



# RAWSON HOMES NSW

## PROPOSED NEW DWELLING FOR RAWSON HOMES NSW

LOT 2312 EMPIRE CIRCUIT,  
THORNTON ESTATE, PENRITH. NSW

INDEX TO SHEETS	
SHEET	TITLE
S-000	COVER SHEET & DRAWING LIST
S-001	GENERAL NOTES
S-002	STRUCTURAL NOTES
S-101	FOOTING & SLAB PLAN
S-102	FOOTING & SLAB DETAILS - SHEET 1
S-103	FOOTING & SLAB DETAILS - SHEET 2
S-104	FOOTING & SLAB DETAILS - SHEET 3
S-105	FOOTING & SLAB DETAILS - SHEET 4
S-106	FOOTING & SLAB DETAILS - SHEET 5
S-107	SURFACE DRAINAGE DETAILS
S-108	PLUMBING CONNECTION DETAILS
S-109	MASONRY ARTICULATION DETAILS
S-110	SEWER SECTION DETAIL
S-111	STRUCTURAL STEEL MARKING PLAN

**IMPORTANT NOTE:**

IT IS THE RESPONSIBILITY OF THE CLIENT IN CONSULTATION WITH THEIR BUILDER TO CHECK AND VERIFY THE BUILDABILITY OF THE DESIGN AS PRESENTED AND REFER ANY CONCERNS BACK TO THE ENGINEER PRIOR TO CONSTRUCTION. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS.

IT IS ASSUMED THAT THE USER OF THESE DETAILS HAS A LEVEL OF FAMILIARITY AND COMPETENCY TO UNDERSTAND AND EXECUTE THE WORKS.

AT ALL TIMES COMMON SENSE IS TO BE USED  
IF EVER IN DOUBT, ASK!

REV	BY	DATE	ISSUE / REVISION DESCRIPTION	CHK	APP	TITLE	NAME	DATE
0	STP	28/05/15	ISSUED FOR CONSTRUCTION	NB	RC	DRAFTER	STP	28/05/15
A	EY	02/06/15	S-101 & S-110 AMENDED	DN	RC	DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE		SIZE A3
						APPROVED BY:		

PROJECT  
**PROPOSED NEW DWELLING FOR  
RAWSON HOMES NSW**  
LOT 2312 EMPIRE CIRCUIT,  
THORNTON ESTATE, PENRITH. NSW  
**COVER SHEET AND DRAWING LIST**

CLIENT  
**RAWSON HOMES NSW**

Structerre Pty. Ltd. (ACN: 055 912 733)  
SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@strucrerre.com.au

STRUCTERRE JOB No. **35287** DRAWING REF. No. **D35287-S-000**

CLIENT REFERENCE No. **REV A**

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**GENERAL NOTES:**

- G.1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT/ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- G.2. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.
- G.3. SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE BUILDER.
- G.4. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
- G.5. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE AS CODES AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING STATE AUTHORITY.
- G.6. THIS REPORT IS BASED ON INFORMATION SUPPLIED BY THE CLIENT. IF ANY ASPECT OF THE SITE PREPARATION OR PROPOSED CONSTRUCTION CHANGES FROM THAT ORIGINALLY ADVISED, THE ENGINEER MUST BE NOTIFIED SO THAT ANY NECESSARY AMENDMENTS CAN BE MADE.
- G.7. DEVELOPMENT APPLICATION DECISION NOTICE - FOR WORK REQUIRING BUILDING APPROVAL, THE DEVELOPMENT APPLICATION DECISION NOTICE, ISSUED BY THE COUNCIL OR BUILDING CERTIFIER MUST BE FORWARDED TO US PRIOR TO ARRANGING ANY INSPECTIONS WITH THIS OFFICE.

**SITE CLASSIFICATION NOTES:**

- S.C.1. THIS REPORT HAS BEEN BASED UPON INFORMATION PROVIDED TO OUR OFFICE AND/OR GATHERED BY OUR STAFF.
- S.C.2. THIS REPORT HAS BEEN PREPARED IN ACCORDANCE WITH AS 2870 AND RELEVANT STATE LEGISLATION.
- S.C.3. SHOULD SOIL CONDITIONS ENCOUNTERED ON SITE DIFFER SIGNIFICANTLY FROM THOSE INDICATED IN THE SOIL TEST NOTED ABOVE, THE ENGINEER MUST BE NOTIFIED BEFORE PROCEEDING AS THE SITE CLASSIFICATION MAY NEED REVISING AND MODIFICATIONS TO THE DESIGN MAY BE REQUIRED.
- S.C.4. THE SITE INVESTIGATION MAY BE RENDERED IRRELEVANT IF THE LOCATION OF PROPOSED STRUCTURES VARY FROM THAT SPECIFIED AT THE TIME OF THIS REPORT. THIS REPORT RELATES TO THE CONDITIONS EXISTING ON THE LAND AT THE TIME OF THE SITE INVESTIGATION. THIS REPORT IS BASED UPON THE PROPOSED CUT / FILL INFORMATION PROVIDED BY THE CLIENT. ANY UNADVISED EXTENSIVE CUTTING OR FILLING MAY RENDER THIS REPORT IRRELEVANT.
- S.C.5. WHILE A REASONABLE EFFORT IS MADE TO ASSESS THE SITE'S SUITABILITY FOR THE PROPOSED CONSTRUCTION, THIS REPORT DOES NOT TAKE INTO ACCOUNT SLOPE STABILITY. IF REQUIRED BY THE COUNCIL, A SUITABLY QUALIFIED PERSON SHOULD BE ENGAGED TO UNDERTAKE A SLOPE STABILITY ASSESSMENT.

**MISCELLANEOUS NOTES:**

- M.1. WHERE TERMITE PROTECTION IS REQUIRED, INSTALL IN ACCORDANCE WITH AS3660. BUILDER SHALL CONFIRM WITH OWNER THE PREFERRED METHOD OF TERMITE MANAGEMENT. OWNER IS RESPONSIBLE FOR ONGOING INSPECTION OF STRUCTURAL TIMBER ELEMENTS AND ENSURING THAT TERMITE MANAGEMENT SYSTEMS ARE NOT BREACHED.
- M.2. THE RECOMMENDED DISTANCE THAT A NEW TREE SHOULD BE LOCATED FROM A DWELLING WOULD BE EQUAL OR GREATER THAN 75% OF THE MATURE HEIGHT FOR CLASS M SITES, 100% OF THE MATURE HEIGHT FOR CLASS H1 & H2 SITES, 150% OF THE MATURE HEIGHT FOR CLASS E SITES.

**DRAINAGE NOTES:**

- D.1. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS2870.
- D.2. DRAINAGE SHALL BE CONSTRUCTED TO AVOID WATER PONDING AGAINST OR NEAR THE FOOTING. THE GROUND IN THE IMMEDIATE VICINITY OF THE PERIMETER FOOTING, INCLUDING THE GROUND UPHILL FROM THE SLAB ON

- D.3. PLUMBING TRENCHES SHALL BE SLOPED AWAY FROM THE HOUSE AND SHALL BE BACKFILLED WITH CLAY IN THE TOP 300mm WITHIN 1.5m OF THE HOUSE. THE CLAY USED FOR BACKFILLING SHALL BE COMPACTED. WHERE PIPES PASS UNDER THE FOOTING SYSTEM, THE TRENCH SHALL BE BACKFILLED WITH CLAY OR CONCRETE TO RESTRICT THE INGRESS OF WATER BENEATH THE FOOTING SYSTEM.
- D.4. EXCAVATIONS NEAR THE EDGE OF THE FOOTING SYSTEM SHALL BE BACKFILLED IN SUCH A WAY AS TO PREVENT ACCESS OF WATER TO THE FOUNDATION. FOR EXAMPLE, EXCAVATIONS SHOULD BE BACKFILLED ABOVE OR ADJACENT THE FOOTING WITH MOIST CLAY, COMPACTED BY HAND-RODDING/TAMPING. POROUS MATERIAL SUCH AS SAND, GRAVEL OR BUILDING RUBBLE SHOULD NOT BE USED.
- D.5. WATER RUN-OFF SHALL BE COLLECTED AND CHANNLED AWAY FROM THE HOUSE DURING CONSTRUCTION.
- D.6. PENETRATIONS OF THE EDGE BEAMS AND FOOTING BEAMS ARE TO BE AVOIDED, BUT WHERE NECESSARY SHALL BE SLEEVED TO ALLOW FOR MOVEMENT.
- D.7. CONNECTION OF STORMWATER DRAINS AND WASTE DRAINS SHALL INCLUDE FLEXIBLE CONNECTIONS.
- D.8. ADDITIONAL PLUMBING REQUIREMENTS ARE NEEDED FOR MODERATELY, HEAVILY & EXTREMELY REACTIVE SITES IN ACCORDANCE WITH CLAUSE 6.6 (F) FROM AS 2870.
- D.9. PLUMBING & DRAINAGE UNDER THE SLAB SHOULD BE AVOIDED WHERE PRACTICAL (REFER AS/NZS 3500 CLAUSE 4.10)
- D.10. ALL PIPEWORK INCLUDING STORMWATER FITTINGS & ADAPTERS SHOULD BE PROTECTED FROM MECHANICAL DAMAGE.
- D.11. PROVISIONS SHOULD BE MADE FOR THE CONNECTION OF OVERFLOW OR WATER DISCHARGE FROM FIXTURES SUCH AS HOT WATER SYSTEMS & AIR CONDITIONERS TO A DRAIN AS REQUIRED BY THE RELEVANT LOCAL AUTHORITY.

**PROPERTY MAINTENANCE NOTES:**

- P.1. THIS DESIGN IS BASED UPON THE NORMAL FOOTING PERFORMANCE CRITERIA PROVIDED IN TABLE 2.2 OF AS2870-2011 WITH DAMAGE CATEGORIES DETAILED IN APPENDIX C. IF THESE PERFORMANCE CRITERIA IS UNSUITABLE FOR THIS DWELLING PLEASE CONSULT THIS OFFICE FOR ADDITIONAL ENGINEERING ADVISE AND DESIGN SERVICES.
- P.2. THE OWNER'S ATTENTION IS DRAWN TO APPENDIX B 'PERFORMANCE CRITERIA AND FOUNDATION MAINTENANCE' AND APPENDIX C 'CLASSIFICATION OF DAMAGE DUE TO FOUNDATION MOVEMENTS' OF AS 2870-2011.
- P.3. WE ALSO DIRECT THE OWNER TO THE CSIRO PUBLICATION BTF 18 'FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE: A HOMEOWNER'S GUIDE'. COPIES OF THIS PUBLICATION ARE AVAILABLE FROM CSIRO PUBLISHING ON PH: 1300-788-000 OR AT <http://www.publish.csiro.au/nid/18/pid/3612.htm>. THIS REPORT MAY BE RENDERED INVALID IF THE PROPERTY IS NOT MAINTAINED AS RECOMMENDED IN THIS PUBLICATION.
- P.4. THE LONG TERM PERFORMANCE OF DWELLING FOOTINGS IS DEPENDANT ON FACTORS SUCH AS SITE DRAINAGE, VEGETATION AND WATERING OF AREAS ADJACENT TO THE DWELLING.
- P.5. WATERING OF LAWNS AND GARDENS SHOULD BE CONSISTENT. OVER WATERING CAN DAMAGE FOOTINGS. EQUALLY FOOTINGS MAY BE DAMAGED BY PROLONGED PERIODS OF NEGLECT AFTER YEARS OF CAREFUL WATERING. LEAKING TAPS AND PIPES AND BLOCKED DRAINS SHOULD BE REPAIRED PROMPTLY. PROLONGED NEGLECT CAN LEAD TO DAMAGED FOOTINGS.

SUMMARY OF AS2870-2011 - TABLE 2.2 - Classification of normal site footing performance for brick veneer & full masonry construction		
SITE CLASS	EXPECTED DAMAGE CATEGORIES	DAMAGE CATEGORIES (C1 & C2 OF APPENDIX C)
A & S	CATEGORY 0 & 1	WALL CRACKS < 1mm SLAB CRACKS < 1mm LEVEL CHANGES < 8mm OVER 3m
M	OFTEN CATEGORY 1 & RARELY 2	OFTEN WALL CRACKS < 1 mm. & RARELY 1 < 5mm SLAB CRACKS 1 < 2mm LEVEL CHANGES 10 < 15mm OVER 3m
H1/H2	OFTEN CATEGORY 1 & 2 RARELY CATEGORY 3	OFTEN WALL CRACKS < 5 mm & RARELY 5 < 15mm SLAB CRACKS 2 < 4mm LEVEL CHANGES OF 15 < 25mm OVER 3m
E	OFTEN CATEGORY 3 OR MORE	OFTEN WALLS CRACKS 15 < 25mm SLAB CRACKS 2 < 4mm OR MORE LEVEL CHANGES > 25mm OVER 3m

**ARTICULATED MASONRY NOTES:**

- A.1. THIS DESIGN ASSUMES THAT MASONRY ARTICULATION JOINTS WILL BE INSTALLED UNLESS NOTED OTHERWISE ON FOOTING & SLAB PLAN. ANY MASONRY ARTICULATION JOINTS SHALL BE POSITIONED IN ACCORDANCE WITH TECHNICAL NOTE 61 PRODUCED BY CEMENT CONCRETE & AGGREGATES AUSTRALIA AND AS 3700 SECTION 12.16.4. REFER TO TABLE BELOW FOR MAXIMUM SPACING AND MASONRY ARTICULATION PLAN (IF PROVIDED) FOR SPECIFIC LOCATIONS AND DETAILS FOR RENOVATIONS OR EXTENSIONS TO EXISTING STRUCTURES.
- A.2. MASONRY ARTICULATION JOINTS SHALL BE POSITIONED WHERE EVER NEW BRICKWORK MEETS OLD BRICKWORK.
- A.3. WHERE MASONRY ARTICULATION IS SHOWN BESIDE OPENINGS WITH BRICKWORK ABOVE THE OPENING, CARE SHOULD BE TAKEN TO PROVIDE A SLIP JOINT AROUND THE END OF THE LINTEL.
- A.4. WHERE MASONRY ARTICULATION IS SHOWN BESIDE OPENINGS, THE JOINT IS TO CONTINUE BETWEEN THE WINDOW/DOOR FRAME AND THE BRICKWORK TO THE FULL HEIGHT OF THE WALL. AT THESE LOCATIONS, THE FRAMES ARE TO BE FIXED WITH FASTENERS THAT WILL ALLOW MOVEMENT OF THE JOINT.

