

DESIGN NAME
BENHAM

SITE CLASSIFICATION

S

WIND CLASSIFICATION

N3

DURABILITY
CLASSIFICATION

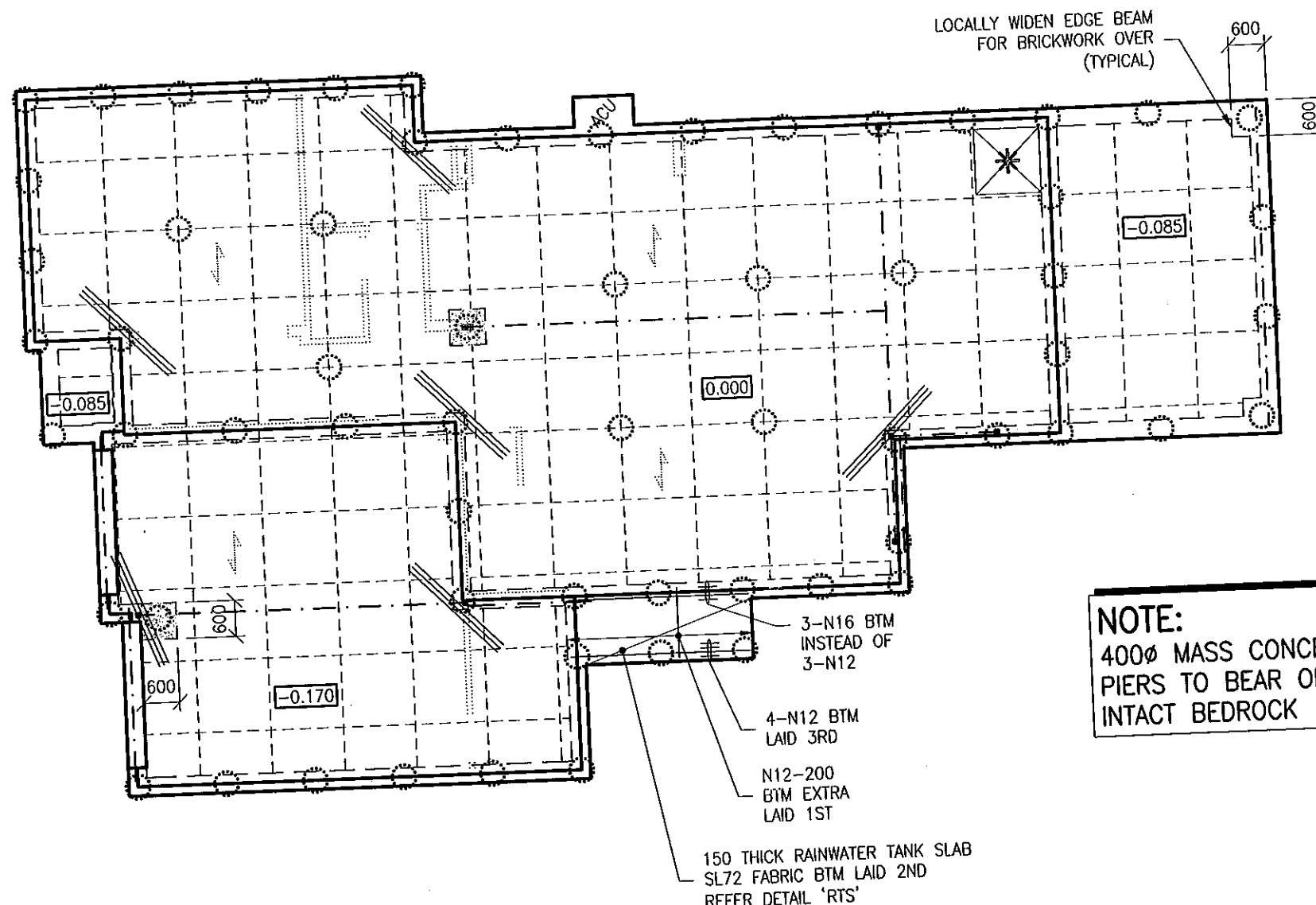
MARINE

SPECIAL NOTES:

- THIS DESIGN IS BASED ON THE FOLLOWING: THE RECOMMENDATIONS FOR SITE MAINTENANCE AS PER APPENDIX "B" OF AS2870:1996 ARE TO BE ADHERED TO. THE PERFORMANCE EXPECTATIONS AS PER APPENDIX "B & C" OF AS2870:1996 ARE ACCEPTABLE.
- EXPECTED CONCRETE PIERS REQUIRED TO UNIFORM BEARING. ENGINEER & COUNCIL TO INSPECT GROUND BEARING/PIERS PRIOR TO POURING OF CONCRETE. PIER SIZES - SEE GENERAL NOTES.
- THIS DRAWING IS SIGNED SUBJECT TO CERTIFICATE OF INSPECTION ISSUED BY ENGINEER.

LEGEND (NTS)

- * START POD LOCATION
- ⊠ 1090 SQ STANDARD POD
- CENTRE LINE OF RIB
- ≡ 3-N12 TRIMMERS 2000 LONG
- 400Ø MASS CONCRETE PIERS
- ⊞ 600 SQ MASS CONCRETE POD CUT OUT
- ↓ FLOOR JOIST DIRECTION OVER BY BUILDER
- STEEL/TIMBER BEAMS OVER
- ⊞ WALLS OVER



NOTE:
400Ø MASS CONCRETE
PIERS TO BEAR ON
INTACT BEDROCK

NOTE FOR BRICK JOINTS:
THIS SLAB IS DESIGNED FOR ARTICULATED MASONRY VENEER TYPE CONSTRUCTION & ARTICULATION JOINTS ARE TO BE PROVIDED AS PER THE B.C.A. 2006 VOL.2 CLAUSE 3.3.1.8 VERTICAL ARTICULATION JOINTS.

NOTE FOR HWS & ACU PADS:
HWS & ACU PADS ARE TO BE LOCATED AS PER ARCHITECTURAL DRAWINGS. WHEN IN FILL PLACE MASS CONCRETE PIER UNDER CONCRETE PADS.

NOTE FOR DROPPED EDGE BEAMS & SET-DOWNS:
THE FULL EXTENT OF DROPPED EDGE BEAMS & ANY SET-DOWNS TO BE CARRIED OUT IN ACCORDANCE WITH ARCHITECTS DRAWINGS.

IF IN DOUBT, CONTACT ENGINEER.

GROUND FLOOR SLAB PLAN

95 THICK SLAB (MAIN RESIDENCE)
85 THICK SLAB (GARAGE & PATIO)
SL72 FABRIC TOP THROUGHOUT

This is the plan/spec. referred to in
Fitzgerald Certifiers Certificate
Cert. No. CDC 2010/126
16.3.10
Paul Fitzgerald Accreditation No. BPB 0119

DRAWN	DATE	AMENDMENT	REV
B.K.	22-2-10	B4 ALTERED, DETAILS REVISED TO SUIT	A

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Builder's License No. 33493C

FOR:
MR & MRS TURNBULL
SITE ADDRESS:
**LOT 46 (4) WAKEHURST PARKWAY
SEAFORTH**

APPROVED BY:
A.W. McCarthy
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JOB No.	REVISION
RW263	A
DATE: 11-2-2010	SHEET No. 1/10
CLIENT REF: J001206	DRAWN: B.K.

GENERAL NOTES

- A1. ENGINEER'S STRUCTURAL DRAWINGS ARE SIGNED AND ISSUED ON THE UNDERSTANDING THAT THE BUILDER MAINTAINS IN FORCE, PROPER AND ADEQUATE CONTRACT WORKS INSURANCE AND PUBLIC LIABILITY INSURANCE DURING THE FULL COURSE OF THE CONSTRUCTION, AND/OR ANY MAINTENANCE PERIOD. CLAIMS OF DAMAGE TO ANY ADJACENT PROPERTY OR BUILDING IS NOT THE RESPONSIBILITY OF THE ENGINEER.
- A2. 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.
- A3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR SET OUT PLAN MEASUREMENTS.
- A4. SETTING OUT DIMENSIONS SHOWN ON THE DRAWING SHALL BE VERIFIED BY THE BUILDER.
- A5. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- A6. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. THE BUILDER SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE WORKS DURING CONSTRUCTION.
- A7. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE SAA CODES AND THERE-BY LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITY.
- A8. THE SECTIONS ON THESE DRAWINGS ARE INTENDED TO GIVE THE STRUCTURAL DETAILS ONLY AND ARCHITECTURAL DETAILS ARE ILLUSTRATIVE ONLY.
- A9. THESE DOCUMENTS ARE SIGNED SUBJECT TO A CERTIFICATE OF INSPECTION BEING ISSUED BY THIS OFFICE. ALL PIER HOLES, SLAB AND FOOTING REINFORCEMENT ARE TO BE INSPECTED BY THE ENGINEER PRIOR TO THE POURING OF CONCRETE. GIVE 24 HOURS NOTICE TO THE ENGINEER.

SITE CLASSIFICATION

- B1. THE SITE HAS BEEN CLASSIFIED BY RESIDENTIAL ENGINEERING IN ACCORDANCE WITH THE PROVISIONS OF AS 2870 RESIDENTIAL SLABS AND FOOTINGS. THESE DOCUMENTS HAVE BEEN PREPARED USING THE ABOVE CODE ON THE BASIS OF A CLASS 'S' CLASSIFICATION, HOWEVER, THE SOIL TYPE AND SITE CONDITIONS WILL BE CHECKED BY THIS CONSULTANCY PRIOR TO THE PLACEMENT OF CONCRETE.
- B2. THE FOOTING DETAILS SHOWN ARE FOR THE SITE CLASSIFICATION STIPULATED. WHILE EVERY CARE HAS BEEN TAKEN TO VERIFY THAT THE INFORMATION SHOWN IS CORRECT, RESIDENTIAL ENGINEERING TAKES NO RESPONSIBILITY FOR VARIATIONS WHICH MAY OCCUR IN SITE CONDITIONS SUBSEQUENT TO CONSTRUCTION.

SITE PREPARATION AND DRAINAGE

- C1. STRIP TOPSOIL AND VEGETATION TO A 100mm MINIMUM DEPTH AND STOCK PILE.
- C2. THE SITE IS TO BE BENCHED BY CUT AND FILL TO DESIRED LEVELS
- C3. ANY FILL USED IN THE CONSTRUCTION OF A SLAB EXCEPT WHERE THE SLAB IS SUSPENDED SHALL CONSIST OF CONTROLLED FILL OR ROLLED FILL IN ACCORDANCE WITH AS 2870 SECTION 6.4.2.
- C3a. 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.
- C3b. 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, OR NON-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 COMPACTION DEPTHS GREATER THAN THOSE GIVEN ABOVE THE FILL SHALL BE SUBJECT TO CONTROL AND TESTING. IF TESTING FAILS THEN PIERS WILL BE REQUIRED. THE ENGINEER IS TO BE CONTACTED PRIOR TO CONSTRUCTION PROCEEDING.
- C3c. UNLESS THE ROLLED AND CONTROLLED FILL AS NOTED ABOVE IS COMPACTED IN ACCORDANCE WITH CL 6.4.2 AS 2870 THEN IT IS NOT ADEQUATE TO PROVIDE LONG TERM STRUCTURAL SUPPORT TO THE SLAB/FOOTING SYSTEM. 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 AS 3798, THIS IS THEN DEEMED TO BE ADEQUATE TO SUPPORT THE SLAB/FOOTING SYSTEM.
- C4. THE FILL IS TO EXTEND PAST THE EDGE OF THE SLAB BY AT LEAST ONE METER AND SHALL BE BATTERED OFF NOT STEEPER THAN TWO HORIZONTALLY TO ONE VERTICALLY OR RETAINED BY A SUITABLE STRUCTURE PROVIDED BY THE OWNER OR BUILDER AS SOON AS POSSIBLE.
- C5. THE FINISHED LEVELS SHALL ALLOW FOR THE MAIN SLAB TO BE AT LEAST (300mm FOR WAFFLE RAFT) AND (150mm FOR STIFFENED RAFT) ABOVE THE ADJACENT GROUND.
- C6. 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 METER AWAY FROM THE SLAB IS CONSIDERED ADEQUATE. SUBSOIL DRAINS (AGRICULTURAL DRAINS) ARE CONSIDERED DESIRABLE BUT SHOULD BE AVOIDED BEING LOCATED DIRECTLY ADJACENT TO THE FOOTINGS.
- C7. IF ANY FOOTING IS LOCATED SUCH THAT A LINE DRAWN AT 45° FOR CLAY AND 30° FOR SAND FROM ITS BASE INTERSECTS A SERVICE TRENCH THEN PIERS ARE REQUIRED.
- C8. 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.

PIERING

- D1. PIER DIAMETER AND LOCATIONS ARE SHOWN ON PLAN. ONLY WITH THE PRIOR APPROVAL OF THE ENGINEER MAY THE PIER DIAMETER BE VARIED AS PER THE PIER DIAMETER TABLE:

CONCRETE PIER DIAMETER TABLE U.N.O

STRATA	MINIMUM BEARING CAPACITY 'kPa'	SINGLE STOREY	DOUBLE STOREY
STIFF CLAY	250	400# AT 2.0m CTS	450# AT 2.0m CTS OR 400# AT 1.5m CTS
ROCK/SHALE	600	400# AT 2.0m CTS	400# AT 2.2m CTS

ENGINEER TO BE NOTIFIED IF PIERS COLLAPSE IN CONSTRUCTION
BUCKET OR SCREW PIERS MAY NEED TO BE USED

- D2. UNLESS NOTED OTHERWISE MINIMUM PIER DEPTH IS 600 BELOW FOOTING TRENCH.
- D3. UNLESS NOTED OTHERWISE, WHEREVER PIERS ARE NOMINATED, THESE SHOULD BE SOCKETED A MIN OF 300mm INTO STIFF CLAY.
- D4. ALL PIERS TO BE POURED SEPARATE TO RAFT SLAB.
- D5. ALL PIERS ARE TO BE CLEANED & DE-WATERED PRIOR TO THE PLACEMENT OF CONCRETE
- D6. CONCRETE IN PIERS TO BE GRADE N15 U.N.O.
- D7. IT SHOULD BE NOTED THAT IF ANY OF THE FOOTING BEAMS ENCOUNTER ROCK OR SHALE, THEN ALL BEAMS AND LOAD BEARING SPINE BEAMS SHALL BE PIERED TO ROCK OR SHALE. IF PARTIALLY PIERED TO ROCK THEN BRICK JOINTS ARE TO BE PROVIDED AT THE ROCK/NON-ROCK INTERFACE.

