

**A. GENERAL**

- A1. ALL DESIGN STANDARDS REFERRED TO IN THIS DRAWING SET ARE THOSE CURRENT AT TIME OF ISSUE.
- A2. THE DESIGNS & DETAILS DEPICTED IN THIS DOCUMENTATION HAVE BEEN PREPARED IN ACCORDANCE WITH THE RELEVANT REQUIREMENTS OF THE BUILDING CODE OF AUSTRALIA (BCA) & AUSTRALIAN STANDARDS CODES & ARE THEREFORE DEEMED TO BE CAPABLE OF SUSTAINING AN ACCEPTABLE LEVEL OF SAFETY & SERVICEABILITY & THE MOST ADVERSE COMBINATION OF LOADS AND OTHER ACTIONS TO WHICH THE BUILDING OR STRUCTURE AND ITS COMPONENTS MAY REASONABLY BE SUBJECTED.
- A3. THE PROJECT SPECIFIC DESIGN PARAMETERS LISTED HAVE BEEN USED IN THE DESIGN OF THESE WORKS. SHOULD THE DEVELOPER OR ANY MEMBER OF THE DESIGN TEAM THINK ANY STATED PARAMETER UNSUITABLE, THEY MUST NOTIFY THE ENGINEER.
- A4. LOAD ACTIONS & LOAD ACTION COMBINATIONS IN ACCORDANCE WITH AS/NZS 1170 HAVE BEEN USED IN THE DESIGN OF THESE WORKS. A SUMMARY OF THESE DISTRIBUTED LOADS HAVE BEEN PROVIDED IN THE PROJECT SPECIFIC DESIGN PARAMETERS. POINT LOADS MAY ALSO APPLY IN ACCORDANCE WITH AS/NZS 1170.
- A5. THESE DRAWINGS ARE TO BE READ AS A COMPLETE SET IN CONJUNCTION WITH THE RELEVANT ARCHITECT'S & OTHER DESIGN TEAM MEMBER'S DRAWINGS AND SUCH OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
- A6. ALL SET OUT DIMENSIONS ARE TO BE OBTAINED FROM THE ARCHITECTS DRAWING UNLESS SPECIFIC DIMENSIONS ARE GIVEN ON THE ENGINEERING DRAWINGS.
- A7. THESE DRAWINGS SHOULD NOT BE SCALED.
- A8. THE CONTRACTOR WILL ENSURE THAT ALL WORK IS PERFORMED & DIRECTLY SUPERVISED BY APPROPRIATELY EXPERIENCED PERSONNEL.
- A9. IT IS THE BUILDERS RESPONSIBILITY TO ENSURE STRUCTURAL STABILITY AND STRUCTURAL INTEGRITY OF ALL ELEMENTS OF THE WORKS DURING ALL PHASES OF CONSTRUCTION.
- A10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL WORKS BE CARRIED OUT IN A SAFE MANNER IN ACCORDANCE WITH THE RELEVANT REGULATIONS, IN ORDER TO MINIMISE THE RISK OF INJURY OR DAMAGE TO PROPERTY TO APPROPRIATELY SAFE LEVELS.
- A11. ALL MATERIALS AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA (BCA) AND THE RELEVANT AUSTRALIAN STANDARD CODE RELATING TO THEIR APPLICATION. CERTIFICATES FOR ALL THE AS-BUILT WORKS ARE TO BE PREPARED AND PRESENTED TO THE ENGINEER ON REQUEST.
- A12. THE USE OF PROPRIETARY PRODUCTS IN THE CONSTRUCTION OF ANY PART OF THESE RETAINING WALLS MUST BE IN ACCORDANCE WITH THE MANUFACTURER'S LITERATURE.
- A13. ASSURANCE OF THE QUALITY OF ALL GOODS, MATERIALS & SERVICES MUST BE PROVIDED UPON REQUEST. THE FOLLOWING IS DEEMED TO MEET THIS REQUIREMENT AS AN EXAMPLE:  
- A QUALITY ASSURANCE SYSTEM COMPLYING WITH AS/NZS ISO 9001.
- A14. IT IS THE BUILDER'S RESPONSIBILITY TO SEEK FORMAL ADVICE FROM THE STRUCTURAL ENGINEER WHENEVER NECESSARY.
- A15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BOOK SITE INSPECTIONS FOR COMPLETED WORKS AS REQUIRED. REFER TO SECTION M SITE INSPECTIONS.
- A16. THE APPROVAL OF A CHANGE SHALL BE SOUGHT FROM THE CONTRACT ADMINISTRATOR (CA), BUT IS NOT AN AUTHORIZATION FOR AN EXTRA. ANY EXTRAS INVOLVED MUST BE VERIFIED WITH THE CA PRIOR TO WORK COMMENCING.
- A17. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ADEQUATE PROTECTION AGAINST TERMITES IS PROVIDED IN ACCORDANCE WITH AS3660.
- A18. ALL CONSTRUCTION TOLERANCES ARE TO BE WITHIN THE LIMITS SPECIFIED WITHIN THE AUSTRALIAN STANDARD GOVERNING EACH PARTICULAR MATERIAL & THE BCA.

**B. EARTHWORKS**

- B1. ALL EARTHWORKS INCLUDING EXCAVATION & FILLING WORKS MUST BE CONDUCTED IN ACCORDANCE WITH AS3798 OR AS2870 SECTION 6 WHERE APPROPRIATE.
- B2. EXCAVATION AND FILLING WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE RELEVANT ARCHITECTURAL DETAILS AND THE CUT / FILL LINES NOMINATED.
- B3. TOPSOIL, VEGETATION AND MATERIAL OVERLAYING NATURAL SUBGRADE OR CONTROLLED FILL IS TO BE REMOVED FROM THE BUILDING PLATFORM PRIOR TO SITE WORKS.
- B4. SOILS USED IN FILL MUST CONTAIN LESS THAN 20% BY MASS OF PARTICLES COARSER THAN 37.5mm AFTER FIELD COMPACTION.
- B5. FOR STRUCTURAL FILL COMPACTED IN ACCORDANCE WITH AS3798, MINIMUM RELATIVE COMPACTION VALUES FOR COHESIVE SOILS & MINIMUM DENSITY INDEXES IN COHESIONLESS SOILS MUST BE IN ACCORDANCE WITH AS3798 TABLE 5.1.

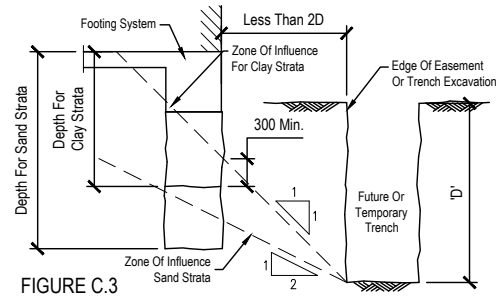
ITEM	APPLICATION	MINIMUM RELATIVE COMPACTION, %	
		MIN. DENSITY RATIO (AT STANDARD COMPACTIVE EFFORT) (COHESIVE SOILS) (SEE NOTE 1)	MIN. DENSITY INDEX (COHESIONLESS SOILS) (SEE NOTE 2)
1	RESIDENTIAL-LOT, FILL, HOUSE, SITES	95 (SEE NOTE 3)	70
2	COMMERCIAL-FILLS TO SUPPORT MINOR LOADINGS, INCLUDING FLOOR LOADINGS OF UP TO 20kPa & ISOLATED PAD OR STRIP FOOTINGS TO 100kPa	98 (SEE NOTE 4)	75
3	FILL TO SUPPORT PAVEMENTS (SEE NOTE 5) (a) GENERAL FILL (b) SUBGRADE (TO A DEPTH OF 0.3m)	95 98	70 75

REFER TO AS3798 FOR ASSOCIATED NOTES

B6. FOR STRUCTURAL FILL COMPACTED IN ACCORDANCE WITH AS2870, THE CONSTRUCTION REQUIREMENTS OF SECTION 6 MUST BE SATISFIED.

**C. ADJACENT EASEMENTS & EXCAVATIONS**

- C1. WHERE AN EASEMENT OR TEMPORARY TRENCH EXCAVATION, NOT NOTED ON THE ENGINEERING DRAWINGS, IS LOCATED WITHIN A DISTANCE OF TWICE THE DEPTH OF THE EXCAVATION FROM A STRUCTURE, THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE ENGINEER IS NOTIFIED IN ORDER TO DETERMINE THE EXTENT AND TYPE OF WORKS REQUIRED TO ENSURE THE LONG TERM INTEGRITY AND SERVICEABILITY OF THE STRUCTURE.
- C2. THE DEPTH AND EXTENT OF ANY WORKS ADJACENT TO AN EASEMENT WILL BE SUBJECT TO THE STRATA ENCOUNTERED IN THE TRENCH EXCAVATIONS AND THE DISTANCE FROM THE STRUCTURE TO THE EDGE OF THE EXCAVATION.
- C3. THE REQUIREMENTS FOR PIERING WORKS/EDGE BEAM DEEPENING SHALL BE DETERMINED IN ACCORDANCE WITH FIGURE C.3 BELOW FOR THE RELEVANT ZONE OF INFLUENCE.



C4. DETERMINATION OF PIERING WORKS AND ZONE OF INFLUENCE MUST BE IN ACCORDANCE WITH ALL LOCAL COUNCIL AND / OR LOCAL AUTHORITIES REQUIREMENTS.

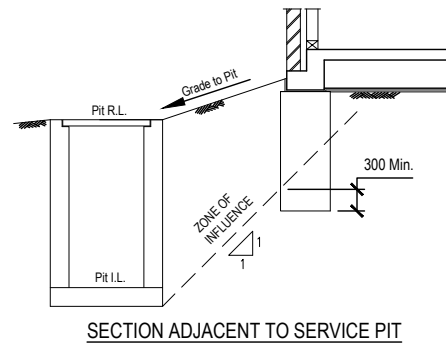
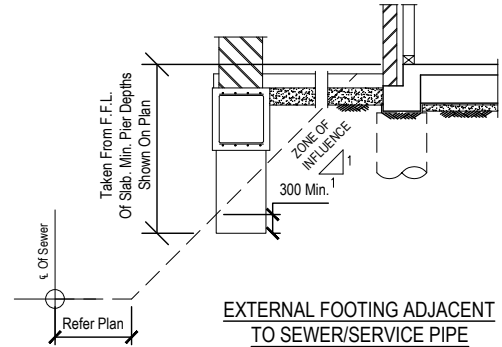
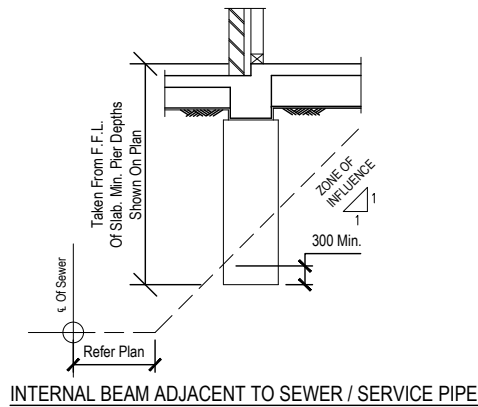
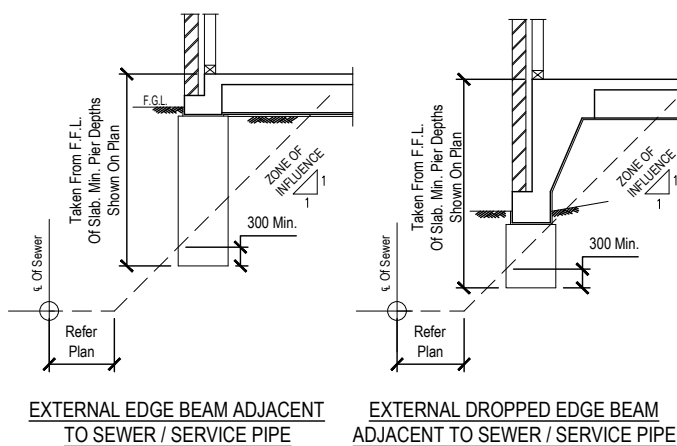
**D. PIERING WORKS**

- D1. THE SELECTION OF THE FINAL PIERING SYSTEM WILL BE SUBJECT TO THE RESULTS OF THE TEST HOLE EXCAVATIONS OR INSTRUCTIONS BY THE STRUCTURAL ENGINEER.
- D2. THE PIERING WORKS ARE TO BE FOUNDED TO UNIFORM NATURAL SUBGRADE OR CONTROLLED FILL MATERIAL THROUGHOUT OR TO STRATA NOMINATED BY THE STRUCTURAL ENGINEER.
- D3. FOR FLOOR SLABS DESIGNED IN ACCORDANCE WITH AS2870, THE FINAL PIERING SYSTEM IS TO BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

PIERING SCHEDULE BRICK VENEER CONSTRUCTION ONLY			
BEARING STRATA	DESIGN BEARING CAPACITY	SINGLE STOREY	DOUBLE STOREY
SAND	100 kPa	800mm x 300mm BUCKET PIERS @ 1800mm MAX. C/C	CONTINUOUS EDGE BEAM DEEPENING
CONTROLLED CLAY FILL	150 kPa	700mm x 300mm BUCKET PIERS @ 1800mm MAX. C/C	CONTINUOUS EDGE BEAM DEEPENING OR 800mm x 300mm BUCKET PIERS @ 1200mm MAX. C/C
STIFF NATURAL CLAY	250 kPa	400mmØ BORED PIERS @ 1800mm MAX. C/C	400mmØ BORED PIERS @ 1500mm MAX. C/C
SHALE / ROCK	450 kPa	300mmØ BORED PIERS @ 1800mm MAX. C/C	400mmØ BORED PIERS @ 1800mm MAX. C/C

**E. BUILDING DETAILS ADJACENT TO SEWER/SERVICES**

E1. THE FOLLOWING DETAILS MUST BE ADHERED TO WHEN BUILDING ADJACENT TO SEWER OR OTHER SERVICES:



**F. FOOTING SYSTEM**

- F1. ALL RESIDENTIAL SLABS & FOOTINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870.
- F2. THESE FOOTING SYSTEMS HAVE BEEN DESIGNED FOR A SUBGRADE TYPE AND PERMISSIBLE BEARING CAPACITY AS NOTED BELOW:  
CONTROLLED FILL 100 kPa  
MEDIUM CLAY OR MEDIUM DENSE SAND 150 kPa  
STIFF NATURAL CLAY OR DENSE SAND 250 kPa  
SHALE 450 kPa  
SANDSTONE 600 kPa
- F3. THE SUBGRADE TYPE AND CAPACITY IS TO BE VERIFIED PRIOR TO FOOTING WORKS COMMENCING.
- F4. IF THE SITE HAS BEEN THE SUBJECT OF A GEOTECHNICAL INVESTIGATION REQUIRING ADHERENCE TO PARTICULAR CONSTRUCTION PROCEDURES AND / OR TECHNIQUES, THE REQUIREMENTS OF THE APPROPRIATE GEOTECHNICAL ENGINEER'S REPORT SHALL BE COMPLIED WITH IN FULL.
- F5. IF THE SITE CONDITIONS ENCOUNTERED APPEAR TO DIFFER SUBSTANTIALLY FROM THE CONDITIONS DEPICTED ON THIS PLAN OR REPORTED IN THE GEOTECHNICAL REPORT, THE STRUCTURAL ENGINEER AND / OR THE GEOTECHNICAL ENGINEER SHOULD BE NOTIFIED IMMEDIATELY.
- F6. STRIP FOOTING AND STIFFENED RAFT SLAB PROPORTIONS ARE MINIMUM REQUIREMENTS ONLY. DEPTH OF EXCAVATIONS FOR FOOTINGS AND BEAMS ARE TO BE EXTENDED TO ACHIEVE MINIMUM 100mm PENETRATION INTO FIRM UNIFORM NATURAL SUBGRADE OR CONTROLLED FILL.
- F7. WAFFLE RAFT PROPORTIONS ARE MINIMUM REQUIREMENTS ONLY FOR SLABS CONSTRUCTED ON LEVEL BUILDING PLATFORMS PREPARED IN ACCORDANCE WITH AS2870 SECTION 6. WHERE BUILDING PLATFORMS DO NOT COMPLY WITH THIS CRITERIA, THE ENGINEER IS TO BE NOTIFIED PRIOR TO THE COMMENCEMENT OF ANY ASSOCIATED WORKS.
- F8. CONTROLLED FILL IS FILL MATERIAL PLACED IN COMPLIANCE WITH AS3798 AND CERTIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER.
- F9. PLUMBING PIPES OR OTHER PENETRATIONS ARE TO BE PLACED ONLY WITHIN THE MID THIRD OF THE EDGE BEAM OR FOOTING DEPTH. WHERE PIPES PENETRATE THE FOOTING SYSTEM THEY ARE TO BE WRAPPED IN 10mm ABELFLEX OR EQUIVALENT COMPRESSIBLE MATERIAL. NO REINFORCEMENT MAY BE CUT OR RELOCATED FROM WHERE DRAWN WITHOUT INSTRUCTION FROM THE ENGINEER.
- F10. ALL PLUMBING & DRAINAGE SERVICES ARE TO BE FITTED WITH FLEXIBLE CONNECTIONS AS PER AS2870 SECTION 5.
- F11. THE BASE OF STRIP FOOTINGS SHALL BE HORIZONTAL OR AT A SLOPE OF NOT MORE THAN 1 IN 10. STRIP FOOTINGS SHALL BE STEPPED IN ACCORDANCE WITH AS2870 SECTION 5.

**G. CONCRETE**

- G1. ALL CONCRETE WORKMANSHIP & MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF AS3600, ALL RELEVANT BCA REQUIREMENTS & THE CONTRACT DOCUMENTS.
- G2. CONCRETE QUALITY SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFIC DESIGN PARAMETERS.
- G3. ADMIXTURES SHALL NOT BE USED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER U.N.O.
- G4. STRENGTH SHALL BE VERIFIED BY PROJECT CONTROL TESTING BY AN APPROVED NATA LABORATORY.
- G5. SIZES OF ALL CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- G6. CONCRETE SIZES SHOWN ARE MINIMUM AND NO REDUCTIONS BY PIPES, DUCTS, ETC. SHALL BE MADE WITHOUT THE APPROVAL OF THE ENGINEER.
- G7. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- G8. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
- G9. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- G10. ALL SLABS SHALL BE POURED AT THE SAME TIME AS BEAMS OF WHICH THEY FORM A PART OF.
- G11. ALL STRUCTURAL DETAILS ARE TO BE CO-ORDINATED WITH ARCHITECTURAL DETAILS BEFORE FORMING OR POURING SLAB PROFILES. ENGINEER TO BE ADVISED IMMEDIATELY OF ANY DISCREPANCIES.
- G12. TRENCHES & FOOTING EXCAVATIONS SHALL BE DEWATERED & CLEANED PRIOR TO CONCRETE PLACEMENT SO THAT NO SOFTENED OR LOOSENED MATERIAL REMAINS.
- G13. ALL CONCRETE SHALL BE ADEQUATELY COMPACTED BY MECHANICAL IMMERSION VIBRATOR.
- G14. WHERE BRITTLE FLOOR COVERINGS ARE TO BE USED (ie. TILES, SLATE, ETC) ONE OF THE FOLLOWING PROCEDURES SHALL BE CARRIED OUT:  
1) INCREASE REINFORCEMENT TO SL92 MIN. FABRIC OR EQUIVALENT - RESIDENTIAL SLABS IN ACCORDANCE WITH AS2870 ONLY.  
2) ALLOW A MINIMUM PERIOD OF THREE (3) MONTHS DRYING OF CONCRETE PRIOR TO PLACEMENT OF ANY BRITTLE FLOOR COVERINGS.  
3) PLACE TILES ON A FLEXIBLE BEDDING MATERIAL.
- G15. CONCRETE SURFACES SHALL BE FINISHED AS NOTED BELOW U.N.O:  
- FLOOR SLABS - STEEL FLOAT.  
- EXTERNAL PATHS, DRIVEWAYS & PARKING AREAS AT LESS THAN 10% SLOPE - FINE BROOMED STEEL FLOAT.  
- EXTERNAL PATHS, DRIVEWAYS & PARKING AREAS AT GREATER THAN 10% SLOPE - COARSE BROOMED STEEL FLOAT.  
- VERTICAL SURFACES EXPOSED IN THE COMPLETED BUILDING - RUBBED BACK TO FILL ALL VOIDS & PROVIDE SMOOTH SURFACE.  
- VERTICAL SURFACE NOT EXPOSED IN THE COMPLETED BUILDING - OFF FORM FINISH.
- G16. APPROPRIATE CURING OF CAST CONCRETE SURFACES IN ACCORDANCE WITH AS3600 SECTION 17. MUST COMMENCE IMMEDIATELY AFTER FINISHING HAS BEEN COMPLETED. SUCH CURING MAY BE ACHIEVED BY THE APPLICATION OF WATER TO ACCELERATE THE CURING OF, OR THE RETENTION OF WATER IN, THE FRESHLY CAST CONCRETE OR THROUGH THE APPLICATION OF CURING COMPOUNDS THAT COMPLY WITH AS3799.
- G17. UNLESS OTHERWISE CONFIRMED BY THE ENGINEER, THE MINIMUM CONTINUOUS PERIOD FOR CURING IS AT LEAST 7 DAYS.
- G18. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE.
- G19. THE CONTRACTOR IS TO ENSURE THAT ANY CURING COMPOUNDS USED ARE COMPATIBLE WITH THE PROPOSED FLOOR FINISHES.
- G20. THE APPLICATION OF LOAD TO ANY CAST IN SITU ELEMENT MUST NOT BE CONDUCTED WITHOUT ENSURING THAT THE ELEMENT HAS REACHED SUFFICIENT STRENGTH TO BE ABLE TO SAFELY SUPPORT THE LOAD WITHOUT ANY DETRIMENT TO ITS INTENDED USE. SHOULD THERE BE ANY DOUBT ON THIS, APPROVAL MUST BE SOUGHT FROM THE ENGINEER.
- G21. ANY STRIPPING OF FORMS & REMOVAL OF FORMWORK SUPPORTS MUST BE DONE IN ACCORDANCE WITH AS3600 SECTION 17. SHOULD THERE BE ANY DOUBT IN WHETHER ANY OF THESE REQUIREMENTS HAVE BEEN MET, INSTRUCTION MUST BE SOUGHT FROM THE ENGINEER.
- G22. ALL CONCRETE MUST BE HANDLED, PLACED & COMPACTED SO AS TO PRODUCE A MONOLITHIC MASS BETWEEN PLANNED JOINTS OR THE EXTREMITIES OF MEMBERS OR BOTH. THIS SHOULD BE ACHIEVED USING SINGLE POURS WHEN POSSIBLE. ANY BREAK IN POUR MUST BE APPROVED BY THE ENGINEER. SUITABLE PREPARATION OF THE PRE-FORMED CONCRETE SURFACE & APPLICATION OF SUITABLE BONDING AGENT WILL APPLY.

REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: **LOT 2 BALMORAL AVENUE, CROYDON PARK**

STATE: **NEW SOUTH WALES**

ESTATE: **-**

NOTES

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DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.	DESIGN ENGINEER:
D S - AMV	D S- AMV	302334	JOHN J. FORREST CPEng 353212

THIS DRAWING SET HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE DEEMED-TO-COMPLY PROVISIONS OF AS2870- RESIDENTIAL SLABS & FOOTINGS CODE APPLICABLE WITHIN TWELVE (12) MONTHS OF THE INITIAL DATE OF PREPARATION.

ALL BOOKLET SHEETS ARE TO BE REFERENCED FOR THE CONSTRUCTION OF THE WAFFLE RAFT SLAB - ANY CONFLICT IN DOCUMENTATION IS TO BE REFERRED TO THE ENGINEER PRIOR TO CONSTRUCTION.

DRAWN BY:	CHECKED BY:	APPROVED BY:	REV:
QH	FR	JRF	1

NOT TO SCALE

JOB NUMBER: **FE702686**

SHEET: **N1**

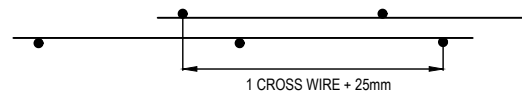
## H. STEEL REINFORCEMENT

- H1. THE TYPE, QUALITY & PLACEMENT OF ALL STEEL REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF AS3600, AS4671, ALL RELEVANT BCA REQUIREMENTS & THE CONTRACT DOCUMENTS.
- H2. ALL REINFORCING BAR AND FABRIC SHALL BE DESIGNATED AS SHOWN IN THE FOLLOWING TABLE AND SHALL COMPLY WITH THE APPROPRIATE CODES AS NOTED:

SYMBOL	TYPE
R	STRUCTURAL GRADE ROUND BARS TO AS1302 (250 MPa).
N	DEFORMED BARS TO AS/NZ4671 (500 MPa).
SL	FABRIC TO AS/NZ4671 (500 MPa).

NOTE: THE NUMBER FOLLOWING THE SYMBOL IS THE BAR DIAMETER IN MILLIMETRES.

- H3. ANY REQUEST TO AMEND OR RELOCATE ANY STEEL REINFORCEMENT FROM THE DRAWN DETAIL MUST BE REVIEWED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE ENGINEER IS NOTIFIED OF ANY SUCH CHANGES.
- H4. MINIMUM LAP FABRIC TO BE AS SHOWN IN THE DIAGRAM BELOW:



- H5. TRENCH MESH SHALL BE SPLICED WHERE NECESSARY BY A LAP OF 500mm. ALL CROSS WIRES TO TRENCH MESH SHALL BE CUT FLUSH WITH OUTER MAIN WIRES.
- H6. SPLICES IN REINFORCEMENT SHALL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF SECTION 13 OF AS3600 OR IN ACCORDANCE WITH THE FOLLOWING TABLE AS A MINIMUM:

BAR SIZE	N12	N16	N20	N24	N28	N32
SPLICE LENGTH	400	600	800	1200	1200	1200

- H7. ALL REINFORCEMENT SHALL BE SUPPORTED AT 1000mm MAX. CENTRES TO MAINTAIN THE NOMINATED POSITION AND COVER. WHERE BAR DIAMETERS LESS THAN 8mm ARE USED, THE MAXIMUM SPACING IS TO BE REDUCED TO 800mm.
- H8. BAR CHAIRS USED FOR SUPPORTING REINFORCEMENT SHALL INCORPORATE WIDE BASES & BE PLACED ON METAL BASES SO THAT THEY DO NOT PUNCTURE ANY VAPOUR BARRIERS OR DAMP PROOF MEMBRANES IF REQUIRED.
- H9. WELDING OF REINFORCEMENT OTHER THAN TACK WELDING FOR PURPOSE OF MAINTAINING BARS IN CORRECT POSITIONS IS NOT PERMITTED UNLESS SPECIFICALLY NOMINATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER. WHERE SITE WELDING HAS BEEN CONDUCTED, SURFACE TREATMENT AND COATINGS SHALL BE AS SPECIFIED IN THE FOLLOWING TABLE:

MEMBER	MARK	SURFACE PREPARTION	COATING
INTERIOR		ABRASIVE BLAST CLASS 1	R.O.Z.P. (1 COAT)
EXTERIOR		HOT DIPPED GALVANISED	600g/m <sup>2</sup>

- H10. AT 'T' & 'L' INTERSECTIONS, THE BARS SHALL BE CONTINUED ACROSS THE FULL WIDTH OF THE INTERSECTION. AT CORNERS & 'L' INTERSECTIONS OF STIFFENED RAFTS, WAFFLE RAFTS & STRIP FOOTINGS, EACH OUTER BAR, TOP & BOTTOM, SHALL BE BENT & CONTINUED 500mm, OR A BENT LAP BAR 500mm LONG ON EACH LEG SHALL BE PROVIDED.

## J. STRUCTURAL STEELWORK

- J1. ALL STRUCTURAL STEELWORK SHALL COMPLY WITH THE REQUIREMENTS OF AS4100, ALL RELEVANT BCA REQUIREMENTS & THE CONTRACT DOCUMENTS.
- J2. 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  
 B.W. - BUTT WELD  
 F.W. - FILLET WELD

- J3. STRUCTURAL STEEL COMPONENTS SHALL CONFORM TO THE FOLLOWING TABLE U.N.O.

SECTIONS	MIN. GRADE
UNIVERSAL BEAMS & COLUMNS, PARALLEL FLANGE CHANNELS, ANGLES TO AS/NZS3679.1	300
WELDED SECTIONS TO AS/NZS3679.2	300
HOT ROLLED PLATES, FLOOR PLATES & SLABS TO AS/NZS3678	250
HOLLOW SECTIONS TO AS1163	C350
COLD FORMED PURLINS & GIRTS TO AS1397	G450, Z350

- J4. DETAILED WORKSHOP DRAWINGS SHALL BE PREPARED AND SUBMITTED TO THE ENGINEER FOR APPROVAL. FABRICATION IS NOT TO COMMENCE WITHOUT THE ENGINEERS APPROVAL OF WORKSHOP DRAWINGS. ALL DIMENSIONS AND SETOUTS ARE TO BE OBTAINED FROM ARCHITECTURAL DRAWINGS WHERE NOT INDICATED ON STRUCTURAL DRAWINGS.
- J5. ALL SHOP CONNECTIONS SHALL BE FULLY WELDED UNLESS NOTED OTHERWISE.
- J6. ALL WELDING SHALL BE PERFORMED BY AN EXPERIENCED/QUALIFIED OPERATOR IN STRICT ACCORDANCE WITH AS/NZS1554.
- J7. PROVIDE 6mm MINIMUM FILLET WELDS, FULL PENETRATION BUTT WELDS OR M20 8.8/S BOLTS AND 10mm CONNECTION PLATES UNLESS SPECIFICALLY NOTED OTHERWISE.

- J8. ALL EXPOSED WELDS ARE TO BE GROUND SMOOTH.
- J9. ALL BOLTS SHALL BE IN 2mm CLEARANCE HOLES UNLESS NOTED OTHERWISE.
- J10. ALL BOLTS TO COMPLY WITH:

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 AS/NZS1252 SNUG TIGHTENED.
8.8/TB	HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS1252 FULLY TENSIONED TO AS4100 AS A BEARING JOINT.
8.8/TF	HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS1252 FULLY TENSIONED TO AS4100 AS A FRICTION JOINT WITH FACING SURFACES LEFT UNCOATED.

