

Lot 2350 Walshaw

PLANT SCHEDULE Prepared by ecodeign Pty Ltd

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	POT SIZE	MATURE SIZE
Cpl	Camellia sasanqua 'Paradise Pearl'	Camellia	10	300mm	2m
Cbn	Catalpa bignonioides 'Nana'	Designer Catalpa	1	75L	5m
Lwf	Liriope muscari 'Monroe's White'	Liriope (white flowering)	28	200mm	450mm
Dg	Dietes grandiflora	Wild Iris	8	200mm	1m
Vh	Viola hederacea	Native Violet	8	150mm	0.1m

CLEVELAND LANE - Supply + installation by BUILDER

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	POT SIZE	MATURE SIZE
Lix	Lagerstroemia 'Sioux'	Crepe Myrtle	1	75L	4m
Lmv	Liriope muscari 'Variegatum'	Variegated Liriope	14	200mm	0.3m
LI	Lomandra longifolia 'Katrinus Deluxe'	Mat Rush	8	200mm	0.75m

CLEVELAND LANE CROSS-OVER - Supply + construction by BUILDER

MATERIAL SCHEDULE	Area m ² URBANGROWTH*	Area m ² BUILDER**
HEADER COURSE Concrete pavers 'Adbri Stradapave', 300x300x50mm in 'Charcoal' colour, laid in stackbond pattern	3.58	0.00
IN-FILL PAVEMENT Concrete pavers 'Adbri Havenbrick', 200x100x50mm in 'Brushwood' colour, laid in herringbone pattern	4.23	2.58
Total area	7.81	2.58

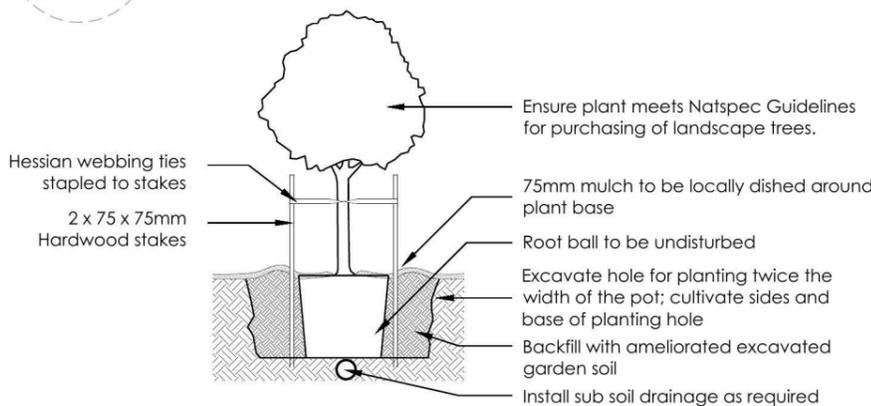
*Area's outside of the allotment boundary. **Area's inside of the allotment boundary

LOT PLANTING SUMMARY

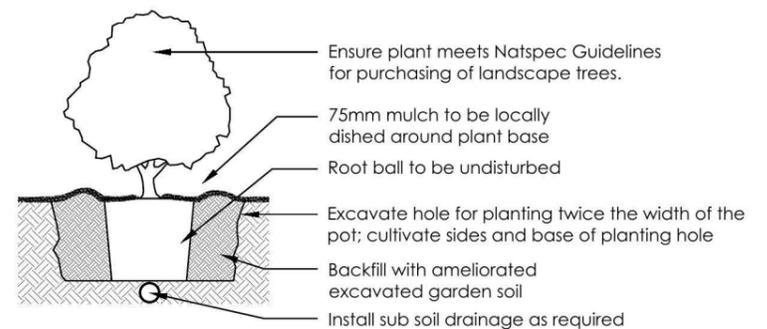
Total Plants	Total Fence Hedging	Street Planting	Other Shrubs/ground-covers	Total Trees
55	10	0	45	1

LEGEND

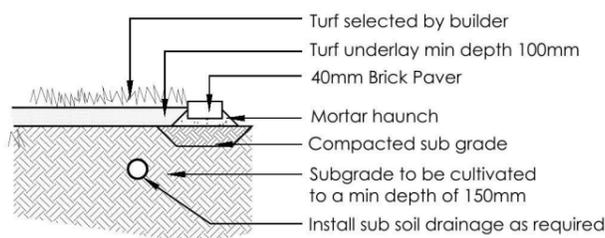
- Proposed trees - refer to plant schedule
- Proposed shrubs - refer to plant schedule
- Proposed accents & grasses - refer to plant schedule
- Proposed groundcovers and grasses - refer to plant schedule
- Existing levels
- Proposed levels
- Proposed Top Of Wall levels
- Boundary
- Garden edging
- Masonry retaining walls
- Existing contours
- Existing tree to be retained
- Existing tree to be removed



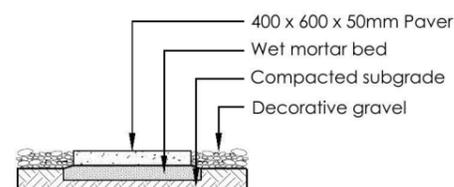
1 Tree Planting Detail
NTS 25L - 100L Pot Size



2 Planting Detail
NTS 150mm, 200mm Pot Size

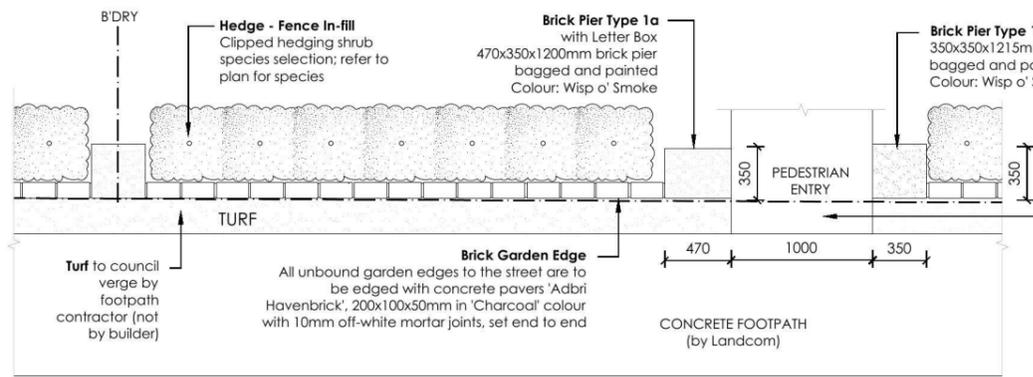


3 Turf Detail
NTS Brick Paver Edge

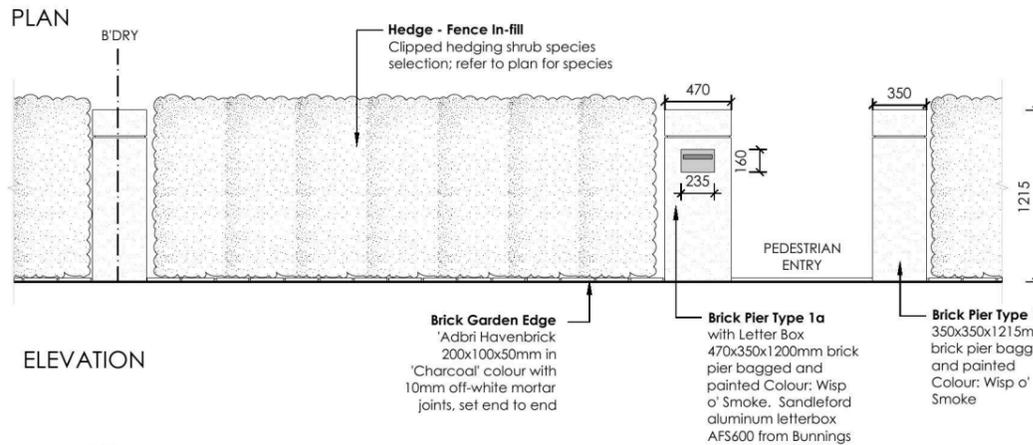


4 Stepping stones in gravel
NTS Low traffic zone

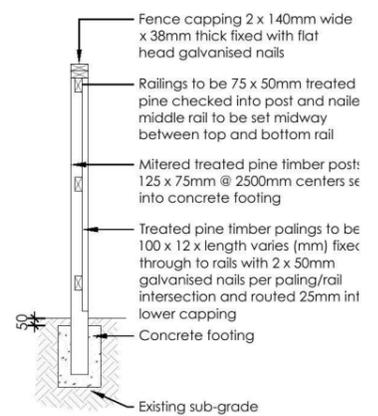
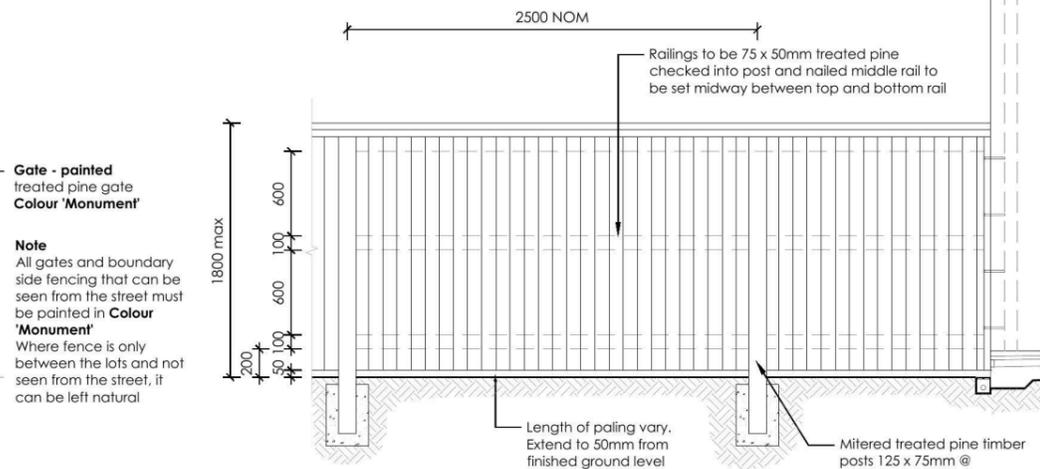
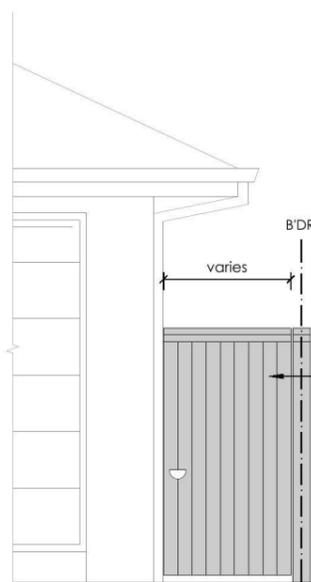
REVISION	DESCRIPTION	DRAWN	CHECK	DATE	 PO Box 3136, Carlingford, NSW 2118 Ph: (02) 9871 7701 Fax: (02) 9873 2583 Email: info@ecodeign.com.au Web: www.ecodeign.com.au Member of the Australian Institute of Landscape Designers and Managers	ADDRESS	PROJECT		
A	ISSUE FOR CLIENT REVIEW	RS	BT	26-02-14		LOT 2350 WALSHAW STREET, PENRITH	NEW RESIDENCE		
						CLIENT	DRAWING		
						RAWSON HOMES	LANDSCAPE PLAN		
						SCALE	1:100 @ A3	DA	L-02
						DRAWN	RS	CHECK	BT
						DATE	26-02-14		REVISION
									A



- Pedestrian path**
- Path within the lot is to be coloured concrete (CCS Onyx colour or equivalent)
 - Path between boundary and public footpath is to be plain uncoloured, broom-finished concrete, constructed by the builder
 - Pedestrian entry path is required where there is no driveway within the front setback, i.e. where driveway is via lane-way



5 FENCE TYPE 5 - Front Fence
1:50 Typical detail

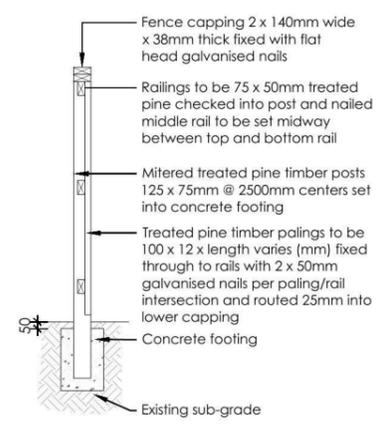
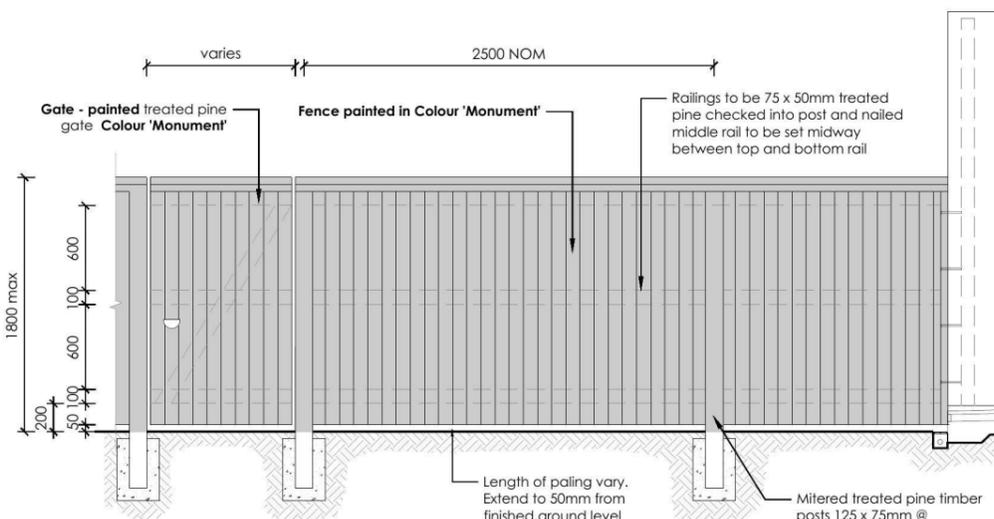


SIDE GATE

LOT BOUNDARY

SECTION

6 FENCE TYPE 4a - Side Boundaries
1:50 Typical detail



ELEVATION

SECTION

7 FENCE TYPE 4b - Rear Boundary
1:50 All Laneways (except Barlett Lane)
Typical detail

REVISION	DESCRIPTION	DRAWN	CHECK	DATE
A	ISSUE FOR CLIENT REVIEW	RS	BT	26-02-14

ecodesign
outdoor living environments

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Email: info@ecodesign.com.au
Web: www.ecodesign.com.au
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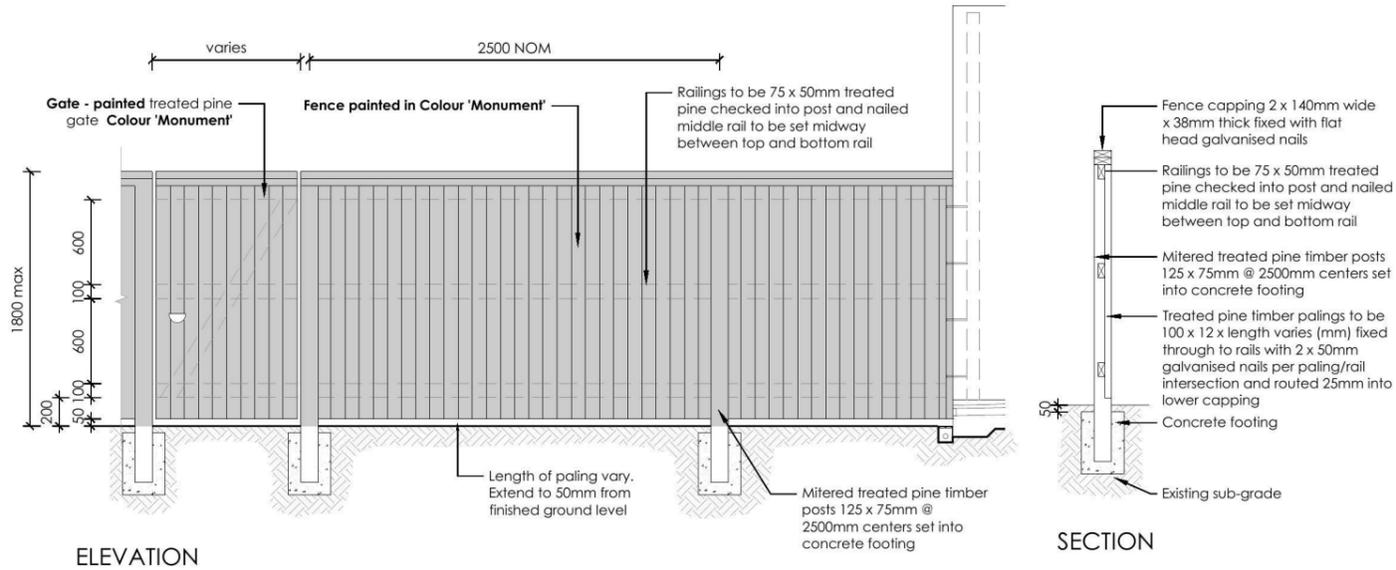
6. All work to comply with relevant Australian Standards or Building Code of Australia
7. All work to be performed by a suitably qualified tradesperson
8. For application purposes only - NOT FOR CONSTRUCTION

