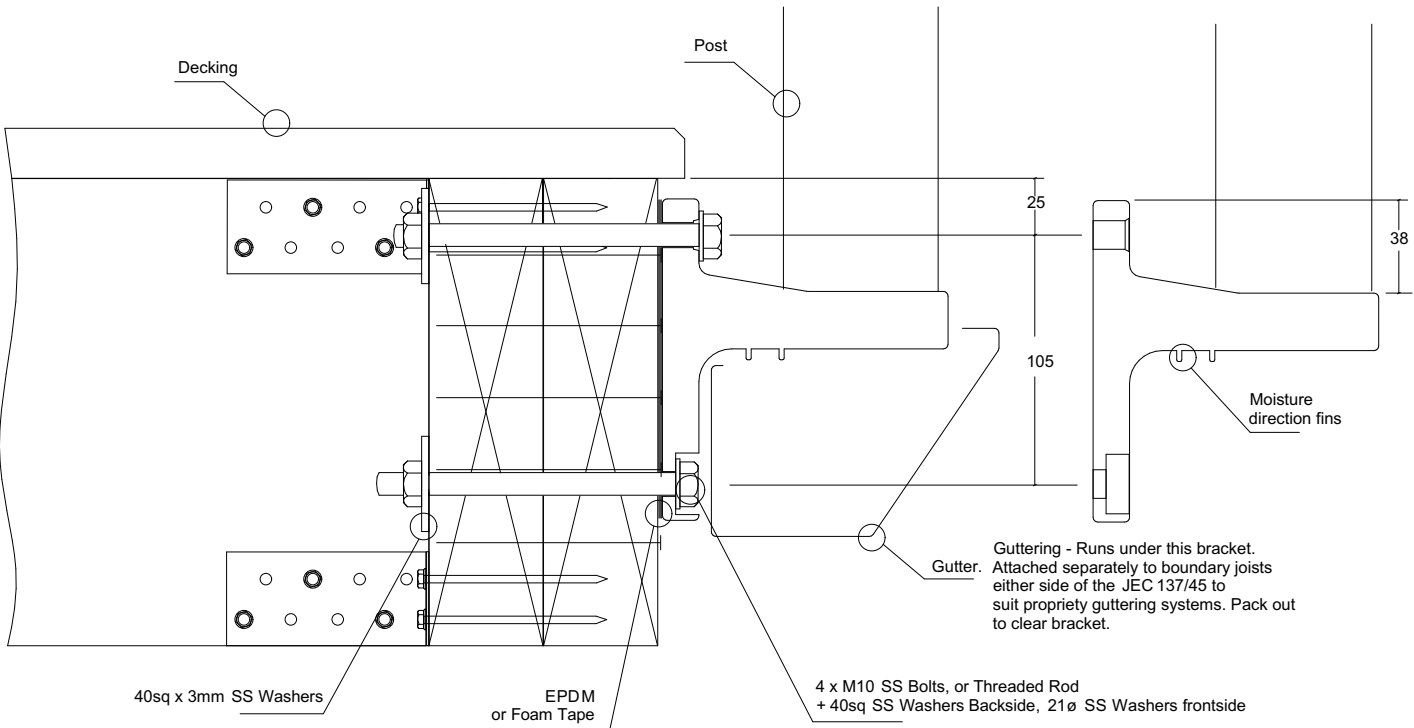
Typical Face Fix to Timber - JEC 137/65, Gutter Bracket - M10 Bolts or Threaded Rod

Important installation notes:

1. As the Juralco EDGE system is a specifically Engineered designed system, it does not require M12 bolts @ 400mm centres as detailed in NZS 3604:2011 Section 7
2. An EPDM, rubber or foam tape layer must be installed between the Gutter bracket and timber
3. All fixings must be stainless Steel.

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NOTE : ALL AS SPECIFIED BELOW FOR FACE FIXED BALUSTRADES ONLY.

All Nailing at Corner

Lumberlok 0.9x19mm SS Strap.
Wrapped around return boundary joist
and nailed top and bottom with
6 off 30x3.15 SS Product nails at ea end

Into Joist Ends
4 x 90mm nails
to both joists
= 12 total

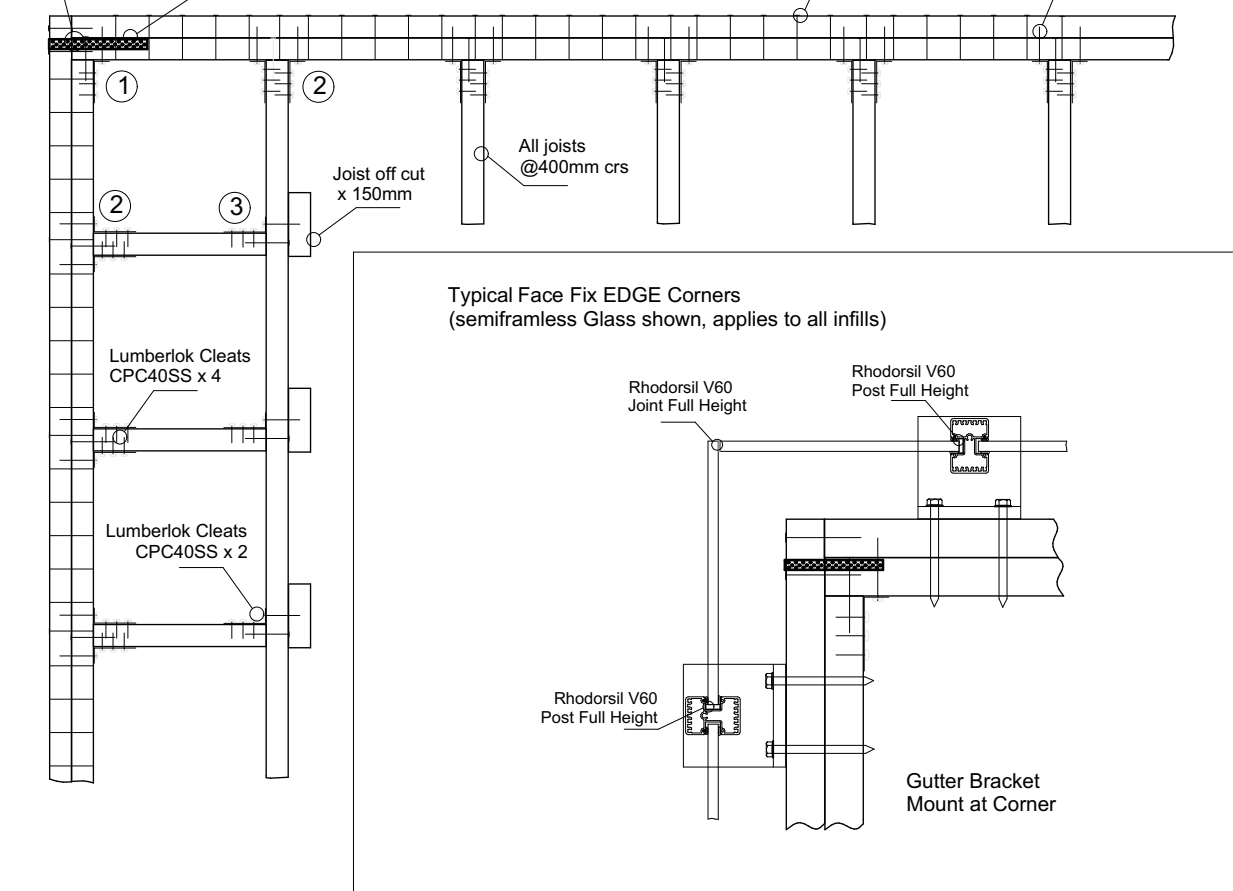
All Nailing, Joists and Nogs

Between Joist, nogs.
5 x 90mm nails
in two rows
= 10 total

At each Joist, nog.
4 x 90mm nails
to both joists
= 8 total

Please note
Joist overlap
arrangement

All Fasteners must be Stainless Steel



All Screwing to Corners

8 x Type 17 - 14g x 35 Hex head Screws

4 x Type 17 - 14g
x 75 Hex head Screws

Cleats to be flush,
Top and Bottom

Lumberlok Cleats
CPC80SS

Joists, Nogs
ex 200x50 min

Lumberlok SS
Strap 0.9x19.
6 x 30x3015
Nails ea end

All Screwing to Joists, Nogs

3 x Type 17 - 14g x 35 Hex head Screws

Cleats to be flush,
Top and Bottom

Lumberlok Cleats
CPC40SS

Joists, Nogs
ex 200x50 min

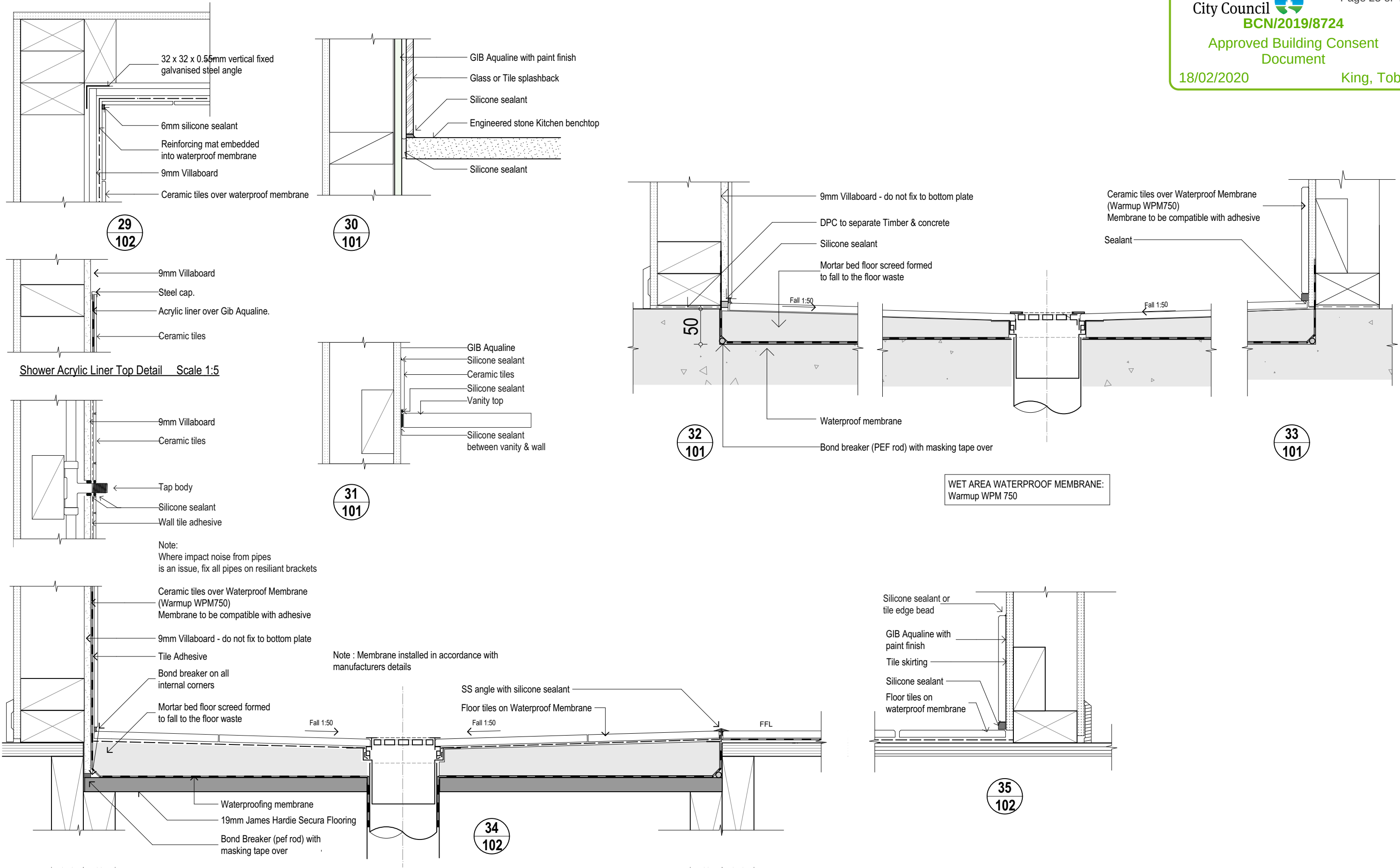
2 x Type 17 - 14g
x 75 Hex head Screws

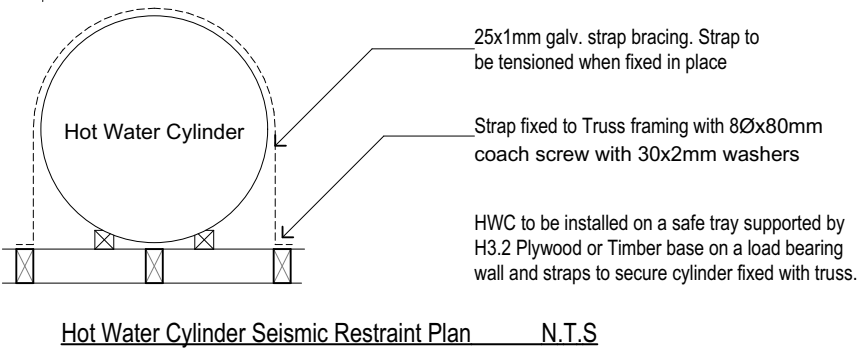
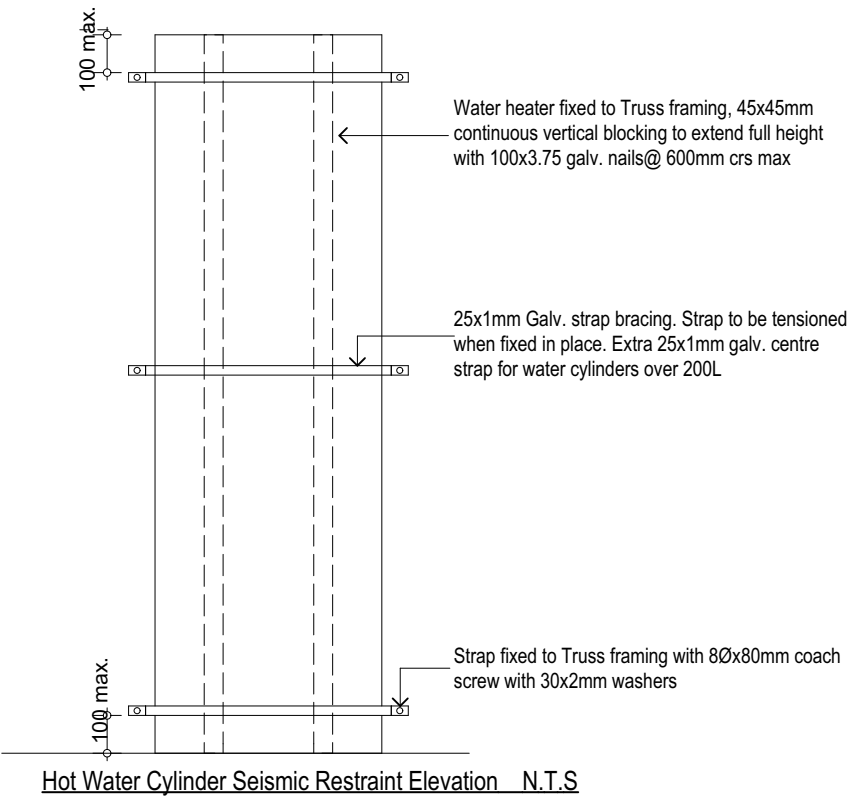
- ① Attaching Corner of Double Boundary Joist
2 x cleats to Corner and Lumberlok strap