- J11. NO CONNECTIONS SHALL HAVE LESS THAN TWO BOLTS.
- J12. TB AND TF BOLTS TO BE INSTALLED USING APPROVED LOAD INDICATING WASHERS OR BY TURN OF NUT CONTROL OF TENSIONING.
- J13. PROVIDE SEAL PLATES TO ALL HOLLOW SECTIONS. PROVIDE VENT HOLES TO HOLLOW MEMBERS AND DRAIN HOLES TO ALL MEMBERS TO BE HOT DIP GALVANISED.
- J14. THE BUILDER SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING STEEL TO STEEL AND TIMBER TO STEEL WHETHER OR NOT DETAILED ON STRUCTURAL DRAWINGS.
- J15. ALL PURLINS AND GIRTS SHALL BE BLUESCOPE LYSAGHT SECTIONS OR APPROVED EQUIVALENT MANUFACTURED FROM GRADE 450 STEEL OR HIGHER AND GALVANISED TO A MINIMUM COATING CLASS OF Z350 U.N.O.
- J16. ALL PURLINS ARE TO HAVE TWO (2) ROWS OF BRIDGING U.N.O.
- J17. PROVIDE HOOK BOLTS TO PURLINS ADJACENT TO BRACING MID POINTS TO CONTROL BRACE SAG.
- J18. THE CONTRACTOR SHALL MAKE THE NECESSARY ALLOWANCES FOR CO-ORDINATING ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS IN THE PREPARATION OF STRUCTURAL STEEL WORKSHOP DRAWINGS AND SUBSEQUENT FABRICATION AND ERECTION.
- J19. CONNECTION DETAILS SHOWN ON STRUCTURAL DRAWINGS ARE TYPICAL ONLY. WHERE A DETAIL IS NOT SHOWN, THE FABRICATOR/SHOP DETAILER SHALL PREPARE DETAILS IN ACCORDANCE WITH AS4100 AND THE ASI STRUCTURAL STEEL CONNECTION HANDBOOKS. THESE DETAILS SHALL TAKE DUE ACCOUNT OF ARCHITECTURAL AND SERVICES REQUIREMENTS AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE ENGINEER SHALL PROVIDE LOADS AS REQUIRED. ALL COSTS AND THE IMPLICATIONS ASSOCIATED WITH THESE WORKS ARE TO BE ALLOWED FOR BY THE CONTRACTOR.
- J20. CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH 10 S.W.G. WIRE AT 100mm PITCH & SHALL HAVE A MINIMUM CONCRETE COVER OF 50mm U.N.O.
- J21. SURFACE TREATMENT AND COATINGS SHALL BE AS SPECIFIED IN THE FOLLOWING TABLE AS A MINIMUM:

MEMBER	MARK	SURFACE PREPARATION	COATING
INTERIOR		ABRASIVE BLAST CLASS 1	R.O.Z.P. (1 COAT)
EXTERIOR		HOT DIPPED GALVANISED	600g/m <sup>2</sup>

- J22. COATING OF EXTERNAL LINTELS SHALL BE IN ACCORDANCE WITH EITHER BCA SECTION 3 OR AS/NZS2699.3

- J23. ALL BASEPLATES SHALL BE GROUTED BEFORE MEMBER IS SUBSTANTIALLY LOADED. GROUT SHALL HAVE MINIMUM STRENGTH  $f_c=30MPa$  AND SHALL BE DRYPACK MORTAR RAMMED IN. APPROVED NON-SHRINK GROUTS ARE ACCEPTABLE.

## K. MASONRY

- K1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF AS3700, AS/NZS4455, ALL RELEVANT BCA REQUIREMENTS & THE CONTRACT DOCUMENTS.
- K2. STRENGTH OF BRICKS, CLASS OF BLOCKS AND TYPE OF MORTAR SHALL BE AS FOLLOWS U.N.O.:

ELEMENT	MATERIAL	CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH, $f_{uc}$	MORTAR CLASSIFICATION
BRICKWORK	CLAY	27	M4
BLOCKWORK	CONCRETE	15	M4

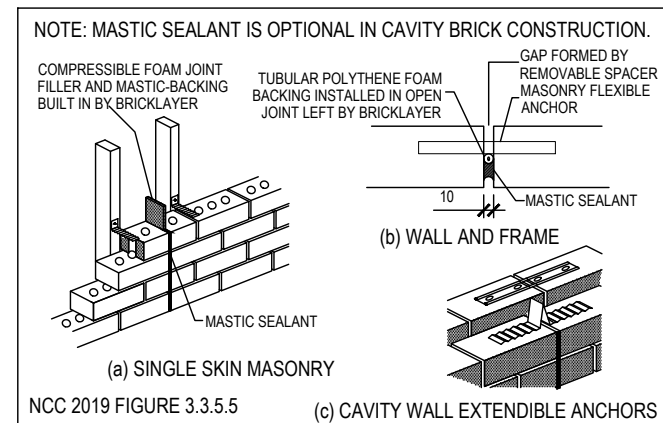
- K3. ALL REINFORCED CONCRETE BLOCK WALLS TO BE CLEANED OUT AND CORE-FILLED WITH THE FOLLOWING CONCRETE GROUT U.N.O.:

STRENGTH ( $f_c$ )	20MPa
MAXIMUM AGGREGATE SIZE	10mm
MAXIMUM SLUMP	200mm
COVER FROM TENSION FACE OF BLOCKWORK TO REINFORCING BARS	60mm

- K4. ALL REINFORCEMENT IS TO BE ACCURATELY POSITIONED IN MASONRY WALLS.
- K5. PROVIDE 60mm COVER FROM OUTSIDE FACE OF BLOCKWORK TO REINFORCING BARS.
- K6. MORTAR ADMIXTURES SHALL NOT BE USED WITHOUT TO APPROVAL OF THE ENGINEER.
- K7. THE TOP COURSE IN HOLLOW BLOCK WALLS SHALL BE LAID IN SOLID BLOCK.
- K8. NO CHASES OR RECESSES ARE PERMITTED IN LOAD BEARING MASONRY WITHOUT THE APPROVAL OF THE ENGINEER.
- K9. CLEANOUT BLOCKS SHALL BE PROVIDED AT 400mm CENTRES AT THE BASE OF ALL REINFORCED CONCRETE BLOCK WALLS.
- K10. ALL MORTAR DROPPINGS AND DAGS TO BE CLEANED OUT PRIOR TO COMMENCEMENT OF CONCRETE CORE-FILLING.

- K11. ALL NON-LOADBEARING WALLS SHALL BE KEPT CLEAR OF THE UNDERSIDE OF SLABS AND BEAMS BY 20mm U.N.O.
- K12. ALL MASONRY WALLS AND PIERS SUPPORTING SLABS AND BEAMS SHALL HAVE A PRE-GREASED GALVANISED STEEL SLIP JOINT BETWEEN THE TOP OF THE MASONRY ELEMENT AND THE CONCRETE SLAB SOFFIT U.N.O.
- K13. PROVIDE VERTICAL JOINTS IN ACCORDANCE WITH CEMENT & CONCRETE ASSOCIATION OF AUSTRALIA TECHNICAL NOTES - ARTICULATED WALLING OR AT 6m MAXIMUM CENTRES AND WITHIN 2m FROM CORNERS IN ALL MASONRY WALLS.
- K14. ALL MASONRY SUPPORTING OR SUPPORTED BY CONCRETE FOOTINGS SHALL BE PROVIDED WITH VERTICAL JOINTS TO MATCH ANY CONTROL JOINTS IN THE CONCRETE FOOTING.
- K15. ALL CAVITY CONSTRUCTION IS TO HAVE GALVANISED/STAINLESS STEEL WALL TIES INSTALLED IN ACCORDANCE WITH AS3700 MASONRY STRUCTURES.
- K16. MASONRY WALLS NOT TO BE BACKFILLED UNTIL THE CONCRETE SLAB OVER HAS BEEN POURED AND CURED FOR AT LEAST 14 DAYS.
- K17. ALL MASONRY WALLS NOT TO BE CONSTRUCTED ON A SUSPENDED CONCRETE SLAB UNTIL THE SLAB HAS BEEN STRIPPED AND DE-PROPPED.
- K18. MASONRY WALLS SHALL BE TIED TO ABUTTING CONCRETE AND STEEL COLUMNS WITH 38 x 1.6 x 300 LONG CRIMPED GALVANISED STEEL BUILDERS' STRAPS AT MAXIMUM 350 CENTRES VERTICALLY, U.N.O. ON THE STRUCTURAL DRAWINGS. FIX STRAPS TO COLUMNS WITH 2/No.12 SELF DRILLING STEEL FASTENERS INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALTERNATIVE FIXINGS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

## L. VERTICAL ARTICULATION JOINT DETAILS



## M. STRUCTURAL TIMBER

- M1. THE TYPE, QUALITY, PLACEMENT & FIXING OF ALL STRUCTURAL TIMBER SHALL COMPLY WITH THE REQUIREMENTS OF AS1720 OR AS1684 WHEN APPROPRIATE.
- M2. ALL TIMBER MEMBERS NOT CALLED UP ON RELEVANT PLANS SHALL BE SELECTED IN ACCORDANCE WITH THE ABOVE CODES.
- M3. ALL SCREWS AND BOLTS TO BE GALVANISED AND FIXED IN ACCORDANCE WITH AS1720.
- M4. ALL TIMBER TO BE MINIMUM STRESS GRADE F7 U.N.O.
- M5. TIMBER JOINTS SHALL BE FREE OF DEFECTS.
- M6. THE ACTUAL DIMENSIONS OF THE TIMBER SHALL NOT DIFFER FROM THOSE NOMINATED ON DRAWINGS BY MORE THAN THE TOLERANCES ALLOWED IN AS/NZS1748, AS/NZS2082 AND AS/NZS2858.
- M7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE DURING CONSTRUCTION THAT THE TIMBER IS PROTECTED FROM THE WEATHER AND THAT THE STRENGTH IS NOT IMPAIRED IN ANY WAY.
- M8. ROOF TRUSSES ARE TO BE DESIGNED IN ACCORDANCE WITH AS1720.
- M9. THE TRUSS DESIGNER SHALL PROVIDE DETAILS OF ALL PLATES AND CLEATS TO BE ATTACHED TO STEELWORK TO SUPPORT ROOF TRUSSES U.N.O.
- M10. ROOF TRUSS DEFLECTION IS TO BE LIMITED TO SPAN/600 UNDER LONG TERM DEAD LOAD U.N.O.
- M11. ROOF TRUSSES TO BE SPACED AT MAXIMUM 600 CENTRES U.N.O.
- M12. FOR ALL ROOFING, INSULATION AND CEILING DETAILS REFER TO ARCHITECTURAL DRAWINGS.

## N. VAPOUR BARRIERS & DAMP PROOFING MEMBRANES

- N1. RAFTS OR SLABS IN CONTACT WITH THE GROUND MUST BE PROVIDED WITH A VAPOUR BARRIER OR DAMP PROOFING MEMBRANE.
- N2. VAPOUR BARRIERS & DAMP PROOFING MEMBRANES MUST COMPLY WITH & BE INSTALLED IN ACCORDANCE WITH AS4200 & AS2870.

## P. SITE INSPECTIONS

- P1. WHERE STRUCTURAL ENGINEER'S CERTIFICATES ARE REQUIRED OF ANY ELEMENT, IT IS MANDATORY THAT THE ELEMENT IS INSPECTED BY THE ENGINEER PRIOR TO PLACEMENT OF CONCRETE/BACKFILL OR OTHER FORM OF CONCEALMENT. WHERE ADEQUATE NOTIFICATION IS NOT PROVIDED TO THE ENGINEER, PARTIAL DEMOLITION AND/OR RECONSTRUCTION OF THE WORKS MAY BE REQUIRED IN ORDER FOR CERTIFICATION OF THE WORKS TO BE ISSUED.
- P2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ENSURING THAT SUCH INSPECTIONS ARE ARRANGED WITH & CONDUCTED BY THE ENGINEER.

### NOTE:

THIS DRAWING SET REPRESENTS ONLY THE PRIMARY DETAILS FOR THE CONSTRUCTION OF THE DWELLING. CONSEQUENTLY THIS DRAWING SET MUST BE READ IN CONJUNCTION WITH THE FULL CONSTRUCTION SPECIFICATIONS AND DOCUMENTATION DEFINED IN THE HUDSON HOMES DETAIL BOOKLET© PREPARED BY FORREST ENGINEERING SOLUTIONS PTY LTD

**DWELLING PERFORMANCE & EXPECTATION:**  
 THE OWNERS ATTENTION MUST BE DIRECTED TO APPENDIX B - AS2870, 2011.  
 THE OWNER IS SOLELY RESPONSIBLE FOR THE MAINTENANCE OF SITE CONDITIONS FOR THE DESIGN LIFE OF THE DWELLING.

REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: LOT 2 BALMORAL AVENUE,  
CROYDON PARK

STATE: NEW SOUTH WALES

ESTATE: -

NOTES

HEAD OFFICE  
 ABN : 35 119 321 827  
 Phone : 02 9520 1611  
 office@forresteng.com.au  
 PO Box 2412  
 Taren Point, NSW 2229

DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.	DESIGN ENGINEER:
D S - AMV	D S- AMV	302334	JOHN J. FORREST <sub>CPEng 353212</sub>
THIS DRAWING SET HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE DEEMED-TO-COMPLY PROVISIONS OF AS2870- RESIDENTIAL SLABS & FOOTINGS CODE APPLICABLE WITHIN TWELVE (12) MONTHS OF THE INITIAL DATE OF PREPARATION.			ALL BOOKLET SHEETS ARE TO BE REFERENCED FOR THE CONSTRUCTION OF THE WAFFLE RAFT SLAB - ANY CONFLICT IN DOCUMENTATION IS TO BE REFERRED TO THE ENGINEER PRIOR TO CONSTRUCTION.

DRAWN BY: QH	REV: 1
CHECKED BY: FR	SHEET: N2
APPROVED BY: JRF	JOB NUMBER: FE702686
	NOT TO SCALE

**NOTE:**  
ZONE OF INFLUENCE PIER DEPTHS NOTED ON SLAB PLAN HAVE BEEN DETERMINED TO ALLOW A MIN 300mm BELOW 45° ZOI. ANGLE BASED ON DESIGN SEWER DRAWINGS BY SYDNEY WATER

REFERENCE: 735872  
VERSION: -  
DATED: 25.06.2021

PIERING WORKS:	
PIER TYPE:	CONCRETE
PIER DIAMETER(mm):	450
PIER SPACING (mm):	1200 U.N.O

**NOTE:**  
INTERNAL PIERS WILL BE REQUIRED AT 3000mm MAX CENTRES IF THE SITE IS EXPOSED TO WET WEATHER.

**NOTE:**  
GEOTECHNICAL ADVICE RELIED UPON FOR THIS DESIGN WAS:  
PREPARED BY: AW GEOTECHNICS PTY. LTD.  
REPORT No: AWT66101  
DATE: 14 JULY 2021

**WATER BOARD NOTE:**  
THE UNIQUE SITE CONDITIONS, LEVELS, PIER DEPTHS AND OFF-SETS NOTED ON THIS PLAN HAVE BEEN ASSESSED IN ACCORDANCE WITH THE PARAMETERS NOMINATED ON SHEET S2.