ADDRESS
LOT 2350 WALSHAW STREET, PENRITH

CLIENT
RAWSON HOMES

PROJECT			
NEW RESIDENCE			
DRAWING			
LANDSCAPE PLAN			
SCALE	DATE	SHEET	REVISION
1:100 @ A3	DA	L-03	
DRAWN	CHECK	DATE	REVISION
RS	BT	26-02-14	A

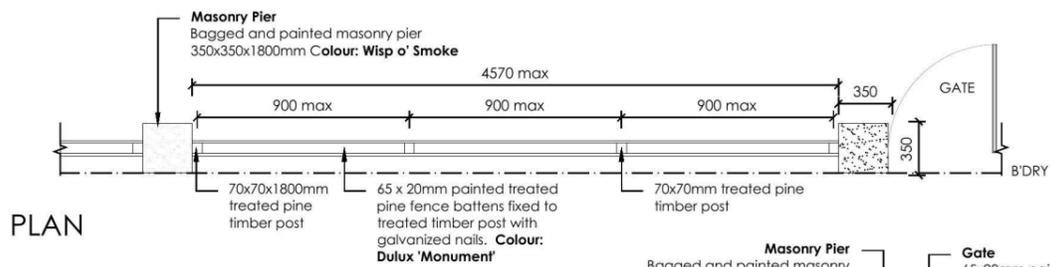




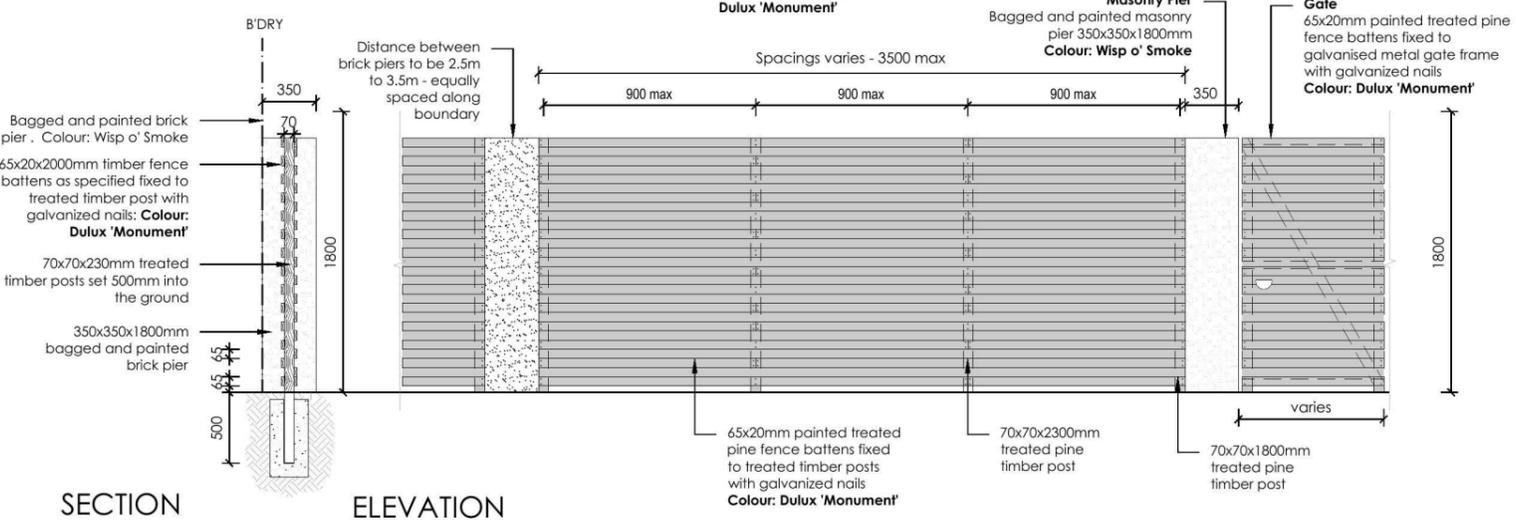
ELEVATION

SECTION

7 FENCE TYPE 4b - Rear Boundary
 1:50 All Laneways (except Barlett Lane)
 Typical detail



PLAN



SECTION

ELEVATION

8 FENCE TYPE 2a - Secondary Street Fencing
 1:50 Typical detail

REVISION	DESCRIPTION	DRAWN	CHECK	DATE
A	ISSUE FOR CLIENT REVIEW	RS	BT	26-02-14

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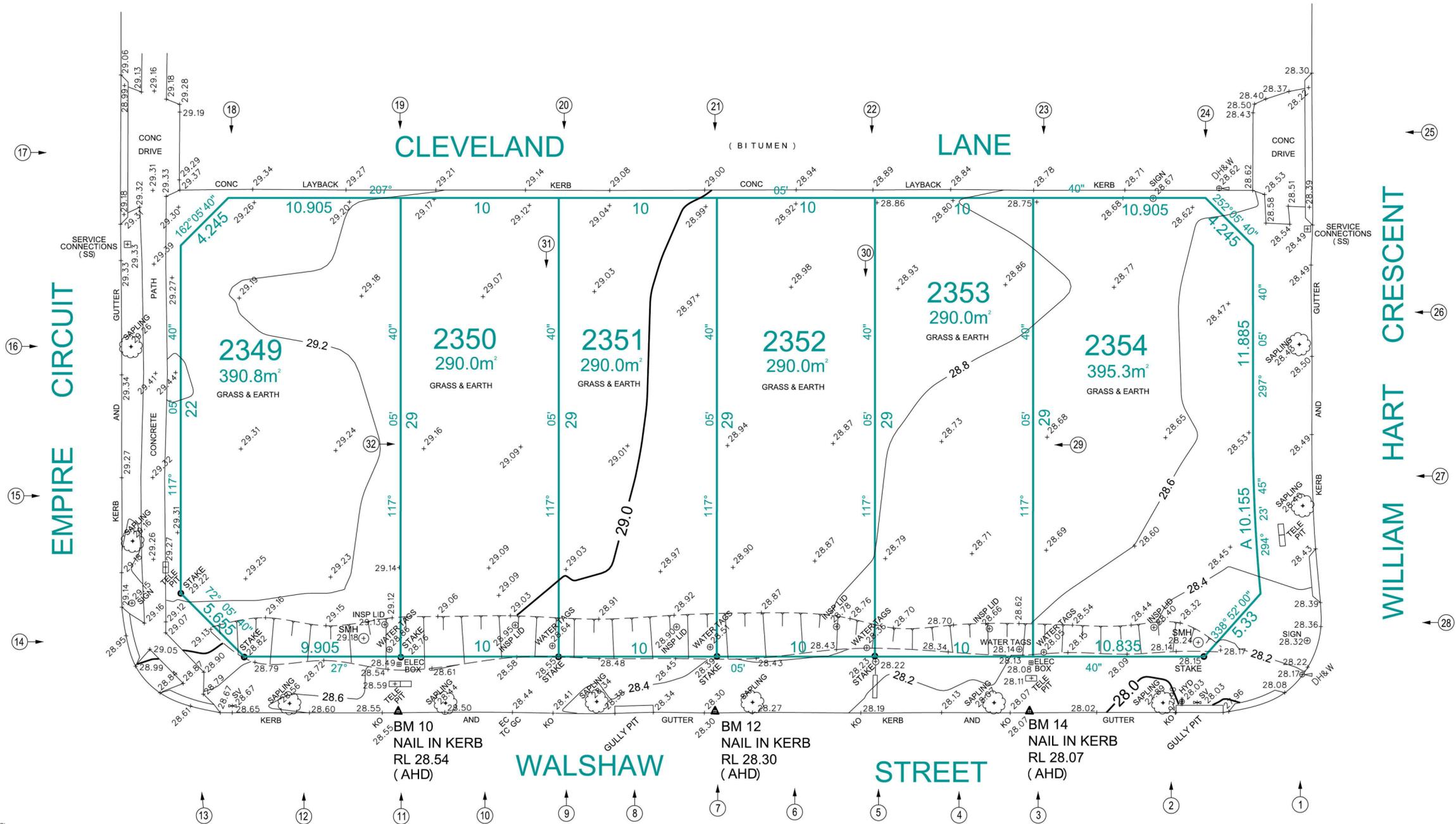
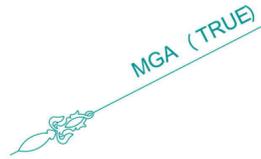
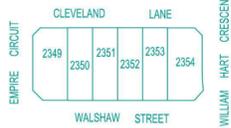
ADDRESS: **LOT 2350 WALSHAW STREET, PENRITH**

CLIENT: **RAWSON HOMES**

PROJECT			
NEW RESIDENCE			
DRAWING			
LANDSCAPE PLAN			
SCALE	DATE	SHEET	
1:100 @ A3	DA	L-04	
DRAWN	CHECK	DATE	REVISION
RS	BT	26-02-14	A



LOCATION PLAN
 UBD REF: 163, J7
 LAT: -33.74602
 LONG: 150.70005



LEGEND

- HOT WATER TANK
- WATER METER
- WATER METER
- TELECOM PIT
- MANHOLE (SEWER/STORMWATER)
- VEHICLE CROSSING
- KERB INLET PIT
- LIGHT POLE
- ELECTRICITY POLE
- ELECTRICITY PILLAR
- HYDRANT
- STOP VALVE
- KERB OUTLET
- SERVICE CONDUIT
- DENOTES PHOTO POINT
- TREE (DIA/HEIGHT)
- GARDEN BED
- SHRUB



DATUM OF LEVELS: AUSTRALIAN HEIGHT DATUM
 ORIGIN OF LEVELS: SSM 180810 RL 28.445
 SOURCE OF LEVELS: SCIMS

No.	AMENDMENT	DATE
F		
E		
D		
C		
B		
A		

CONTOURS SHOWN HAVE BEEN INTERPOLATED FROM SPOT LEVELS TAKEN ON-SITE AND ARE A REPRESENTATION OF THE TOPOGRAPHY ONLY.
 DIMENSIONS AND AREAS HAVE BEEN DETERMINED FROM PLANS MADE AVAILABLE AT LPI, NSW AND ARE SUBJECT TO FINAL SURVEY.
 SERVICES SHOWN HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. PRIOR TO ANY SITE WORKS, THE RELEVANT AUTHORITY SHOULD BE CONTACTED TO ESTABLISH ACCURATE POSITION AND DEPTH OF ANY SERVICES.
 DIMENSIONS OF ANY TREES SHOWN ON THE PLAN ARE APPROXIMATE

STRUCterre
 surveying
 REGISTERED SURVEYORS & LAND INFORMATION CONSULTANTS
 Suite 1, Level 2, 42 Birnie Avenue Lidcombe, NSW 2141
 Phone: 9546 5811, Fax: 9646 2311
 Email: nswsurveying@struc terre.com.au
www.struc terre.com.au

SCALE 1: 200 A2

DRAWN: IS	JOB 2070/301669	DATE: 08.10.2014
CHECKED: GT	FILE NAME 301669	DATUM: AHD

WARNING - UNREGISTERED PLAN
 THIS CONTOUR AND DETAIL SURVEY IS BASED UPON AN UNREGISTERED PLAN. ALL BOUNDARIES AND EASEMENTS ARE UNREGISTERED AND MAY BE AMENDED TO SUIT THE REQUIREMENTS OF COUNCIL OR THE LAND TITLES OFFICE. THIS INFORMATION MUST BE VERIFIED UPON REGISTRATION. NO FURTHER INVESTIGATION HAS BEEN UNDERTAKEN TO DISCLOSE EASEMENTS ETC OMITTED FROM THE UNREGISTERED PLAN. STRUCterre SURVEYING CAN ACCEPT NO LIABILITY FOR ANY LOSS OR DAMAGE HOWSOEVER ARISING, TO ANY PERSON OR CORPORATION, DUE TO OMISSIONS, ERRORS OR VARIATIONS ON THE UNREGISTERED PLAN. COPIES OF THIS CONTOUR PLAN MUST NOT BE REPRODUCED WITHOUT THIS NOTICE.

NOTE: THIS SURVEY IS FOR CONTOUR PURPOSES ONLY. SERVICES SHOWN HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY.

NOTE: SEWER NOT AVAILABLE AT THE TIME OF SURVEY

DETAIL & CONTOUR SURVEY
 LOT 2349-2354 DP UNREGISTERED
 AT WALSHAW STREET, PENRITH
 CLIENT: RAWSON HOMES REF:



RAWSON HOMES NSW

PROPOSED NEW DWELLING FOR RAWSON HOMES NSW

LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. 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	FOOTING & SLAB DETAILS - SHEET 6
S-108	SURFACE DRAINAGE DETAILS
S-109	PLUMBING CONNECTION DETAILS
S-110	MASONRY ARTICULATION DETAILS
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	TXM	31/07/15	ISSUED FOR CONSTRUCTION	OG	RC	DRAFTER	TXM	31/07/15
						DESIGNER	THT	31/07/15
						ENG. CHECK	RC	31/07/15
						SCALE		SIZE A3
						APPROVED BY:		

PROJECT
**PROPOSED NEW DWELLING FOR
RAWSON HOMES NSW**
LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. 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. **35625** DRAWING REF. No. **D35625-S-000**

CLIENT REFERENCE No. **REV 0**

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- 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.

CUT-AND-FILL SITES, SHALL BE GRADED TO FALL 50mm MINIMUM AWAY FROM THE FOOTING OVER A DISTANCE OF 1.0m. SURFACE OR SUBSURFACE DRAINS SHALL BE USED TO CHANNEL WATER AWAY AND CONNECT TO STORMWATER SYSTEM. ANY PAVING SHALL ALSO BE SUITABLY SLOPED.

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_{uc} = 15 MPa
- BM.2. MORTAR TYPE = M3
- BM.3. DESIGN CHARACTERISTIC COMPRESSIVE STRENGTH OF GROUT, f_{cg} = 20 MPa
- BM.4. YIELD STRENGTH OF REINFORCEMENT - f_{sy} = 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	TXM	31/07/15	ISSUED FOR CONSTRUCTION	OG	RC	DRAFTER	TXM	31/07/15
						DESIGNER	THT	31/07/15
						ENG. CHECK	RC	31/07/15
						SCALE		SIZE A3
						APPROVED BY:		
							ROBERT COLOMBO	
							MIEAust, CPEng, NPER, BPP, RBP, RPEQ, FAPI	

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
 LOT 2350 WALSHAW STREET,
 PENRITH, THORNTON ESTATE. 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

STRUCterRE JOB No. **35625** DRAWING REF. No. **D35625-S-001**

CLIENT REFERENCE No. **0**

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

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
 LOT 2350 WALSHAW STREET,
 PENRITH, THORNTON ESTATE. 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. **35625** DRAWING REF. No. **D35625-S-002**

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SLAB DESIGN SUMMARY (U.N.O)		
'bh' BOX HEIGHT (mm)	300 & 225	
BOX SIZE (mm)	1090 x 1090	
'st' SLAB THICKNESS (mm)	85	
'od' OVERALL DEPTH (mm)	385 & 310	
'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	3-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

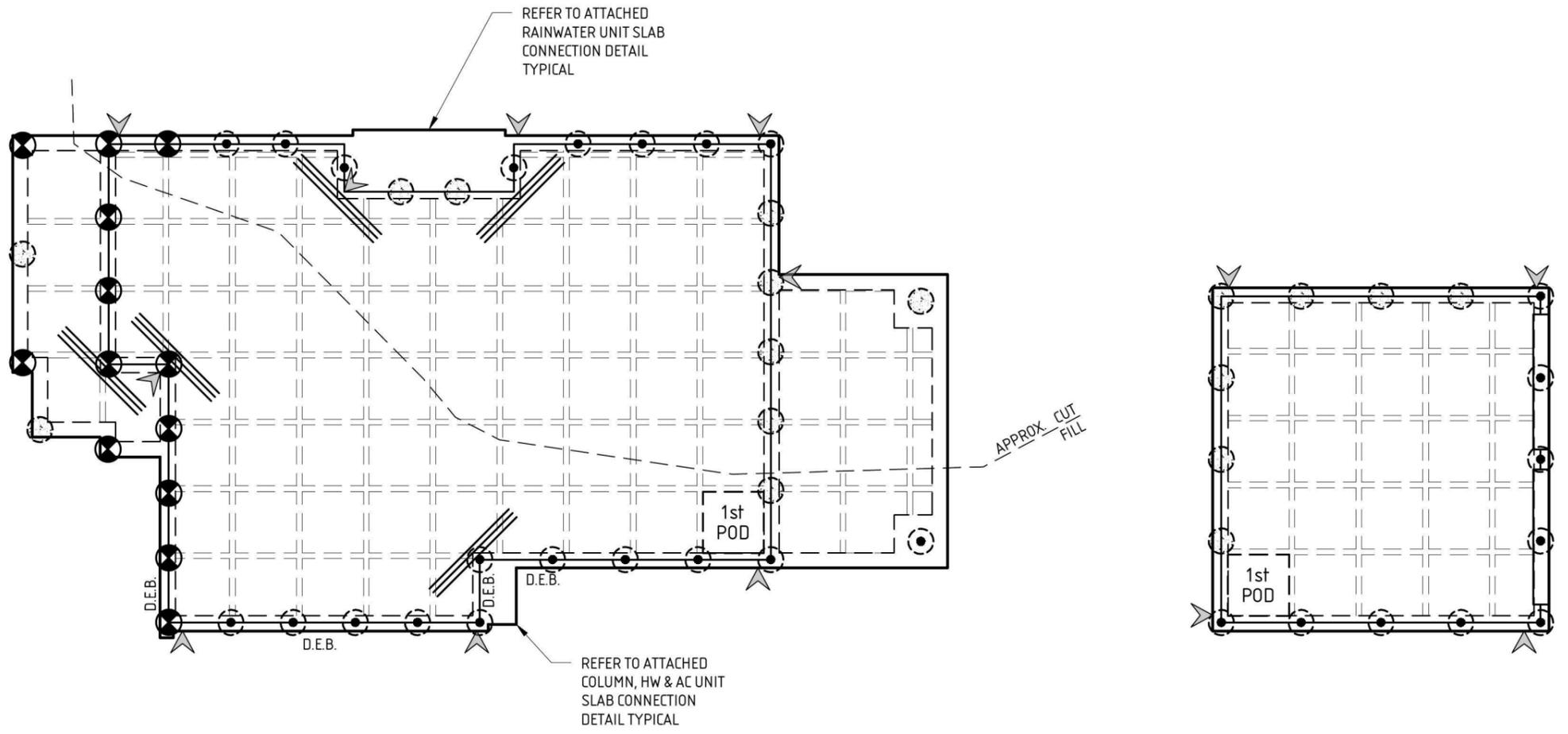
PIER DESIGN SUMMARY (U.N.O)		
MEMBER	PIER SPACING (mm)	
EDGE BEAMS	1200	
INTERNAL & STEP BEAMS	2400 x 2400 GRID	
INTERNAL RIBS	2400 x 2400 GRID	
FOUNDATIONS	PIER ϕ (mm)	SOCKET DEPTH (mm)
STIFF CLAY	450	500
SHALE	400	200
ROCK	300	100