- ② Attaching Joists or Nogs to Double Boundary Joist.
4 x cleats to each joist or nog,
- ③ Attaching Nogs to Joist.
2 x cleats to each nog, 1 x Joist offset x 150mm

All Fasteners must be Stainless Steel

All Fasteners must be Stainless Steel





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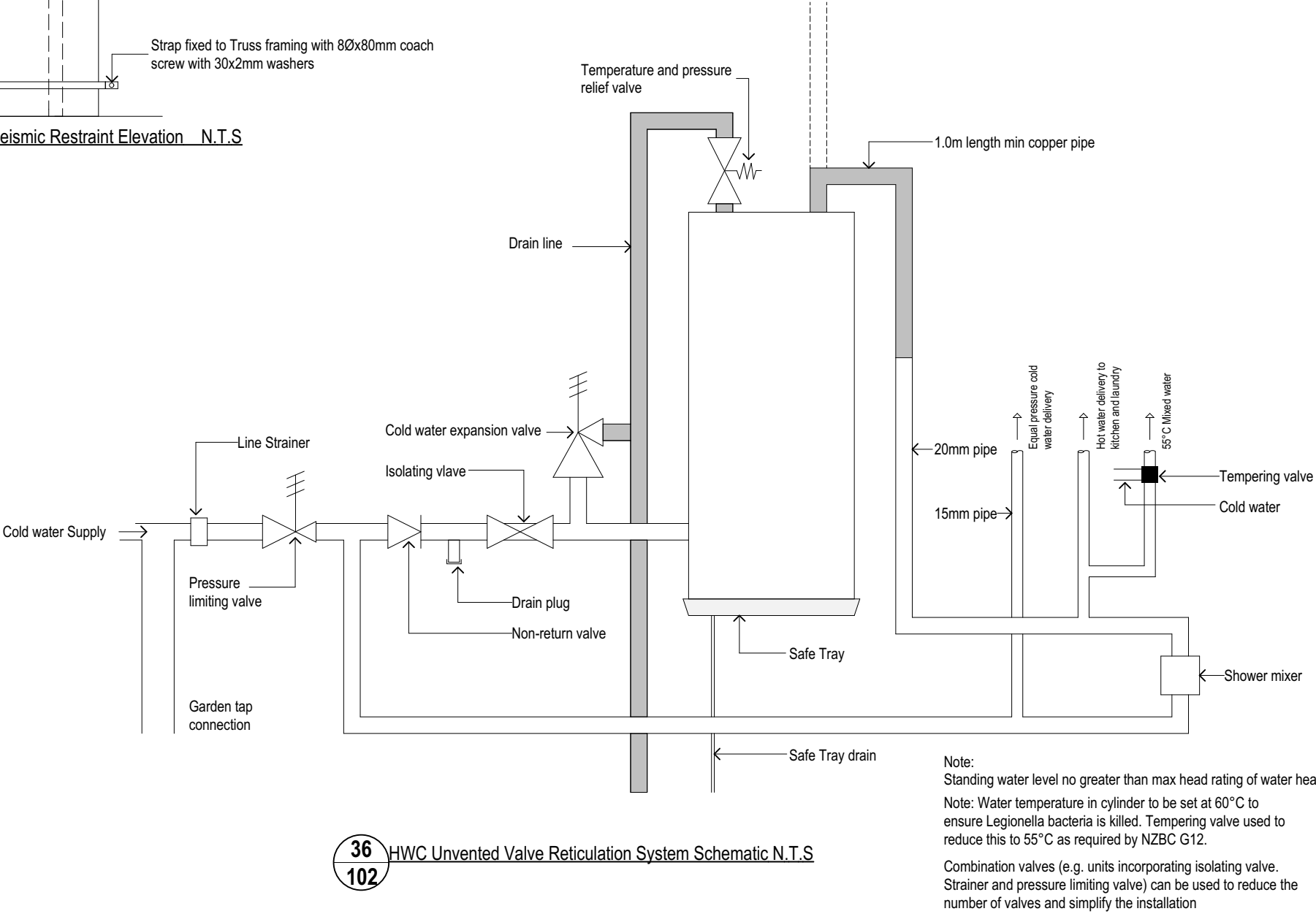
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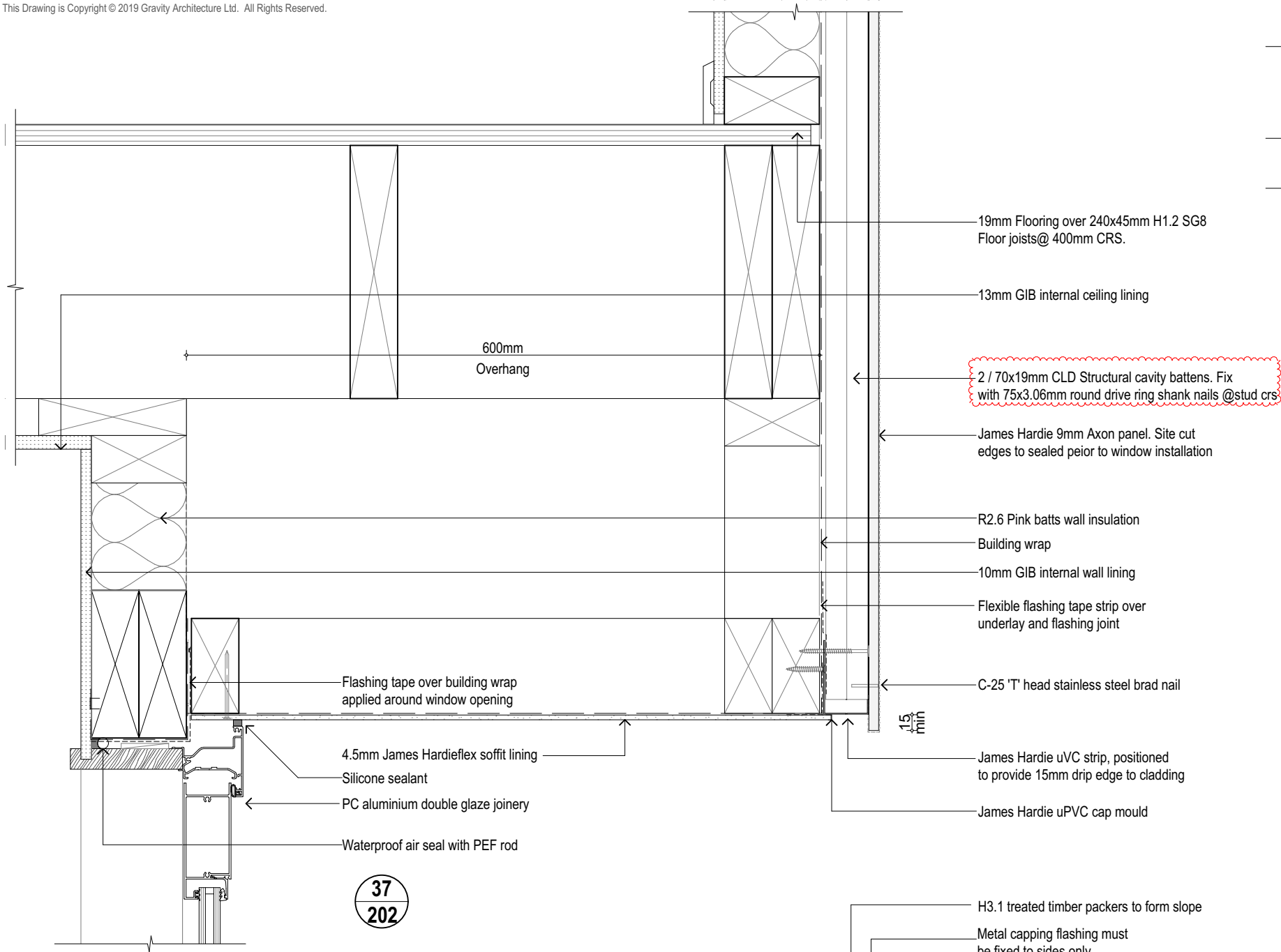
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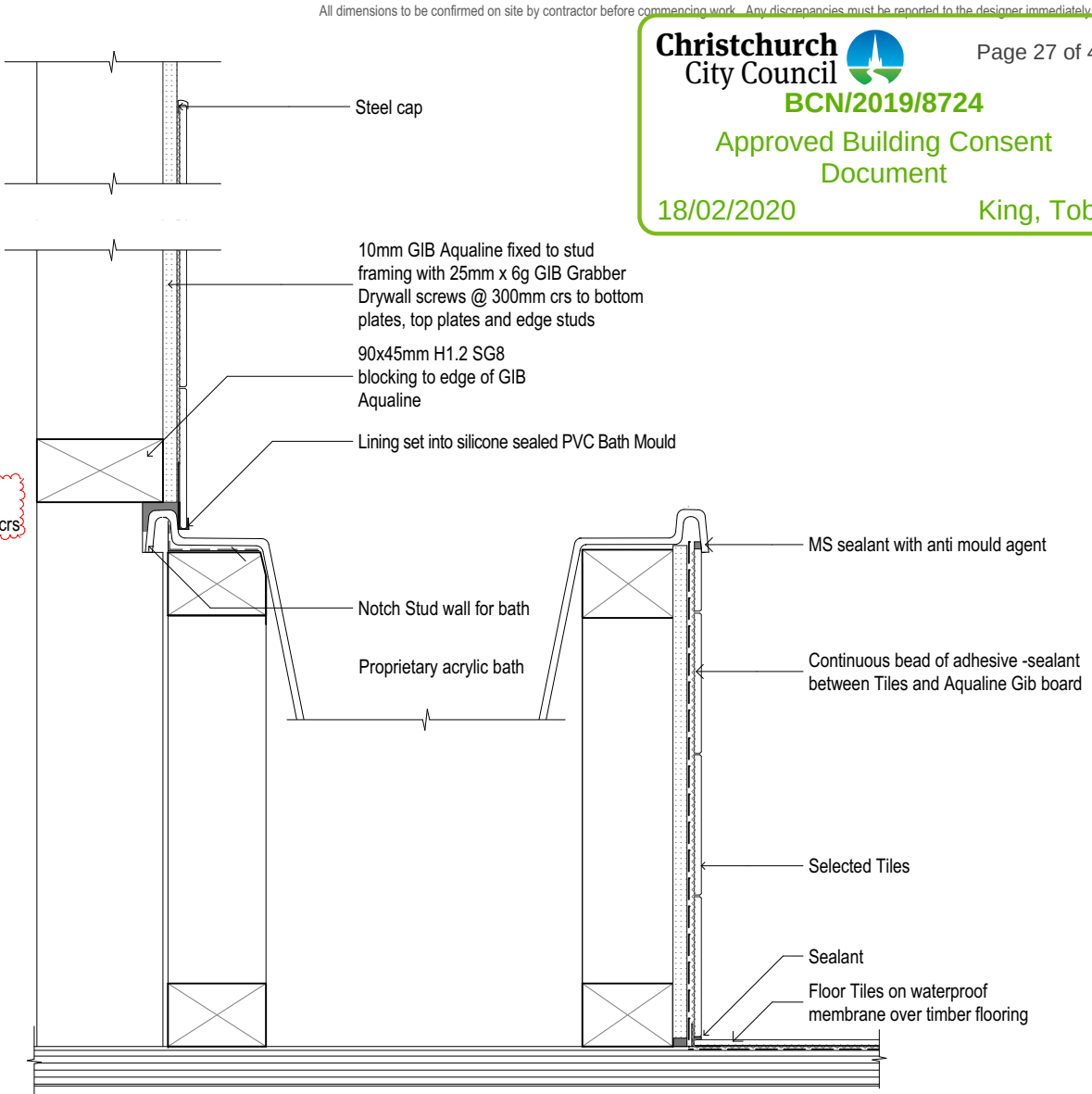
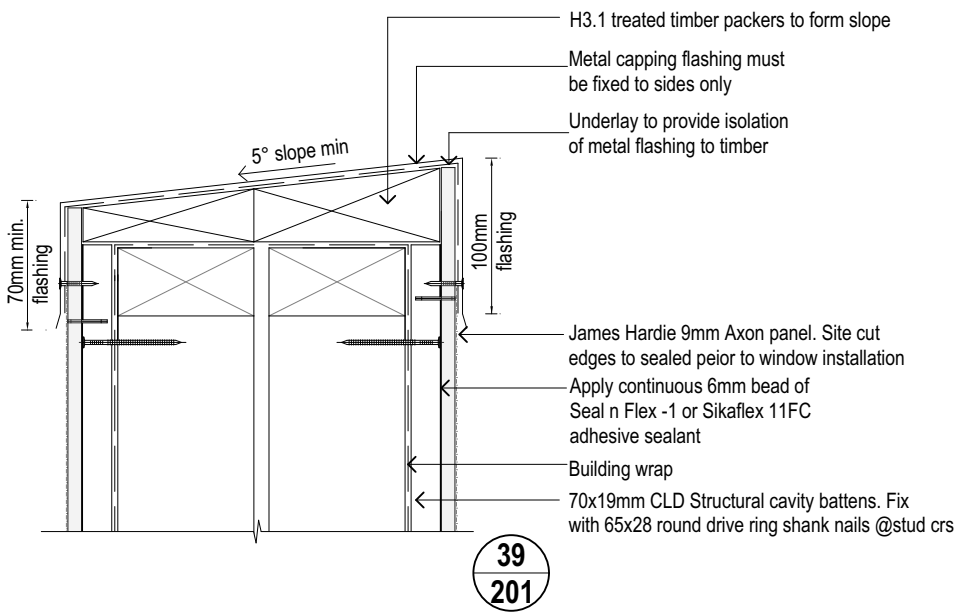
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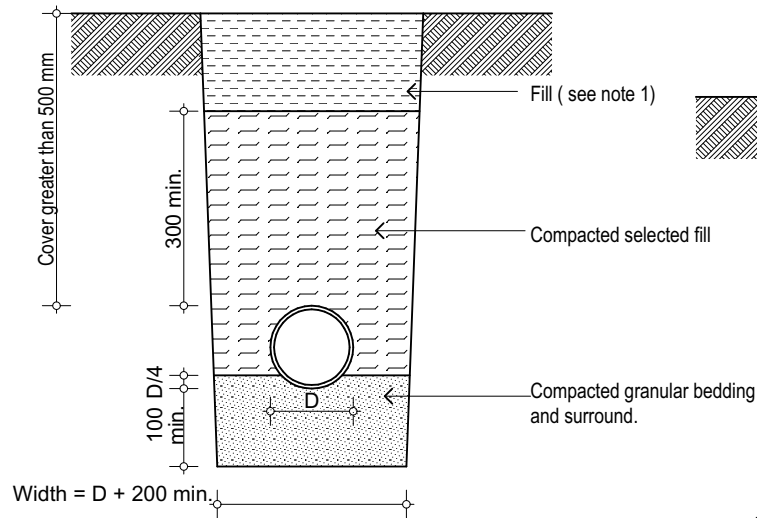