**NOTE:**  
PIER DEPTHS ARE BELOW FINISH FLOOR LEVEL AS PER SHEET S2.

**NOTE:**  
MINIMUM PIER DEPTH OF 2.0M

**NOTE:**  
AFTER REMOVAL OF EXISTING DWELLING, ALL DISTURBED SOIL TO BE BACK COMPACTED TO AS 2870 REQUIREMENTS

AS2870: **CLASS P (H2)**  
SALINITY: **SLIGHTLY SALINE**  
F'c: **32MPa (SECTION 5.5 - AS2870)**  
SLAB FABRIC: **0.3mm DAMP PROOF MEMBRANE SL92**

EXPOSURE ENV. (MARINE OR SEVERE MARINE): **N/A**

**NOTE:**  
ALL FOUNDATIONS HAVE BEEN DESIGNED TO SUIT A2 EXPOSURE CLASSIFICATION IN LINE WITH THE RECOMMENDATIONS OF GEOTECHNICAL REPORT.

EDGE BEAM WIDTH: **300mm**  
MIN. EDGE BEAM DEPTH: **385mm**  
EDGE BEAM BTM REINFORCEMENT: **2/3-L11TM**  
INTERNAL RIB BTM REINFORCEMENT: **2/N12 or 1N16**

**NOTE:**  
ALL PIERS TO BE FOUNDED ON FIRM UNIFORM NATURAL SUBGRADE

**NOTE:**  
BUILDER TO COMPLY WITH SECTION 5.6.4 IN AS2870-2011.

**NOTE:**  
ALL DAMP PROOF MEMBRANE IS TO BE WRAPPED UP THE EXTERNAL FACE OF THE EDGE BEAM, MIN. CONCRETE COVER 25mm INTERNAL 40mm EXTERNAL



**NOTE:**  
DWELLING FOOTPRINT IS OUTSIDE THE SEWER ZONE OF INFLUENCE.

**LEGEND:**

- 300 POD**  
85mm CONCRETE OVER U.N.O.
- 225 POD**  
85mm CONCRETE OVER U.N.O.
- DENOTES MASS CONCRETE IN LIEU OF POD BELOW LOAD SUPPORT POINT. PIER BELOW REFER PIERING NOTES AND BOOKLET.
- DENOTES POD SETOUT POINT.
- DENOTES EXTENT OF POD TAPING MAX. 300 WIDE. MAINTAIN RIB CONTINUITY TO EDGE BEAM. REFER BOOKLET.
- HH-XX DENOTES BEAM TYPE REFER BOOKLET
- DENOTES 3 N12/11TM TOP x 2000 LONG FIXED TO TOP FABRIC
- DENOTES EXTENT OF TOP FABRIC. 20mm INTERNAL TOP COVER 30mm EXTERNAL TOP COVER
- DENOTES LOCATION & DEPTH OF MASS CONCRETE PIER FROM TOP OF SLAB IN ZONE OF INFLUENCE OF SEWER AND/OR OTHER SERVICES. REFER BOOKLET.
- DENOTES VERTICAL ARTICULATION JOINT LOCATIONS

THIS DESIGN HAS BEEN CERTIFIED BY  
JOHN J. FORREST CPEng 353212

REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: **LOT 2 BALMORAL AVENUE, CROYDON PARK**

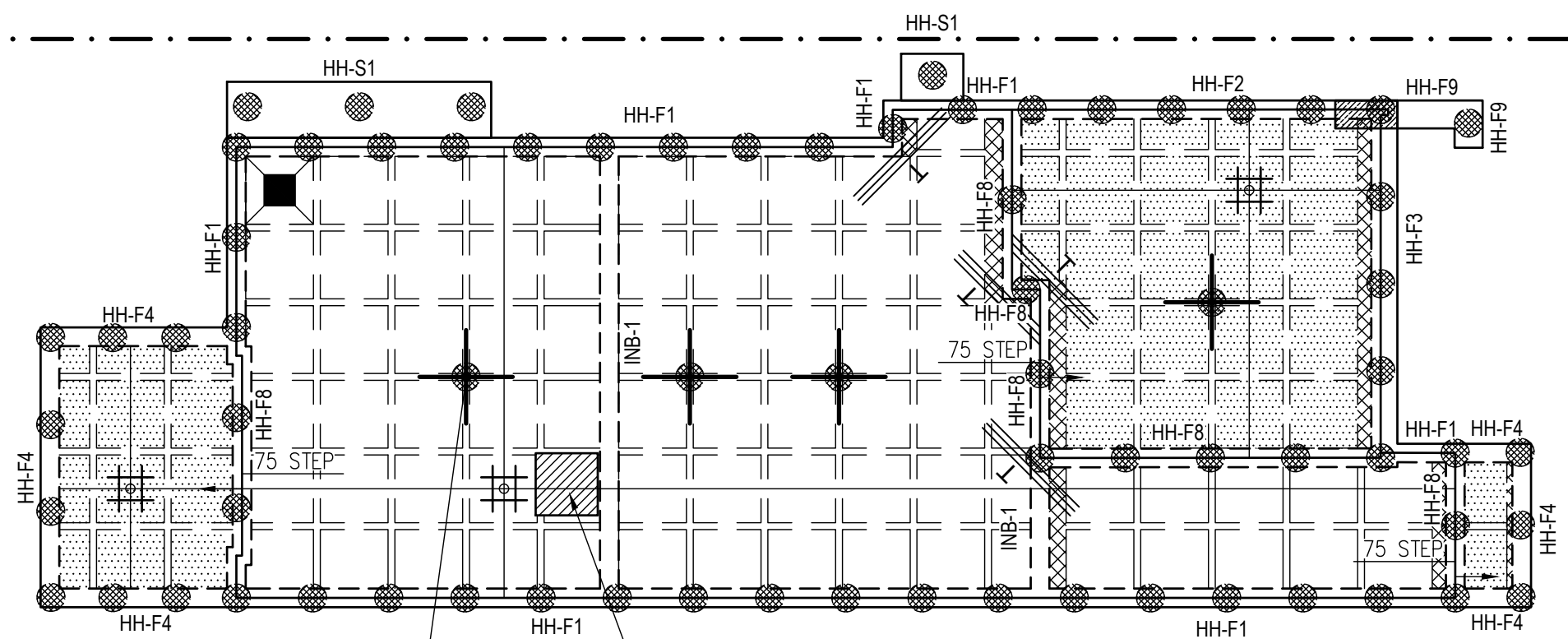
STATE: **NEW SOUTH WALES**

ESTATE: -

**WAFFLE SLAB PLAN**

SCALE: 0 1 2 3 4 5  
BAR SCALE (m) 1:100 @ A3 U.N.O.

REV: **1**  
JOB NUMBER: **FE702686**  
SHEET: **S1**



1xN12 BAR  
1500 LONG  
BOTH WAY OVER ALL  
INTERNAL PIERS

1000x1000x385 DEEP CONCRETE  
FOOTING CENTRAL UNDER STEEL  
POST WITH 2 LAYERS SL82 BOTTOM

**WAFFLE SLAB PLAN**

HEAD OFFICE  
ABN : 35 119 321 827  
Phone : 02 9520 1611  
office@forresteng.com.au  
PO Box 2412  
Taren Point, NSW 2229

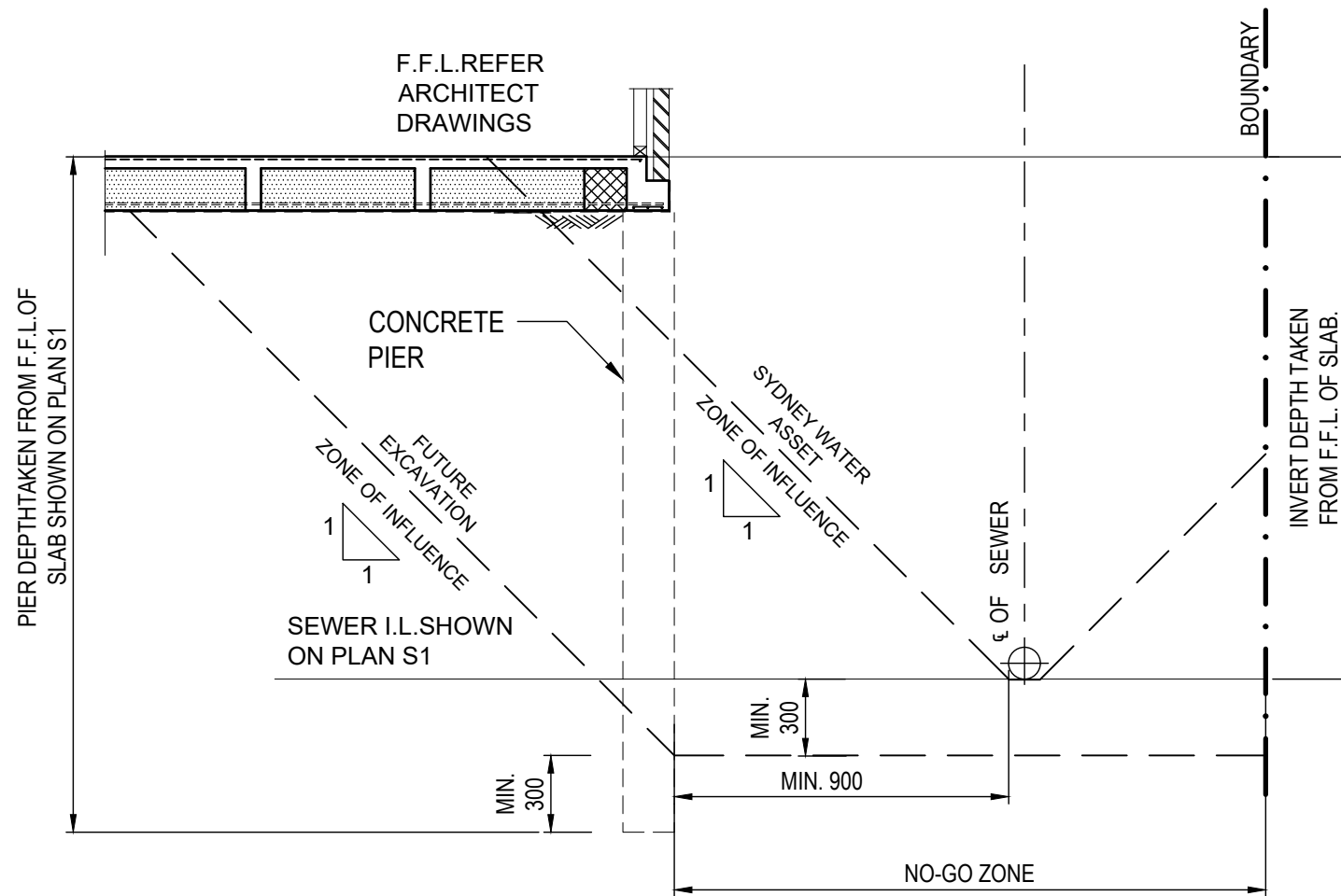
DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.
D S - AMV	D S- AMV	302334

THIS DRAWING SET HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE DEEMED-TO-COMPLY PROVISIONS OF AS2870- RESIDENTIAL SLABS & FOOTINGS CODE APPLICABLE WITHIN TWELVE (12) MONTHS OF THE INITIAL DATE OF PREPARATION.

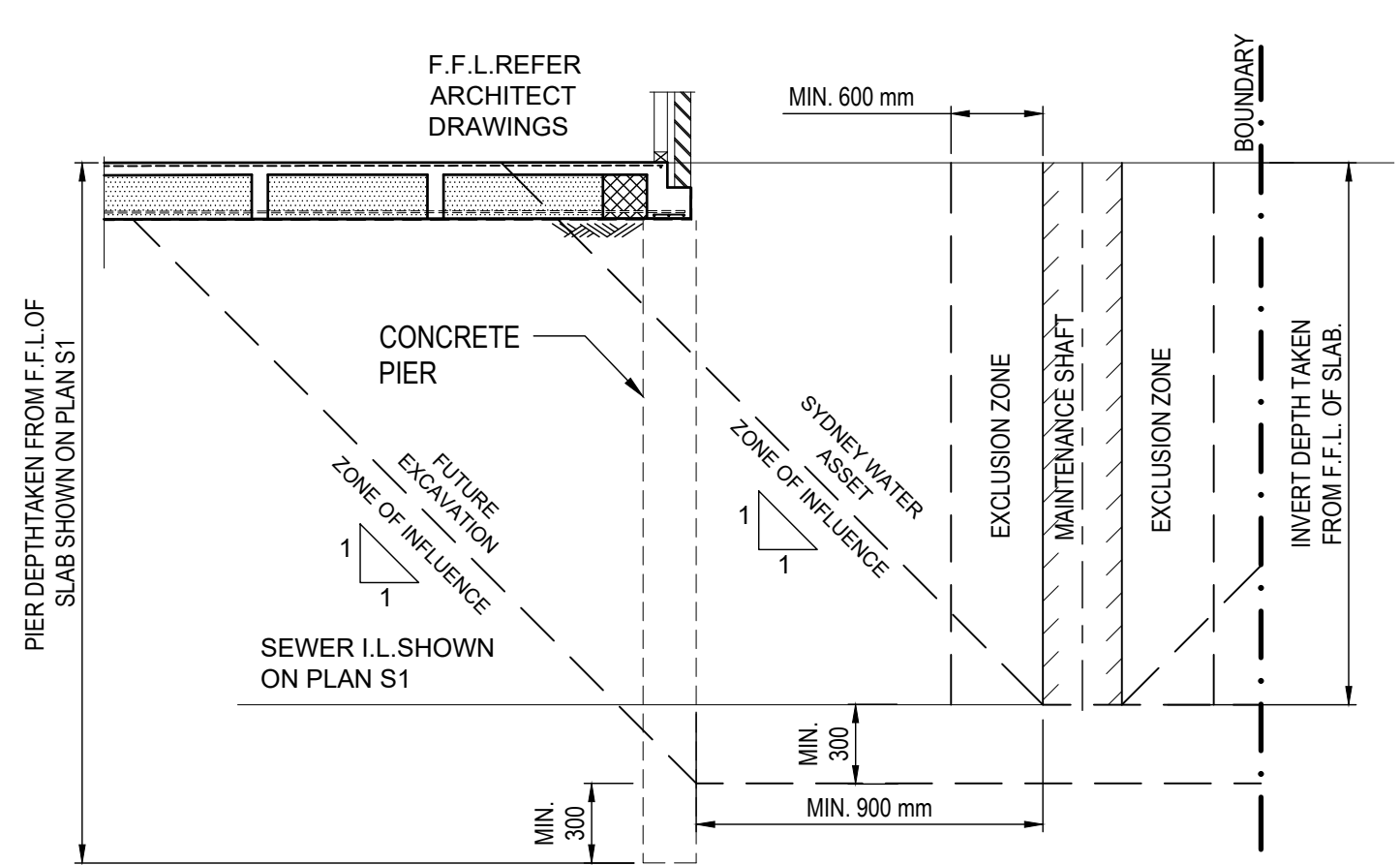
DESIGN ENGINEER:  
**JOHN J. FORREST** CPEng 353212

DRAWN BY: QH  
CHECKED BY: FR  
APPROVED BY: JRF

ALL BOOKLET SHEETS ARE TO BE REFERENCED FOR THE CONSTRUCTION OF THE WAFFLE RAFT SLAB - ANY CONFLICT IN DOCUMENTATION IS TO BE REFERRED TO THE ENGINEER PRIOR TO CONSTRUCTION.