FOOTING DESIGN SUMMARY		
FOOTING TYPE	DEPTH (df)	REINFORCEMENT
TYPE A	600mm	3-L11TM TOP & BTM WITH R6 TIES @ 900 CTS
TYPE B	600mm	4-L11TM TOP & BTM WITH R6 TIES @ 900CTS
PAD P1	1000mm	NONE (MASS CONCRETE)

GEOTECHNICAL INFORMATION		
SOIL CLASSIFICATION:	H1	(DESIGN H1)
SOIL TEST REFERENCE:	AWG 38136	
DATE:	30/04/15	
FOUNDING MATERIAL:	CONTROLLED FILL	
SAFE BEARING CAPACITIES (SWL)		
SLAB & FOOTINGS	100 kPa	
PIERS	ϕ 400 WITH A 1000 SOCKET INTO CONTROLLED FILL WITH A MIN. CAPACITY OF 150kPa	

EXPOSURE CLASSIFICATION	
STRUCTURAL STEEL	MEDIUM

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0	TXM	31/07/15	ISSUED FOR CONSTRUCTION	OG	RC	DRAFTER	TXM	31/07/15
						DESIGNER	THT	31/07/15
						ENG. CHECK	RC	31/07/15
						SCALE	1:100	SIZE A3
						APPROVED BY:		
						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		



- 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 FOR ADJACENT AFFECTING TREES TO BEARING CAPACITY SPECIFIED IN FOUNDATION DESIGN SUMMARY AND WITH A MIN. DEPTH OF 2000 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 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

- FOOTING & SLAB NOTES:**
- F.S.1. CUT/FILL LINE SHOWN IS APPROXIMATE ONLY. IF NOT SHOWN, SITE SCRAPER 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 70 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. 225 PODS MAY BE USED IN 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.

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. 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

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CLIENT REFERENCE No. **0**

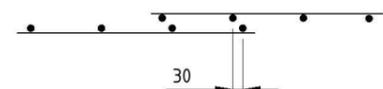
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SLAB DESIGN SUMMARY (U.N.O)		
'bh' BOX HEIGHT (mm)	300 & 225	
BOX SIZE (mm)	1090 x 1090	
'st' SLAB THICKNESS (mm)	85	
'od' OVERALL DEPTH (mm)	385 & 310	
'bw' BEAM WIDTH (mm)	270	
'rw' RIB WIDTH (mm)	100	
SLAB REINF'T	SL82	
100mm RIB REINF'T	1-N12 BTM	
270mm BEAM REINF'T	3-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

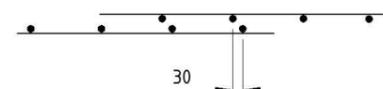
MESH LAPS

1. MESH IS TO BE LAPPED AS SHOWN BELOW:

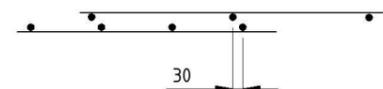
a) OVERLAP OF SIDE OF SHEETS



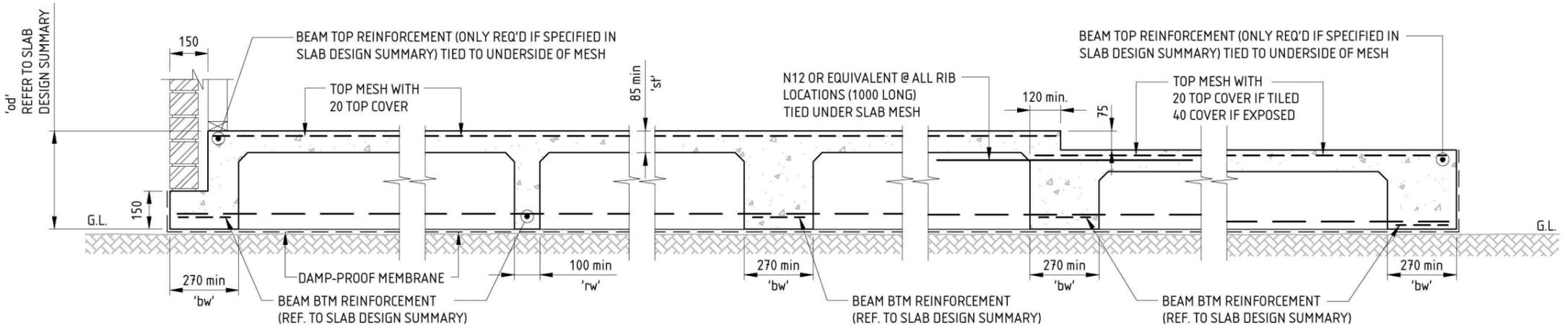
b) OVERLAP OF ENDS OF SHEETS



c) OVERLAP SIDE AND END OF SHEETS



d) NOT ACCEPTABLE



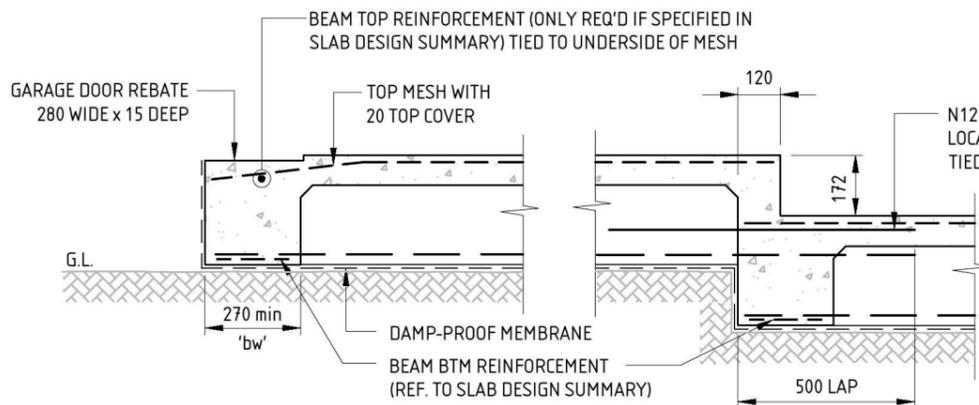
TYPICAL EDGE BEAM

INTERNAL RIB

INTERNAL BEAM - IB

STEP BEAM 75
(GARAGE & VERANDAH STEP)

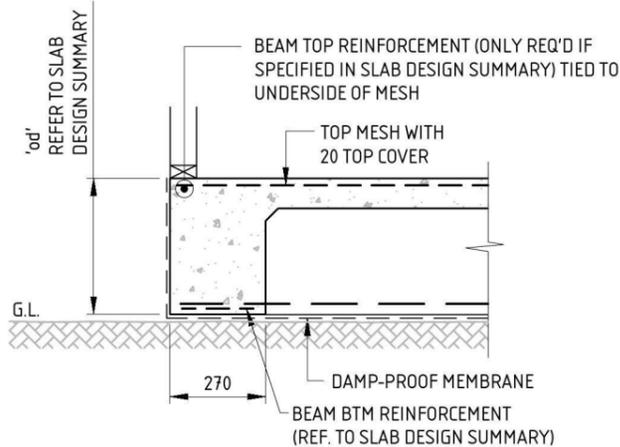
VERANDAH EDGE BEAM
(LOAD BEARING)



GARAGE ENTRY EDGE BEAM
WITH 225 PODS & GREATER

STEP BEAM 172 MAX.
(GARAGE & VERANDAH STEP)

WET AREA SET DOWN



TYPICAL EDGE BEAM DETAIL

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

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						ENG. CHECK	RC	31/07/15
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						APPROVED BY:		
						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. NSW

FOOTING & SLAB DETAILS - SHEET 1

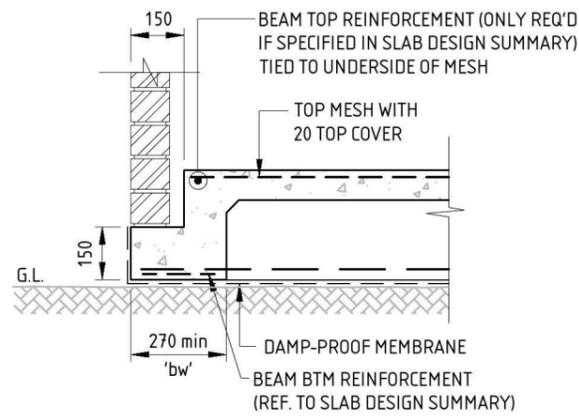
CLIENT
RAWSON HOMES NSW

Structerre Pty. Ltd. (ACN: 055 912 733)
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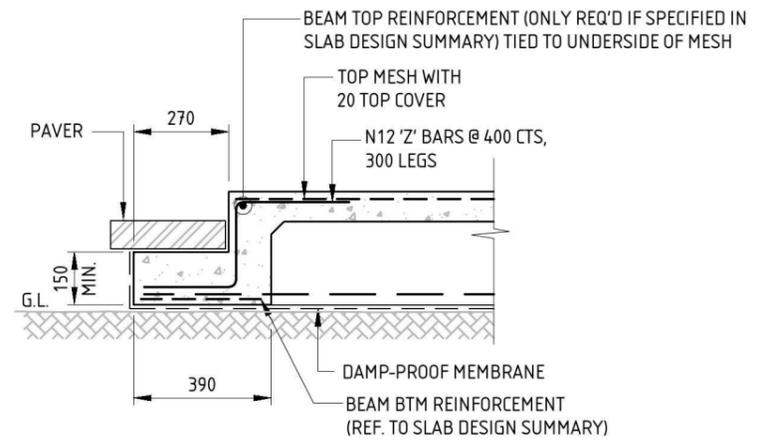
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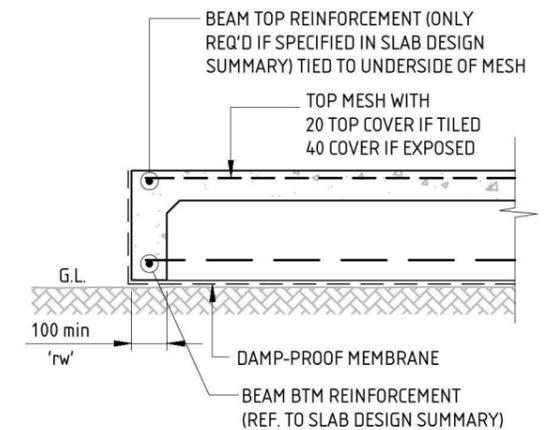
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**GARAGE EDGE BEAM
WITH 225 PODS & GREATER**



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



**VERANDAH EDGE BEAM
(NON LOAD BEARING ONLY)**

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

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

PROJECT
**PROPOSED NEW DWELLING FOR
RAWSON HOMES NSW**
LOT 2350 WALSHAW STREET,
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FOOTING & SLAB DETAILS - SHEET 2

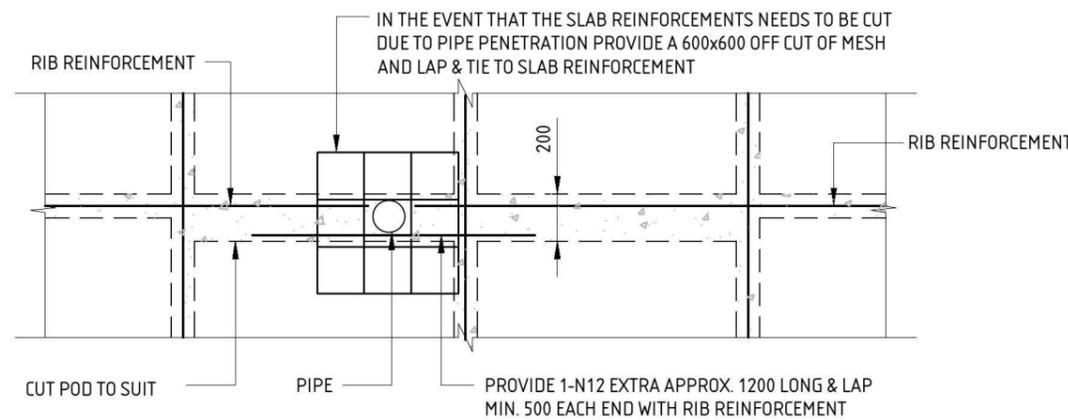
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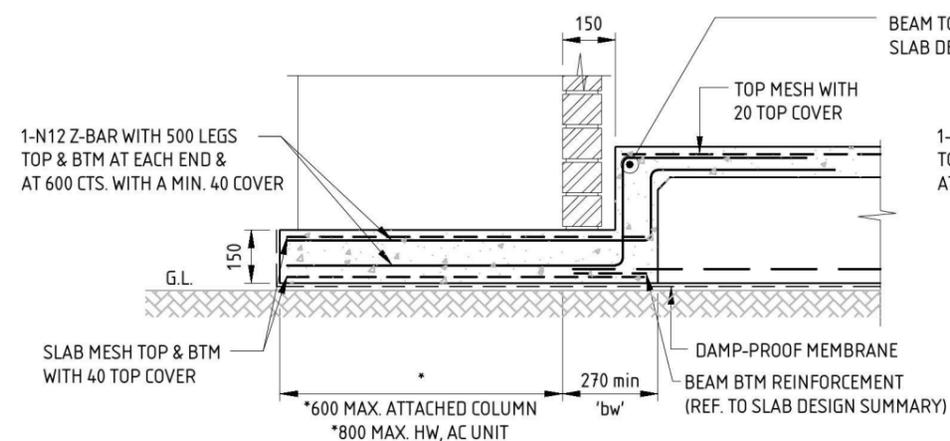
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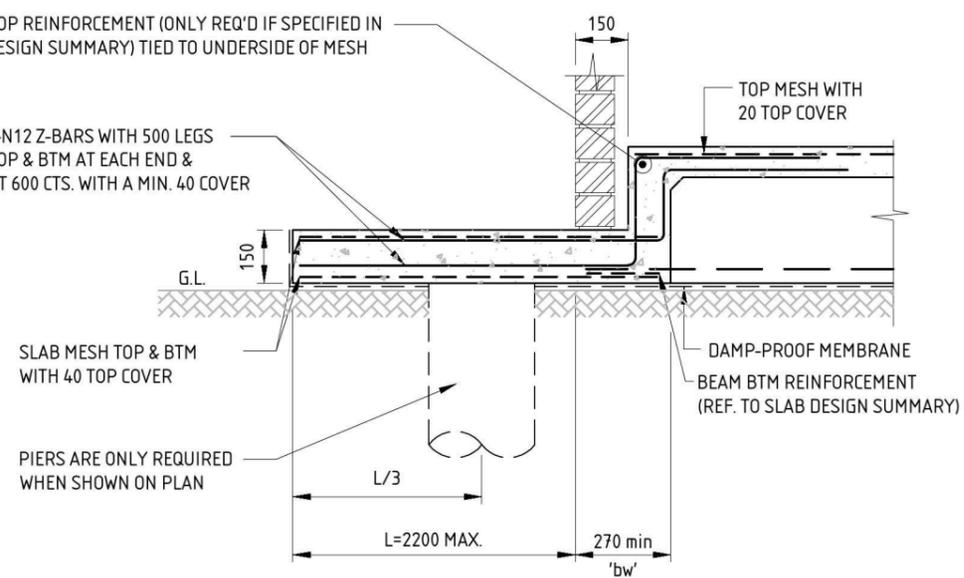
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SLAB PIPE PENETRATION DETAIL (PLAN VIEW)
N.T.S.