MAXIMUM SPACING OR ARTICULATION JOINTS TO AS 4773 (UNREINFORCED MASONRY) U.N.O			
SITE CLASS	CONSTRUCTION & SURFACE FINISH	JOINT SPACING (m) FOR WALL HEIGHT	
		≤ 4m HIGH	4m TO 8.5m
A & S	NOT REQUIRED	-	-
M, M-D	EXTERNAL FACE FINISH	6.0	4.2
	EXTERNAL RENDERED/PAINTED	5.5	3.9
	INTERNAL FACE FINISH	6.0	4.2
H1, H2, H1-D, H2-D	EXTERNAL FACE FINISH	5.0- 5.5	3.5 - 3.9
	EXTERNAL RENDERED/PAINTED	4.5 - 5.5	3.2 - 3.5
	INTERNAL FACE FINISH	5.0 - 5.5	3.5 - 3.9
P, E, E-D	REFER NOTE 4 / LOCATIONS	-	-

NOTES:  
 1. AS DEFINED IN AS 2870  
 2. USE MAXIMUM SPACING FOR EXPANSION OR CONTRACTION JOINTS  
 3. FOR H-D SITES USE THE SHORTER SPACING  
 4. FOR LOCATION OF JOINTS ON CLASS E, E-D & P SITES, REFER TO ENGINEER FOR ADVICE

**FOUNDATIONS AND FOOTINGS:**

- F.1. FOOTINGS SHALL BE PLACED CENTRALLY UNDER WALLS AND COLUMNS UNLESS OTHERWISE NOTED.
- F.2. ALL WORKMANSHIP & MATERIALS SHALL BE IN ACCORDANCE WITH AS 2870 & NATIONAL CONSTRUCTION CODE (N.C.C.)
- F.3. THE FOOTING DETAILS SHOWN ARE FOR THE SITE CLASSIFICATION STIPULATED. WHILST EVERY CARE HAS BEEN TAKEN TO VERIFY THAT THE INFORMATION SHOWN IS CORRECT, STRUCTERRE CONSULTING ENGINEERS TAKE NO RESPONSIBILITY FOR VARIATIONS WHICH MAY OCCUR DUE TO VARIATIONS IN SITE CONDITIONS.
- F.4. FILL USED IN THE CONSTRUCTION OF A SLAB EXCEPT WHERE THE SLAB IS SUSPENDED SHALL CONSIST OF A CONTROLLED FILL OR ROLLED FILL IN ACCORDANCE WITH AS 2870:
  - F.4.1. ROLLED FILL CONSISTS OF MATERIAL COMPACTED IN LAYERS BY REPEATED ROLLING WITH AN EXCAVATOR. ROLLED FILL SHALL NOT EXCEED 600mm COMPACTED IN LAYERS NOT MORE THAN 300mm FOR SAND MATERIAL OR 400mm COMPACTED IN LAYERS NOT MORE THAN 150mm FOR OTHER MATERIAL.
  - F.4.2. CONTROLLED FILL CONSISTS OF WELL GRADED SAND FILL UP TO 800mm DEEP, WELL COMPACTED IN NOT MORE THAN 300mm LAYERS BY VIBRATING PLATE OR VIBRATING ROLLER. NO SAND FILL UP TO 400mm DEEP, WELL COMPACTED IN NOT MORE THAN 150mm LAYERS BY A MECHANICAL ROLLER, CLAY FILL SHOULD BE MOIST DURING COMPACTION. THE DEPTHS OF FILL GIVEN ABOVE ARE DEPTHS MEASURED AFTER COMPACTION. FOR COMPACTED DEPTHS GREATER THAN THAT GIVEN ABOVE THE FILL SHALL BE SUBJECT TO CONTROL AND TESTING. IF TEST FAILS THEN PIERS ARE REQUIRED. CONTACT THIS OFFICE PRIOR TO FURTHER CONSTRUCTION.
- F.5. TOP SOIL CONTAINING GRASS ROOTS OR OTHER ORGANIC MATERIAL SHALL BE REMOVED FROM THE AREA ON WHICH THE SLAB IS TO REST.
- F.6. IF ANY FOOTING IS LOCATED SUCH THAT A LINE DRAWN AT 45 DEGREES (FOR CLAY AND 30 DEGREES FOR SAND) FROM ITS BASE INTERSECTS A PRIVATE SERVICE TRENCH, THEN PIERS ARE REQUIRED. SEE FOOTING & SLAB DETAILS FOR EXAMPLE.
- F.7. FOOTING & SLAB PIERS ARE REQUIRED WHERE UNCONTROLLED FILL UNDER THE EDGE BEAM/SLAB IS PRESENT.
- F.8. WHERE PIERS ARE USED TO SUPPORT A SLAB ON UNCONTROLLED FILL, PLUMBING AND DRAINAGE PIPES FOUNDED WITHIN SUCH FILL SHALL BE HUNG FROM THE SLAB MESH WITH NON-CORROSIVE STRAPS.
- F.9. FOR SATISFACTORY RESULTS, CONCRETE MUST BE CURED FOR AT LEAST 7 DAYS. CURING MAY BE ACHIEVED BY KEEPING THE CONCRETE MOIST, BY APPLYING A CURING COMPOUND, OR BY COVERING THE CONCRETE WITH A MOISTURE BARRIER. WHERE A CURING COMPOUND IS USED, IT MUST COMPLY WITH AS3799 & BE APPLIED TO THE MANUFACTURERS SPECIFICATIONS. MANY BUILDERS FIND THAT THE MOST SATISFACTORY WAY TO CURE A SLAB IS TO COVER IT WITH SHEETS OF POLYETHYLENE AS SOON AS POSSIBLE AFTER FINISHING. IF A SLAB IS MOIST WHEN COVERED AND THE POLYETHYLENE IS HELD SECURELY ONTO THE CONCRETE, THIS SYSTEM PROVIDES SATISFACTORY CURING OF THE CONCRETE.

**CONCRETE BLOCKWORK (EXCLUDES RETAINING WALLS):**

- BM.1. REINFORCED CONCRETE (R.C) BLOCKWORK TO CONFORM TO AS 3700 MASONRY STRUCTURES. BLOCKWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF AS3700. UNCONFINED CHARACTERISTIC COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNIT, f<sub>uc</sub> = 15 MPa
- BM.2. MORTAR TYPE = M3
- BM.3. DESIGN CHARACTERISTIC COMPRESSIVE STRENGTH OF GROUT, f<sub>cg</sub> = 20 MPa
- BM.4. YIELD STRENGTH OF REINFORCEMENT - f<sub>sy</sub> = 500 MPa
- BM.5. CLEANOUT ALL CORES AFTER EACH DAYS LAYING. JOINTS TO BE TOOLED. CONTROL JOINTS TO BE PROVIDED AT 6.0 TO 8.0m CENTRES AND AS PER BLOCKWALL PLANS WHERE APPLICABLE.

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0	STP	28/05/15	ISSUED FOR CONSTRUCTION	NB	RC	DRAFTER	STP	28/05/15
						DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE		SIZE A3
						APPROVED BY:		
							ROBERT COLOMBO	
							MIEAust, CPEng, NPER, BPP, RBP, RPEQ, FAPI	

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
 LOT 2312 EMPIRE CIRCUIT,  
 THORNTON ESTATE, PENRITH. NSW

**GENERAL NOTES**

CLIENT  
**RAWSON HOMES NSW**



Struclterre Pty. Ltd. (ACN: 055 912 733)  
 SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
 TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: [sydney@struclterre.com.au](mailto:sydney@struclterre.com.au)

STRUCterRE JOB No. **35287** DRAWING REF. No. **D35287-S-001**

CLIENT REFERENCE No. **A**

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**CONCRETE WORK:**

- C.1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 & AS 2870. U.N.O
- C.2. CONCRETE QUALITY FOR CEMENT TYPE A & EXPOSURE CLASSIFICATION A1 SHALL BE AS TABULATED AND SHALL BE VERIFIED BY TESTS (REFER TABLE BELOW). U.N.O, SEE SLAB PLAN FOR A2, B & C CATEGORIES.

ELEMENT	SLUMP	AGG	CONCRETE GRADE	COVER U.N.O (mm)
SLABS ON GROUND	100mm	20mm	N20	20 TOP
				30 BTM. & SIDES
				40 TOP (EXT.)
FOOTINGS	100mm	20mm	N20	50 TYPICAL
SUSPENDED SLAB	80mm	20mm	N32	30 TOP & SIDES
				20 BTM.
BEAMS	80mm	20mm	N32	45 TYPICAL
STAIRS	80mm	20mm	N32	45 TOP
				35 BTM.
WALLS	80mm	20mm	N32	30 SIDES (INT.)
				40 SIDES (EXT.)
COLUMNS	80mm	20mm	N32	40 TYPICAL

- C.3. SAMPLE AND TEST IN ACCORDANCE WITH AS 3600.
- C.4. ALL CONCRETE CONSTRUCTION TO BE COMPACTED WITH A MECHANICAL VIBRATOR.
- C.5. THOROUGHLY SCABBLE CONCRETE ON WHICH NEW CONCRETE IS TO BE POURED.
- C.6. ALL CONCRETE SHALL BE PLACED AND CURED IN ACCORDANCE WITH AS3600. WHERE CURING COMPOUNDS ARE USED, IT MUST COMPLY WITH AS3799 & BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS & AS FOLLOWS:
  - C.6.1. ONTO SLAB WITHIN 2HRS OF FINISHING OPERATION.
  - C.6.2. ONTO WALLS AND COLUMNS IMMEDIATELY AFTER REMOVAL OF FORMWORK.
- C.7. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- C.8. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER.
- C.9. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY.
- C.10. HORIZONTAL FORMWORK SHALL BE STRIPPED WHEN APPROVED BY THE ENGINEER.
- C.11. U.N.O NO ALLOWANCE HAS BEEN MADE FOR STACKED MATERIALS OR MACHINERY ON THE CONCRETE STRUCTURE.
- C.12. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- C.13. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- C.14. SPLICES IN REINFORCEMENT MADE IN POSITIONS OTHER THAN SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.
- C.15. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
- C.16. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.

- C.17. ALL REINFORCING BARS SHALL COMPLY WITH AS 4671. ALL FABRIC SHALL COMPLY WITH AS 4671 AND SHALL BE SUPPLIED IN FLAT SHEETS.
- C.18. REINFORCEMENT SYMBOLS:  
 N - DENOTES GRADE D500 HIGH STRENGTH DEFORMED BARS TO AS 4671.  
 R - DENOTES GRADE R250 HOT ROLLED PLAIN BARS TO AS 4671.  
 SL - DENOTES HARD-DRAWN WIRE SQUARE REINFORCING FABRIC TO AS 4671.  
 RL - DENOTES HARD-DRAWN WIRE RECTANGULAR REINFORCING FABRIC TO AS 4671.  
 L - DENOTES HARD-DRAWN WIRE TRENCH MESH TO AS 4671.  
 THE NUMBER IMMEDIATELY FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN MILLIMETRES.
- C.19. FABRIC/MESH REINFORCEMENT TO BE LAPPED ONE MESH PLUS 30mm. LAPS IN POSITIONS OF MAXIMUM MOMENT ARE NOT PERMITTED.
- C.20. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS GENERALLY AT NOT GREATER THAN 800 CENTRES BOTH WAYS. RODS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
- C.21. ALL TENSILE REINFORCEMENT TO BE LAPPED AS SHOWN IN TABLE BELOW:

REINFORCEMENT BAR	N12	N16	N20	N24
LAP LENGTH	400	600	700	800

**STRUCTURAL STEELWORK NOTES:**

- S.1. DESIGN CONFORMS TO THE FOLLOWING STANDARDS:  
 AS 4100 - STEEL STRUCTURES.  
 AS/NZS 4600 - COLD-FORMED STEEL STRUCTURES.  
 FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF AS 4100.
- S.2. ALL STEELWORK SHALL BE TEMPORARILY BUT SECURELY BRACED UNTIL ALL FINAL BRACING, CLADDING AND STABILISING BRICK OR BLOCKWORK HAVE BEEN COMPLETED, TO MAINTAIN THE STRUCTURE IN A SAFE AND STABLE CONDITION DURING CONSTRUCTION.
- S.3. BASE PLATES SHALL BE GROUTED BEFORE THE MEMBER IS SUBSTANTIALLY LOADED. GROUT SHALL HAVE A MINIMUM STRENGTH  $f'_{c}$  OF 25 MPa AND SHALL BE DRY PACK MORTAR RAMMED IN, OR AN APPROVED NON-SHRINK GROUT.
- S.4. U.N.O. ALL MATERIAL SHALL BE:  
 GRADE 250 HOT-ROLLED PLATES COMPLYING WITH AS/NZS 3678.  
 GRADE 300 UB, UC, PFC, EA, UA, FLATS & ROUNDS COMPLYING WITH AS/NZS 3679.1.  
 GRADE 300 WB, WC COMPLYING WITH AS/NZS 3679.2.  
 GRADE C350 CHS COMPLYING WITH AS 1163.  
 GRADE C450 RHS, SHS COMPLYING WITH AS 1163.
- S.5. WELDING SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF AS/NZS 1554.1. WELDING CONSUMABLES SHALL BE GRADE E48XX OR W50X U.N.O. ALL WELDS SHALL BE 6mm CFW SP CATEGORY U.N.O. ALL BUTT WELDS SHALL BE SP CATEGORY U.N.O. INSPECTION IS REQUIRED IN ACCORDANCE WITH AS/NZS 1554.1. ALL GP / SP WELDS SHALL BE 100% VISUALLY SCANNED. SP FILLET WELDS SHALL HAVE 10% VISUAL EXAMINATION U.N.O. SP BUTT WELDS SHALL HAVE 50% VISUAL EXAMINATION U.N.O. ALL GP WELDS SHALL HAVE 10% VISUAL EXAMINATION.
- S.6. BOLTS SHALL BE M16 DIAMETER U.N.O. BOLT CATEGORY IS TO BE 8.8/S COMPLYING WITH AS 4100, AS/NZS 1252 & AS/NZS 4291.1. U.N.O. PROVIDE DESIGN ENGINEER WITH EVIDENCE OF COMPLIANCE WITH THESE CODES. HOLDING DOWN BOLTS SHALL BE CATEGORY 4.6/S U.N.O. THREADS MAY BE INCLUDED IN THE SHEAR PLANES U.N.O. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT DIP GALVANISED. BOLTS DENOTED 4.6/S ARE COMMERCIAL BOLTS OF STRENGTH GRADE 4.6 TO AS 1111 SNUG TIGHT.

BOLTS DENOTED 8.8/S, 8.8/TB AND 8.8/TF ARE HIGH STRENGTH STRUCTURAL BOLTS OF STRENGTH GRADE 8.8 TO AS/NZS 1252 & AS/NZS 4291.1.  
 8.8/S DENOTES BOLTS SNUG TIGHT.  
 8.8/TB DENOTES BOLTS FULLY TENSIONED IN BEARING, TO AS 4100.  
 8.8/TF DENOTES BOLTS FULLY TENSIONED IN FRICTION, TO AS 4100 - MATING SURFACES MUST NOT BE PAINTED.

