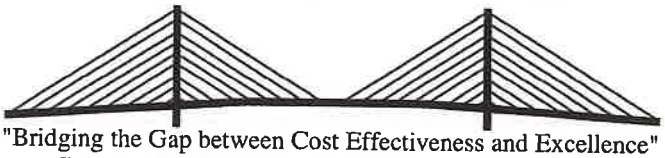
David C. Jones (Consulting Engineers) Pty Ltd
ACN 001 816 039 ABN/GST No. 65 001 816 039
51 Lewin Street, Inverell, NSW, Australia, 2360
Telephone (02) 6721 0222 International +61 2 6721 0222
Facsimile (02) 6721 0222 International +61 2 6721 0222
Mobile 0427 210222 International +61 427 210222
E mail: david@dcjones.com
David C. Jones: BE, MEngSc, FIEAust, Chartered Professional Engineer No 384884, NPER Civil and Structural
Registered Professional Engineer Queensland No. 2125
Registered Building Practitioner Victoria No. EC-2289

David C. Jones
Consulting Civil and Structural Engineers



"Bridging the Gap between Cost Effectiveness and Excellence"
Servicing Inverell and District Since 1974
Flood Forecasting for Inverell SES as a Free Community Service Since 1976

15th November 2019
19114283 is Our Reference

R. & J. Lyons,
5 Brigalow Street,
BINGARA
NSW 2404

Attention: Jackie Lyons: 0447 179 600: jrsteelbuilt@gmail.com

Dear Sir and Madam,

Structural Engineer's Certificate

Inspection and Design of Raft Foundation for Timber Framed Dwelling at 5 Brigalow Street Bingara for R. & J. Lyons

I certify that I inspected the site excavation on 14th November 2019 in the presence of Jackie Lyons, the owner and Brian Riley, the builder.

The site slopes from north to south.

The site has been excavated to create a level bench for the proposed timber-framed dwelling. The foundation must sit directly on the excavated bench and not on filling pushed out from the excavation.

The excavated bench has been assessed by my site inspection as Class A, in accordance with procedures outlined in AS 2870 – 2011.

This certificate is not transferable.

Yours faithfully,

David C. Jones
Chartered Professional Engineer
for and on behalf of David C. Jones (Consulting Engineers) Pty Ltd ABN 65 001 816 039

RAFT FOUNDATION SPECIFICATION:

R1. Before excavation, the site slopes from north to south. The site has been excavated down to shale to create a level bench. The dwelling footprint will be located over excavation not filling. The benched site has been assessed by my site inspection as Class A. Provide a levelling layer of granite to create a completely level pavement on which to construct a Cupolex slab, extending 1 metre beyond the limits of the building. The granite gravel pavement shall be evenly consolidated to 98 percent of standard compaction to AS 1289, using proper compaction equipment, in layers not exceeding 100mm. The porch, carport and alfresco areas shall be recessed 75mm below the level of the inside floor area. The wet area shown shaded on the sheet 1 plan shall be recessed by up to 75mm. Two compaction tests shall be required at finished pad level. Care shall be taken to ensure that surface runoff is shed well away from the perimeter of the slab, with a minimum fall away from the edge of the slab of 150 over the first 2 metres. Polythene bags filled with sand shall be installed in the service trenches excavated under the building, located around and above the service pipes where the service trenches cross the building perimeter in order to prevent entry and exit of sub-soil moisture along the backfilled service trenches.

R2. A continuous polyethylene vapour barrier 0.2mm thick to AS 1326, shall run under the raft lapped 200mm minimum with all joints continuously taped, including around plumbing fittings.

R3. All beams shall be reinforced with one layer of 3-L11TM strips mesh strips to AS 1304, running along the beams as detailed on the sections, with 40mm clear cover and end lapped 600mm minimum measured between last cross wires of each strip, and fully intersected at corners and at tees. Strips shall be bar chaired along alternate edges at one metre maximum centres. Provide an additional layer of 3-L11TM attached to the slab mesh over all beams. Provide 2 metre lengths of 3-L11TM diagonally tied under the slab mesh at re-entrant corners.