ATTACHED COLUMN, HW & AC UNIT SLAB DETAIL
(NOTE- WHERE ATTACHED SLAB COINCIDES WITH DEEP EDGE BEAM REFER TO TABLE ON SHEET S-105 FOR STEM WIDTH AND EXTRA REINFORCEMENT)



ATTACHED RW UNIT SLAB DETAIL
(NOTE- WHERE ATTACHED SLAB COINCIDES WITH DEEP EDGE BEAM REFER TO TABLE ON SHEET S-105 FOR STEM WIDTH AND EXTRA REINFORCEMENT)

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

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						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 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. NSW

FOOTING & SLAB DETAILS - SHEET 3

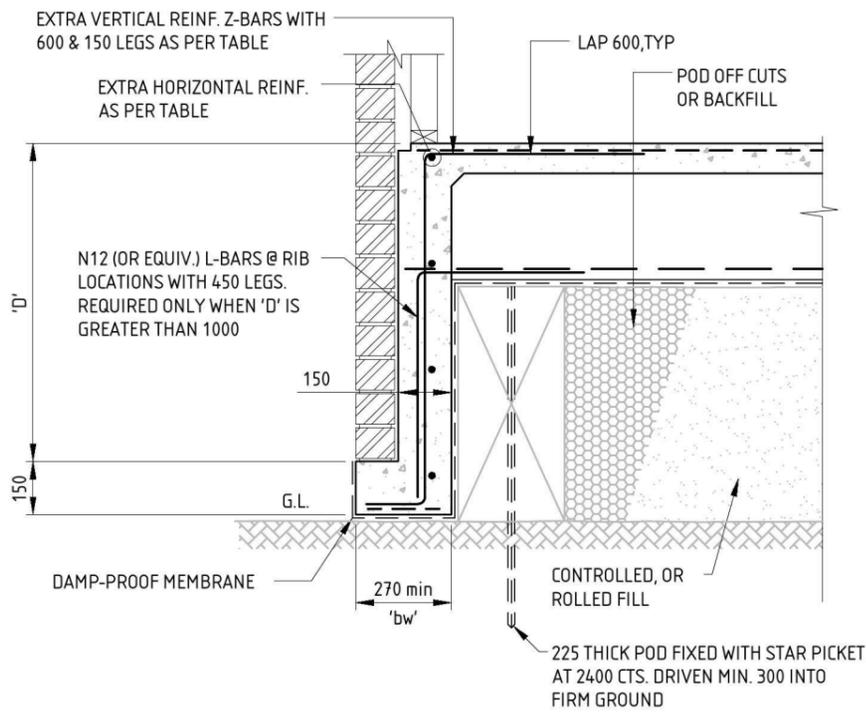
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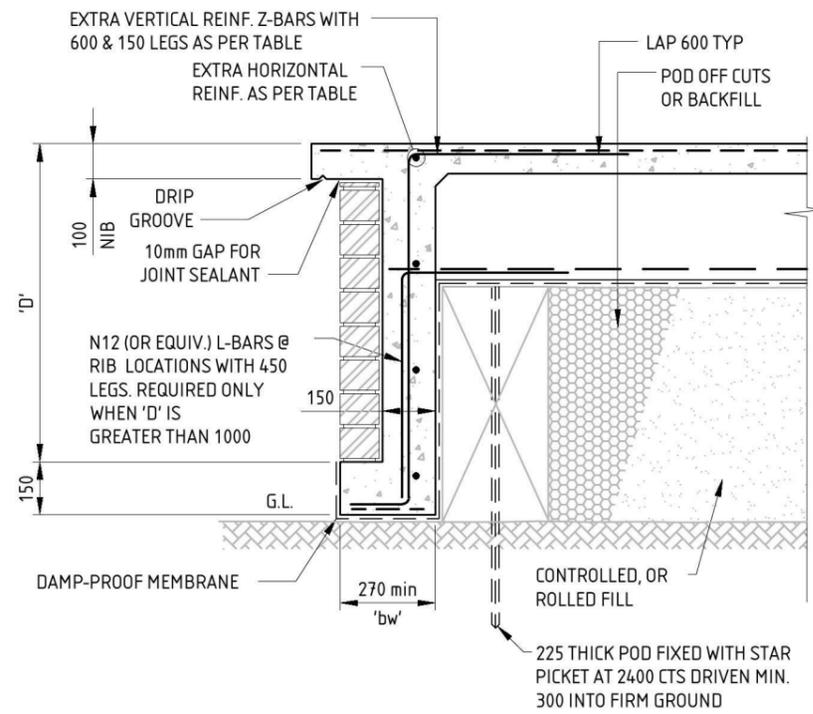
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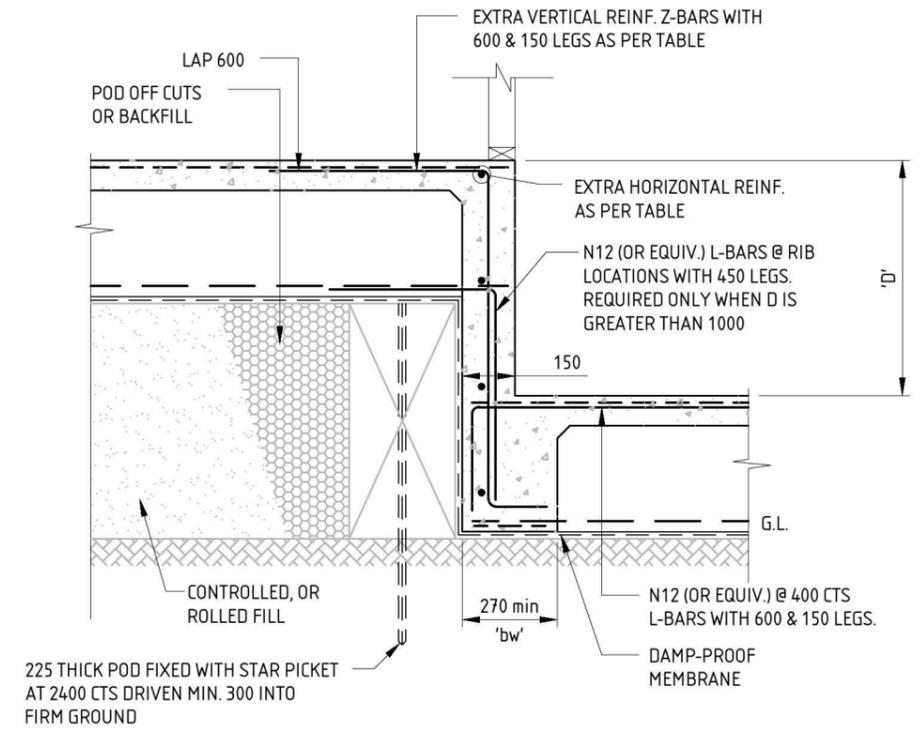


DEEP EDGE BEAM (1800 MAX.)



DEEP PATIO 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.)

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

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						ROBERT COLOMBO		
						MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI		

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
 LOT 2350 WALSHAW STREET,
 PENRITH, THORNTON ESTATE. NSW

FOOTING & SLAB DETAILS - SHEET 4

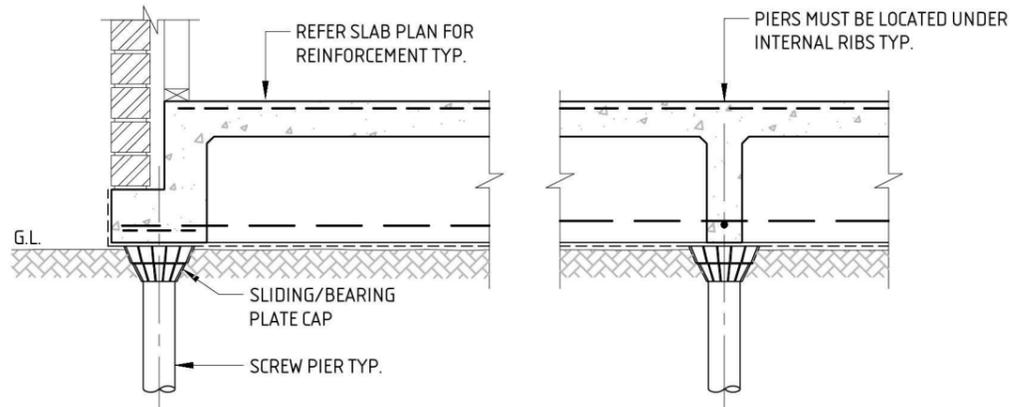
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RAWSON HOMES NSW

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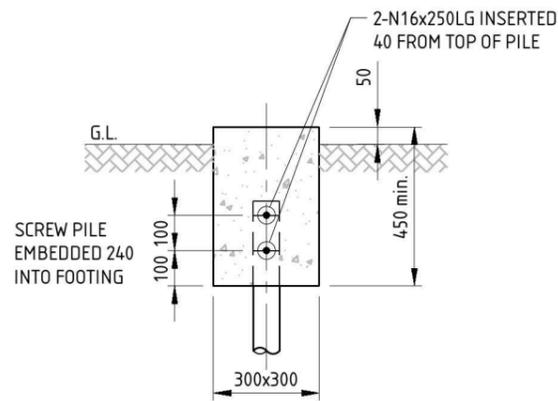
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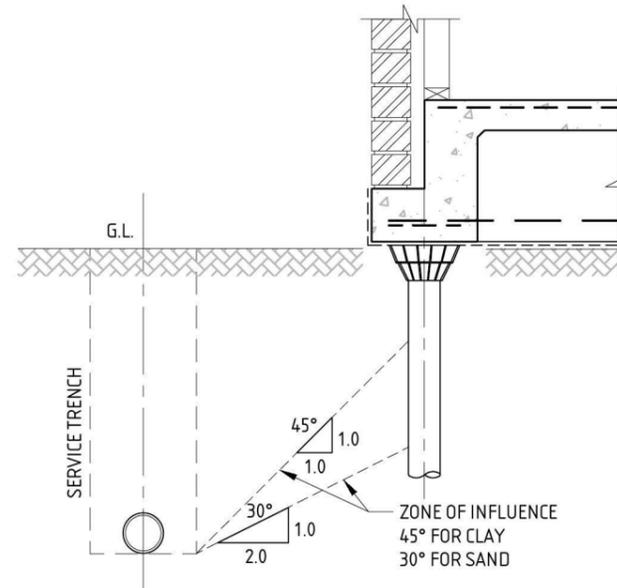


TYPICAL SLAB/SCREW PIER CONNECTION DETAIL

OPTION 1



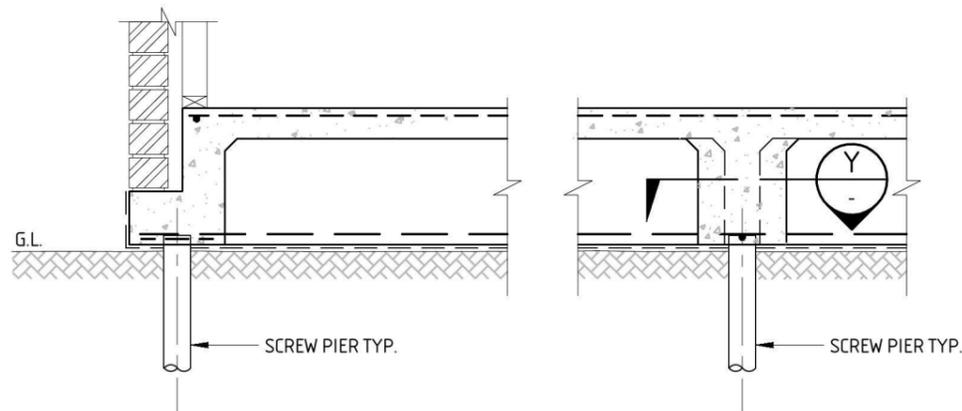
ISOLATED SCREW PILE PAD



PRIVATE SERVICE TRENCH DETAIL

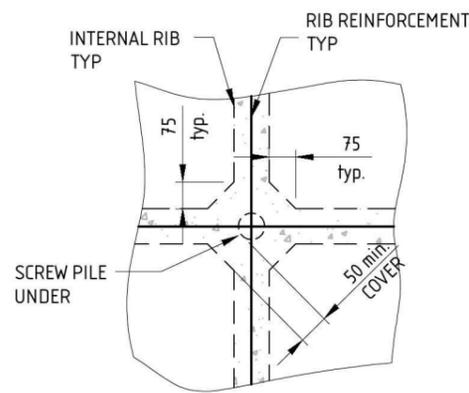
PRIVATE SERVICE TRENCH NOTES

- 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.

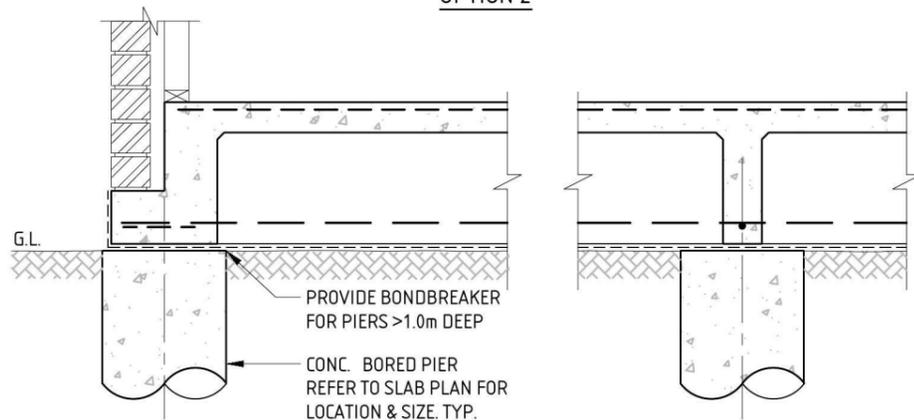


TYPICAL SLAB/PILE CONNECTION DETAIL

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

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. NSW

FOOTING & SLAB DETAILS - SHEET 5

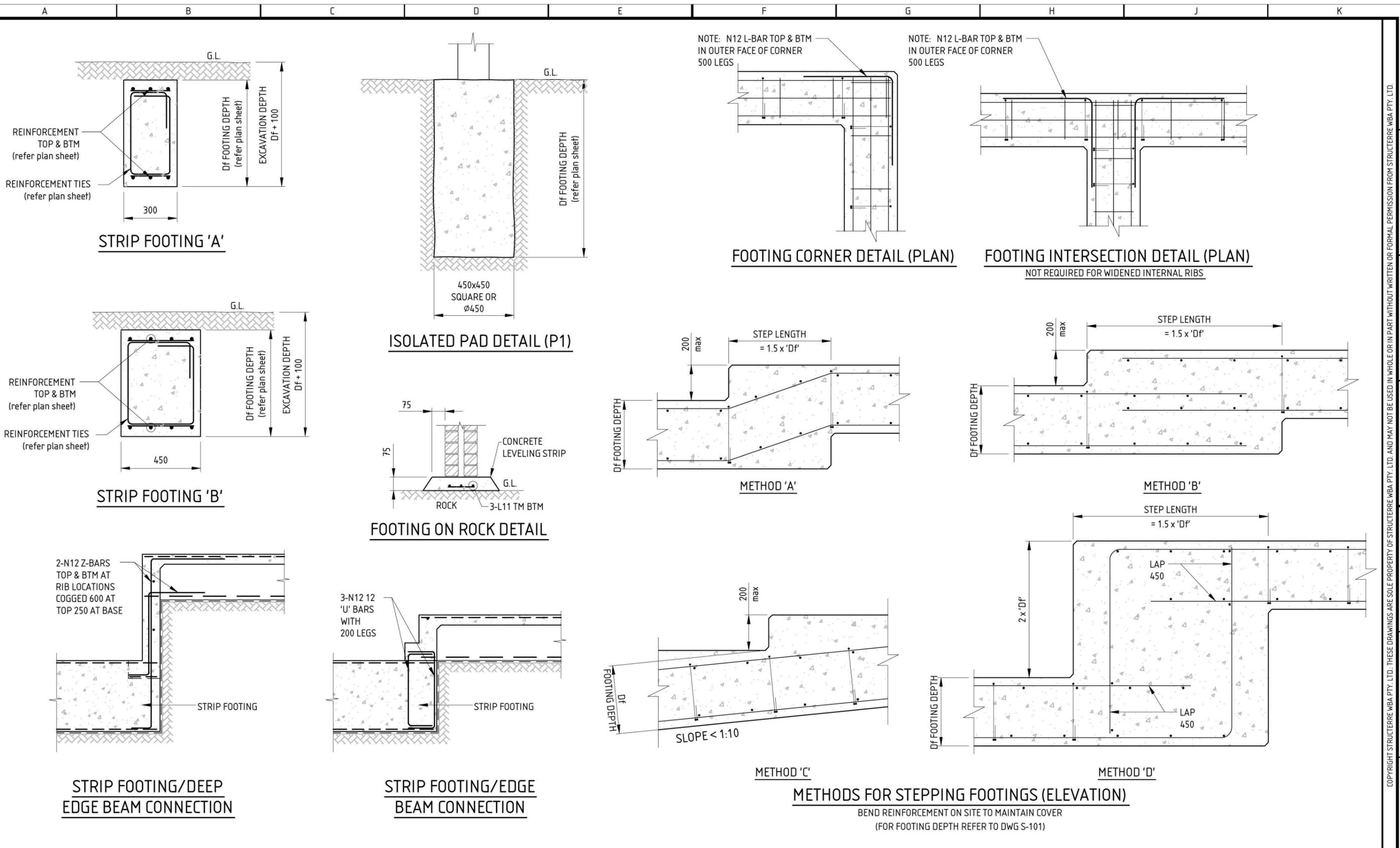
CLIENT
RAWSON HOMES NSW

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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						MIEAust. CPEng, NPER, BPP, RBP, RPEQ, FAPI		

