

Additions & Alterations to existing

Engineering Drawing Index

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Engineering Drawing Index

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Locality Plan

Area Plan



Vision Engineers Australia

138 Dora Street, Dora Creek NSW 2264
M/ 0490 444 007

Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Client:

Address:

Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En01

Scale: @ A3

General Notes:

- These drawings shall be read in conjunction with the architectural and other consultants drawings / specifications and with other such written instructions as may be issued during the construction. Any discrepancy shall be referred to the Engineer before commencing the work.
- All dimensions are in millimeters, Unless noted otherwise.
- These drawings shall not be scaled, refer to dimensions given only or refer to the Architectural drawings.
- All levels and setting out dimensions shown on the drawings shall be checked on site prior to the commencement of work.
- During construction the structure shall be maintained in a stable condition with no part being overstressed with temporary supports / bracing installed as required.
- The engineer shall approve any proposed substitution prior to the commencement of works.

Earthworks:

- The earthworks shall be carried out in accordance with the geotechnical report and engineering specifications.
- The site shall be stripped a minimum depth of 150mm under pavements and buildings to remove the top soil. Any remaining uncontrolled fill matter, organic material, refuse or roots shall be removed.
- If a vibrating type roller is used, consideration shall be given to the effects on adjacent properties.
- All filling shall be under the supervision of the project geotechnical engineer who shall provide compaction certificates to the engineer for approval.

Formwork:

- All workmanship and materials shall be in accordance with AS3610 & AS3600, except where varied by the project documentation.
- The design certification and the performance of the formwork shall be the responsibility of the contractor.
- During construction support propping shall be required where there are loads from stacked materials, formwork and other supported slabs. Once the concrete has achieved its nominated 28 days strength, the imposed loads shall not exceed those given in the loading table.
- With multistory construction, it is expected that support propping will extend a minimum of 3 levels below the slab being poured. Prop removal is to be programmed so as not to overstress previously cast floors and shall be submitted to the engineer for approval.
- The suspended slabs shall be propped until the 28 days strength has been achieved for the slabs. The formwork may be removed once 20 MPa strength has been achieved, however the slab will need to be back propped until 28 days strength has been achieved. No masonry or partition walls are to be constructed on suspended levels until all propping is removed.
- All exposed corners shall have a 20mm chamfer UNO.
- All finished shall be in accordance with the architectural specification.

Foundation Maintenance :

- All soils are affected by water. Silts are weakened by water and some sands can settle if heavily watered, but most problems arise on clay foundations. Clays swell and shrink due to changes in moisture content and the potential amount of the movement is implied in the site classification in Australian Standard AS2870, which is specified as follows:

A - Stable (Non-reactive) S - Slightly Reactive
M - Moderately Reactive H - Highly Reactive
E - Extremely Reactive

- All sites shall be maintained at essentially stable moisture conditions and extremes of wetting and drying prevented. This will require attention to the following.
- Site drainage: The site shall be graded or drained so that water cannot pond against or near the house. The ground immediately adjacent to the house shall be graded to a uniform fall of 50mm minimum away from the house over the first meter. The subfloor space for the houses with suspended floors shall be graded or drained to prevent ponding. The site drainage requirements shall be maintained.
- Gardens: The gardens shall not interfere with the drainage requirements or the subfloor ventilation and weep holes drainage requirements. Garden beds adjacent to the house should be avoided. Over watering of gardens close to the house shall be avoided.
- Restrictions on trees / shrubs: Planting of trees shall be avoided near the footings of the house or neighboring house on reactive sites as they can cause damage due to drying the clay. To minimise the possibility of damage, tree planting should be restricted to a distance from the house of:
- 1.50 x The mature height for Class E sites.
- 1.00 x The mature height for Class H sites.
- 0.75 x The mature height for Class M sites.
- Where rows or groups of trees are involved, the distance from the building should be increased. Removal of trees from the site can also cause similar problems.
- Repair of leaks: Leaks in plumbing, including stormwater and sewerage drainage should be repaired promptly.
- The owners attention is drawn to CSIRO pamphlet "Guide to home owners on foundation maintenance & footing performance". Owner should comply with the recommendations of this pamphlet. The site around the building perimeter & service trenches are to be graded to drain away from the building perimeter.

Concrete:

- All workmanship and materials shall be in accordance with AS3600 & AS2870, except where varied by the project documentation. Concrete slabs and footings have been designed to satisfy the performance criteria of section 3 of AS2870 - Residential slabs and footings.
- In areas of brittle floor coverings e.g. slate or tile, it would be recommended that one of the following measures be utilised:
- Increase mesh size to SL92 or double mesh layer.
- Use a rubberised flexible adhesive bedding.
- Delay placing tiles for a minimum of 3 months.
- Concrete quality shall be as follows (Subject to Subgrade being satisfied):

Element	Slump (mm)	Maximum Aggregate size (mm)	Cement Type	Strength 28 Days (MPa)	Admixture
Footings	80	20	Normal Portland Type A Cement	25	-
Bored Piers & Pile Caps	80	20		25	-
Floor Slabs on Ground	80	20		25	-
Suspended Floor Slabs	80	20		32	-
Hollowcore Floor Slabs	80	20		32	-
Walls & Columns	80	20		32	-
Masonry Piers	150	7-14		20	-
Retaining Walls	80	20		32	-

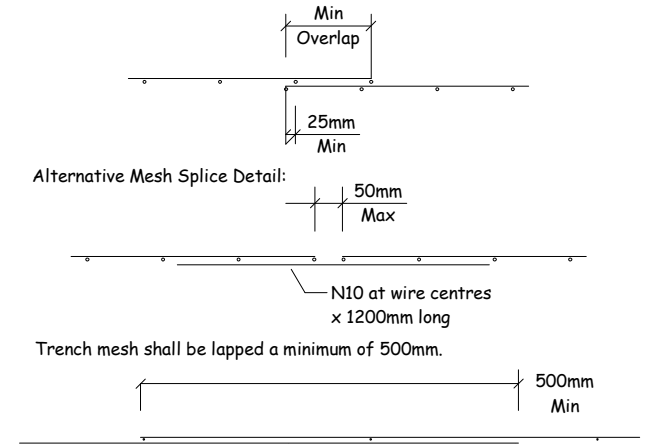
- The engineer shall approve any admixtures to be used in the concrete mix.
- The clear concrete cover to all reinforcement shall be as follows UNO:

Exposure Classification to AS3600	Strength 28 Days (MPa)	Against Formwork		Against Ground	
		Interior Surface	Exterior Surface	With Membrane	With no Membrane
A1	20	20	30	30	50
A2	25	40	30	40	50
B1	32	40	40		
B2	40	45	45		

- Cover to reinforcement shall be obtained by the use of approved bar chairs placed at maximum 750mm cts in each direction.
- All concrete shall be mechanically vibrated and the vibrators SHALL NOT be used to spread the concrete.
- Size of the concrete elements do not include thickness of the applied final finishes.
- Approval shall be obtained from the engineer prior to the drilling of any holes or cutting in any chases other than those shown on the structural drawings.
- Construction joints where not shown on the structural drawings shall be located in accordance with the engineers approval.
- Curing of all concrete it to be achieved by keeping surfaces continuously wet for a period of 7 days (10 days in summer months), and prevention of loss of moisture for a total of 10 days followed by gradual drying out. Approved spray on compounds complying with AS3799 may be used provided that they do not interfere with the performance of the proposed floor finishes. Polythene sheeting or wet hessian may be used if protection from wind and traffic.
- The suspended slabs shall be propped until 28 day strength has been achieved for slabs. The formwork may be removed once 20 MPa strength has been achieved, however the slab will need to be back propped until 28 days strength has been achieved. No masonry or partition walls are to be constructed on suspended levels until all propping is removed.
- Conduits, pipes, etc. shall only be placed in the middle third of the slab depth and spaced at not less than 3 diameters. They shall not be placed within the cover of the reinforcement.
- Reinforcement symbols:
S - Denotes grade 250 S bars to AS1302
N - Denotes grade 500 normal ductility deformed bars to AS4671
R - Denotes grade 250 normal ductility round bars to AS4671
SL - Denoted grade 500 low ductility square welded mesh to AS4671
RL - Denoted grade 500 low ductility rectangular welded mesh to AS4671
L - Denoted grade 500 low ductility trench welded mesh to AS4671.
- Reinforcement is represented diagrammatically and is not necessarily shown in true projection.
- Splices in reinforcement shall be made only in positions shown or otherwise approved by the engineer.
- Laps and cogs shall be in accordance with AS3600 and not less than the below:

Minimum Splice Lengths	Minimum Overall Cog Lengths
N12 400mm	200mm
N16 600mm	225mm
N20 800mm	275mm
N24 1100mm	325mm
N28 1400mm	375mm

- Site bending of deformed reinforcing bars shall be done without heating and using mechanical bending tools.
- Welding of the reinforcement shall not be permitted unless shown on the structural drawings or approved by the engineer.
- Joggles to the bar shall be 1 bar diameter over a length of 12 bar diameters.
- Bundled bars shall be tied together at 30 bar diameter centers with 3 wraps of tie wire.
- Mesh shall be lapped 2 transverse wires plus 25mm.



- Trench mesh shall be lapped a minimum of 500mm.

Vision Engineers Australia
138 Dora Street
Dora Creek, NSW 2264
M/ 0490 444 007
enquiries@visioneng.com.au
www.visionengineers.com.au

I hereby certify that the above mentioned works are structurally adequate for their intended purpose. This certification is limited to the structural elements detailed, and based on the works being carried out in accordance with these structural/civil plans. The structure has been designed in accordance with the following:

- AS/NZS 1170.0:2002: Structural design actions - General principles
- AS/NZS 1170.1:2002: Structural design actions - Permanent, imposed & other actions
- AS/NZS 1170.2:2011: Structural design actions - Wind actions
- AS 4055-2012: Wind Loads For Housing
- AS 4100-1998: Steel Structures
- AS 1163-1991: Structural Steel Hollow Sections
- AS/NZS 1111-1996: ISO Metric Hexagon Commercial Bolts & Screws
- AS 3600-2009: Concrete Structures.
- AS 3700-2011: Masonry Structures
- AS 2870-2011: Residential slabs and footings - Construction
- AS 1684-2010: Residential timber framed construction
- AS 1720.1-2010: Timber Structures - Design Methods
- AS 3959-2009: Construction of buildings in bushfire prone areas
- Building Code of Australia (BCA)

All works to be carried out by a licensed builder in accordance with the current edition of the Building Code of Australia (BCA) and relevant Australian Standards for construction.

Based on the above parameters, I hereby certify that the structural components are adequate under the imposed loading provided that they are constructed in accordance with the relevant Australian Standards.

I certify that I am a qualified and practising Structural Engineer in accordance with the requirements of the Building Code of Australia and The Institution of Engineers, Australia.

M Palmer

Murray Palmer
BEng (Civil & Structural) Hons
Member No: 3798337
Principal Engineer



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M/ 0490 444 007

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Client:

Address:

Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En02

Scale: @ A3

Safety in Design:

1. Workplace Health and Safety (WHS) is important to Vision Engineers and "Safety in Design" is a core component of our service. We recognise that identifying design solutions that eliminate hazards, not only improves WHS outcomes, but also has potential to reduce costs associated with fixing design problems.
2. Under the new harmonised model of Work Health Safety Legislation, there are a range of new legislation and regulatory requirements, supported by a suite of Codes of Practice clarifying how these obligations can be met. Vision Engineers is committed to its legislative obligations. The components designed by Vision Engineers have been designed in accordance with the relevant Australian Standards and to meet the performance criteria of the National Construction Code (NCC). In this instance we cannot foresee any significant WHS implications or risks that can be avoided or mitigated by design.
3. The beams, columns and connections can reasonably be expected to be constructed in accordance with a construction process that is an "industry standard" construction process within the capabilities of a competent Licensed Contractor. Furthermore, this process is generally a low risk operation and the site is question does not pose any unique risks or hazards. Therefore, providing that all other parties associated with the design conduct their duties in a professional manner and in accordance with the relevant Safe Work Australia codes of practice, all requirements relating to the Work Health and Safety Act 2011 No 10 will be satisfied. If you require and further information please contact the Vision Engineers office.

Structural Steel:

1. All workmanship and materials shall be in accordance with AS4100 and AS/NZ4600.
2. The structural design has been based on the following steel grades, UNO:
 - Hot rolled universal beams, columns, channels & angles: 300PLUS
 - Circular, square & rectangular hollow sections: C350/C450LOC
 - Cold formed open DuraGal profiles: 350/C450LO
 - Cold formed lipped Cee & Zed Purlins: G550/G500/G450
3. The structural design has been based on MBPMA nominal size Cee & Zed lipped purlins.
4. Qualifications for welding procedures and personnel shall conform to Section 4 of AS 1554.1. Non destructive testing of welds shall include 100% visual inspection and additional testing as shown on the drawings.
5. All welds shall be 6mm continuous fillet type GP, UNO. All butt welds shall be complete penetration in accordance with AS1554.1, UNO.
6. Bolt Designation:
 - 4.6/S - Commercial bolts to AS 1111, snug tightened.
 - 8.8/S - High strength structural bolts to AS1562, snug tightened.
 - 8.8/TB - High strength structural bolts to AS1562, full tensioned bearing joint.
 - 8.8/TF - High strength structural bolts to AS1562, fully tensioned friction joint.
7. All bolts shall be M16 8.8/S, with a minimum of 2 bolts per connection UNO.
8. Fin plates shall be a minimum of 10mm thick, grade 300PLUS steel, UNO.
9. Concrete encased steel work shall be wrapped with SL62 mesh and shall have a minimum 50mm of cover, UNO.
10. Steelwork to be encased in concrete shall have the following surface treatment, UNO:

Exposure Classification to AS3600	Steelwork Protection Required
A1 / A2	Power tool clean to AS1627 Class 1, 1 Coat Alkyd Primer (Zinc Phosphate)
B1	Abrasive blast to AS1627 Class 2.5 1 Coat Inorganic Zinc Silicate
B2	Hot Dipped Galvanised to AS1650

11. Where sealed tube members are hot dipped galvanised, the fabricator shall provide drill holes as necessary to allow gases to escape.
12. All transport and erection damage, site welds etc., shall be reinstalled to an equivalent finish to adjacent steelwork.
13. If steel beams and posts are designated to be galvanised, then end plates, cap plates, and base plates shall also be galvanised.
14. All nuts and bolts shall be galvanised or marine grade stainless steel.