NOTE:
where 2 / 70x19mm CLD Structural cavity battens used, fixing with 75x3.06mm round drive ring shank nails @stud crs

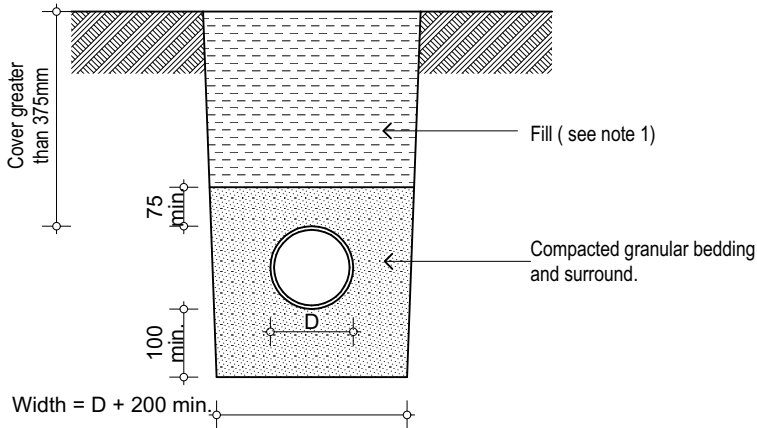


Note
Ensure GIB Aqualine & Hardiglaze are free of dust, grease and any other contaminants that may affect bonding

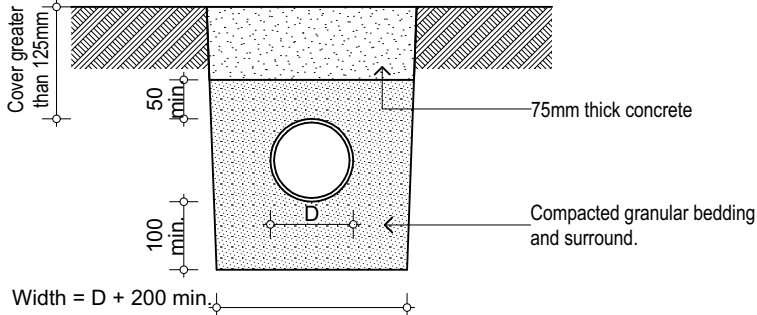
38
102 Bath Detail Scale 1:5



(a) Cover greater than 500mm
Bedding type 'B' of NZS 4452



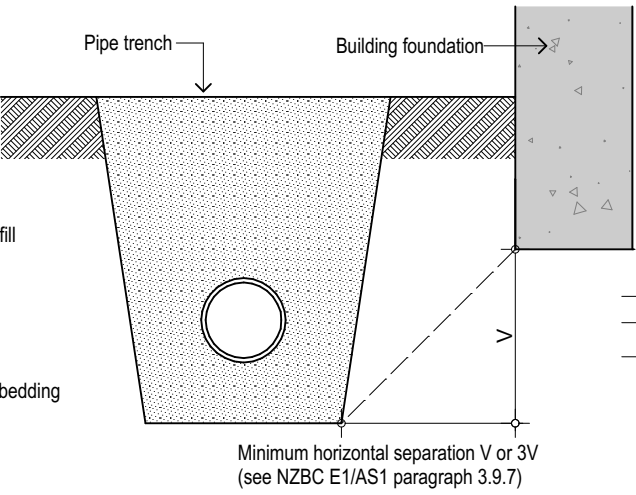
(b) Cover greater than 375mm
Bedding type 'D' of NZS 4452



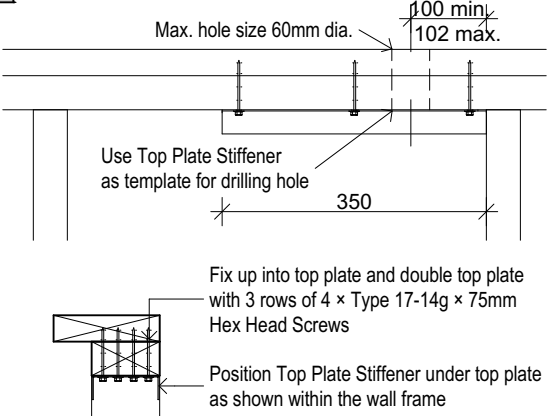
(c) Cover greater than 125mm

Pipe Trench and Backfilling
Scale 1:10

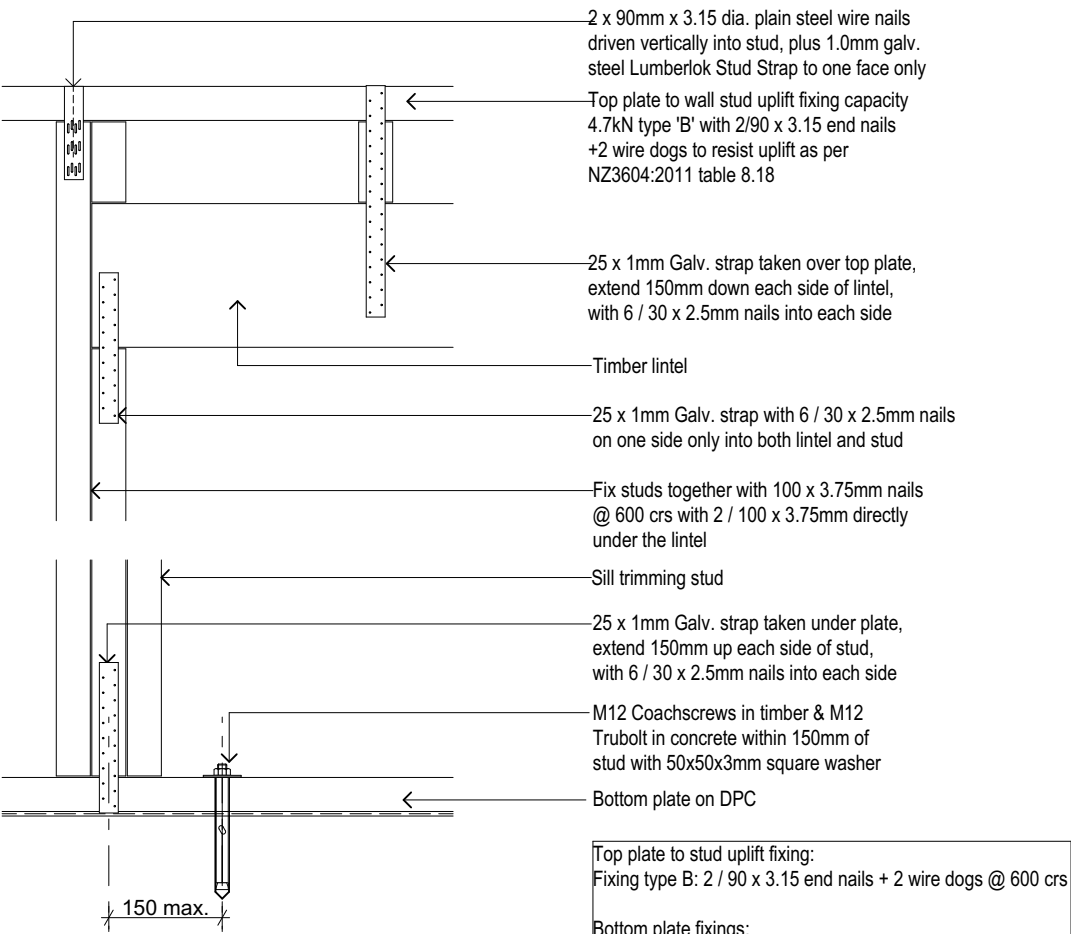
NOTES:
1. Fill shall be:
- Ordinary fill where drains are located below gardens and open country.
- Compacted selected fill where the drains are located below residential driveways and similar areas subject to light traffic.
2. Trench width at the top of the pipe shall be no more than 600mm unless the pipe(s) in the trench are covered with concrete, as shown in Figure (c).



Relationship of Pipe Trench to Building Foundation
NTS



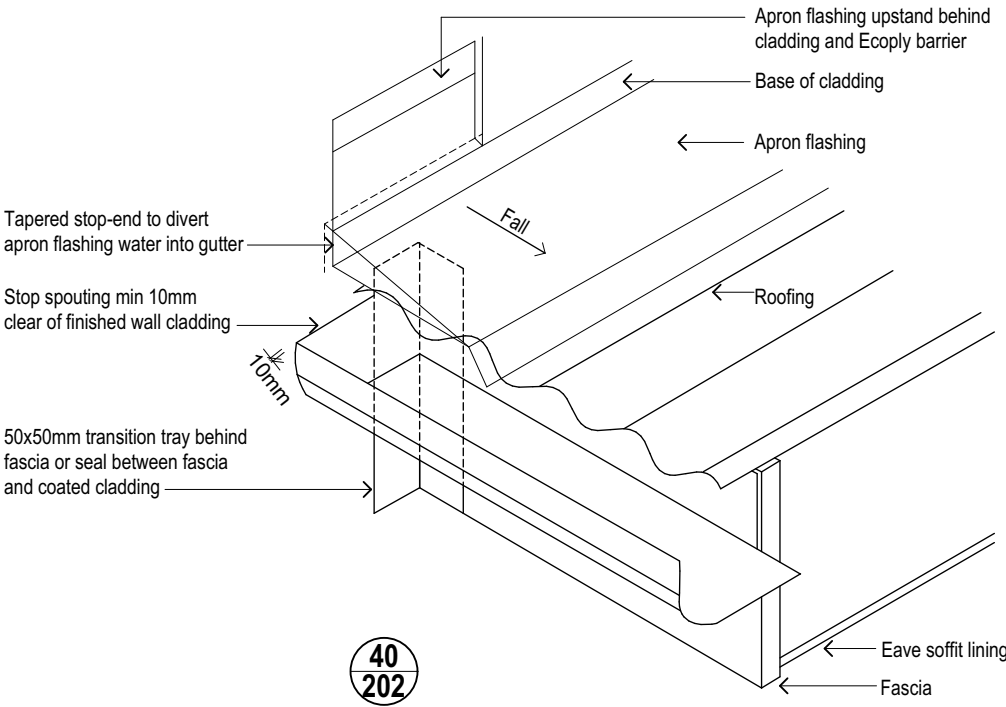
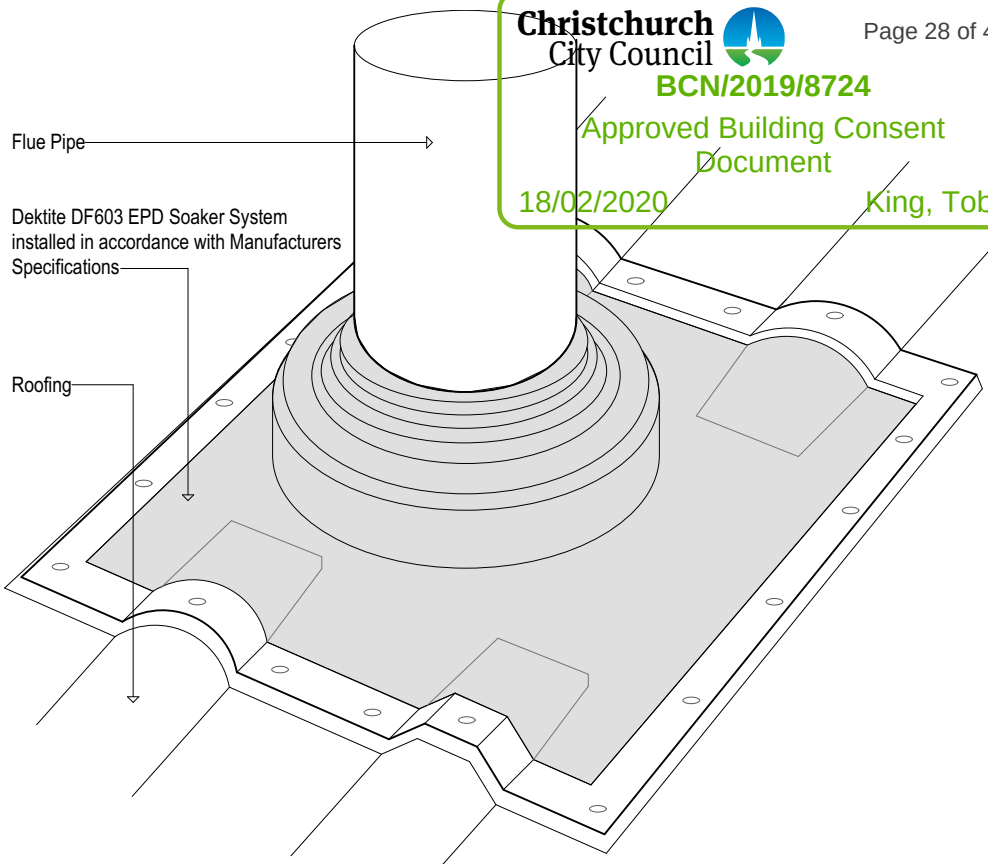
Lumberlok Top Plate Stiffener for Pipe Penetrations
Scale 1:10



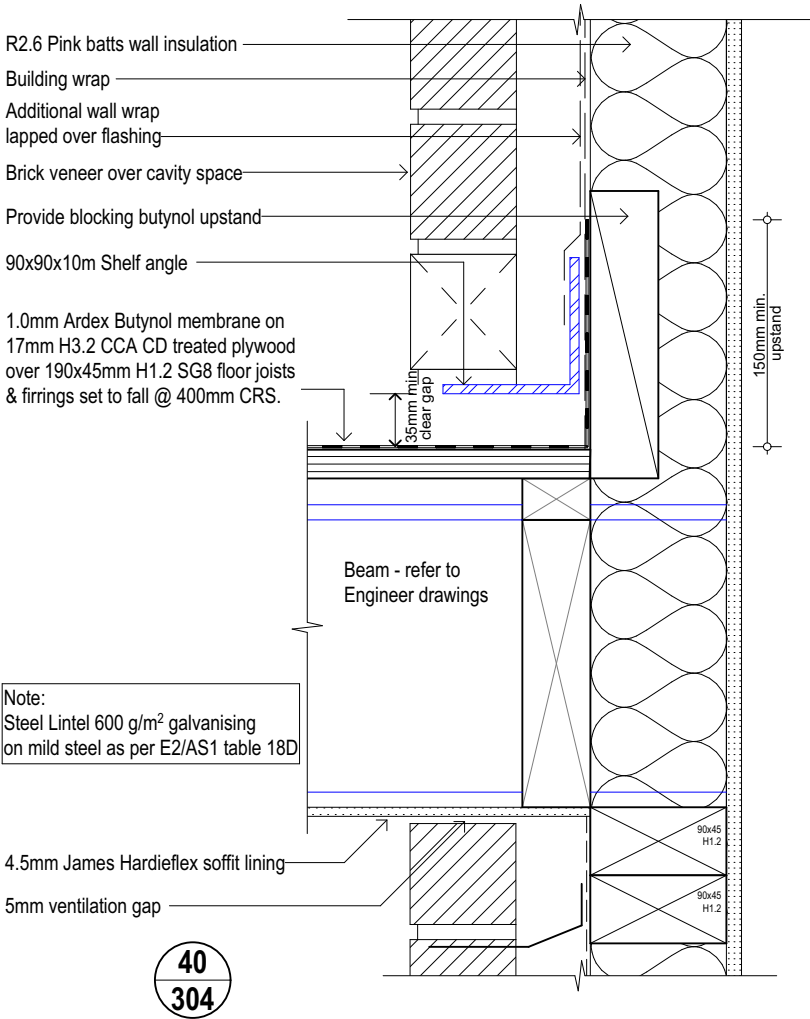
Typical Wall Framing Scale 1:10

Top plate to stud uplift fixing:
Fixing type B: 2 / 90 x 3.15 end nails + 2 wire dogs @ 600 crs