STEEL FIXING FOR FOOTINGS AND FLOOR SLAB

- E1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE PIER TOPS ARE CLEAN OF FOREIGN MATTER PRIOR TO THE PLACEMENT OF THE MEMBRANE AND CONCRETE SLAB. ENGINEER'S SPOT CHECK DOES NOT RELEASE THE CONTRACTOR FROM THIS RESPONSIBILITY.
- E2. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- E3. SUBTERRANEAN TERMITE PROTECTION IS TO BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF AS 3660.1
- E4. A DAMP PROOFING MEMBRANE MUST BE PLACED BENEATH THE SLAB SO THAT THE BOTTOM OF THE SLAB IS ENTIRELY UNDERLAIN. THE DAMP PROOFING MEMBRANE MUST BE 0.2mm NOMINAL THICKNESS POLYTHENE FILM AND OF HIGH IMPACT RESISTANCE. LAPS SHALL BE 200mm MINIMUM AT JOINTS. ALL PLUMBING PENETRATIONS AND JOINTS ARE TO BE TAPED AND MADE WATERPROOF. THE SITE IS TO BE PROPERLY DRAINED TO ELIMINATE SURFACE AND SUBSOIL WATER FLOW.
- E5. ALL REINFORCING BAR & FABRIC SHALL BE DESIGNATED AS SHOWN IN THE FOLLOWING TABLE & SHALL COMPLY WITH THE APPROPRIATE CODES AS NOTED BELOW:

SYMBOL	TYPE
R	STRUCTURAL GRADE ROUND BARS TO AS 4671 (230MPa)
S	STRUCTURAL GRADE DEFORMED BARS TO AS 4671 (230MPa)
N	TEMPCORE DEFORMED BARS TO AS 4671 (500MPa)
RL/SL	FABRIC TO AS 4671 (500MPa)
T.M.	TRENCH MESH TO AS 4671 (500MPa)

NOTE THE NUMBER FOLLOWING THE SYMBOL IS THE BAR DIAMETER IN MILLIMETERS

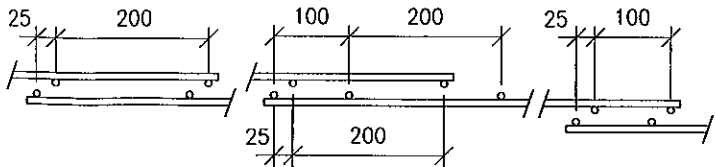
- E6. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS. BAR CHAIRS SHOULD ALWAYS BE PLACED SUCH THAT REINFORCEMENT IS ALWAYS POSITIONED WITH SPECIFIED COVER.

REINFORCEMENT COVER U.N.O

ELEMENT	SHELTERED AREAS			EXPOSED AREAS		
	TOP	BTM	SIDES	TOP	BTM	SIDES
COLUMNS	-	-	40	-	-	40
BEAMS	-	40	40	40	40	40
STRIP FOOTINGS	-	-	-	50	50	50
SLAB ON GROUND	20	40	40	40	40	40
SUSPENDED SLAB	20	20	40	30 TILED 45 NON-TILED	20	40
PIERS	-	-	50	-	-	50

- E7. BOTTOM COVER TO THE REINFORCEMENT FOR SLAB ON GROUND & BEAMS WITH AN INTACT MEMBRANE IN CONTACT WITH THE GROUND CAN BE 30mm.
- E8. FOOTING BEAMS AND RIB REINFORCEMENT TO HAVE 40mm CLEAR COVER ALL-ROUND.
- E9. COLUMNS, BEAMS, STRIP FOOTINGS & SLAB ON GROUND IS TO HAVE 50mm CLEAR COVER ALL-ROUND IF POURED AGAINST THE GROUND.

FABRIC LAP DETAIL



- E10. IF SLAB FABRIC IS USED IT IS TO BE SUPPLIED IN FLAT SHEETS AND IS TO BE LAPPED ONE FULL SQUARE PLUS 25mm AT SPLICES AND PLACED ON BAR CHAIRS AT ONE METER CENTRES BOTH WAYS UNLESS REDUCED SPACING IS SPECIFIED TO GIVE 20mm CLEAR TOP COVER TO SHELTERED LOCATIONS AND 40mm CLEAR TOP COVER TO VERANDAHS.

- E11. COVER REQUIREMENTS MAY NEED TO BE INCREASED TO SUIT FIRE RATING.
- E12. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- E13. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
- E14. PIPE PENETRATIONS IN THE EDGE & SPINE BEAMS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE DETAILS. WHERE SLAB FABRIC IS CUT TO PERMIT PENETRATIONS OF PIPES, A 600x600mm PIECE OF FABRIC IS TO BE SPLICED OVER THE PENETRATION.
- E15. PIPES SHALL BE PLACED A MINIMUM 450mm FROM TOP OF SLAB TO TOP OF PIPE. ALTERNATIVELY, PENETRATIONS OF EDGE OR STIFFENING BEAMS SHALL BE PERMITTED THROUGH THE MIDDLE THIRD. WAFFLE PODS MAY BE CUT AROUND EXPOSED PLUMBING AND ANY OTHER RESULTING GAPS MAY BE TAPED AND SEALED
- E16. FOR 'H' AND 'E' CLASS SITES - ALL PENETRATIONS THROUGH FOOTINGS AND EDGE BEAMS SHALL BE SLEAVED TO ALLOW MINIMUM 20mm ('H' CLASS) AND 40mm ('E' CLASS) MOVEMENT AS PER AS 2870, CLAUSE 5.5.4(A). ALL PLUMBING AND DRAINAGE SERVICES ARE TO BE FITTED WITH FLEXIBLE CONNECTIONS AS PER AS 2870 CLAUSE 5.5.4 (B).
- E17. 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.
- E18. SPLICES IN REINFORCEMENT SHALL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF TABLE 13.1.2.2.A OF AS 3600 OR IN ACCORDANCE WITH THE FOLLOWING TABLE:

BAR SIZE	N12	N16	N20	N24	N28	N32
SPLICE LENGTH	450	600	800	1200	1350	1650

- E19. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR ANY OTHER SPLICES. WHERE LAP LENGTHS ARE NOT SHOWN THEY SHALL SATISFY THE REQUIREMENTS OF AS 3600.

EQUIVALENT REINFORCING BAR SIZES

IN ACCORDANCE WITH TABLE 3.2 AS 2870

REINFORCING BAR	T.M. ALTERNATIVE
2-N12	2-L11 T.M.
3-N12	3-L11 T.M.
4-N12	4-L11 T.M.

NOTE: RW11(RIBBED WIRE GRADE 500RW)
MAY BE USED IN LIEU OF N12'S

TOTAL REINFORCEMENT REQUIREMENTS WITHIN FOOTING BEAMS

IN ACCORDANCE WITH TABLE 3.4 AS 2870

BEAM WIDTH (BW)	TOTAL BTM STEEL
110 TO 150	1-N12
151 TO 220	2-N12
221 TO 330	3-N12
331 TO 440	4-N12

STEM WIDTH (SW)	ADDITIONAL TOP STEEL IN ADDITION TO SLAB FABRIC
110 TO 150	NIL
151 TO 220	1-N12
221 TO 330	2-N12
331 TO 440	3-N12

- E20. WELDING OF REINFORCEMENT OTHER THAN TACK WELDING FOR PURPOSE OF MAINTAINING BARS IN CORRECT POSITION IS NOT PERMITTED UNLESS SPECIFICALLY NOMINATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.

- E21. REINFORCING BARS SHALL HAVE A LAP LENGTH AT SPLICES NOT LESS THAN 450mm. AT 'T' AND 'L' INTERSECTIONS THE BARS SHALL BE CONTINUED ACROSS THE FULL WIDTH OF THE INTERSECTIONS. ONE OUTER BAR SHALL BE BENT AND CONTINUED 500mm, OR A BENT BAR 500mm LONG ON EACH LEG SHALL BE PROVIDED TOP & BOTTOM.

CONCRETE AND CONTROL OF PLASTIC SHRINKAGE CRACKING AND SLAB MAINTENANCE

- F1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 AND AS 2870

CONCRETE SPECIFICATION U.N.O

ELEMENT	SLUMP	MAX SIZE AGGREGATE	F'c AS 3600	CEMENT TYPE	EXPOSURE CLASSIFICATION
FOOTINGS	100	20	N20	A	A1
SLAB ON GROUND	100	20	N20	A	A1
SLAB (SUSPENDED)	80	20	N32	A	A1
PIERS	80	20	N15	A	A1

- F2. WATER IS NOT TO BE ADDED TO THE CONCRETE ON SITE SO AS TO INCREASE THE SLUMP ABOVE THAT SPECIFIED
- F3. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY.
- F4. ALL CONCRETE IN SLABS, BEAMS, COLUMNS AND WALLS SHALL BE MECHANICALLY COMPACTED DURING POUR IN ACCORDANCE WITH AS 3600.
- F5. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- F6. 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.
- F7. ALL CONCRETE SHALL BE CURED BY CONTINUALLY WETTING FOR 7 DAYS MINIMUM. PLASTIC OR WAX LIQUID SPRAYS MAY BE USED. EXTRA PRECAUTIONS SUCH AS THE METHOD OF EVAPORATIVE RETARDATION (THE USE OF ALIPHATIC ALCOHOLS) IS RECOMMENDED DURING HOT WEATHER CONCRETE POURS TO HELP AVOID THERMAL RELATED SLAB CRACKING "IF IN DOUBT ASK".
- F8. THE CONCRETE SLAB SHALL BE CURED USING AN APPROVED COMMERCIAL CURING COMPOUND AND IN ACCORDANCE WITH CLAUSE 19.1.5 OF AS 3600. CURING THE CONCRETE SHALL START IMMEDIATELY AFTER FINISHING. IT IS RECOMMENDED THAT AN APPROVED CURING COMPOUND BE APPLIED TO THE SLAB IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- F9. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

- F10. CAUTION SHOULD BE EXERCISED WHEN APPLYING BRITTLE FINISHES SUCH AS CERAMIC TILES TO THE FLOOR SLAB. BRITTLE FLOOR COVERINGS ARE TO BE LAID ON A SUITABLE FLEXIBLE TYPE BEDDING SYSTEM AND SUPPLIED WITH CONTROL JOINTS AT 400 CENTERS MAXIMUM. ALTERNATIVELY SL92 FABRIC CAN BE USED, AS/IF ADVISED BY THE BUILDER. ALTERNATIVELY FINISHES TO BE DELAYED FOR 3 MONTHS. REFER TO AS 2870 cl 5.3.7 OR AS 3958

- F11. FORMWORK SUPPORTING SUSPENDED SLABS, BEAMS, COLUMNS AND WALLS MUST BE LEFT IN POSITION FOR AT LEAST 21 DAYS AFTER CONCRETE IS POURED.

- F12. THE OWNERS ATTENTION SHALL BE DRAWN TO APPENDIX 'A' - 'PERFORMANCE REQUIREMENTS AND FOUNDATION MAINTENANCE OF AS 2870.2 AND CSIRO PUBLICATION 'GUIDE TO HOME OWNERS ON FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE'.

NOTES REGARDING SUB-TERRANEAN TERMITE PROTECTION

- G1. ALL WORKS TO BE IN ACCORDANCE WITH AS 3660.1
- G2. ALL CONCRETE TO BE 20MPa U.N.O. CONCRETE IS TO BE MECHANICALLY VIBRATED DURING POUR. KEEP SLAB WET FOR 7 DAYS MINIMUM. PLASTIC OR WET SPRAYS MAY BE USED.
- G3. ANY FUTURE CRACKING OCCURRING IN THE SLAB IS TO BE ASSESSED BY A QUALIFIED PEST EXPERT AND WHERE DIRECTED BE SEALED BY EPOXY INJECTION
- G4. INSPECTIONS OF THE RESIDENCE AND IMMEDIATE SURROUNDS TO BE CARRIED OUT BY A QUALIFIED PEST EXPERT ON AN ANNUAL BASIS BY THE HOME OWNER.
- G5. SITE MAINTENANCE IS THE RESPONSIBILITY OF THE HOME OWNER. ALL RECOMMENDATIONS OUTLINED BY THE CSIRO SHEET 10-91 TO BE CARRIED OUT

NOTE REGARDING TREES/ROOT SYSTEMS

- H1. 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 AS DEFINED BY cl 82.3(c) AS 2870. BACKFILL AND COMPACT ROOT SYSTEM AREAS TO COMPLY WITH NOTICE C3 DURING THE REMOVAL-PROCESS. IF THIS CANNOT BE ACHIEVED, CONTACT THIS OFFICE PRIOR TO COMMENCING WORK ON SITE 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.
- H2. THE "GRUBHOLE" CREATED BY THE REMOVAL OF THE ROOT SYSTEM IS TO BE RECOMPACTED AS NOT TO ALLOW FOR WATER PONDING AND TO ADVERSELY AFFECT THE PROPOSED DWELLING.

IF IN DOUBT, CONTACT ENGINEER.