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
 LOT 2350 WALSHAW STREET,
 PENRITH, THORNTON ESTATE. NSW

FOOTING & SLAB DETAILS - SHEET 6

CLIENT
RAWSON HOMES NSW

STRUCterre
 consulting engineers

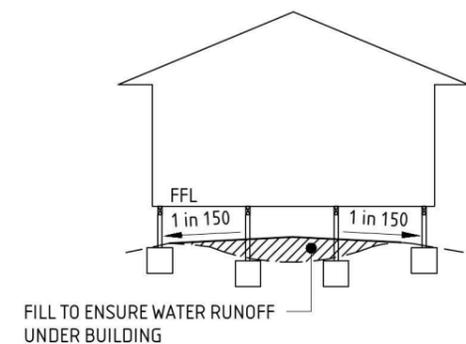
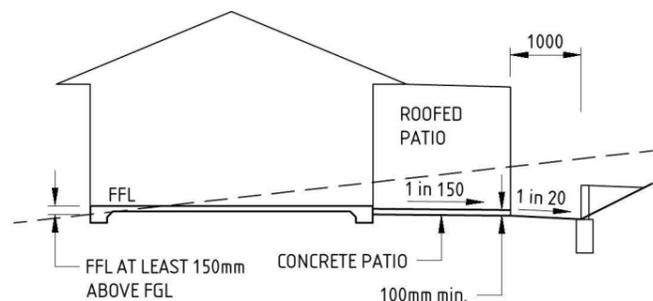
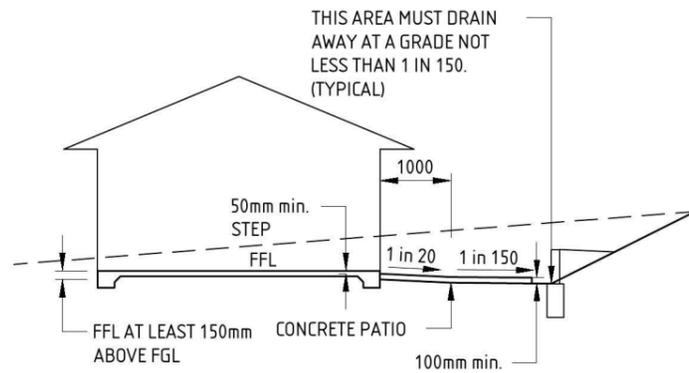
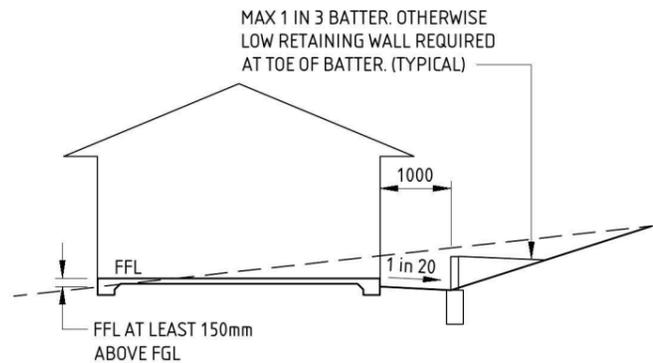
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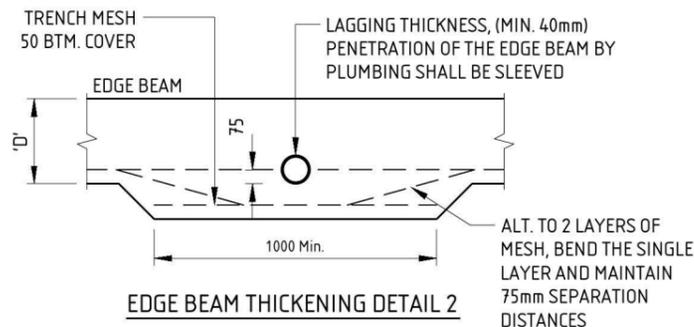
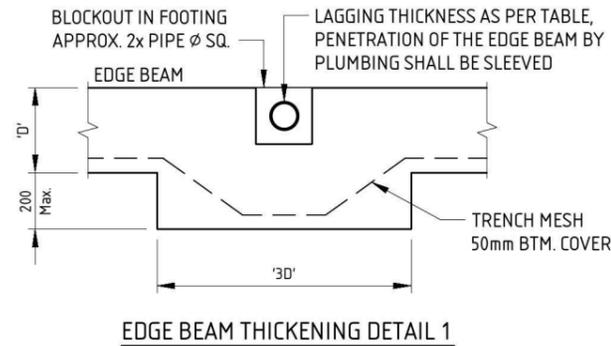
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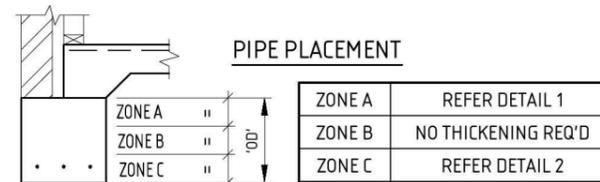
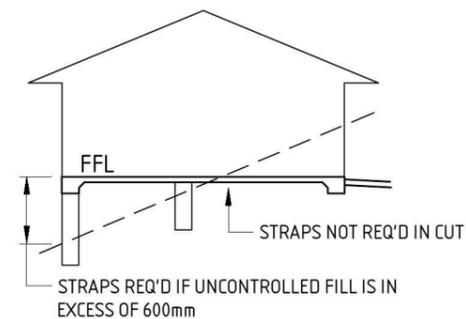


TYP. SURFACE DRAINAGE DETAILS

FFL - FINISHED FLOOR LEVEL
FGL - FINISHED GROUND LEVEL



PLUMBING PIPE PENETRATION DETAILS



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°

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.

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						ENG. CHECK	RC	31/07/15
						SCALE		SIZE A3
						APPROVED BY:		
							ROBERT COLOMBO	
							MIEAust. CPEng, NPER, BPB, RBP, RPEQ, FAPI	

PROJECT

PROPOSED NEW DWELLING FOR RAWSON HOMES NSW

LOT 2350 WALSHAW STREET, PENRITH, THORNTON ESTATE. NSW

SURFACE DRAINAGE 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

STRUCETERRE JOB No. **35625** DRAWING REF. No. **D35625-S-108**

CLIENT REFERENCE No. **0**

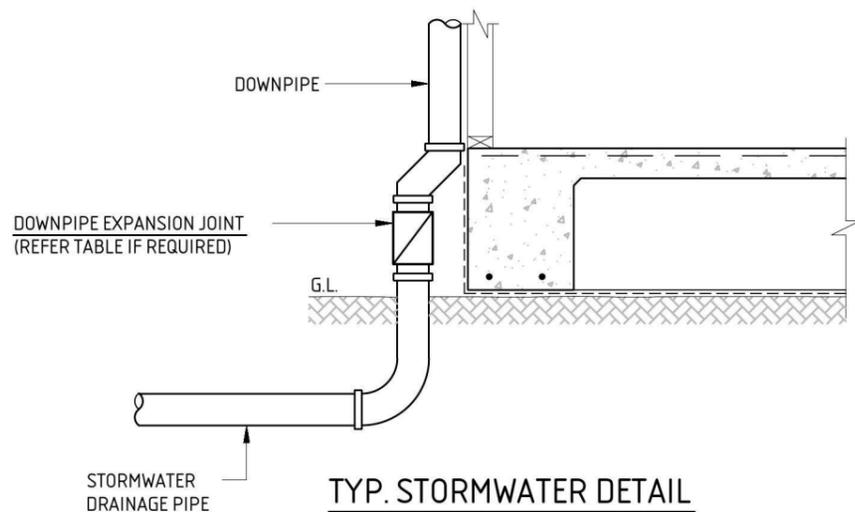
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- HORIZONTAL EXPANSION JOINT**
- REQUIRED DOWNSTREAM AT EACH JUNCTION, CHANGE IN GRADE & CHANGE IN DIRECTION AS PER AS 3500
 - REFER TO AS 3500 & LOCAL COUNCIL REQUIREMENTS FOR MAXIMUM SPACING BETWEEN JOINTS.

- COMBINATION SWIVEL-EXPANSION JOINT**
- TO BE INSTALLED WITHIN 1000mm OF DWELLING PERIMETER
 - MAY BE REPLACED WITH A SERIES OF SWIVEL & EXPANSION JOINTS OF EQUIVALENT ALLOWABLE MOVEMENT

- VERTICAL EXPANSION JOINT**
- REQUIRED FOR Ø100 PIPES
 - MAY BE REPLACED WITH SWIVEL/EXPANSION COMBO JOINT IF DISTANCE BETWEEN BOTTOM OF SLAB & TOP OF PIPE IS < 500mm
 - WHERE DRAINAGE PIPE IS PENETRATING THROUGH CONCRETE BEAMS, VERTICAL EXPANSION JOINTS ARE NOT REQUIRED.

TYP. UNDER SLAB EDGE DETAIL
(ELEVATION VIEW)



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

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. NSW

PLUMBING CONNECTION DETAILS

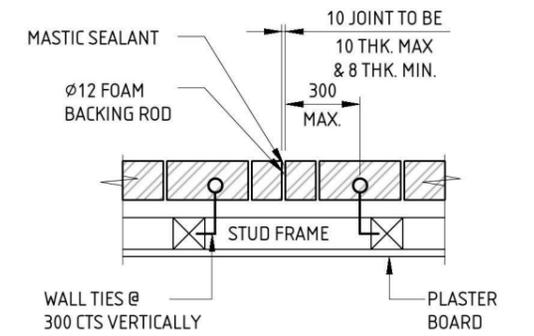
CLIENT
RAWSON HOMES NSW

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

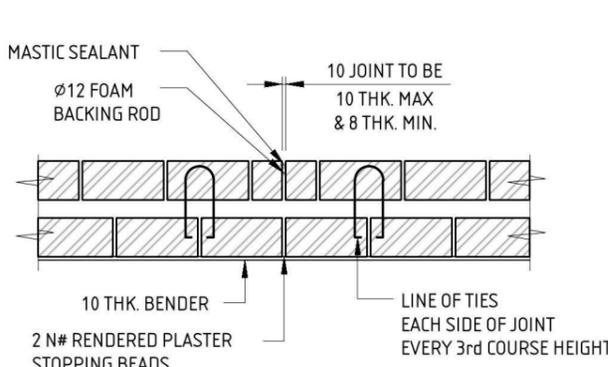
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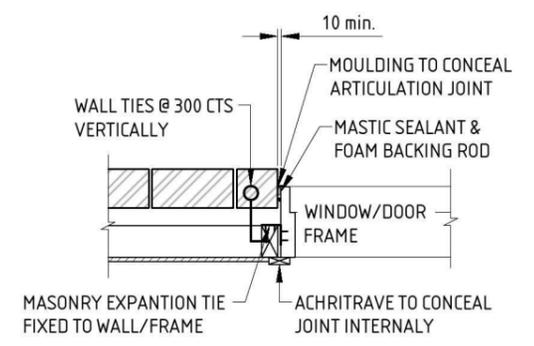
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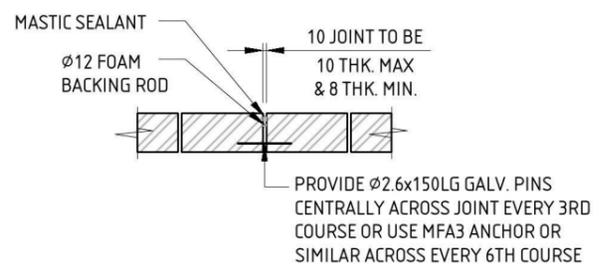
MASONRY VENEER WALL JOINT DETAIL



MASONRY CAVITY WALL JOINT DETAIL



**MASONRY VENEER WALL JOINT DETAIL
BESIDE OPENINGS**



SINGLE SKINNED WALL JOINT DETAIL

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

PROJECT
**PROPOSED NEW DWELLING FOR
 RAWSON HOMES NSW**
 LOT 2350 WALSHAW STREET,
 PENRITH, THORNTON ESTATE. NSW

CLIENT
RAWSON HOMES NSW

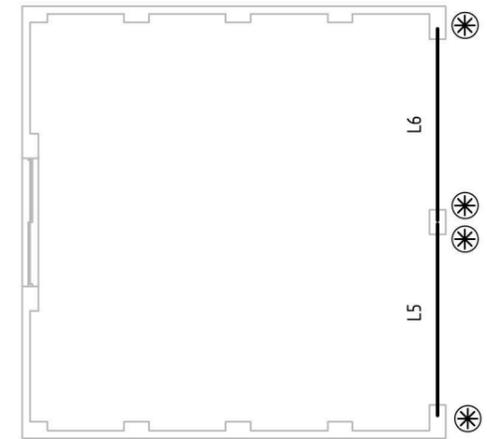
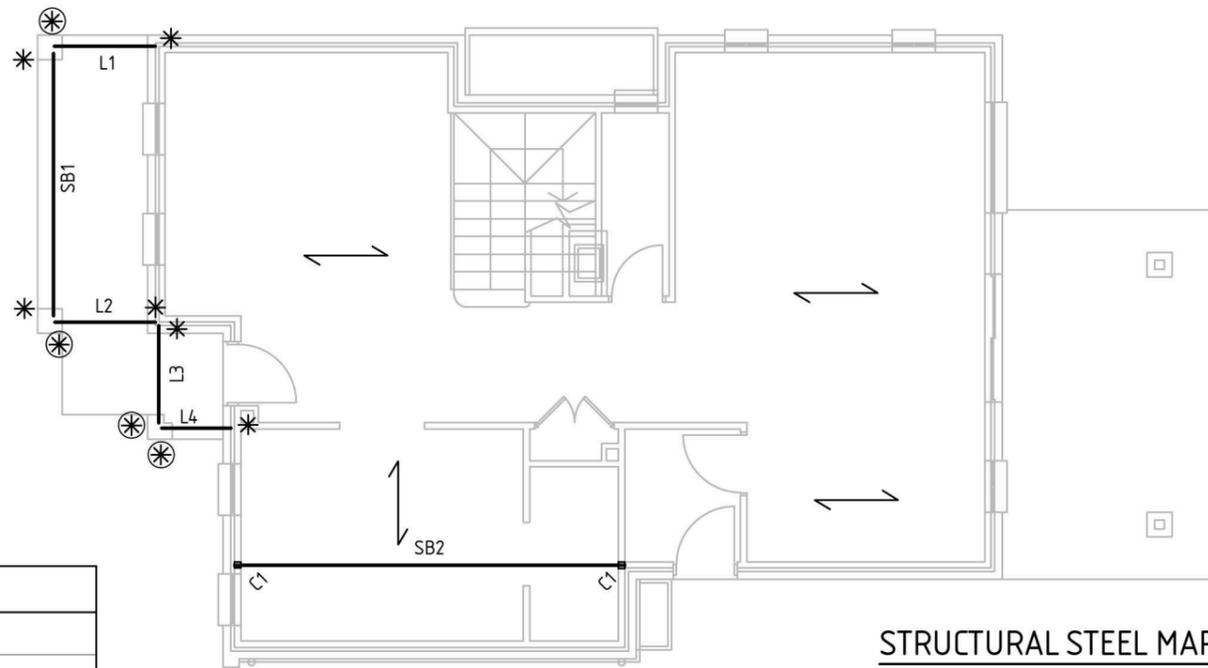
Structerre Pty. Ltd. (ACN: 055 912 733)
 SUITE 1, LEVEL 2, 42 BIRNIE AVENUE, LIDCOMBE NSW 2141
 TEL (02) 9646 5811 FAX (02) 9646 2311 EMAIL: sydney@structerre.com.au

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EXPOSURE CLASSIFICATION	
STRUCTURAL STEEL	MEDIUM

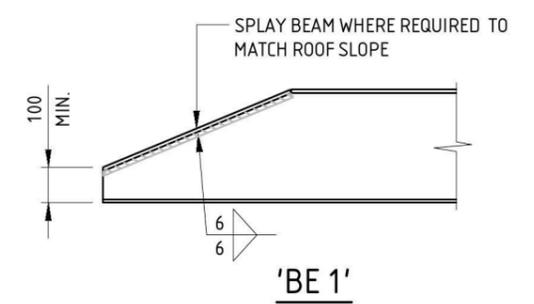
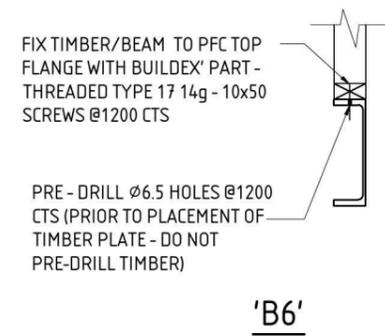


LEGEND	
*	DENOTES MIN 110 BRICK BEARING
⊗	DENOTES MIN 150 BRICK BEARING
↔	DENOTES FLOOR JOIST DIRECTION

STRUCTURAL STEEL MARKING PLAN
SCALE 1:100

GALINTEL PRODUCTS RELY ON COMPOSITE ACTION, THEREFORE, TO ACHIEVE ULTIMATE PERFORMANCE, MORTAR MUST BE PRESENT AT ALL CONTACT SURFACES BETWEEN BRICKS AND LINTEL.