R4. The raft foundation shall be poured over a flat pavement, lowered locally in a few locations as detailed on the plan, using interlocking Cupolex domes 350 and 260 tall in groups with accessories as detailed on the foundation plan. Along the beams the Cupolex domes shall be fitted with Stop Ends to prevent concrete entering under the domes. Both the 350 and 260 domes use the same Stop Ends.

R5. The Section JJ expansion joit shall be provided as detailed on Sheet 3. Note that it is essential that no dowels be provided in the 1 metre section at right angles separating the carport from the asfresco area. Termimesh protection shall be provided for the full length of the expansion joint.

R6. Slab panels shall be 100mm thick over the tops of the Cupolex domes and shall be reinforced with one layer of SL82 mesh to AS 1304, located 30mm clear below the top of the slab, running throughout the slab, bar chaired in a 2 metre grid (on top of every third dome in both directions). Laps in slab mesh shall be determined as follows: 225mm where the edge wires on both sheets in the lap are spaced 200mm apart; 225mm where the edge wires on one sheet in the lap are spaced 200mm apart but on the other sheet in the lap are spaced 100mm apart; and 125mm where the edge wires on both sheets in the lap are spaced 100mm apart. The floor slab shall be recessed 50mm in wet areas to provide for grading of the floor to grates, and by 20mm under the verandah and the deck.

R7. Grade 32 MPa concrete to AS 3600 shall be used with slump in the range of 50 to 75mm, placed with mechanical vibration in beams and slabs.

R8. Concrete shall be cured for a minimum period of 7 days, either by covering with a continuous moisture barrier securely fastened down, or by use of an approved curing compound sprayed on immediately after initial surface drying has been achieved. Excessive concrete slump, poorly controlled vibration, inadequate curing and use of cement as a surface drying agent may contribute to shrinkage cracking. When necessary to expedite surface drying for trowelling, use clean fine sand, not cement.

R9. Brittle floor coverings such as tiles shall be affixed to the slab by flexible adhesive to minimise the likelihood of transfer of shrinkage cracks through from slab to tiles.

R10. Future superstructure distress at this site will be minimised providing that all piping, drains, downpipes are well maintained and regularly checked for any leakages.

R11. To meet the requirements for termite protection as outlined in AS 3660.1, the slab including perimeter aprons shall be cast monolithically (ie: the whole of the slab must be cast in the one pour, broken only at expansion joints). In addition, either Termimesh stainless steel mesh shall be parged, or UPVC flanges shall be fitted around all services passing through the slab, or other requirements as directed by Inverell Shire Council. Either a perimeter reinforced concrete apron cast integrally with the slab, or 75mm minimum of the perimeter edge beam shall be exposed around the full perimeter of the dwelling to meet termite protection requirements.

R12. All dimensions must be confirmed on site.

ALL DIMENSIONS MUST BE CONFIRMED ON SITE
DO NOT SCALE OFF DRAWINGS

THE FOUNDATION PLAN IS SHOWN ON SHEET 1 AND SECTIONS ARE SHOWN ON SHEETS 2 AND 3 AND SPECIFICATION IS SHOWN ON SHEET 4

Designed		
Drawn		
Checked		9 Nov 2019
Approved		

This drawing is copyright and must not be used, reproduced, or copied wholly or in part without the written permission of David C. Jones Pty Ltd.