DRAWN	DATE	AMENDMENT	REV
B.K.	22-2-10	B4 ALTERED, DETAILS REVISED TO SUIT	A
A3			

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FOR:
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SITE ADDRESS:
**LOT 46 (4) WAKEHURST PARKWAY
SEAFORTH**

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JOB No.
RW263

REVISION
A

DATE:
11-2-2010

SCALE:
DONT

SHEET No.
2/10

CLIENT REF:
J001206

DRAWN:
B.K.

RESIDENTIAL STRUCTURAL STEEL NOTES

- J1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 1111, AS 1112, AS 1163, AS 1554, AS 4100 AND THE A.C.S.E. STRUCTURAL STEEL FABRICATION AND ERECTION SPECIFICATIONS WHERE DEEMED APPROPRIATE BY THE CONTRACT DOCUMENTS.
- J2. STEELWORK DESIGNED IN ACCORDANCE WITH AS4100 "STEEL STRUCTURES CODE" AND AS1170.1/AS1170.2 "DEAD & LIVE LOADS AND WIND LOADS". STRUCTURAL STEEL TO BE GRADE (BHP 300 PLUS) U.N.O. SURFACE PREPARATION & FINISH TO COMPLY WITH AS/NZS 2312 AND BUILDING CODE OF AUSTRALIA
- J3. ABBREVIATIONS USED ARE AS FOLLOWS:
- | | |
|---------------------------------|--------------------------------|
| UB - UNIVERSAL BEAM | BW - BUTT WELD |
| UC - UNIVERSAL COLUMN | FW - FILLET WELD |
| PFC - PARALLEL FLANGE CHANNEL | CFW - CONTINUOUS FILLET WELD |
| EA - ROLLED STEEL EQUAL ANGLE | FSBW - FULL STRENGTH BUTT WELD |
| UA - ROLLED STEEL UNEQUAL ANGLE | VB - VEE BUTT WELD |
| RA - ROLLED STEEL ANGLE | |
| RHS - ROLLED HOLLOW SECTION | |
| SHS - SQUARE HOLLOW SECTION | |
- J4. THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION IS THE BUILDERS RESPONSIBILITY. ADEQUATE TEMPORARY BRACING SHALL BE PROVIDED WHERE NECESSARY AND AS DIRECTED BY THE SUPERVISING ENGINEER.
- J5. THE BUILDER IS TO MAKE GOOD AND/OR REPAIR ALL DAMAGED SURFACES DURING PERFORMANCE OF THE WORK.
- J6. THE INSTALLATION OF GALINTELS AND T-BARS TO BE STRICTLY IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
- J7. ALL WELDS TO BE 6mm CONTINUOUS FILLET WELD U.N.O.
BUTT WELDS WHERE INDICATED IN THE DOCUMENTS TO BE COMPLETE PENETRATION BUTT WELDS AS DEFINED IN AS 1554. ALL SHOP WELDS TO BE FULLY WELDED U.N.O. USE E41XX ELECTRODES FOR ALL WELDING U.N.O.
- J8. SITE WELDING OF HOT DIP GALVANISED STEEL IS PERMISSABLE IF UPON COMPLETION THE WELDS ARE TREATED WITH THE APPROPRIATE COATING FOR SEVERE MARINE AS PER TABLE PROTECTIVE COATINGS FOR STEELWORK.
- J9. BEAMS TO BE SUPPORTED ON BRICKWORK (BEARING NOTED ON PLAN). PLACE INCOMPRESSIBLE PACKING AS REQUIRED UNDER THE ENDS OF THE BEAM TO ENSURE EVEN BEARING ON THE BRICKWORK.
- J10. BOLT DESIGNATION:
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 1252 SNUG TIGHTENED. BOLTS ALL TO BE PROVIDED WITH THREADS CLEAR OF SHEAR PLANE.
- J11. ALL BOLTS SHALL BE COMMERCIAL GRADE U.N.O. NO CONNECTION SHALL HAVE LESS THAN TWO BOLTS. ALL BOLTS AND WASHERS TO BE GALVANISED
- J12. 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 THE DRAWINGS.
- J13. 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.
- J14. ALL COLUMNS AND BEAMS SHOWN ON THE DRAWINGS FOR FULL BRICK BUILDINGS SHALL BE LATERALLY RESTRAINED BY BRICKWORK AT EACH SUPPORT LOCATION 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.
- J15. REFERENCE SHOULD BE MADE TO AS 2312 FOR GUIDANCE ON APPROPRIATE COATING SYSTEMS FOR ALL EXTERNAL APPLICATIONS. COATING OF EXTERNAL LINTELS SHALL BE IN ACCORDANCE WITH THE LATEST BCA CLASS 1 & 10 BUILDINGS HOUSING PROVISIONS VOLUME 2 TABLE 3.4.4.2 OR AS 3700 CLAUSE 3.4.3. THE BUILDER MUST CLARIFY HIS CONTRACTUAL OBLIGATIONS IN THIS REGARD.
- J16. CONCRETE ENCASED STEEL WORK SHALL BE WRAPPED WITH 10 S.W.G. WIRE AT 100mm PITCH AND SHALL HAVE A MINIMUM COVER OF 150mm U.N.O.
- J17. ALL GUSSET PLATES TO BE 10mm THICK U.N.O.

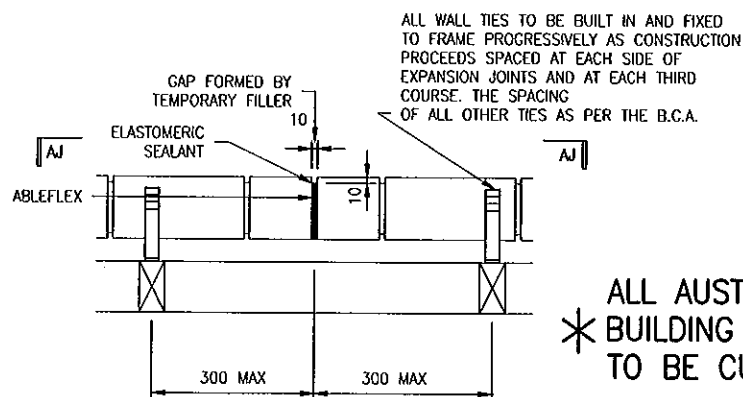
TIMBER NOTES

- K1. ALL TIMBER FRAMING CONSTRUCTION AND BRACING TO BE CARRIED OUT IN ACCORDANCE WITH AS 1684.2 AND SHALL ALSO COMPLY WITH AS 1720.1
- K2. ALL TIMBER FRAMING TO BE POSITIVELY CONNECTED TO STEEL BEAMS USING M10 BOLTS AT 900mm NOMINAL CENTERS OR EQUIVALENT.
- K3. SOLID TIMBER JOISTS ARE NOT TO BE NOTCHED IN EXCESS OF THE RECOMMENDATIONS OF AS 1684.1. WHERE NECESSARY PROVIDE TIMBER PLATE OVER STEEL BEAM OR BETWEEN FLANGES FOR STEEL BEAM SUPPORTING JOISTS USING JOIST HANGERS. FOR ENGINEERED TIMBER JOISTS/TRUSSES, FIXING TO SUPPORT BEAMS IS TO BE STRICTLY IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.
- K4. REFER TO MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION OF I-JOISTS WHERE APPLICABLE
- K5. ALL LVL (LAMINATED VENEER LUMBER) USED SHALL COMPLY WITH AS 4357 (STRUCTURAL LAMINATED VENEER LUMBER CODE) AND MUST BE INSTALLED AS PER MANUFACTURER'S SPECIFICATION.
- K6. TO RESTRAIN TOP FLANGE OF STEEL BEAM, PROVIDE TIMBER BLOCKING BETWEEN JOISTS AND POWER FIX TO STEEL BEAM OR JOIST NAILING PLATE. ALL TIMBER JOISTS TO BE FIXED TO NAILING PLATE/BLOCKING TO MANUFACTURER'S SPECIFICATION.
- K7. TIMBER FLOORS IN WET AREAS (E.G. BATHROOMS AND LAUNDRIES) SHALL BE PROTECTED FROM MOISTURE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA (B.C.A.)
- K8. ALL EXPOSED TIMBER SHALL COMPLY WITH THE REQUIREMENTS OF APPENDIX C OF AS 1684.3 (I.E. PROVIDE PRESERVATIVE TREATMENT)
- K9. HOLES FOR BOLTS, SHALL BE SNUG FIT
- K10. SHANK AND THREAD OF BOLTS SHALL BE THOROUGHLY COATED WITH A HEAVY WATERPROOF GREASE BEFORE INSERTING INTO THE TIMBER
- K11. EDGE DISTANCES FOR FASTENERS IN TIMBER (FROM ENDS AND SIDES) SHALL BE IN ACCORDANCE WITH AS 1720.1 U.N.O.
- K12. UNLESS NOTED OTHERWISE THE ROOF STRUCTURE HAS BEEN DESIGNED FOR NORMAL ROOF LOADS ONLY AND DOES NOT ALLOW ANY EXTRANEOUS LOADS SUCH AS HOISTS, MONORAILS ETC.
- K13. TRUSSED ROOFS SHALL HAVE VERTICAL PLANE RIDGE BRACING AND 45° DIAGONAL RAFTER BRACING FROM THE RIDGE TO THE WALL PLATES ON EACH SIDE OF THE RIDGE TERMINATING AT BUILDING CORNERS OR CROSS WALLS.
- K14. INTERNAL STUD WALLING SHALL BE BRACED USING "GANGNAIL SPEED BRACE" BRACING OR SIMILAR APPROVED BY THE ENGINEER. BRACES SHALL BE TRIPPLE NAILED AT EACH END AND SINGLE NAILED TO EACH STUD USING 2.5mm DIAMETER NAILS.
- K15. ANCHOR RODS AND TIE DOWN STRAPS TO THE ROOF SHALL BE INSTALLED THAT ENSURE UPLIFT FORCES FROM WIND ARE TRANSMITTED TO THE FOUNDATIONS UNLESS SPECIAL FIXINGS ARE NOMINATED.
- K16. MAJOR STRUCTURAL CONNECTIONS SHALL BE BOLTED. THE BUILDER SHALL OBTAIN DETAILS FROM THE ENGINEER IF NOT SHOWN ON THE DRAWINGS.
- K17. ALL TIMBER SHALL BE MINIMUM F7 STRESS GRADE U.N.O., HARDWOOD SHALL BE F11 STRESS GRADE OR BETTER U.N.O.
- K18. TERMITE PROTECTION:
ALL CONSTRUCTION WORK SHOULD BE IN ACCORDANCE WITH AS 3660.1 PROTECTION OF BUILDINGS FROM SUBTERRANEAN TERMITES PART 1: NEW BUILDINGS. IF THE REQUIREMENTS IN THIS CODE ARE UNABLE TO BE MET, RESIDENTIAL ENGINEERING RECOMMENDS THE USE OF TERMITE RESISTANT STRUCTURAL TIMBER IN ACCORDANCE WITH AS 1604 AS SHOWN BELOW:

ENVIRONMENT	CLASS
INTERIOR ABOVE THE GROUND	- HAZARD LEVEL H2
EXTERIOR ABOVE THE GROUND	- HAZARD LEVEL H3
EXTERIOR IN GROUND	- HAZARD LEVEL H4 & H5

MASONRY NOTES

- L1. LOAD BEARING MASONRY SHALL COMPLY WITH AS 3700 AND THE PROJECT SPECIFICATION
- L2. THE MINIMUM CHARACTERISTIC COMPRESSIVE STRENGTH OF THE MASONRY UNITS AS DESCRIBED IN AS 3700 SHALL BE 20MPa U.N.O.
- L3. MORTAR:
MASONRY TO BE EMBEDDED IN FRESHLY PREPARED MORTAR
CONCRETE - SOLID AND HOLLOW UNITS:
MORTAR TO BE UNIFORMLY MIXED IN THE RATIO OF ONE PART CEMENT, ONE PART LIME AND SIX PARTS SAND, CONFORMING TO AS 2701
- L4. GROUT SHALL HAVE A COMPRESSIVE STRENGTH (F'c) OF 15MPa AT 28 DAYS. A SLUMP OF 125mm IN 150mm SLUMP CONE. A MAXIMUM AGGREGATE SIZE OF 10mm AND BE IN ACCORDANCE WITH AS 3700 PART 1
- L5. BEDDING OF MASONRY SHALL BE FULL WITH CROSS JOINTS PROPERLY FILLED. JOINT THICKNESS SHALL NOT EXCEED 12mm.
- L6. PROVIDE WALL TIES AT 600 CENTERS VERTICALLY AND HORIZONTALLY.
- L7. KEEP CAVITY CLEAN AND CLEAR OF OBSTRUCTION. CAVITY SHALL NOT EXCEED 200mm AND SHALL NOT BE SMALLER THAN 40mm.
- L8. ALL WALLS TO BE KEPT STABLE AT ALL STAGES OF CONSTRUCTION AND NOT BE OVERSTRESSED AT ANY TIME.
- L9. UNLESS NOTED OR SHOWN OTHERWISE ON DRAWINGS THERE ARE TO BE NO CHASSES OR RECESSES PERMITTED IN MASONRY WALLS WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL DESIGN ENGINEER.
- L10. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE LOCATIONS OF GALVANISED WALL STIFFENERS AND THE STRUCTURAL ENGINEERS DRAWINGS FOR THE DETAILS OF THE WALL STIFFENERS
- L11. MASONRY WALLS MUST NOT BE BUILT ON CONCRETE SLABS OR BEAMS UNTIL ALL FORMWORK/PROPS SUPPORTING THESE SLABS AND BEAMS HAVE BEEN REMOVED.
- L12. ALL LOAD BEARING BRICKWORK IS SHOWN IN BROKEN LINE ON THE SLAB PLAN. THE TOP COURSE OF BRICKWORK IS TO BE COVERED WITH TWO LAYERS OF 'ALCOR' OR '3 PLY MALTHOID' OR SIMILAR SLIP JOINT MATERIAL.
- L13. BRICKWORK BUILT OFF SLAB TO BE LAID ON TWO LAYERS OF 'ALCOR' OR '3 PLY MALTHOID'



ARTICULATION JOINT AND WALL TIE DETAIL

WIND/WALL TIE CLASSIFICATION

WIND		WALL TIE	HORIZONTAL SPACING	VERTICAL SPACING
CLASS	(Vp)			
N1	W28N1	LIGHT DUTY	600mm	600mm
N2	W33N2	MEDIUM DUTY	600mm	600mm
N3	W41N3	MEDIUM DUTY	600mm	430mm (5 COURSES)
WALL TIE SPACINGS AROUND OPENINGS 300cts EACH WAY				
POLYMER WALL TIES RATED "LIGHT DUTY ONLY" (W28N1)				
(Vp = PERMISSABLE STRESS METHOD)				

ATMOSPHERIC DURABILITY CLASSIFICATION

- M1. SEVERE MARINE: LESS THAN 1km FROM BREAKING SURF OR LESS THAN 100m FROM SALT WATER NOT SUBJECT TO BREAKING SURF OR WITHIN HEAVY INDUSTRIAL AREAS.
- M2. MARINE: 1km OR MORE BUT LESS THAN 10km FROM BREAKING SURF OR 100m OR MORE BUT LESS THAN 1km FROM SALT WATER NOT SUBJECT TO BREAKING SURF
- M3. EXTERIOR: ALL OTHER AREAS
- M4. THE OUTER LEAF & CAVITY OF AN EXTERNAL MASONRY WALL OF A BUILDING, INCLUDING WALLS UNDER OPEN CARPORTS ARE CONSIDERED TO BE EXTERNAL ENVIRONMENTS
- M5. A PART OF AN INTERNAL LEAF OF AN EXTERNAL MASONRY WALL WHICH IS LOCATED IN THE ROOF SPACE IS CONSIDERED TO BE AN INTERNAL ENVIRONMENT.