Timber:

1. All workmanship and materials shall be in accordance with AS1684 and AS1720.
2. AS1684 shall be applied to domestic construction in sheltered locations.
3. Softwood to be a minimum of F7 MGP10 and hardwood to be a minimum of F17 UNO.
4. External timber shall be either hardwood durability class 1 or 2 as per AS1720 or impregnated pine grade F7 MGP10, pressure treated to AS1604 and re-dried prior to use. Supplementary treatment shall be applied to all cut surfaces.
5. Two (2) copies of timber truss shop drawings shall be submitted to the engineer for approval, clearly indicating design loads and point loads applied to the structure.
6. All bolts in timber construction shall be M16 4.6/S UNO. Washers under heads and nuts shall be at least 2.5 times the bolt diameter.
7. All timber joints and notches shall be a minimum on 100mm away from loose knots, severe sloping grain, gum veins or other minor defects.

Masonry:

1. All workmanship and materials shall be in accordance with AS3700.
2. The design strength of masonry shall be:

Exposure Classification to AS3600	Brick Compressive Strength (MPa)	Brick Salt Resistance Grade	Durability Classification of Built in Components	Mortar Mix	
				GP Portland e Cement Lime: Sand	f'c (MPa)
A1 / A2	20	General Purpose	R3 (Galvanised)	1.0 : 1.0 : 6.0	2.8
B1	20			1.0 : 1.0 : 6.0	2.8
B2	20	Exposure	R3 (Stainless)	1.0 : 0.5 : 4.5	2.8

3. All masonry walls supporting concrete slabs and beams shall have a slip joint comprising of two layers of galvanized steel in between the concrete and masonry.
4. All masonry walls supporting or supported by concrete floors shall have vertical joints located to match and control / construction joints in the concrete.
5. Do not construct any masonry walls on suspended slabs until the slab formwork has been stripped and de-propped.
6. Non load bearing masonry walls shall be separated from concrete slab or beam above by 20mm thick compressible filler.
7. Provide vertical control joints at 6m maximum centers, and 4 meters maximum from corners in masonry walls, and between new and existing brickwork. The joint shall have expansion joint ties and suitably sealed with mastic sealant.
8. Masonry retaining walls are to be back filled with either of the following material:
 - Coarse grained soil with low silt content
 - Residual Soil Containing Stones
 - Fine silty sand
 - Granular materials with low clay content

Blockwork:

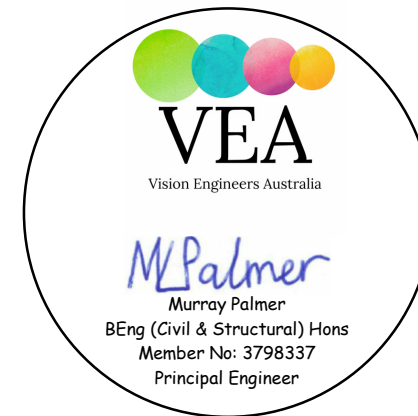
1. All workmanship and materials shall be in accordance with AS3700.
2. Reinforced concrete blockwork shall comply with the following, UNO:
 - Blocks: Minimum 10 MPa unconfined compressive strength conforming to AS4455.
 - Mortar: 1.0 : 1.0 : 6.0 ratio of cement: Lime: Sand UNO.
 - Blocks shall be either 'H' or 'Double U' configuration.
 - Provide clean out holes at the base of the wall & rod core holes to remove excess mortar.
 - Core filling shall be 20 MPa concrete with maximum 10mm aggregate size with a maximum slump of 120 ±20mm
 - Minimum cover of 55mm from the outside of the blockwork.
3. Masonry retaining walls are to be back filled with either of the following material:
 - Coarse grained soil with low silt content
 - Residual Soil Containing Stones
 - Fine silty sand
 - Granular materials with low clay content
4. Vertical control joints shall be provided at max 8m centers. They shall be reinforced with N20-400 dowels 600mm long. One end shall be greased and capped.
5. No admixtures shall be used in the mortar mix or the core fill mix without prior written consent from the engineer.

Precast Panels:

1. All workmanship and materials shall be in accordance with AS3600.
2. The precast panel concrete strength at 28 days shall be a minimum of 40 MPa. The concrete shall be a minimum of 2- MPa before removal from molds.
3. Dimensions shown as final concrete size and additional concrete must be provided to allow for loss of structural thickness due to surface treatment, etc.
4. Panel structural thickness shall be noted.
5. Refer to the architectural drawings for dimensions, rebates, etc.
6. All metal work and cast-in ferrules shall be hot dipped galvanized which are exposed to the external environment.
7. All cast-in ferrules shown on the drawings are to remain sealed until the erection of the panel and shall not be used for lifting.
8. Lifting ferrules are the contractors responsibility and extra reinforcement needs to be provided in accordance with the manufacturers recommendations.
9. Concrete cover shall be in accordance with structural drawings.
10. Fabric in the panels shall be one sheet, no lapping is permitted unless shown on the structural drawings.
11. Penetrations for services shall be neat formed holes, hole boring is not permitted.
12. Temporary steel packers may be used under the panels provided they have a minimum of 50mm cover from the concrete slab or grout.
13. A minimum of two (2) copies of all workshop drawings shall be supplied to the engineer for approval. The shop drawings shall show all cast-in inserts.

Permanent Metal Formwork:

1. The permanent metal formwork shall be installed in accordance with the manufacturers recommendations and shall NOT be substituted from the product specified without written approval from the engineer.
2. The permanent metal formwork shall be suitably propped.
3. The permanent metal formwork shall not be spliced or joined midspan.
4. The permanent metal formwork shall have a minimum end bearing of 50mm.
5. The permanent metal formwork shall be fixed to the supporting structure with spot welds or fasteners, there shall be a minimum of 1 fixing per sheet to the support each end adjacent to the side lap.
6. The permanent metal formwork may need to have the side lap fastened together midspan, this shall be carried out in accordance with the manufacturers specifications



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138 Dora Street, Dora Creek NSW 2264
M/ 0490 444 007

Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Client:

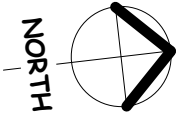
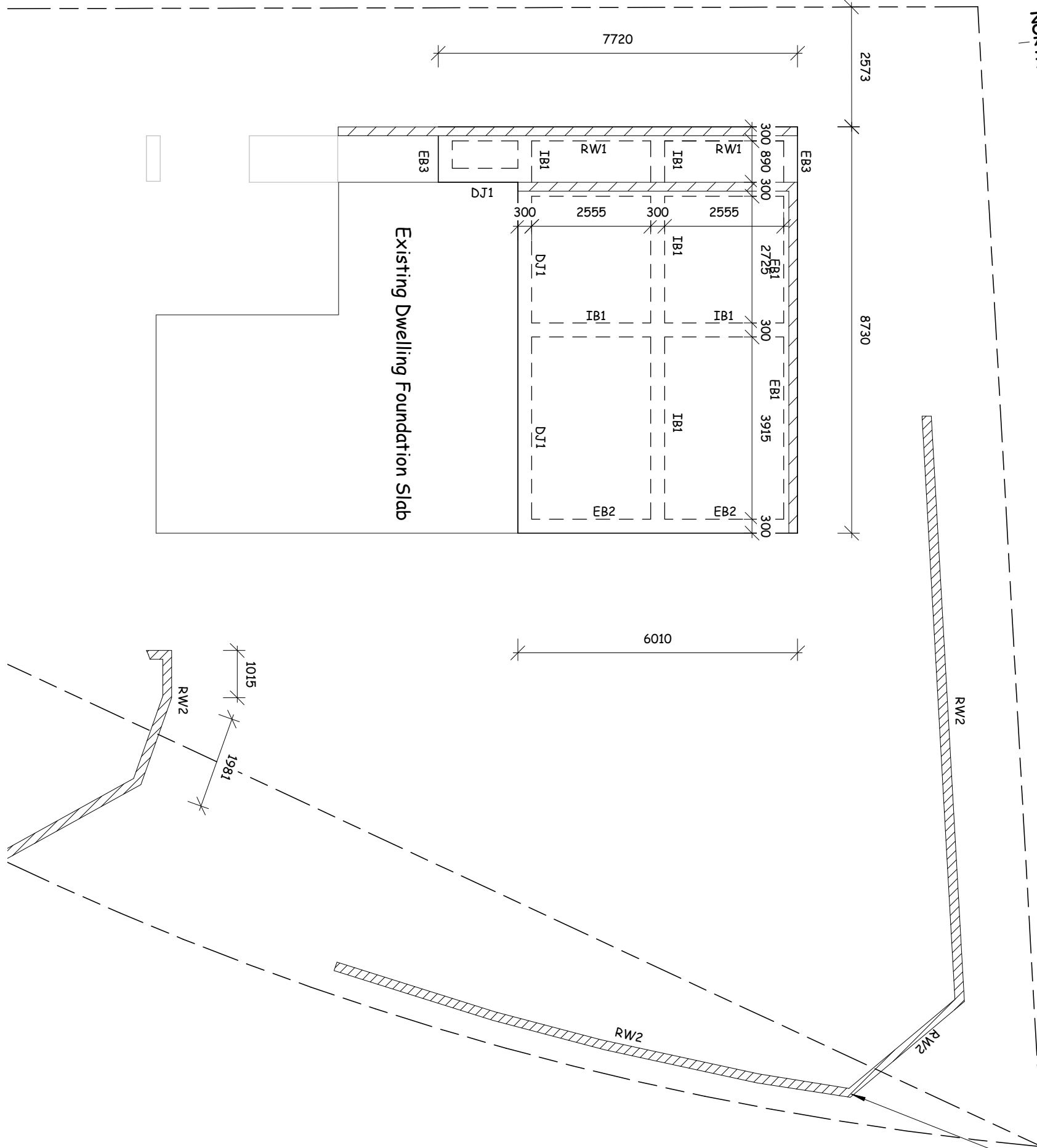
Address:

Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En03

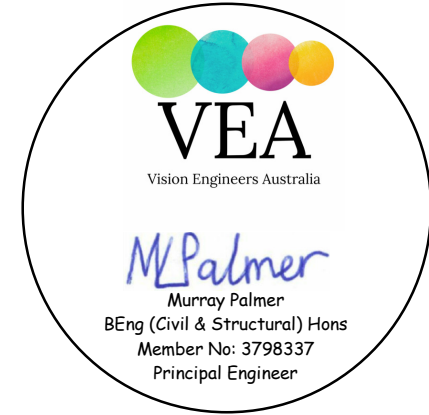
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General Notes
 1. Bracing and tie-down details to the engineers details and AS1684.2
 2. All timber and steel to be installed and treated to the manufacturers specifications, especially for any exterior applications
 3. All white ant protection to be strictly within the guidelines of AS3660 and installed by a qualified licenced pest control consultant
 4. AJ denotes masonry articulation joint, to be installed to AS 3700 section 4.8 requirements

Finished Ground Level Note
 Ensure ground surface is sloped away from subfloor/footing, provide additional drainage as required to ensure no water ponds near footings

Note: boundaries to be pegged and setout confirmed before commencement of construction



FOOTING INSPECTION #1 REQUIRED The excavated footing shall be inspected by the design engineer prior to the placement of the damp-proofing membrane or steel reinforcement

FOOTING INSPECTION #2 REQUIRED The steel reinforcing for the footings shall be inspected by the design engineer prior to the placement of concrete

FOOTING INSPECTION #3 REQUIRED The steel reinforcing for the retaining walls shall be inspected by the design engineer prior to the placement of concrete



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BUILDERS NOTE :
 Use Dimensions in preference to scale. Site verify all dimensions before ordering Materials.
 Footings information shown on these plans may have to be changed if Builders site excavations reveal non-virgin ground. Consultation of Plan Vision Australia Pty Ltd would then be necessary to determine the required changes.
 Builder to inspect adequacy of existing footings & piers for proposed scope of works. Replace existing footings & sub floor members as necessary
 Materials are under no circumstances to be ordered direct off Additions Plans. Materials to be ordered are only to be ordered from a Builders or applicable product manufacturers separate site confirmed Materials list.
 Additions plans are not intended to be the absolute medium for construction information accuracy due to existing buildings discrepancies and existing buildings hidden characteristics. See schedule of specifications for further details.

Wind Class: N2 (W33N) (Assumed)
 Site Class: 'M' Soil Class: 'M'
 Refer to Geotech report for more details

SURVEY NOTE :
 Boundary dimensions are assumed only and taken from site information, others or owners information.
 Confirm boundaries before commencement of construction.
 Full project specific detailed survey plans have not been supplied to Plan Vision for planning purposes.
 See schedule of specifications for details.