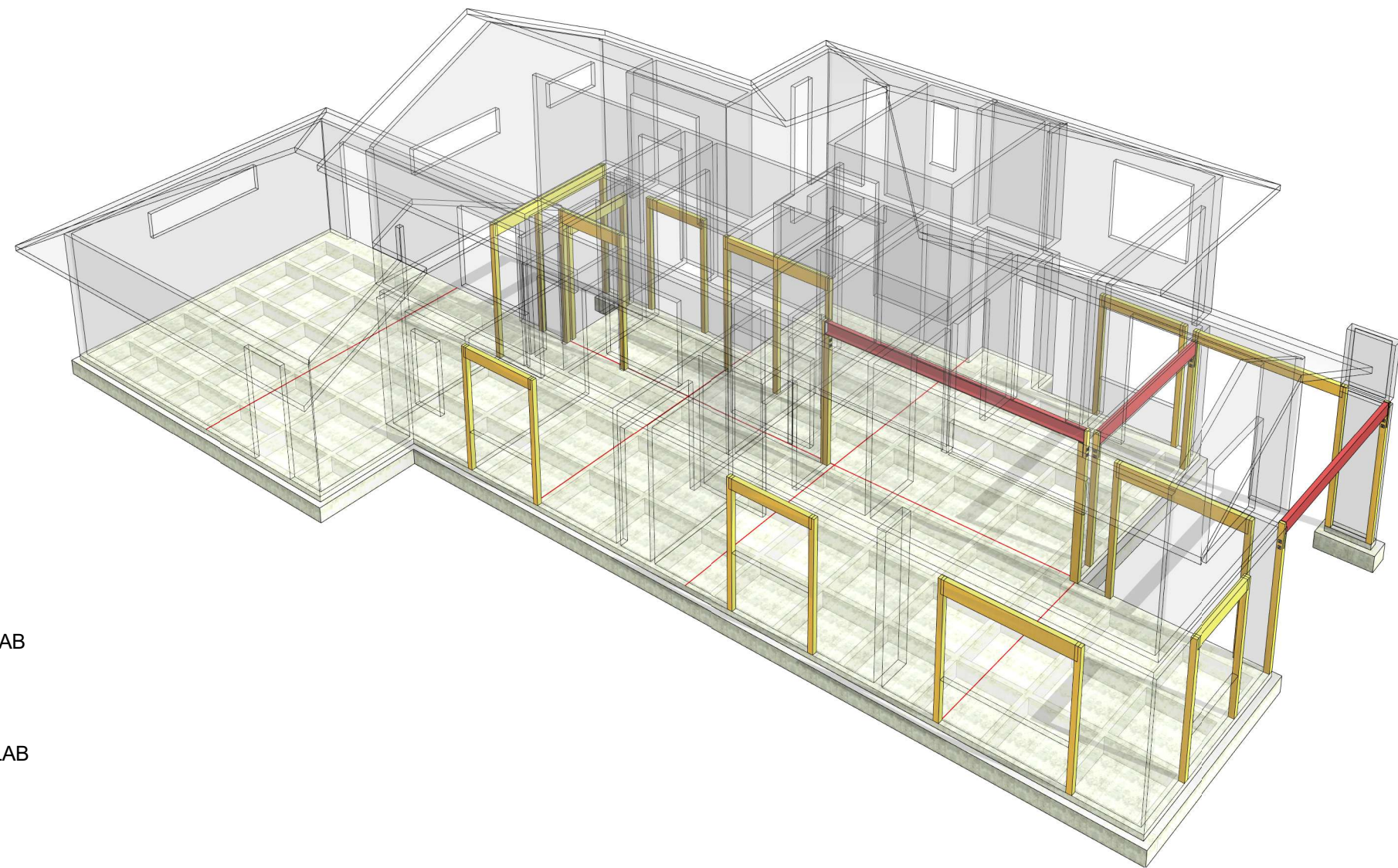
Bottom plate fixings:
M12 Coachscrews in Timber floor & M12 Trubolts in concrete within 150mm of each end of the plate and @ 600 crs max, 55mm edge distance for external walls



40 202



PROPOSED NEW HOUSE AT 9 MUSKET LANE RICCARTON PARK, CHRISTCHURCH



STRUCTURAL DRAWING INDEX

G100	A	GENERAL NOTES FOUNDATION
G101	A	GENERAL NOTES - STRUCTURAL
G102	A	LINTEL TYPE CONNECTIONS
S100	A	FOUNDATION LAYOUT TC1 WAFFLE SLAB
S102	A	FIRST FLOOR FRAMING PLAN
S200	A	GROUND FLOOR BRACING PLAN
S201	A	FIRST FLOOR BRACING PLAN
S300	A	FOUNDATION DETAILS TC1 WAFFLE SLAB
S400	A	STRUCTURAL DETAILS
S401	A	STRUCTURAL DETAILS

General Notes:

- Foundation drawings shall be read in conjunction with the geotechnical report and the building consent drawings and specifications by any other consultants involved in the building consent.
- Unless otherwise noted, all levels are in meters, and all dimensions are in millimeters, and shall be checked by contractor prior to construction.
- Dimensions shall not be obtained by scaling from drawings. Refer to architects drawings for all setout dimensions, recesses and service positions. Internal slab thickenings and pad foundations to be accurately set out using the Architects drawings
- All discrepancies shall be referred to the architect or engineer for resolution before proceeding with the work.
- The stability of the structure during construction is the responsibility of the builder.
- All materials and workmanship shall be in accordance with the current codes of practice except where varied by the specification and/or drawings.
- Where proprietary products are specified in the documents the contractor may submit an alternative product for approval.
- Temporary work and propping is the responsibility of the builder.
- Concrete slabs should be cured for 7 days in accordance with NZS3109. Saw cuts are recommended to mitigate shrinkage cracking. Sawcuts can be omitted providing the contractor takes appropriate measures and it responsible for controlling shrinkage.

Site soil conditions:

- Allowable bearing pressure = 100kPa
- Dependable bearing pressure = 150kPa
- Geotechnical ultimate bearing = 300kPa

- Subgrade (if required) to be prepared as per geotechnical report or compacted to 95% of maximum dry density determined by test NZS 4402: Test 4.1.1. or equivalent unless noted otherwise.

Cover & Strength:

Cast against DPM = 50mm
Within Ribs: Side cover = 40mm
Cast against ground = 75mm
Foundations and slab to be 25MPa (min)
Refer Mix Code below

Surface Finishes: (NZS 3114:1987)

Concealed work = F1
Exposed edges of foundation = F5
Floor slab = U3

CONCRETE AND REINFORCING MESH SUMMARY

**MESH OPTIONS - 146.1mm²/m, 2.29kg/m² or greater
Mesh SE62 (Grade 500E as per AS/NZS4671),
Concrete - Allied super Slab
Use mix code 252RSS**

Allied Concrete

NOTE 1: Site excavation (Indicative only)
±500 topsoil & unsuitable material should be removed from building platform. Certified compacted hard fill (well graded AP40) extending 200mm (or the depth of the hardfill which ever is greater) out from building footprint may be required to bring slab up to level. The depth of hardfill or engineered fill required will need to be confirmed on site accounting for the FFL, existing ground levels and topsoil/unsuitable soil depths found on site. Refer to the geotechnical report for subsoil conditions. Poorly graded river gravels (tailings or 20/40 rounded river stone) that have commonly been used in Christchurch as subgrade material shall not be used.

NOTE 2: Inspection Schedual notes
Contact Inspecting engineer as below for the following inspections to enable a PS4 to be issued for construction review. It is the responsibility of contractor to arrange below inspections
Phone no: (03) 339 7000.
1. Cut platform inspection
2. Pre pour inspection and any other structural items if applicable to this consent. Please allow 48hrs notice to ensure availability of the inspecting engineer.
Refer to inspection schedule attached with PS1 for a full list of required inspections.

To book a site inspection please visit <https://meetme.so/HFCInspections>

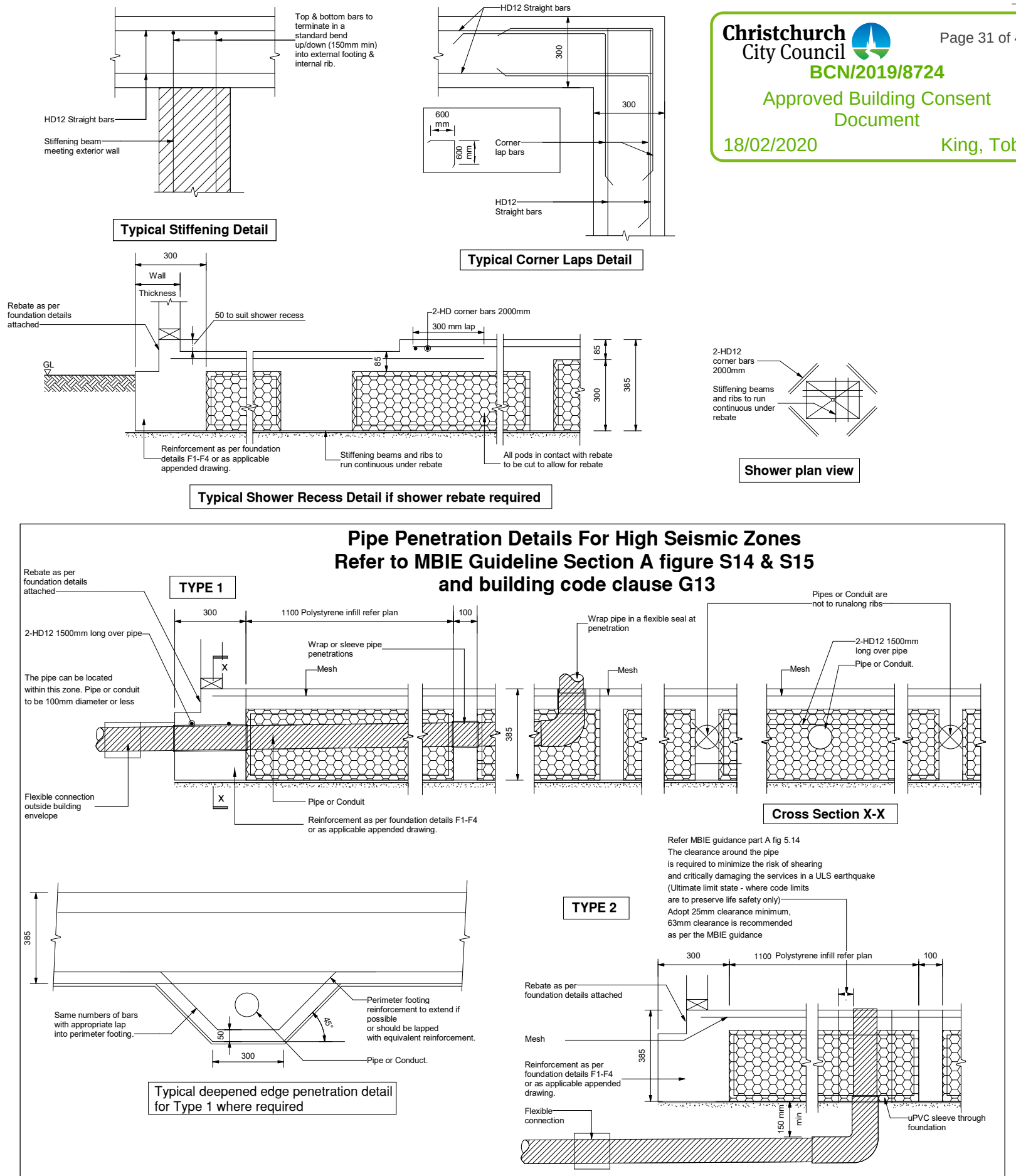
NOTE 3: Bridging note
Bridging of public services has not been allowed for unless indicated on the foundation layout (refer S100).

No construction is permitted within a 45 degree line of influence from 500mm below the pipe invert (or as per geotechnical or council requirements). Minimum proximity and pile embedment's as per local council and government standards need to be followed when constructing in this zone.

HFC and the architect should be notified for specific bridging design if applicable.

Reinforcing:

SYMBOL	TYPE
R	Plain bars grade 300E to NZS 4671 (300 MPa)
D	Deformed bars grade 300E to NZS 4671 (300 MPa)
HR	Plain bars grade 500E to NZS 4671 (500 MPa)
HD	Deformed bars grade 500E to NZS 4671 (500 MPa)
BAR SIZE HD	10 12 16
LAP LENGTH (25MPa)	450 600 900



A	13/12/2019	CONSENT	JLA
REV	DATE	AMENDMENT	BY



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JOB TITLE
**PROPOSED NEW HOUSE AT
9 MUSKET LANE, RICCARTON
PARK, CHRISTCHURCH**

DRAWING TITLE
**GENERAL NOTES
FOUNDATION**

DRAWING STATUS			
FOR CONSENT			
SCALE @ A1 NTS	DATE 13/12/2019	SHEET NO. G100	
DRAWN JLA	DESIGNED RZ	JOB NO. 19-877	ISSUE A
CHECKED TW			

GENERAL.

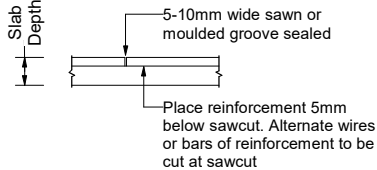
1. Structural drawings shall be read in conjunction with the Specifications, Architectural, Civil, and Engineering Services documents.
2. Unless otherwise noted, all levels are in meters, and all dimensions are in millimeters and shall be checked by contractor prior to construction.
3. Dimensions shall not be obtained by scaling from drawings.
4. All discrepancies shall be referred to the Architect or Engineer for resolution before proceeding with the work.
5. The stability of the structure during construction is the responsibility of the Builder.
6. All materials and workmanship shall be in accordance with the current Codes of Practice except where varied by the Specification and/or Drawings.
7. Where proprietary products are specified in the documents the contractor may submit an alternative product for approval.
8. Temporary work and propping is the responsibility of the Builder.

FOUNDATIONS.

1. Foundation material shall be approved by the Engineer for safe bearing capacity before construction of Footings. Blinding concrete to be used where necessary. Typically not shown on drawings. Foundations are assumed to have a minimum safe bearing capacity of 100 kPa, unless noted otherwise. This may be deemed satisfied by compliance with NZS3604 section 3 (ultimate bearing strength of 300kPa). If foundation material is less than 100KPa safe bearing the design engineer is to be contacted for alternative design.
2. Sub grade below Hard core (Base Course) for slabs shall be suitable material compacted to 95% of maximum dry density determined by test NZS 4402: Test 4.1.1. or equivalent unless noted otherwise.
3. All walls and columns shall be concentric with supporting foundations unless otherwise noted on drawings.
4. Unless noted other wise the floor level shall be 150mm min. above the finished ground level.