MEMBER SCHEDULE		
MARK	MEMBER	COMMENTS
STEEL BEAMS		
SB1	200PFC	
SB2	300PFC	REFER TO DETAIL 'B6'
LINTELS		
L1	200x7 GALINTEL MULTI RIB T-BAR	MIN 3 CRS BRICK OVER TO MANUFACTURERS SPECS.
L2	200x7 GALINTEL MULTI RIB T-BAR	MIN 3 CRS BRICK OVER TO MANUFACTURERS SPECS.
L3	200x7 GALINTEL MULTI RIB T-BAR	MIN 3 CRS BRICK OVER TO MANUFACTURERS SPECS.
L4	200x7 GALINTEL MULTI RIB T-BAR	MIN 3 CRS BRICK OVER TO MANUFACTURERS SPECS.
L5	200x7 GALINTEL MULTI RIB T-BAR	MIN 3 CRS BRICK OVER TO MANUFACTURERS SPECS.
L6	200x7 GALINTEL MULTI RIB T-BAR	MIN 3 CRS BRICK OVER TO MANUFACTURERS SPECS.
POSTS		
C1	75x75x3 EZI POST OR EQUIVALENT	COLUMN BASE & COLUMN JOINT 1 - EZI POST



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

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

PROJECT
PROPOSED NEW DWELLING FOR RAWSON HOMES NSW
LOT 2350 WALSHAW STREET,
PENRITH, THORNTON ESTATE. NSW

STRUCTURAL STEEL MARKING PLAN

CLIENT
RAWSON HOMES NSW

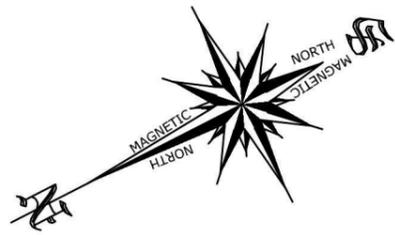
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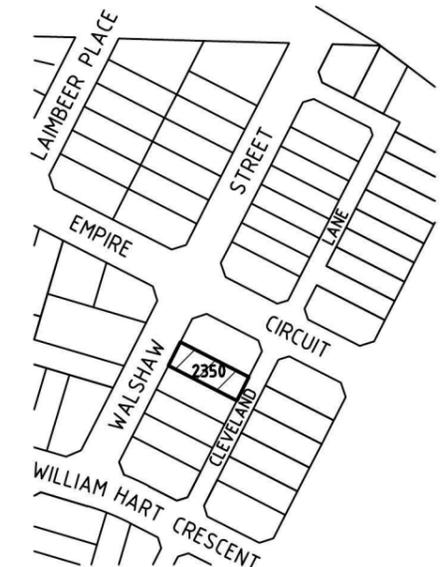
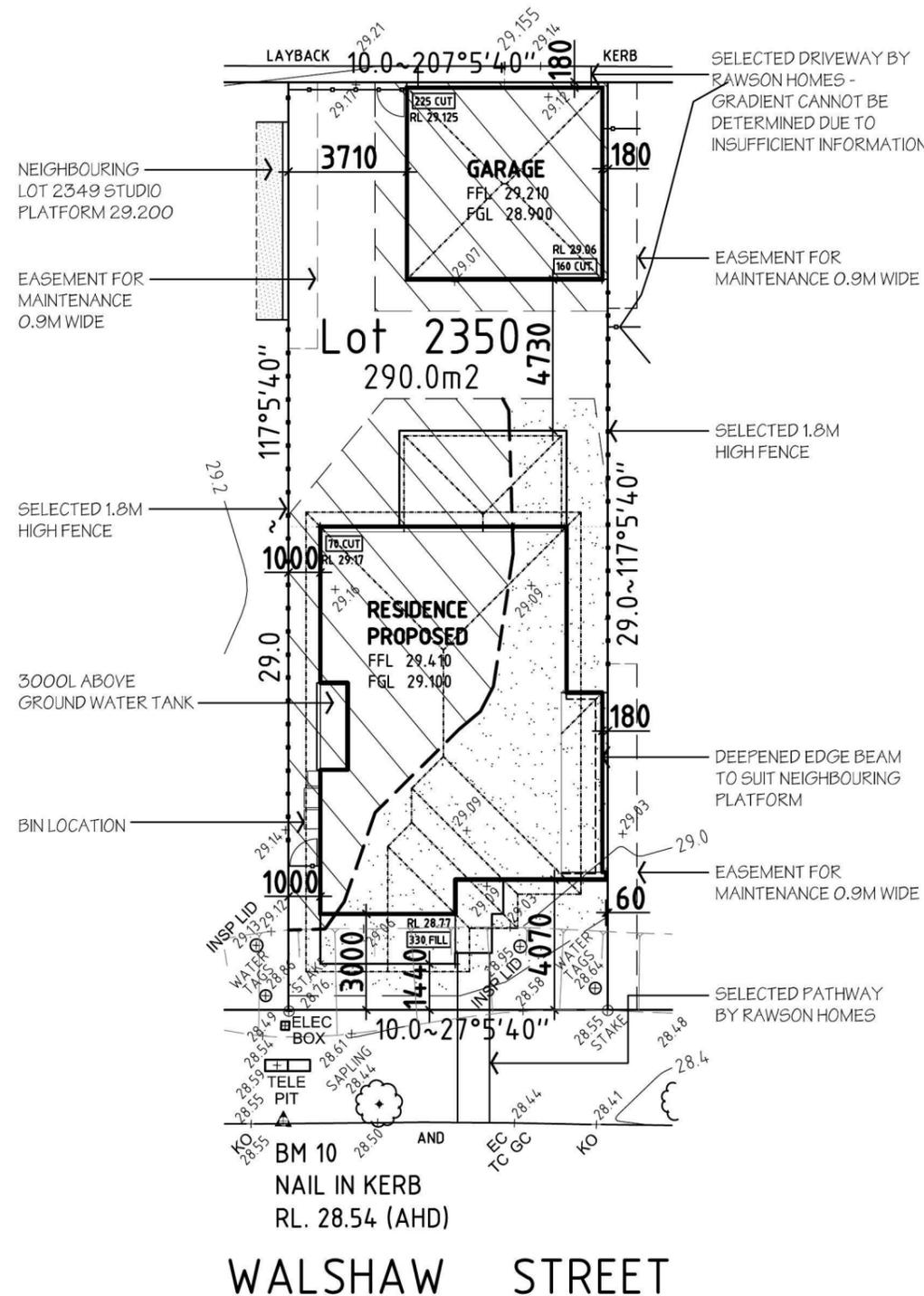
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CLEVELAND LANE

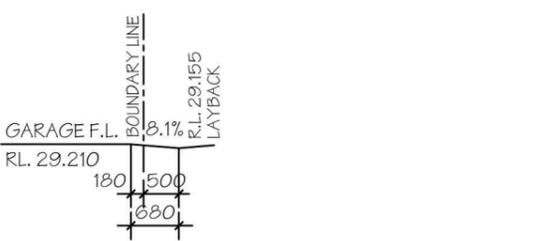


LOCATION PLAN

WARNING - UNREGISTERED PLAN
 - THIS CONTOUR AND DETAIL SURVEY IS BASED UPON AN UNREGISTERED PLAN.
 - ALL BOUNDARIES AND EASEMENTS ARE UNREGISTERED AND MAY BE AMENDED TO SUIT THE REQUIREMENTS OF COUNCIL OR THE LAND TITLES OFFICE.
 - THIS INFORMATION MUST BE VERIFIED UPON REGISTRATION.
 - NO FURTHER INVESTIGATION HAS BEEN UNDERTAKEN TO DISCLOSE EASEMENTS ETC OMITTED FROM THE UNREGISTERED PLAN.
 - STRUCTURE SURVEYING CAN ACCEPT NO LIABILITY FOR ANY LOSS OR DAMAGE HOWSOEVER ARISING, TO ANY PERSON OR CORPORATION, DUE TO OMISSIONS, ERRORS OR VARIATIONS ON THE UNREGISTERED PLAN.
 - COPIES OF THIS CONTOUR PLAN MUST NOT BE REPRODUCED WITHOUT THIS NOTICE.

***NOTES:**
 - THIS SURVEY IS FOR CONTOUR PURPOSES ONLY SERVICES SHOWN HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY.
 - CONTOURS SHOWN HAVE BEEN INTERPOLATED FROM SPOT LEVELS TAKEN ON-SITE AND ARE A REPRESENTATION OF THE TOPOGRAPHY ONLY.
 - DIMENSIONS AND AREAS HAVE BEEN DETERMINED FROM PLANS MADE AVAILABLE AT LPI, NSW AND ARE SUBJECT TO FINAL SURVEY.
 - SERVICES SHOWN HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. PRIOR TO ANY SITE WORKS, THE RELEVANT AUTHORITY SHOULD BE CONTACTED TO ESTABLISH ACCURATE POSITION AND DEPTH OF ANY SERVICES.
 - DIMENSIONS OF ANY TREES SHOWN ON THE PLAN ARE APPROXIMATE

LEGEND	
	WATER METER
	TELECOM PIT
	MANHOLE (SEWER/STORMWATER)
	VEHICLE CROSSING
	KORB INLET PIT
	LIGHT POLE
	ELECTRICITY POLE
	ELECTRICITY PILLAR
	HYDRANT
	STOP VALVE
	KORB OUTLET
	SERVICE CONDUIT
	TREE (DIA/HEIGHT)



LOT 2350 DRIVEWAY DETAILS (SCALE 1:100)

***FURTHER NOTES:**
 - FLOOR LEVELS HAVE BEEN BASED ON AN ASSUMED 'M-CLASS' SITE CLASSIFICATION
 - REFER TO LANDSCAPING DRAWINGS FOR ALL FENCING & LANDSCAPING DETAILS

LOT 2350	
SITE DATA	
SITE AREA:	290.00 m ²
PRIVATE OPEN SPACE RATIO:	(34.2 %)
PRIVATE OPEN SPACE AREA:	99.32m ²
LANDSCAPE AREA:	
SITE AREA:	290.00m ²
TOTAL HARDSTAND AREAS: (INC. Driveway & Path.)	165.03m ²
REMAINING SOFT AREA:	124.97m ²
FLOOR AREAS	
GROUND FLOOR:	100.41 m ²
FIRST FLOOR:	92.34 m ²
DETACHED GARAGE:	36.60 m ²
PORCH:	3.00 m ²
PORTICO:	6.58 m ²
ALFRESCO:	15.68 m ²
BALCONY:	7.27 m ²
TOTAL FLOOR AREA:	261.88 m ²

DATUM OF LEVELS: AUSTRALIAN HEIGHT DATUM
 ORIGIN OF LEVELS: SSM 180810 RL. 28.445
 SOURCE OF LEVELS: S C I M S



NOTES:
 PLEASE NOTE: DETAILS SHOWN ON THESE PLANS ARE INTENDED TO BE ACCURATE - HOWEVER INFORMATION WRITTEN INTO INDIVIDUAL CONTRACTS WILL TAKE PRECEDENCE OVER PLANS

* ALL DIMENSIONS ARE TO STRUCTURAL FRAMES
 * ALL DIMENSIONS ARE IN MILLIMETRES
 * DO NOT SCALE - USE WRITTEN DIMENSIONS

RAWSON HOMES
 1 HOMEBUSH BAY DRIVE
 BUILDING F, LEVEL 2, SUITE 1
 RHODES NSW 2138
 TELEPHONE: 02 8765 5500
 FAX : 02 8765 8099
 BUILDER'S LICENCE No. 33493C

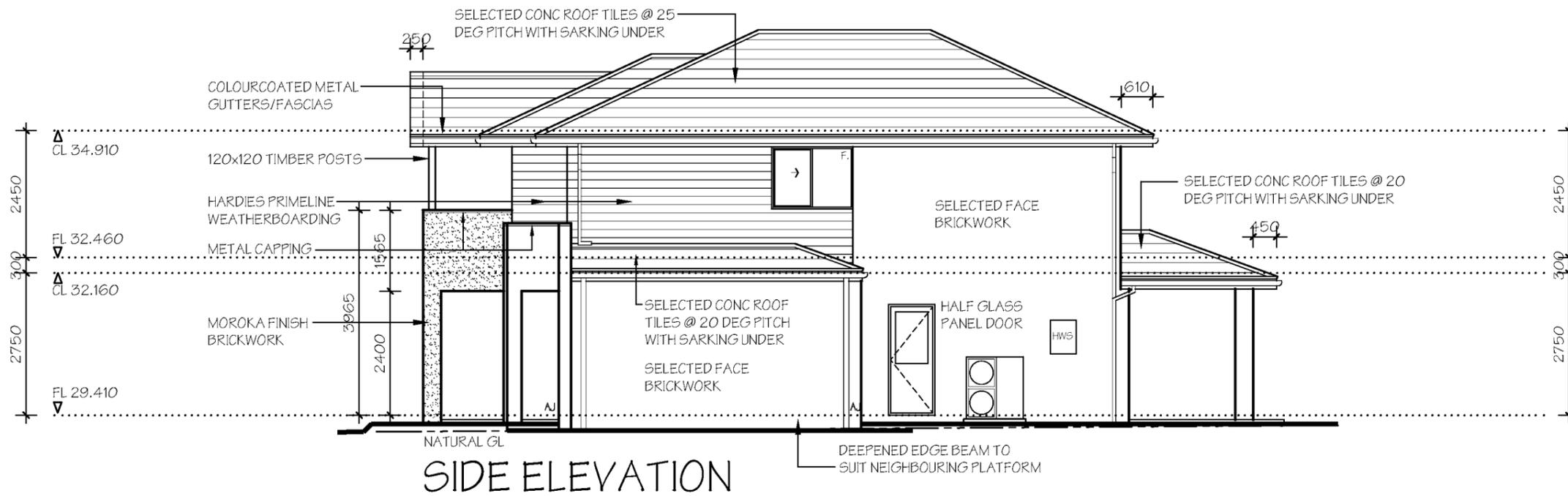
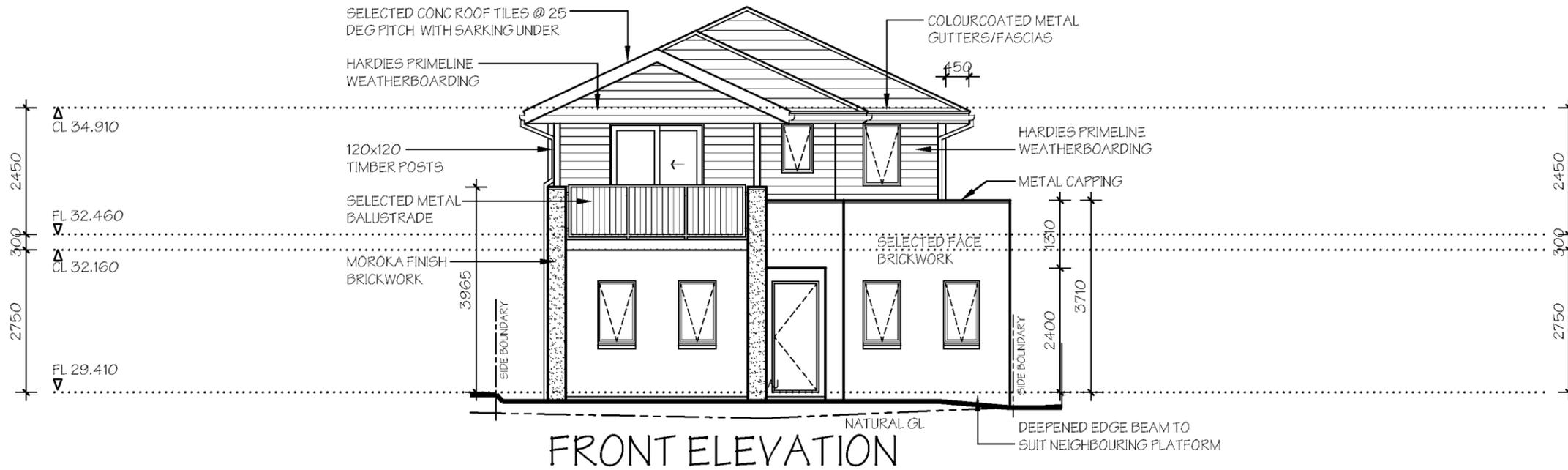
CLIENT:
PREET AHLUMALIA & AMARJEET SINGH

SITE ADDRESS:
 LOT 2350
 WALSHAW STREET
 PENRITH (THORNTON ESTATE)

HOUSETYPE:
 MODEL: BENHAM 24 LH MODIFIED
 FACADE: THORNTON CLASSIC
 TYPE:
 SPECIFICATION:
 DRAWING TITLE:
SITE PLAN

DRAWN BY: SJB	DATE DRAWN: FEB '14	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: PENRITH		SCALE: 1:200	
JOB No: J003508	DRWG No.:	ISSUE:	
	02	D	

NOTE:
*STAINLESS STEEL MESH SECURITY
SCREEN DOOR TO FRONT ENTRY
*NYLON MESH FLYSCREENS TO ALL
OPENING WINDOWS & SLIDING
DOORS (EXCLUDING HINGED DOORS)