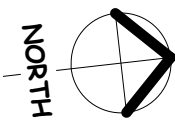
Revision Schedule		
Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

Address:

Date Started: 13/04/2020
 Drawing No: 320-7120
 Sheet: En04
 Scale: 1 : 100 @ A3



STRIP FOOTING INSPECTION REQUIRED The footing reinforcement shall be inspected by the design engineer prior to the placement of concrete

- General Notes**
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 2. All timber and steel to be installed and treated to the manufacturers specifications, especially for any exterior applications
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 4. AJ denotes masonry articulation joint, to be installed to AS 3700 section 4.8 requirements

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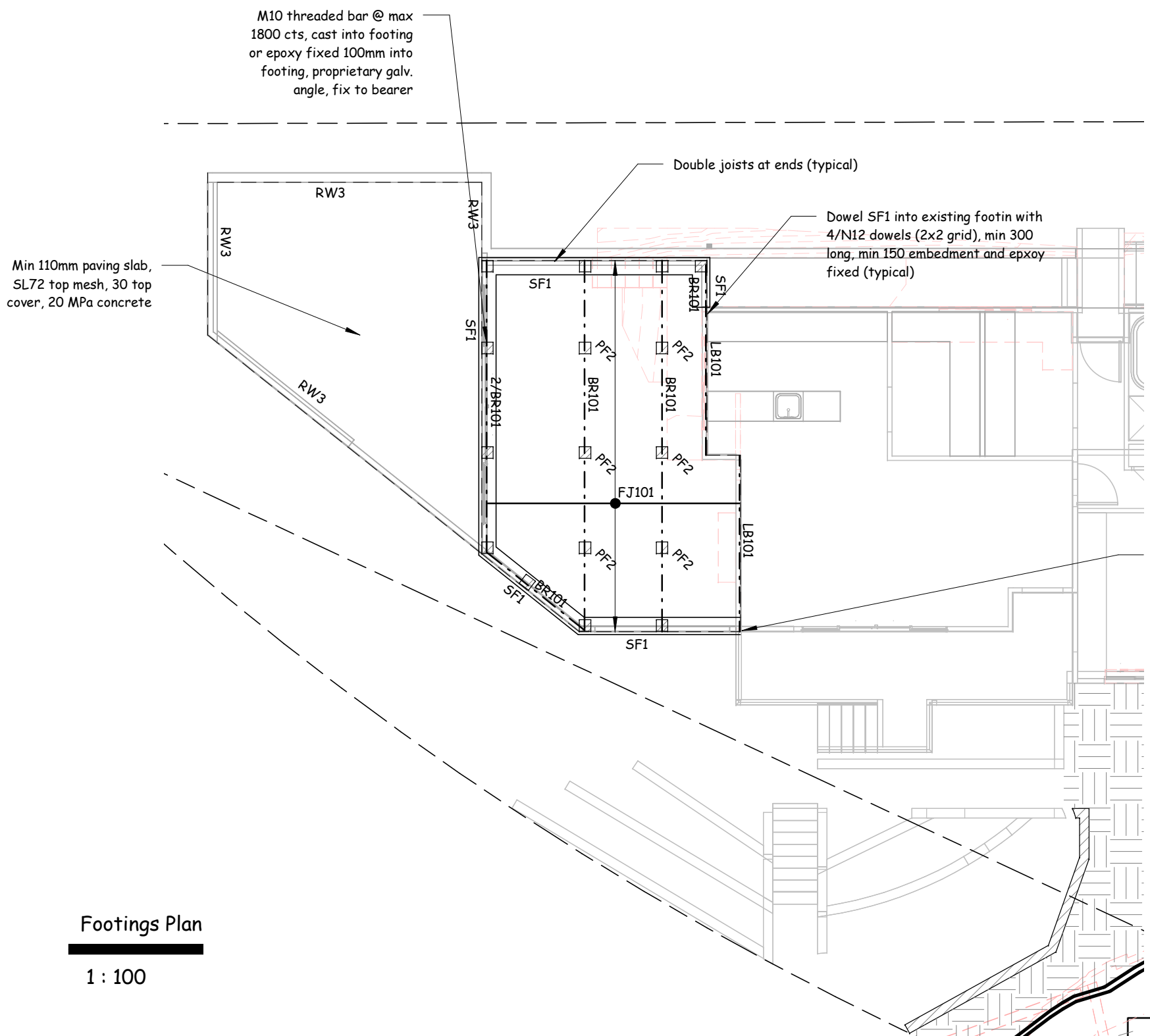
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B	29/07/20	VEA Eng - RW2
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Additions & Alterations to existing

Client:

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Date Started: 13/04/2020
Drawing No: 320-7120
Sheet: En05
Scale: 1:100 @ A3



Footings Plan
1 : 100

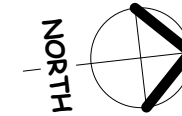
NOTE:
The cast in M10 rods may be changed to chemset M12 rods, provided the following specifications are followed: M12 threaded rod with nut and washer to suit, fixed through floor frame as per details, Min 200 embedment into concrete footing, epoxy or Hilti HVU/Hit-HY200, installed as per manufacturer's specifications, including curing times, minimum edge distances, etc

Member Schedule (Footings Plan)		
Member	Description	Size
BR101	Bearer	100 x 75 Red Alert LVL H2S (continuous spans)
LB101	Ledger beam	100 x 45 Red Alert LVL H2S, screwed to existing floor frame @ max 450 cts or at every joist
FJ101	Floor joist	100 x 45 Red Alert LVL H2S @ 450 cts (continuous spans)

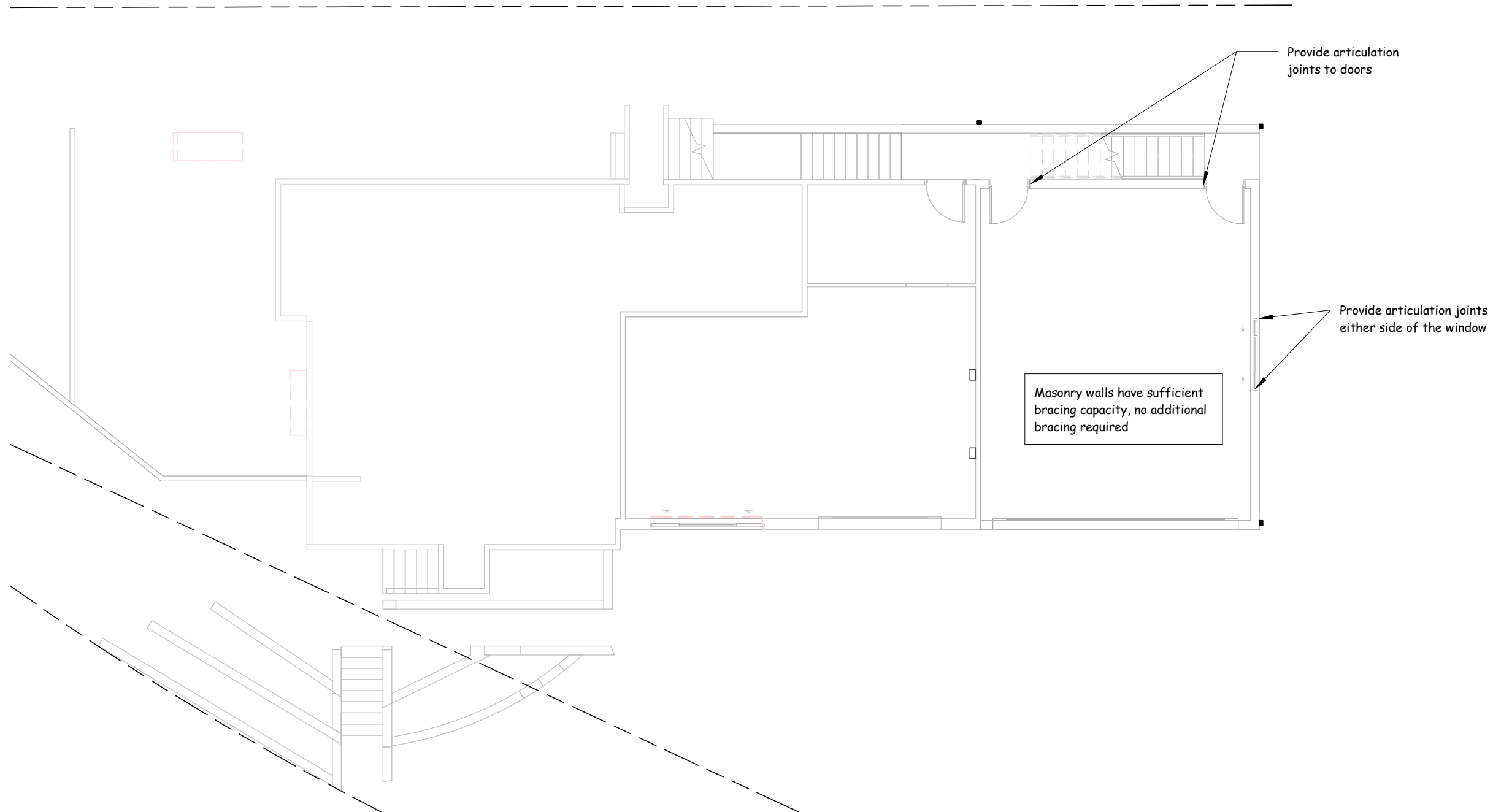


General Notes

1. Bracing and tie-down details to the engineers details and AS1684.2
2. All timber and steel to be installed and treated to the manufacturers specifications, especially for any exterior applications
3. All white ant protection to be strictly within the guidelines of AS3660 and installed by a qualified licenced pest control consultant
4. AJ denotes masonry articulation joint, to be installed to AS 3700 section 4.8 requirements.



Note: boundaries to be pegged and setout confirmed before commencement of construction



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Wind Class: N2 (W33N) (Assumed)

Site Class: 'M' Soil Class: 'M'

Refer to Geotech report for more details

SURVEY NOTE :

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Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

Address:

Date Started: 13/04/2020

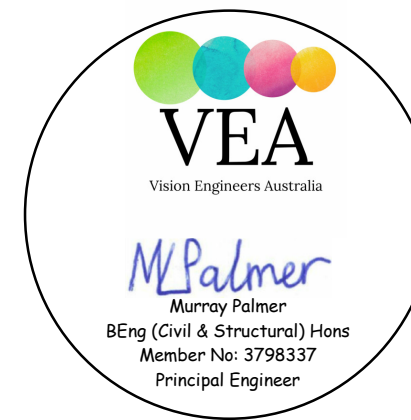
Drawing No: 320-7120

Sheet: En06

Scale: 1:100 @ A3

Ground Floor Framing

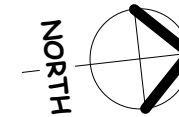
1 : 100



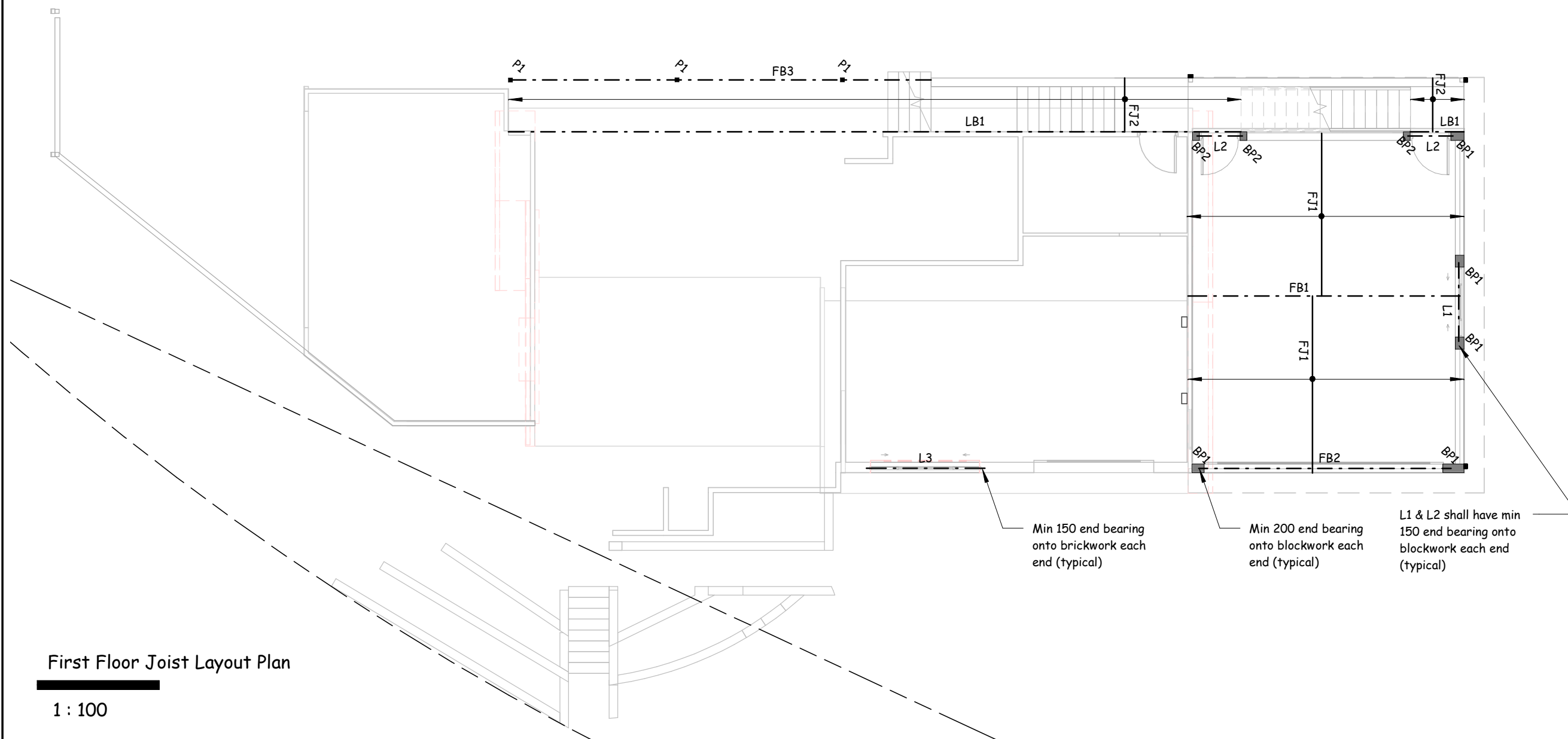
- General Notes**
1. Bracing and tie-down details to the engineers details and AS1684.2
 2. All timber and steel to be installed and treated to the manufacturers specifications, especially for any exterior applications
 3. All white ant protection to be strictly within the guidelines of AS3660 and installed by a qualified licenced pest control consultant
 4. AJ denotes masonry articulation joint, to be installed to AS 3700 section 4.8 requirements

- Tie-Down Notes**
1. Rafters shall have tie-down fixings in accordance with AS1684.2 Table 9.21 (B), (C) or (D) (typical).
 2. Roof beams shall have tie-down fixings similar to AS1684.2 Table 9.20(A) - 6 nails each end - for where a roof beam sits on stud work.
 3. Roof beams shall have tie-down fixings in accordance to AS1684.2 Table 9.20(I) - 2/M12 bolts with washers (typical).

Note: boundaries to be pegged and setout confirmed before commencement of construction



Member Schedule (Ground Floor Roof)		
Member	Description	Size
FJ1	Floor joists	SmartJoist SJ2044 @ 450 cts, 300 cts for wet areas
FJ2	Floor joists	140 x 45 MGP10 H3 @ 450 cts
FB1	Bearer	310 UB 40.4 or 200 UC 52.2, HDG
FB2	Bearer	300 PFC + 200 x 10 PL, HDG
FB3	Bearer	240 x 45 MGP10 H3 (single spans)
L1	Lintel	180 UB 16.1, HDG
L2	Lintel	150 PFC, Inorganic Zinc Coating or HDG
L3	Lintel	150 PFC + 200 x 10 PL, HDG
LB1	Ledger beam	190 x 45 MGP10 H3, M12 Dynabolts to blockwork @ max 300 cts
P1	Post	90 SQ LO SP F7 or KD HWD
BP1	Block Pier	190 x 390 Block pier, 2/N12 vertical bars from footing up, 20 MPa core filled full height
BP2	Block Pier	190 x 190 Block pier, 1/N12 vertical bar from footing up, 20 MPa core filled full height



First Floor Joist Layout Plan

1 : 100



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M/ 0490 444 007

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Builder to inspect adequacy of existing footings & piers for proposed scope of works. Replace existing footings & sub floor members as necessary

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Wind Class: N2 (W33N) (Assumed)
Site Class: 'M' Soil Class: 'M'
Refer to Geotech report for more details

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Revision Schedule		
Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

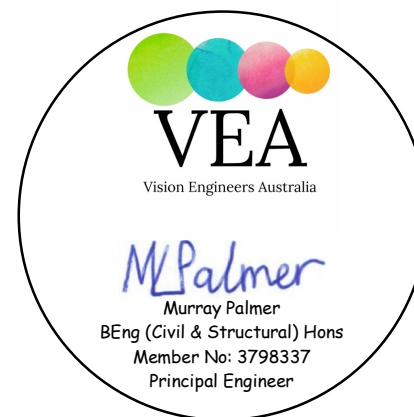
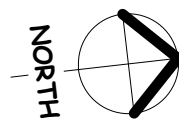
Address:

Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En07

Scale: 1 : 100 @ A3



General Notes

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4. AJ denotes masonry articulation joint, to be installed to AS 3700 section 4.8 requirements.

