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15 PARKES STREET PARRAMATTA NSW 2150

STRUCTURAL ENGINEERING DETAILS

LOT 8, No. 169
CHURCH STREET
CASTLEREAGH NSW 2749

SHEET No.	ISSUE No.	SHEET TITLE
S1	A	STRUCTURAL NOTES
S2	A	GROUND FLOOR SLAB PLAN
S3	A	SLAB FOOTING DETAILS
S4	A	SLAB FOOTING DETAILS
S5	A	SLAB FOOTING DETAILS
S6	A	SLAB FOOTING DETAILS
S7	A	STEEL BEAM MARKING PLAN
S8	A	STEEL BEAM DETAILS
S9	A	STEEL BEAM DETAILS

CUNNINGHAM
CUSTOM HOMES

91 PATTERSON LANE GROSE VALE 2753
PH: 4572 1539 M: 0410 652 601

CLIENT REF.	DRAWING No.
PYR437	E79556

GENERAL

G1. 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 AND BE RESOLVED BEFORE WORK PROCEEDS.

G2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT S.A.I GLOBAL CODES, THE BCA/NCC, AND WITH THE BY–LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES AS THEY RELATED SPECIFICALLY TO STRUCTURE, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

G3. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF WORK COVER AND THE OH&S ACT.

G4. ALL DIMENSIONS SHOWN AND/OR RELEVANT TO SETTING OUT AND OFF–SITE WORK SHALL BE VERIFIED BY THE BUILDER BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.

G5. DURING CONSTRUCTION THE BUILDER SHALL MAINTAIN SAFE AND STABLE THE STRUCTURE AND NEIGHBOURING STRUCTURES. NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

G6. UNLESS NOTED OTHERWISE, ALL LEVELS ARE EXPRESSED IN METERS AND ALL DIMENSIONS ARE IN MILLIMETERS.

G7. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER. SUCH SUBSTITUTION SHALL NOT BE AN AUTHORIZATION FOR A VARIATION TO THE CONTRACT. ANY VARIATIONS INVOLVED MUST BE TAKEN UP WITH THE ARCHITECT BEFORE THE WORK COMMENCES.

G8. ABBREVIATIONS USED:

ALT	ALTERNATIVE
BTM	BOTTOM
CTS	CENTRES
C/S	BRICK / BLOCK COURSE
DIA	DIAMETER
FGL	FINISHED GROUND LINE
GALV	HOT DIP GALVANISED
MAX	MAXIMUM
MIN	MINIMUM
NSOP	NOT SHOWN ON PLAN
U.N.O	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE

INSPECTIONS

I1. THE PURPOSE OF THE STRUCTURAL INSPECTIONS IS TO VERIFY THAT THE BUILDER HAS COMPLIED WITH THE STRUCTURAL REQUIREMENTS OF THE CONTRACT DOCUMENTATION, NOT TO BE THE FIRST CHECK OF A SUBCONTRACTOR'S INTERPRETATION OF THESE REQUIREMENTS. SHOULD THE WORK CLEARLY BE UNSATISFACTORY AT THE TIME THE INSPECTION IS ARRANGED, THE VISIT AND SUBSEQUENT 'ABORTIVE' INSPECTION VISITS (INCLUDING ASSOCIATED TRAVEL AND OFFICE TIME) WILL BE CHARGED TO THE BUILDER.

SITE PREPARATION & EXCAVATOR NOTES

D1. STRIP TOPSOIL AND VEGETATION 100MM MINIMUM DEPTH AND STOCKPILE.

D2. THE SITE IS TO BE BENCHED BY CUT AND FILL TO DESIRED LEVELS. ALL EXCAVATION AND BACKFILL SHALL BE CARRIED OUT NEATLY TO THE LINES, LEVELS AND GRADES SPECIFIED BY THE ARCHITECT.

D3. FILL IS TO BE PLACED IN 150MM MAXIMUM LAYERS AND THOROUGHLY COMPACTED USING EXCAVATOR. UNLESS THIS FILL IS COMPACTED IN ACCORDANCE WITH CLAUSE 6.4.2 OF AS2870, IT IS NOT ADEQUATE TO PROVIDE LONG TERM STRUCTURAL SUPPORT TO THE SLAB/FOOTING SYSTEM AND THEREFORE, PIERS MUST BE INSTALLED. ALTERNATIVELY, THE FILL CAN BE PLACED, TESTED AND CERTIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER AS "CONTROLLED FILL" AS DEFINED IN AS3798. THIS IS THEN DEEMED TO BE ADEQUATE TO SUPPORT THE SLAB/FOOTING SYSTEM.

D4. THE FILL IS TO EXTEND PAST THE EDGE OF THE HOUSE BY AT LEAST ONE METRE AND SHALL BE BATTERED OFF AT NOT STEEPER THAN TWO HORIZONTALLY TO ONE VERTICALLY OR RETAINED BY A SUITABLE STRUCTURE PROVIDED BY THE OWNER OR BUILDER AS SOON AS POSSIBLE.

D5. THE FINISHED LEVELS SHALL ALLOW FOR THE MAIN SLAB LEVEL TO BE AT LEAST 300MM ABOVE THE ADJACENT GROUND. SURFACE DRAINAGE SHALL BE PROVIDED AS REQUIRED TO AVOID THE POSSIBILITY OF WATER PONDING NEAR THE SLAB. A FALL OF 50MM OVER A DISTANCE OF ONE METRE AWAY FROM THE SLAB IS CONSIDERED ADEQUATE. SUBSOIL DRAINS (AGRICULTURAL DRAINS) ARE CONSIDERED DESIRABLE BUT SHOULD NOT BE LOCATED DIRECTLY ADJACENT TO THE FOOTINGS.

D6. IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THE SITE IS PROPERLY MAINTAINED. APPENDIX B OF AS2870 PROVIDES INFORMATION AND GUIDANCE ON THE MAINTENANCE OF FOUNDATION SITE CONDITIONS. SUBJECT TO ADOPTION OF THESE RECOMMENDATIONS THE BUILDING MAY EXPERIENCE MINOR DAMAGE BUT OF A SEVERITY NOT EXCEEDING THE LEVELS DEFINED IN APPENDIX C OF AS2870.

D7. TRENCH EXCAVATIONS FOR SERVICES OR AGRICULTURAL DRAINS PARALLEL TO THE EDGE OF THE SLAB SHALL BE IN WITH NOTE 'P5' OF THE BORED PIER NOTES.

D8. FOR ALL FILLED AREAS IN BUILDING PLATFORM, INTERNAL BEAMS ARE TO BE PIERED AT MAX. 2400 CTS. AT RIB INTERSECTIONS.

FOOTING AND SLAB NOTES

F1. BORED PIERS / FOOTINGS / BEAMS ...ETC ARE TO BE FOUNDED ONTO **NATURAL BEARING MATERIAL** HAVING A MINIMUM SAFE BEARING CAPACITY OF **250 KPA** U.N.O. BEFORE ANY CONCRETE IS PLACED, THE SAFE BEARING CAPACITY SHALL BE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER.

F2. THE FOOTING SYSTEM SPECIFIED ON THESE DRAWINGS WILL MEET THE PERFORMANCE REQUIREMENTS SET OUT IN CLAUSE 1.3 OF AS2870 (RESIDENTIAL SLABS AND FOOTINGS CODE). THE FOOTING SYSTEM INTENDED TO ACHIEVE ACCEPTABLE PROBABILITIES OF SERVICEABILITY AND SAFETY OF THE BUILDING DURING ITS DESIGN LIFE.

F3. THE FOOTING DETAILS SHOWN ARE FOR THE SITE CLASSIFICATION STIPULATED ABOVE. WHILST EVERY CARE HAS BEEN TAKEN TO VERIFY THAT THE INFORMATION SHOWN IS CORRECT, DONOVAN ASSOCIATES TAKE NO RESPONSIBILITY FOR VARIATIONS WHICH MAY OCCUR DUE TO VARIATIONS IN SITE CONDITIONS.

F4. A DAMP PROOFING MEMBRANE MUST BE PLACED BENEATH THE SLAB SO THAT THE BOTTOM OF THE SLAB IS ENTIRELY UNDERLAID. THE DAMP PROOFING MEMBRANE SHALL BE TURNED UP TO FINISHED GROUND LEVEL. THE DAMP PROOFING MEMBRANE MUST BE 0.2MM NOMINAL THICKNESS POLYTHENE FILM AND OF HIGH IMPACT RESISTANCE. LAPS SHALL BE 200MM MINIMUM AT JOINTS AND ALL PLUMBING PENETRATIONS SHALL BE TAPED. THE DAMP PROOFING MEMBRANE SHALL BE IN ACCORDANCE WITH THE BCA/NCC.