**TYPICAL SECTION AT SEWER**  
(NON-SANDY SOILS)



**TYPICAL SECTION AT SEWER MAINTENANCE SHAFT**  
(NON-SANDY SOILS)

**WATER BOARD NOTE:**

THE PIERING PARAMETERS NOTED ON THIS SHEET HAVE BEEN ADOPTED.  
ALL PIER LOCATIONS, DEPTH, SLAB AND INVERT LEVELS HAVE BEEN CUSTOMISED FOR THE UNIQUE SITE CONDITIONS.  
THESE UNIQUE SITE CONDITIONS, LEVELS, PIER DEPTHS AND OFF-SETS HAVE BEEN NOTED ON THE SITE SPECIFIC SLAB PLAN NOTED ON SHEET S1.

THIS DESIGN HAS BEEN CERTIFIED BY  
JOHN J. FORREST CPEng 353212

REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: LOT 2 BALMORAL AVENUE, CROYDON PARK

STATE: NEW SOUTH WALES

ESTATE: -

**SECTION OVER SEWER**

HEAD OFFICE  
ABN : 35 119 321 827  
Phone : 02 9520 1611  
office@forresteng.com.au  
PO Box 2412  
Taren Point, NSW 2229

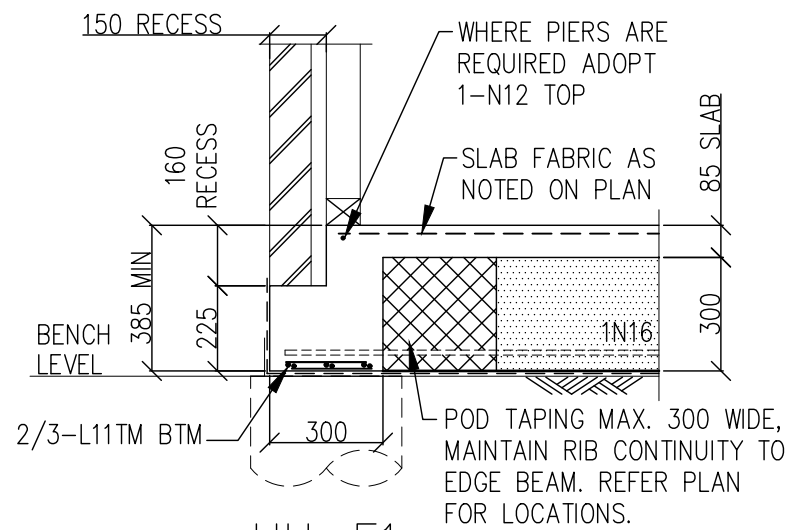
DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.
D S - AMV	D S- AMV	302334
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DESIGN ENGINEER:
JOHN J. FORREST CPEng 353212
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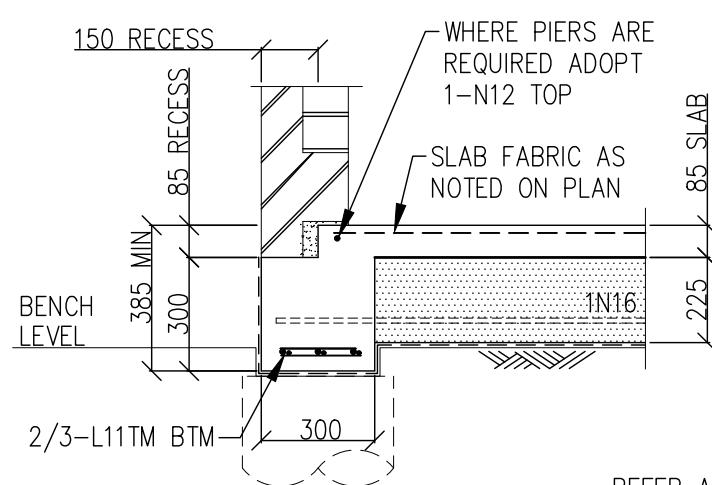
DRAWN BY:	QH
CHECKED BY:	FR
APPROVED BY:	JRF

NOT TO SCALE
JOB NUMBER: <b>FE702686</b>

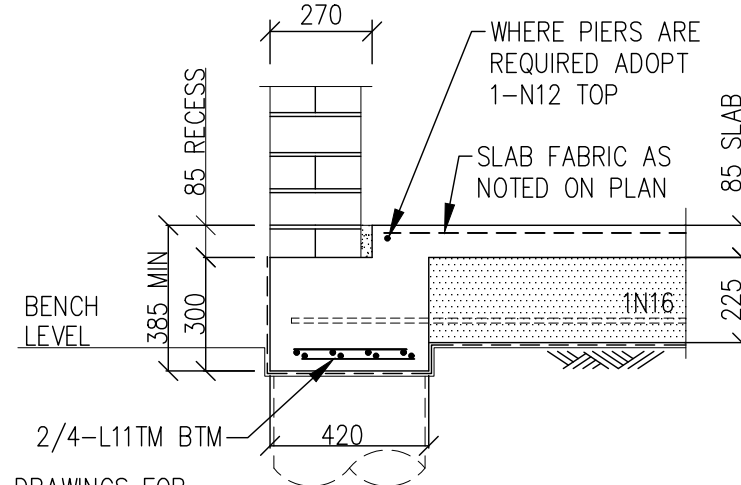
REV:	<b>1</b>
SHEET:	<b>S2</b>



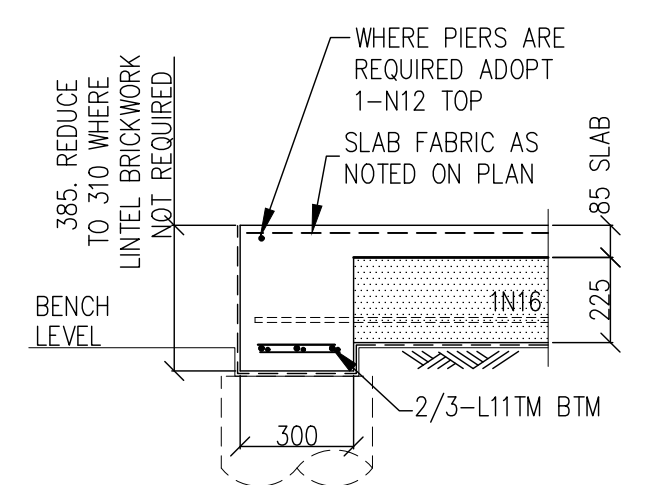
HH-F1



HH-F2

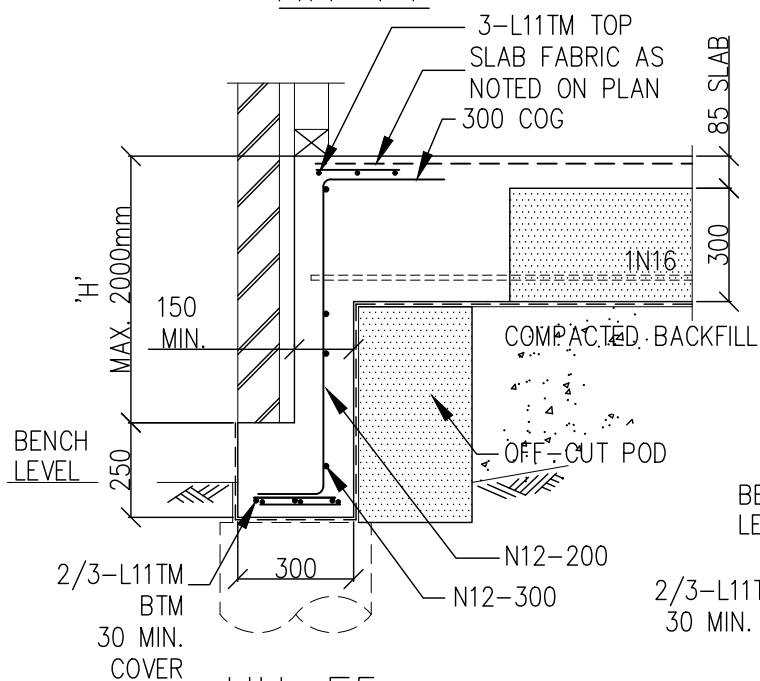


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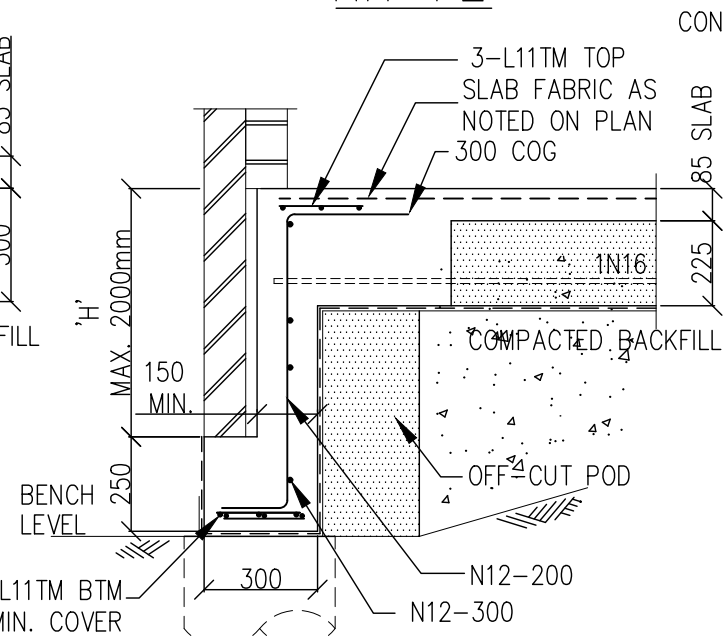


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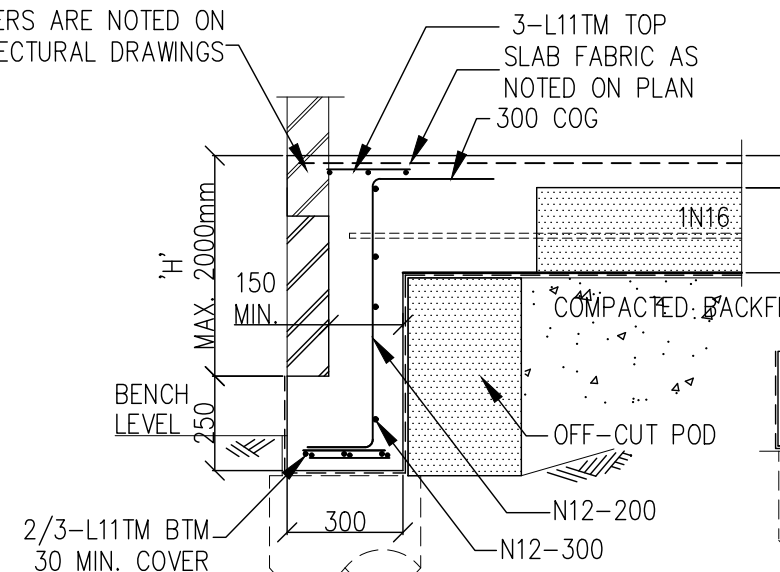
REFER ARCH. DRAWINGS FOR REBATE DETAIL - OMIT CONCRETE EXTENSION & CONTINUE BRICKWORK UP WHERE BRICK PIERS ARE NOTED ON ARCHITECTURAL DRAWINGS



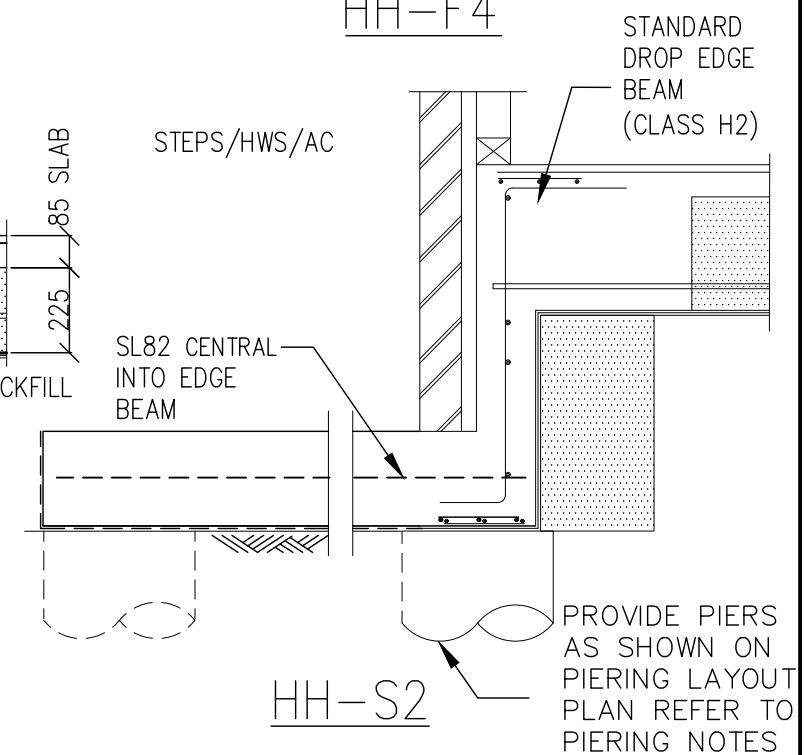
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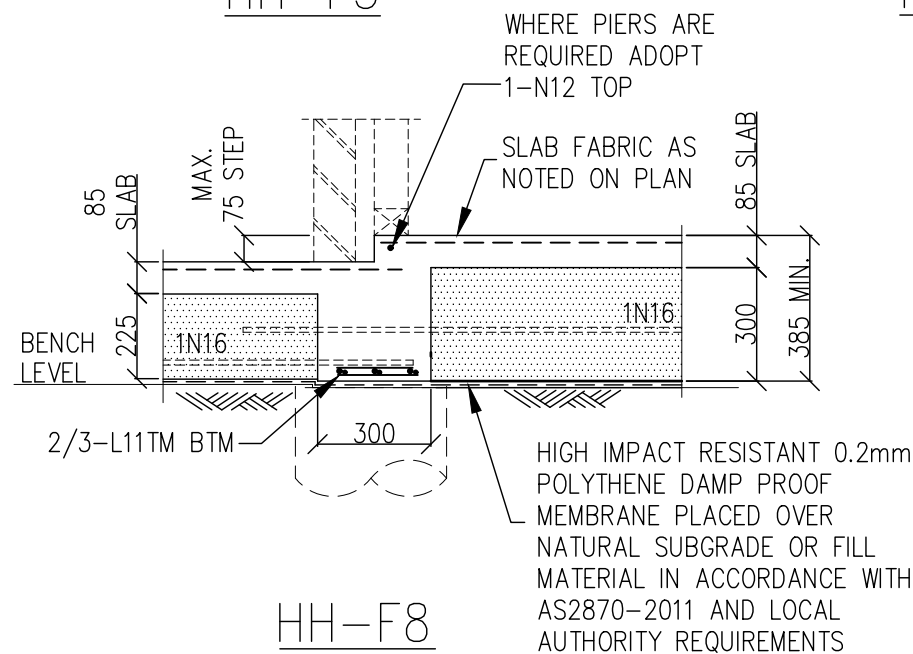
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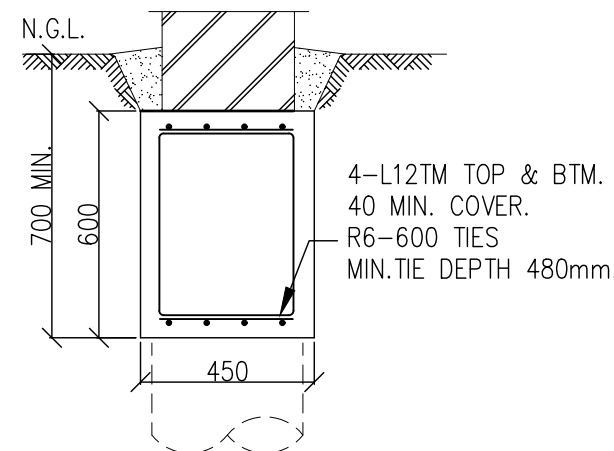
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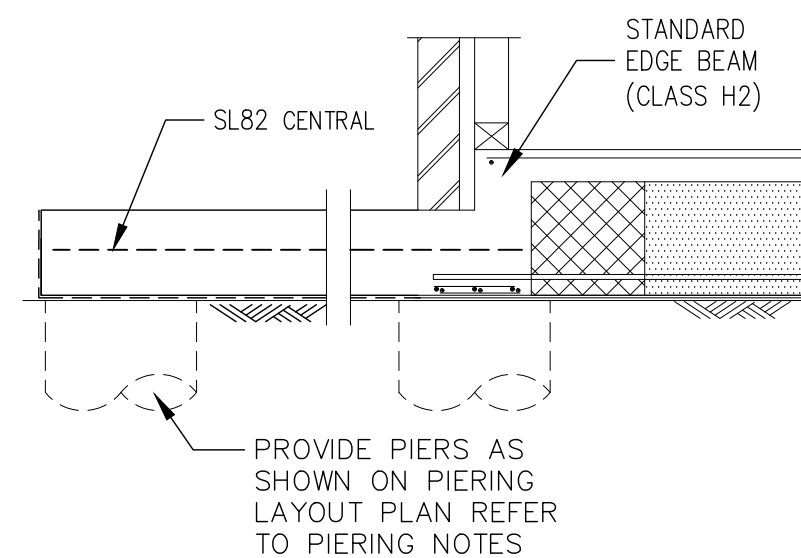
HH-S2