Note: boundaries to be pegged and setout confirmed before commencement of construction



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Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

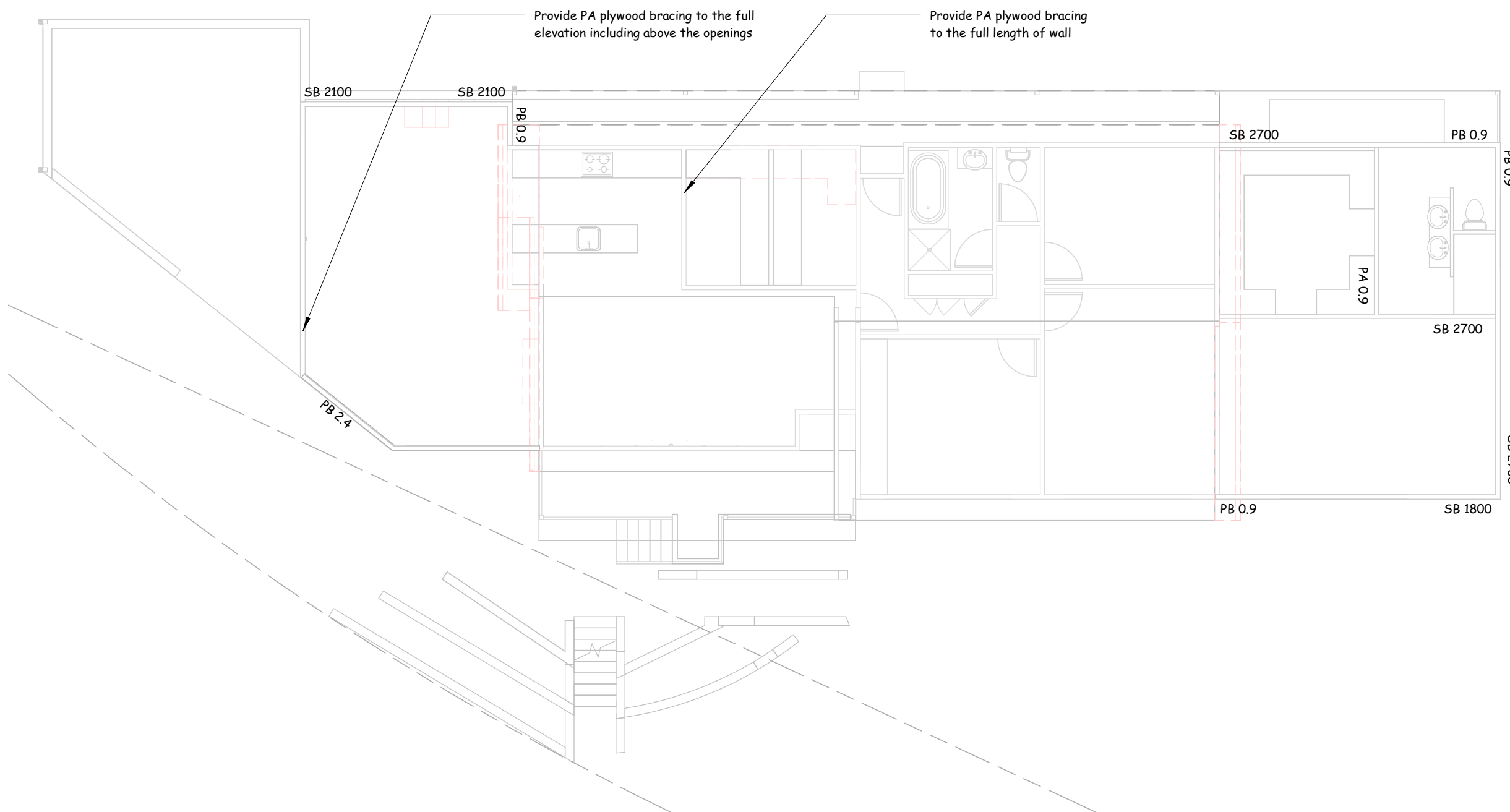
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Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En08

Scale: 1:100 @ A3

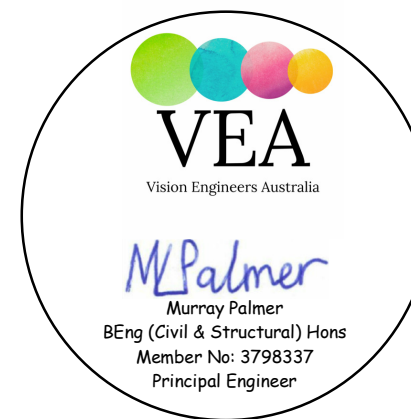


First Floor Framing

1 : 100

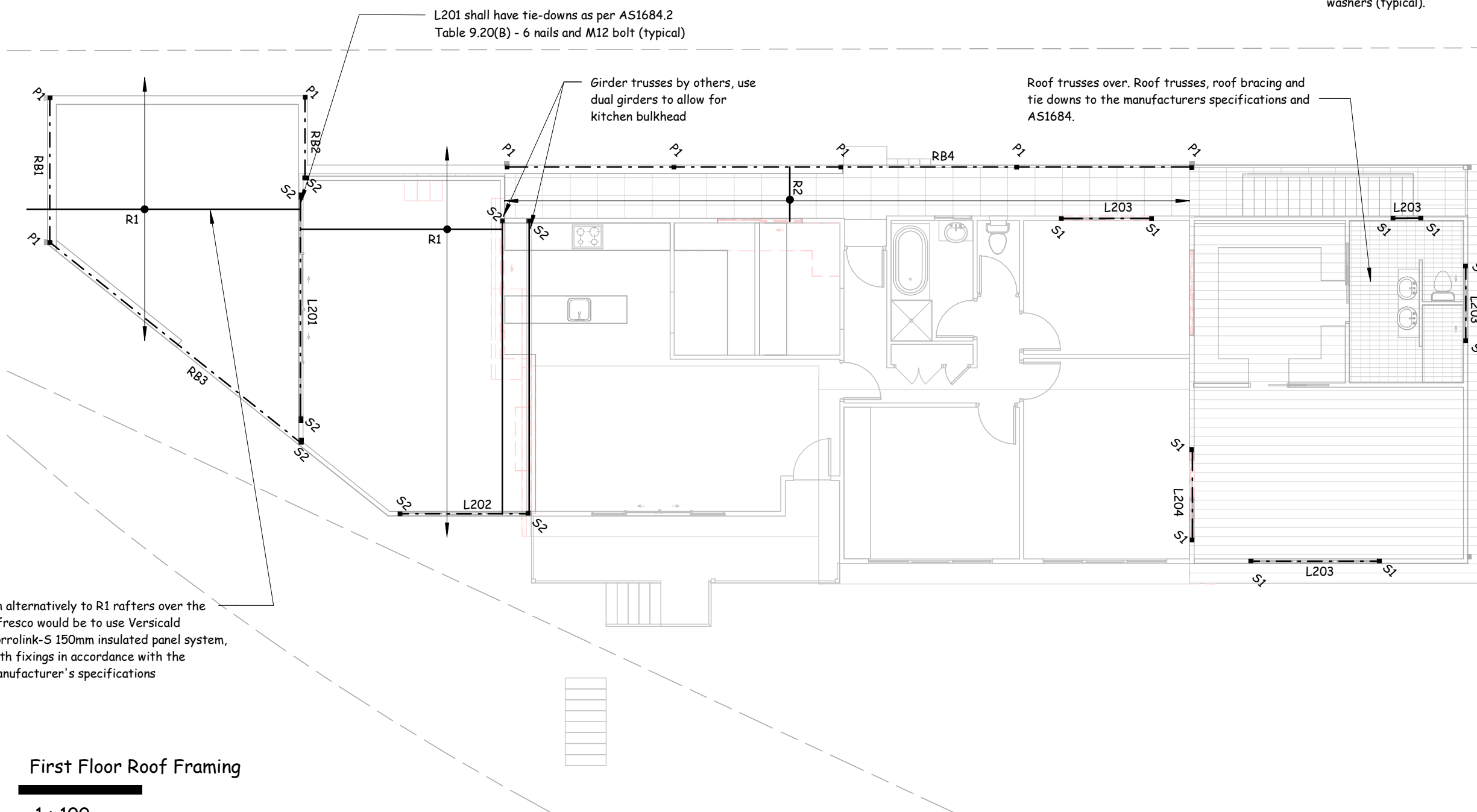
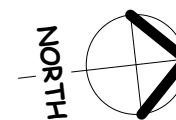
Note: boundaries to be pegged and setout confirmed before commencement of construction

Member Schedule (First Floor Roof)		
Member	Description	Size
S1	Studs	2/90 x 45 MGP10, Nail laminated
S2	Studs	3/90 x 45 MGP10, Nail laminated
P1	Post	90 SQ LO SP F7 or KD HWD
L201	Lintel	2/400 x 42 SmartLVL15 H2S, Nail laminated
L202	Lintel	2/240 x 42 SmartLVL15 H2S, Nail laminated
L203	Lintel	Refer Typical Lintel Table on En15
L204	Lintel	190 x 45 MGP10
RB1	Roof bearer	2/190 x 35 MGP10 H3, Nail laminated
RB2	Roof bearer	140 x 45 MGP10 H3
RB3	Roof bearer	2/360 x 42 SmartLVL15 H3, Nail laminated
RB4	Roof bearer	140 x 45 MGP10 H3 (single spans)
R1	Rafter	240 x 42 SmartLVL15 H3 @ 600 cts
R2	Rafter	90 x 45 MGP10 H3 @ 600 cts



- General Notes**
1. Bracing and tie-down details to the engineers details and AS1684.2
 2. All timber and steel to be installed and treated to the manufacturers specifications, especially for any exterior applications
 3. All white ant protection to be strictly within the guidelines of AS3660 and installed by a qualified licenced pest control consultant
 4. AJ denotes masonry articulation joint, to be installed to AS 3700 section 4.8 requirements

- Tie-Down Notes**
1. Rafters shall have tie-down fixings in accordance with AS1684.2 Table 9.21 (B), (C) or (D) (typical).
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 3. Roof beams shall have tie-down fixings in accordance to AS1684.2 Table 9.20(I) - 2/M12 bolts with washers (typical).



An alternative to R1 rafters over the alfresco would be to use Versicald Corrolink-S 150mm insulated panel system, with fixings in accordance with the manufacturer's specifications

First Floor Roof Framing

1 : 100



Vision Engineers Australia

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M/ 0490 444 007

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Wind Class: N2 (W33N) (Assumed)

Site Class: 'M' Soil Class: 'M'
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Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

Address:

Date Started: 13/04/2020

Drawing No: 320-7120

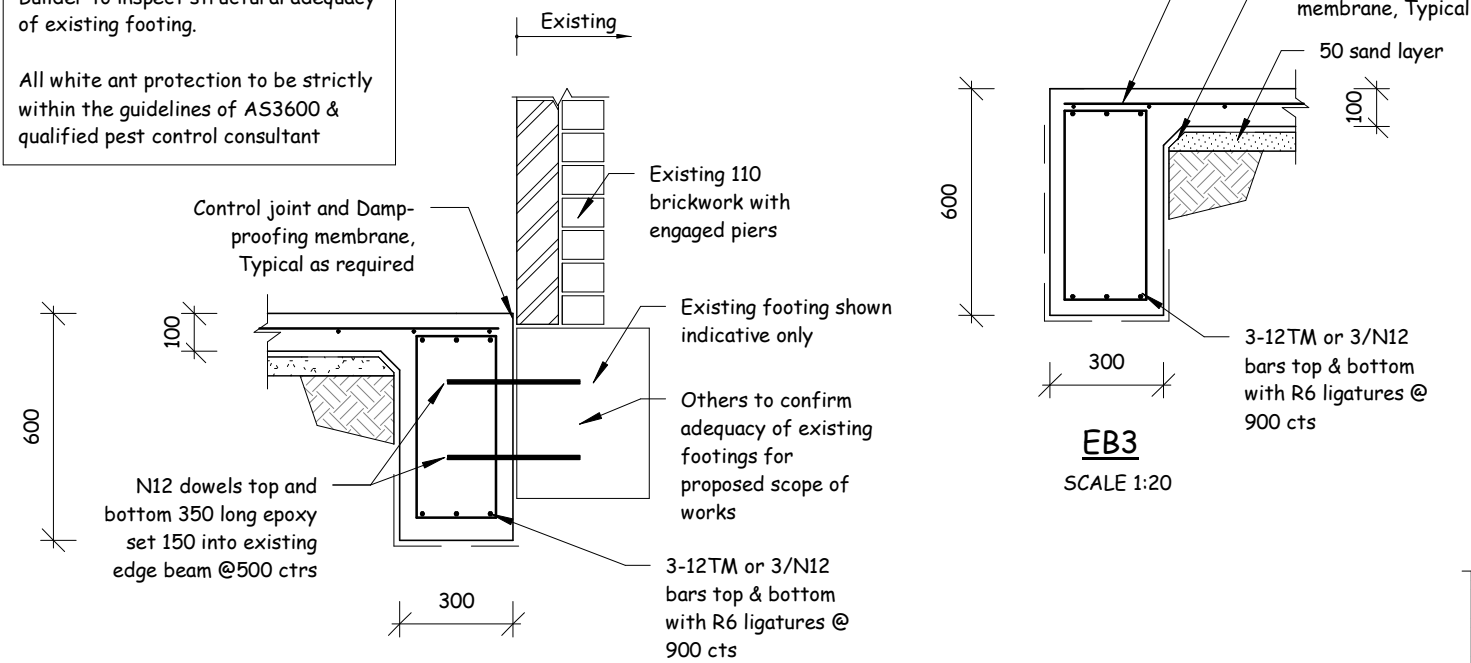
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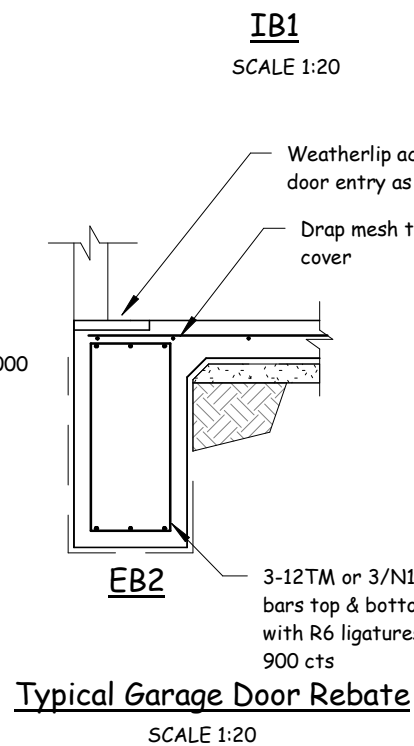
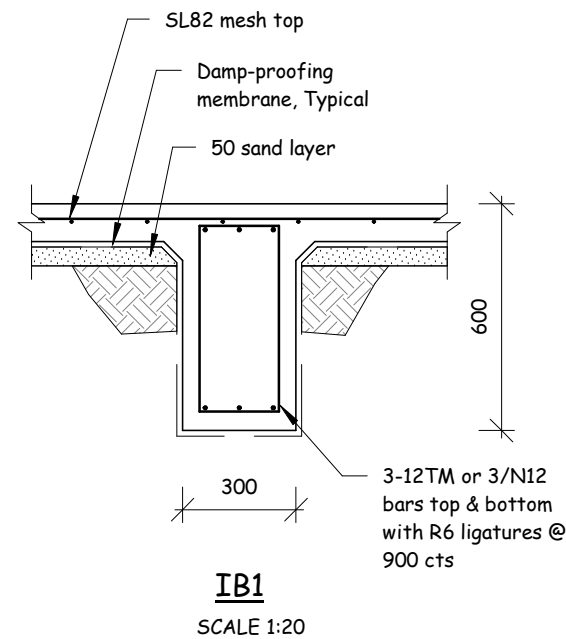
RW1 RETAINING WALL SCHEDULE FOR MAX. 1800 HIGH			
HEIGHT 'H'	BASE WIDTH 'B'	HEEL WIDTH 'W'	BASE DEPTH 'D'
800	600	300	500
1000	700	300	500
1200	800	300	500
1400	1000	300	600
1600	1100	300	700
1800	1300	300	700