F5. SLAB REQUIREMENTS AT PIPE PENETRATIONS IN THE EDGE AND SPINE BEAMS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE DETAILS ON THESE DRAWINGS.

F6. SUBTERRANEAN TERMITE PROTECTION IS TO BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF AS3660.1

BORED PIER NOTES

P1. IF PIER LOCATIONS ARE NOT SHOWN ON THE PLAN, THEN ALL EDGE BEAMS, INTERNAL BEAMS AND OTHER LOAD BEARING AREAS THAT DO NOT BEAR ON FIRM NATURAL GROUND AS NOTED IN "FOOTING AND SLAB NOTES" NOTE F1 ARE TO BE PIERED IN ACCORDANCE WITH THE FOLLOWING PIERING SCHEDULE:

Single Storey Piering Requirements Schedule

Bearing Strata	Min. Design Bearing Capacity	Pier Diameter (mm)	Maximum Pier Spacing c/c (mm)	
			Bored Pier	Bucket Pier (800x300)
Sand	100 kPa	600	1800	1800
Controlled Clay Fill	150 kPa	400	1600	1800
Stiff Natural Clay	250 kPa	400	2100	N/S
Shale/Rock	600 kPa	300 *	3000	N/S

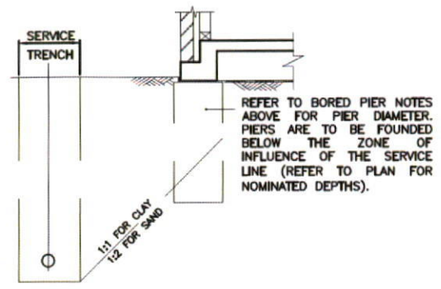
* Denotes: 400 dia pier if pier depth > 2.5 m
N/S Denotes: Not Suitable

P2. IT SHOULD BE NOTED THAT IF ANY OF THE FOOTING BEAMS OR PIERS ENCOUNTER ROCK OR SHALE, THEN ALL FOOTING BEAMS AND LOAD BEARING SPINE BEAMS SHALL BE PIERED TO ROCK OR SHALE.

P3. PIERING TO STRATA OTHER THAN ROCK OR SHALE MAY BE DELETED FROM THE CUT AREA OF THE BUILDING PLATFORM IF AUTHORIZED BY THE ENGINEER.

P4. ALL PIERS ARE TO BE CLEAN AND DE–WATERED PRIOR TO PLACEMENT OF CONCRETE.

P5. WHERE A SERVICE TRENCH OR AGRICULTURAL DRAIN IS PARALLEL TO THE EDGE OF A SLAB, WHETHER THE SLAB BE IN EXCAVATED OR FILLED AREA, THEN PIERING TO SUPPORT THE SLAB BESIDE THE SERVICE TRENCH IS ONLY REQUIRED IF THE SERVICE LINE IS BELOW A LINE OF INFLUENCE DRAWN AS INDICATED BELOW IN Z.O.I DIAGRAM:



FOR CONSTRUCTION NEXT TO OR OVER EXISTING/PROPOSED SERVICES EASEMENT – FINAL EXTENT AND ZONE OF INFLUENCE TO BE DETERMINED BY ENGINEER PRIOR TO CONSTRUCTION OF FLOOR SLAB. DETAILS TO BE SUPPLIED FOLLOWING RECEIPT OF SEWER PEG OUT DETAILS.

Z.O.I. DIAGRAM

P6. THESE NOTES ARE INTENDED AS A GUIDE. THERE IS ALWAYS A POSSIBILITY OF SITE CONDITIONS REQUIRING VARIATIONS TO THESE PROCEDURES. IN SUCH CASES, THE ENGINEER MUST BE CONSULTED.

PLASTIC SHRINKAGE CRACKING CONTROL AND SLAB MAINTENANCE

M1. CONCRETE PLACING, VIBRATING AND CURING MUST BE CARRIED OUT IN ACCORDANCE WITH AS3600.

M2. WATER IS NOT TO BE ADDED TO THE CONCRETE ON SITE AS TO INCREASE THE SLUMP ABOVE THAT SPECIFIED.

M3. IT IS RECOMMENDED THAT AN APPROVED CURING COMPOUND BE APPLIED TO THE SLAB IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

M4. CAUTION SHOULD BE EXERCISED WHEN APPLYING BRITTLE FINISHES, SUCH AS CERAMIC TILES TO THE FLOOR SLAB. AN ISOLATING MORTAR BED OR AN APPROVED FLEXIBLE ADHESIVE SYSTEM IS RECOMMENDED.

M5. THE OWNER'S ATTENTION SHALL BE DRAWN TO APPENDIX 'A' – "PERFORMANCE REQUIREMENTS AND FOUNDATION MAINTENANCE" OF AS2870 AND CSIRO PUBLICATION "GUIDE TO HOME OWNERS ON FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE".

CONCRETE NOTES

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. UNLESS NOTED OTHERWISE:
- MAXIMUM AGGREGATE SIZE SHALL BE 20MM
- SLUMP DURING PLACING SHALL BE 100MM
- NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING

C3. CEMENT TYPE TO BE GP/GB AND 250KG MIN. CEMENT CONTENT PER m^3.

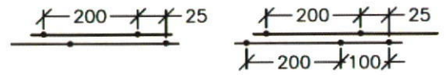
C4. ALL CONCRETE CONSTRUCTION TO BE COMPACTED WITH A MECHANICAL VIBRATOR.

REINFORCEMENT FIXING NOTES

R1. ALL REINFORCING BAR AND FABRIC SHALL BE DESIGNATED AS SHOWN IN THE FOLLOWING TABLE AND SHALL COMPLY WITH THE APPROPRIATE CODES AS NOTED BELOW:

Symbol	Type
R	Structural grade round bars to AS4671 (250MPa)
S	Structural grade deformed bars to AS4671 (250MPa)
N	Tempcore deformed bars to AS4671 (500MPa)
RL/SL	Fabric to AS4671 (500MPa)
TM	Trench Mesh to AS4671 (500MPa)
NOTE: The number following the symbol is the bar diameter in millimeters.	

R2. IF SLAB FABRIC IS USED IT IS TO BE LAPPED ONE FULL SQUARE PLUS 25MM AT SPLICES AS SHOWN IN THE DIAGRAM BELOW AND PLACED ON CHAIRS AT ONE METRE CENTRES BOTH WAYS TO GIVE 20MM CLEAR TOP COVER IN SHELTERED LOCATIONS AND 40MM CLEAR TOP COVER TO VERANDAHS.



R3. FOOTING BEAMS AND RIB REINFORCEMENT TO HAVE 40MM CLEAR COVER ALL–ROUND.

R4. BAR REINFORCEMENT IS TO BE TIED BENEATH THE FABRIC IF USED OR OTHERWISE PLACED ON CHAIRS AND LAPPED AS FOLLOWS:

Bar Size	N12	N16	N20
Splice Length	500	700	900

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DRAWN	DATE	DESCRIPTION	ISSUE
AL	30/06/14	ISSUED FOR CONSTRUCTION	A

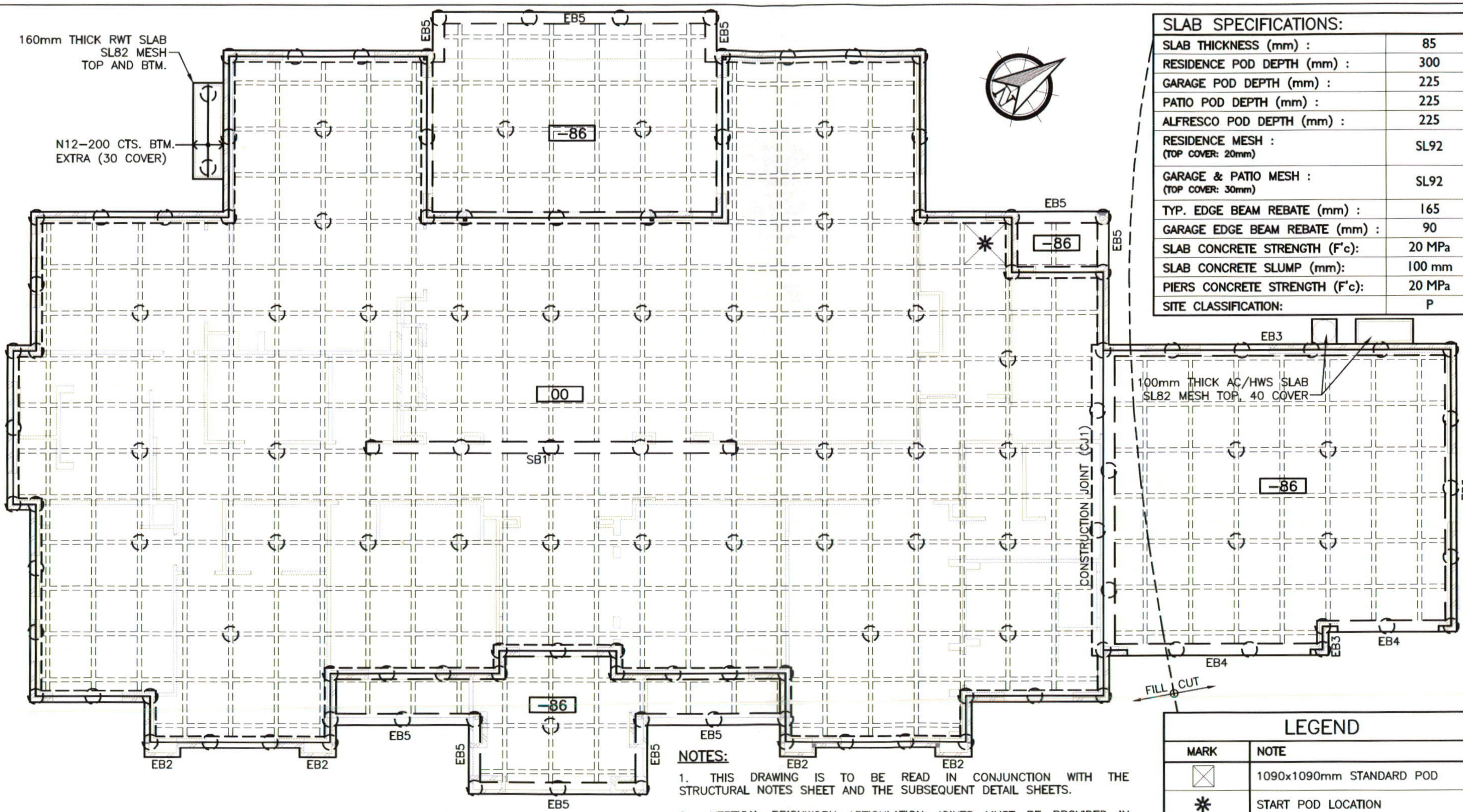
MASTER CODE: PROPOSED BRICK VENEER DWELLING

FOR: MR & MRS CAMILLERI

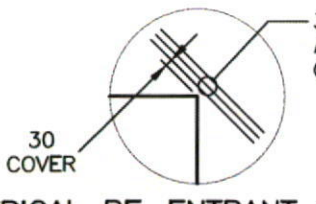
SITE ADDRESS:
LOT 8, No. 169
CHURCH STREET
CASTLEREAGH NSW 2749

APPROVED BY:
J. DONOVAN. M.I.E. Aust.
C.P.Eng., N.P.E.R.

DESIGNED BY:	JD	ISSUE
CHECKED BY:	JD	A
SCALE	–	
		SHEET No.
CLIENT REF.	DRAWING No.	S1
PYR437	E79556	



SLAB SPECIFICATIONS:	
SLAB THICKNESS (mm) :	85
RESIDENCE POD DEPTH (mm) :	300
GARAGE POD DEPTH (mm) :	225
PATIO POD DEPTH (mm) :	225
ALFRESCO POD DEPTH (mm) :	225
RESIDENCE MESH : (TOP COVER: 20mm)	SL92
GARAGE & PATIO MESH : (TOP COVER: 30mm)	SL92
TYP. EDGE BEAM REBATE (mm) :	165
GARAGE EDGE BEAM REBATE (mm) :	90
SLAB CONCRETE STRENGTH (F'c):	20 MPa
SLAB CONCRETE SLUMP (mm):	100 mm
PIERS CONCRETE STRENGTH (F'c):	20 MPa
SITE CLASSIFICATION:	P



TYPICAL RE-ENTRANT CORNER

GROUND FLOOR SLAB PLAN

ALL EDGE BEAMS TO BE 'EB1'
AND ALL STEP BEAMS TO BE 'IB1'
UNLESS NOTED OTHERWISE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE STRUCTURAL NOTES SHEET AND THE SUBSEQUENT DETAIL SHEETS.

2. VERTICAL BRICKWORK ARTICULATION JOINTS MUST BE PROVIDED IN ACCORDANCE WITH AS4773 AND AS3700.

3. UNLESS NOTED OTHERWISE, SERVICES IN EASEMENT(S) ADJACENT TO THIS PROPERTY HAVE NOT BEEN ASSESSED. EVALUATION OF THE EFFECTS OF ANY SERVICES WILL BE MADE FOLLOWING RECEIPT OF FURTHER INFORMATION. THIS INFORMATION WILL BE DOCUMENTED AS AN AMENDMENT TO THESE DRAWINGS IF REQUIRED.

4. IT IS THE RESPONSIBILITY OF THE BUILDER / SUB-CONTRACTOR TO ENSURE CORRECT PIER SETOUT.

LEGEND

MARK	NOTE
⊠	1090x1090mm STANDARD POD
✱	START POD LOCATION
═	3/N12 2000mm TRIMMERS UNDERSIDE OF MESH
======	110mm WIDE INTERNAL RIB
◌	400mm DIA CONCRETE PIER - REFER TO 'BORED PIER NOTES' ON SHEET S1

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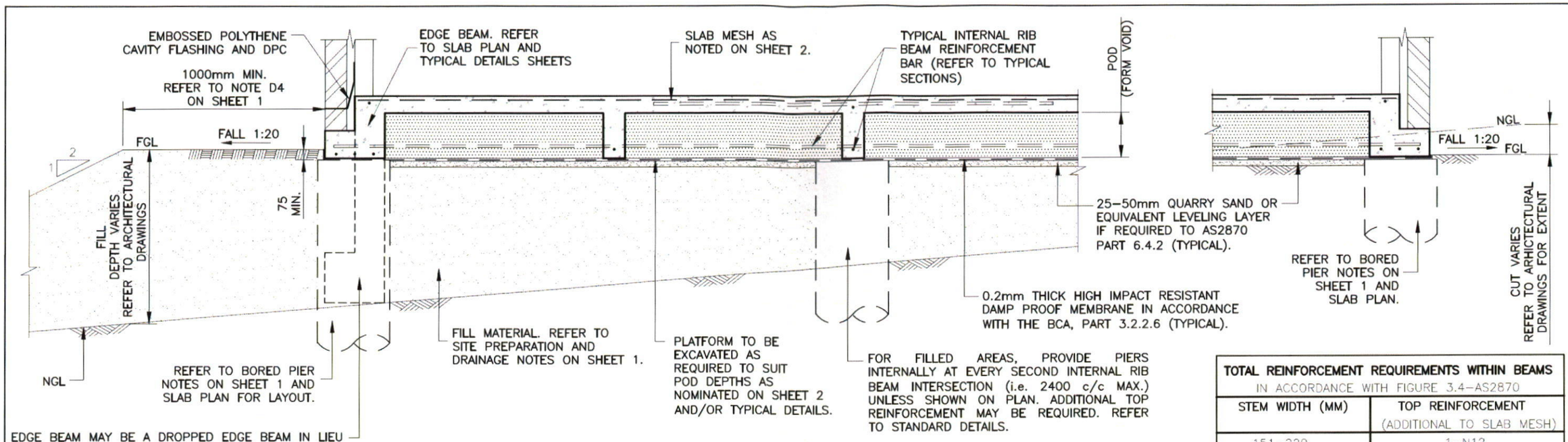
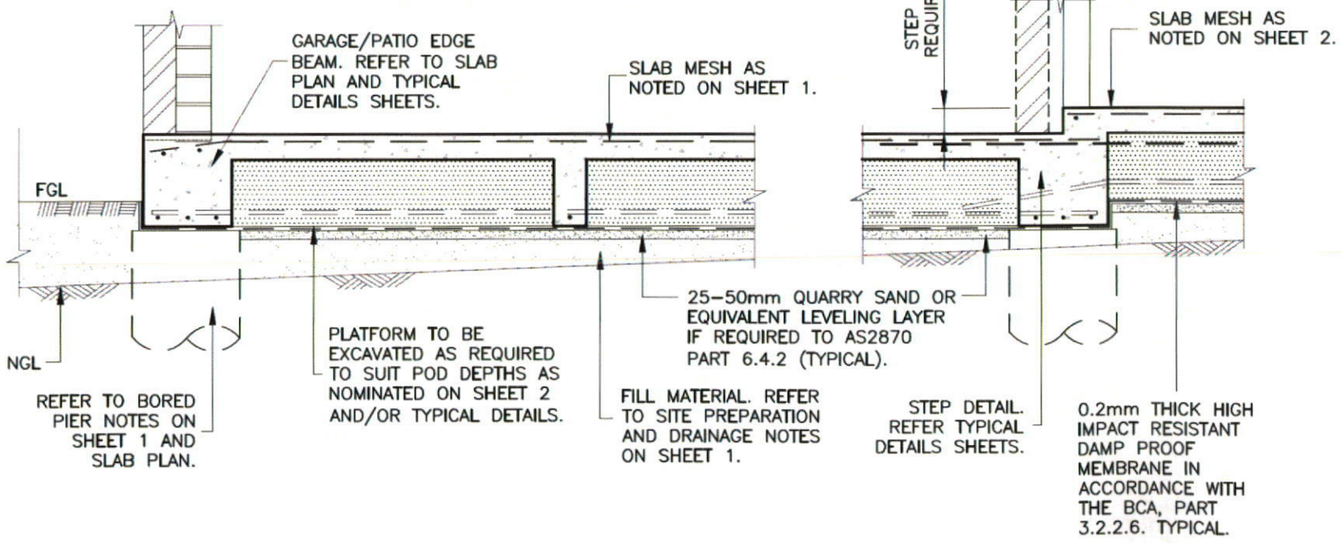
CHECKED BY:	JD		
SCALE	1:100	SHEET No.	S2
CLIENT REF.	PYR437	DRAWING No.	E79556