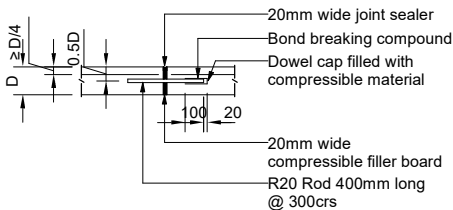
CONCRETE.

1. Minimum concrete strengths shall be as follow:
20 MPa - Non Sea Spray Zone
25 MPa - Sea Spray Zone
2. Sizes of concrete elements do not include thickness of applied finishes.
3. Construction Joints where not shown on drawings shall be located to the approval of the Engineer.
4. No penetrations, chases or embedments of pipes other than those shown on the Structural drawings shall be made in concrete members without the prior approval of the Engineer.
5. Finishes to concrete to be as per specification and Architectural drawings.
6. Propriety Precast components referred to on these drawings shall be designed and detailed by the supplier and a copy of the documentation submitted to the Engineer.
7. Tolerances to be as per specification.
8. All penetrations through concrete slabs shall be trimmed by 2- HD12 bars to each edge of the penetrations. Trimmer bars to extend 600mm beyond the return of the penetration.
9. Sawcut joint:



Slab depth	Sawcut depth
100	30
125	35
150	45
175	50
200	60

10. Construction joint:



REINFORCEMENT

1. All reinforcing shall be as follows:

SYMBOL	TYPE
R	Structural grade plain bars to NZS 3679.1 (300 MPa)
M	Mesh to NZS 3421 (485 MPa)
D	Deformed bars grade 300 E to NZS 4671 (300 MPa)
HD	Deformed bars grade 500 E to NZS 4671 (500 MPa)
HR	Plain bars grade 500 E to NZS 4671 (500 MPa)

2. No reinforcement splices shall be made other than those shown on the Structural Drawings, or in table below without the prior approval of the Engineer. Reinforcement laps in concrete to comply with the tables below:

Minimum Lap, 30MPa Concrete (x 1.22 for 20 MPa)									
BAR SIZE	TOP STEEL IN BEAMS		BOTTOM STEEL		WALLS		COLUMNS		
	GRADE		GRADE		GRADE		GRADE		
	300	500	300	500	300	500	300	500	500
10	-	-	-	-	300	400	-	-	-
12	-	-	-	-	350	450	-	-	-
16	650	850	500	750	450	750	450	750	-
20	850	1300	700	1000	600	1000	500	1000	-
25	1200	1800	950	1300	1300	-	700	1300	-
32	1600	2000	1250	1800	-	-	1250	1800	-

Minimum lap for fabric shall be one mesh bar spacing plus 25mm

3. Clear cover to all reinforcement, including stirrups, ties etc. shall be as follows, unless noted otherwise on the drawings.

EXPOSURE SITUATION	FOUNDATIONS	BEAMS AND COLUMNS		SLABS, WALLS AND RIBS DIA<24 /DIA / 24
		MAIN BARS	STIRRUP TIES AND SPIRALS	
Cast against and exposed to earth	75	75	75	75
Exposed to weather or earth -Cast in place	50	50	40	35/45
-Pre cast	40	40	30	30/40
Not Exposed to weather or earth -Cast in place	-	45	25	20/30
-Pre cast	-	35	20	15/25

4. Epoxy grouting of reinforcing bars into concrete. Holes for vertical bars shall be vertical and horizontal starters shall slope down at 15 degrees. Depth of hole and embedment of the reinf. bars to comply with the table below:

BAR SIZE	10	12	16	20	25
HOLE DIA.	16	18	22	26	30
D	160	200	270	350	430
HD	270	350	450	600	750

The tabulated values above apply to a deformed bar epoxy grouted into a hole with rough sides brushed clean of dust and loose material, in dry concrete.

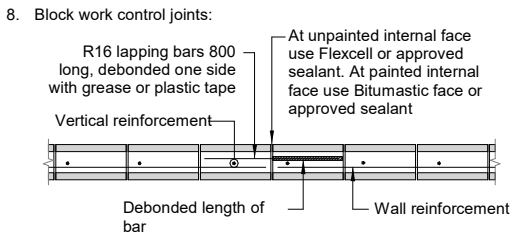
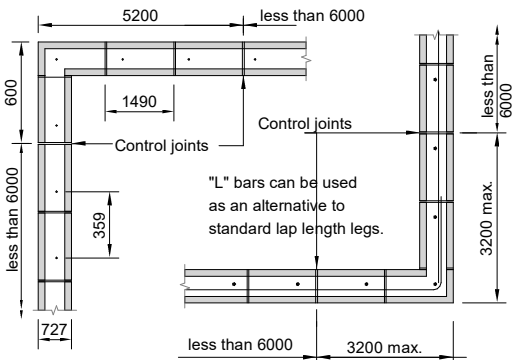
5. Welding of reinforcement is not permitted unless shown on the drawings or approved by the Engineer.
6. Top and bottom reinforcement in slabs shall be adequately supported to insure all reinforcing stays in place during concrete pouring.
7. Hooks, laps and bends are to be in accordance with NZS 3109.
8. Legend used for reinforcement in plan and elevations.

b	_____	Top bars, bottom layer
B	_____	Bottom bars, bottom layer
t	_____	Bottom bars, top layer
T	_____	Top bars, top layer
e./w.	_____	Each way
e./f.	_____	Each Face
n./f.	_____	Near Face
f./f.	_____	Far Face

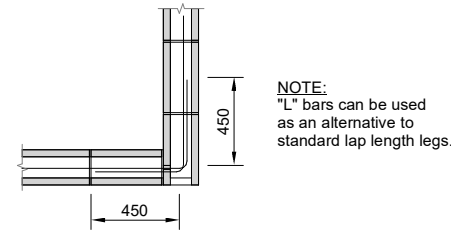
9. Hard drawn steel wire and strands made up of stress relieved cold drawn wire shall comply with BS 5896 or AS 1311.

MASONRY

1. All masonry is laid in running bond configuration unless noted otherwise.
2. All masonry within the building structure is Grade B as defined in NZS 4230.
3. Concrete masonry blocks shall conform to NZS 3102 unless noted otherwise. Density shall be > 1750 kg/m.
4. Mortar shall comply with the requirements of NZS 4210. Compressive strength of mortar shall be not less than 17.5 MPa.
5. All cores shall be grout filled (20 MPa) unless noted otherwise on the drawings. (25 MPa concrete in Sea Spray Zone)
6. Clean out openings to be provided at bottom course (1.2m centers max.). Mortar joints to be 10mm thick with blocks fully bedded and perpendis filled. Joints to be tooled at exposed or rendered surfaces. Before placing vertical reinforcement cores are to be cleaned of all mortar fines and droppings through clean out openings. After inspection the face shells are to be mortared in at clean out ports and braced prior to grouting. Grout to be rodde to ensure filling of cores with a max. continuous pour height of 2400mm.
7. Control joints should be provided at max. 6.0m centers. Where not shown on the drawings the joints should be located in accordance with NZS 4229:1999 and to the approval of the Engineer.



9. All block work horizontal reinforcing must lap adequately at corners and junctions as indicated below:



10. Chasing of load bearing masonry units is not permitted without the prior approval of the Engineer.

11. Reinforcement laps in block work to comply with the table below:

BAR SIZE	min.	10	12	16	20	25
D	450	450	480	640	800	960
HD	-	700	840	1120	1400	1750

STRUCTURAL STEEL

1. Steel members shall be the following grade unless noted otherwise:

MEMBER	GRADE
TFCs, TFBs, EAs	£ 100x100 250
UAs	< 150x90 250
UBs, UCs, PFCs, EAs	> 100x100 300Plus (ex BHP Australia)
UAs	/ 150x90 300Plus (ex BHP Australia)
RHS, SHS, CHS	350

2. Hot rolled steel sections (t > 3mm) shall be in accordance with NZS 3404, NZS3441, AS1397 and shall be minimum grade 300 MPa.

3. The ends of all hollow sections shall be sealed with 3mm min. steel plate, seal welded.

4. All plates shall be 6mm min. unless otherwise noted.

5. All Holding Down bolts and other fixing devices shall have a minimum yield stress of 250 MPa unless noted otherwise.

6. All dry pack mortar/grout shall have a compressive strength of at least 30 MPa.
7. Surface preparation and corrosion protection of steel work shall be in accordance with the Specifications. Any damage to the protective coating of steel work shall be made good.
8. Bolts, unless noted otherwise:
a) Bolts and nuts shall be Grade 8.8 high strength steel to AS 1252: "ISO Metric High Strength Steel Bolts" unless noted otherwise.
Grade 4.6 bolts and nuts shall be mild steel to AS1111: "ISO Metric Hexagonal Bolts" and "AS 1112: "ISO Metric Hexagonal Nuts".
b) Common detailing components:
Edge and end distance - 2D
Pitch distances - 2.5D
Gauge distances - 70, 90 and 140 as per AISC.
c) All bolts shall have at least one washer which shall be not less than twice the nominal bolt size in diameter.
d) The bolt shall be selected so that the projection beyond the nut is not less than two Threadeds and not more than 10mm.
9. Holing:
a) Holes for bolts shall be drilled or punched and not gas cut.
b) Common detailing components:
Standard holes - D+2mm
Slotted holes - 1.22D- D+2mm wide and 2.5D long unless noted otherwise.
H.D. bolts - 1.33D composite simple (standard washer) (fabricated washer).

10. Welds:
a) All welded connections shall be metal arc welded as shown on the drawings. All welding shall comply with AS 1554: Part 1 "Welding of Steel Structures" unless noted otherwise. Welds exposed in the completed building and in particular butt welds of stock lengths shall be neatly finished and ground smooth.
b) All butt welds shall be full penetration.
c) Welding of hollow sections shall incorporate internal sections or backing plates as necessary to complete the specified weld.
d) All welds on drawings unless otherwise noted to be 6mm fillet weld all round.

11. All steelwork exposed to view to have weld splatter flux, dags and burrs removed and all sealing and butt welds ground flush. Surface treatment of welds shall be hand ground or wire brushed to class 2 finish and painted with 1 coat of zinc rich primer.

A	13/12/2019	CONSENT	JLA	
REV	DATE	AMENDMENT	BY	
DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000				
JOB TITLE PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH				
DRAWING TITLE GENERAL NOTES - STRUCTURAL				
DRAWING STATUS CONSENT				
SCALE @ A1 N.T.S.	DATE 13/12/2019	SHEET NO. G101		
DRAWN JLA		JOB NO. 19-877	REV. A	
DESIGNED RZ				
CHECKED TW				

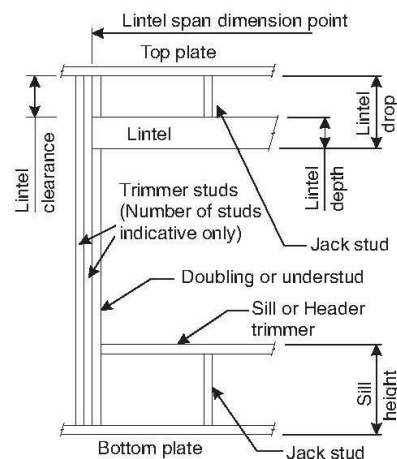
LINTEL FIXING SCHEDULE

ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

NOTE:

- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20 kPa.
- ★ Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- ★ All fixings assume bottom plate thickness of 45mm maximum. Note: TYLOK options on timber species.
- ★ Wall framing arrangements under girder trusses are not covered in this schedule.
- ★ All timber selections are as per NZS 3604:2011.

DEFINITIONS



Lintel Supporting Girder Trusses:

Roof Tributary Area	Light Roof Wind Zone				Heavy Roof Wind Zone			
	L	M	H	VH	L	M	H	VH
8.6 m²	G	G	H	G	G	G	H	G
11.6 m²	G	H	H	G	G	H	H	G
12.1 m²	G	H	H	G	G	H	H	G
15.3 m²	H	H	-	G	H	H	-	G
19.1 m²	H	-	-	G	H	-	-	G
20.9 m²	H	-	-	H	H	-	-	H
21.8 m²	H	-	-	H	-	-	-	H
34.3 m²	-	-	-	H	-	-	-	H

Notes:

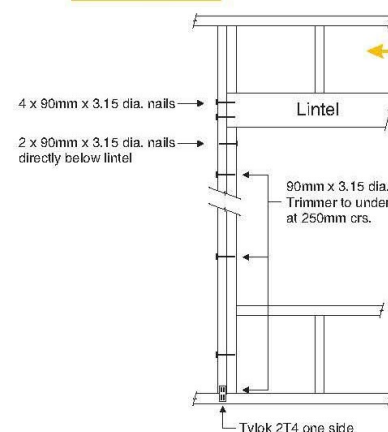
- 1) Roof Tributary Area = approx. 1/2 x (Total roof area on girder and rafter trusses supported by lintel)
- 2) Assumed girder truss is at mid-span or middle third span of lintel
- 3) Use similar fixings for both ends of lintel
- 4) All other cases require specific engineering design

SELECTION CHART FOR LINTEL FIXING

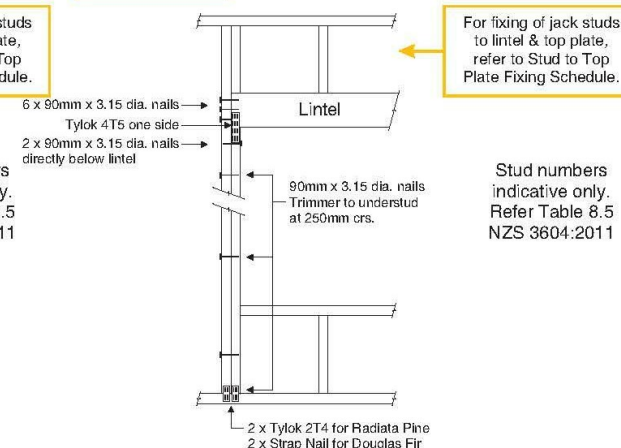
Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
0.7	2.0	E	E	E	F	E	E	E	E	E	E
	3.0	E	E	F	F	E	E	E	F	F	E
	4.0	E	F	F	F	E	E	E	F	F	F
	5.0	E	F	F	F	G	E	E	F	F	F
	6.0	E	F	F	G	G	E	E	F	F	G
0.9	2.0	E	E	F	F	E	E	E	F	F	E
	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	F	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	E	F	F	F
	6.0	E	F	F	G	G	E	E	F	F	G
1.0	2.0	E	E	F	F	F	E	E	F	F	F
	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	F	F	F	G	E	E	F	F	F
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	5.0	F	F	G	G	H	E	E	F	G	H
	6.0	F	F	G	H	H	E	E	F	G	H
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	3.0	F	F	G	H	H	E	E	F	G	H
	4.0	F	G	H	H	-	E	F	G	H	-
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	5.0	G	H	H	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
4.5	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	F	G	H	-
	4.0	F	G	H	-	-	E	F	G	H	-
	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
4.8	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	F	G	H	-
	4.0	F	G	H	-	-	E	F	G	H	-
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	6.0	G	H	-	-	-	E	F	H	-	-