Note:
Builder to inspect structural adequacy of existing footing.

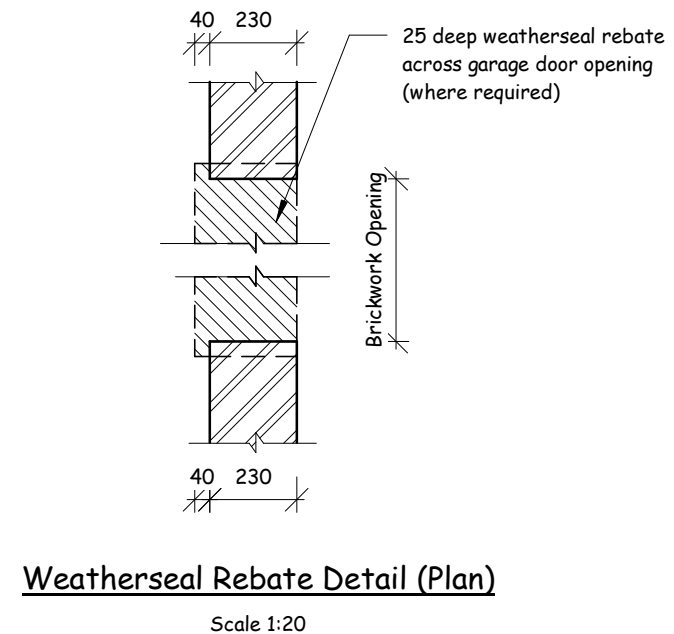
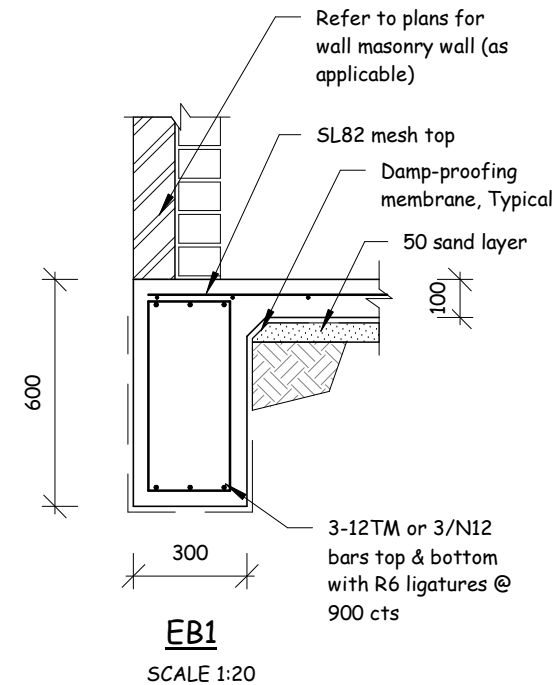
All white ant protection to be strictly within the guidelines of AS3600 & qualified pest control consultant



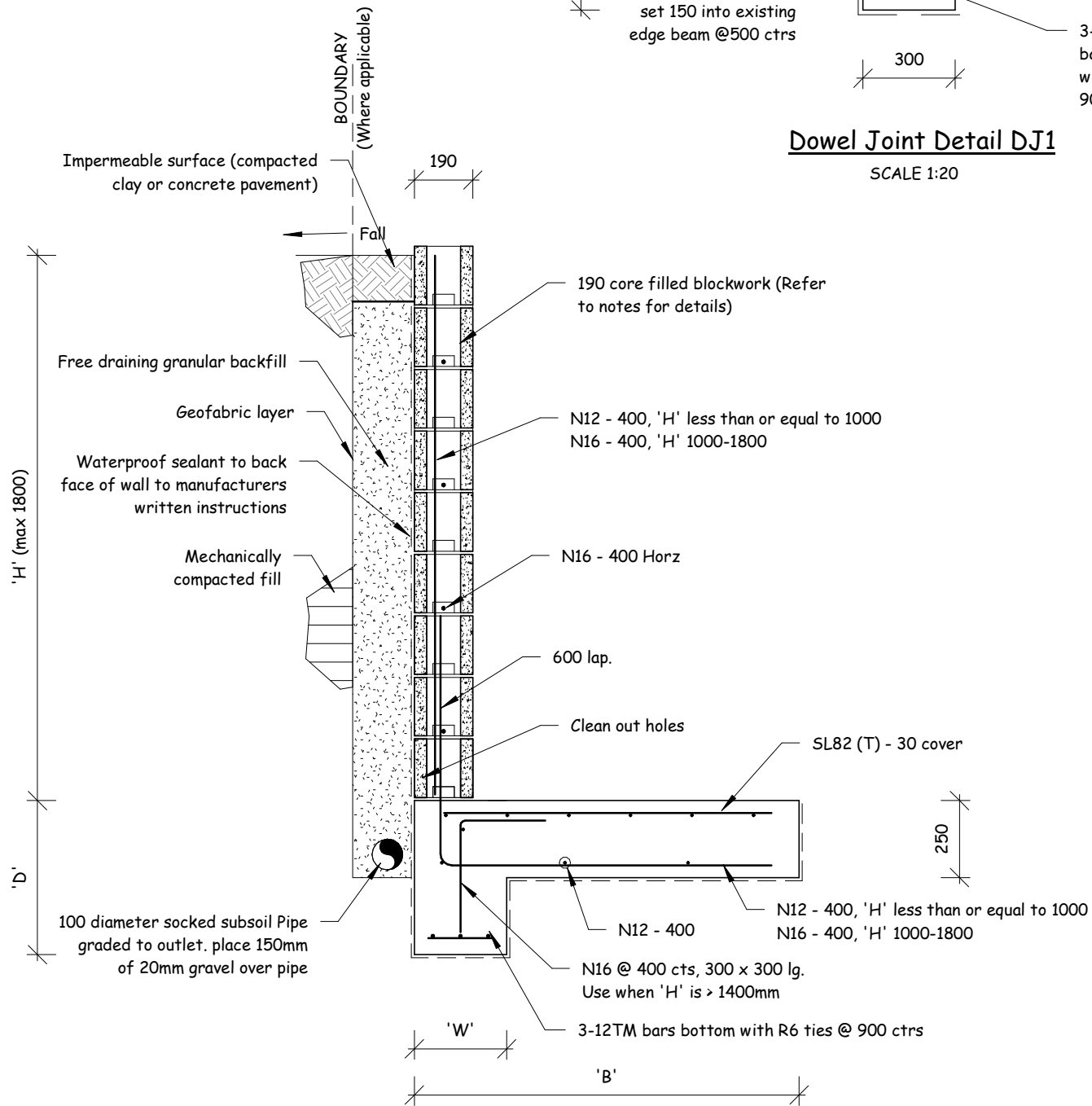
Dowel Joint Detail DJ1
SCALE 1:20



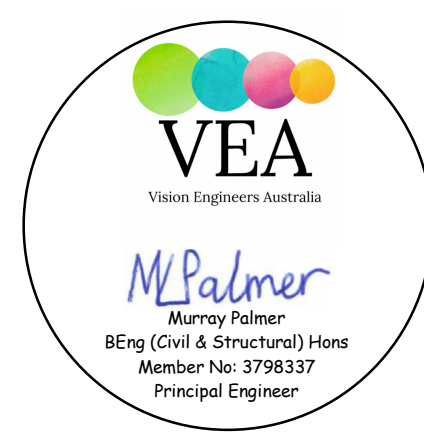
Typical Garage Door Rebate
SCALE 1:20



Weatherseal Rebate Detail (Plan)
Scale 1:20



RW1 Retaining Wall Detail
SCALE 1:20



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Revision Schedule

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Additions & Alterations to existing

Client:

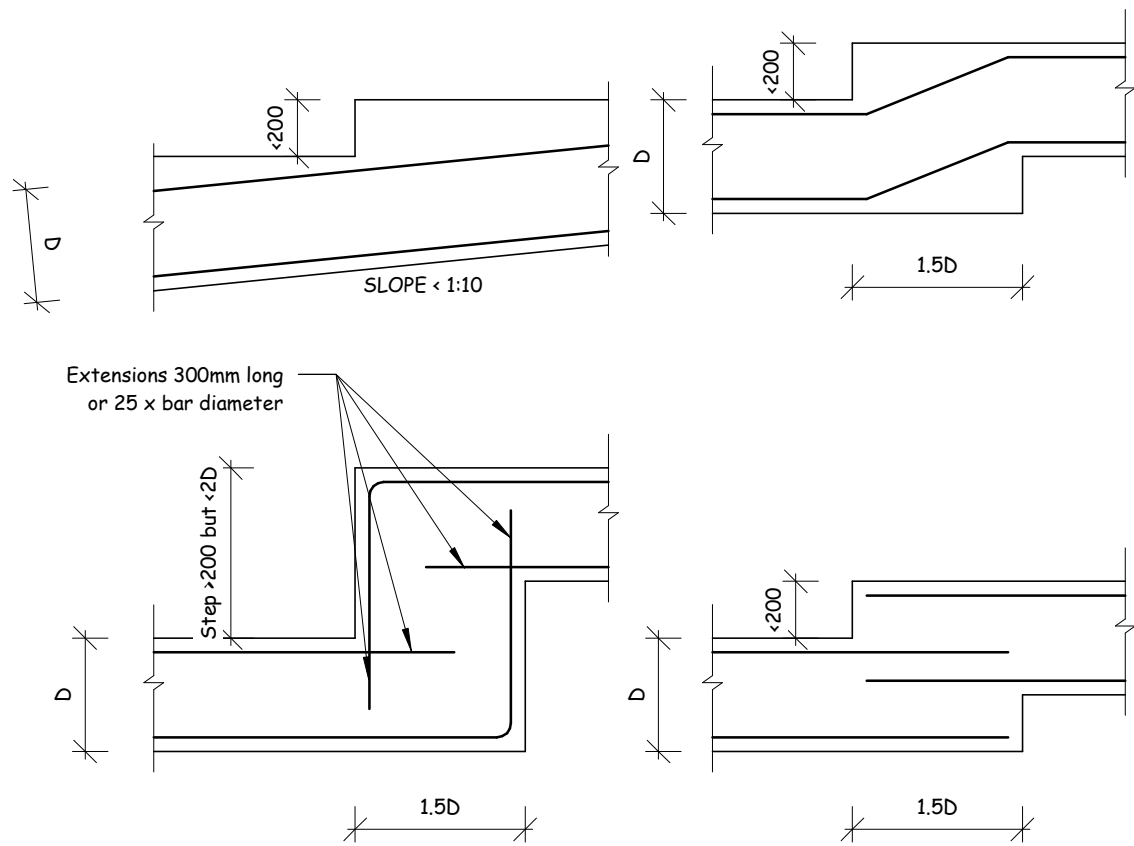
Address:

Date Started: 13/04/2020

Drawing No: 320-7120

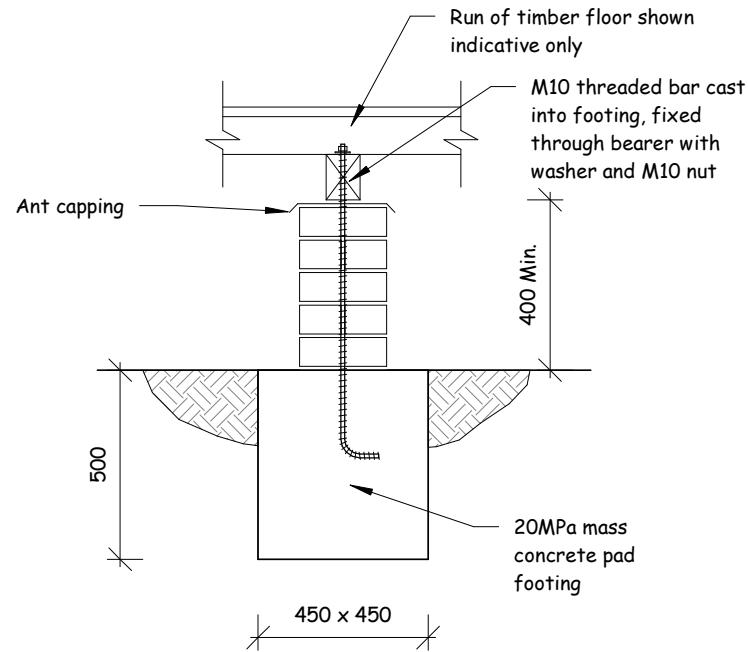
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Strip Footing Stepping Details