CORROSION PROTECTION FOR WALL TIES

- AS PER THE BCA CLASS 1 & 10 BUILDINGS, HOUSING PROVISIONS, VOLUME 2:

ATMOSPHERIC DURABILITY CLASSIFICATION	TIE SPECIFICATION (MINIMUM CORROSION PROTECTION)
SEVERE MARINE	- GRADE 316 OR 316L STAINLESS STEEL - ENGINEERED POLYMER.
MARINE	- SHEET STEEL TIES GALVANISED AFTER MANUFACTURE - 470g/m² ON EACH SIDE - GALVANISED WIRE TIES - 470g/m² COATING MASS
EXTERIOR	- TIES MANUFACTURED FROM GALVANISED SHEET STEEL - Z600 - SHEET STEEL TIES GALVANISED AFTER MANUFACTURE - 300g/m² ON EACH SIDE

MASONRY DURABILITY CLASSIFICATION

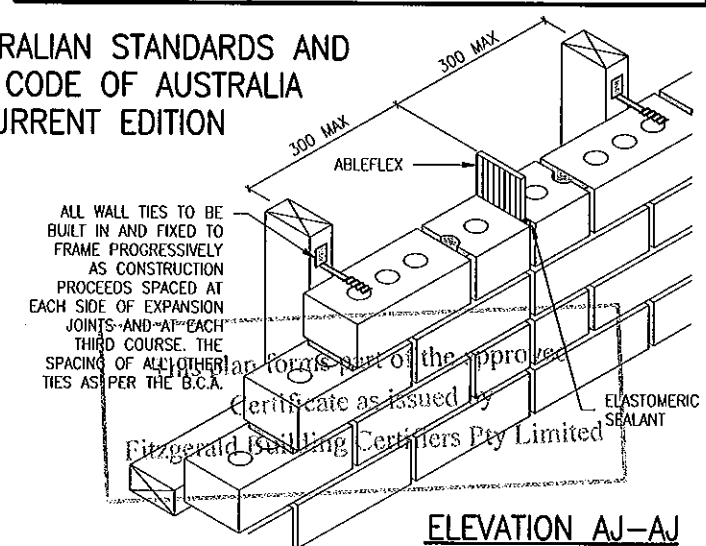
CATEGORY (DURABILITY)	GRADE OF BRICKS AS/NZS 4456.10	MORTAR AS 3700
SEVERE MARINE	EXPOSURE	M4 (1:4)
MARINE	GENERAL PURPOSE	M3 (1:5)
EXTERIOR	GENERAL PURPOSE	M2 (1:2:8)

PROTECTIVE COATINGS FOR STEELWORK

BCA CLASS 1 & 10 BUILDINGS HOUSING PROVISIONS, VOLUME 2

CATEGORY (DURABILITY)	LOCATION	MINIMUM PROTECTIVE COATING	
		LINTELS IN MASONRY	GENERAL STRUCTURAL STEEL MEMBERS
SEVERE MARINE	INTERNAL	2 COATS ALKYL PRIMER OR ALKYL GLOSS	
	EXTERNAL	HOT DIP GALVANISE 600g/m² MIN	- INORGANIC ZINC PRIMER + 2 COATS VINYL GLOSS FINISHING COATS, OR - HOT DIP GALVANISE 300g/m² MIN, OR - HOT DIP GALVANISE 100g/m² MIN + EITHER (A) 2 COATS SOLVENT BASED VINYL PRIMER OR (B) 2 COATS VINYL GLOSS OR ALKYL.
MARINE	INTERNAL	NO PROTECTION REQUIRED	
	EXTERNAL	2 COATS ALKYL PRIMER, OR ALKYL GLOSS - HOT DIP GALVANISE 300g/m² MIN, OR - HOT DIP GALVANISE 100g/m² MIN + EITHER (A) 1 COAT SOLVENT BASED VINYL PRIMER, OR (B) 1 COAT VINYL GLOSS OR ALKYL.	

ALL AUSTRALIAN STANDARDS AND
* BUILDING CODE OF AUSTRALIA
TO BE CURRENT EDITION



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FAX: 02 9764 6992
Builder's License No. 33493C

FOR:
MR & MRS TURNBULL

SITE ADDRESS:
**LOT 46 (4) WAKEHURST PARKWAY
SEAFORTH**

APPROVED BY:
Wm. Carthy

A.W. McCARTHY
B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng.
NSW: BPB 0255
VIC: EC 24609
QLD: RPEQ 4109

JOB No.
RW263

DATE:
11-2-2010

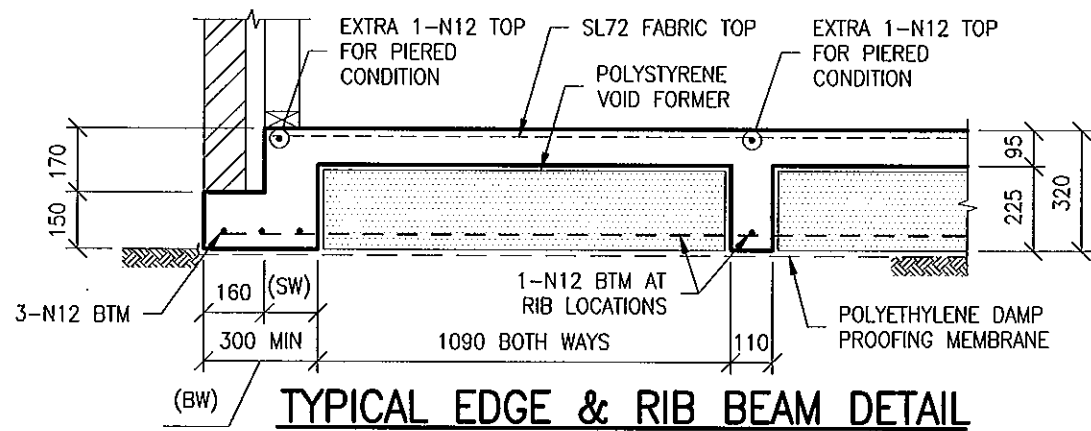
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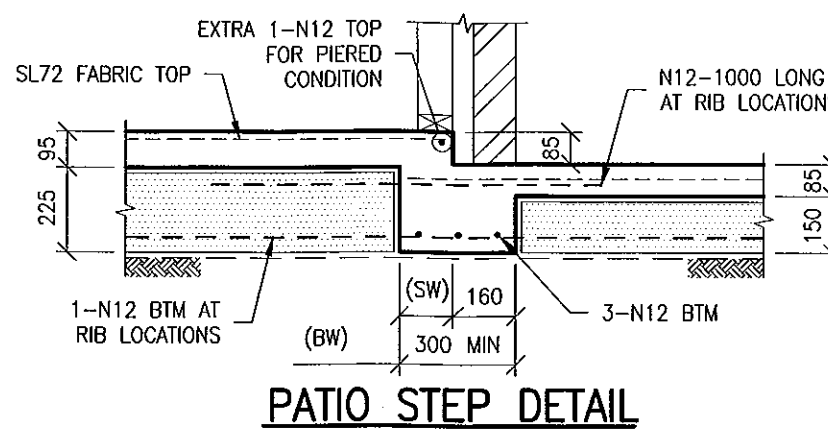
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REVISION
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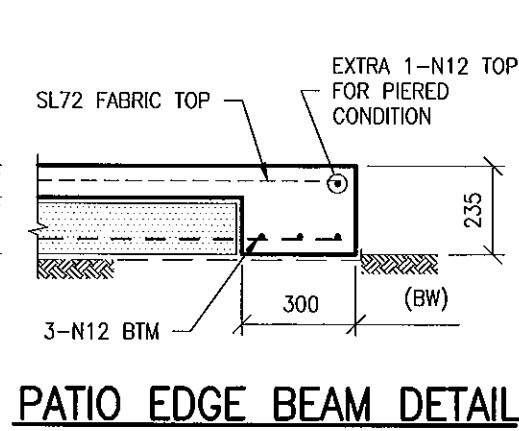
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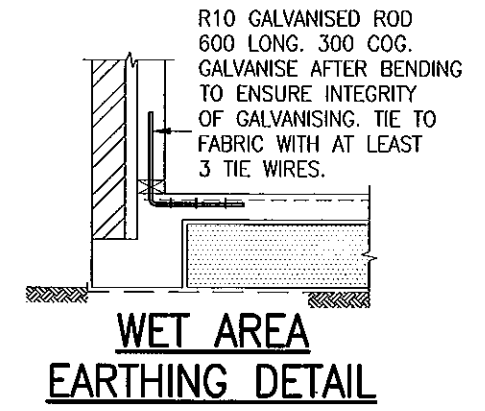
TYPICAL EDGE & RIB BEAM DETAIL