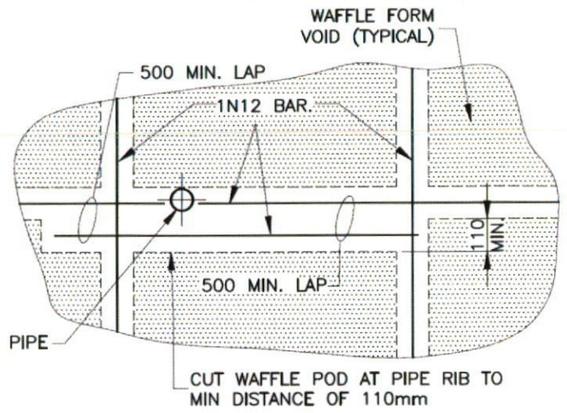


SECTION THROUGH SLAB – STANDARD REQUIREMENTS

TOTAL REINFORCEMENT REQUIREMENTS WITHIN BEAMS IN ACCORDANCE WITH FIGURE 3.4–AS2870	
STEM WIDTH (MM)	TOP REINFORCEMENT (ADDITIONAL TO SLAB MESH)
151–220	1–N12
221–330	2–N12
331–440	3–N12
441–550	4–N12
551–660	5–N12
BEAM BASE WIDTH (MM)	BOTTOM REINFORCEMENT
300–330	3–N12
331–440	4–N12
441–550	5–N12
551–660	6–N12



SECTION THROUGH GARAGE/PATIO – STANDARD REQUIREMENTS



PIPE PENETRATION THROUGH RIB BEAM DETAIL (AS APPLICABLE)

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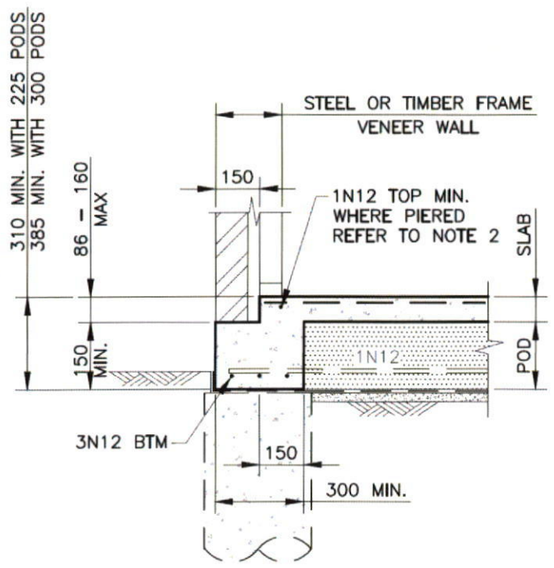
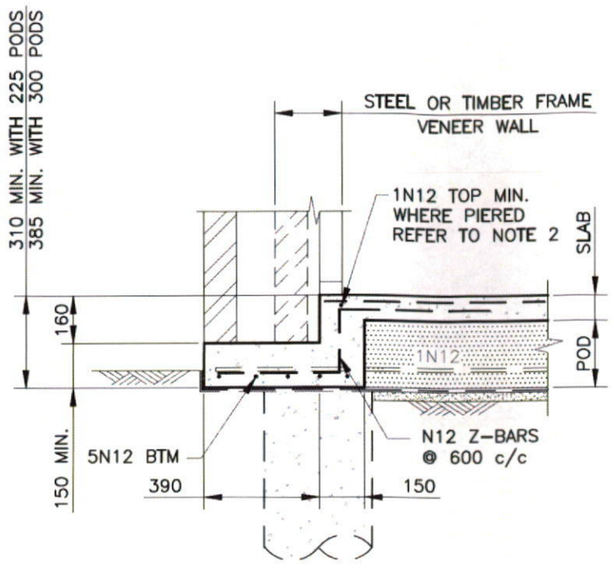
SCALE	1:20	SHEET No.
CLIENT REF.	DRAWING No.	S3
PYR437	E79556	



EDGE BEAM (EB1)

(2 COURSES MAX. REBATE)

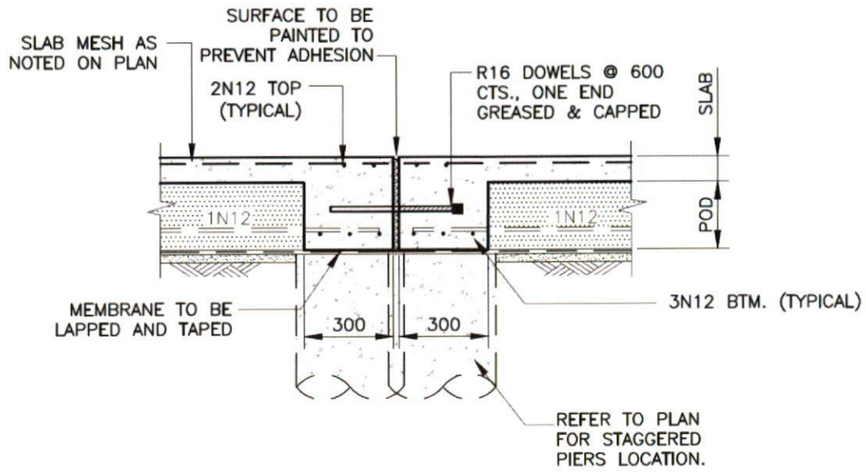


EDGE BEAM (EB2)

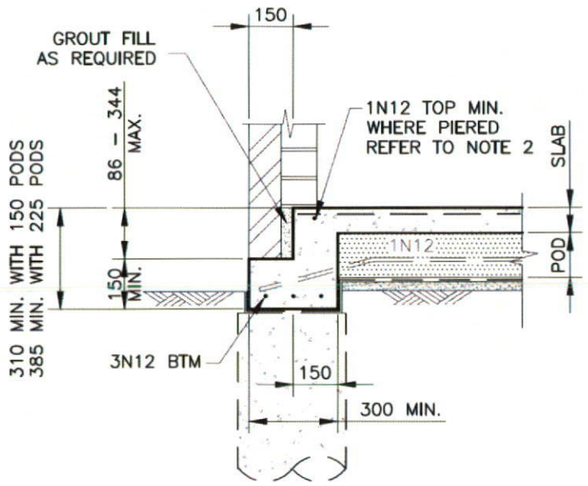
(2 COURSES MAX. REBATE)

NOTES:

1. FOR SLAB SPECIFICATIONS AND POD SIZES REFER TO TABLE ON SHEET 2.
2. EDGE AND INTERNAL BEAM WIDTHS NOMINATED ARE MINIMUM ONLY. IF THESE WIDTHS ARE EXCEEDED ADDITIONAL REINFORCEMENT SHALL BE REQUIRED IN ACCORDANCE WITH CLAUSE 3.4.3 – AS2870. REFER TO 'TOTAL REINFORCEMENT REQUIREMENTS' TABLE ON SHEET 3.