Survey Datum: AHD

David C. Jones (Consulting Engineers) Pty Ltd
ACN 001 816 039 ABN/GST No. 65 001 816 039
51 Lewin Street, Inverell, NSW, Australia, 2360
Telephone (02) 6721 0222 Facsimile (02) 6721 0222
Mobile 0427 210222 Email: david@djones.com
David C. Jones: BE, MEngSc, FIEAust, Chartered Professional Engineer 384884, NPER Civil and Structural Registered Professional Engineer Queensland No. 2125 Registered Building Practitioner Victoria No. EC-2289

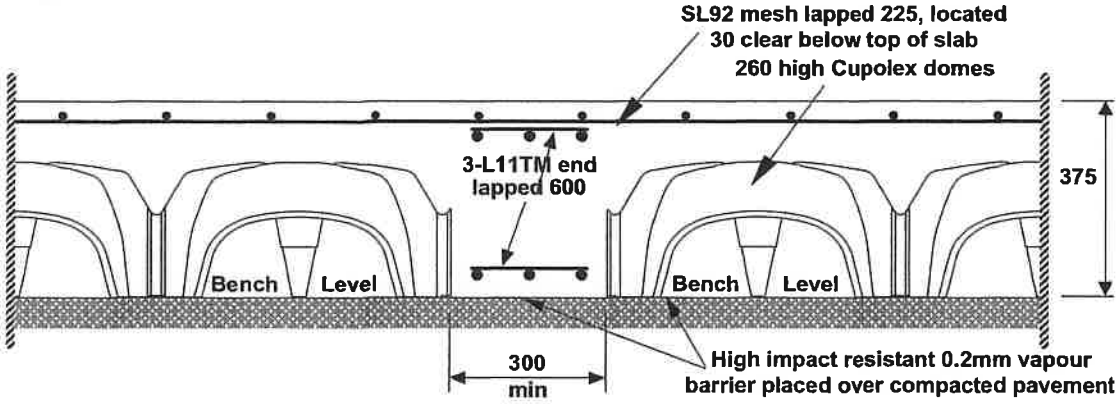
David C. Jones
Consulting Civil and Structural Engineers
"Bridging the Gap between Cost Effectiveness and Excellence"
Serving Inverell and District Since 1974
Flood Forecasting for Inverell SES as a Free Community Service Since 1976

SPECIFICATION FOR FOUNDATION FOR TIMBER FRAMED DWELLING ON LOT 2 IN DP 1252406 AT 5 BRIGALOW STREET BINGARA FOR R & J LYONS

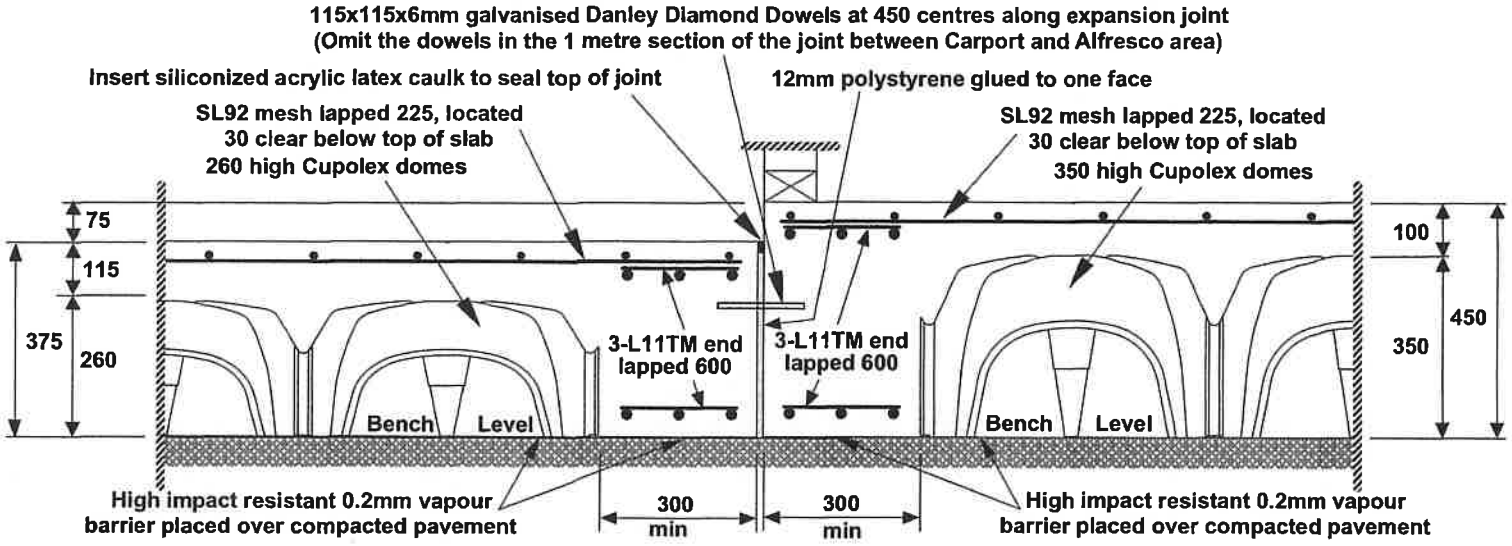
File Number	Number of Sheets	Sheet Number
19114283	4	4