LINTEL FIXING OPTIONS

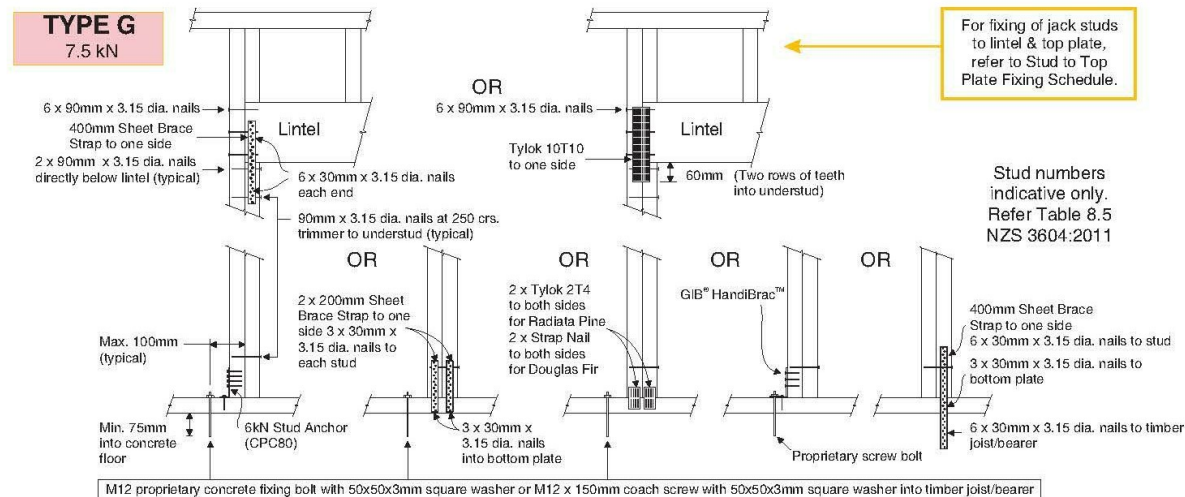
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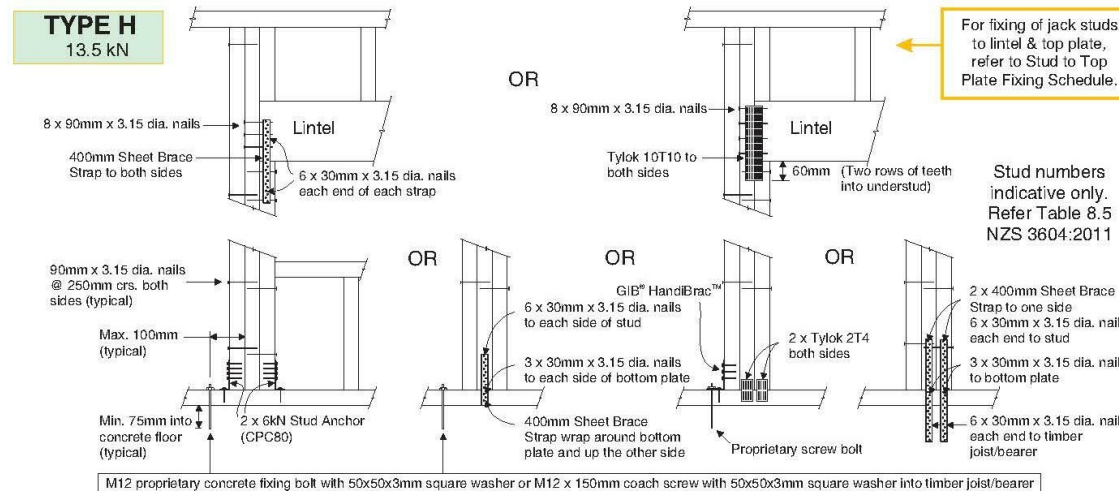
TYPE F 4.0 kN



TYPE G 7.5 kN



TYPE H 13.5 kN



MiTek New Zealand Limited

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PO Box 58-014, Botany 2163
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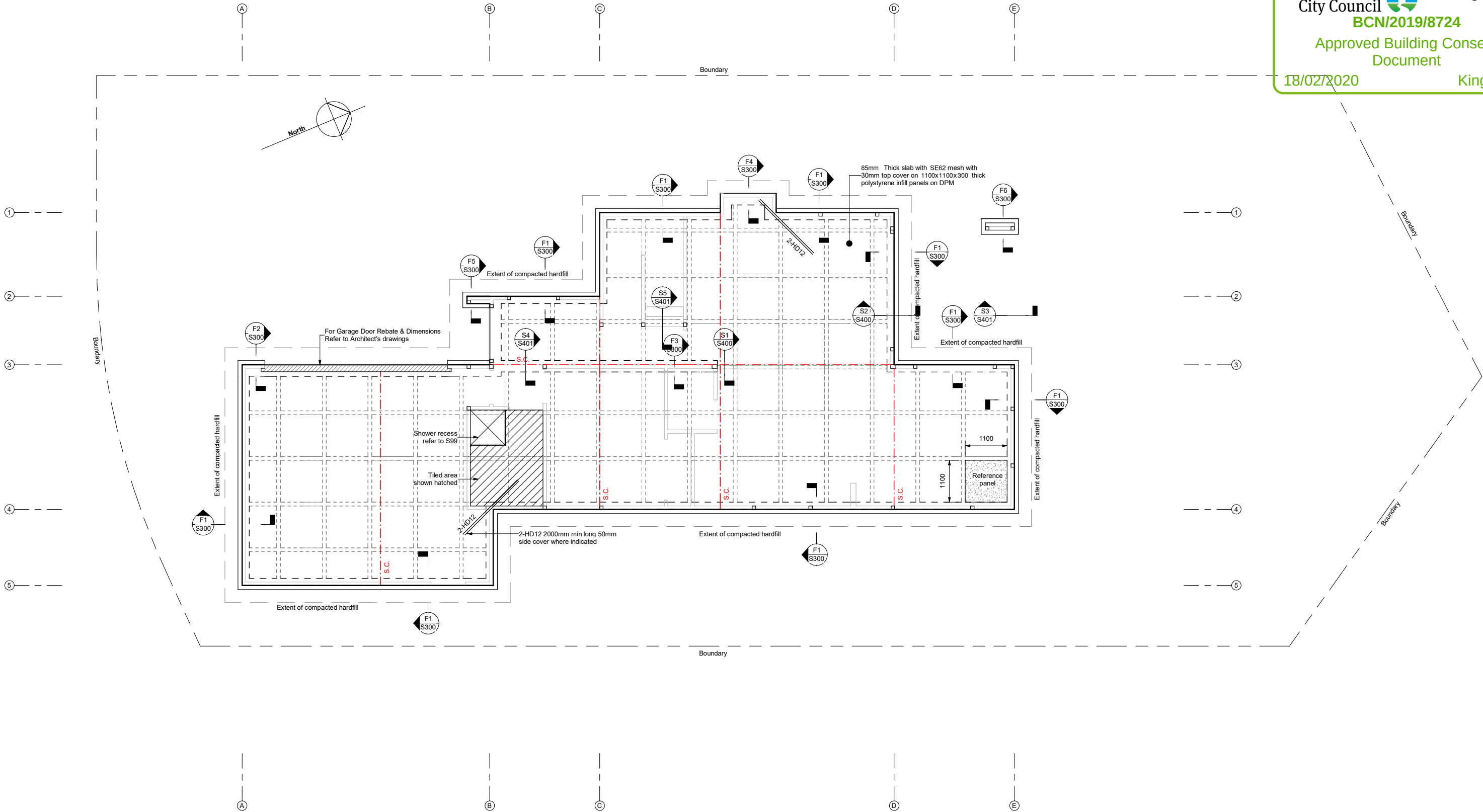
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A	13/12/2019	CONSENT	JLA
REV	DATE	AMENDMENT	BY
PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH			
DRAWING TITLE LINTEL TYPE CONNECTIONS			
DRAWING STATUS CONSENT			
SCALE @ A1	DATE	SHEET NO.	
N.T.S.	13/12/2019	G102	
DRAWN	JLA		
DESIGNED	RZ	JOB NO.	REV.
CHECKED	TW	19-877	A



FOUNDATION LAYOUT
1:50 @ A1

				S.C. 25mm Deep saw cut within 24 hours. Refer to sheet S99 General notes item 9.		REFER TO SHEET S99 FOR GENERAL NOTES AND INSPECTION REQUIREMENTS FOR FOUNDATIONS		DRAWING STATUS FOR CONSENT				
				HFC GROUP CIVIL & STRUCTURAL ENGINEERS DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000	JOB TITLE		DRAWING TITLE		SCALE @ A1 1 : 50 @ A3 1:100	DATE 13/12/2019	SHEET NO. S100	
					PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH		FOUNDATION LAYOUT TC1 WAFFLE SLAB		DRAWN	JLA	JOB NO. 19-877	ISSUE A
									DESIGNED	RZ		
									CHECKED	TW		
A	13/12/2019	CONSENT	JLA									
REV	DATE	AMENDMENT	BY									

Structural Beams Schedule

B1	2-190x45 SG8
B2	2-240x45 SG8
B3	230PFC
B4	2-240x45 HySpan
B5	2-190x45 SG8
B6	2-190x45 SG8
B7	2-190x45 SG8
B8	2-240x45 HySpan
B9	2-190x45 SG8
B10	230PFC
B11	2-190x45 SG8
B12	200PFC
B13	2-190x45 SG8
B14	2-240x45 SG8
B15	2-240x45 SG8

Structural Column Schedule

DS	2-90x45SG8	Well nailed together, type G fixing
TS	3-90x45SG8	Well nailed together, type H bottom fixing

Walls Legend

	= Walls Above Floor
	= Walls Below Floor

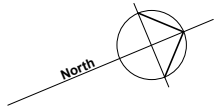
A

B

C

D

E



NOTE:

For floor joists refer to architectural drawings.

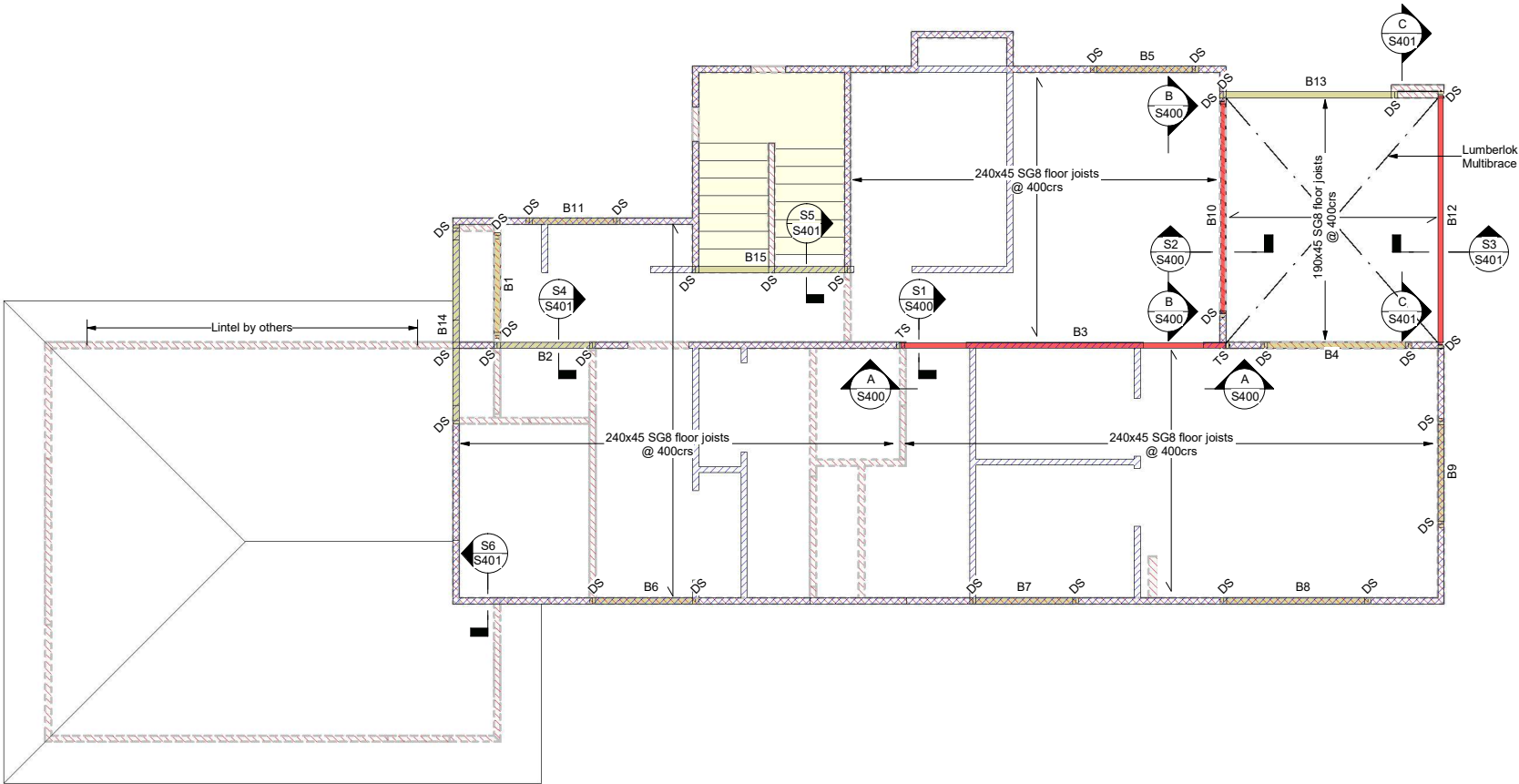
1

2

3

4

5



A

B

C

D

E

FIRST FLOOR FRAMING PLAN

1 : 50 @ A1

Christchurch City Council

NOTES:
Drawings to be read in conjunction with Architectural Contract and HFC Group's standard details, rebates, opening sizes, slab set downs, falls and service penetrations with Architect drawings.
All drawing to be read in conjunction with sheet: "G001 GENERAL NOTES" for full specification.
Contractor to provide shop drawings to engineer for all structural steelwork & Precast drawings for review prior to fabrication.

BCN/2019/8734

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18/02/2020

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Final Loby

Do not scale from drawings. HFC drawings are not allowed to be used as shop drawings.