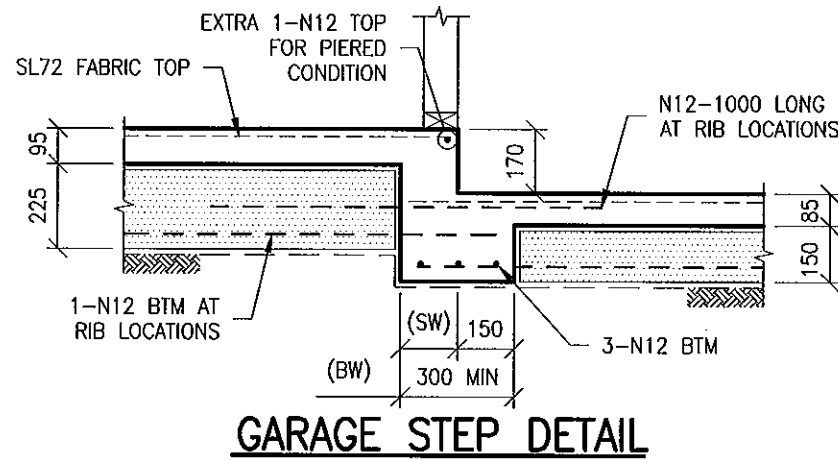
PATIO STEP DETAIL



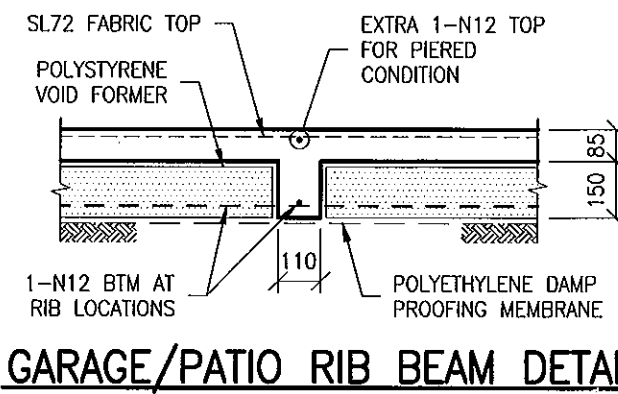
PATIO EDGE BEAM DETAIL



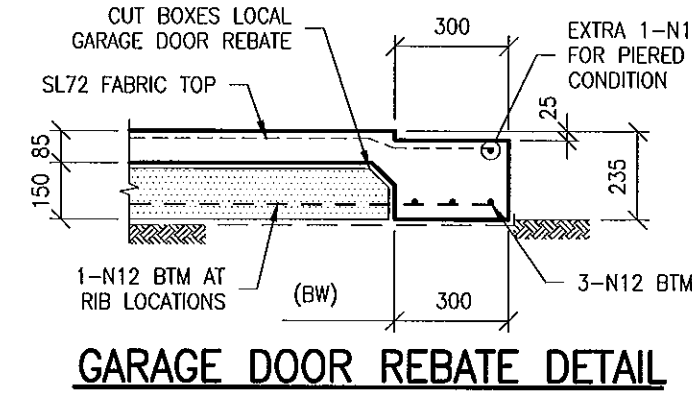
WET AREA EARTHING DETAIL



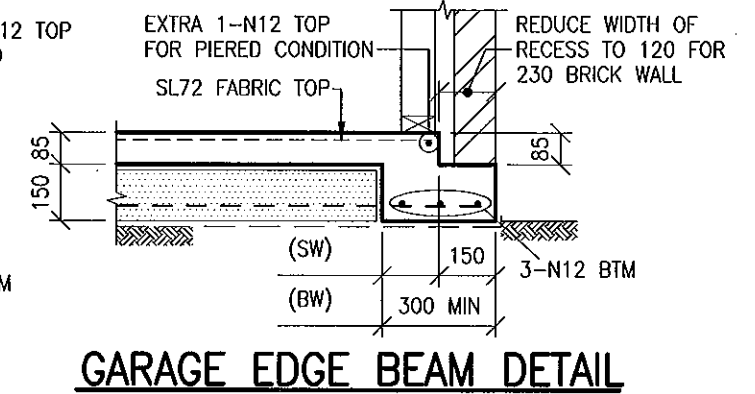
GARAGE STEP DETAIL



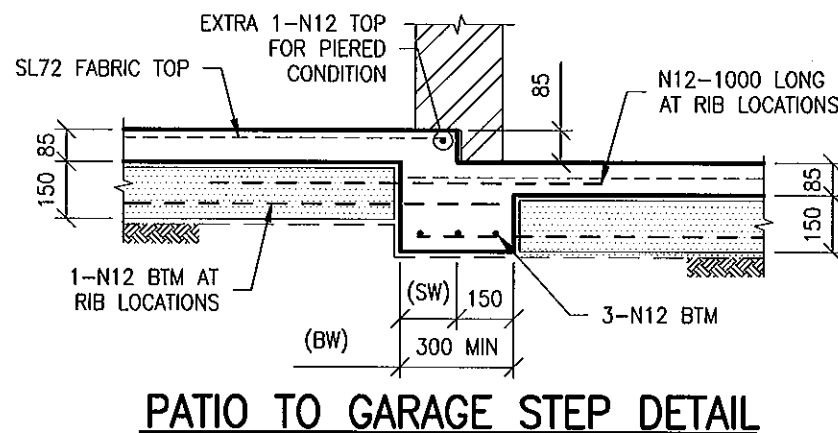
GARAGE/PATIO RIB BEAM DETAIL



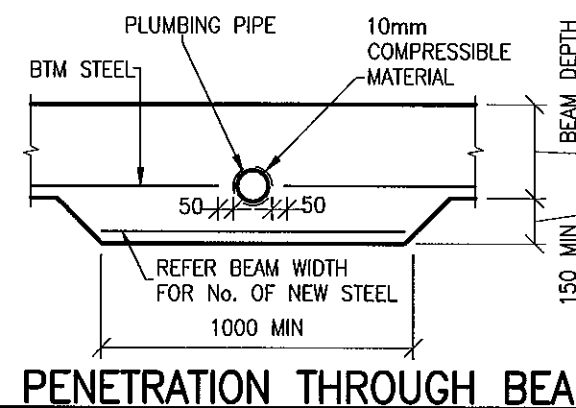
GARAGE DOOR REBATE DETAIL



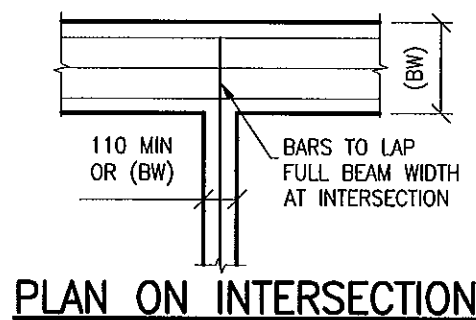
GARAGE EDGE BEAM DETAIL



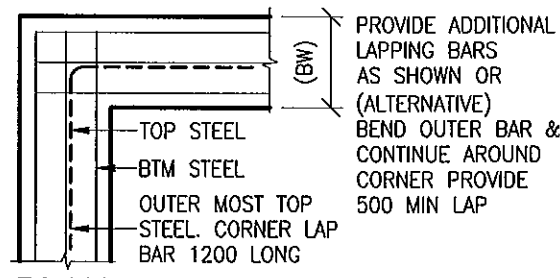
PATIO TO GARAGE STEP DETAIL



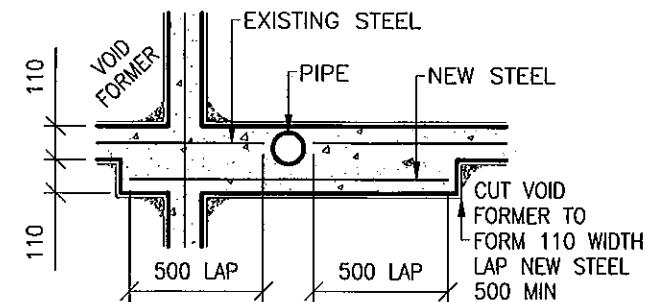
PIPE PENETRATION THROUGH BEAM



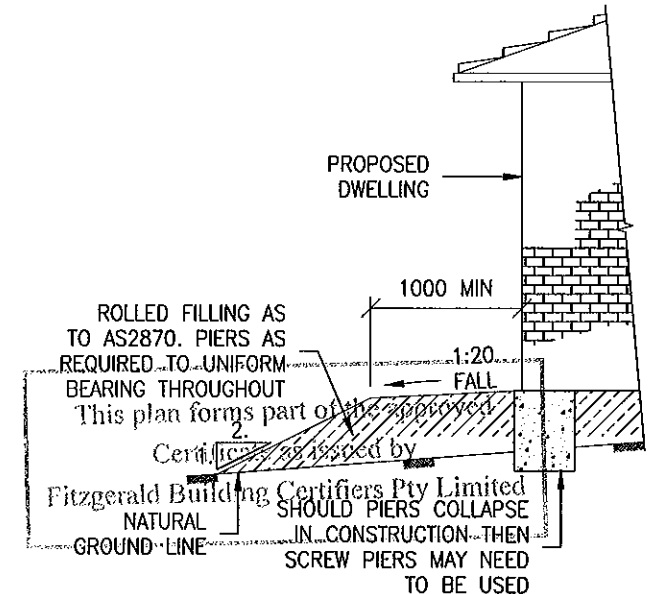
PLAN ON INTERSECTION



PLAN ON CORNER DETAIL



PLAN ON PIPE PENETRATION THROUGH RIB



FILLING SPECIFICATION DETAIL NOT TO SCALE

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CLIENT: **RAWSON HOMES**

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 FAX 02 9764 6992
 Builder's License No. 33493C

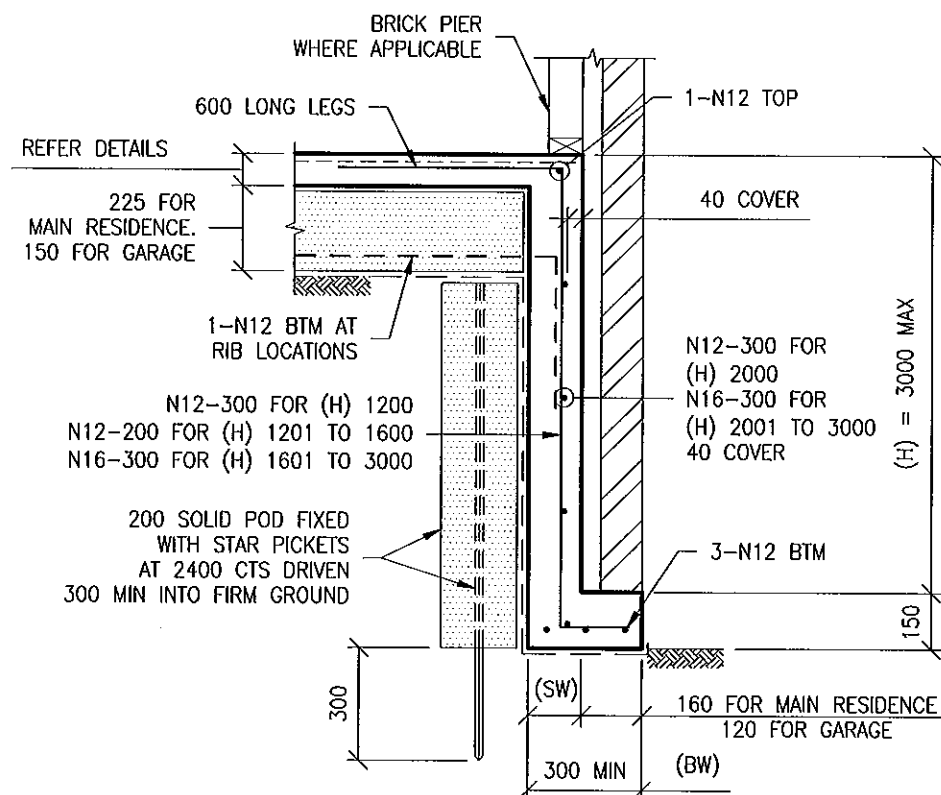
FOR: **MR & MRS TURNBULL**

SITE ADDRESS: **LOT 46 (4) WAKEHURST PARKWAY SEAFORTH**

APPROVED BY: *dm Carthy*

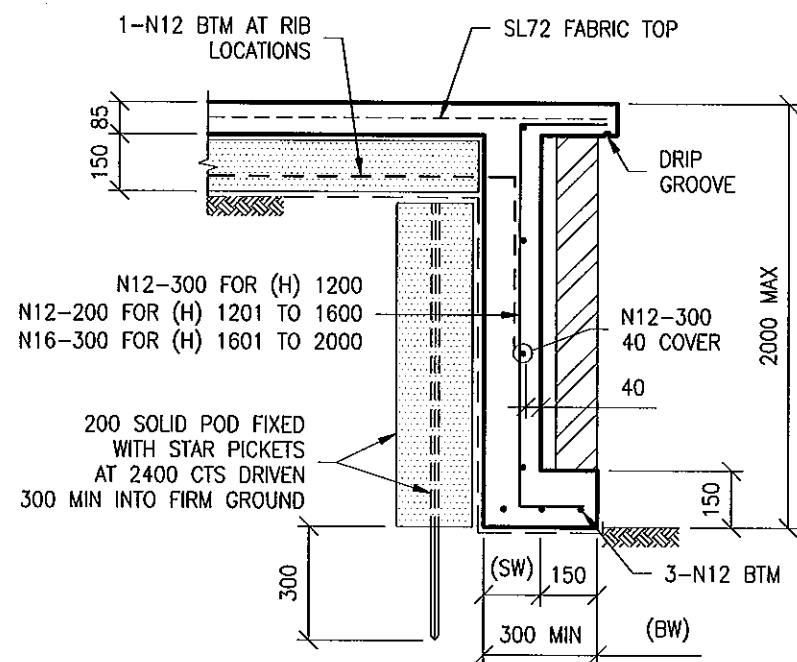
A.W. McCARTHY
 B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng.
 NSW: BPP 0255
 VIC: EC 24609
 QLD: RPEQ 4109

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RW263		A
DATE: 11-2-2010	SCALE: 1:20	SHEET No. 4/10
CLIENT REF: J001206	DRAWN: B.K.	