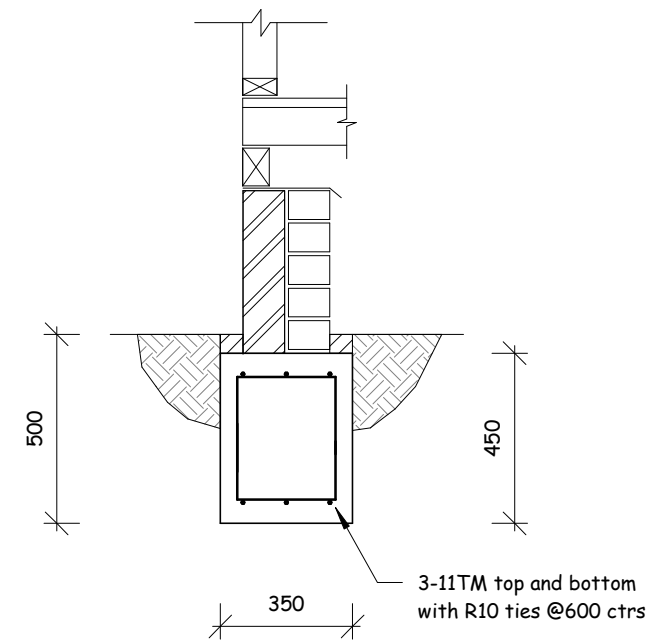
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PF2 Detail

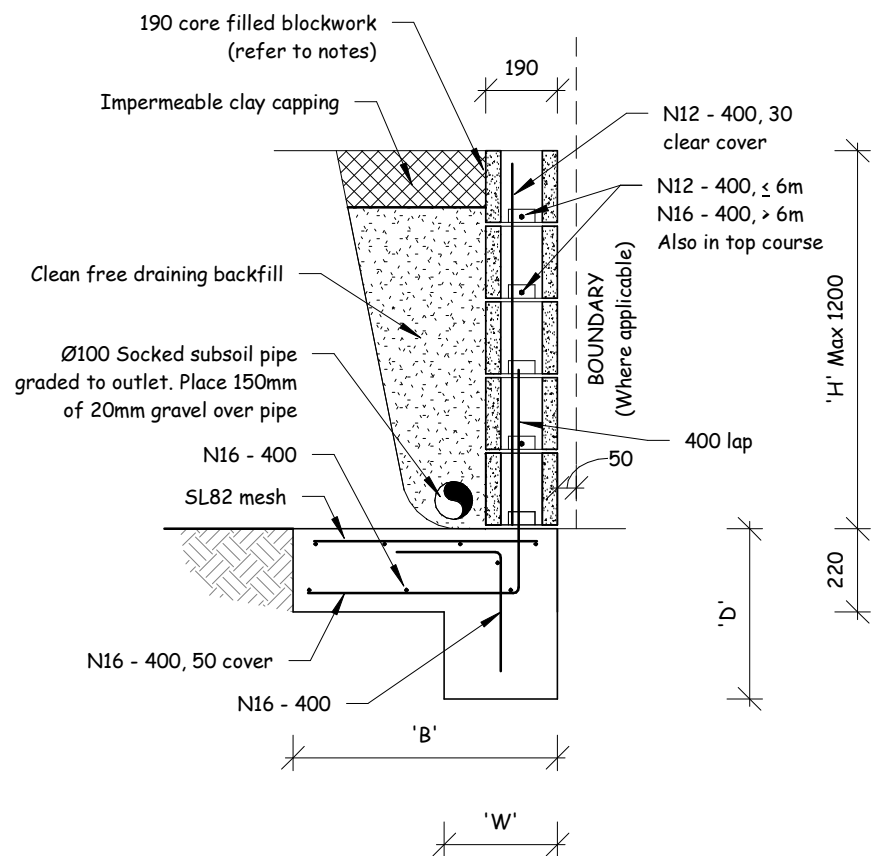
Scale 1:20

NOTE:
The cast in M10 rods may be changed to chemset M12 rods, provided the following specifications are followed:
M12 threaded rod with nut and washer to suit, fixed through floor frame as per details, Min 200 embedment into concrete footing, epoxy or Hilti HVU/Hit-HY200, installed as per manufacturer's specifications, including curing times, minimum edge distances, etc



SF1 Detail

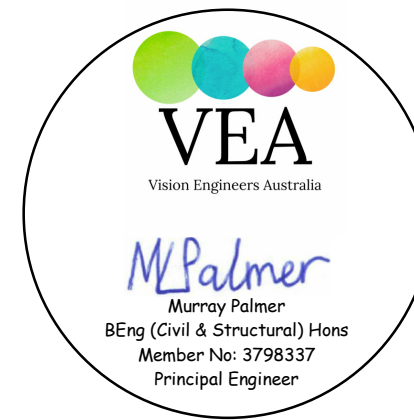
Scale 1:20



Alternate RW2 Retaining Wall Detail

SCALE 1:20

RW2 ALTERNATE RETAINING WALL SCHEDULE FOR MAX. 1200 HIGH			
HEIGHT 'H'	BASE WIDTH 'B'	HEEL WIDTH 'W'	BASE DEPTH 'D'
800	600	300	500
1000	700	300	500
1200	800	300	500



Vision Engineers Australia

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Site Class: 'M' Soil Class: 'M'
Refer to Geotech report for more details

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Revision Schedule		
Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

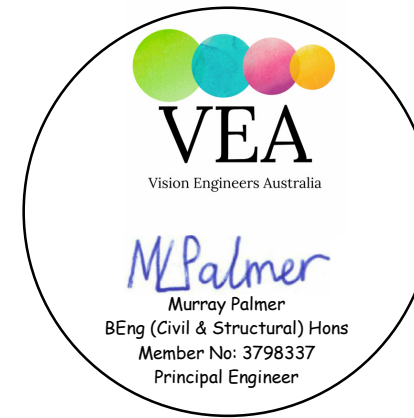
Address:

Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En11

Scale: 1:20 @ A3



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Revision Schedule		
Rev	Date	Description
B	29/07/20	VEA Eng - RW2
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Additions & Alterations to existing

Client:

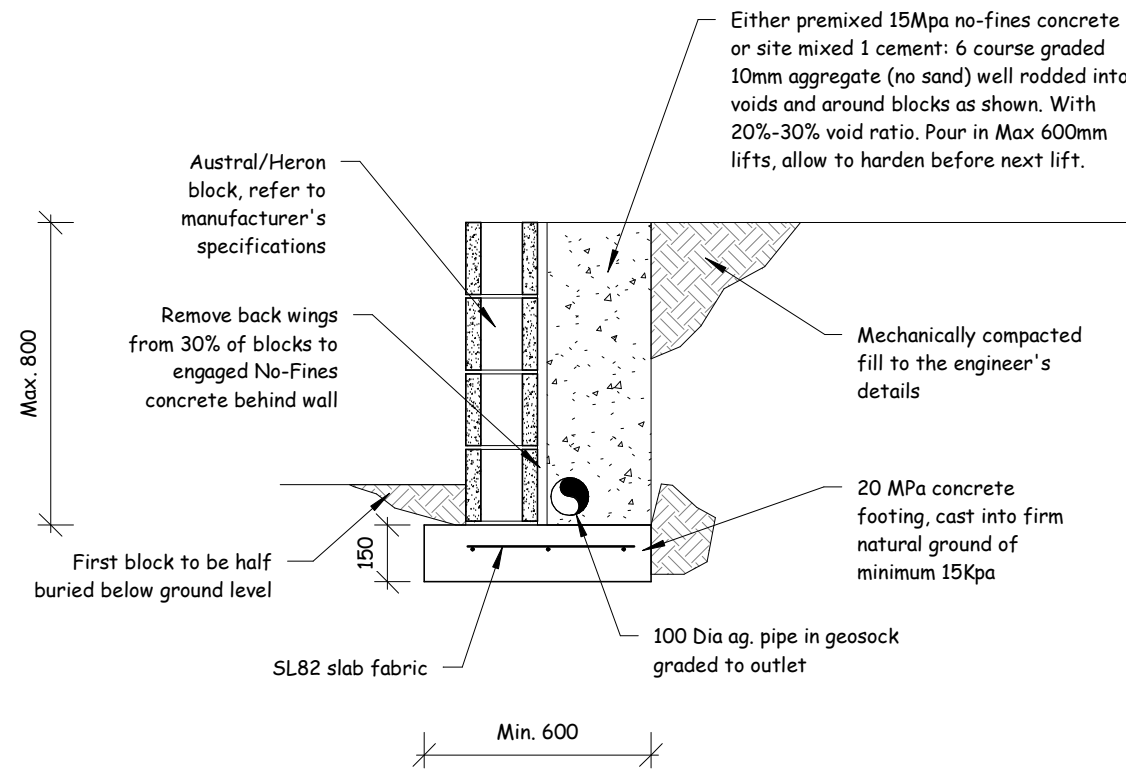
Address:

Date Started: 13/04/2020

Drawing No: 320-7120

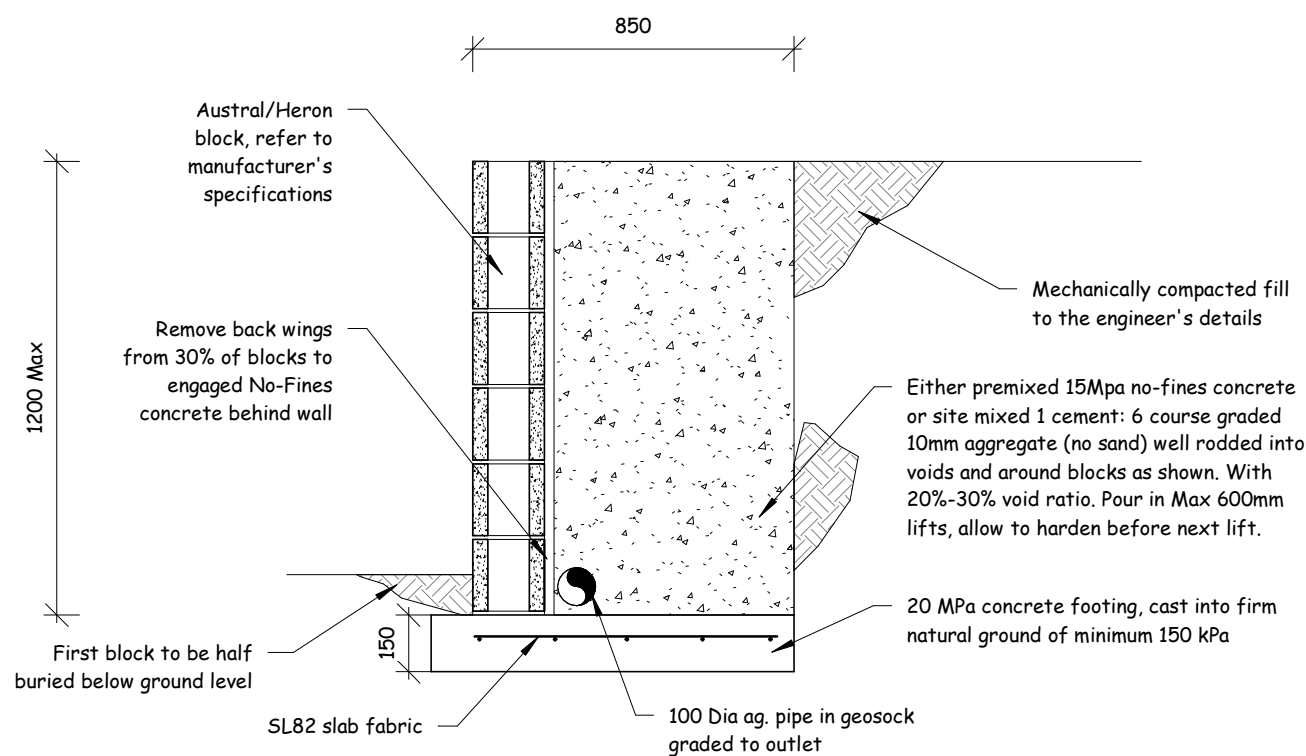
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Scale: 1 : 20 @ A3



RW2 Detail < 800mm

Scale 1:20



RW2 Detail > 800mm

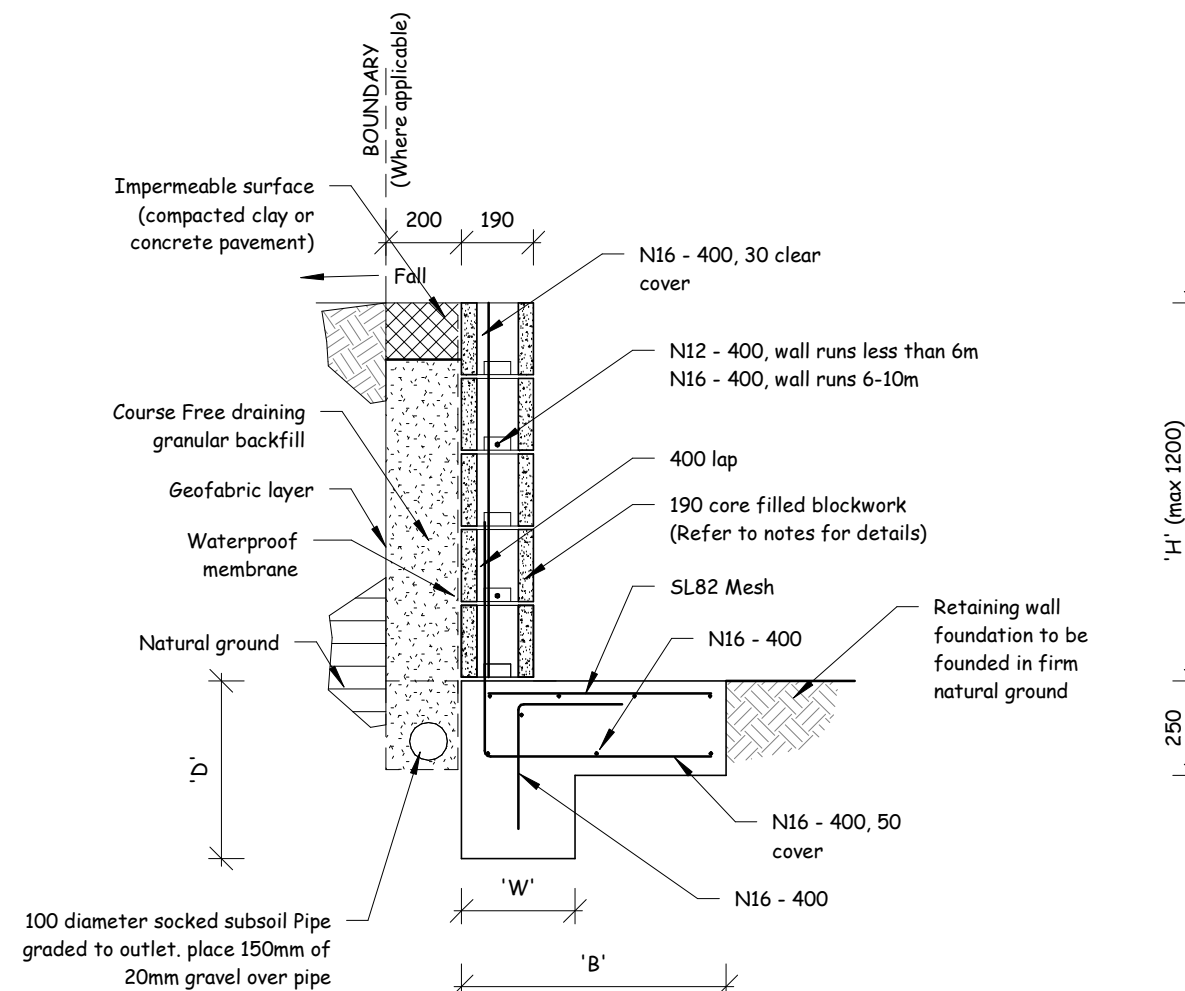
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RETAINING WALL SCHEDULE FOR MAX. 1200 HIGH