HH-F8



HH-F9



HH-S1 (RWT/HWS/AC PAD) DETAIL

THIS DESIGN HAS BEEN CERTIFIED BY JOHN J. FORREST CPEng 353212

REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: LOT 2 BALMORAL AVENUE, CROYDON PARK

STATE: NEW SOUTH WALES

ESTATE: -

CONCRETE DETAILS (CLASS H2)

HEAD OFFICE  
ABN : 35 119 321 827  
Phone : 02 9520 1611  
office@forresteng.com.au  
PO Box 2412  
Taren Point, NSW 2229

DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.
DS - AMV	DS - AMV	302334

THIS DRAWING SET HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE DEEMED-TO-COMPLY PROVISIONS OF AS2870- RESIDENTIAL SLABS & FOOTINGS CODE APPLICABLE WITHIN TWELVE (12) MONTHS OF THE INITIAL DATE OF PREPARATION.

DESIGN ENGINEER:  
JOHN J. FORREST CPEng 353212

ALL BOOKLET SHEETS ARE TO BE REFERENCED FOR THE CONSTRUCTION OF THE WAFFLE RAFT SLAB - ANY CONFLICT IN DOCUMENTATION IS TO BE REFERRED TO THE ENGINEER PRIOR TO CONSTRUCTION.

DRAWN BY: QH  
CHECKED BY: FR  
APPROVED BY: JRF

BAR SCALE (m) 1:20 @ A3 U.N.O.

REV: 1  
JOB NUMBER: FE702686  
SHEET: S3

**LEGEND OF SECTIONS:**

BX-0X DENOTES SECTION SIZE - REFER CODES BELOW  
 BX-0X DENOTES BEAM ARRANGEMENT - REFER HUDSON HOMES DETAIL BOOKLET - REF. FES01506  
 BX-0X-CONT. DENOTES CONTINUOUS BEAM

**SCHEDULE OF SECTIONS:**

B1 - 150 PFC + 200 x 10 PL  
 B2 - 200 PFC + 200 x 10 PL  
 B3 - 250 PFC + 200 x 10 PL  
 B4 - 300 PFC + 200 x 10 PL  
 B5 - 380 PFC + 200 x 10 PL  
 B6 - 250 UB37.3  
 C1 - 89 X 89 X 3.5 SHS

C2 - 89 x 89 x 6.0 SHS, C3 - 75 x 75 x 5.0 SHS  
 ASHS - ADJUSTABLE 75x75 SHS,  
 TP - TIMBER STUD/POSTS  
 SP-01 - STUB POST, REFER DETAILBOOKLET  
 GLT - REFER GALINTEL TABLES  
 TF - BEAM OVER BY TIMBER FRAME AND TRUSS MANUFACTURES SPECIFICATION.  
 ← - DENOTES VERTICAL ARTICULATION JOINT.

**NOTES:**

ALL BEAMS + POST ARE TO BE TIED INTO FRAMING SYSTEM FOR LATERAL SUPPORT. PROVIDE 230mm END BEARING FOR STEEL BEAMS & CHAMFER AS REQ. WHERE 230mm END BEARING CANNOT BE ACHIEVED, FOR BEAMS/LINTELS WITH A MAXIMUM SPAN OF 3.0m, PROVIDE MIN. 70mm END BEARING ONTO GALVANIZED 90 x 10 x 230 FLAT BAR SPREADER PLATE OVER BRICK PIER.

**GALINTEL TABLES (GLT)**

BUILDER NOTE: SELECTION OF LINTELS SUBJECT TO IN-SITU CONSTRUCTION

**TABLE A - GALINTELS**

NON-LOAD BEARING SUPPORTING BRICK PARAPETS ONLY

LINTEL TYPE	SECTION SIZE	MAX. SPAN (mm)	END BEARING
	100 x 100 x 10 GAL EA OR 100 x 100 GALINTEL	2100	SHS POST OR 150mm BRICKWORK
	150 x 100 x 10 GAL UA OR 150 x 100 GALINTEL	3000	SHS POST OR 150mm BRICKWORK
	GAL 200 x 10 GAL PLATE + 150 x 100 x 10 UA [WELD PLATE 75(50)]	3600	SHS POST OR 230mm BRICKWORK

**TABLE B - T-BAR LINTELS**

NON-LOAD BEARING - SUPPORTING BRICK PARAPETS ONLY  
 MAX. 1200 WIDE BALCONY JOISTS ALLOWED

T-BAR TYPE	230 BRICKWORK 1200 HIGH	230 BRICKWORK 1800 HIGH
	3900	3600
	4800	4200
	5100	4500
	5700	5100

NOTE: WHERE THESE SPECIFICATIONS ARE EXCEEDED, REFER STRUCTURAL ENGINEER

THIS DESIGN HAS BEEN CERTIFIED BY  
 JOHN J. FORREST CPEng 353212

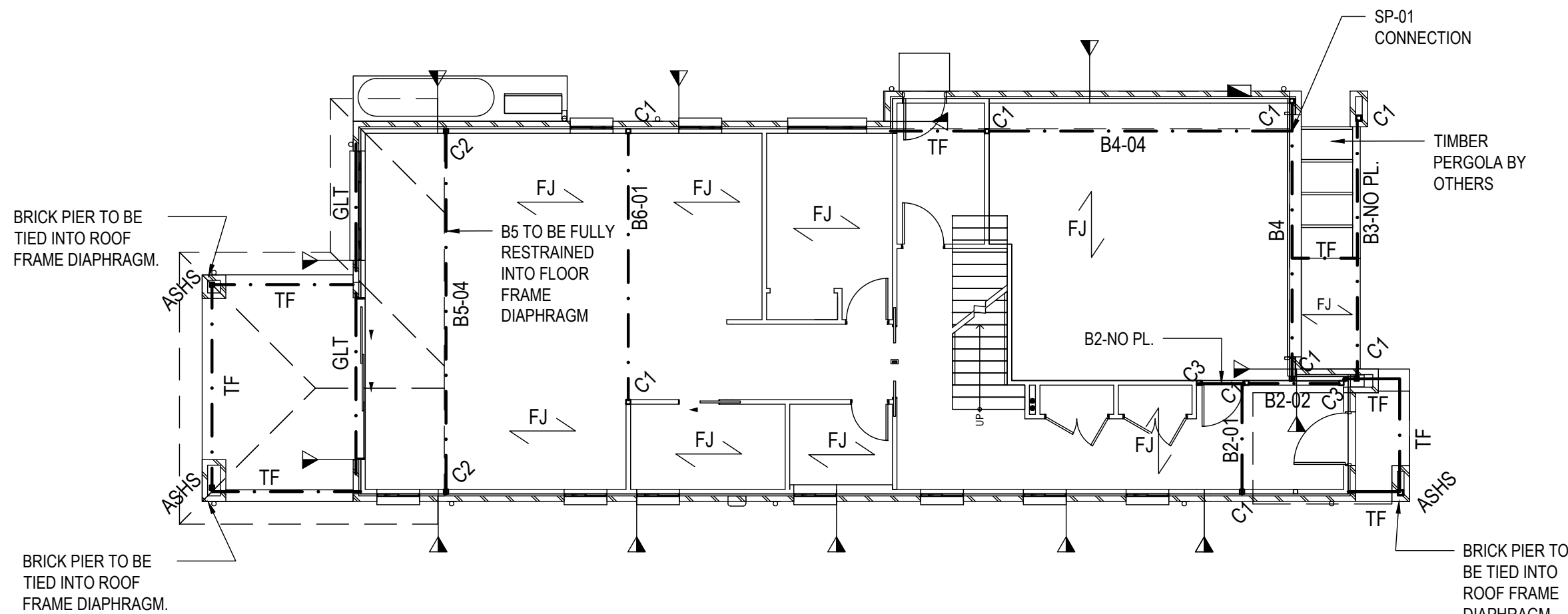
REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: LOT 2 BALMORAL AVENUE, CROYDON PARK

STATE: NEW SOUTH WALES

ESTATE: -

**BEAM MARKING PLAN (GF)**



**NOTE:**  
 LATERAL BRACING REQUIREMENTS TO BE ASSESSED BY TIMBER FRAME AND TRUSS MANUFACTURER. ENGINEER IS TO BE NOTIFIED IF ADDITIONAL "NO STANDARD" BRACING IS REQUIRED.

**BEAM MARKING PLAN (GF)**

HEAD OFFICE  
 ABN : 35 119 321 827  
 Phone : 02 9520 1611  
 office@forresteng.com.au  
 PO Box 2412  
 Taren Point, NSW 2229

DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.	DESIGN ENGINEER:
D S - AMV	D S- AMV	302334	JOHN J. FORREST CPEng 353212

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ALL BOOKLET SHEETS ARE TO BE REFERENCED FOR THE CONSTRUCTION OF THE WAFFLE RAFT SLAB - ANY CONFLICT IN DOCUMENTATION IS TO BE REFERRED TO THE ENGINEER PRIOR TO CONSTRUCTION.

DRAWN BY: QH  
 CHECKED BY: FR  
 APPROVED BY: JRF

0 1 2 3 4 5  
 BAR SCALE (m) 1:100 @ A3 U.N.O.

REV: 1  
 SHEET: S4

JOB NUMBER: FE702686

**LEGEND OF SECTIONS:**

**BX-0X** DENOTES SECTION SIZE  
- REFER CODES BELOW

**BX-0X** DENOTES BEAM ARRANGEMENT -  
REFER HUDSON HOMES DETAIL  
BOOKLET - REF. FES01506

**BX-0X-CONT.** DENOTES CONTINUOUS BEAM

**SCHEDULE OF SECTIONS:**

B1 - 150 PFC + 200 x 10 PL  
B2 - 200 PFC + 200 x 10 PL  
B3 - 250 PFC + 200 x 10 PL  
B4 - 300 PFC + 200 x 10 PL  
B5 - 380 PFC + 200 x 10 PL  
B6 - 250 UB37.3  
C1 - 89 X 89 X 3.5 SHS

C2 - 89 x 89 x 6.0 SHS, C3 - 75 x 75 x 5.0 SHS

ASHS - ADJUSTABLE 75x75 SHS,  
TP - TIMBER STUD/POSTS  
SP-01 - STUB POST, REFER DETAILBOOKLET  
GLT - REFER GALINTEL TABLES  
TF - BEAM OVER BY TIMBER FRAME AND  
TRUSS MANUFACTURES SPECIFICATION.  
◀ - DENOTES VERTICAL ARTICULATION JOINT.

**NOTES:**

ALL BEAMS + POST ARE TO BE TIED INTO FRAMING SYSTEM FOR LATERAL SUPPORT.  
PROVIDE 230mm END BEARING FOR STEEL BEAMS & CHAMFER AS REQ.  
WHERE 230mm END BEARING CANNOT BE ACHIEVED, FOR BEAMS/LINTELS WITH A  
MAXIMUM SPAN OF 3.0m, PROVIDE MIN. 70mm END BEARING ONTO GALVANIZED 90 x  
10 x 230 FLAT BAR SPREADER PLATE OVER BRICK PIER.