NOTES:
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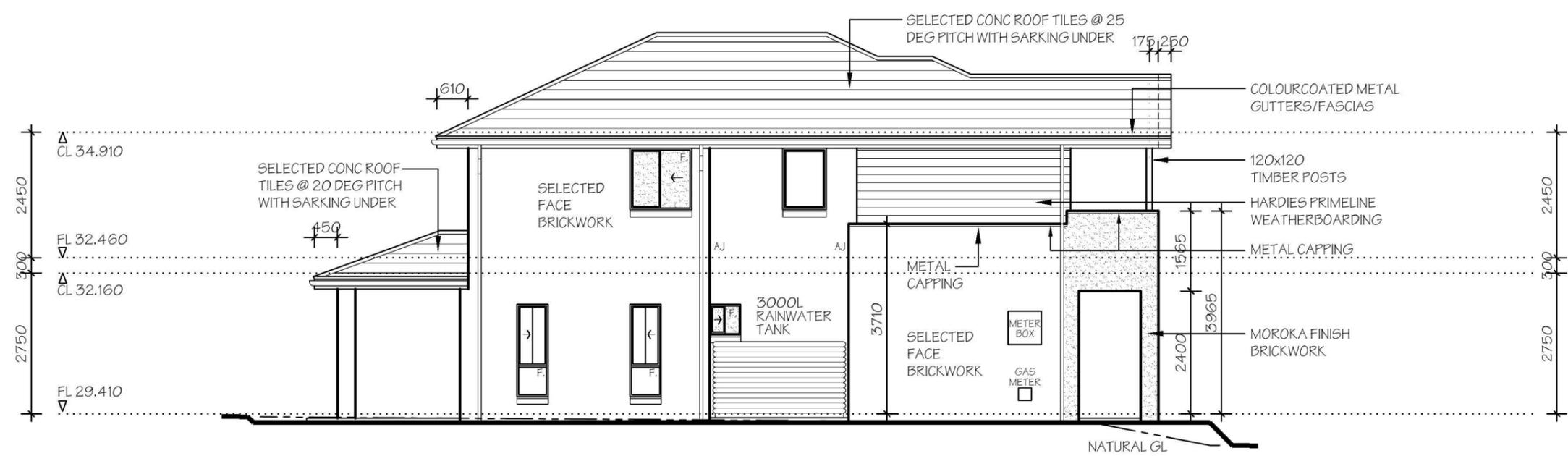
RAWSON HOMES
1 HOMEBUSH BAY DRIVE
BUILDING F, LEVEL 2, SUITE 1
RHODES NSW 2138
TELEPHONE: 02 8765 5500
FAX : 02 8765 8099
BUILDER'S LICENCE No. 33493C

CLIENT:
PREET AHLUMALIA & AMARJEET SINGH
SITE ADDRESS:
**LOT 2350
WALSHAW STREET
PENRITH (THORNTON ESTATE)**

HOUSETYPE:
MODEL: BENHAM 24 LH MODIFIED
FACADE: THORNTON CLASSIC
TYPE:
SPECIFICATION:
DRAWING TITLE:
ELEVATIONS 1

DRAWN BY: SJB	DATE DRAWN: FEB '14	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: PENRITH		SCALE: 1:100	
JOB No: J003508	DRWG No.:	ISSUE:	
	05	D	

NOTE:
*STAINLESS STEEL MESH SECURITY
SCREEN DOOR TO FRONT ENTRY
*NYLON MESH FLYSCREENS TO ALL
OPENING WINDOWS & SLIDING
DOORS (EXCLUDING HINGED DOORS)



SIDE ELEVATION



REAR ELEVATION

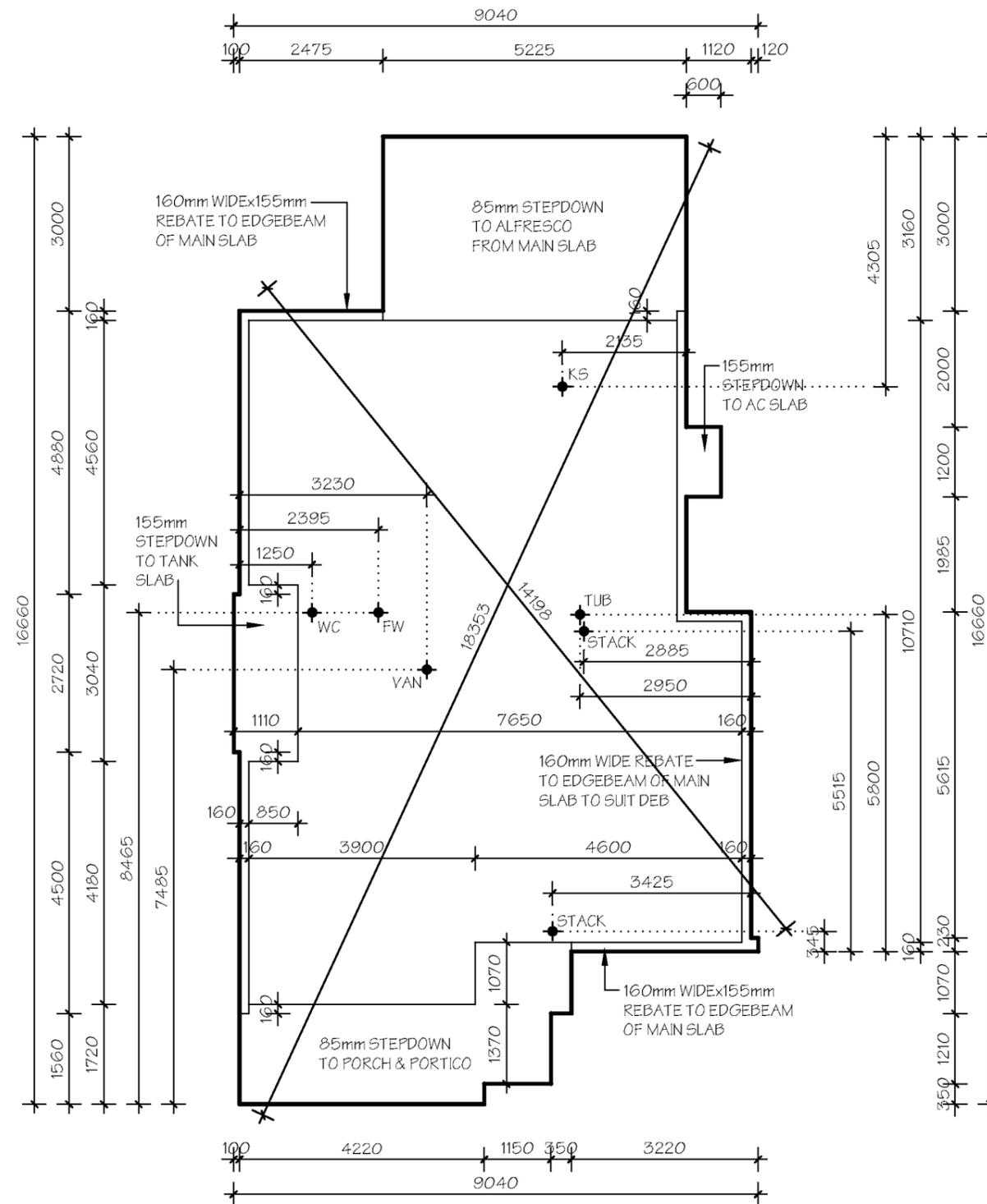
NOTES:
PLEASE NOTE: DETAILS SHOWN ON THESE PLANS ARE INTENDED TO BE ACCURATE - HOWEVER INFORMATION WRITTEN INTO INDIVIDUAL CONTRACTS WILL TAKE PRECEDENCE OVER PLANS
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RAWSON HOMES
1 HOMEBUSH BAY DRIVE
BUILDING F, LEVEL 2, SUITE 1
RHODES NSW 2138
TELEPHONE: 02 8765 5500
FAX : 02 8765 8099
BUILDER'S LICENCE No. 33493C

CLIENT:
PREET AHLUMALIA & AMARJEET SINGH
SITE ADDRESS:
LOT 2350
WALSHAW STREET
PENRITH (THORNTON ESTATE)

HOUSETYPE:
MODEL: BENHAM 24 LH MODIFIED
FACADE: THORNTON CLASSIC
TYPE:
SPECIFICATION:
DRAWING TITLE:
ELEVATIONS 2

DRAWN BY: SJB	DATE DRAWN: FEB '14	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: PENRITH		SCALE: 1:100	
JOB No: J003508	DRWG No.:	ISSUE:	
	06	D	



GROUND FLOOR SLAB SETOUT

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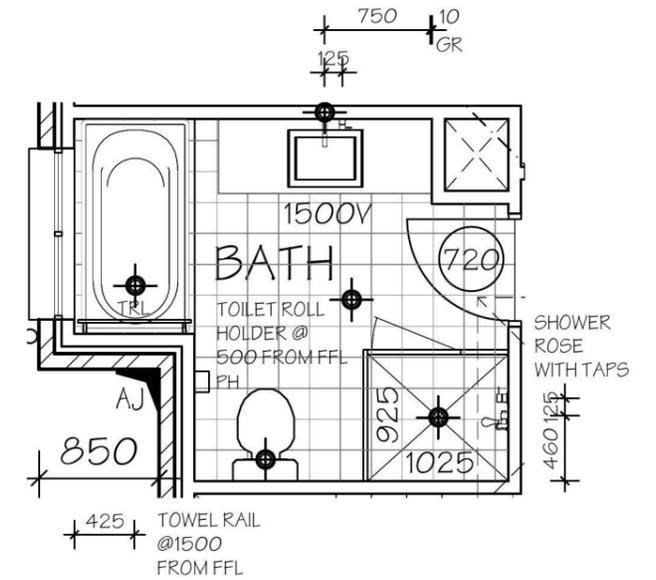
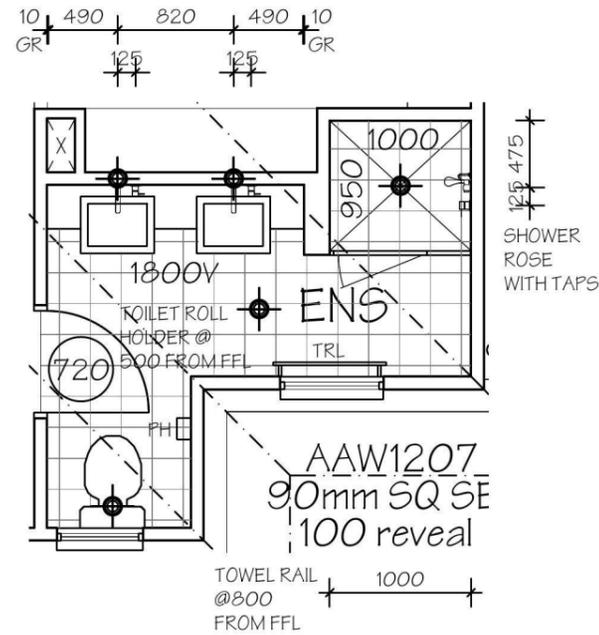
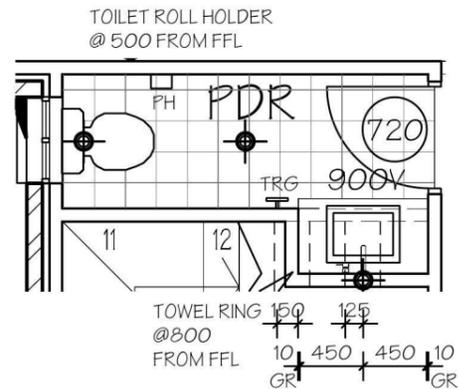
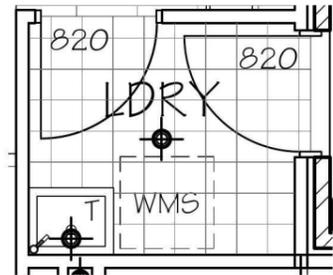
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MODEL: BENHAM 24 LH MODIFIED
FACADE: THORNTON CLASSIC
TYPE:
SPECIFICATION:

DRAWING TITLE:
SLAB PLAN

DRAWN BY: SJB	DATE DRAWN: FEB '14	CHECKED BY:	APPROVED FOR CONSTRUCTION:
COUNCIL AREA: PENRITH		SCALE: 1:100	
JOB No: J003508	DRWG No.: 08	ISSUE: D	

REFER TO ELBA KITCHENS FOR DETAILS

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NOTES:

- TILING HEIGHT ABOVE TOP OF BATH 500mm
- TILING HEIGHT TO SHOWER 2100mm FROM FFL
- HEIGHT OF SHOWER SCREENS 2100mm
- SINGLE ROW OF TILING ABOVE LAUNDRY TUB
- SKIRTING TILE TO REMAINDER OF BATHROOM, ENSUITE, POWDER AND LAUNDRY
- SQ. EDGE POLISHED FLOATING MIRRORS MOUNTED ON 32mm BOARD, 130mm OFFSET FROM EDGE OF VANITY & HEAD HEIGHT @2020mm
- WASHING MACHINE TAP SET UNDER TUB

NOTES:

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PREET AHLUMALIA & AMARJEET SINGH

SITE ADDRESS:
**LOT 2350
WALSHAW STREET
PENRITH (THORNTON ESTATE)**

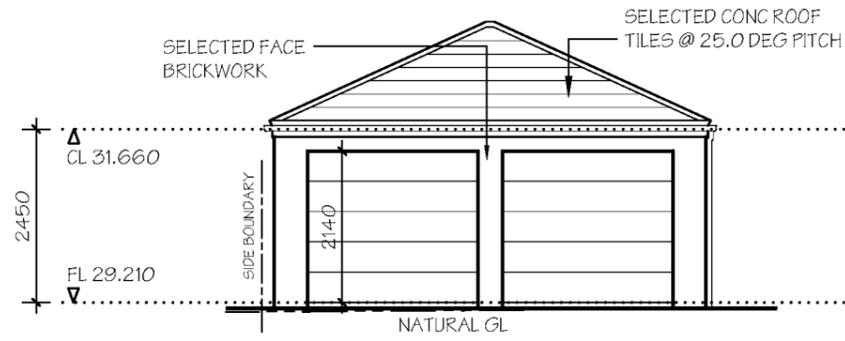
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FACADE: THORNTON CLASSIC
TYPE:
SPECIFICATION:

DRAWING TITLE:
WET AREA DETAILS

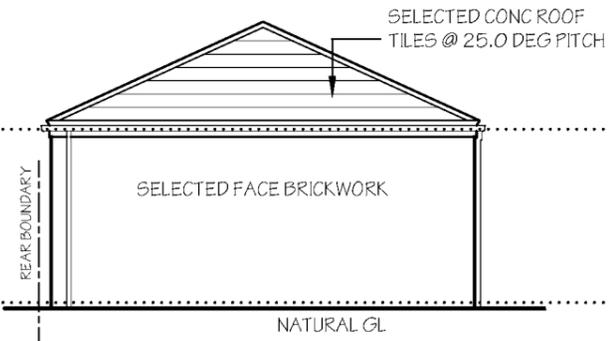
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COUNCIL AREA: PENRITH	SCALE: 1:50
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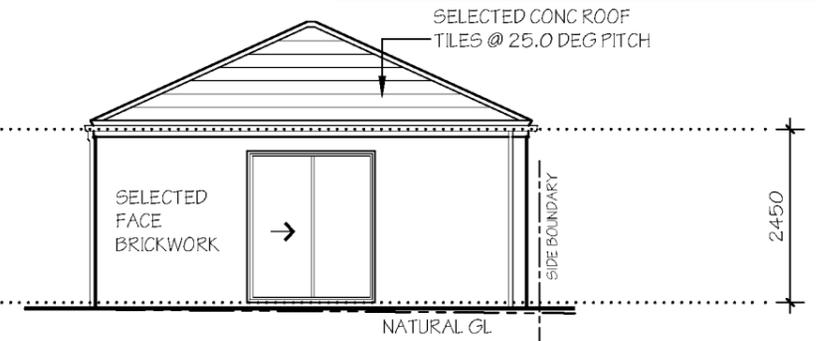
JOB No: J003508	DRWG No.: 10	ISSUE: D
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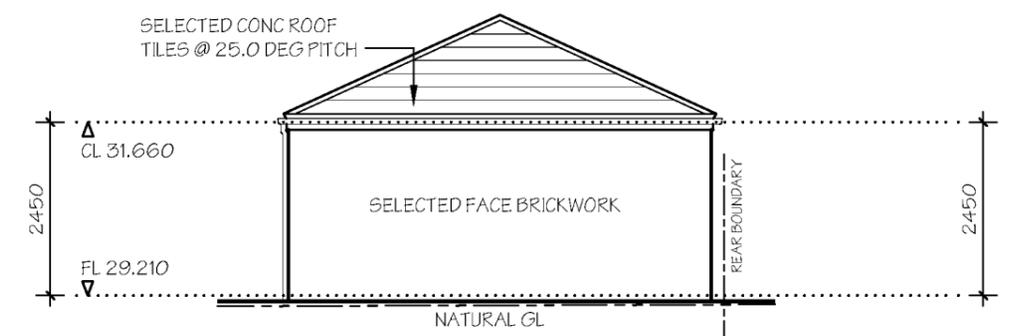
FRONT GARAGE - A