Amendments

A3



SECTION DD



SECTION JJ EXPANSION JOINT

All concrete shall be Grade 32MPa placed with mechanical vibration in beams and slabs.

ALL DIMENSIONS MUST BE CONFIRMED ON SITE
DO NOT SCALE OFF DRAWINGS

THE FOUNDATION PLAN IS SHOWN ON SHEET 1
AND SECTIONS ARE SHOWN ON SHEETS 2 AND 3
AND SPECIFICATION IS SHOWN ON SHEET 4

Scale: 1 : 10

Designed			
Drawn			
Checked		9 Nov 2019	
Approved			

This drawing is copyright and must not be used, reproduced, or copied wholly or in part without the written permission of David C. Jones Pty Ltd.

Survey Datum: AHD

David C. Jones (Consulting Engineers) Pty Ltd
ACN 001 816 039 ABN/GST No. 65 001 816 039
51 Lewin Street, Inverell, NSW, Australia, 2360
Telephone (02) 6721 0222 Facsimile (02) 6721 0222
Mobile 0427 210222 Email: david@djones.com
David C. Jones: BE, MEngSc, FIEAust, Chartered
Professional Engineer 384884, NPER Civil and Structural
Registered Professional Engineer Queensland No. 2125
Registered Building Practitioner Victoria No. EC-2289

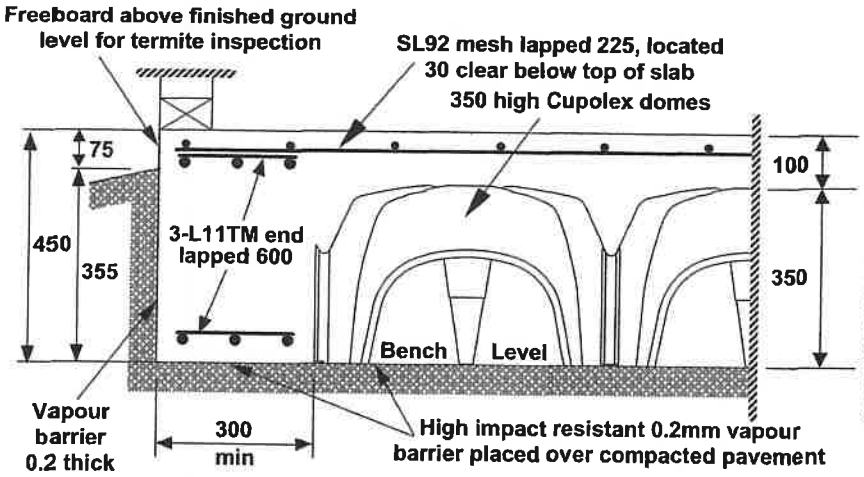
David C. Jones
Consulting Civil and Structural Engineers
"Bridging the Gap between Cost Effectiveness and Excellence"
Serving Inverell and District Since 1974
Flood Forecasting for Inverell SES as a Free Community Service Since 1976