HEIGHT 'H'	NO FINES 'B'
800	500
1000	650
1200	850

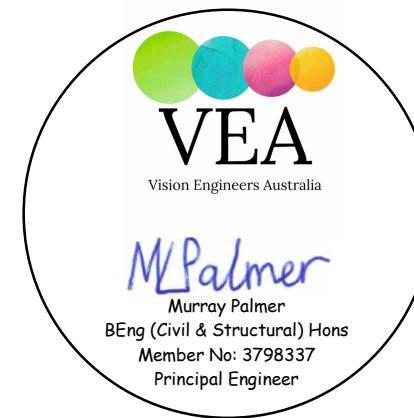
RW3 RETAINING WALL SCHEDULE FOR MAX. 1200 HIGH

HEIGHT 'H'	BASE WIDTH 'B'	HEEL WIDTH 'W'	BASE DEPTH 'D'
800	600	300	500
1000	700	300	500
1200	800	300	500



RW3 Retaining Wall Detail

SCALE 1:20



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M/ 0490 444 007

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Site Class: 'M' Soil Class: 'M'
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Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

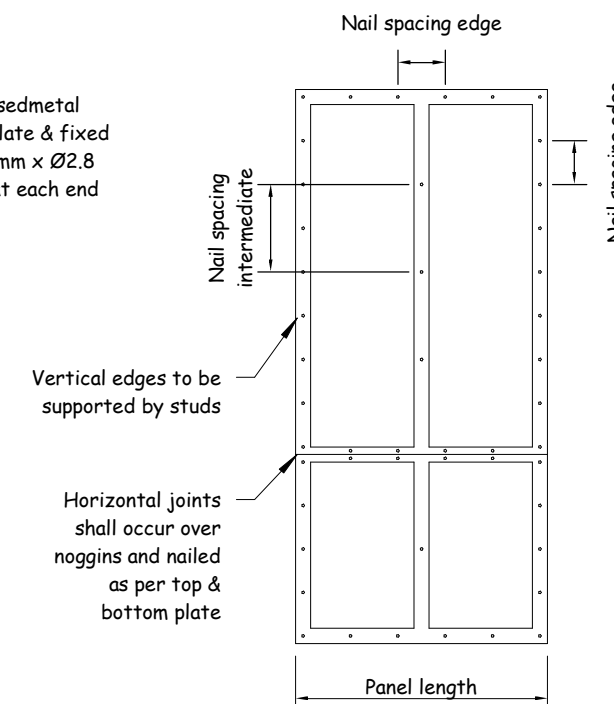
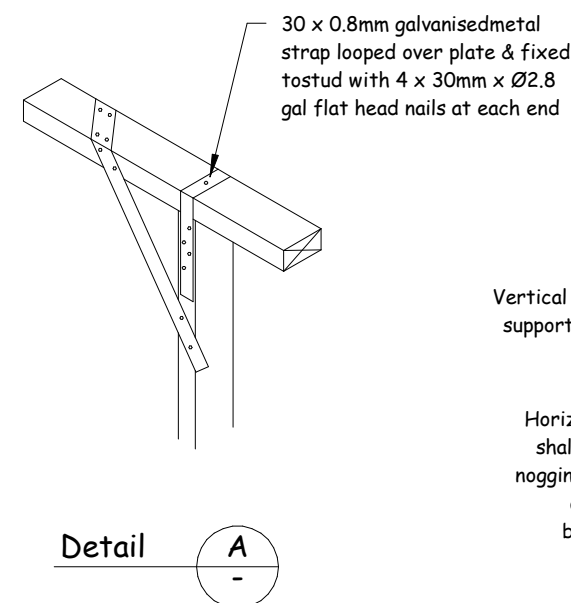
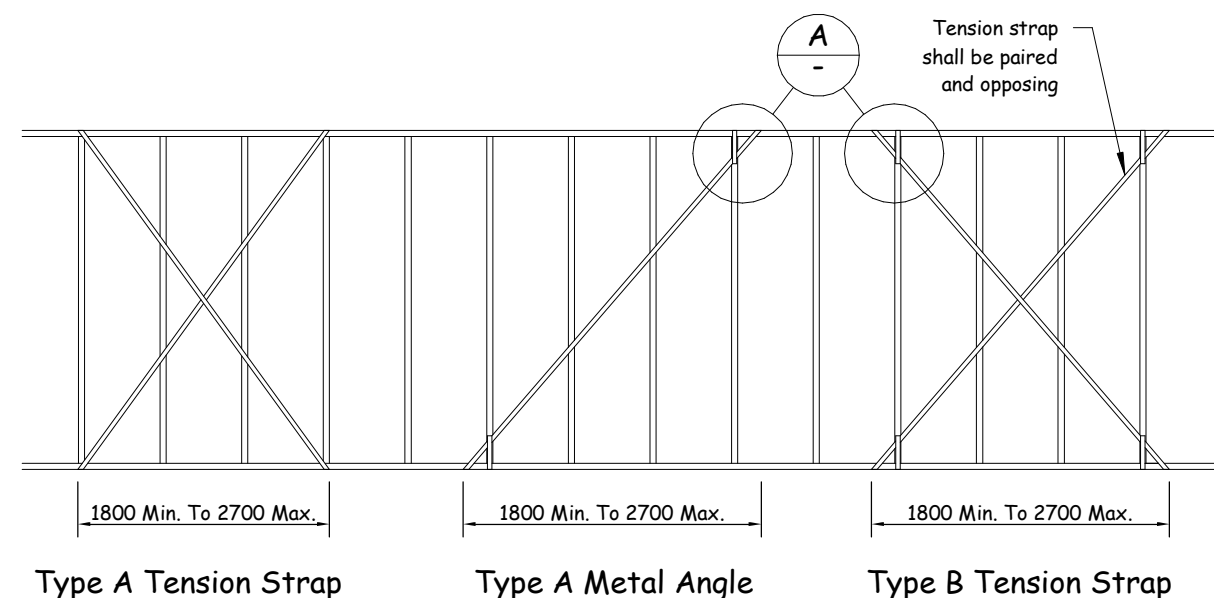
Address:

Date Started: 13/04/2020

Drawing No: 320-7120

Sheet: En13

Scale: 1:120 @ A3



Sheet Bracing Details

Type A - Sheet Bracing (PA) Specifics - 3.4 kN/m [Table 8.18(G)]

Product	Australian Standard	Type / Grade	Minimum Thickness For Stud Spacing (mm)		Panel Length (mm)	Nail Size (mm)	Nail Spacing (mm)		Special Requirements
			450	600			Edge	Intermediate	
Plywood	AS2269	F8	7	9	900	30mm x Ø2.8 Galv.	150	300	No noggins req'd Except at sheet Ends. Nails shall be 7mm from all Edges
		F11	4.5	7					
		F14	4	6					
		F27	3	4.5					
Hardboard (Masonite)	AS2458	G.P.	6.4	6.4	900	30mm x Ø2.8 Galv.	100	300	Nails to be 10mm From vertical Edges & 20mm from Horizontal edges. No noggins req'd Except at sheet Ends.

Type A - Sheet Bracing Notes

- Panel lengths greater than those listed above can be considered as a number of bracing units directly proportioned to their installed length I.E. A 1200mm panel of plywood equals 1200 / 900 = 1.33 bracing units.
- Nails should be driven just below the surface of the sheet using the hammer face only. Nails must not be punched
- Plywood panel lengths of 600mm are equivalent to 1/3 of a type a bracing unit.
- For stud spacing of 600mm c/c where noggins are installed and the plywood bracing panels are nailed to the noggins at 1500mm c/c, the plywood thickness may be as for stud spacing at 450mm c/c.
- PA* indicates full length available.
- Refer to AS1684.2 Table 8.18(G) for top & bottom plate fixing details.

Type A - Strap Bracing (SA) Specifics - 1.5 kN/m [Table 8.18(B)]

Type Of Diagonal Brace	Material & Size	Nailing Requirements		Special Requirements
		To Each Stud	To Each Plate	
Metal Angle	Galvanised angle, nom. Section 20x18x1.2mm min. Net section 42mm ²	1x30xØ2.8mm Galv. Flat head nail	2x30xØ2.8mm Galv. Flat head nail	Drill holes if necessary to prevent nail splitting
Tension Strap	Galvanised flat metal tension strapping of min. Thickness 0.8mm & min. Net section of 15.2mm ²	1x30xØ2.8mm Galv. Flat head nail	3x30xØ2.8mm Galv. Flat head nail	Straps must be properly tensioned

Type B - Sheet Bracing (PB) Specifics - 6.0 kN/m [Table 8.18(M)]

Product	Australian Standard	Type / Grade	Minimum Thickness For Stud Spacing (mm)		Panel Length (mm)	Nail Size (mm)	Nail Spacing (mm)		Special Requirements
			450	600			Edge	Intermediate	
Plywood	AS2269	F8	7	9	900 / 1200	30mm x Ø2.8 Galv.	50 to plates & 150 to edge studs	300	No noggins req'd except at sheet ends. Nails shall be 7mm from all edges
		F11	6	7					
		F14	4	6					
		F27	4	4.5					
Hardboard (Masonite)	AS2458	G.P.	6.4	6.4	900 / 1200	30mm x Ø2.8 Galv.	50 to plates & 150 to edge studs	300	Nails to be 10mm from vertical edges & 20mm from horizontal edges. No noggins req'd except at sheet ends.

Type B - Sheet Bracing Notes

- Panel lengths greater than those listed above can be considered as a number of bracing units directly proportioned to their installed length I.E. A 1200mm panel of plywood equals 1200 / 900 = 1.33 bracing units.
- Nails should be driven just below the surface of the sheet using the hammer face only. Nails must not be punched
- PB* indicates full length available.
- Refer to AS1684.2 Table 8.18(M) for top & bottom plate fixing details.

Type B - Strap Bracing (SB) Specifics - 3.0 kN/m [Table 8.18(D)]

Type Of Diagonal Brace	Material & Size	Nailing Requirements		Special Requirements
		To Each Stud	To Each Plate	
Tension Strap	Galvanised flat metal tension strap nom. Size 30x0.8mm & min. Section of 24mm ²	2/30xØ3.15mm galv. Flat head nail	4/30xØ2.8mm galv. Flat head nail	Straps must be properly tensioned & strap must return over top plate & under the bottom plate. The stud nearest to each end of each diagonal strap shall be fixed to the plates with straps or framing anchors 4x30xØ2.8mm nails at each end.

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Wind Class: N2 (W33N) (Assumed)

Site Class: 'M' Soil Class: 'M'

Refer to Geotech report for more details

SURVEY NOTE :

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Revision Schedule

Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

Address:

Date Started: 13/04/2020

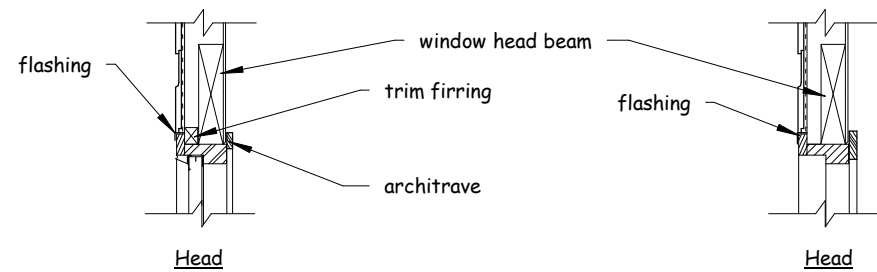
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Sheet: En14

Scale: 1 : 20 @ A3

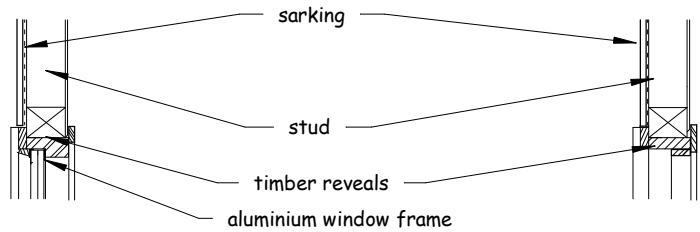
ALUMINIUM WINDOW

TIMBER WINDOW



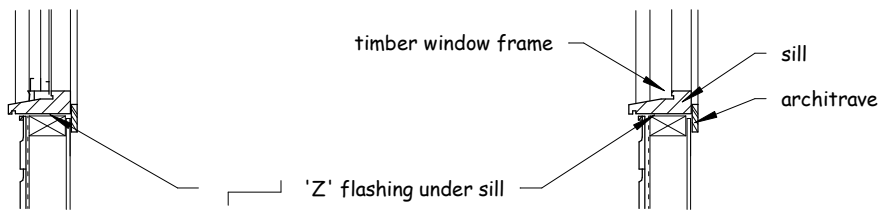
Head

Head



Jamb

Jamb



Sill

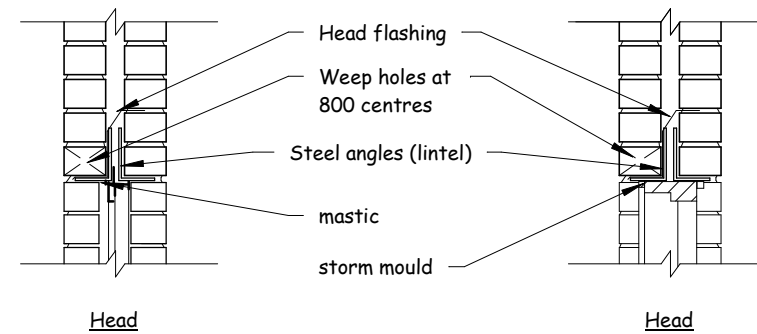
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Typical Wall/Window Relationship Details - Weatherboard