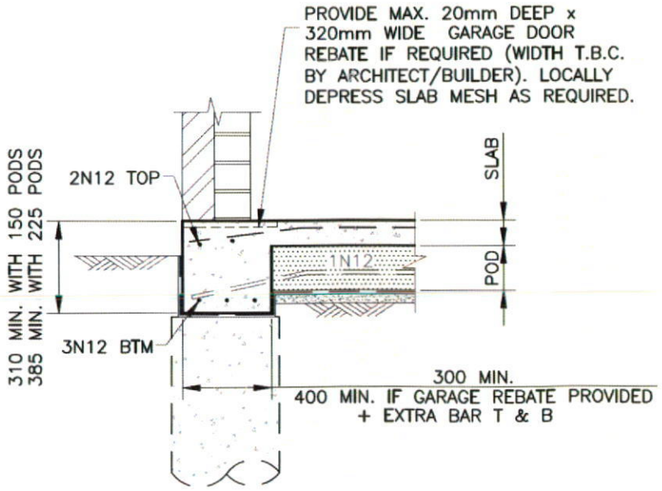


CONSTRUCTION JOINT (CN1)



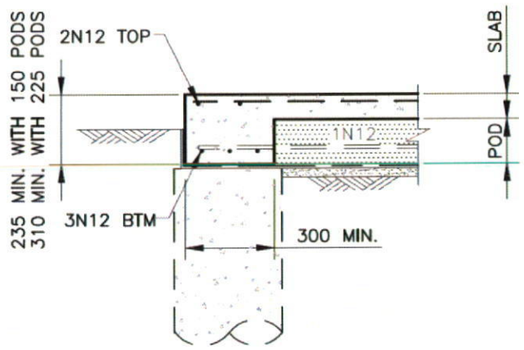
GARAGE EDGE BEAM (EB3)

(4 COURSE MAX. REBATE)



GARAGE ENTRY EDGE BEAM (EB4)

(20mm DEEP REBATE AT GARAGE DOOR OPENING)



PORCH/PATIO/ALFRESCO EDGE BEAM (EB5)

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SCALE	1:20	
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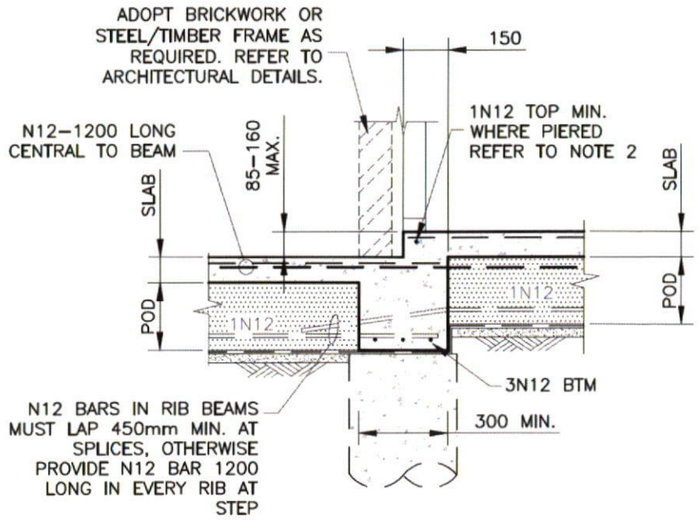
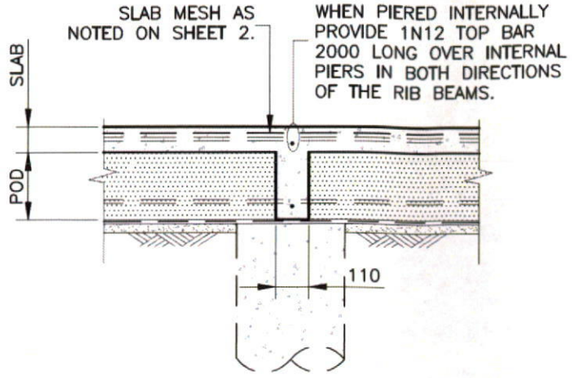


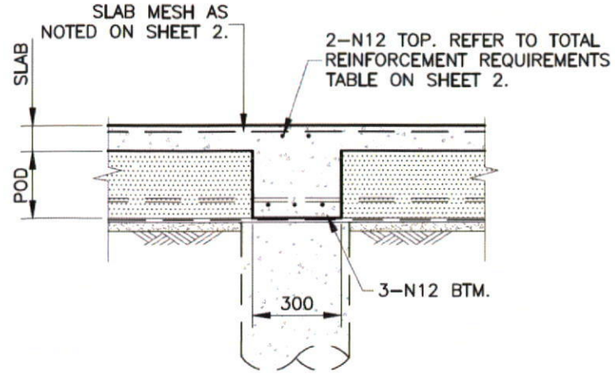
INTERNAL STEP BEAM (IB1)

(2 COURSES MAX. STEP)



INTERNAL RIB BEAM (IR1)

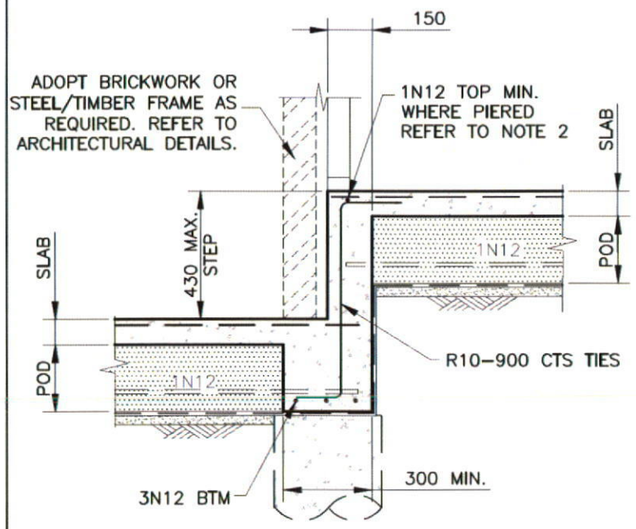
(PIERED CONDITION)



INTERNAL STIFFENING BEAM (SB1)

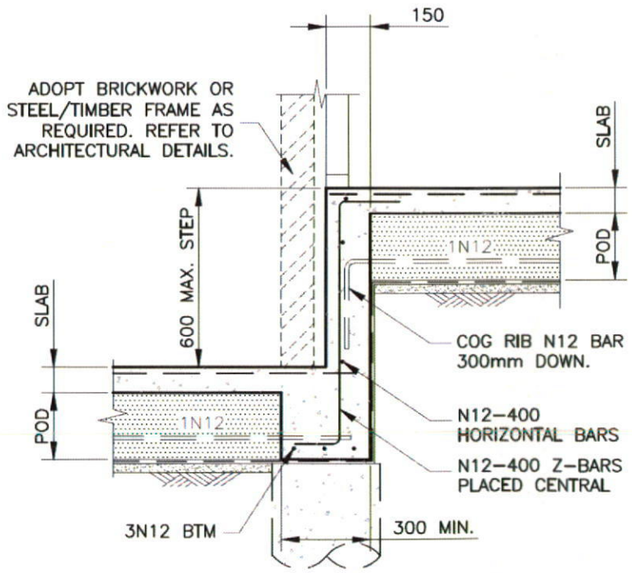
NOTES:

1. FOR SLAB SPECIFICATIONS AND POD SIZES REFER TO TABLE ON SHEET 2.
2. EDGE AND INTERNAL BEAM WIDTHS NOMINATED ARE MINIMUM ONLY. IF THESE WIDTHS ARE EXCEEDED ADDITIONAL REINFORCEMENT SHALL BE REQUIRED IN ACCORDANCE WITH FIGURE 3.4 – AS2870. REFER TO 'TOTAL REINFORCEMENT REQUIREMENTS' TABLE ON SHEET 3.