FOUNDATION SECTIONS FOR TIMBER FRAMED DWELLING ON LOT 2 IN DP 1252406 AT 5 BRIGALOW STREET BINGARA FOR R & J LYONS

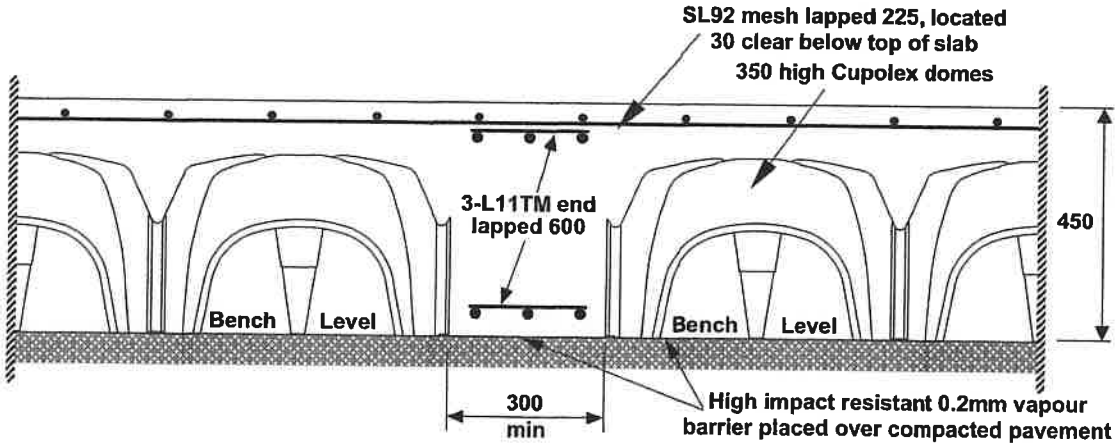
File Number	Number of Sheets	Sheet Number
19114283	4	3