Scale 1:20

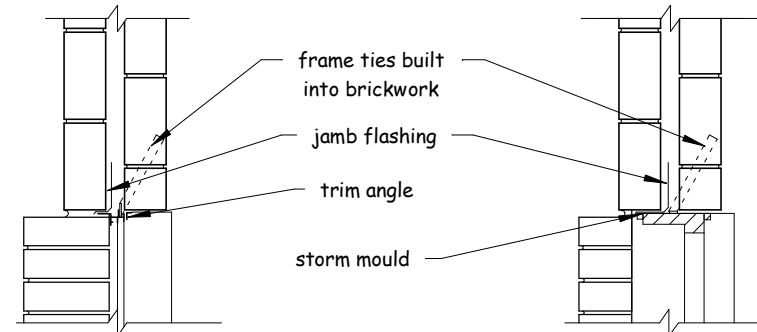
ALUMINIUM WINDOWS

TIMBER WINDOWS



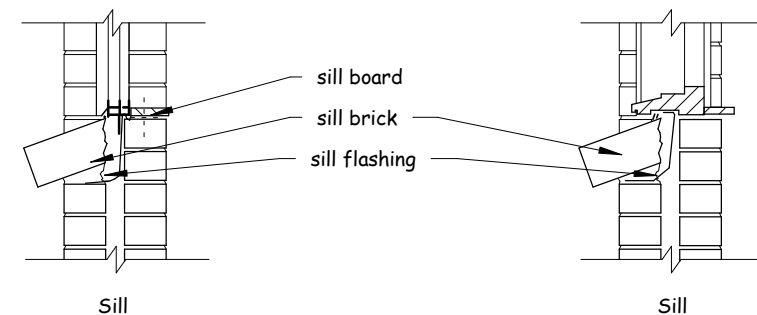
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Head



Jamb

Jamb



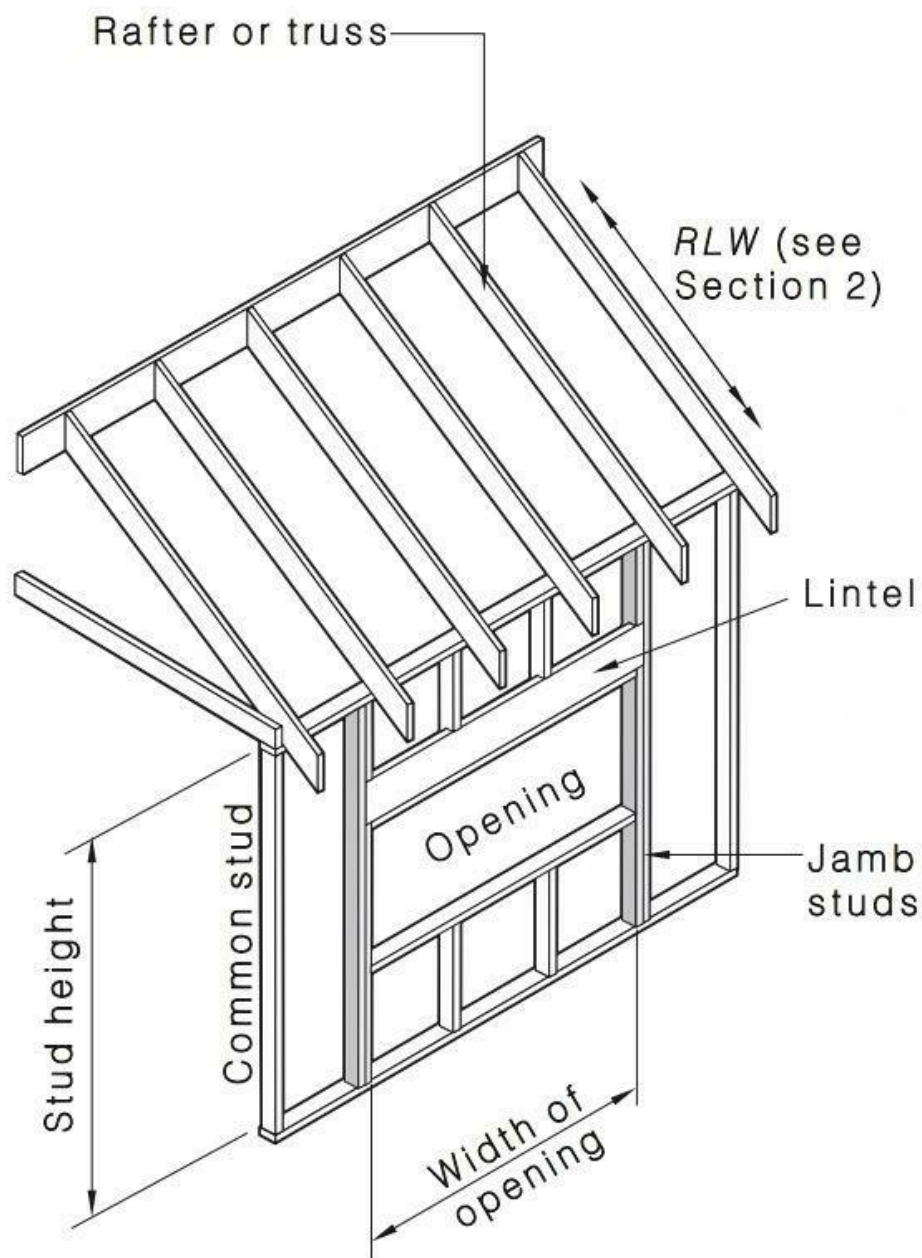
Sill

Sill

Typical Wall/Window Relationship Details - Cavity Brick

Scale 1:20

Typical Sheet Roof Lintels, Jamb and Tie-down Details					
Jamb Stud Sizes					
Jamb Studs A	Jamb Studs B	Jamb Studs C	Jamb Studs D		
2/90 x 35 MGP10	2/90 x 45 MGP10	3/90 x 45 MGP10	2/90 x 63 Hyspan LVL13		
Minimum size for non-loadbearing lintels					
Timber grade	Span				
	Up to 1200	Up to 1800	Up to 2400	Up to 3000	Up to 3600
MGP10/F7	90 x 45	90 x 45	120 x 45	190 x 45	190 x 45
Hyspan LVL13	95 x 36	95 x 45	130 x 36	130 x 45	170 x 45
Smart LVL15	90 x 42	120 x 35	120 x 35	130 x 58	170 x 58
Jamb Studs	A	A	A	A	A
Jamb size studs above to be used up to a height of 2750mm					
Single / Upper Storey Lintel (Design wind speed N1/N2) - Sheet Roof with RLW up to 3000mm					
Timber grade	Span				
	Up to 1200	Up to 1800	Up to 2400	Up to 3000	Up to 3600
MGP10/F7	2/90 x 45*	140 x 35	190 x 35	240 x 35	2/240 x 35*
Hyspan LVL13	95 x 45	130 x 45	150 x 45	200 x 45	240 x 45
Smart LVL15	120 x 35	120 x 35	150 x 42	170 x 42	240 x 42
Jamb Studs	A	A	A	A	B
* - Denotes nail laminated together as per AS1684.2 Jamb size studs above to be used up to a height of 2750mm					
Single / Upper Storey Lintel (Design wind speed N1/N2) - Sheet Roof with RLW 3001mm up to 4500mm					
Timber grade	Span				
	Up to 1200	Up to 1800	Up to 2400	Up to 3000	Up to 3600
MGP10/F7	120 x 45	190 x 35	190 x 45	240 x 45	2/240 x 45*
Hyspan LVL13	90 x 45	130 x 45	150 x 63	200 x 63	240 x 63
Smart LVL15	120 x 35	130 x 42	150 x 42	200 x 58	240 x 58
Jamb Studs	A	A	A	B	B
* - Denotes nail laminated together as per AS1684.2 Jamb size studs above to be used up to a height of 2750mm					
Single / Upper Storey Lintel (Design wind speed N1/N2) - Sheet Roof with RLW 4501mm up to 6000mm					
Timber grade	Span				
	Up to 1200	Up to 1800	Up to 2400	Up to 3000	Up to 3600
MGP10	190 x 45	2/190 x 45*	2/240 x 45*	2/290 x 45*	-
Hyspan LVL13	130 x 45	200 x 45	240 x 45	300 x 45	360 x 63
Smart LVL15	130 x 42	200 x 42	240 x 42	300 x 58	300 x 75
Jamb Studs	A	A	B	C	C
* - Denotes nail laminated together as per AS1684.2 Jamb size studs above to be used up to a height of 2750mm					
Single / Upper Storey Lintel (Design wind speed N1/N2) - Sheet Roof with RLW 6001mm up to 7500mm					
Timber grade	Span				
	Up to 1200	Up to 1800	Up to 2400	Up to 3000	Up to 3600
MGP10	190 x 45	2/190 x 45*	2/240 x 45*	2/290 x 45*	-
Hyspan LVL13	130 x 45	200 x 45	240 x 45	300 x 63	400 x 63
Smart LVL15	130 x 42	200 x 42	240 x 58	300 x 58	400 x 75
Jamb Studs	A	B	B	C	D
* - Denotes nail laminated together as per AS1684.2 Jamb size studs above to be used up to a height of 2750mm					
Tie-downs for lintels supporting sheet roof (AS1684.2 Table 9.20)					
RLW	Lintel Span				
	Up to 1200	Up to 1800	Up to 2400	Up to 3000	Up to 3600
Up to 3000	9.20(A) 4 nails	9.20(A) 4 nails	9.20(A) 6 nails	9.20(A) 6 nails	9.20(A) 4 nails
3001-4500	9.20(A) 4 nails	9.20(A) 6 nails	9.20(A) 6 nails	9.20(A) 6 nails	9.20(A) 6 nails
4501-6000	9.20(A) 4 nails	9.20(B) 4 nails	9.20(B) 6 nails	9.20(B) 6 nails	
6001-7500	9.20(A) 4 nails	9.20(B) 6 nails	9.20(B) 6 nails	9.20(C) M12	
For all lintels in non-loadbearing walls, the fixings shall be nominal as per AS1684.2 Table 9.4					



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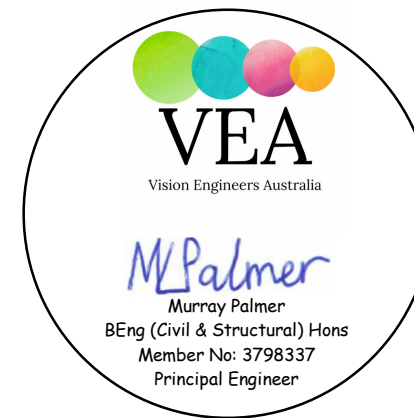
Revision Schedule		
Rev	Date	Description
B	29/07/20	VEA Eng - RW2
A	08/07/20	VEA Eng

Additions & Alterations to existing

Client:

Address:

Date Started: 13/04/2020
 Drawing No: 320-7120
 Sheet: En15
 Scale: © A3



138 Dora Street, Dora Creek NSW 2264
M/ 0490 444 007

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Additions & Alterations to existing

Client:

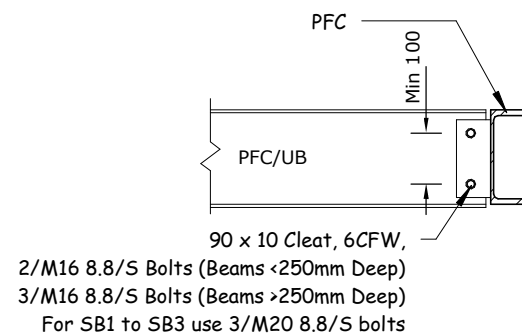
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Date Started: 13/04/2020

Drawing No: 320-7120

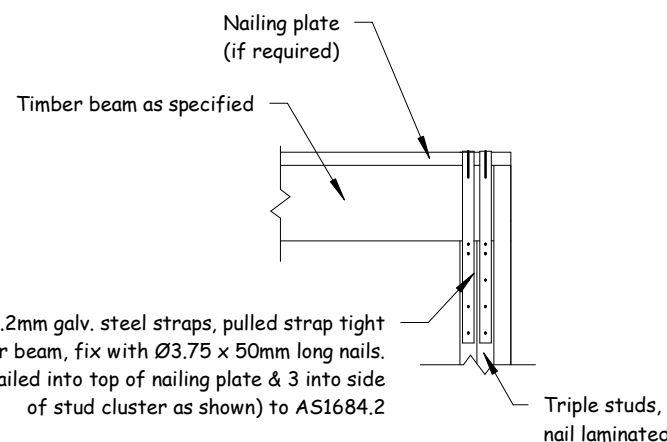
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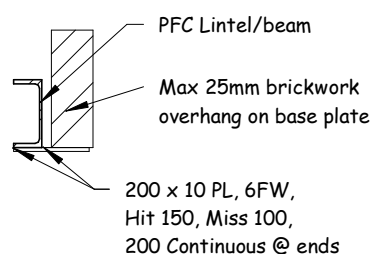
PFC to PFC/UB CONNECTION DETAIL

SCALE NTS



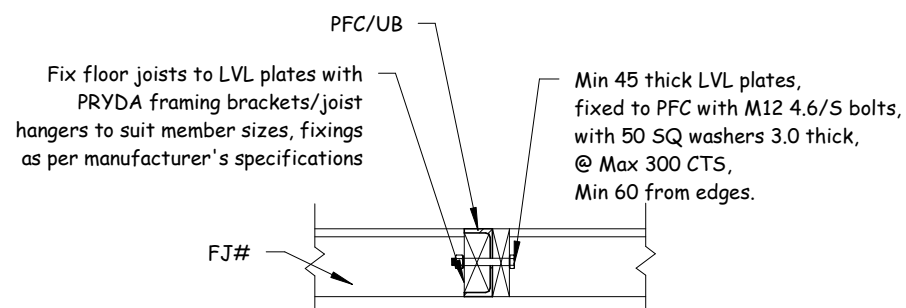
Typical Timber Beam to Studs Connection Detail

Scale NTS



Typical Cross Section Thru PFC + PL

Scale 1:20



Typical Floor Joist to Steel Beam Detail

Scale NTS