- S.7. ALL DETAILS, GAUGE LINES ETC. (WHERE NOT SPECIFICALLY SHOWN) ARE TO BE IN ACCORDANCE WITH AISC PUBLICATIONS "DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL" AND "STANDARDISED STRUCTURAL CONNECTIONS". PLATES ARE TO BE 10mm THICK, CUT FROM STANDARD FLAT BARS U.N.O. ENDS OF HOLLOW SECTIONS SHALL BE SEALED WITH NOMINAL THICKNESS PLATES AND CONTINUOUSLY WELDED TO SEAL ENDS, UNO.
- S.8. THE STEEL FABRICATOR SHALL PROVIDE THE ENGINEER WITH 1 COPY OF WORKSHOP DRAWINGS FOR INSPECTION AT LEAST 7 DAYS BEFORE FABRICATION IS STARTED. STEELWORK IS NOT TO BE FABRICATED UNTIL WORKSHOP DRAWINGS ARE APPROVED.
- S.9. ALL DIMENSIONS ARE MILLIMETRES U.N.O.
- S.10. CORROSION PROTECTION
  - S.10.1. INTERNAL STEELWORK (ENCLOSED)
    - S.10.1.1. THE STEELWORK SHALL BE CLEANED TO AS 1627 CLASS 1 AND GIVEN ONE COAT OF ALKYD PRIMER TO GIVE A DRY FILM THICKNESS OF 50 MICRONS BEFORE DISPATCH TO SITE, UNLESS THE STEEL IS TO BE ENCASED IN CONCRETE OR IS DETAILED OTHERWISE. APPLY ONE FINISH COAT OF ALL WEATHER GLOSS ACRYLIC PAINT.
  - S.10.2. EXTERNAL STEELWORK (UNENCLOSED)
    - S.10.2.1. ALL STRUCTURAL STEELWORK WHICH IS EXPOSED OR IN CONTACT WITH EXPOSED BRICKWORK, AND ALL LINTELS, SHALL BE HOT DIP GALVANISED AFTER FABRICATION. STEELWORK GALVANISED AFTER FABRICATION SHALL COMPLY WITH AS/NZS 4680.
    - S.10.2.2. AS AN ALTERNATIVE TO GALVANISING, ALL STRUCTURAL STEELWORK WHICH IS EXPOSED SHALL BE CLEANED TO AS 1627 CLASS 2 1/2 PREPARATION AND GIVEN A COAT OF INORGANIC ZINC SILICATE TO GIVE A DRY FILM THICKNESS OF 75 MICRONS BEFORE DISPATCH TO THE SITE, UNLESS THE STEEL IS TO BE ENCASED IN CONCRETE OR IS DETAILED OTHERWISE.
    - S.10.2.3. REPAIR OF GALVANISED COATING AFTER WELDING PREPARATION - REMOVE ALL WELDING SCALE, SLAG & SHARP EDGES. POWER TOOL CLEAN TO AS 1627.2, CLASS 3, USING ABRASIVE WHEEL ON A POLISHER AT 3500RPM. DEGREASE & REMOVE ALL SURFACE CONTAMINANTS TO AS 1627.1.
    - S.10.2.4. 'SEVERE' CORROSION ENVIRONMENT - APPLY 2 COATS OF 2-PACK EPOXY ZINC TO AS 3750.9, TO TOTAL 150um DFT, FOLLOWED BY 2 PACK EPOXY ENAMEL TO TOTAL 150um DFT.
    - S.10.2.5. 'MODERATE' CORROSION ENVIRONMENT - APPLY A TOTAL OF 125um DFT OF DULUX METALSHIELD COLD GALV. PRIMER OR EQUIV IN 2 COATS, USING BRUSH OR SPRAY CAN.
- S.11. UNLESS NOTED OTHERWISE, PROTECTIVE COATINGS FOR STEELWORK SHALL BE AS TABULATED BELOW AND IN ACCORDANCE WITH VOL. 2 PART 3.4.4 OF THE NCC.

ENVIRONMENT (EXPOSURE CLASS AS PER AS 2312)	STRUCTURAL MEMBERS (NOT BUILT INTO MASONRY/CONCRETE)		LINTELS (BUILT INTO MASONRY OR CONCRETE)
	INTERNAL	EXTERNAL	
VERY LOW	R0	-	-
LOW	R0	R1	R2
MEDIUM	R0	R2	R3
HIGH	R1	R3	R4
VERY HIGH	R1	R4	R5

PROTECTIVE COATING SPECIFICATION TO AS 2699.3

**TIMBER NOTES:**

- T.1. MANUFACTURED TIMBER ELEMENTS (e.g. LVL) EXPOSED TO WEATHERING SHALL BE L.O.S.P. TREATED TO H3 LEVEL. WHERE EXPOSED TO DIRECT SUN, FURTHER PROTECTION WITH A GOOD QUALITY PAINT SYSTEM IS REQUIRED.
- T.2. ALL WORK IN STRUCTURAL TIMBER TO BE IN ACCORDANCE WITH THE CURRENT EDITION OF AS 1684, SAA TIMBER FRAMING CODE AS 1720, SAA TIMBER ENGINEERING CODE AS 1320 - GLUED LAMINATED STRUCTURAL TIMBER
- T.3. BOLTS: ALL NUTS & BOLTS TO BE PROVIDED WITH WASHERS. ALL BOLTS TO BE TIGHTENED FINALLY BEFORE HANDOVER. BOLT HOLES TO BE 2mm OVERSIZE IN UNSEASONED TIMBER.
- T.4. UNLESS DETAILED OTHERWISE TIMBER MEMBERS TO BE FIXED WITH NOMINAL NAILING AS SPECIFIED IN AS 1684
- T.5. SIZES AND DETAILS NOT SHOWN SHALL COMPLY WITH AS 1684 ALL OPENINGS TO BE FULLY FLASHED WITH STD GALVANISED SHEET STEEL FLASHING.
- T.6. ALL BOLTS TO HAVE MILD STEEL GALVANISED WASHERS :  
 BOLTS UP TO 12mm DIA - 50x50x3 WASHERS  
 BOLTS UP TO 20mm DIA - 65x65x5 WASHERS

**ROOF TRUSS NOTES:**

- RT.1. THE BASIS OF DESIGN SHALL BE SAA LOADING CODE AS 1170.1; AS 1170.2 & SAA TIMBER STRUCTURE CODE AS 1720.1.
- RT.2. DESIGN THE ROOF TRUSSES AS PER THE WIND CLASSIFICATION AS SPECIFIED.
- RT.3. IN ADDITION TO THE NOMINATED PERMANENT BRACING, PROVIDE ANY ADDITIONAL PERMANENT BRACING REQUIRED FOR STRUCTURAL SUFFICIENCY OF THE TRUSS SYSTEM.
- RT.4. PROVIDE ANY TEMPORARY BRACING REQUIRED TO MAINTAIN THE STABILITY OF THE TRUSSES AT ALL STAGES OF ERECTION.
- RT.5. MAKE ALLOWANCES FOR SIZE AND LOCATION OF MECHANICAL SERVICES/AIRCONDITIONING DUCTWORK IF APPLICABLE.
- RT.6. SPAN TRUSSES ONLY BETWEEN THE NOMINATED SUPPORTS AND HOLDING DOWN POSITIONS INDICATED.
- RT.7. PROVIDE CERTIFICATION FROM A STRUCTURAL ENGINEER, AS DEFINED IN THE QUEENSLAND BUILDING BY-LAWS, THAT THE ROOF TRUSSES ARE STRUCTURALLY SUFFICIENT.

**CLAY MASONRY NOTES:**

- CM.1. DESIGN CONFORMS TO AS 3700 - MASONRY STRUCTURES. CONSTRUCT IN ACCORDANCE WITH THE PROVISIONS OF AS 3700. STRENGTH,  $f'_{uc}$  = 12 MPa  
SALT RESISTANCE GRADE = EXPOSURE
- CM.2. MORTAR TYPE = M3  
NOMINAL THICKNESS = 10mm
- CM.3. CORE-FILLING GROUT TO BRICK PIERS = 20 MPa.
- CM.4. WALL TIES TYPE = MEDIUM DUTY  
DURABILITY CLASSIFICATION = R4 (STAINLESS STEEL)  
FIXING = MIN. EMBEDMENT IN MORTAR 50mm. FACE FIXED VENEER TIES TO BE SCREW FIXED.
- CM.5. JOINTS TO BE TOOLED. CONTROL JOINTS TO BE PROVIDED AS PER FOUNDATION DESIGN ENGINEERING REPORT.

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						DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE		SIZE A3
						APPROVED BY:		
							ROBERT COLOMBO	
							MIEAust, CPEng, NPER, BPB, RBP, RPEQ, FAPI	

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
 LOT 2312 EMPIRE CIRCUIT,  
 THORNTON ESTATE, PENRITH. NSW

**STRUCTURAL NOTES**

CLIENT  
**RAWSON HOMES NSW**



StrucTerre Pty. Ltd. (ACN: 055 912 733)  
 SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
 TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@strucTerre.com.au

STRUCTERRE JOB No. **35287** DRAWING REF. No. **D35287-S-002**

CLIENT REFERENCE No. **A**

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SLAB DESIGN SUMMARY (U.N.O)	
'bh' BOX HEIGHT (mm)	225 & 150
BOX SIZE (mm)	1090 x 1090
'st' SLAB THICKNESS (mm)	85
'od' OVERALL DEPTH (mm)	310 & 235
'bw' BEAM WIDTH (mm)	270
'rw' RIB WIDTH (mm)	100
SLAB REINF'T	SL82
100mm RIB REINF'T	1-N12 BTM
270mm BEAM REINF'T	2-N12 BTM or 3-L11TM BTM
REINF'T FOR BEAMS WIDER THAN 300mm	
WIDTH (mm)	TOP BOTTOM
301 - 370	1-N12 3-N12
371 - 480	2-N12 4-N12
481 - 600	3-N12 5-N12

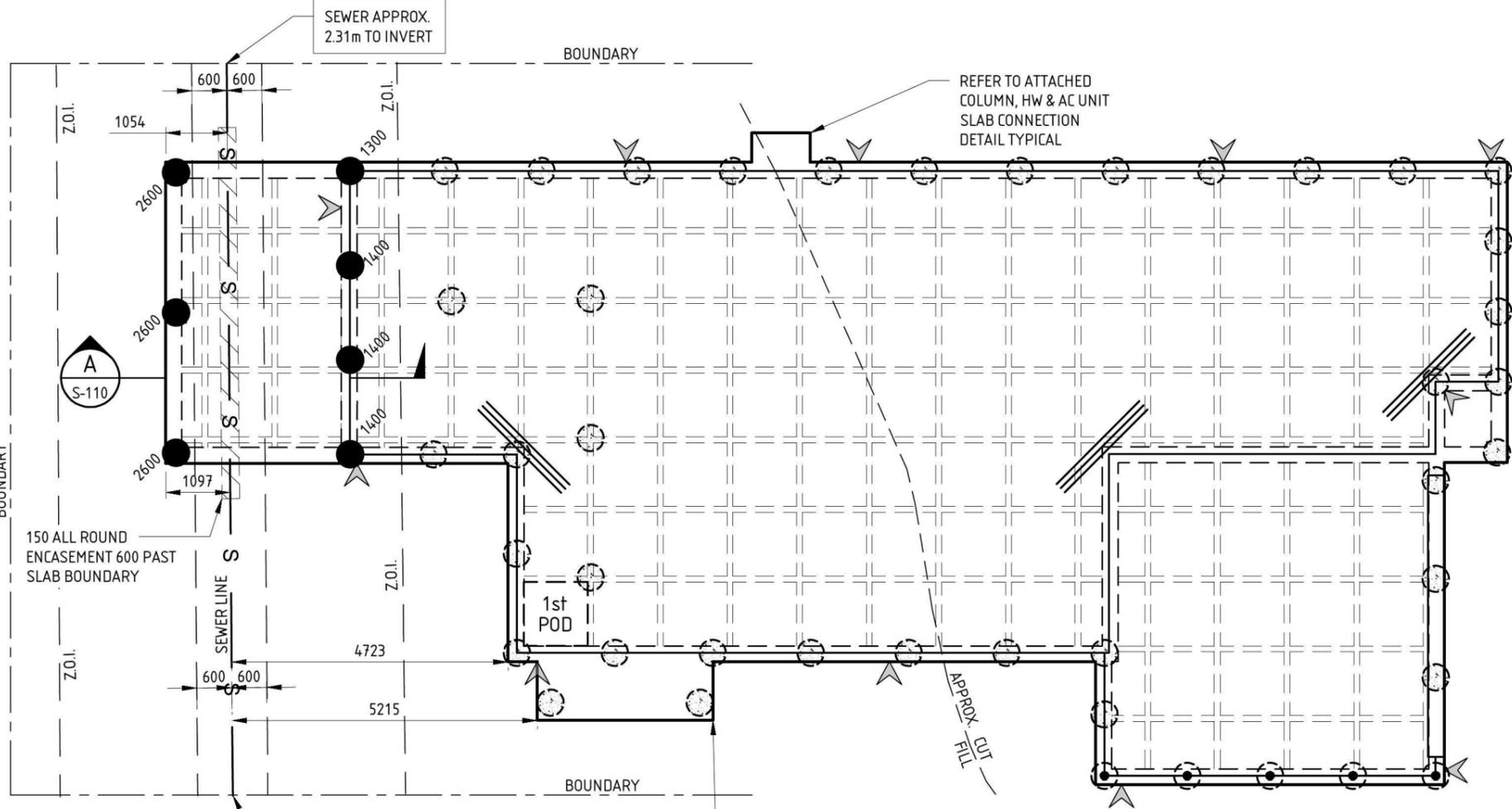
PIER DESIGN SUMMARY (U.N.O)		
MEMBER	PIER SPACING (mm)	
EDGE BEAMS	1600	
INTERNAL & STEP BEAMS	2400 x 2400 GRID	
INTERNAL RIBS	2400 x 2400 GRID	
FOUNDATIONS	PIER Ø (mm)	SOCKET DEPTH (mm)
STIFF CLAY	450	500
SHALE	400	200
ROCK	300	100

FOOTING DESIGN SUMMARY		
FOOTING TYPE	DEPTH (df)	REINFORCEMENT
TYPE A	450mm	3-L11TM TOP & BTM WITH R6 TIES @ 900 CTS
TYPE B	450mm	4-L11TM TOP & BTM WITH R6 TIES @ 900CTS
PAD P1	600mm	NONE (MASS CONCRETE)

GEOTECHNICAL INFORMATION	
SOIL CLASSIFICATION:	M (DESIGN M)
SOIL TEST REFERENCE:	AWG 38124
DATE:	29/04/15
FOUNDING MATERIAL:	CONTROLLED FILL
SAFE BEARING CAPACITIES (SWL)	
SLAB & FOOTINGS	100 kPa
PIERS	Ø400 WITH A 1000 SOCKET INTO CONTROLLED FILL WITH A MIN. CAPACITY OF 150kPa

EXPOSURE CLASSIFICATION	
STRUCTURAL STEEL	MEDIUM

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A	EY	02/06/15	SEWER LOCATION AMENDED	DN	RC	DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE	1:100	SIZE A3
APPROVED BY:						ROBERT COLOMBO MIEAust. CPEng, NPER, BPP, RBP, RPEQ, FAPI		



**FOOTING & SLAB PLAN**

SCALE 1:100

- CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS = 20MPa
- 50mm CHAIRING SHOULD BE USED FOR MESH
- 4 BAR CHAIRS PER FULL WAFFLE POD
- LAP MESH IN ACCORDANCE WITH DETAIL ON DRG S-102
- TOP COVER TO BE FROM TOP OF REINFORCEMENT
- DO NOT SCALE OFF ENGINEERING DRAWINGS. IF IN DOUBT, ASK

**LEGEND**

- DENOTES 2000mm LONG 3-N12 or 3-L11TM CRACK CONTROL BARS, TIED TO UNDERSIDE OF SLAB TOP MESH.
- CONCRETE BORED PIERS. REFER PIER DETAILS FOR FOUNDING REQUIREMENTS
- DENOTES CONCRETE SERVICE TRENCH PIERS TO BEARING CAPACITY SPECIFIED IN FOUNDATION DESIGN SUMMARY AND WITH A MIN. DEPTH OF 1000 OR TO ROCK.
- DENOTES CONCRETE PIERS ADJACENT TO SEWER TO BEARING CAPACITY SPECIFIED IN FOUNDATION DESIGN SUMMARY AND WITH A MIN. DEPTH AS INDICATED OR TO ROCK.
- DENOTES APPROX. LOCATION OF ARTICULATION JOINTS IN THE MASONRY WALLS (DO NOT SCALE). EXACT LOCATION OF ARTICULATION JOINTS SHOULD BE READ OFF ARCHITECTURAL DRAWINGS. ALL ARTICULATION JOINTS SHALL BE CONSTRUCTED FOR THE FULL HEIGHT OF THE WALL. REFER TO DETAILS.