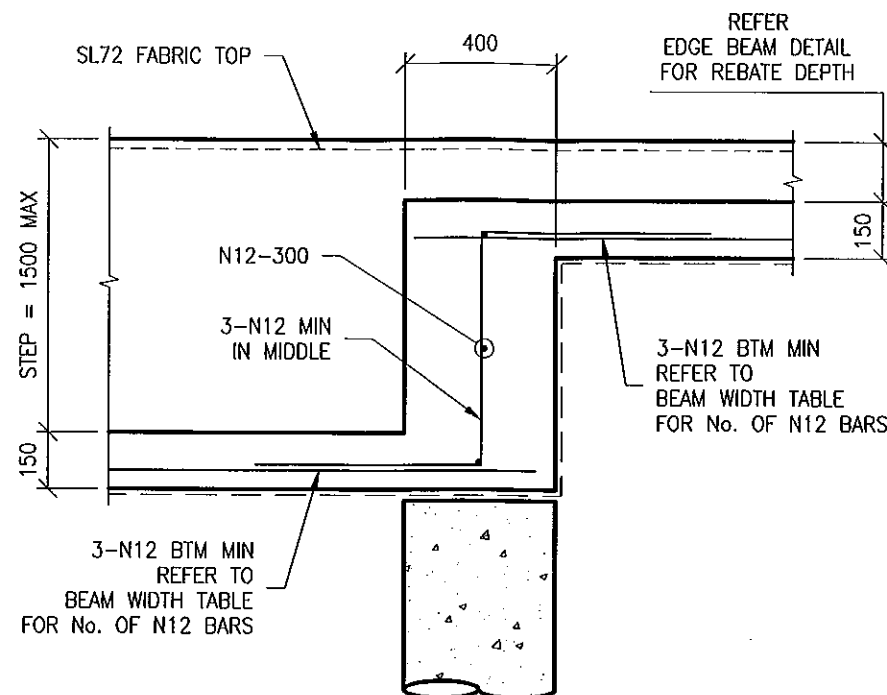
TYPICAL DEEPENED EDGE BEAM DETAIL

MAX HEIGHT (H)	STEM WIDTH (SW)
UP TO 1200	150
1201 TO 1600	200
1601 TO 3000	250

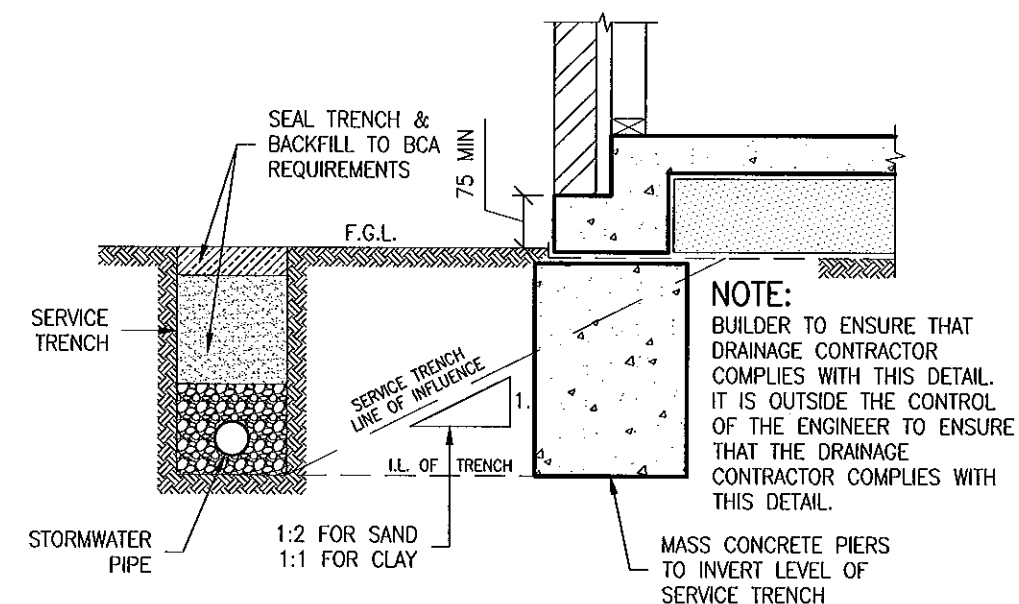


DEEPENED PATIO EDGE BEAM DETAIL

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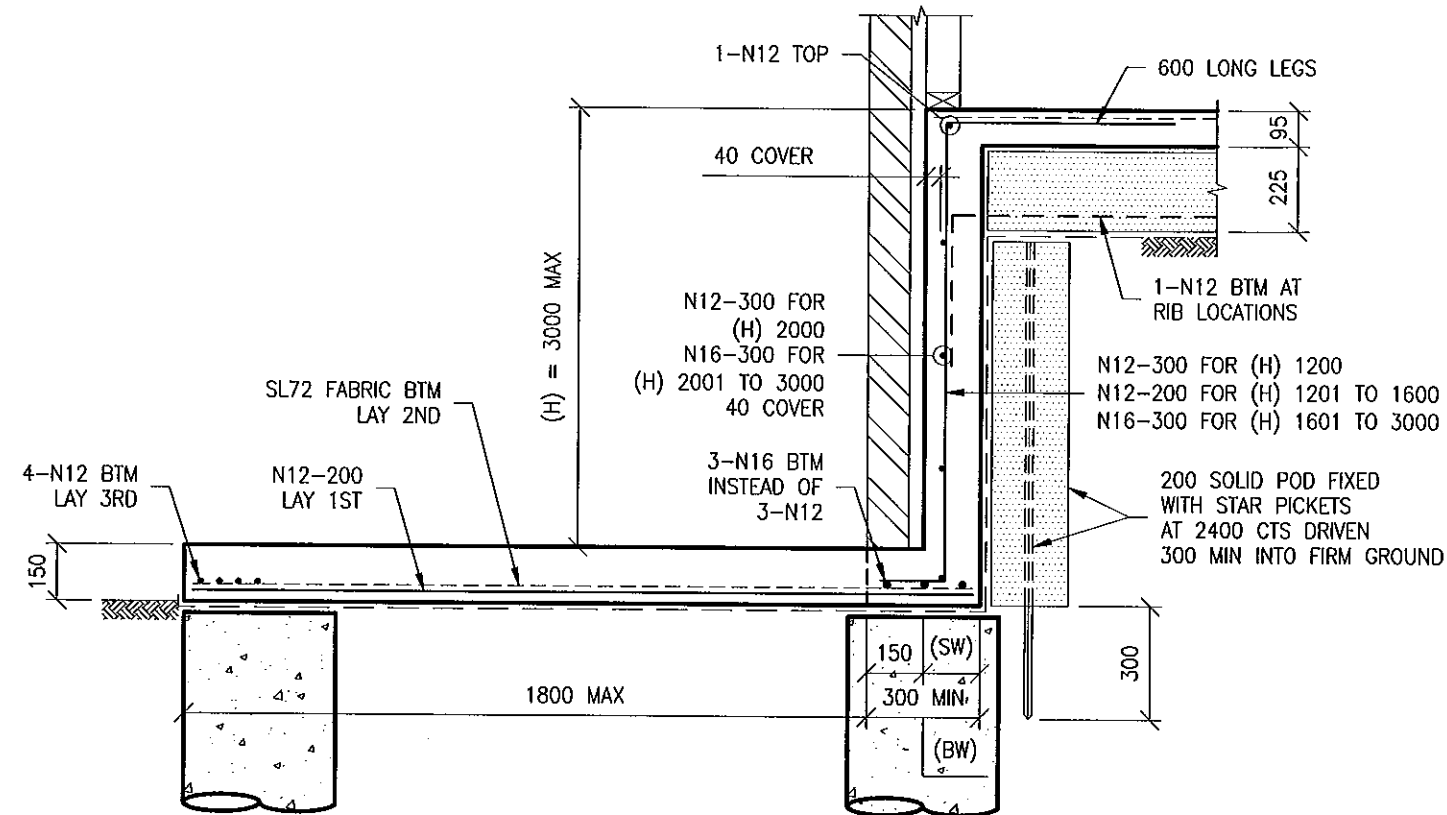
DEEPENED EDGE BEAM TRANSITION DETAIL



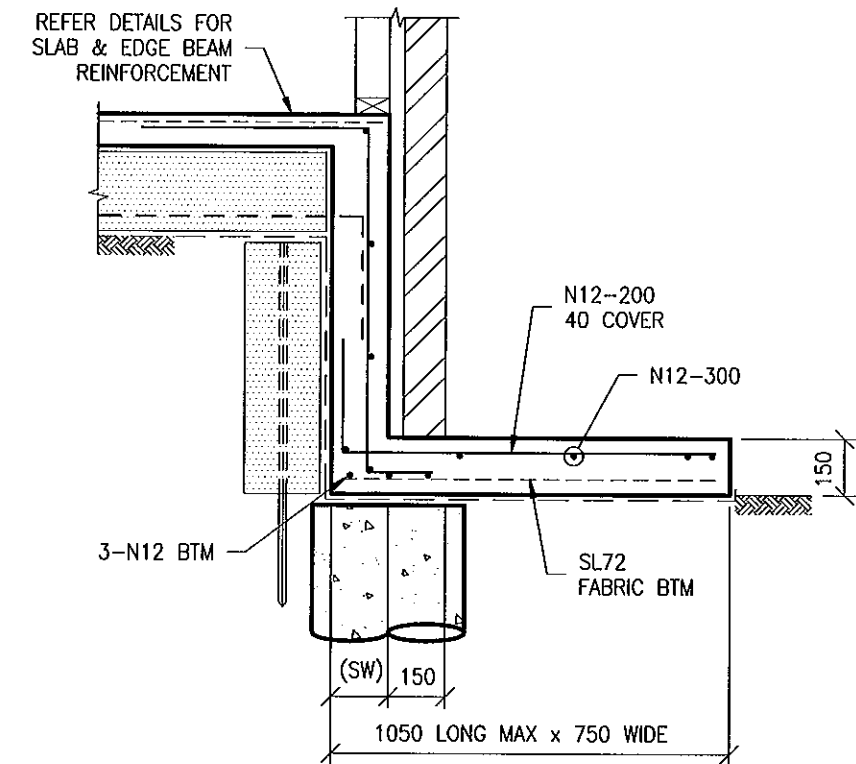
SERVICE TRENCH DETAIL
EDGE OF SLAB INSIDE SERVICE TRENCH ZONE OF INFLUENCE

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RESIDENTIAL ENGINEERING CONSULTING ENGINEERS 1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064 enquiries@residentialengineering.com.au				UNIT 34/11-21 UNDERWOOD ROAD HOMEBUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No.33493C		A.W. MCCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109		
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A3						SHEET No. 5/10		



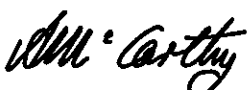
RAINWATER TANK SLAB 'RTS'

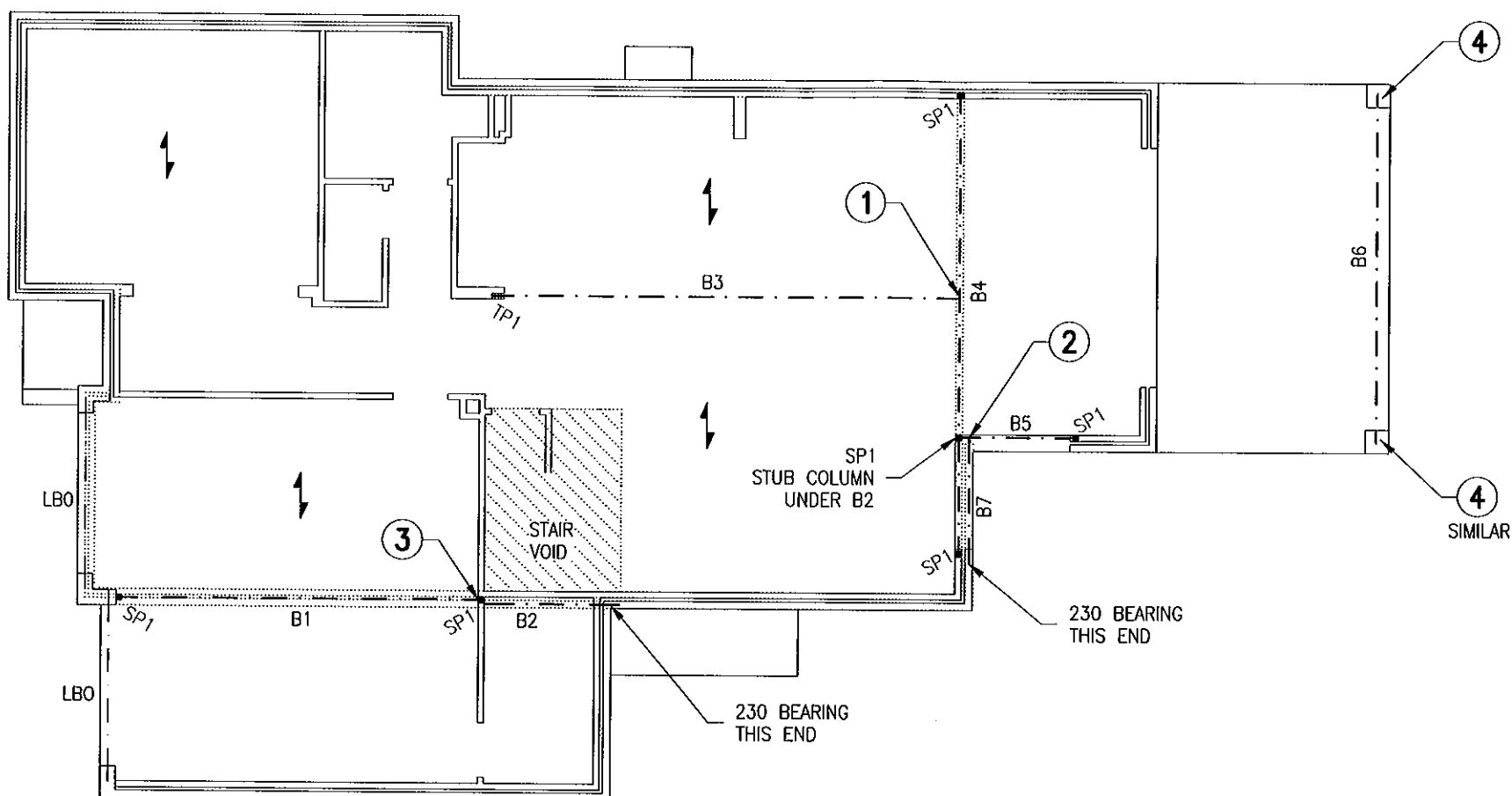


DEEPENED EDGE BEAM ACU PAD

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GROUND FLOOR STEELWORK MARKING PLAN

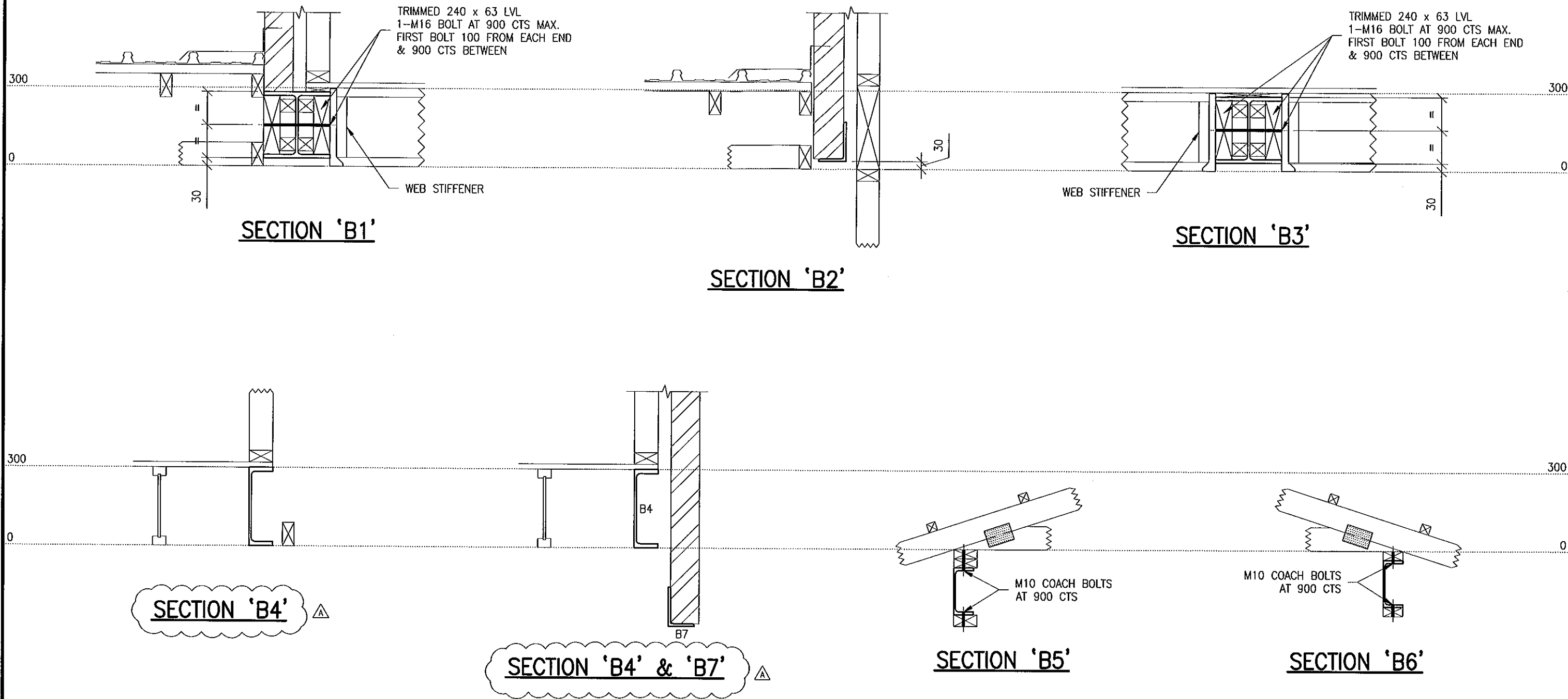
FLOOR JOIST
DIRECTION OVER
BY BUILDER

STEEL BEAM SCHEDULE

ITEM	DESCRIPTION
B1	250UC73
B2	150 x 100 x 10 RSA
B3	250UC73
B4	300 BEC
B5	150 x 100 x 10 RSA
B6	150 x 100 x 10 RSA
B7	150 x 100 x 10 RSA
LB0	LINTEL BY OTHERS
SP1	75 x 75 x 4.0 SHS
TP1	4 / 90 x 45 MGP10 STUDS

IF IN DOUBT, CONTACT ENGINEER.