**GALINTEL TABLES (GLT)**

BUILDER NOTE: SELECTION OF LINTELS SUBJECT  
TO IN-SITU CONSTRUCTION

**TABLE A - GALINTELS**

NON-LOAD BEARING  
SUPPORTING BRICK PARAPETS ONLY

LINTEL TYPE	SECTION SIZE	MAX. SPAN (mm)	END BEARING
	100 x 100 x 10 GAL EA OR 100 x 100 GALINTEL	2100	SHS POST OR 150mm BRICKWORK
	150 x 100 x 10 GAL UA OR 150 x 100 GALINTEL	3000	SHS POST OR 150mm BRICKWORK
	GAL 200 x 10 GAL PLATE + 150 x 100 x 10 UA [WELD PLATE 75(50)]	3600	SHS POST OR 230mm BRICKWORK

**TABLE B - T-BAR LINTELS**

NON-LOAD BEARING - SUPPORTING BRICK PARAPETS ONLY  
MAX. 1200 WIDE BALCONY JOISTS ALLOWED

T-BAR TYPE	230 BRICKWORK 1200 HIGH	230 BRICKWORK 1800 HIGH
	3900	3600
	4800	4200
	5100	4500
	5700	5100

NOTE: WHERE THESE SPECIFICATIONS ARE EXCEEDED, REFER STRUCTURAL ENGINEER

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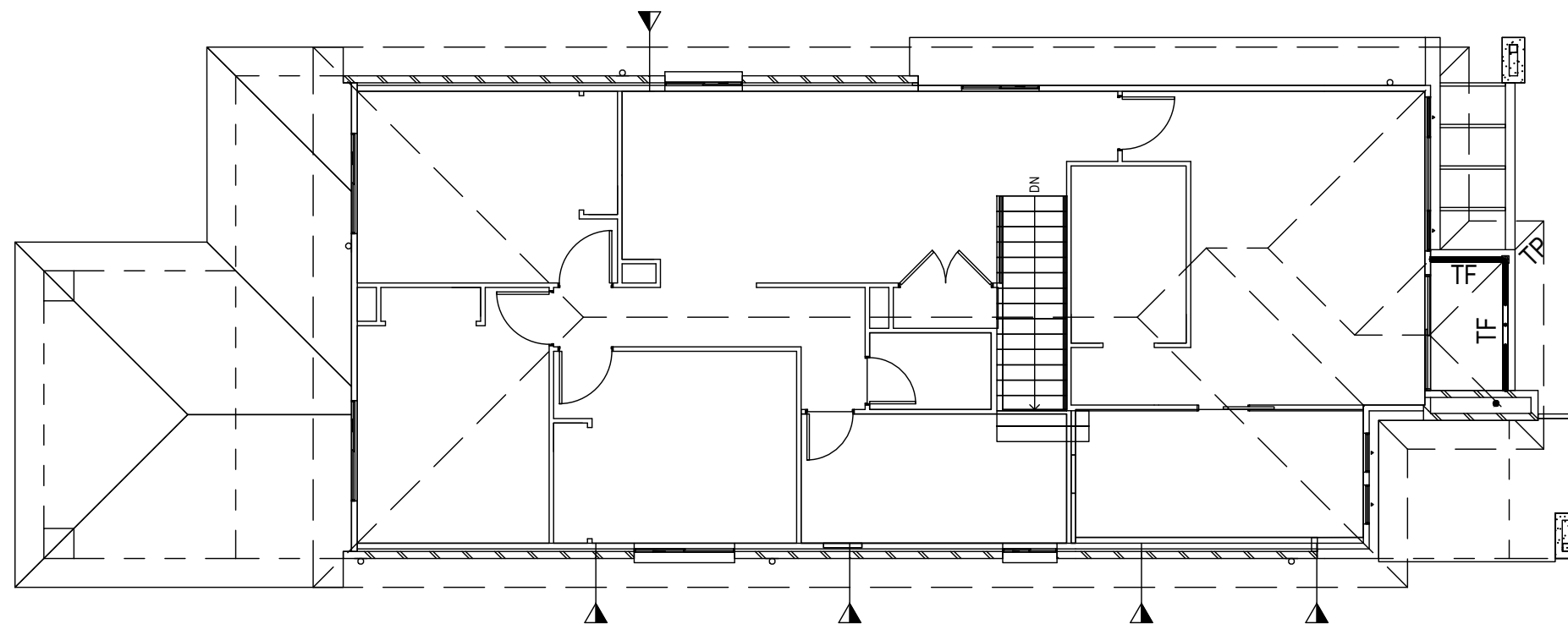
REVISION	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	24.03.22

ADDRESS: LOT 2 BALMORAL AVENUE,  
CROYDON PARK

STATE: NEW SOUTH WALES

ESTATE: -

**BEAM MARKING PLAN (FF)**



**BEAM MARKING PLAN (FF)**

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Phone : 02 9520 1611  
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PO Box 2412  
Taren Point, NSW 2229

DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.
D S - AMV	D S- AMV	302334

THIS DRAWING SET HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE  
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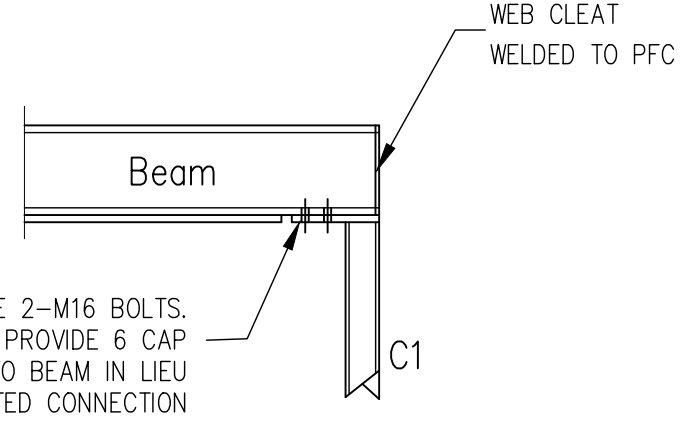
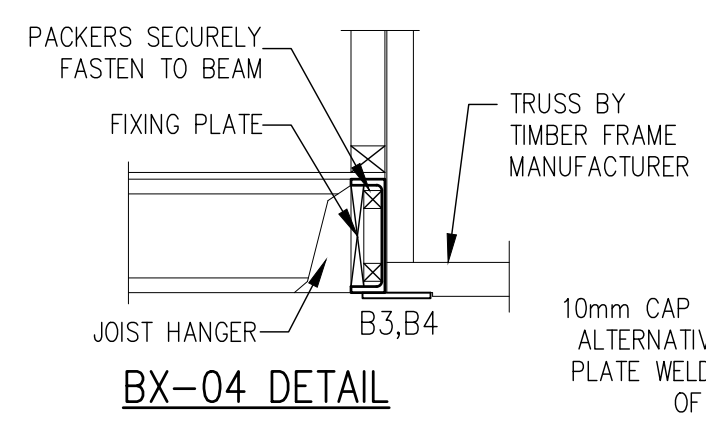
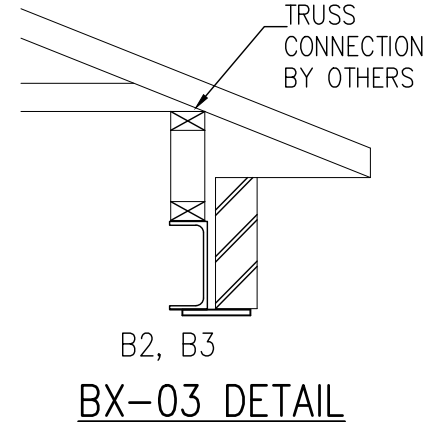
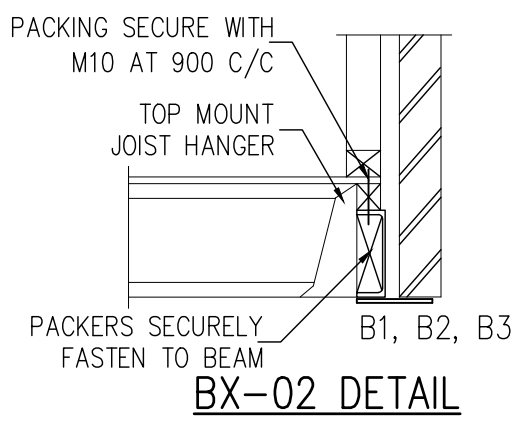
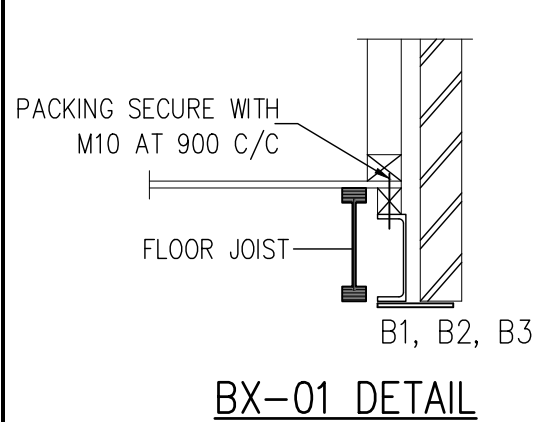
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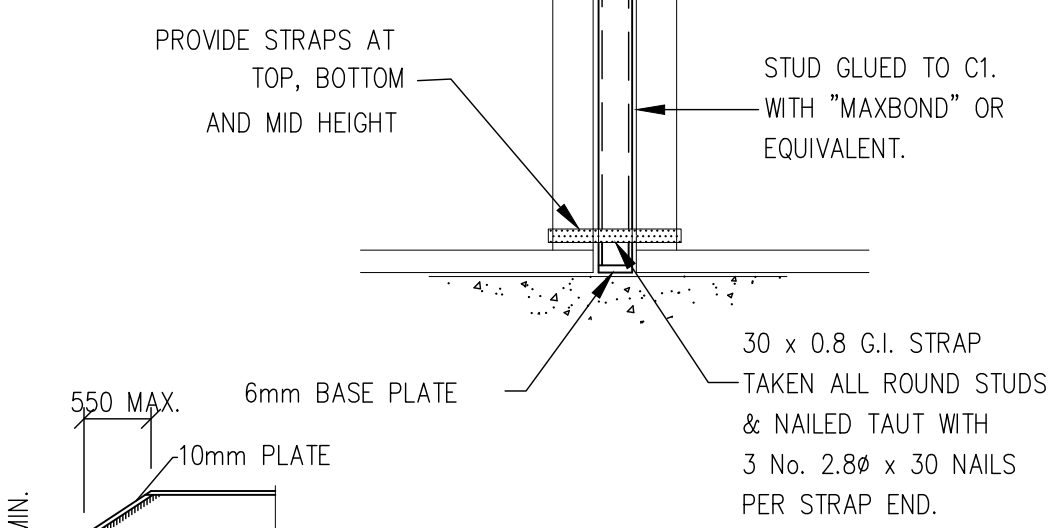
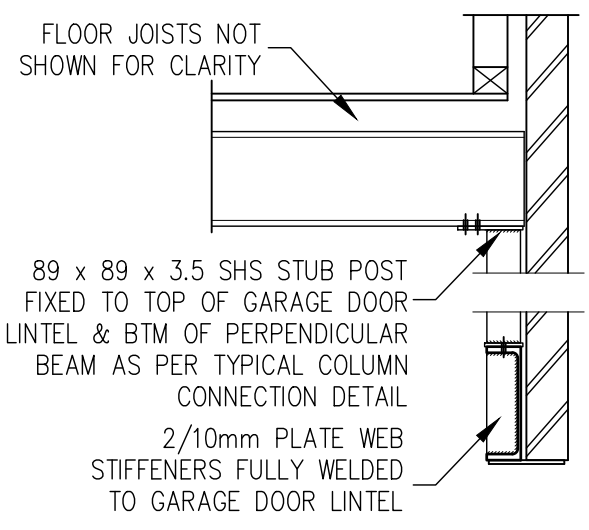
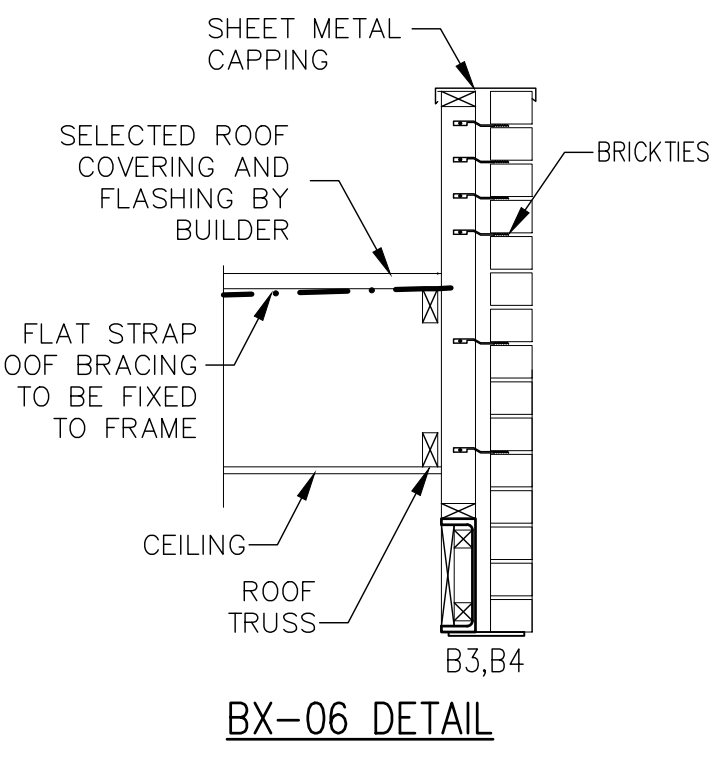
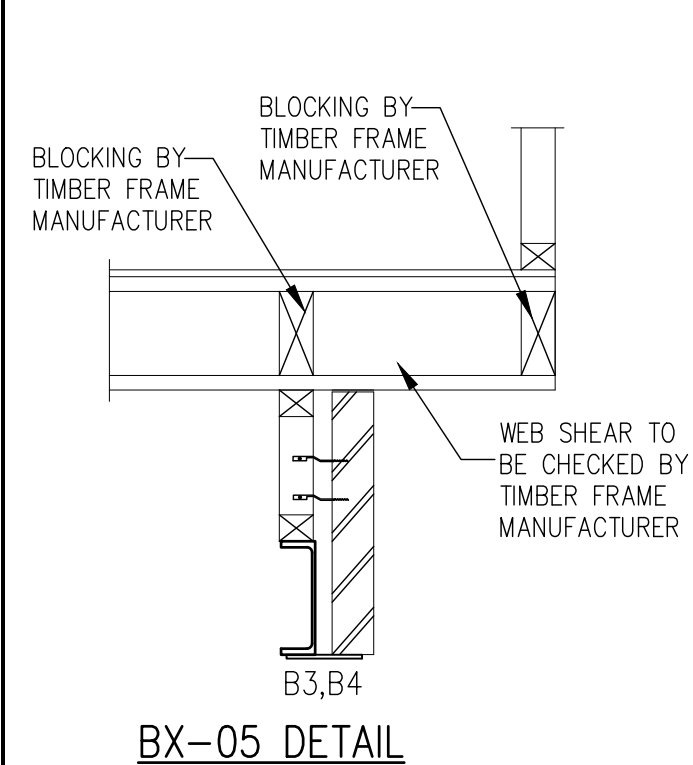
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CHECKED BY: FR  
APPROVED BY: JRF

0 1 2 3 4 5  
BAR SCALE (m) 1:100 @ A3 U.N.O.