**FOOTING & SLAB NOTES:**

F.S.1. CUT/FILL LINE SHOWN IS APPROXIMATE ONLY. IF NOT SHOWN, SITE SCRAPE SHOULD SUFFICE TO CREATE BUILDING PLATFORM. IF IN DOUBT PLEASE CONSULT ENGINEER FOR FURTHER ADVICE.

F.S.2. BUILDER TO CONFIRM SERVICES DO NOT AFFECT STRUCTURE BEFORE COMMENCING WORK ON-SITE. CONTACT THIS OFFICE IF OTHERWISE.

F.S.3. SCREW PIERS WITH A MIN. SWL OF 50 kN MAY BE USED AS AN ALTERNATIVE TO BORED PIERS AND AT 2400 CTS.

F.S.4. TERMINATE TO DAMP PROOFING MATERIAL AT FINISHED GROUND OR PAVING LEVEL.

F.S.5. 150 PODS MAY BE USED IN GARAGE, PORCH AND ALFRESCO AREAS.

**TREE INFLUENCE NOTE:**

IN ORDER TO MAINTAIN 'NORMAL' MOISTURE CONDITIONS FOR THE LONG TERM SUSTAINABILITY OF THE DWELLING, WE SUGGEST THAT ANY TREES/ROOT SYSTEMS BE REMOVED FROM THE SITE IF THEY ARE WITHIN THE ZONE OF INFLUENCE OR IN CLOSE PROXIMITY TO PROPOSED DWELLING, BACKFILL AND COMPACT ROOT SYSTEM AREAS TO COMPLY WITH NOTE F4, DWG S-001 DURING THE REMOVAL PROCESS. IF THIS CANNOT BE ACHIEVED CONTACT THIS OFFICE PRIOR TO COMMENCING WORK ONSITE AS FURTHER ENGINEERING MAY BE REQUIRED. THIS MAY INCLUDE BUT IS NOT LIMITED TO ADDITIONAL PIERING AND/OR ISOLATION TRENCHES TO ACT AS ROOT BARRIERS.

REFER TO ATTACHED RAINWATER UNIT SLAB CONNECTION DETAIL TYPICAL

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
LOT 2312 EMPIRE CIRCUIT, THORNTON ESTATE, PENRITH. NSW

**FOOTING & SLAB PLAN**

CLIENT  
**RAWSON HOMES NSW**

StrucTerre Pty. Ltd. (ACN: 055 912 733)

SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@strucTerre.com.au

STRUCterRE JOB No. **35287** DRAWING REF. No. **D35287-S-101**

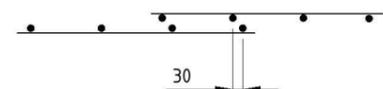
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BOX SIZE (mm)	1090 x 1090	
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SLAB REINF'T	SL82	
100mm RIB REINF'T	1-N12 BTM	
270mm BEAM REINF'T	2-N12 BTM or 3-L11TM BTM	
REINF'T FOR BEAMS WIDER THAN 300mm		
WIDTH (mm)	TOP	BOTTOM
301 - 370	1-N12	3-N12
371 - 480	2-N12	4-N12
481 - 600	3-N12	5-N12

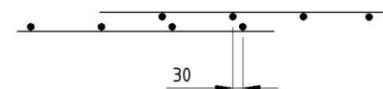
### MESH LAPS

1. MESH IS TO BE LAPPED AS SHOWN BELOW:

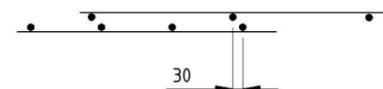
a) OVERLAP OF SIDE OF SHEETS



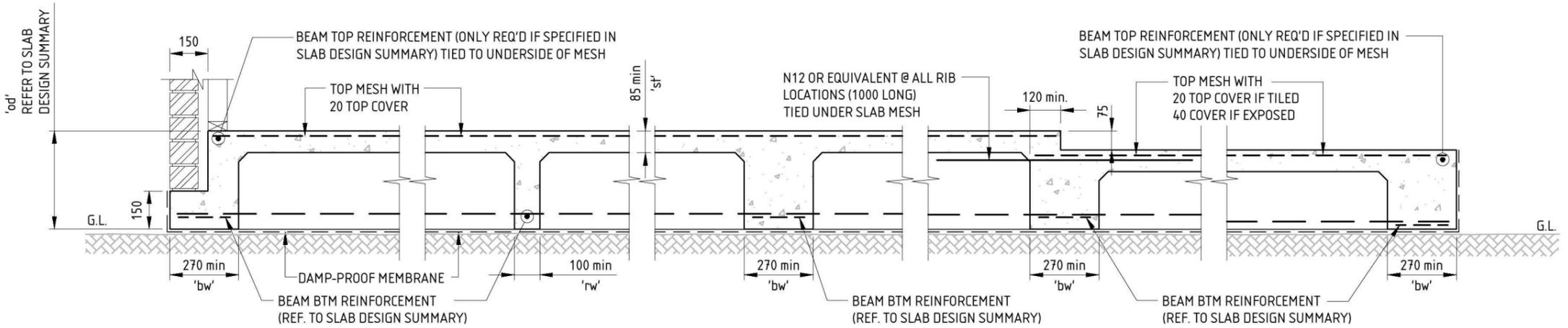
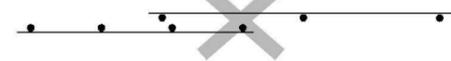
b) OVERLAP OF ENDS OF SHEETS



c) OVERLAP SIDE AND END OF SHEETS



d) NOT ACCEPTABLE



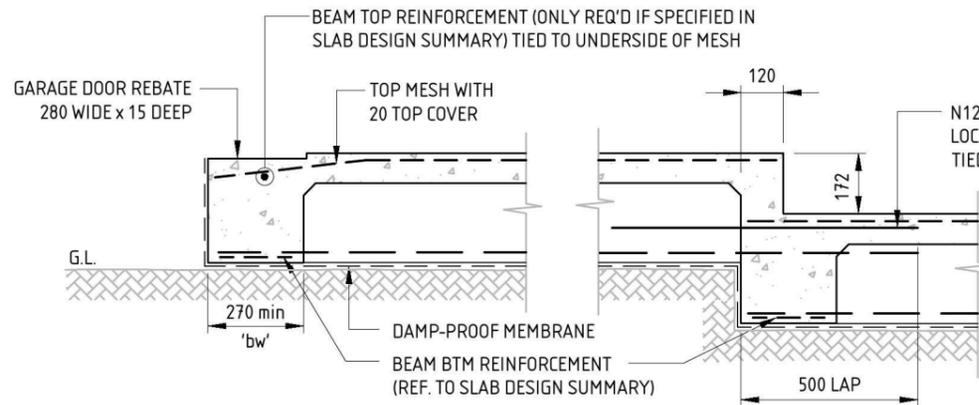
TYPICAL EDGE BEAM

INTERNAL RIB

INTERNAL BEAM - IB

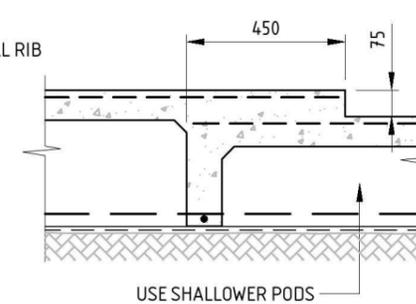
STEP BEAM 75  
(GARAGE & VERANDAH STEP)

VERANDAH EDGE BEAM  
(LOAD BEARING)

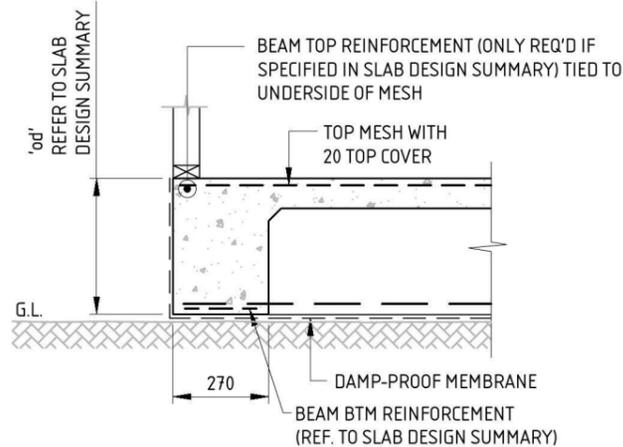


GARAGE ENTRY EDGE BEAM  
WITH 225 PODS & GREATER

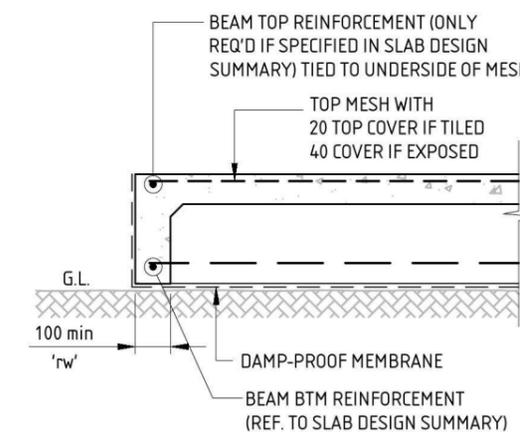
STEP BEAM 172 MAX.  
(GARAGE & VERANDAH STEP)



WET AREA SET DOWN



TYPICAL EDGE BEAM DETAIL



VERANDAH EDGE BEAM  
(NON LOAD BEARING ONLY)

NOTE - FOR ALL REINFORCEMENT, POD SIZE AND LOCATION REFER TO FOOTING & SLAB PLAN

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						ENG. CHECK	RC	28/05/15
						SCALE	1:20	SIZE A3
						APPROVED BY:		
						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
LOT 2312 EMPIRE CIRCUIT,  
THORNTON ESTATE, PENRITH. NSW

**FOOTING & SLAB DETAILS - SHEET 1**

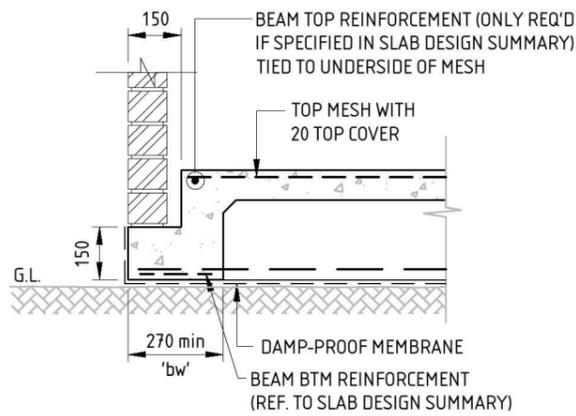
CLIENT  
**RAWSON HOMES NSW**

Structerre Pty. Ltd. (ACN: 055 912 733)  
SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

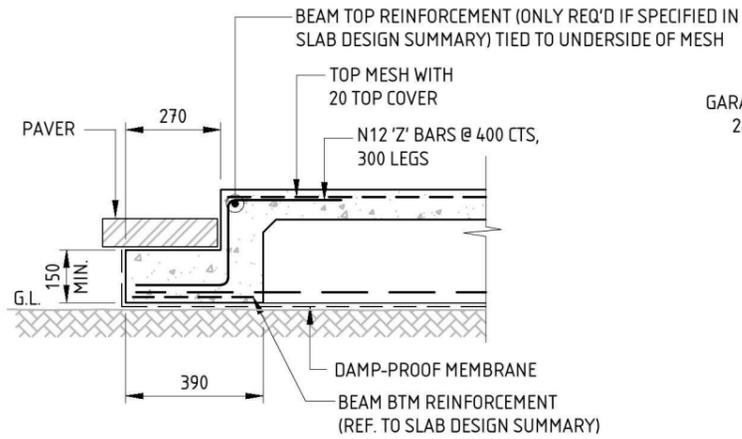
STRUCterre JOB No. **35287** DRAWING REF. No. **D35287-S-102**

CLIENT REFERENCE No. **A**

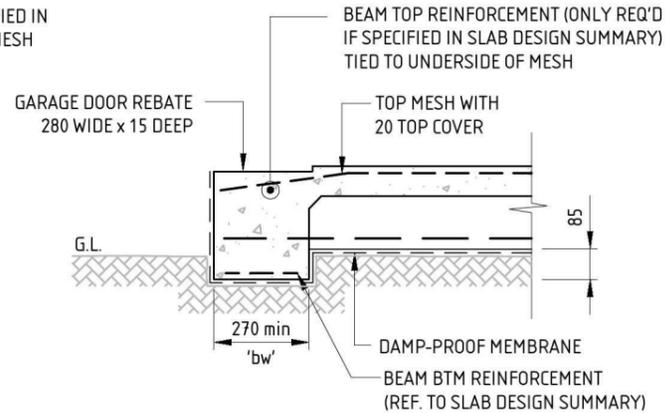
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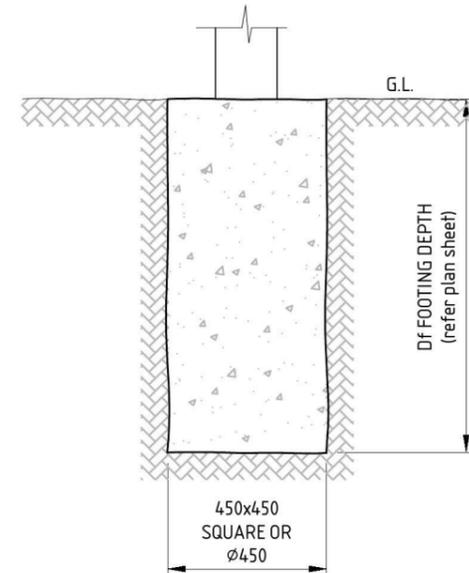
**GARAGE EDGE BEAM  
WITH 225 PODS & GREATER**



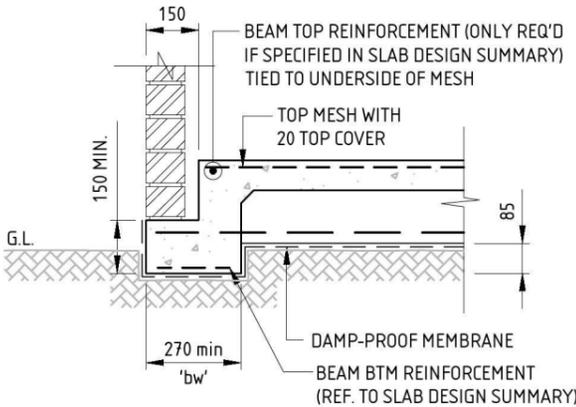
**GARAGE ENTRY EDGE BEAM DETAIL  
FOR PAVERS WITH 225 PODS AND GREATER**