All timber works other than shown on drawings to be as per NZS 3604: 2011

A	13/12/2019	CONSENT	JLA
REV	DATE	AMENDMENT	BY



DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000

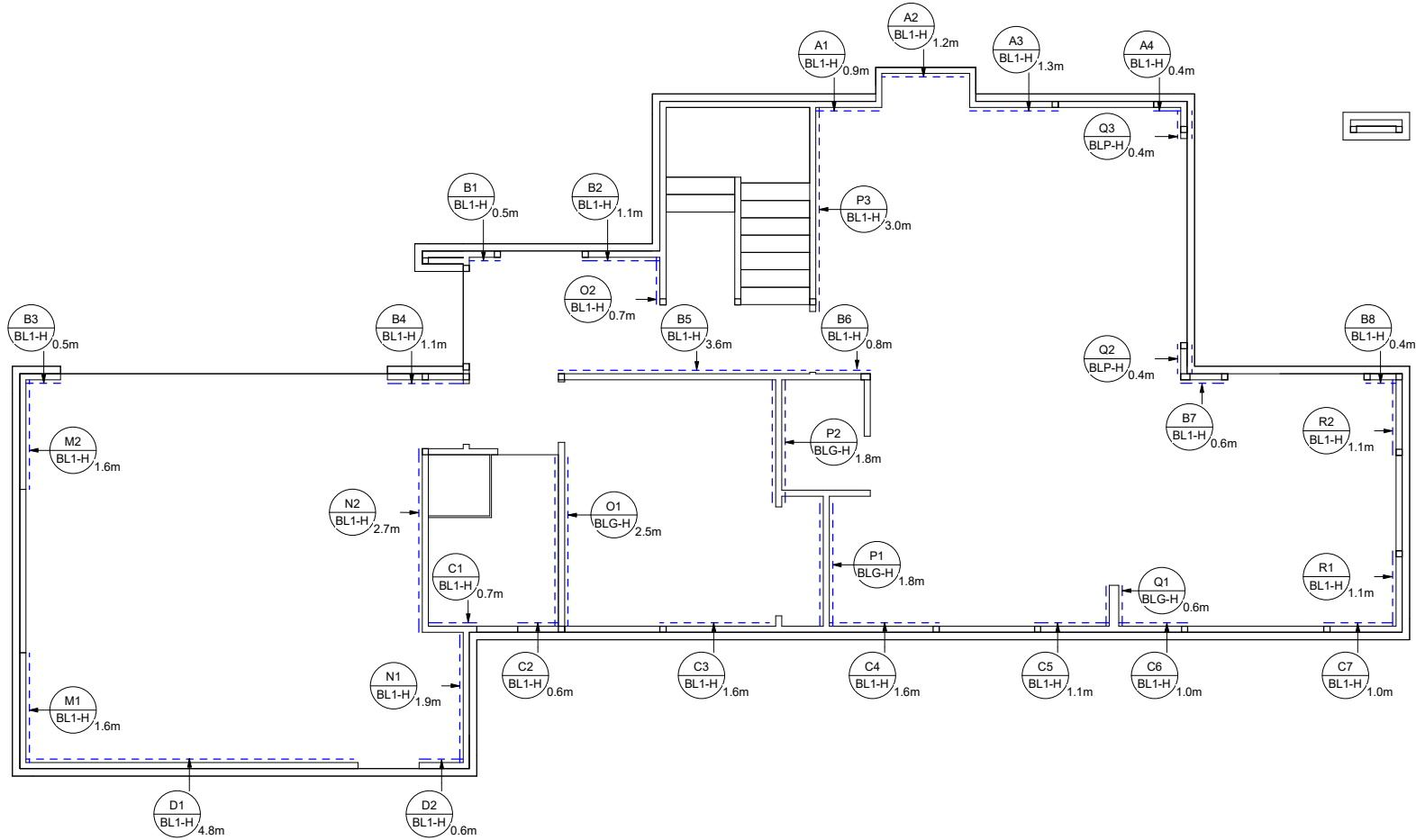
JOB TITLE
PROPOSED NEW HOUSE
AT 9 MUSKET LANE,
RICCARTON PARK,
CHRISTCHURCH

DRAWING TITLE
FIRST FLOOR FRAMING
PLAN

DRAWING STATUS
CONSENT

SCALE @ A1 1 : 50	DATE 13/12/2019	SHEET NO. S102	
DRAWN JLA			
DESIGNED RZ		JOB NO. 19-877	REV. A
CHECKED TW			

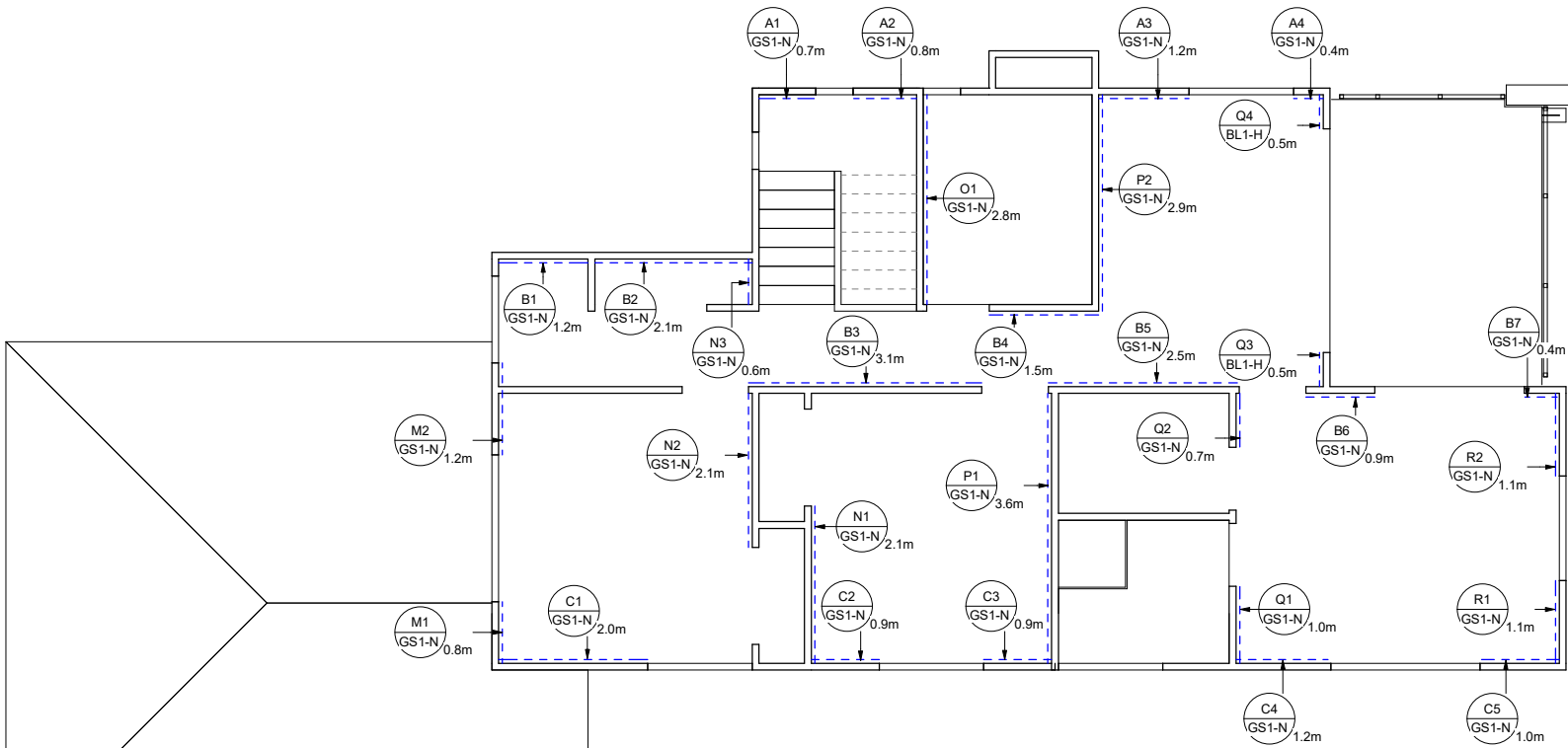
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GROUND FLOOR BRACING PLAN
1 : 50 @ A1

A	13/12/2019	CONSENT	JLA
REV	DATE	AMENDMENT	BY
HFC GROUP CIVIL & STRUCTURAL ENGINEERS DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000			
JOB TITLE			
PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH			
DRAWING TITLE			
GROUND FLOOR BRACING PLAN			
DRAWING STATUS			
CONSENT			
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CHECKED	TW	19-877	A

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DATE PLOTTED: 19-Dec-19 1:34:42 PM



FIRST FLOOR BRACING PLAN
1:50 @ A1

Christchurch City Council

BCN/2019/8724

Approved Building Consent

18/02/2020

NOTES:

Drawings to be read in conjunction with Architectural drawings

Contractor shall select materials, rebates, opening sizes, slab set downs, falls and service penetrations with Architect drawings

All drawing to be read in conjunction with sheet: "G001 GENERAL NOTES" for full specification.

Contractor to provide shop drawings to engineer for all structural steelwork & Precast drawings for review prior to fabrication

Do not scale from drawings. HFC drawings are not allowed to be used as shop drawings.

All timber works other than shown on drawings to be as per NZS 3604: 2011

BRACING NOTES:

- Bracing lengths shown are minimum used for calculations. Use full wall lengths available where practical.
- GIB bracing shall be installed strictly in accordance with manufacturers written instruction.

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Ref: 11.0by

A	13/12/2019	CONSENT	JLA																				
REV	DATE	AMENDMENT	BY																				
HFC GROUP CIVIL & STRUCTURAL ENGINEERS DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000 JOB TITLE PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH DRAWING TITLE FIRST FLOOR BRACING PLAN DRAWING STATUS CONSENT <table><tr><td>SCALE @ A1</td><td>DATE</td><td colspan="2">SHEET NO.</td></tr><tr><td>1 : 50</td><td>13/12/2019</td><td colspan="2">S201</td></tr><tr><td>DRAWN</td><td>JLA</td><td colspan="2"></td></tr><tr><td>DESIGNED</td><td>RZ</td><td>JOB NO.</td><td>REV.</td></tr><tr><td>CHECKED</td><td>TW</td><td>19-877</td><td>A</td></tr></table>				SCALE @ A1	DATE	SHEET NO.		1 : 50	13/12/2019	S201		DRAWN	JLA			DESIGNED	RZ	JOB NO.	REV.	CHECKED	TW	19-877	A
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DRAWN	JLA																						
DESIGNED	RZ	JOB NO.	REV.																				
CHECKED	TW	19-877	A																				

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S10

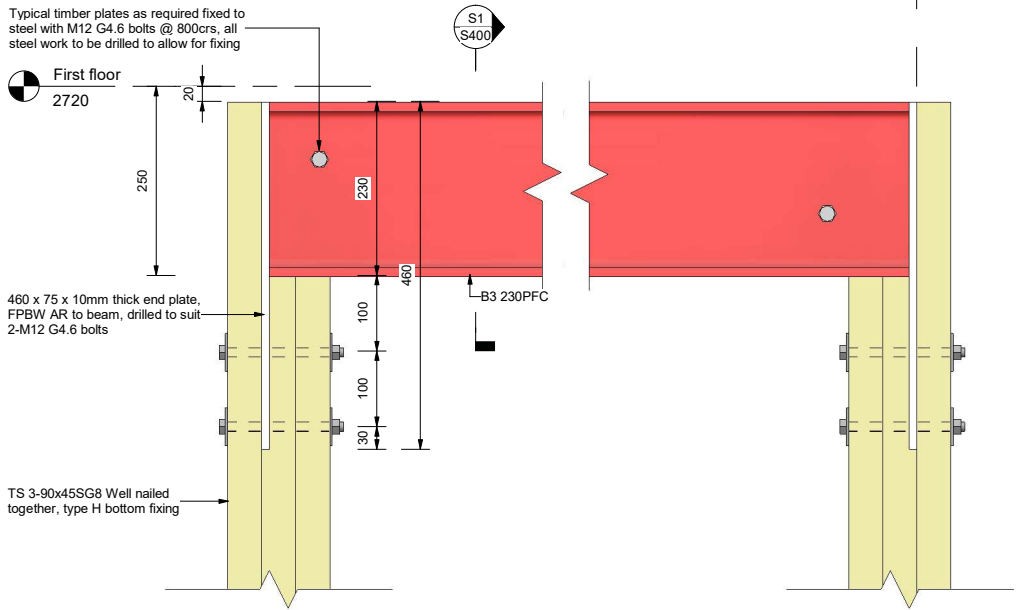


S10

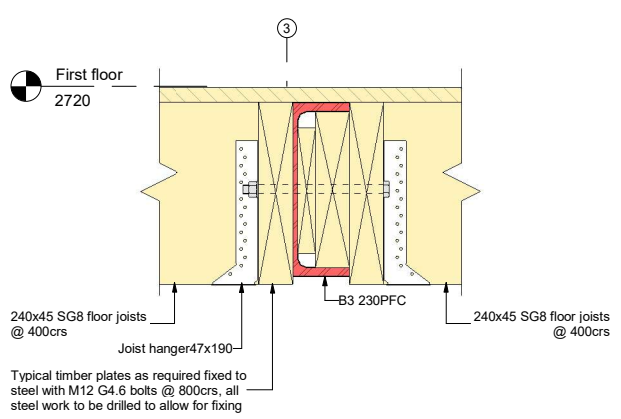


S10

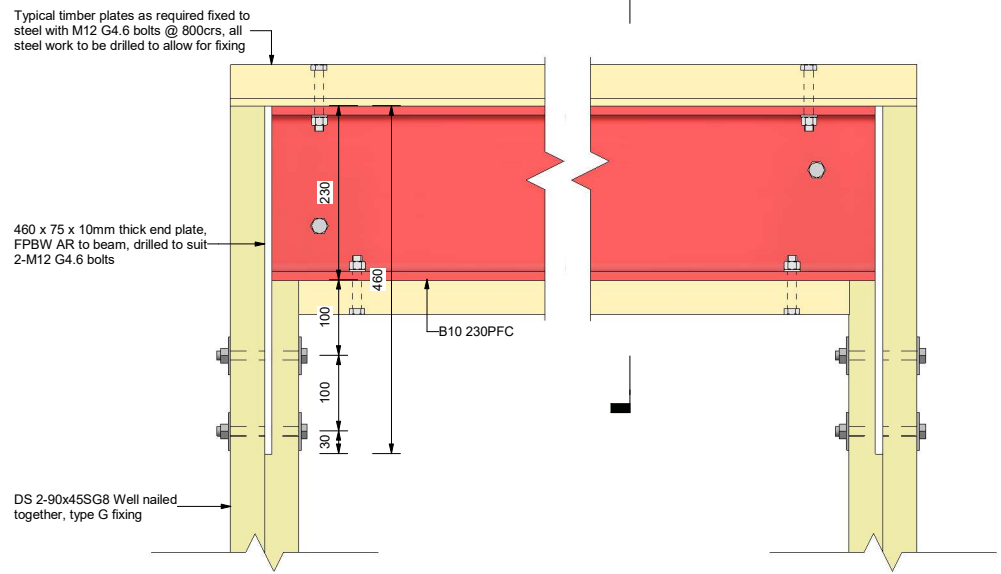




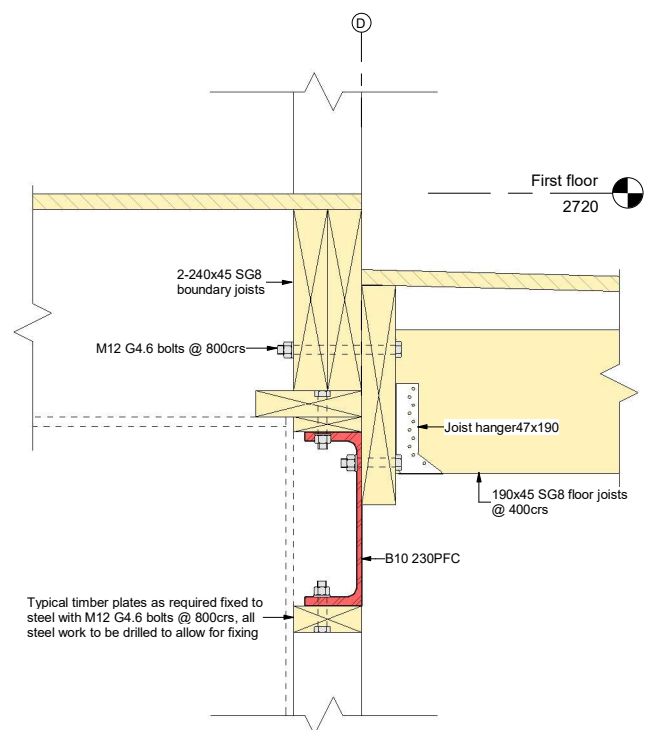
SECTION A - A
S102 SCALE 1 : 5 @ A1



STRUCTURAL DETAIL
S1 S100 SCALE 1 : 5 @ A1



SECTION B - B
S102 SCALE 1 : 5 @ A1



STRUCTURAL DETAIL
S2 S100 SCALE 1 : 5 @ A1

Christchurch City Council

BCN/2019/877

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18/02/2020

NOTES:

Drawings to be read in conjunction with Architectural drawings

Contractor shall allow for all rebates, opening sizes, slab set downs, falls and service penetrations with Architect drawings

All drawing to be read in conjunction with sheet: "G001 GENERAL NOTES" for detail specification.