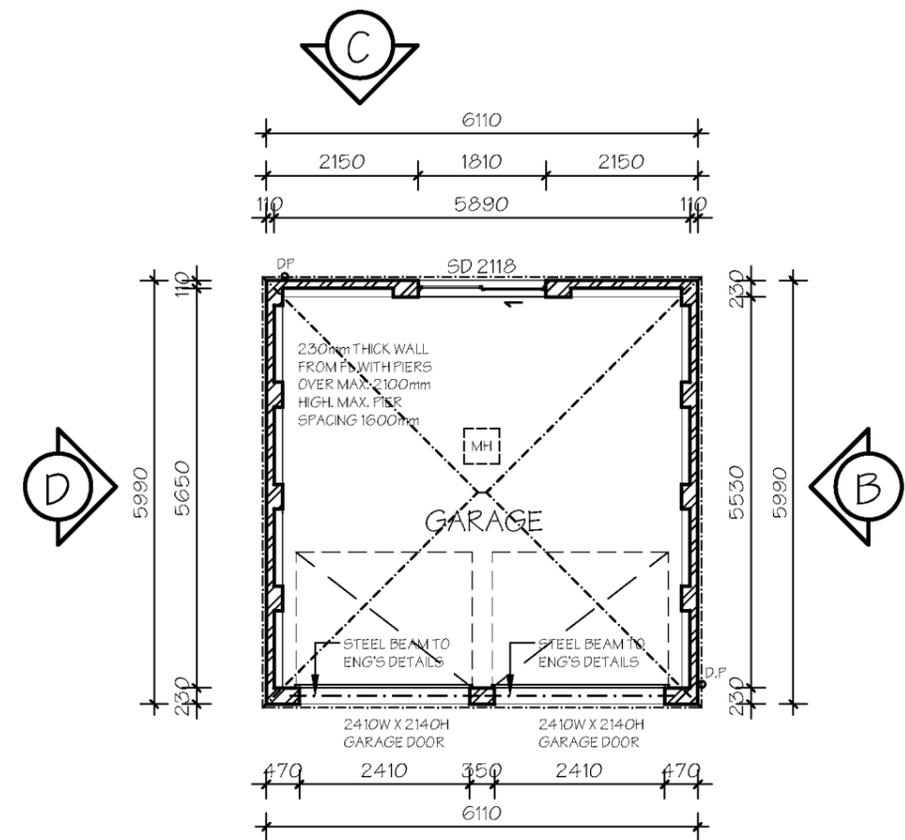
SIDE GARAGE - B



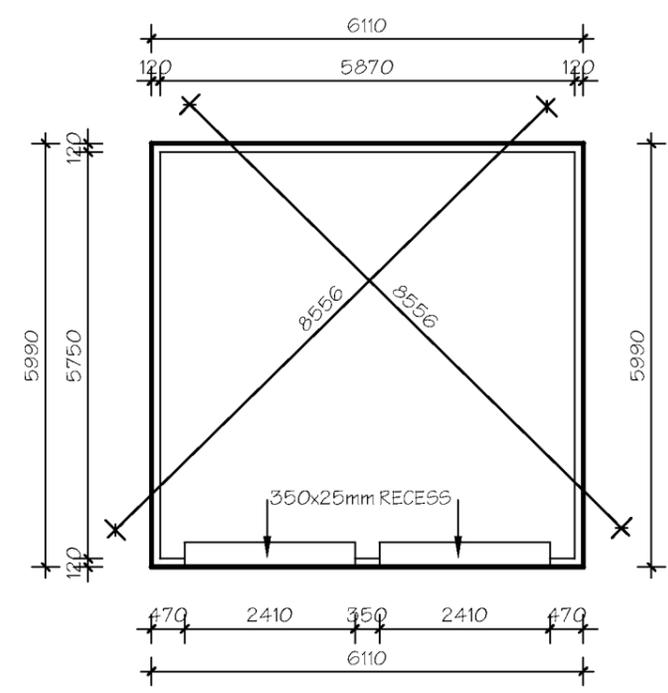
REAR GARAGE - C



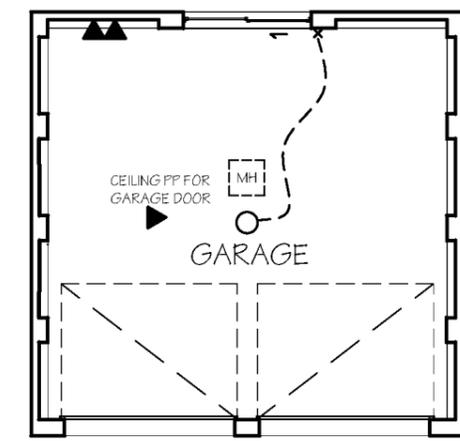
SIDE GARAGE - D



GARAGE PLAN



GARAGE SLAB PLAN



GARAGE ELECTRICAL PLAN

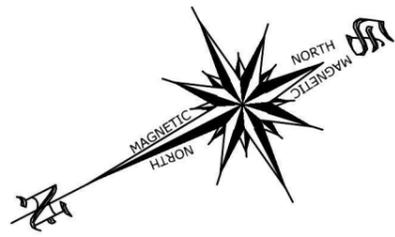
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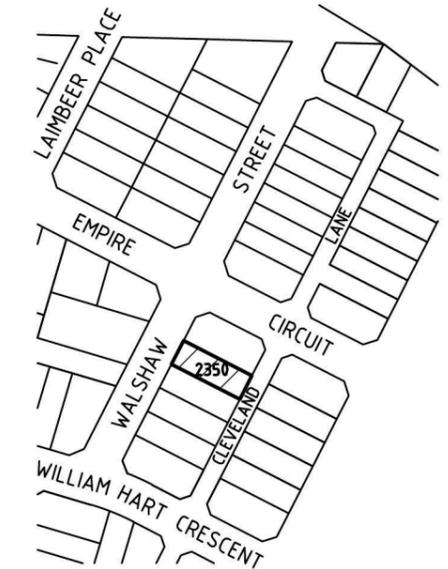
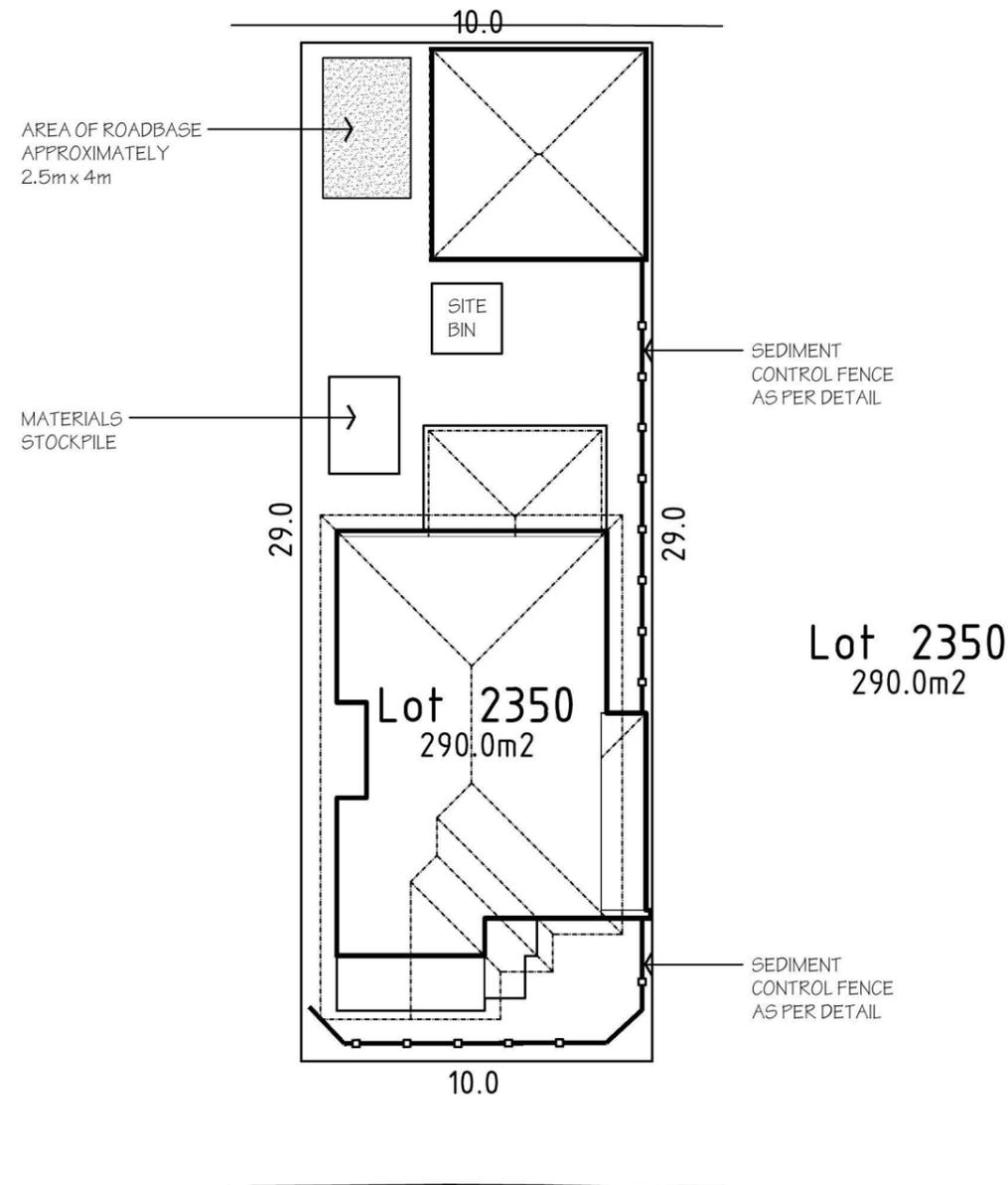
CLIENT:
PREET AHLUMALIA & AMARJEET SINGH
SITE ADDRESS:
LOT 2350
WALSHAW STREET
PENRITH (THORNTON ESTATE)

HOUSETYPE:
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FACADE: THORNTON CLASSIC
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SPECIFICATION:
DRAWING TITLE:
GARAGE DRAWINGS

DRAWN BY: SJB	DATE DRAWN: FEB '14	CHECKED BY:	APPROVED FOR CONSTRUCTION:
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JOB No: J003508	DRWG No.:	ISSUE:	
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CLEVELAND LANE



LOCATION PLAN

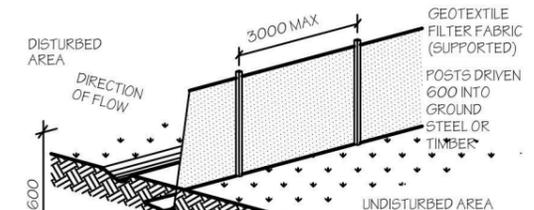
LEGEND

	WATER METER		ELECTRICITY POLE
	TELECOM PIT		ELECTRICITY PILLAR
	MANHOLE (SEWER/STORMWATER)		HYDRANT
	VEHICLE CROSSING		STOP VALVE
	KERB INLET PIT		KERB OUTLET
	LIGHT POLE		SERVICE CONDUIT
			TREE (DIA/HEIGHT)

SEDIMENT CONTROL

INSTALL SEDIMENT CONTROL STRUCTURES IN LOCATIONS INDICATED ON THIS DRAWING AND AS OTHERWISE REQUIRED TO CONTROL SEDIMENT DURING ALL EXCAVATIONS AND WHILE AREAS OF THE SITE ARE EXPOSED TO EROSION. REVIEW CONTROL MEASURES AND MAINTAIN STRUCTURES DURING CONSTRUCTION.

IF ADDITIONAL MEASURES ARE REQUIRED FOR EROSION AND CONTROL OR BY COUNCIL REQUIREMENTS, REFER TO "URBAN EROSION AND SEDIMENT CONTROL" GUIDELINES PREPARED BY THE DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT.



SEDIMENT FENCE DETAIL

SUITABLE FOR DRAINAGE AREA OF 0.6HA MAX AND SLOPE GRADIENT OF 1:2 MAX WITH LENGTH OF 60M MAX



WALSHAW STREET

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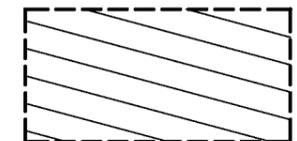
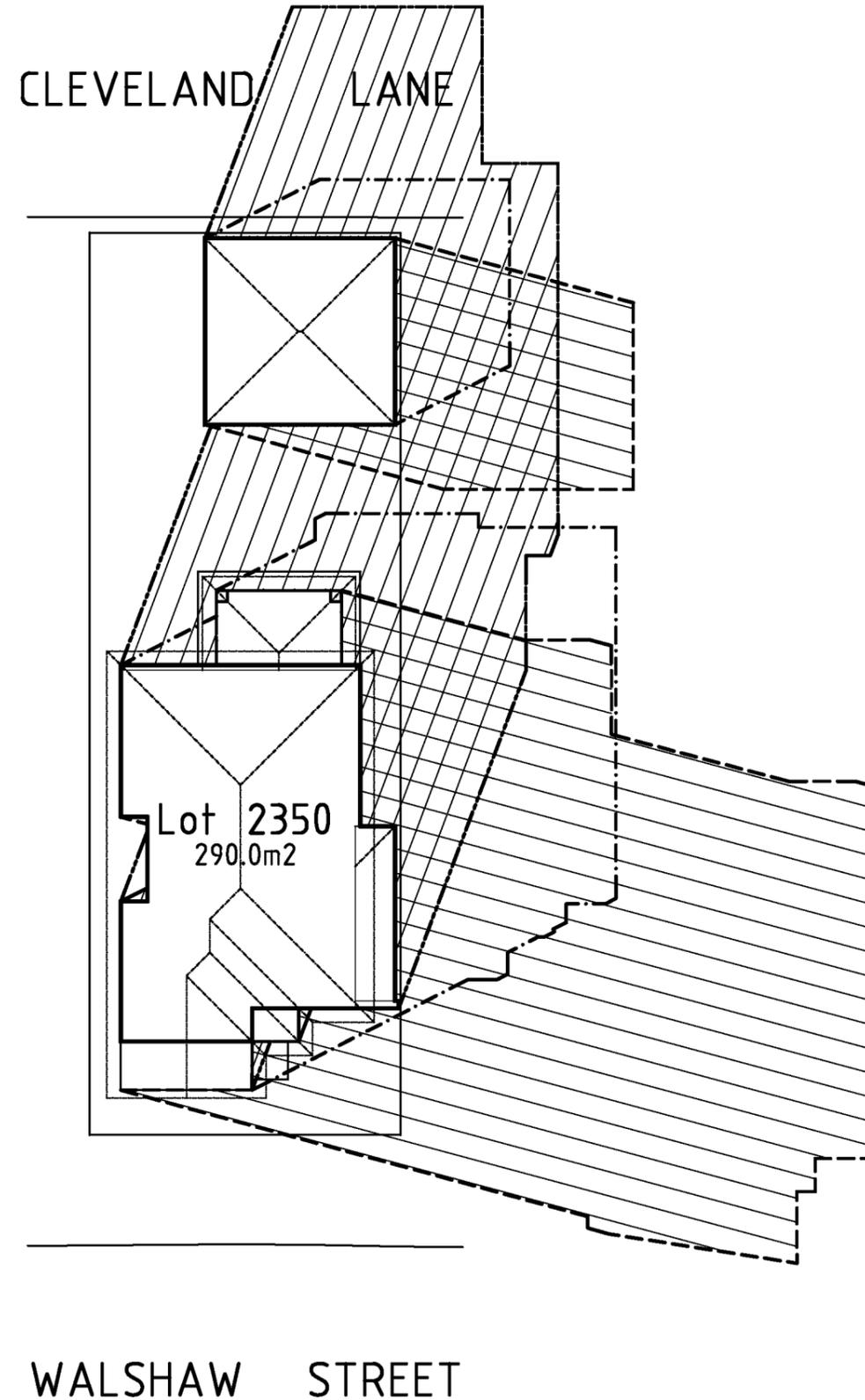
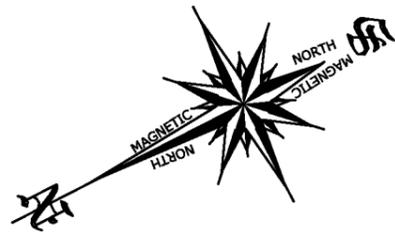
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MODEL: BENHAM 24 LH MODIFIED
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TYPE:
SPECIFICATION:

DRAWING TITLE:
SEDIMENT & WASTE PLAN

DRAWN BY: SJB	DATE DRAWN: FEB '14	CHECKED BY:	APPROVED FOR CONSTRUCTION:
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COUNCIL AREA: PENRITH	SCALE: 1:200
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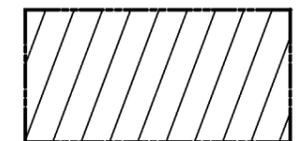
JOB No: J003508	DRWG No.: 12	ISSUE: D
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21st JUNE SHADOWS 9:00am



21st JUNE SHADOWS 12:00pm



21st JUNE SHADOWS 3:00pm

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TYPE:
SPECIFICATION:

DRAWING TITLE:
SHADOW DIAGRAM

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COUNCIL AREA: PENRITH		SCALE: 1:200	
JOB No: J003508	DRWG No.: 13	ISSUE: D	