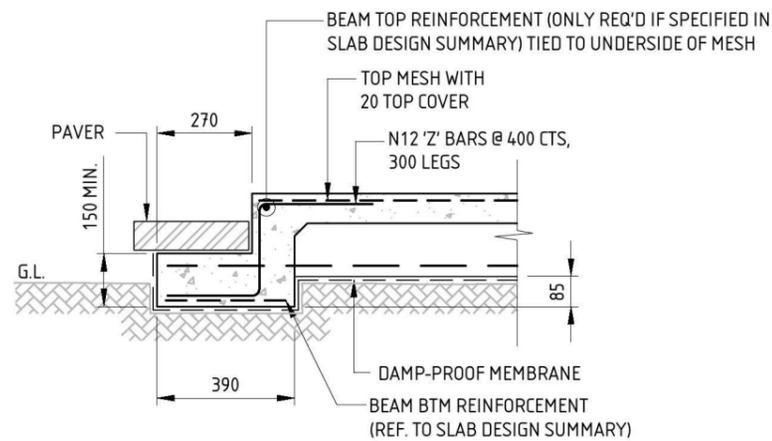
**GARAGE ENTRY EDGE  
BEAM WITH 150 PODS**  
(85mm TRENCH NOT APPLICABLE IF GARAGE PERIMETER IS FULLY PIERED)



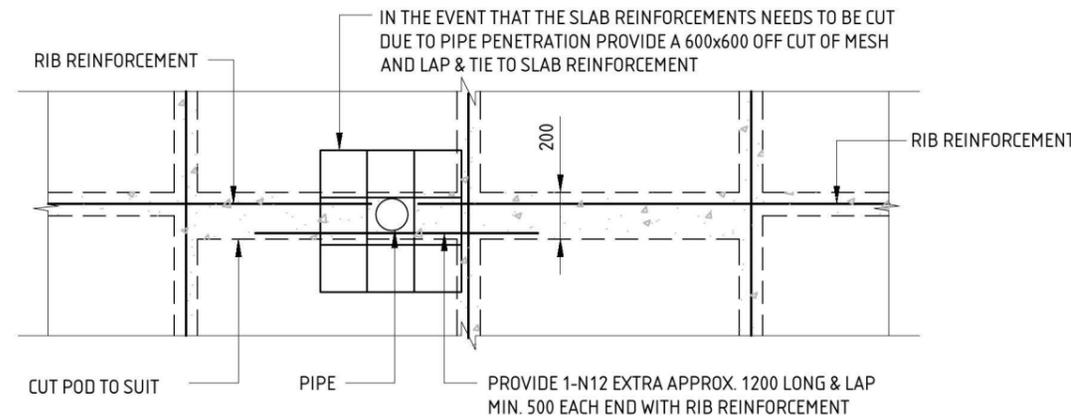
**ISOLATED PAD DETAIL (P1)**



**GARAGE EDGE BEAM  
WITH 150 PODS**  
(85mm TRENCH NOT APPLICABLE IF GARAGE PERIMETER IS FULLY PIERED)



**GARAGE ENTRY EDGE BEAM DETAIL  
FOR PAVERS WITH 150 PODS**  
(85mm TRENCH NOT APPLICABLE IF GARAGE PERIMETER IS FULLY PIERED)



**SLAB PIPE PENETRATION DETAIL (PLAN VIEW)**  
N.T.S.

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**FOOTING & SLAB DETAILS - SHEET 2**

CLIENT  
**RAWSON HOMES NSW**

**STRUCterre**  
consulting engineers

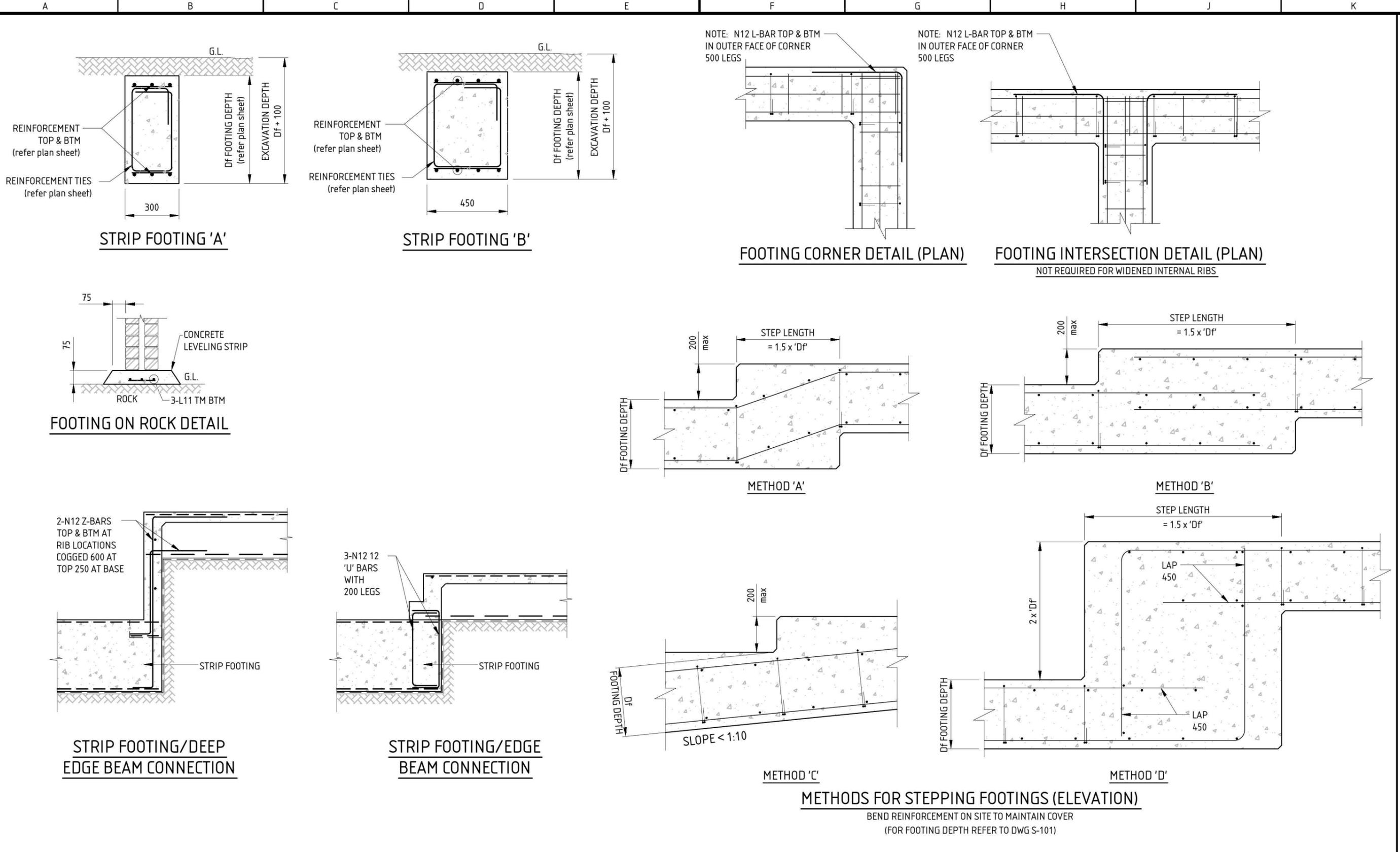
Structerre Pty. Ltd. (ACN: 055 912 733)

SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
 LOT 2312 EMPIRE CIRCUIT,  
 THORNTON ESTATE, PENRITH. NSW

**FOOTING & SLAB DETAILS - SHEET 3**

CLIENT  
**RAWSON HOMES NSW**

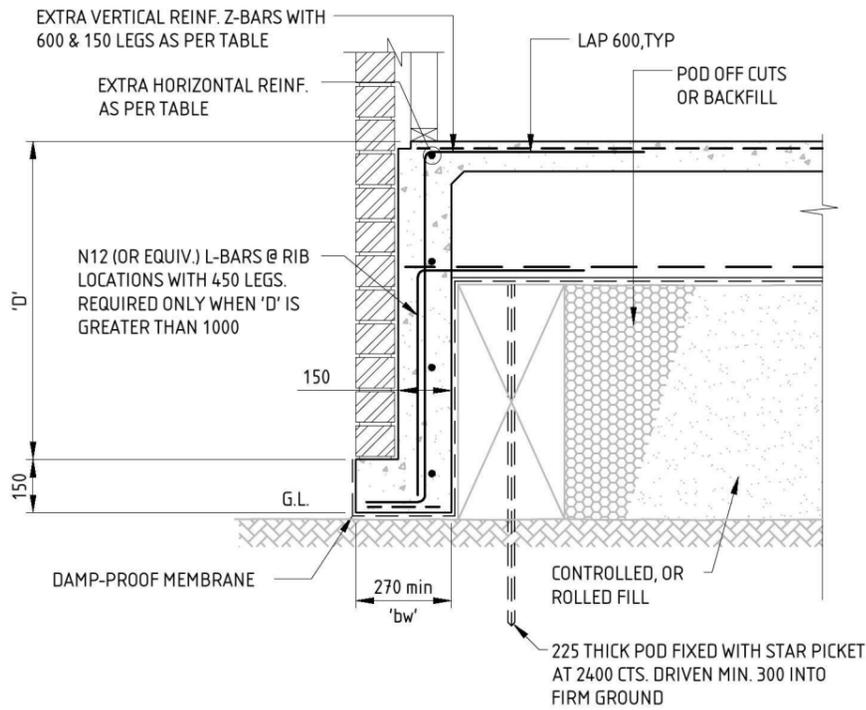
STRUCterre  
 consulting engineers

Structerre Pty. Ltd. (ACN: 055 912 733)  
 SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
 TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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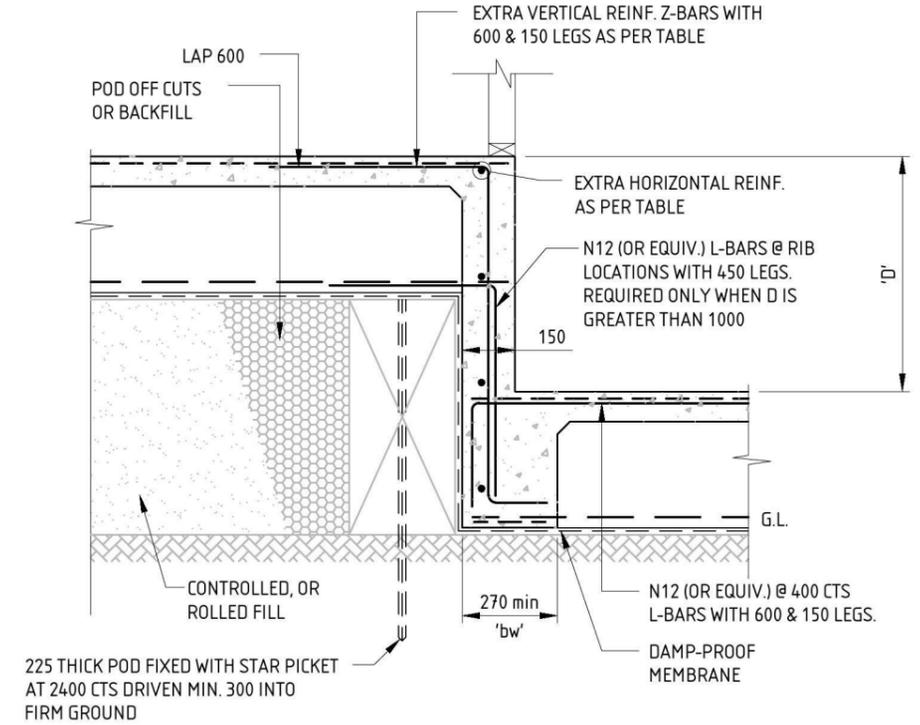
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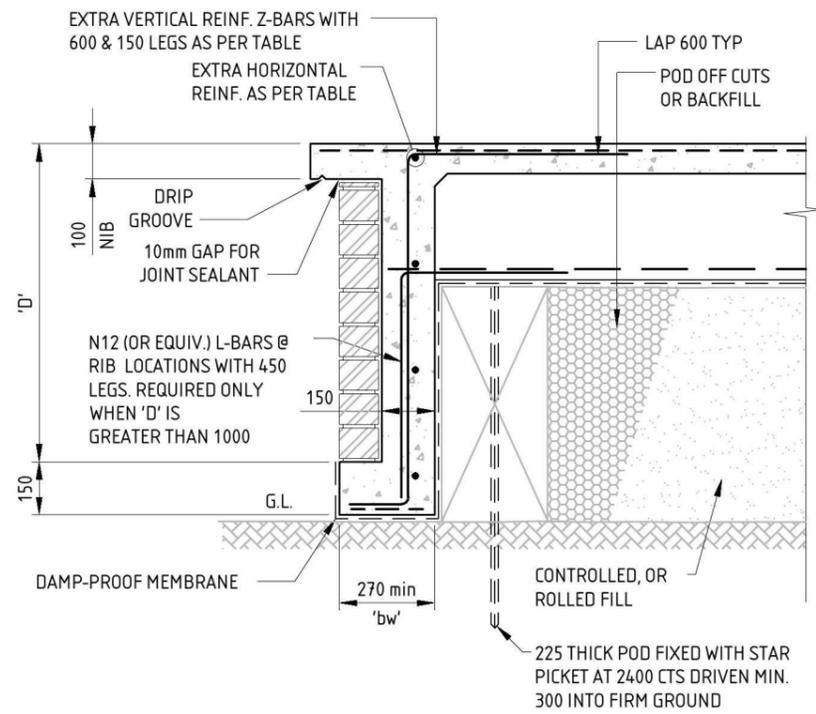


**DEEP EDGE BEAM (1800 MAX.)**

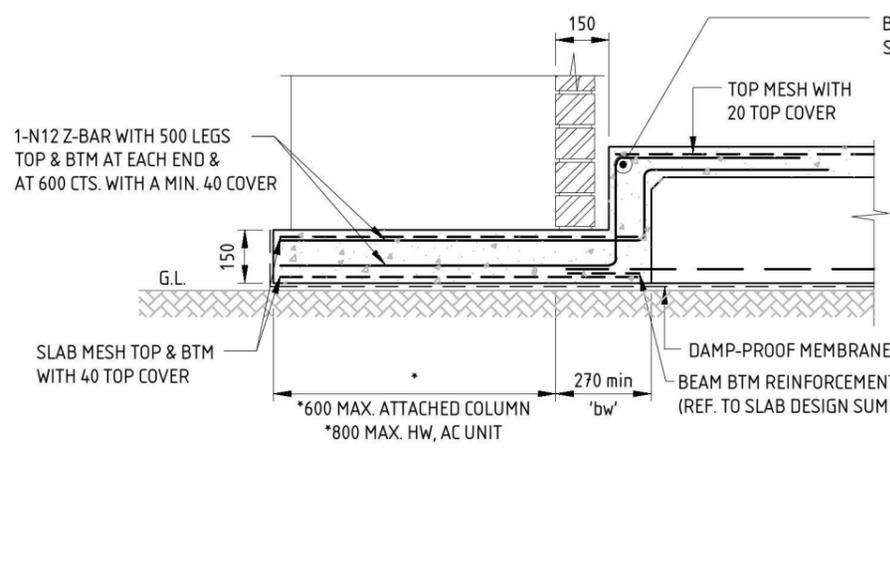
EXTRA REINFORCEMENT TO DEEP EDGE & DEEP STEP BEAM		
DEPTH 'D'	EXTRA VERTICAL REINFORCEMENT	EXTRA HORIZONTAL REINFORCEMENT
<400mm	-	-
401mm - 900mm	N12 @ 400 CTS	N12 @ 400 CTS
901mm - 1200mm	N12 @ 300 CTS	N12 @ 400 CTS
1201mm - 1800mm	N12 @ 200 CTS	N12 @ 300 CTS