Amendments

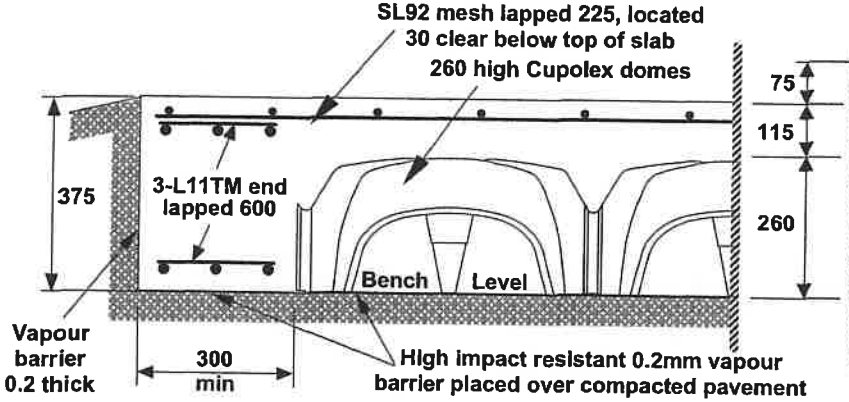
A3



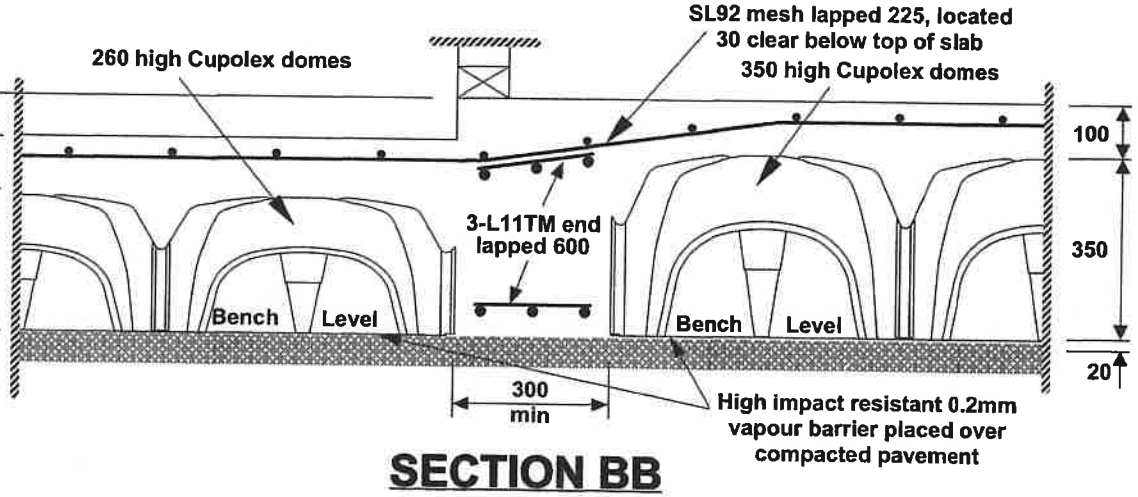
SECTION AA



SECTION CC



SECTION EE



SECTION BB

All concrete shall be Grade 32MPa placed with mechanical vibration in beams and slabs.

ALL DIMENSIONS MUST BE CONFIRMED ON SITE
DO NOT SCALE OFF DRAWINGS

THE FOUNDATION PLAN IS SHOWN ON SHEET 1
AND SECTIONS ARE SHOWN ON SHEETS 2 AND 3
AND SPECIFICATION IS SHOWN ON SHEET 4

Scale: 1 : 10

Designed		
Drawn		
Checked		9 Nov 2019
Approved		

This drawing is copyright and must not be used, reproduced, or copied wholly or in part without the written permission of David C. Jones Pty Ltd.

Survey Datum: AHD

David C. Jones (Consulting Engineers) Pty Ltd
ACN 001 816 039 ABN/GST No. 65 001 816 039
51 Lewin Street, Inverell, NSW, Australia, 2360
Telephone (02) 6721 0222 Facsimile (02) 6721 0222
Mobile 0427 210222 Email: david@djones.com
David C. Jones; BE, MEngSc, FIEAust, Chartered Professional Engineer 384884, NPER Civil and Structural
Registered Professional Engineer Queensland No. 2125
Registered Building Practitioner Victoria No. EC-2289

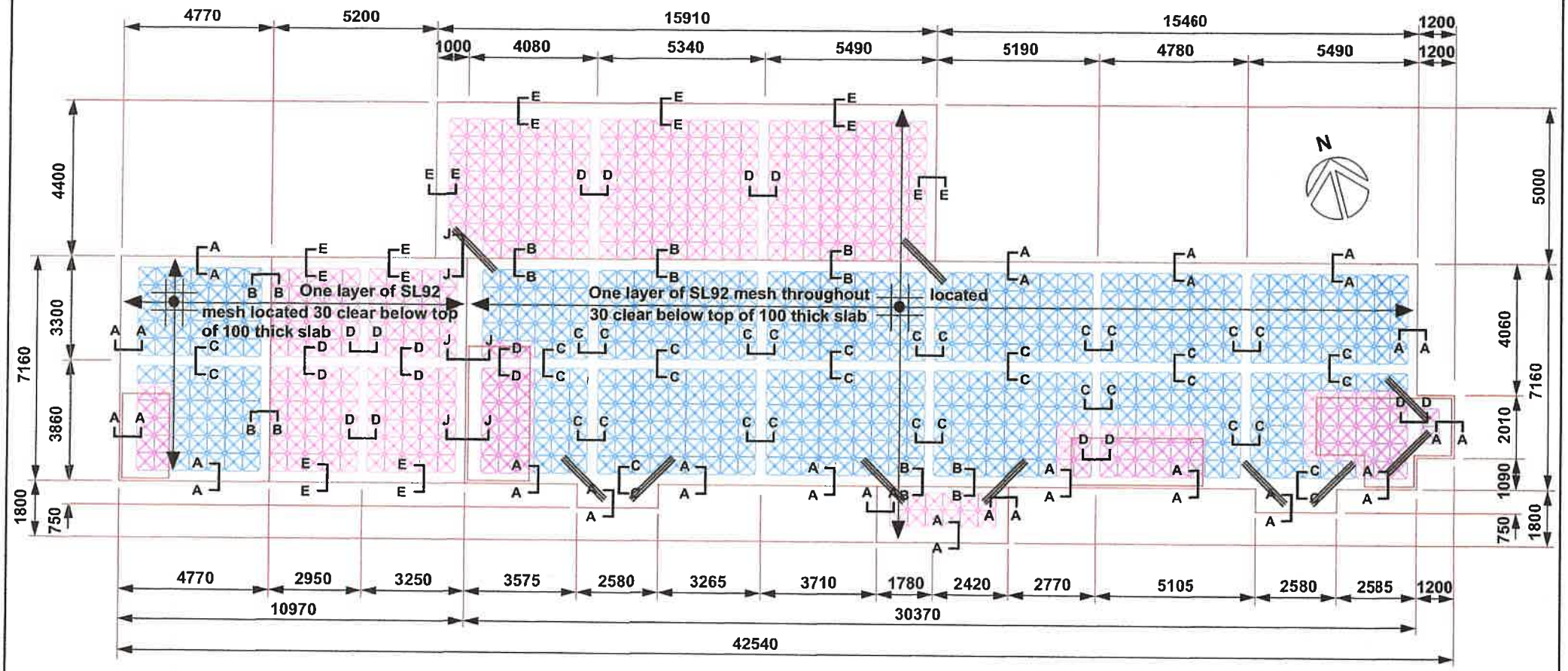
David C. Jones
Consulting Civil and Structural Engineers
"Bridging the Gap between Cost Effectiveness and Excellence"
Serving Inverell and District Since 1974
Flood Forecasting for Inverell SES as a Free Community Service Since 1976