DRAWN	DATE	AMENDMENT	REV	RESIDENTIAL ENGINEERING CONSULTING ENGINEERS		NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	CLIENT: RAWSON HOMES	FOR: MR & MRS TURNBULL	APPROVED BY: <i>A.W. McCarthy</i>	JOB No. RW263	REVISION A
B.K.	22-2-10	B4 ALTERED, DETAILS REVISED TO SUIT	A	1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au		Tel: 02 9896 5494 Fax: 02 9636 1064	UNIT 34/11-21 UNDERWOOD ROAD HOME BUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No. 33493C	SITE ADDRESS: LOT 46 (4) WAKEHURST PARKWAY SEAFORTH	A.W. MCCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	DATE: 11-2-2010 SCALE: 1:100	SHEET No. 7/10
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NOTE:

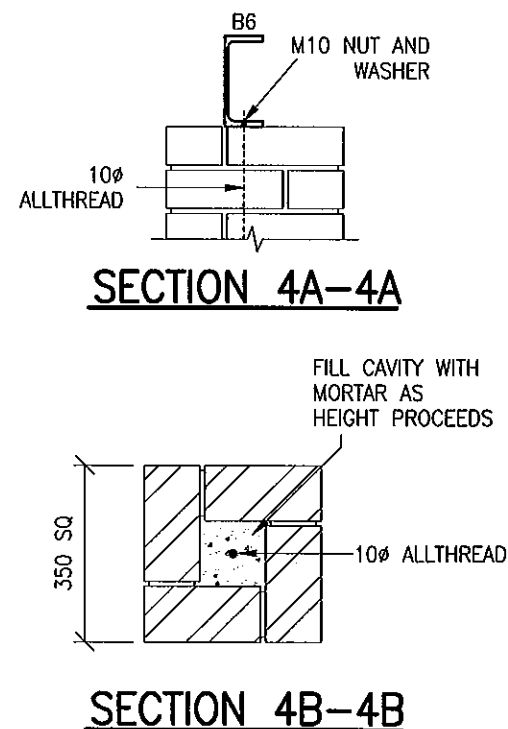
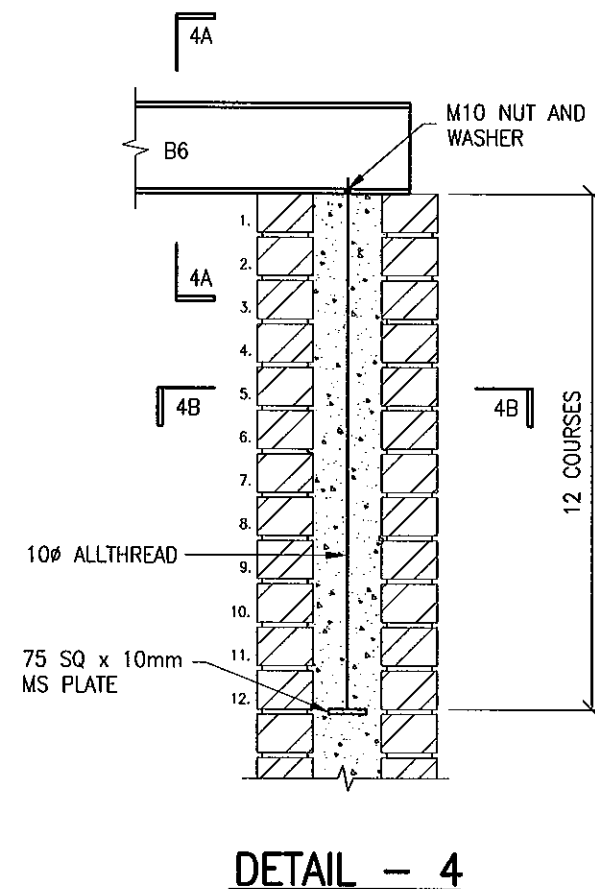
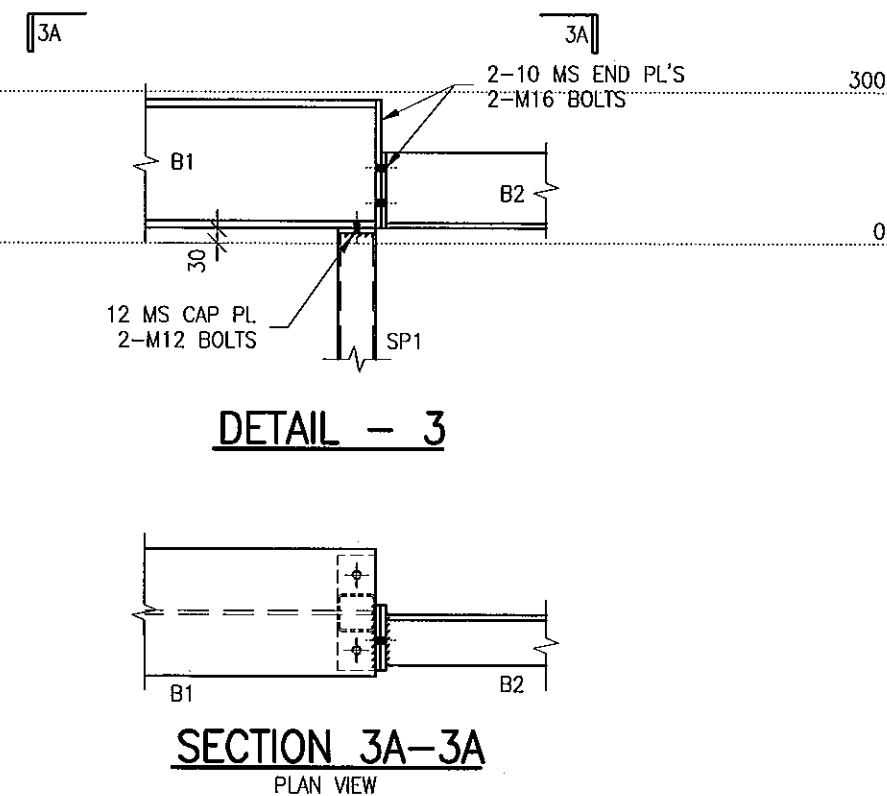
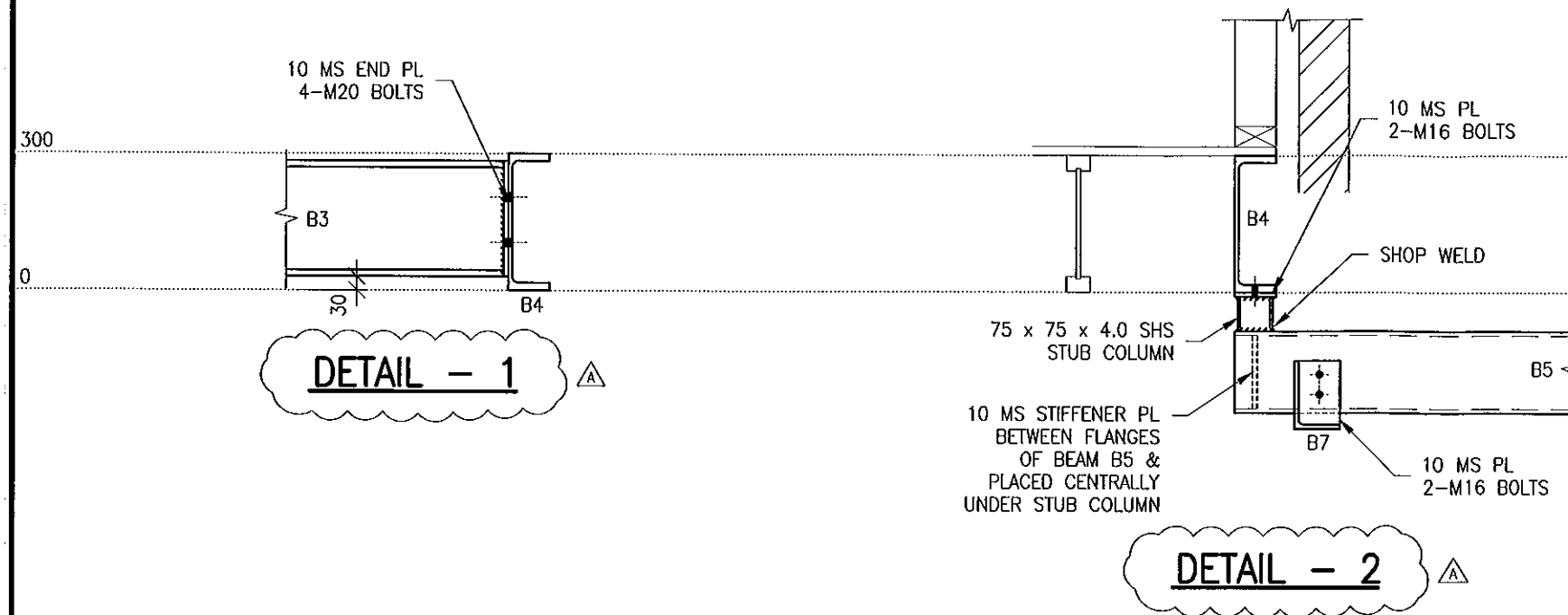
- ALL WELDS TO BE 6mm CFW U.N.O.
- ALL BOLTS TO BE SPANNER TIGHTENED

IF IN DOUBT, CONTACT ENGINEER.

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Certificate as issued by
Fitzgerald Building Certifiers Pty Limited

ALL STEEL BEAM CROSS SECTIONS ARE DIAGRAMMATIC ONLY. REFER TO THE MANUFACTURERS
MANUAL TO DETERMINE CONNECTION DETAILS FOR THE FLOOR JOISTS & ROOF TRUSSES.

DRAWN	DATE	AMENDMENT	REV	 RESIDENTIAL ENGINEERING CONSULTING ENGINEERS 1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064	NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	CLIENT: RAWSON HOMES 	FOR: MR & MRS TURNBULL	APPROVED BY: 	JOB No. RW263	REVISION A	
B.K.	22-2-10	B4 ALTERED, DETAILS REVISED TO SUIT	A		UNIT 34/11-21 UNDERWOOD ROAD HOME BUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No.33493C	SITE ADDRESS: LOT 46 (4) WAKEHURST PARKWAY SEAFORTH	A.W. MCCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	DATE: 11-2-2010 SCALE: 1:15	SHEET No. 8/10		
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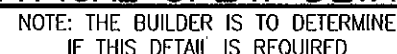
NOTE:

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- ALL BOLTS TO BE SPANNER TIGHTENED

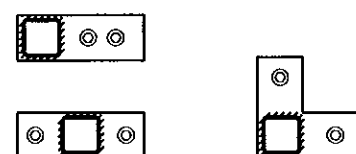
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IF IN DOUBT, CONTACT ENGINEER.

DRAWN	DATE	AMENDMENT	REV	RESIDENTIAL ENGINEERING CONSULTING ENGINEERS		CLIENT:	FOR:	APPROVED BY:	JOB No.	REVISION	
B.K.	22-2-10	B4 ALTERED, DETAILS REVISED TO SUIT	A	 1/19 Jonathan Street Greystanes NSW 2145 www.residentialengineering.com.au enquiries@residentialengineering.com.au Tel: 02 9896 5494 Fax: 02 9636 1064		RAWSON HOMES  UNIT 34/11-21 UNDERWOOD ROAD HOMEBUSH NSW 2140 TELEPHONE 02 9764 6442 FAX 02 9764 6992 Builder's License No.33493C	MR & MRS TURNBULL		RW263	A	
						SITE ADDRESS: LOT 46 (4) WAKEHURST PARKWAY SEAFORTH		A.W. MCCARTHY B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng. NSW: BPB 0255 VIC: EC 24609 QLD: RPEQ 4109	DATE: 11-2-2010	SCALE: 1:15	SHEET No. 9/10
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								CLIENT REF: J001206	DRAWN: B.K.		