**DEEP STEP BEAM (1800 MAX.)**

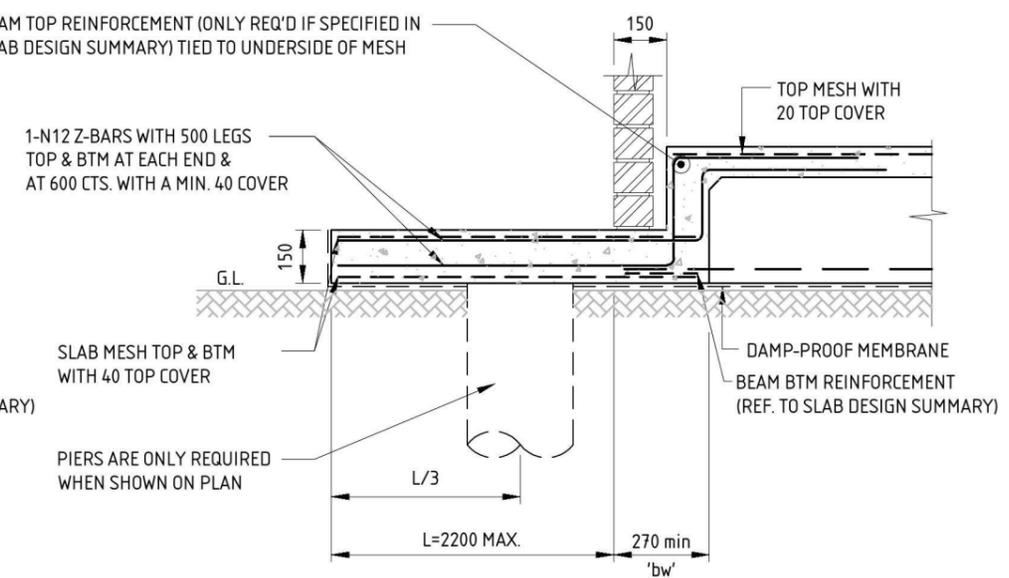


**DEEP PATIO EDGE BEAM (1800 MAX.)**



**ATTACHED COLUMN, HW & AC UNIT SLAB DETAIL**

(NOTE- WHERE ATTACHED SLAB COINCIDES WITH DEEP EDGE BEAM REFER TO TABLE ON THIS SHEET FOR STEM WIDTH AND EXTRA REINFORCEMENT)



**ATTACHED RW UNIT SLAB DETAIL**

(NOTE- WHERE ATTACHED SLAB COINCIDES WITH DEEP EDGE BEAM REFER TO TABLE ON THIS SHEET FOR STEM WIDTH AND EXTRA REINFORCEMENT)

NOTE - FOR ALL REINFORCEMENT, POD SIZE AND LOCATION REFER TO FOOTING & SLAB PLAN

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						DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE	1:20	SIZE A3
						APPROVED BY:		
						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
 LOT 2312 EMPIRE CIRCUIT,  
 THORNTON ESTATE, PENRITH. NSW

**FOOTING & SLAB DETAILS - SHEET 4**

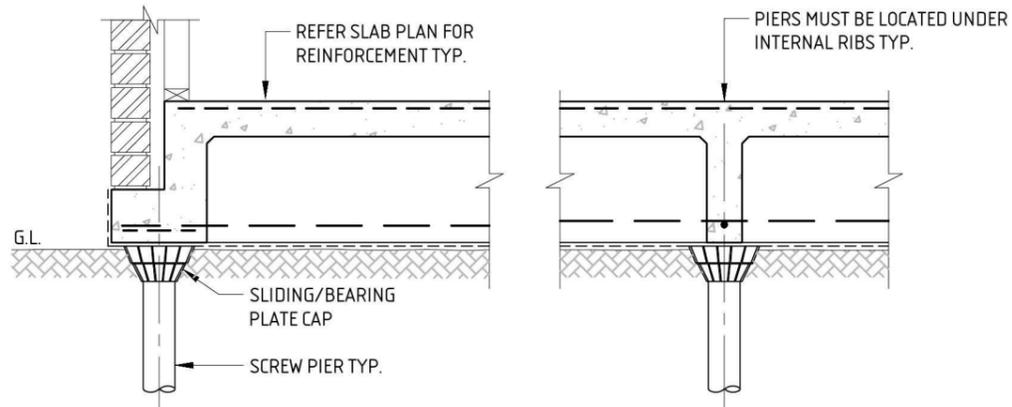
CLIENT  
**RAWSON HOMES NSW**

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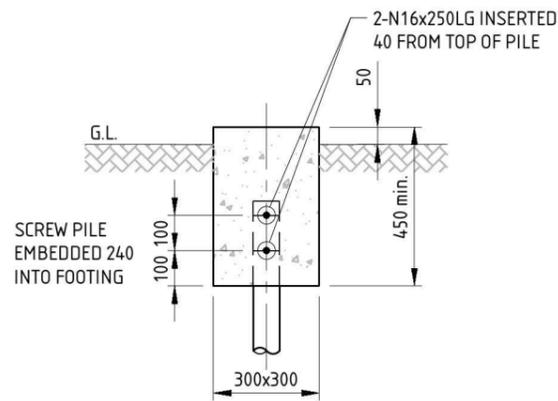
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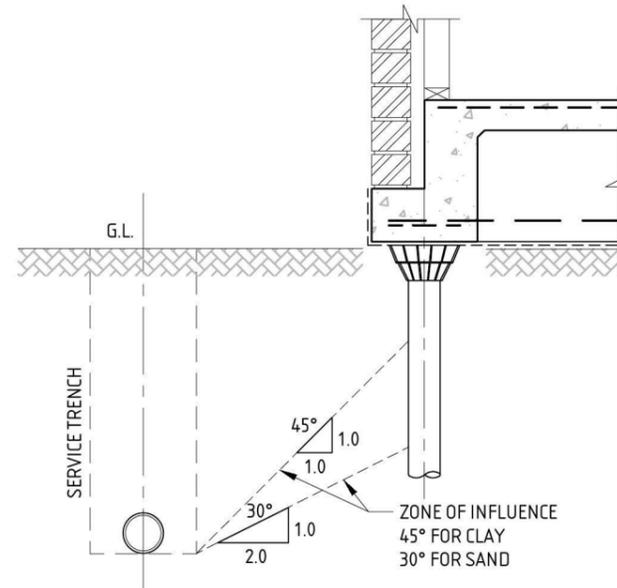


**TYPICAL SLAB/SCREW PIER CONNECTION DETAIL**

OPTION 1



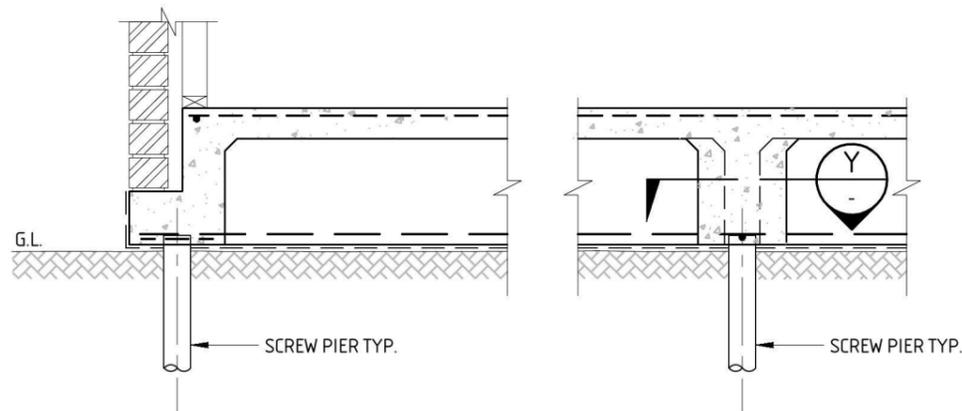
**ISOLATED SCREW PILE PAD**



**PRIVATE SERVICE TRENCH DETAIL**

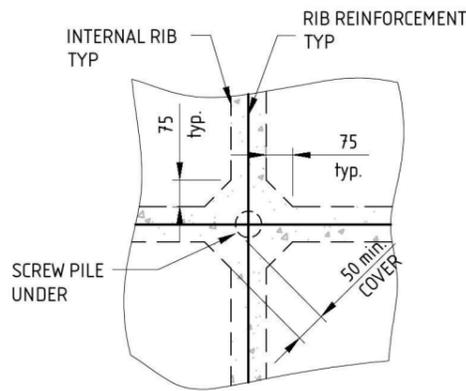
**PRIVATE SERVICE TRENCH NOTES**

- ST.1. PLUMBING AND DRAINAGE TRENCHES SHALL BE LOCATED OUTSIDE THE INFLUENCE OF THE FOOTINGS. THE HORIZONTAL DISTANCE TO ANY TRENCH EXCAVATION MUST BE GREATER THAN THE TRENCH DEPTH IN ACCORDANCE WITH CLAUSE 6.3 FROM AS 2870-2011. THIS HORIZONTAL CLEARANCE TO BE INCREASED MORE THAN TWICE THE TRENCH DEPTH FOR SAND SITES. FOOTING PIERS WILL BE NECESSARY UNDER ALL EDGE BEAMS IF THESE CONDITIONS ARE NOT MET.
- ST.2. TRENCH BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH CLAUSE 5.5 OF AS/NZS 3500.2-2003 OR CLAUSE 7.2.13 OF AS/NZS 3500.3-2003. SAND BEDDING AND SURROUND SHALL BE BLOCKED WITH A CLAY PLUG WHEREVER TRENCHES PASS UNDER THE EDGE OF ANY SLAB.

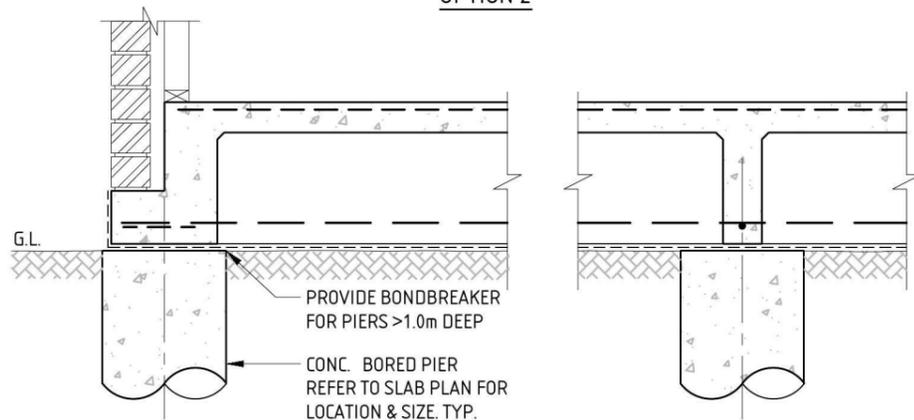


**TYPICAL SLAB/PILE CONNECTION DETAIL**

OPTION 2



**SECTION Y-Y**  
SCALE 1:20  
**LOCAL THICKENING AT INTERNAL PILE LOCATIONS**



**TYPICAL SLAB/BORED PIER CONNECTION DETAIL**

NOTE - FOR ALL REINFORCEMENT, POD SIZE AND LOCATION REFER TO FOOTING & SLAB PLAN

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						ENG. CHECK	RC	28/05/15
						SCALE	1:20	SIZE A3
APPROVED BY:						ROBERT COLOMBO MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
LOT 2312 EMPIRE CIRCUIT,  
THORNTON ESTATE, PENRITH. NSW

**FOOTING & SLAB DETAILS - SHEET 5**

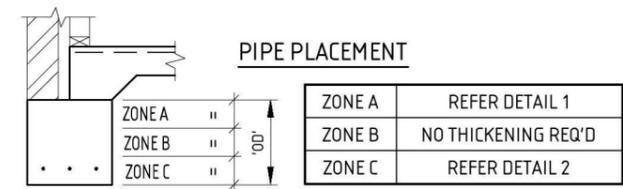
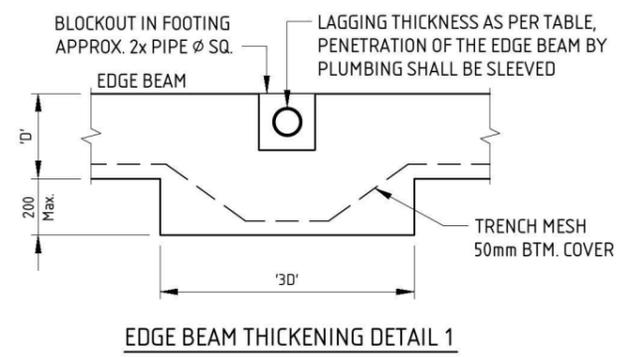
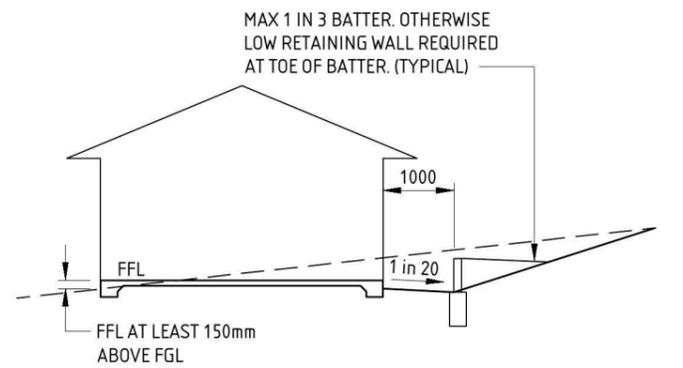
CLIENT  
**RAWSON HOMES NSW**

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SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@strucTerre.com.au