REV: 1  
JOB NUMBER: FE702686  
SHEET: S5

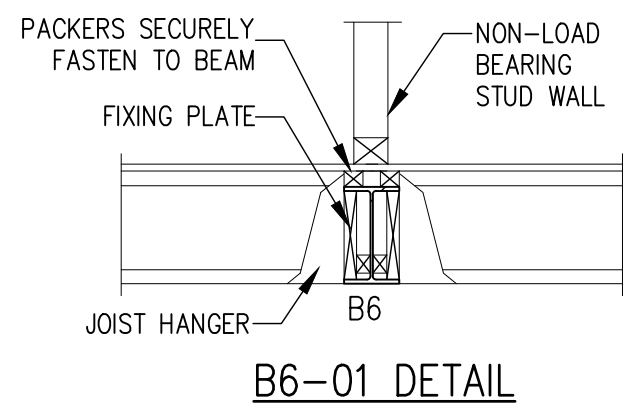
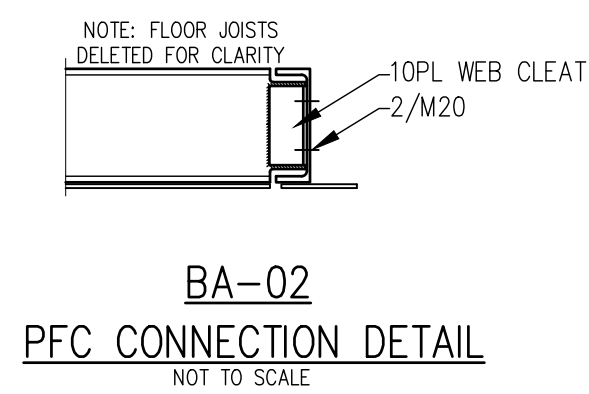
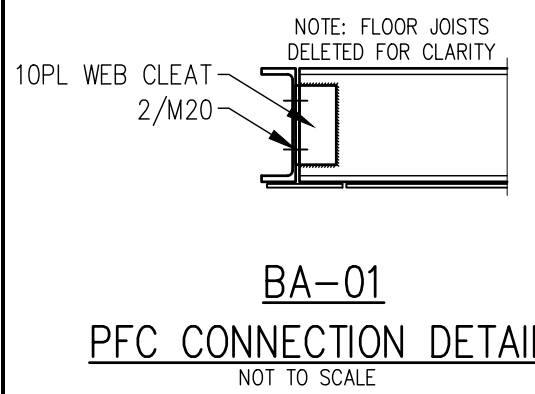


10mm CAP PLATE 2-M16 BOLTS. ALTERNATIVELY, PROVIDE 6 CAP PLATE WELDED TO BEAM IN LIEU OF BOLTED CONNECTION

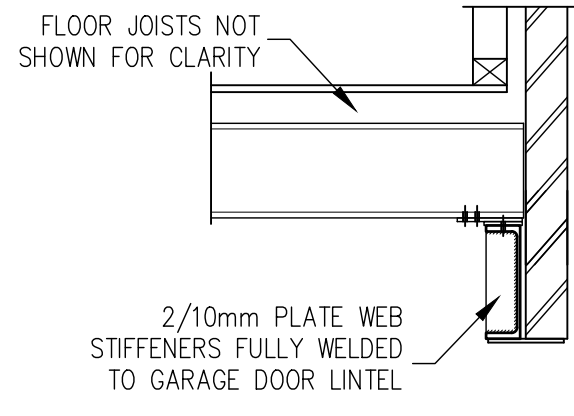


**TYPICAL COLUMN CONNECTION DETAIL**

**TYPICAL CHAMFER DETAIL**  
(CHAMFER AS REQUIRED)



250 UB37.3, FLOOR JOIST PERPENDICULAR



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STATE: NEW SOUTH WALES

ESTATE: -

**STEEL BEAM DETAILS**

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 office@forresteng.com.au  
 PO Box 2412  
 Taren Point, NSW 2229

DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.
DS - AMV	DS - AMV	302334

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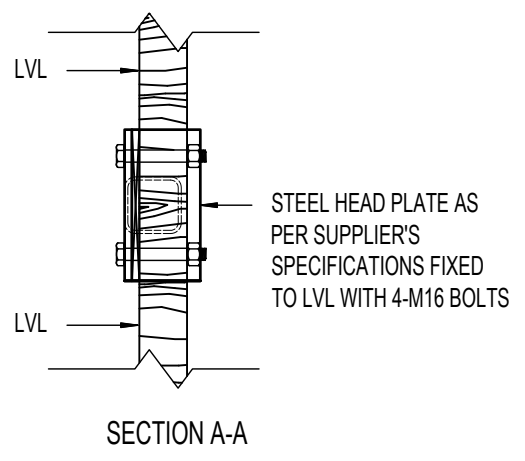
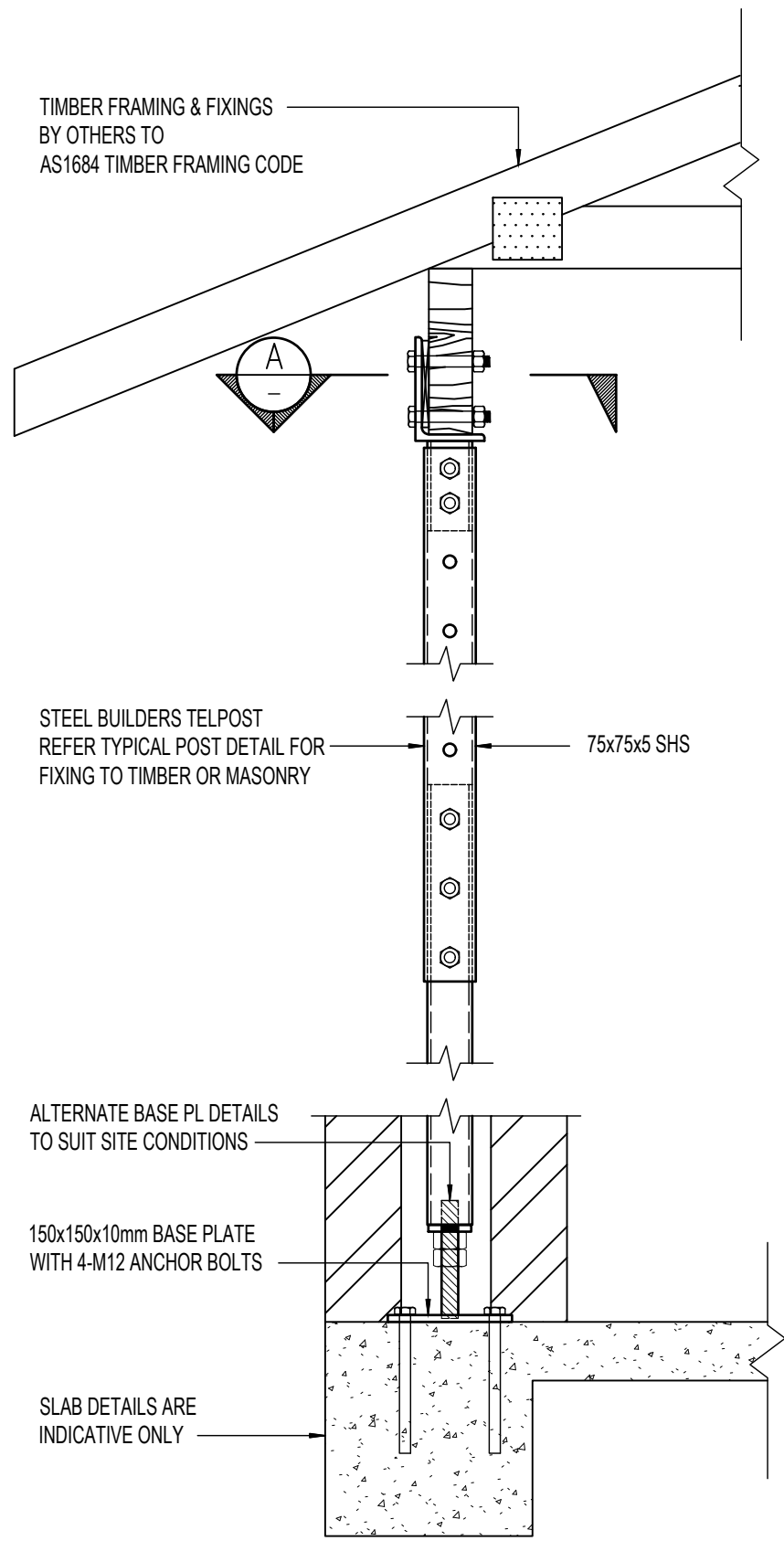
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JOB NUMBER: FE702686

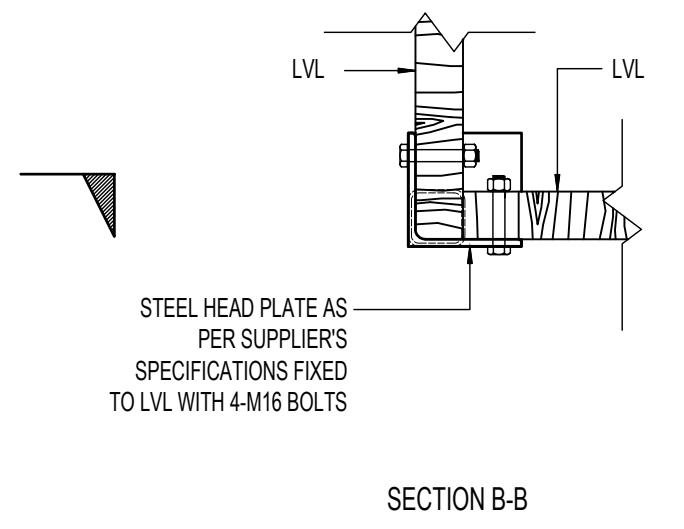
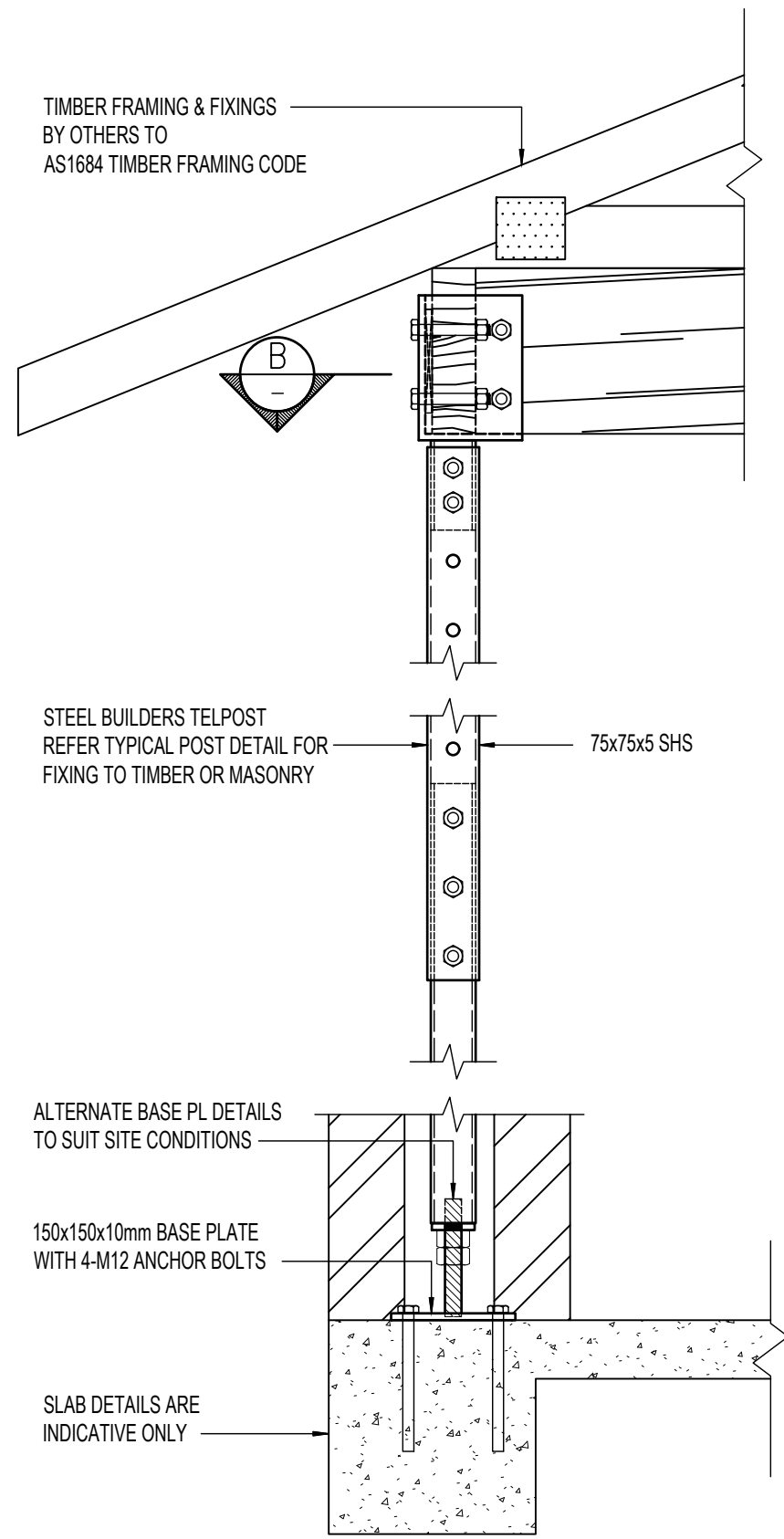
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SHEET: S6





TYPICAL ADJUSTABLE STEEL POST DETAIL



TYPICAL ADJUSTABLE STEEL POST DETAIL

**NOTE:**  
ASHS TO BE TIED INTO BRICK PIER USING 30 X 0.8 GALVANIZED METAL STRAPS EVERY 4TH COURSE EMBEDDED INTO MORTAR MIN. 75MM AND FIXED TO POSTS WITH TEK SCREWS. MIN. 20MM ALLOWANCE TO BE PROVIDED FOR SLAB/BRICK MOVEMENT

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REVISION	DESCRIPTION	DATE
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STATE: NEW SOUTH WALES

ESTATE: -

ADJUSTABLE STEEL POST DETAILS

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DS - AMV	DS - AMV	302334

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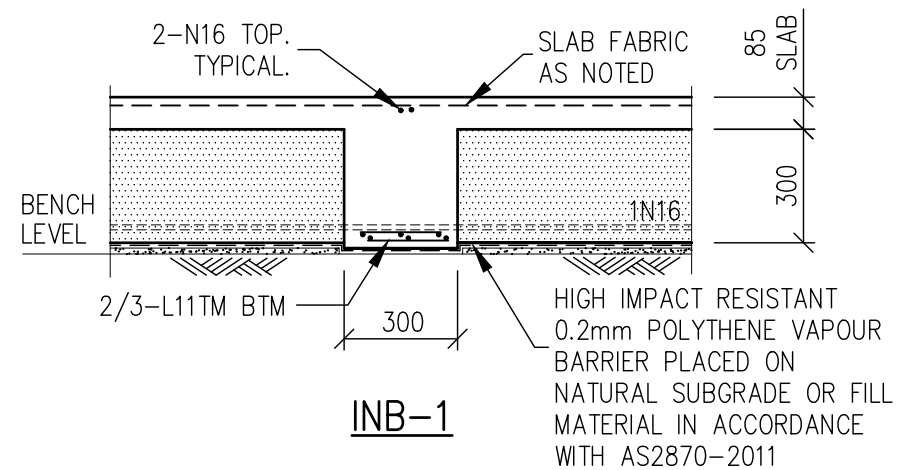
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APPROVED BY: JRF

REV: 1  
JOB NUMBER: FE702686

SHEET: S7



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STATE: NEW SOUTH WALES

ESTATE: -

CONCRETE DETAILS (CLASS H2)

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 Phone : 02 9520 1611  
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 PO Box 2412  
 Taren Point, NSW 2229



DWELLING TYPE	GARAGE TYPE	HUDSON JOB NO.	DESIGN ENGINEER:
DS - AMV	DS - AMV	302334	JOHN J. FORREST <small>CPEng 353212</small>
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DRAWN BY: QH	0 0.2 0.4 0.6 0.8 1	REV: 1
CHECKED BY: FR	BAR SCALE (m) 1:20 @ A3 U.N.O.	
APPROVED BY: JRF	JOB NUMBER: FE702686	SHEET: S8