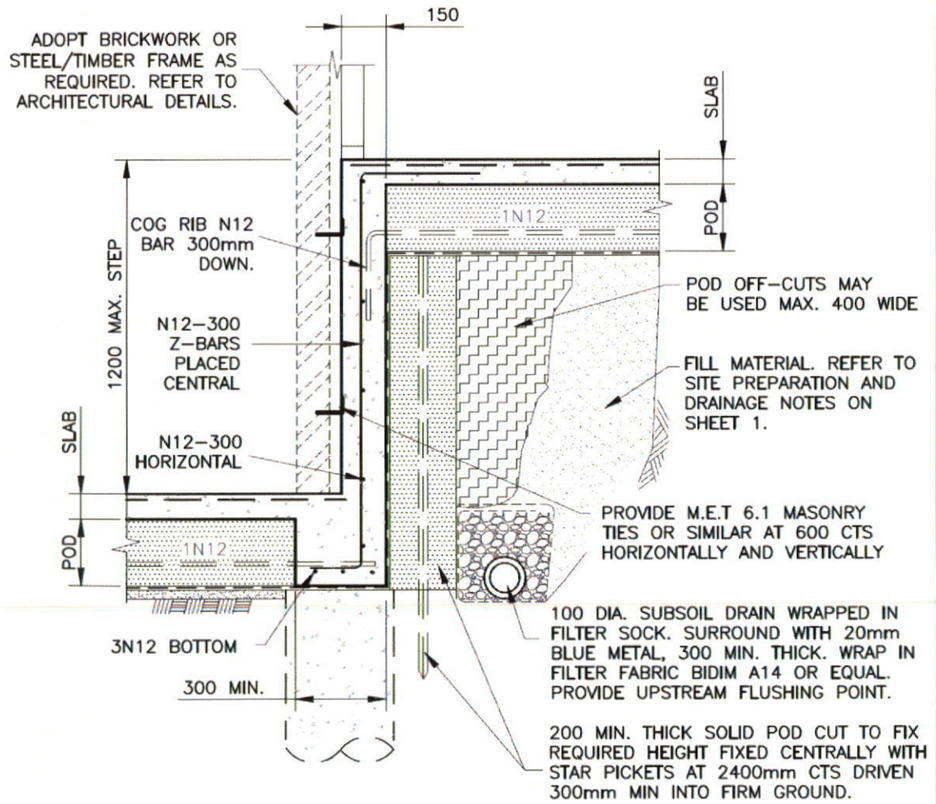
INTERNAL STEP BEAM (IB1)

(5 COURSES MAX. STEP)



INTERNAL STEP BEAM (IB1)

(7 COURSES MAX. STEP)



INTERNAL STEP BEAM (IB1)

(14 COURSES MAX. STEP)

TYPICAL INTERNAL BEAM AND INTERNAL STEP BEAM DETAIL (IB1) VARIATIONS

REFER TO ARCHITECT'S DRAWINGS FOR STEP HEIGHTS OR AS NOTED ON PLAN.

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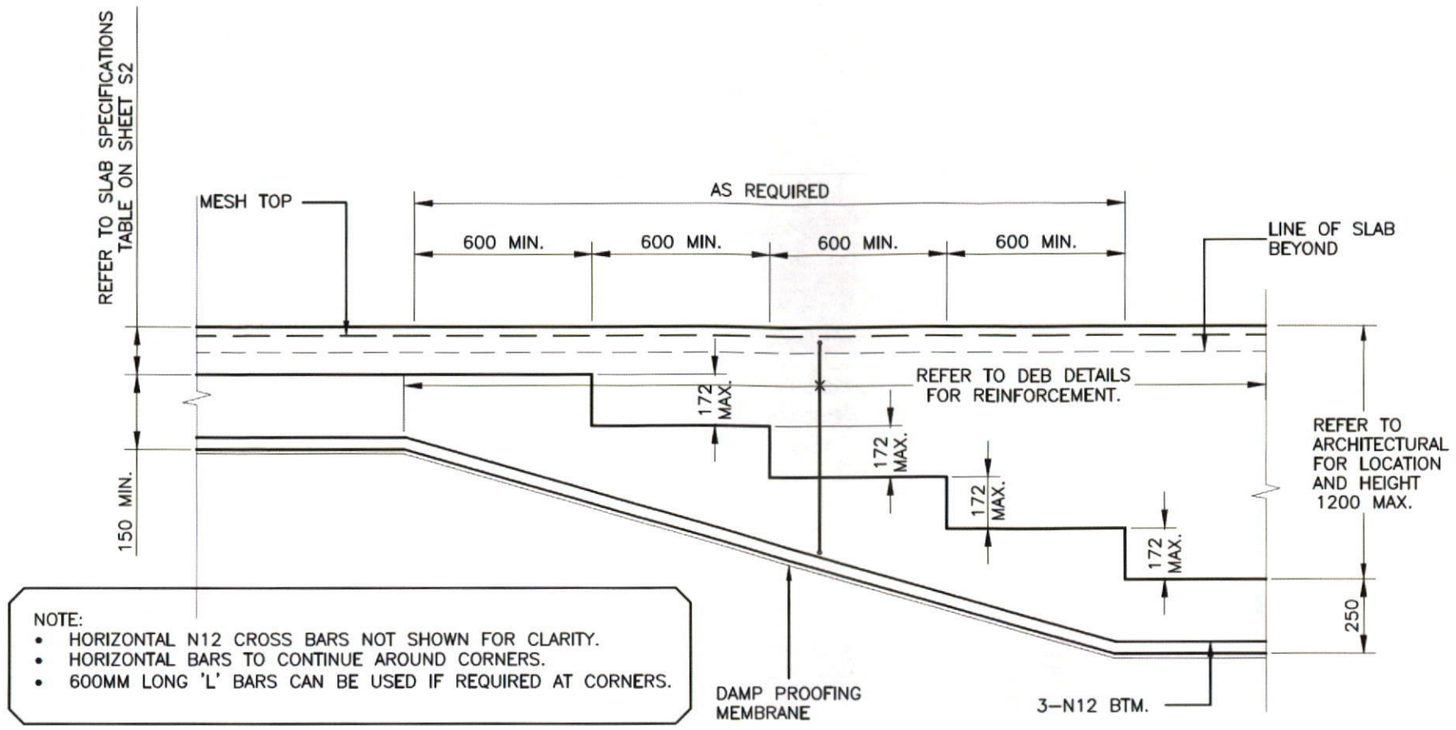
DRAWN	DATE	DESCRIPTION	ISSUE
AL	30/06/14	ISSUED FOR CONSTRUCTION	A
MASTER CODE		PROPOSED BRICK VENEER DWELLING	

FOR: MR & MRS CAMILLERI
SITE ADDRESS: LOT 8, No. 169 CHURCH STREET CASTLEREAGH NSW 2749

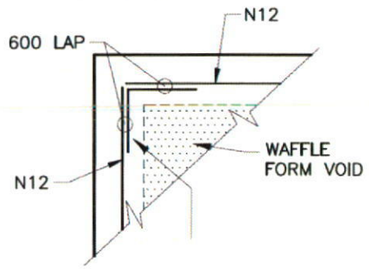
APPROVED BY:
J. DONOVAN. M.I.E. Aust. C.P.Eng., N.P.E.R.

DESIGNED BY:	JD	ISSUE
CHECKED BY:	JD	A
SCALE	1:20	
		SHEET No.
CLIENT REF.	DRAWING No.	S5
PYR437	E79556	



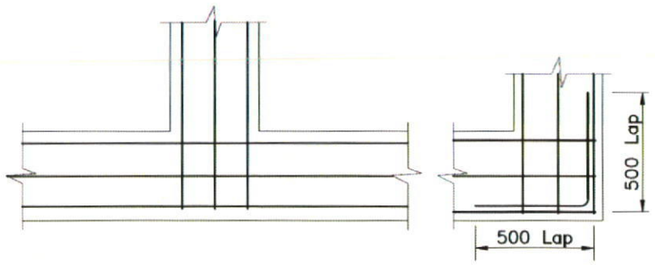
ELEVATION OF DROP EDGE BEAM TRANSITION

1N12 CORNER LAP BAR IF/WHERE TOP PERIMETER BAR IS REQUIRED. ALTERNATIVELY, BEND TOP BAR TO CREATE 600 MIN. LEG.



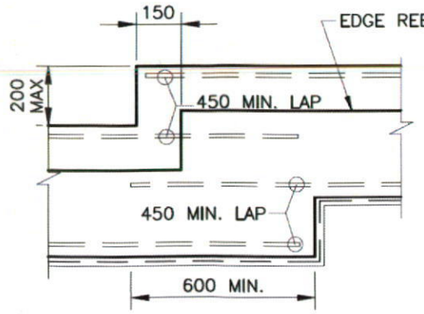
PLAN AT TOP OF WAFFLE RAFT

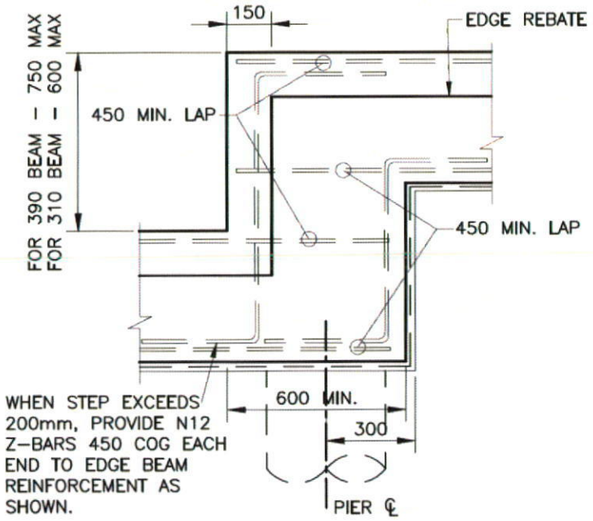
REINFORCING BARS SHALL HAVE A LAP LENGTH AT SPLICES NOT LESS THAN 500MM. AT 'T' AND 'L' INTERSECTIONS, THE BARS SHALL BE CONTINUED ACROSS THE FULL WIDTH OF THE INTERSECTION. AT L–INTERSECTIONS, A BENT BAR 500MM LONG ON EACH LEG SHALL BE PROVIDED. REFER TO THE DIAGRAMS BELOW:



PLAN AT BASE OF BEAMS OR TOP & BOTTOM OF STRIP FOOTINGS

PLAN AT SLAB BEAM CORNERS





ELEVATION OF PERIMETER BEAM AT STEP

(e.g: RESIDENCE/GARAGE STEP)

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CASTLEREAGH NSW 2749

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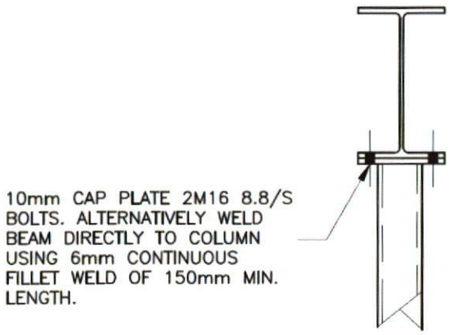
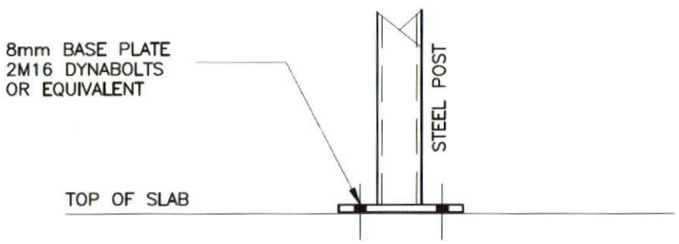
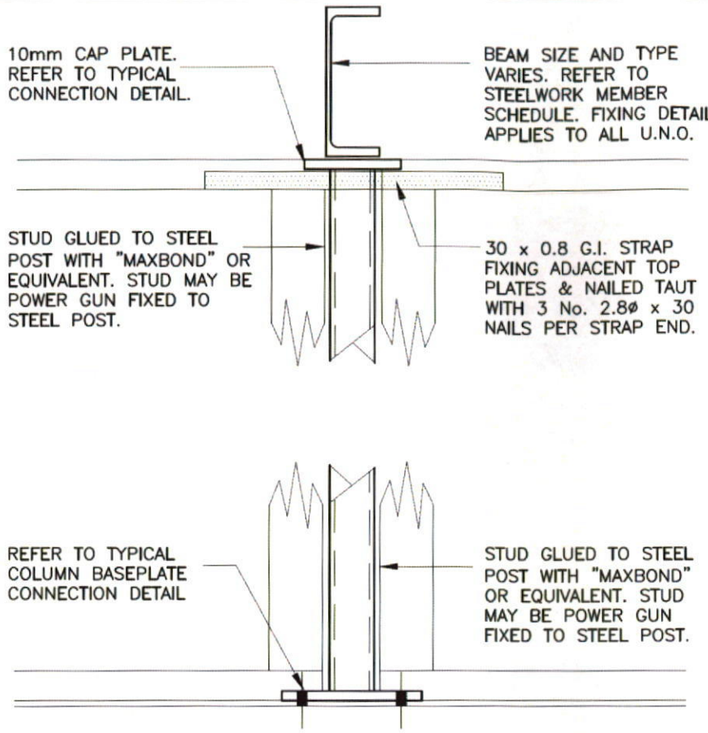
PYR437	E79556	



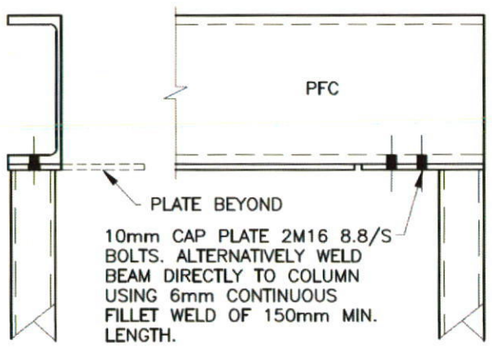
TYPICAL 'UB' CONNECTION DETAIL



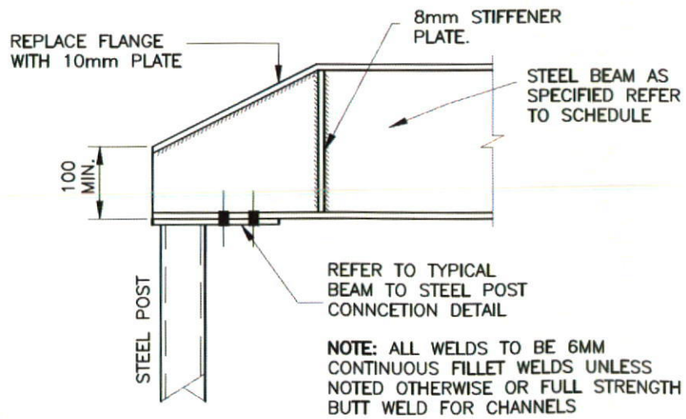
TYPICAL COLUMN BASEPLATE CONNECTION DETAIL



TYPICAL COLUMN FIXING DETAIL WITHIN TIMBER FRAME



TYPICAL 'PFC' OR 'PFC+PL' CONNECTION DETAIL



TYPICAL CHAMFER DETAIL / END TREATMENT FOR SPLAY BEAM

NOTE: THE BUILDER IS TO DETERMINE IF THIS DETAIL IS REQUIRED

RESIDENTIAL STRUCTURAL STEEL WORK

S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS1112, AS1163, AS1554, AS4100 AND THE A.C.S.E. STRUCTURAL STEEL FABRICATION AND ERECTION SPECIFICATIONS EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

S2. IT IS THE BUILDER'S RESPONSIBILITY TO ENSURE THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION. ADEQUATE TEMPORARY BRACING SHALL BE PROVIDED WHERE NECESSARY AND AS DIRECTED BY THE SUPERVISING ENGINEER.

S3. THREE (3) COPIES OF WORKSHOP FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AT LEAST 7 DAYS PRIOR TO COMMENCEMENT OF FABRICATION.

S4. ABBREVIATIONS USED ARE AS FOLLOWS:

UB – UNIVERSAL BEAM
UC – UNIVERSAL COLUMN
PFC – PARALLEL FLANGE CHANNEL
EA – ROLLED STEEL EQUAL ANGLE
UA – ROLLED STEEL UNEQUAL ANGLE
RHS – RECTANGULAR HOLLOW SECTION
SHS – SQUARE HOLLOW SECTION
BW – BUTT WELD
CFW – CONTINUOUS FILLET WELD

S5. BOLT DESIGNATION:

BOLT TYPE DESCRIPTION

- 4.6/S COMMERCIAL BOLTS OF GRADE 4.6 TO AS1111 SNUG TIGHTENED.
- 8.8/S HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS1252 SNUG TIGHTENED.
- 8.8/TB HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS1252 FULLY TENSIONED TO AS4100 AS A BEARING JOINT.
- 8.8/TF HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS1252 FULLY TENSIONED TO AS4100 AS A FRICTION JOINT WITH FACING SURFACES LEFT UNCOATED.

S6. TB AND TF BOLTS SHALL BE INSTALLED USING APPROVED LOAD INDICATING WASHERS, OR PART–TURN METHOD IN ACCORDANCE WITH SECTION 15 OF AS4100.

S7. UNLESS NOTED OTHERWISE:

- ALL GUSSET PLATE SHALL BE 10MM
- ALL BOLTS SHALL BE M16 GRADE 8.8/S. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED.
- ALL WELDS SHALL BE 6MM CONTINUOUS FILLET TYPE GP USING E41XX ELECTRODES. BUTT WELDS SHALL BE COMPLETE PENETRATION WELDS TO AS1554.1.

S8. THE STEEL FABRICATOR SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING STEEL TO STEEL AND TIMBER TO STEEL WHETHER OR NOT DETAILED ON THE DRAWINGS.

S9. ALL COLUMNS AND BEAMS SHOWN ON THE DRAWINGS FOR TIMBER FRAMED BUILDINGS SHALL BE LATERALLY RESTRAINED BY THE BUILDING FRAME AT EACH SUPPORT LOCATION THROUGH POSITIVE SCREW FIXING OF WALL STUDS TO THE COLUMNS AND EITHER JOISTS OR NOGGINGS TO THE BEAMS.