FOUNDATION SECTIONS FOR TIMBER FRAMED DWELLING ON LOT 2 IN DP 1252406 AT 5 BRIGALOW STREET BINGARA FOR R & J LYONS

File Number	Number of Sheets	Sheet Number
19114283	4	2

Amendments

A3



Provide crossfall on Verandahs and Carport areas

Recess the floor in wet areas shown shaded by up to 75mm to provide adequate grading towards the floor wastes

RAFT FOUNDATION PLAN

= 350 high Cupolex domes

= 260 high Cupolex domes

The 350 and 260 Cupolex domes can lock together

= 3-L11TM-T 2m long

All concrete shall be Grade 32MPa placed with mechanical vibration in beams and slabs.

ALL DIMENSIONS MUST BE CONFIRMED ON SITE
DO NOT SCALE OFF DRAWINGS

THE FOUNDATION PLAN IS SHOWN ON SHEET 1
AND SECTIONS ARE SHOWN ON SHEETS 2 AND 3
AND SPECIFICATION IS SHOWN ON SHEET 4

Scale: 1 : 125

Designed		
Drawn		
Checked		9 Nov 2019
Approved		

This drawing is copyright and must not be used, reproduced, or copied wholly or in part without the written permission of David C. Jones Pty Ltd.

Survey Datum: AHD

David C. Jones (Consulting Engineers) Pty Ltd
ACN 001 816 039 ABN/GST No. 65 001 816 039
51 Lewis Street, Inverell, NSW, Australia, 2360
Telephone (02) 6721 0222 Facsimile (02) 6721 0222
Mobile 0427 210222 Email: david@djones.com
David C. Jones: BE, MEngSc, FIEAust, Chartered Professional Engineer 384884, NPER Civil and Structural Registered Professional Engineer Queensland No. 2125 Registered Building Practitioner Victoria No. EC-2289

David C. Jones
Consulting Civil and Structural Engineers
"Bridging the Gap between Cost Effectiveness and Excellence"
Serving Inverell and District Since 1974
Flood Forecasting for Inverell SES as a Free Community Service Since 1976

FOUNDATION PLAN FOR TIMBER FRAMED DWELLING ON LOT 2 IN DP 1252406 AT 5 BRIGALOW STREET BINGARA FOR R & J LYONS

File Number	Number of Sheets	Sheet Number
19114283	4	1

Amendments

A3