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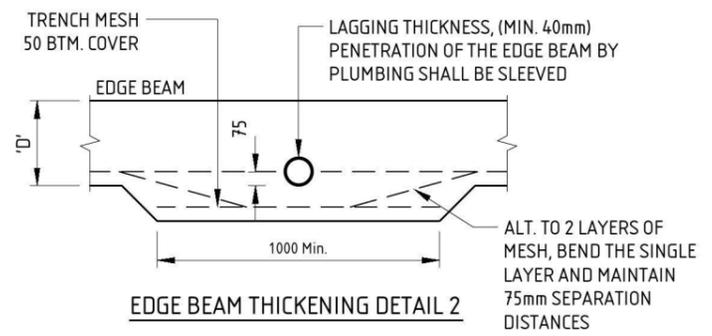
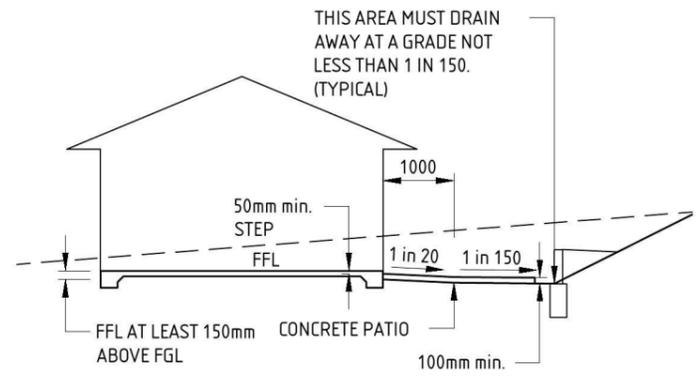
- SURFACE DRAINAGE NOTES:**
- S.D.1. CLAUSE 3.1.2.3 OF VOLUME 2 OF THE NATIONAL CONSTRUCTION CODE (NCC) REQUIRES THAT THE FINISHED HEIGHT OF ANY SLAB BE A MINIMUM OF 150mm, GENERALLY, ABOVE THE FINISHED GROUND LEVEL AFTER LANDSCAPING, AND THAT THE EXTERNAL SURFACE DRAINS AWAY WITH A MINIMUM OF 50mm FALL OVER THE FIRST METRE. IT SHOULD ALSO BE NOTED THAT CLAUSE 4.6.6.6 OF AS/NZS 3500.2-2003 REQUIRES THAT THE TOP OF THE OVERFLOW RELIEF GULLY BE A MINIMUM OF 150mm BELOW THE LOWEST GRATE IN THE SLAB AND 75mm ABOVE THE FINISHED GROUND LEVEL.
- S.D.2. FINISHED GROUND AND FLOOR LEVELS SHALL BE AS SHOWN IN THE TYPICAL SURFACE DRAINAGE DETAILS ON THIS PAGE AND THE FOLLOWING REQUIREMENTS:
- S.D.2.1. DURING CONSTRUCTION, SURFACE WATER SHALL BE DIVERTED AWAY FROM FOOTINGS TO A LAWFUL POINT OF DISCHARGE.
- S.D.2.2. THE FINISHED SURFACE OF ANY GROUND, INCLUDING PATHWAYS AND DRIVEWAYS, SHALL BE GRADED AWAY FROM ANY FOOTING, SLAB OR BASEMENT RETAINING WALL A MINIMUM OF 50mm OVER THE FIRST METRE.
- S.D.2.3. THE GROUND SHALL THEN BE GRADED AROUND THE BUILDING SUCH THAT SURFACE WATER WILL DRAIN AWAY FROM THE BUILDING TO A LAWFUL POINT OF DISCHARGE.
- S.D.2.4. THE GROUND SHALL ALSO BE SHAPED SUCH THAT NO PONDING OF SURFACE WATER CAN OCCUR.
- S.D.2.5. WHERE DRAINAGE PITS ARE INSTALLED TO DRAIN SURFACE WATER AWAY, GRATED INLET PITS SHALL BE INSTALLED WITH PIPES DRAINING TO A LAWFUL POINT OF DISCHARGE. PITS AND PIPES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS/NZS 3500.3-2003. DRAINAGE PITS MAY NEED TO BE INSTALLED TO ALLOW SURFACE WATER TO DRAIN AWAY IN AREAS WHERE THE DISTANCE FROM A FOOTING TO A BOUNDARY OR ADJACENT STRUCTURE, EG FENCE, IS LESS THAN 1.0m.
- S.D.2.6. THE FINISHED FLOOR LEVEL OF ANY GARAGE OR CARPORT SHALL ALSO BE SET SUCH THAT DRIVEWAY SLOPES COMPLY WITH AS/NZS 2890.1-2004. REFER TO THE TYPICAL DRIVEWAY DETAILS ON THIS PAGE.
- S.D.3. RETAINING WALLS SHALL BE INSTALLED AT THE BASE OF CUT AND FILL BATTERS WHERE BATTER SLOPES EXCEED 1:3. RETAINING WALLS ARE ALSO REQUIRED WHERE CUTTING BELOW THE BASE OF AN EXISTING RETAINING WALL AND WHERE AN ADDITIONAL SURCHARGE IS PLACED ABOVE AN EXISTING RETAINING WALL.

**MINIMUM REQUIREMENTS FOR LAGGING THICKNESS**

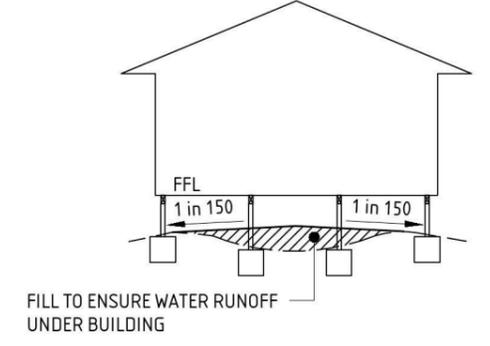
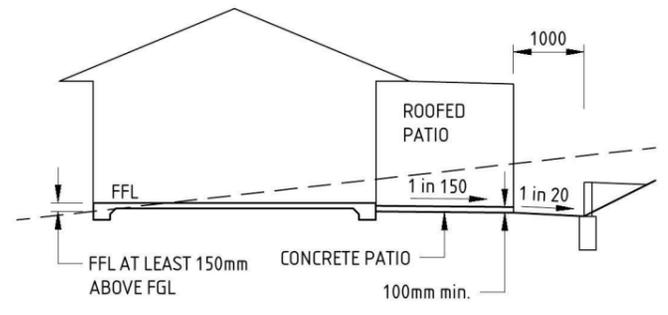
SITE CLASS	MINIMUM LAGGING THICKNESS (mm)
"M"	20
"H1"	20
"H2"	40
"E"	40
"P"	40

**MINIMUM REQUIREMENTS FOR EXPANSION & ALLOWABLE ROTATION IN FITTINGS**

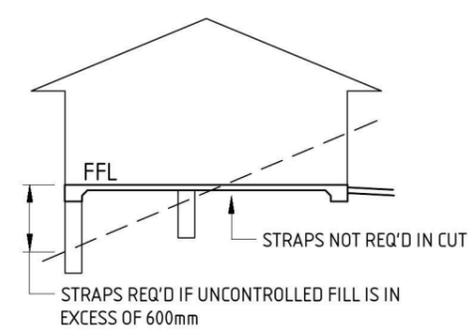
SITE CLASS	MINIMUM REQUIRED EXPANSION JOINT CAPACITY	ALLOWABLE ROTATION
"H1" & "H2"	80mm	15°
"E"	150mm	15°
"P/H1 OR H2"	80mm	15°
"P/E"	150mm	15°



**PLUMBING PIPE PENETRATION DETAILS**



**TYP. SURFACE DRAINAGE DETAILS**  
FFL - FINISHED FLOOR LEVEL  
FGL - FINISHED GROUND LEVEL



**PLUMBING & DRAINAGE STRAPS**  
FFL - FINISHED FLOOR LEVEL

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						SCALE		SIZE A3
						APPROVED BY:		
							ROBERT COLOMBO	
							MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI	

PROJECT

**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**

LOT 2312 EMPIRE CIRCUIT, THORNTON ESTATE, PENRITH. NSW

**SURFACE DRAINAGE DETAILS**

CLIENT

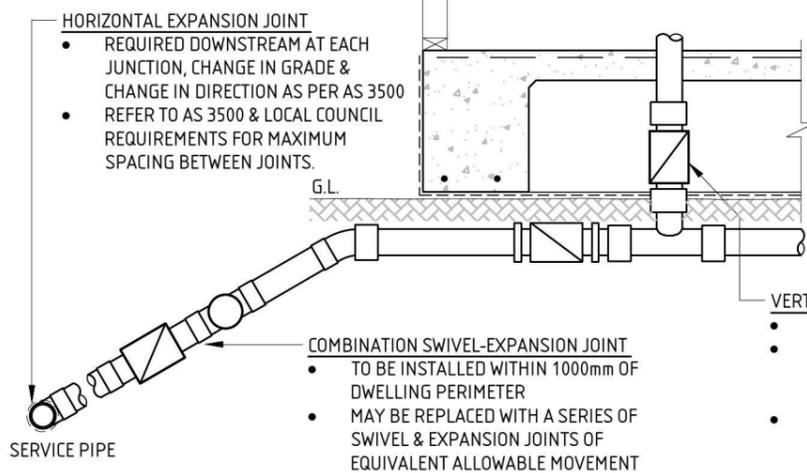
**RAWSON HOMES NSW**

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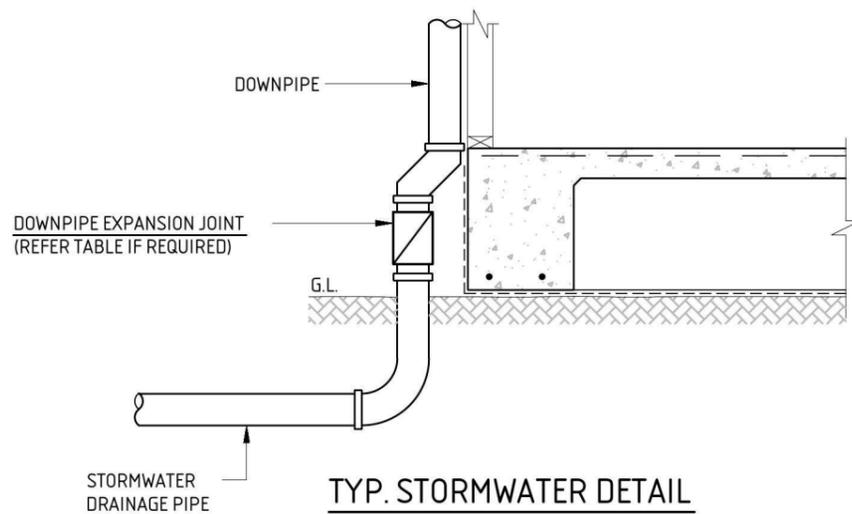
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TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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CLIENT REFERENCE No. **REV A**



**TYP. UNDER SLAB EDGE DETAIL**  
(ELEVATION VIEW)



**TYP. STORMWATER DETAIL**

**PLUMBING CONNECTION NOTES:**

- P.1. THE FOLLOWING NOTES & DETAILS PROVIDED ARE A GUIDE ONLY FOR ARTICULATION FOR SANITARY PLUMBING, DRAINAGE & SHOULD BE READ IN CONJUNCTION WITH AS/NZS 3500, AS 2870 & ANY OTHER RELEVANT STANDARD & OTHER REQUIREMENTS OF THE NCC.
- P.2. ALL SEWER & STORMWATER TO BE CONSTRUCTED IN ACCORDANCE WITH AS/NZS 3500 & THE REQUIREMENTS OF AS 2870 SECTION 5: CLAUSE 5.6 & SECTION 6: CLAUSE 6.6. FOR SLAB OR STRIP FOOTINGS ON HIGHLY AND EXTREMELY REACTIVE SITES, THE FOLLOWING REQUIREMENTS APPLY: DRAINS ATTACHED TO OR EMERGING FROM UNDERNEATH THE BUILDING SHALL INCORPORATE FLEXIBLE JOINTS IMMEDIATELY OUTSIDE THE FOOTING AND COMMENCING WITHIN 1m OF THE BUILDING PERIMETER TO ACCOMMODATE A TOTAL RANGE OF DIFFERENTIAL MOVEMENT IN ANY DIRECTION EQUAL TO THE ESTIMATED CHARACTERISTIC SURFACE MOVEMENT OF THE SITE (Ys). IN THE ABSENCE OF SPECIFIC DESIGN REQUIREMENTS, THE FITTINGS OR OTHER DEVICES THAT ARE PROVIDED TO ALLOW FOR THE MOVEMENT SHALL BE SET AT THE MID POSITION OF THEIR RANGE OF POSSIBLE MOVEMENT AT THE TIME OF INSTALLATION, SO AS TO ALLOW FOR MOVEMENT EQUAL TO 0.5YS IN ANY DIRECTION FROM THE INITIAL SETTING. THIS REQUIREMENT APPLIES TO ALL STORMWATER AND SANITARY PLUMBING DRAINS AND DISCHARGE PIPES.
- P.3. PLUMBING & DRAINAGE UNDER THE SLAB SHOULD BE AVOIDED WHERE PRACTICAL (REFER AS/NZS 3500 CLAUSE 4.10)
- P.4. GRADES IN PIPEWORK ON 'M', 'H', 'E' & 'P' SITES SHOULD HAVE A MINIMUM GRADE OF 1:30 WITHIN 1.5 METRES OF THE BUILDING & 1:60 ELSEWHERE. GRADES IN FLEXIBLE FITTINGS TO BE SET AT THE MINIMUM GRADE.
- P.5. ALL EXPANSION & ARTICULATION JOINTS TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL JOINTS TO BE SET MID POINT SO AS TO ALLOW FOR MAXIMUM MOVEMENT IN EITHER DIRECTION.
- P.6. STORMPLASTICS (SA) PTY LTD "SWIVEL JOINTS" SHOULD NOT BE USED AS A BEND TO ACHIEVE CORRECT FALLS. THE JOINTS SHOULD BE SET IN A STRAIGHT LINE OF THE DRAIN TO ALLOW MAXIMUM (+) OR (-) MOVEMENT. A MINIMUM 15° BEND TO BE INSTALLED BEFORE SWIVEL JOINTS TO ACHIEVE MINIMUM GRADES FROM THE FACE OF THE FOOTINGS.
- P.7. DETAIL & SUPPORT OF TRAPS AT THE O.R.G. TO BE CONSIDERED ON SITE, TO ALLOW FOR POTENTIAL MOVEMENTS INCLUDING ISOLATION AND ARTICULATION ASSOCIATED WITH PATHS & PAVEMENTS. THE O.R.G. SHOULD BE CAST IN CONCRETE MONOLITHICALLY WITH THE FOOTING SYSTEM ON CLASS 'H' & 'E' SITES.
- P.8. STORMWATER SYSTEMS THAT COLLECT ROOFWATER & SURFACE WATER ARE

- REQUIRED TO BE DESIGNED & CONSTRUCTED IN ACCORDANCE WITH AS/NZS 3500 PART 5.
- P.9. THE USE OF CORRUGATED FLEXIBLE PVC PIPE PRODUCTS SHOULD BE AVOIDED ON CLASS H & E SITES AS THEY ARE NOT ABLE TO EXPAND LONGITUDINALLY TO ACCOMMODATE POTENTIAL VERTICAL & LATERAL MOVEMENTS AT THE SLAB OR FOOTING EDGE UNLESS SPECIFICALLY DETAILED BY THE MANUFACTURER.
- P.10. SEPTIC TANKS & ASSOCIATED SOAKAGE AREAS SHOULD BE LOCATED TO MINIMISE SOIL MOISTURE INCREASES WITHIN THE FOUNDATION.
- P.11. ALL PIPEWORK INCLUDING STORMWATER FITTINGS & ADAPTERS SHOULD BE PROTECTED FROM MECHANICAL DAMAGE.
- P.12. TERMITE PROTECTION NOT SHOWN ON THESE DRAWINGS AS THERE ARE VARIOUS OPTIONS. REFER TO THE BUILDING DESIGNER.
- P.13. ALL DETAILS ARE INDICATIVE ONLY. DESIGN OF PATHS FOOTINGS ETC. & LOCATION OF PENETRATIONS TO BE SPECIFIED BY AN ENGINEER.
- P.14. PROVISIONS SHOULD BE MADE FOR THE CONNECTION OF OVERFLOW OR WATER DISCHARGE FROM FIXTURES SUCH AS HOT WATER SYSTEMS & AIR CONDITIONERS TO A DRAIN AS REQUIRED BY THE RELEVANT LOCAL AUTHORITY.
- P.15. EXPANDABLE JOINT & SWIVEL SPECIFICATIONS:
  - P.15.1. TO BE MANUFACTURED AND COMPLY WITH AS 1280 AND AS 1415.
  - P.15.2. TO BE INSTALLED AS PER MANUFACTURES SPECIFICATIONS AND INSPECTED BY THE LOCAL AUTHORITY.
  - P.15.3. SEWER PIPES FOUNDED WITHIN THE FILLED SECTION OF THE BUILDING PAD UNDER THE SLAB ARE TO BE HUNG FROM SLAB REINFORCEMENT WITH METAL STRAPS.
  - P.15.4. TO ENSURE CORRECT PLUMBING CONNECTIONS ARE INSTALLED IT IS ESSENTIAL THAT A COPY OF THIS REPORT AND ANY RELEVANT ADDITIONS (WHERE APPLICABLE) ARE SUPPLIED TO THE PLUMBER PRIOR TO THEIR PREPARATION.
  - P.15.5. IT IS ALSO ADVISABLE THAT SLAB DOCUMENTATION IS AVAILABLE ON-SITE FOR REFERENCE BY THE PLUMBERS AND NOMINATED INSPECTORS.