S10. ALL COLUMNS AND BEAMS SHOWN ON THE DRAWINGS FOR FULL BRICK BUILDINGS SHALL BE LATERALLY RESTRAINED BY THE BRICKWORK AT EACH SUPPORT THROUGH POSITIVE FIXING OF WALL TIES TO THE COLUMNS AND EITHER JOISTS OR NOGGINGS TO THE BEAMS. NO ADDITIONAL RESTRAINT IS REQUIRED WHERE A BEAM DIRECTLY SUPPORTS A CONCRETE FLOOR SLAB.

S11. STRUCTURAL STEELWORK NOT ENCASED IN CONCRETE SHALL HAVE THE FOLLOWING SURFACE TREATMENT:

Element	Surface Cleaning to AS1627 Part 4	Coatings
All Internal steelwork	Class 1 Blast	Grey Zinc Phosphate Primer to 70um / R.O.Z.P. – 1 Coat
All External steelwork or in contact with External Walls / Cavities	Class 2.5 Blast	Grey Inorganic Zinc Silicate to 90um OR Hot dip galvanized to AS/NZS 4680

S12. SUBSTITUTION FOR STEEL SECTIONS SHOWN ON THE DRAWINGS SHALL NOT BE MADE WITHOUT THE APPROVAL OF THE ENGINEER.

S13. STUDS ABUTTING COLUMNS SHALL BE GUN FIXED AT 300 MAX CTS. COLUMN FACES ABUTTING BRICKWORK SHALL HAVE APPROVED FRAME TIES GUN FIXED AT 3 COURSE CENTERS FOR BUILDING INTO BED JOINTS UNLESS NOTED OTHERWISE ON THE DRAWING.

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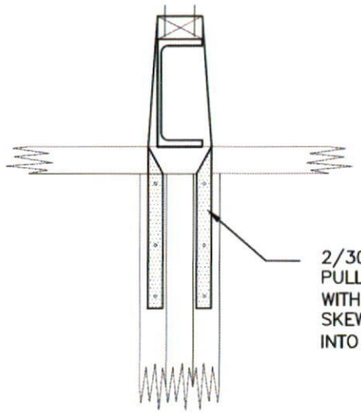


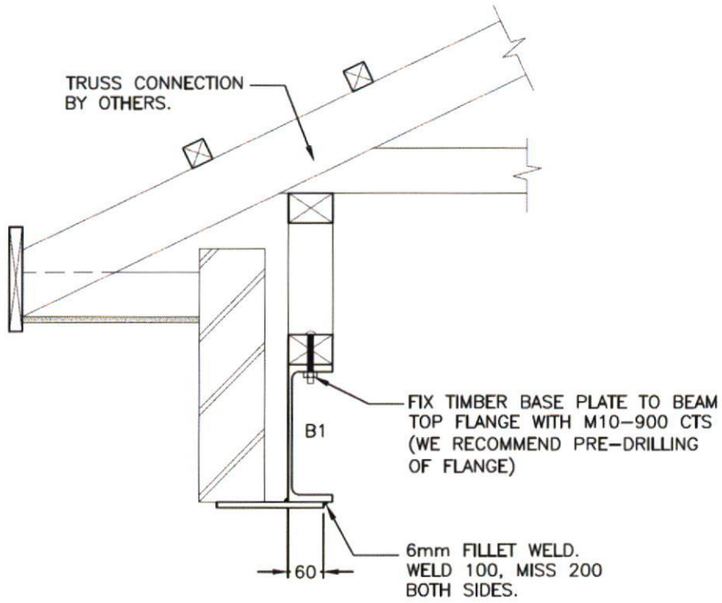
2/30 x 0.8mm GALV. STEEL STRAPS, PULL STRAP TIGHT UP & OVER BEAM, FIX WITH ø3.75 x 50mm LONG NAILS (2 SKEWED INTO TOP OF NAILING PLATE & 3 INTO SIDE OF TRIPLE STUD AS SHOWN)

CONTINUE STUD AND NAIL FIX TO TOP PLATE AND TRIPLE STUDS

3 STUDS UNDER BEAM

CONDITION 1

CONDITION 2



TRUSS CONNECTION BY OTHERS.

FIX TIMBER BASE PLATE TO BEAM TOP FLANGE WITH M10–900 CTS (WE RECOMMEND PRE–DRILLING OF FLANGE)

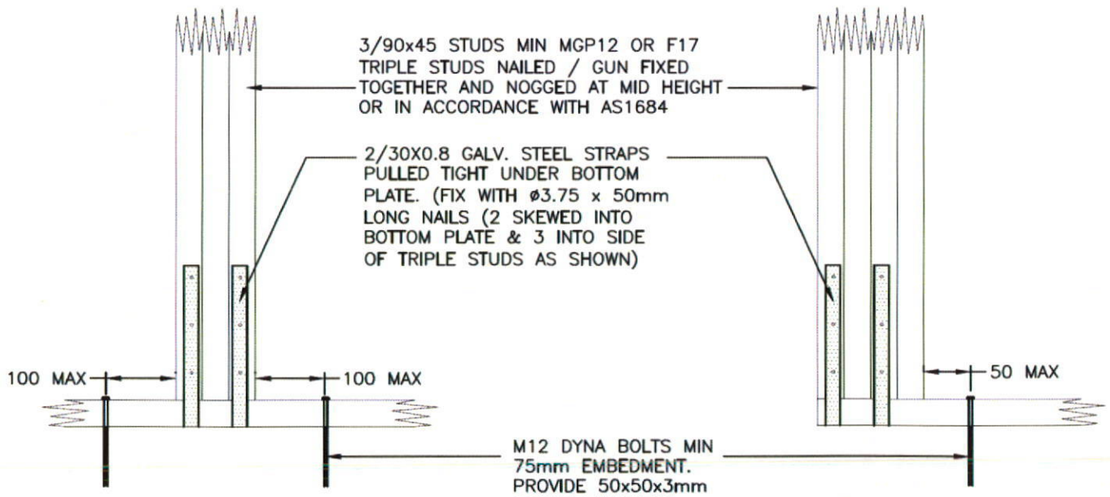
B1

6mm FILLET WELD. WELD 100, MISS 200 BOTH SIDES.

60

B1 DETAIL

(B3 SIMILAR)



3/90x45 STUDS MIN MGP12 OR F17 TRIPLE STUDS NAILED / GUN FIXED TOGETHER AND NOGGED AT MID HEIGHT OR IN ACCORDANCE WITH AS1684

2/30X0.8 GALV. STEEL STRAPS PULLED TIGHT UNDER BOTTOM PLATE. (FIX WITH ø3.75 x 50mm LONG NAILS (2 SKEWED INTO BOTTOM PLATE & 3 INTO SIDE OF TRIPLE STUDS AS SHOWN)

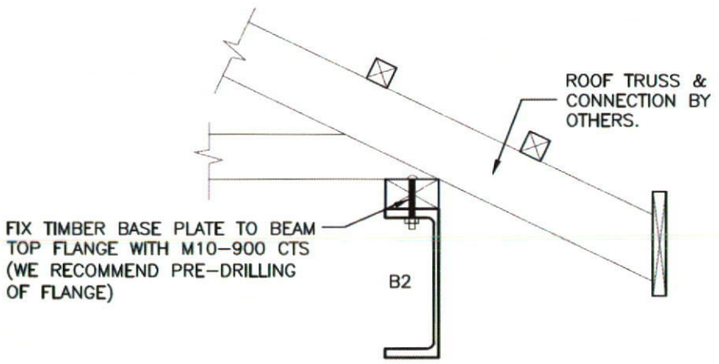
100 MAX

100 MAX

50 MAX

M12 DYNA BOLTS MIN 75mm EMBEDMENT. PROVIDE 50x50x3mm SQUARE WASHERS.

TYPICAL TRIPLE STUD (TS) FIXING DETAIL



ROOF TRUSS & CONNECTION BY OTHERS.

FIX TIMBER BASE PLATE TO BEAM TOP FLANGE WITH M10–900 CTS (WE RECOMMEND PRE–DRILLING OF FLANGE)

B2

B2 DETAIL

NOTE:

- TIE DOWN DETAIL ON TRIPLE STUDS SUPPORTING EITHER STEEL OR TIMBER BEAMS APPLIES FOR BOTH TYPES BEAMS. BEAM SHAPE AND TYPE VARIES. REFER TO MEMBER SCHEDULE.
- PROVIDE A MIN. OF 1 NOGGING MID–HEIGHT OF TRIPLE STUD OR AS PER THE REQUIREMENTS OF AS1684.

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