Contractor to provide shop drawings to engineer for all structural steelwork & Precast drawings for review prior to fabrication

Do not scale from drawings. HFC drawings are not allowed to be used as shop drawings.

All timber works other than shown on drawings to be as per NZS 3604: 2011

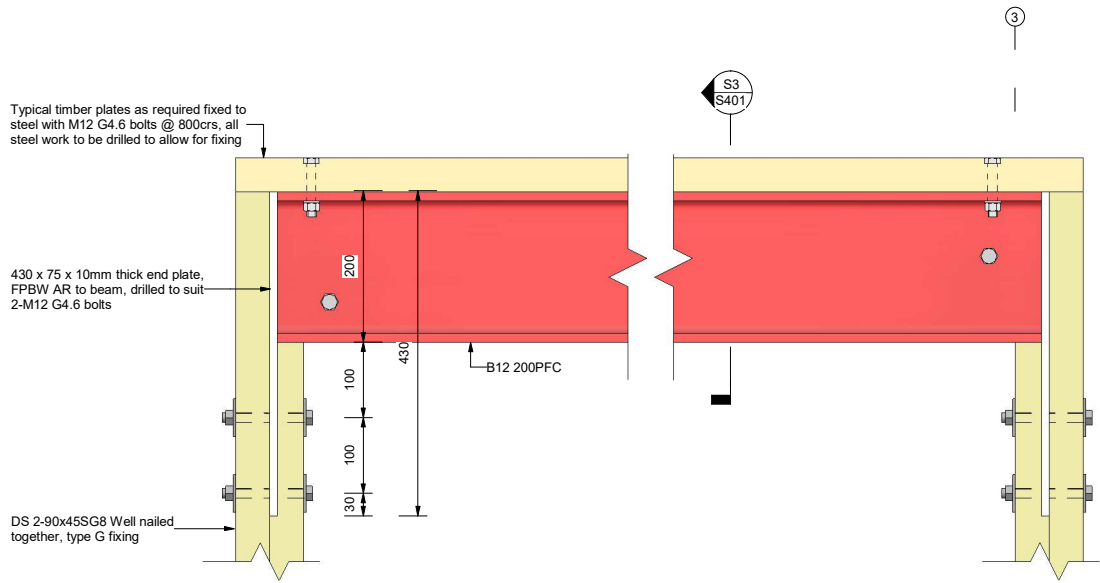
Page 39 of 41

Ref: 1001

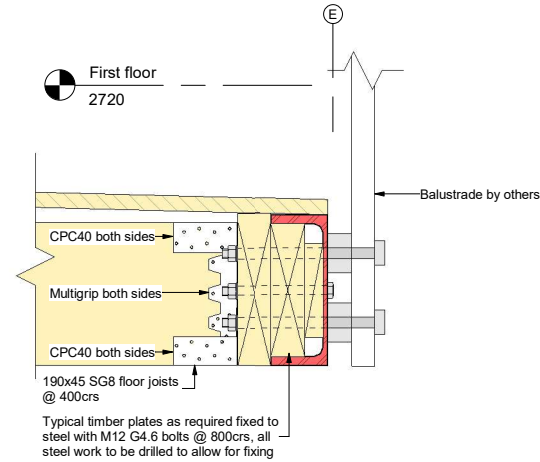
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REV	DATE	AMENDMENT		BY																				
 HFC GROUP CIVIL & STRUCTURAL ENGINEERS DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000 JOB TITLE PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH DRAWING TITLE STRUCTURAL DETAILS DRAWING STATUS CONSENT <table><tr><td>SCALE @ A1</td><td>DATE</td><td colspan="2">SHEET NO.</td></tr><tr><td>1 : 5</td><td>13/12/2019</td><td colspan="2">S400</td></tr><tr><td>DRAWN</td><td>JLA</td><td colspan="2"></td></tr><tr><td>DESIGNED</td><td>RZ</td><td>JOB NO.</td><td>REV.</td></tr><tr><td>CHECKED</td><td>TW</td><td>19-877</td><td>A</td></tr></table>					SCALE @ A1	DATE	SHEET NO.		1 : 5	13/12/2019	S400		DRAWN	JLA			DESIGNED	RZ	JOB NO.	REV.	CHECKED	TW	19-877	A
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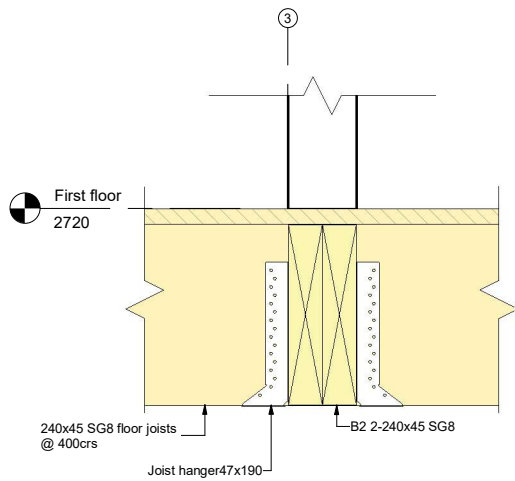
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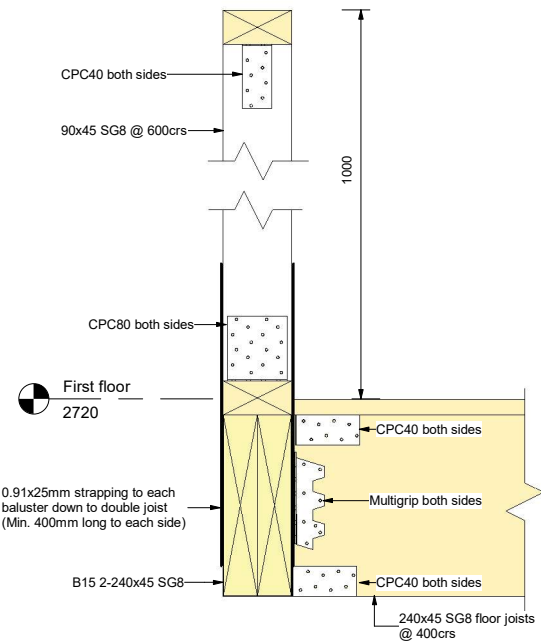
SECTION C - C
S102 SCALE 1 : 5 @ A1



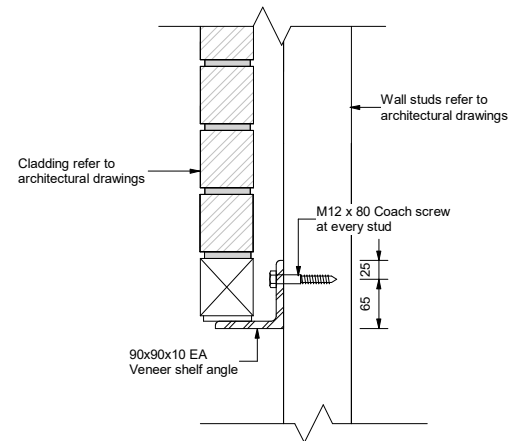
STRUCTURAL DETAIL
S3 S100 SCALE 1 : 5 @ A1



STRUCTURAL DETAIL
S4 S100 SCALE 1 : 5 @ A1

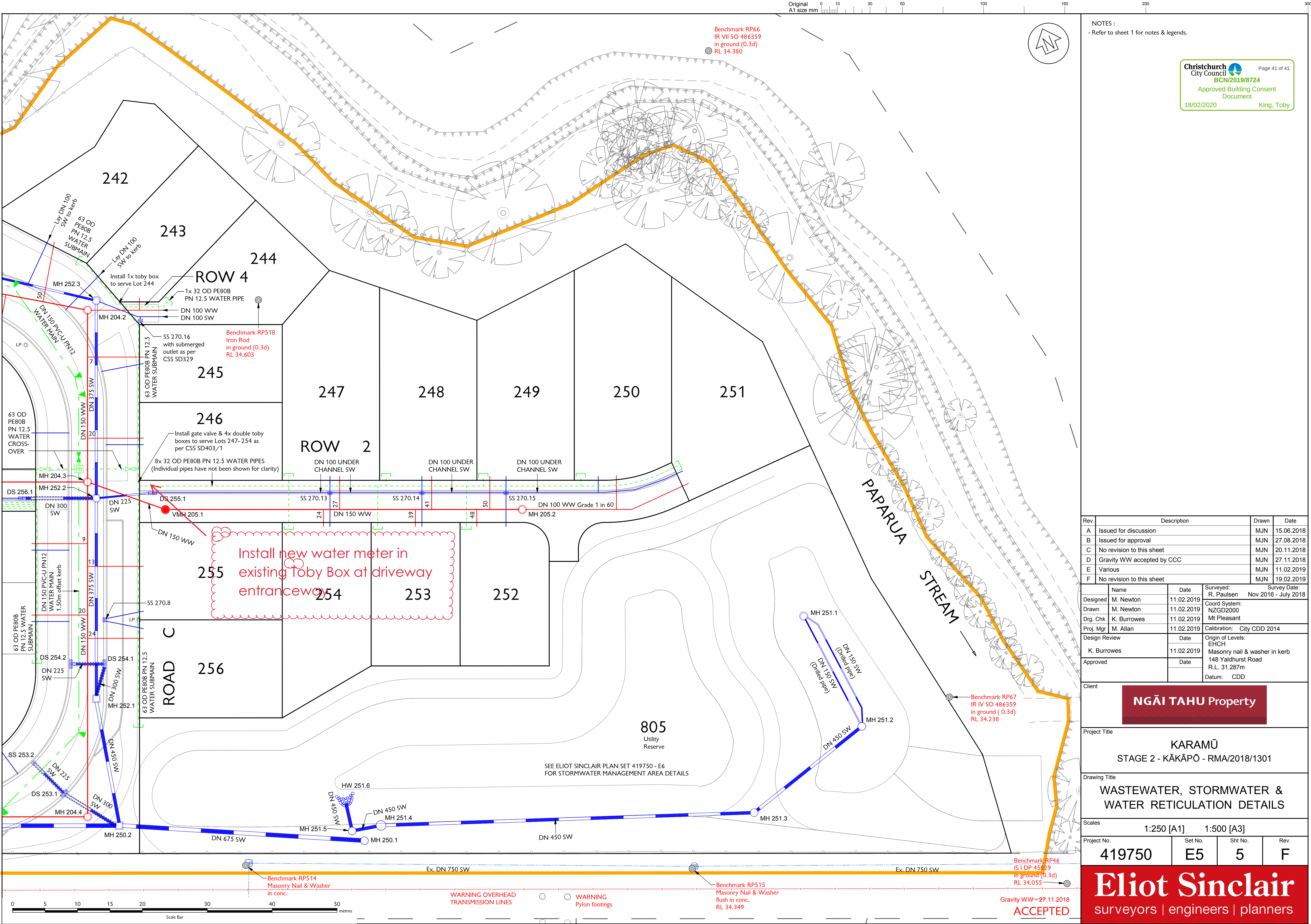


STRUCTURAL DETAIL
S5 S100 SCALE 1 : 5 @ A1



TYPICAL VENEER SHELF ANGLE FIXING DETAIL
S6 S102 SCALE 1 : 5 @ A1

A	13/12/2019	CONSENT	JLA
REV	DATE	AMENDMENT	BY
HFC GROUP CIVIL & STRUCTURAL ENGINEERS DESIGN ISSUED BY HFC CIVIL & STRUCTURAL (SOUTH) LTD, PART OF THE HFC GROUP OF COMPANIES. E: CHCH@HFC.CO.NZ P: 03 339 7000			
JOB TITLE PROPOSED NEW HOUSE AT 9 MUSKET LANE, RICCARTON PARK, CHRISTCHURCH			
DRAWING TITLE STRUCTURAL DETAILS			
DRAWING STATUS CONSENT			
SCALE @ A1 1 : 5	DATE 13/12/2019	SHEET NO. S401	
DRAWN JLA		JOB NO. 19-877	REV. A
DESIGNED RZ			
CHECKED TW			



Christchurch City Council

BCN/2019/8724

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18/02/2020

King, Toby

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NOTES :

- Refer to sheet 1 for notes & legends.

Rev.	Description	Drawn	Date
A	Issued for discussion	MJN	15.06.2018
B	Issued for approval	MJN	27.08.2018
C	No revision to this sheet	MJN	20.11.2018
D	Gravity WW accepted by CCC	MJN	27.11.2018
E	Various	MJN	11.02.2019
F	No revision to this sheet	MJN	19.02.2019

Designed	M. Newton	Date	11.02.2019	Surveyed:	R. Paulsen	Survey Date:	Nov 2016 - July 2018
Drawn	M. Newton	Date	11.02.2019	Coord System:	NZGD2000		
Dr. Chk	K. Burrows	Date	11.02.2019	Mt Pleasant			
Proj. Mgr	M. Allan	Date	11.02.2019	Calibration:	City CDD 2014		
Design Review		Date	11.02.2019	Origin of Levels:	EHCH		
Approved		Date		Masonry nail & washer in kerb	148 Yaldhurst Road		
				R.L.	31.287m		
				Datum:	CDD		

Client

NGĀI TAHU Property

Project Title

KARAMŪ
STAGE 2 - KĀKĀPŌ - RMA/2018/1301

Drawing Title

WASTEWATER, STORMWATER & WATER RETICULATION DETAILS

Scales

1:250 [A1] 1:500 [A3]

Project No.

419750

Set No.

E5

Sht No.

5

Rev.

F

Eliot Sinclair

surveyors | engineers | planners

0 5 10 15 20 30 40 50 metres

Scale Bar

WARNING OVERHEAD TRANSMISSION LINES

WARNING Pylon footings

Benchmark RP514
Masonry Nail & Washer
in conc.

Benchmark RP515
Masonry Nail & Washer
flush in conc.
RL 34.349

Benchmark RP46
IS 1 DP 450 SW
in ground (0.3d)
RL 34.055

Gravity WW - 27.11.2018
ACCEPTED