MINIMUM PLUMBING REQUIREMENTS												
COMPONENT	SITE CLASSIFICATION											
	A & S	M	H1	H2	E	P / M	P / H1	P / H2	P / E	M-D	H-D	E-D
PENETRATION LAGGING (mm)	x	20	20	40	40	40	20	40	40	40	40	40
JOINT EXPANSION SIZE (mm)	x	x	100	100	150	50	100	100	150	100	150	150-220
VERTICAL EXPANSION JOINTS (UNDER SLAB)	x	x	x	x	✓	x	✓	✓	✓	x	x	✓
SWIVEL JOINTS	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOWNPIPE EXPANSION JOINTS	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GULLY PITS FOR HOSE COCKS & AC UNITS	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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PROJECT  
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**PLUMBING CONNECTION DETAILS**

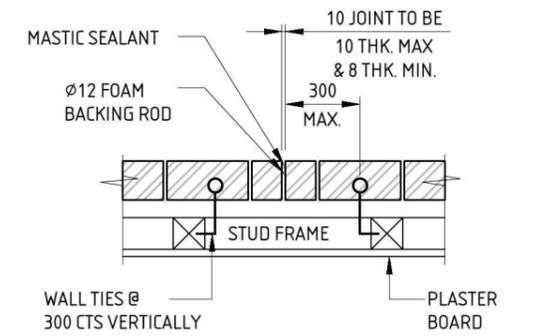
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**RAWSON HOMES NSW**

Structerre Pty. Ltd. (ACN: 055 912 733)  
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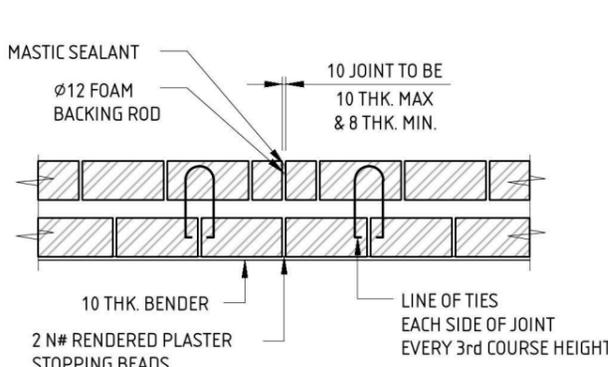
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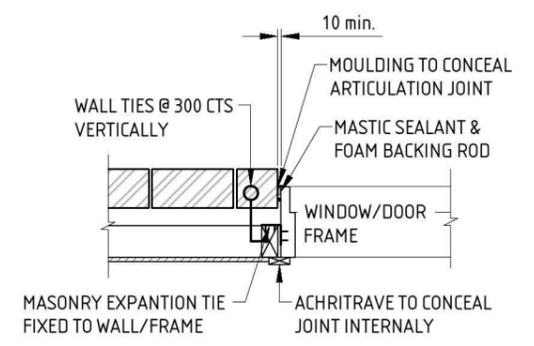
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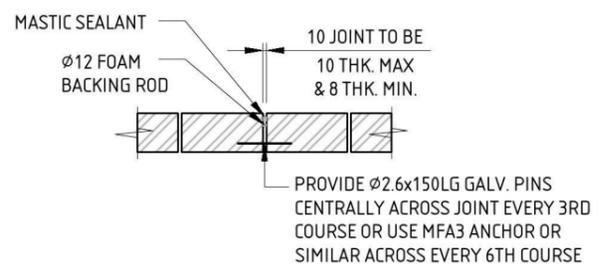
**MASONRY VENEER WALL JOINT DETAIL**



**MASONRY CAVITY WALL JOINT DETAIL**



**MASONRY VENEER WALL JOINT DETAIL  
BESIDE OPENINGS**



**SINGLE SKINNED WALL JOINT DETAIL**

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**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
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**MASONRY ARTICULATION DETAILS**

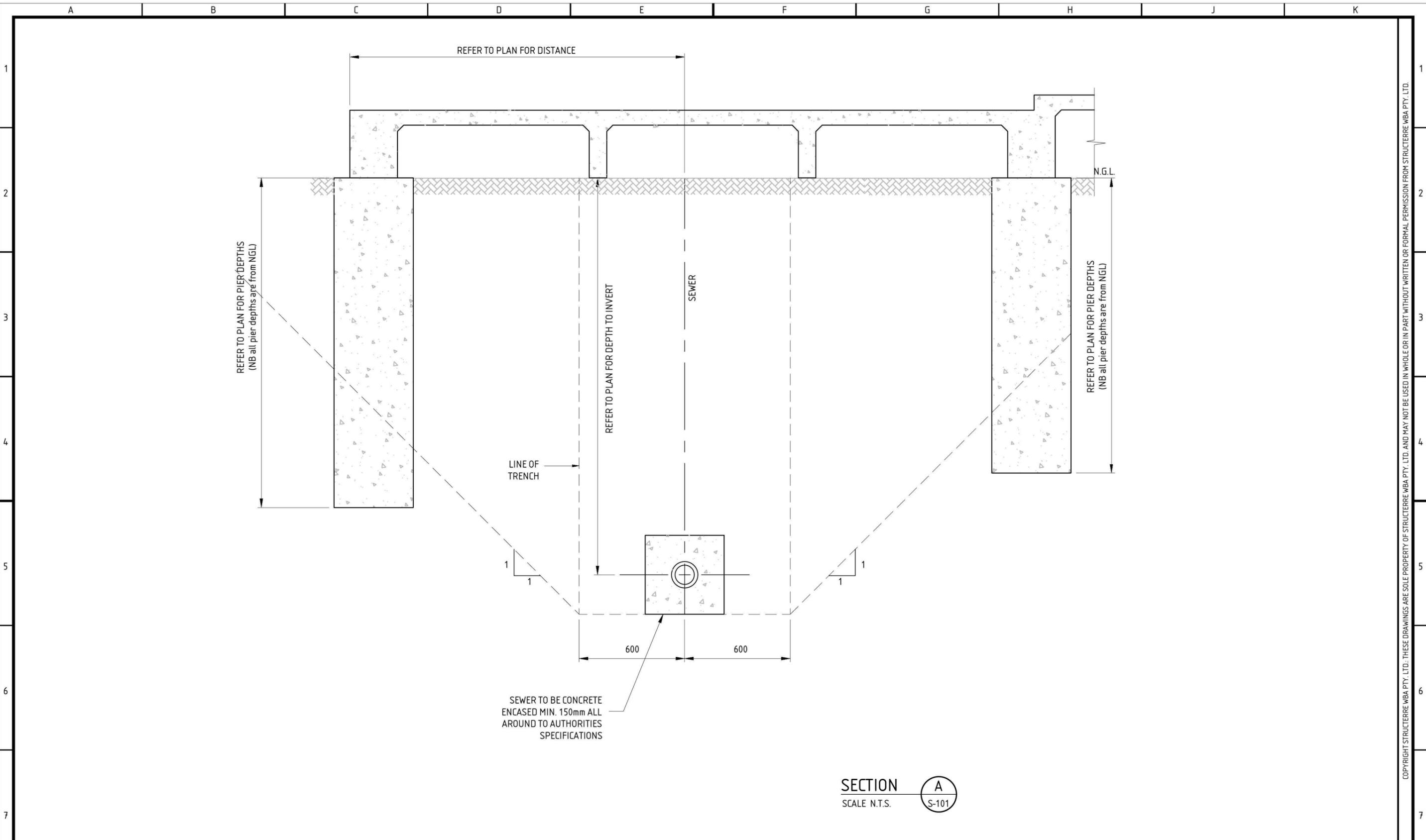
CLIENT  
**RAWSON HOMES NSW**

Structerre Pty. Ltd. (ACN: 055 912 733)  
SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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DRAWING REF. No. **D35287-S-109**

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SECTION A  
SCALE N.T.S. S-101

REV	BY	DATE	ISSUE / REVISION DESCRIPTION	CHK	APP	TITLE	NAME	DATE
0	STP	28/05/15	ISSUED FOR CONSTRUCTION	NB	RC	DRAFTER	STP	28/05/15
A	EY	02/06/15	DETAIL AMENDED	DN	RC	DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE	1:20	SIZE A3
						APPROVED BY:		
						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT  
**PROPOSED NEW DWELLING FOR RAWSON HOMES NSW**  
LOT 2312 EMPIRE CIRCUIT,  
THORNTON ESTATE, PENRITH. NSW

CLIENT  
**RAWSON HOMES NSW**



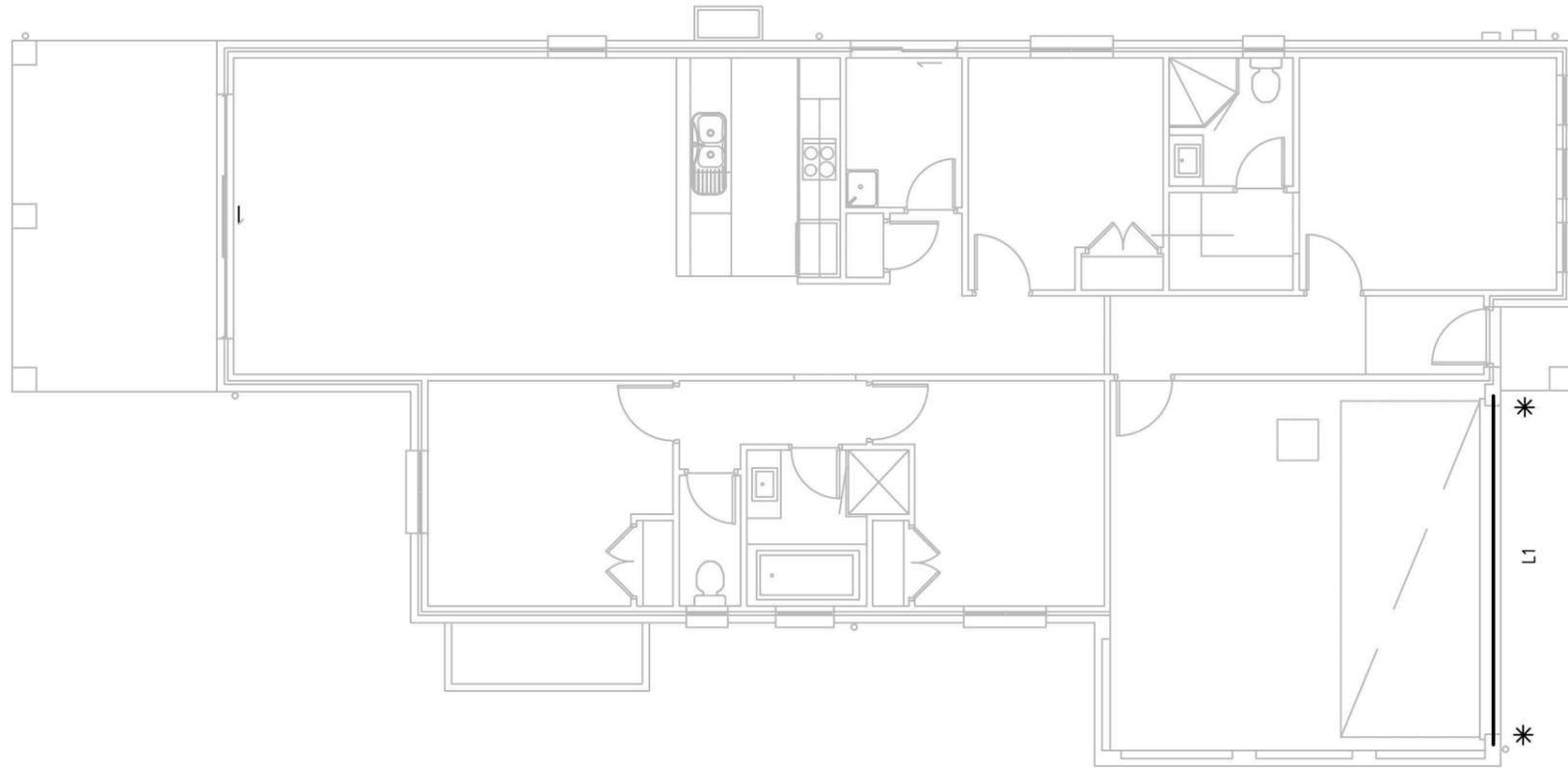
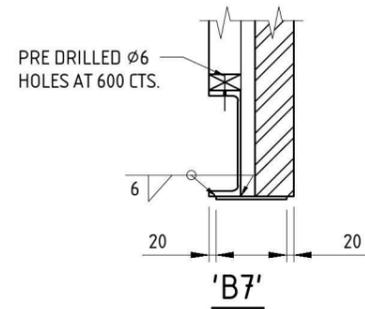
Structerre Pty. Ltd. (ACN: 055 912 733)  
SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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EXPOSURE CLASSIFICATION	
STRUCTURAL STEEL	MEDIUM



**STRUCTURAL STEEL MARKING PLAN**  
SCALE 1:100

LEGEND	
*	DENOTES MIN 110 BRICK BEARING

MEMBER SCHEDULE		
MARK	MEMBER	COMMENTS
LINTELS		
L1	230PFC + 200x8PL	REFER TO DETAIL 'B7'

NB: SPLAY BEAM WHERE REQUIRED AS PER DETAIL 'BE1'.

REV	BY	DATE	ISSUE / REVISION DESCRIPTION	CHK	APP	TITLE	NAME	DATE
0	STP	28/05/15	ISSUED FOR CONSTRUCTION	NB	RC	DRAFTER	STP	28/05/15
						DESIGNER	STP	28/05/15
						ENG. CHECK	RC	28/05/15
						SCALE	1:100	SIZE A3
APPROVED BY:						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT	PROPOSED NEW DWELLING FOR RAWSON HOMES NSW LOT 2312 EMPIRE CIRCUIT, THORNTON ESTATE, PENRITH. NSW
CLIENT	RAWSON HOMES NSW

**STRUCterre**  
consulting engineers

Structerre Pty. Ltd. (ACN: 055 912 733)

SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141  
TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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