- ALL WELDS TO BE 6mm CFW U.N.O.
- ALL BOLTS TO BE SPANNER TIGHTENED



COLUMN BASE PLATE DETAILS

- ORIENTATE BASE PLATE TO SUIT WALL LOCATION
- 12mm THICK BASE PLATE
- 2-M12 DYNABOLTS, 100mm MIN EMBEDMENT
- 6mm CFW CONNECTION OF COLUMN TO BASE PLATE



ALL STEEL BEAM CROSS SECTIONS ARE DIAGRAMMATIC ONLY. REFER TO THE MANUFACTURERS MANUAL TO DETERMINE CONNECTION DETAILS FOR THE FLOOR JOISTS & ROOF TRUSSES.

**RESIDENTIAL
ENGINEERING**
CONSULTING ENGINEERS

NSW: BPB 0255
VIC: EC 24609
QLD: RPEQ 4109

1/19 Jonathan Street
Greystanes NSW 2145

www.residentialengineering.com.au
enquiries@residentialengineering.com.au

Tel: 02 9896 5494
Fax: 02 9636 1064

CLIENT:
RAWSON
HOMES



UNIT 34/11-21 UNDERWOOD ROAD
HOMEBUSH NSW 2140
TELEPHONE 02 9764 6442
FAX 02 9764 6992
Builder's License No.33493C

FOR:
MR & MRS TURNBULL

SITE ADDRESS:
LOT 46 (4) WAKEHURST PARKWAY
SEAFORTH

APPROVED BY:

A.W. McCarthy

A.W. MCCARTHY
B.Sc.(Eng), M.I.E.Aust, N.P.E.R., C.P.Eng.
NSW: BPB 0255
VIC: EC 24609
QLD: RPEQ 4109

JOB No. RW263		REVISION A
DATE: 11-2-2010	SCALE: 1:15	SHEET No. 10/10
CLIENT REF: J001206	DRAWN: B.K.	

GENERAL NOTES:

1. ALL WORKS TO BE IN ACCORDANCE WITH MANLY COUNCIL'S STANDARD SPECIFICATIONS AND TO THE SUPERVISING ENGINEER'S SATISFACTION.
2. THESE PLANS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL PLANS FROM RAWSON HOMES PTY. LTD. JOB No. J001206 REVISION A DATED 10 DECEMBER 2009. (PHONE: (02) 9764 6442).
3. ALL STORMWATER PIPES TO BE 100 DIA UPVC UNLESS NOTED OTHERWISE. PIPES UNDER DRIVEWAY TO BE SEWER GRADE.
4. DEPTH AND LOCATION OF SEWER & SERVICES TO BE CONFIRMED PRIOR TO COMMENCEMENT OF DRAINAGE WORKS.
5. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENTATION CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO COMMENCEMENT OF CONSTRUCTION AND DURING CONSTRUCTION.
6. ENSURE FINISHED GROUND LEVELS ARE SLOPPING AWAY FROM THE DEVELOPMENT & INTO PITS OR YARD SUMPS, AS SHOWN ON THE ATTACHED DRAINAGE PLAN.
7. HYDRAULIC PLANS ARE SUBJECT TO COUNCIL APPROVAL.

CALCULATIONS:

TOTAL SITE AREA = 550.90 m²
TOTAL ROOF AREA INTO RWT = 195.10 m²
TOTAL EXISTING IMPERVIOUS AREA = VACANT BLOCK
EXISTING CONCRETE DRIVE = 47.50 (APPROX.)
TOTAL PROPOSED IMPERVIOUS AREA = 282.50 m² (51%)
(INCLUDING ROOF, GARAGE, DRIVEWAY & PAVED AREA)

BASIX REQUIREMENT:

2000 LITRES CAPACITY RAINWATER TANK FOR 195.10 m² OF ROOF AREA.
PROVIDED 5,000 LITRES CAPACITY RWT FOR TOTAL ROOF AREA.

OSD CALCULATIONS:

MANLY COUNCIL REQUIRES THE FOLLOWING:

A DETAILED STORMWATER MANAGEMENT PLAN SHALL BE PREPARED TO FULLY COMPLY WITH COUNCIL'S "SPECIFICATIONS FOR ON-SITE STORMWATER MANAGEMENT 2003" AND SHALL BE SUBMITTED WITH THE CONSTRUCTION CERTIFICATE APPLICATION.

IT IS A NEW ALLOTMENT CREATED FROM A GREENFIELDS SUBDIVISION - IN THIS CASE, AN OSD SYSTEM SHALL BE REQUIRED FOR ANY DEVELOPMENT ON THIS ALLOTMENT.

USING ILSAX TO CALCULATE OSD VOLUME (REFER TO OSD CALCULATION ATTACHED)
VOLUME REQUIRED = 13.40 m³

EXISTING PSD₅ = 13 l/sec

EXISTING PSD₁₀₀ = 30 l/sec

PROPOSED PSD₅ = 8 l/sec

PROPOSED PSD₁₀₀ = 30 l/sec

ORIFICE = 70 mm

*PROVIDED 5000 LITRES CAPACITY RWT FOR RETENTION SYSTEM.

*PROVIDED 8.40m³ ABOVEGROUND OSD BASIN FOR DETENTION SYSTEM.

IMPORTANT NOTES:

1. SITE INSPECTION WAS CARRIED OUT ON 12 FEBRUARY 2010. THE SITE FALLS TO THE FRONT AND REAR OF THE PROPERTY. THE BEST OPTION FOR OSD SYSTEM IS IN FRONT OF THE PROPERTY TO DRAIN TO WAKEHURST PARKWAY (THIS IS DUE TO LACK OF SPACE AT REAR OF THE PROPERTY).
2. DISCUSSED THE STORMWATER ISSUES WITH COUNCIL'S ENGINEER ON 12 FEBRUARY 2010. THE SITE REQUIRES OSD SYSTEM (GREENFIELDS AREA) AND RAINWATER TANK DESIGN. OSD CALCULATION CAN BE DONE BY USING ILSAX PROGRAM. COUNCIL AGREED THAT THE RAINWATER TANK VOLUME CAN BE FULLY DEDUCTED FROM THE TOTAL OSD VOLUME & THE OUTLET PIPE CAN DRAIN TO WAKEHURST PARKWAY.
3. AN ABOVEGROUND RAINWATER TANK HAS BEEN PLACED ON THE SOUTHERN SIDE OF THE DWELLING WITH TOTAL CAPACITY OF 5000 LITRES TO COLLECT ALL ROOF WATER ONLY FOR RE-USE OF WATER SUCH AS TOILET FLUSHING, LAUNDRY & IRRIGATION SYSTEMS - 100 DIA SEWER GRADE OVERFLOW FROM TOP OF RWT TO BE CONNECTED TO STORMWATER LINE AT 1% MIN FALL (REFER TO DRAINAGE PLAN ON SHEET No.2).
4. AN ABOVEGROUND ON-SITE DETENTION (OSD) SYSTEM HAS BEEN DESIGNED IN FRONT OF THE PROPERTY TO COLLECT PART OF STORMWATER AND THE OVERFLOW FROM TOP OF THE RWT PRIOR TO DISCHARGING TO STREET GUTTER AT 1% MIN FALL. (REFER TO DRAINAGE PLAN ON SHEET No.2).
5. LEVELS ARE CRITICAL. PRIOR TO ANY CHANGES CONTACT ENGINEER.
6. PRIOR TO BACKFILLING STORMWATER PIPES & RETAINING WALL FOR OSD BASIN CONTACT ENGINEER FOR AN INSPECTION.
7. WAE PLANS & COMPLIANCE CERTIFICATE, WILL BE ISSUED AFTER COMPLETION OF ALL WORKS.

This is the plan/spec. referred to in
Fitzgerald Certifiers Certificate
Cert No: CC 2010/126
16.3.10
Paul Fitzgerald Accreditation No. BPB 0119

NASSERI ASSOCIATES

CIVIL, HYDRAULIC & STRUCTURAL ENGINEERING
SUITE 51, No.14 NARABANG WAY, BELROSE 2085
PO BOX 714, BALGOWLAH, NSW 2093
TEL. (02) 9986 3875
FAX. (02) 9986 3876
MOB. 0410 308 064
EMAIL nasseriassociates@bigpond.com

J.NASSERI

BE, FIEAust.,

NPER, CPEng.

16 Feb. 2010.

SYMBOLS & NOTATIONS

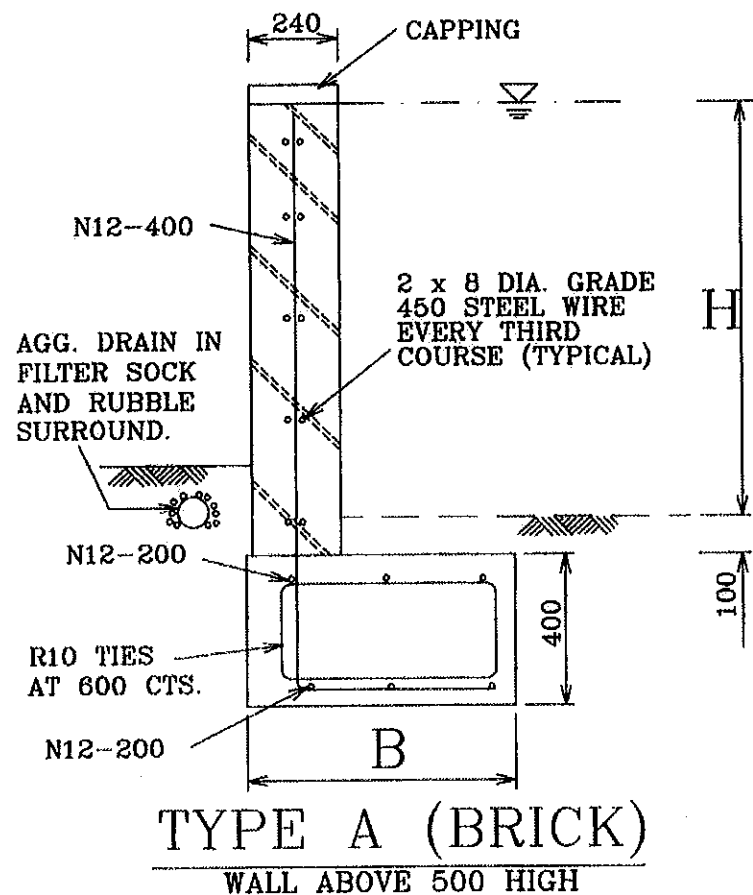
--- STORMWATER LINES	SL FINISHED SURFACE LEVEL
o DOWNPIPE	FFL FINISHED FLOOR LEVEL
o 100 DIA YARD SUMP	FPL FINISHED PLATFORM LEVEL
225x100 GRATED BOX DRAIN	---X--- SEDIMENT CONTROL BARRIER
INV INVERT LEVEL (PIPE / PIT)	--- PROPOSED BOUNDARY
	---S--- SEWER

ISSUE	AMENDMENTS	DATE
CLIENT: RAWSON HOMES (MR & MRS TURNBULL) LOT 46, (H/No.4) WAKEHURST PARKWAY, SEAFORTH		
DESIGNED HA	DRAWN HA	CHECKED JN
SCALE AS SHOWN		

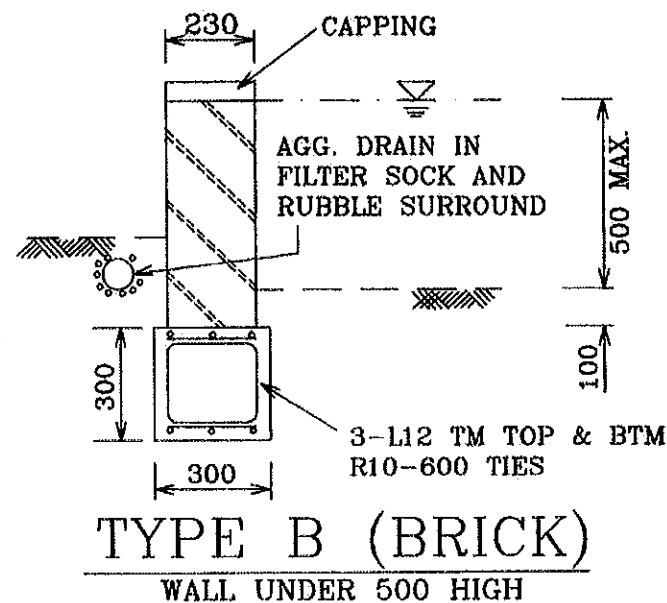
HYDRAULIC DETAILS

NOTES & CALCULATIONS DETAILS

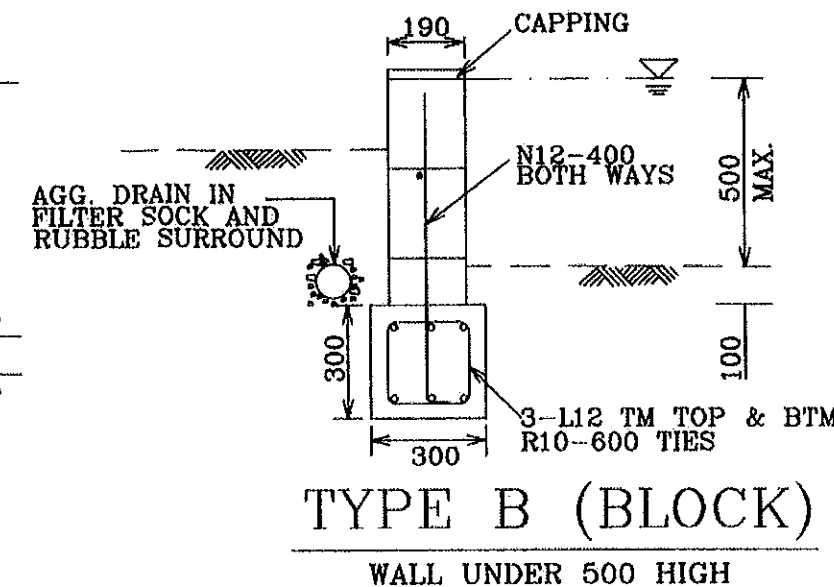
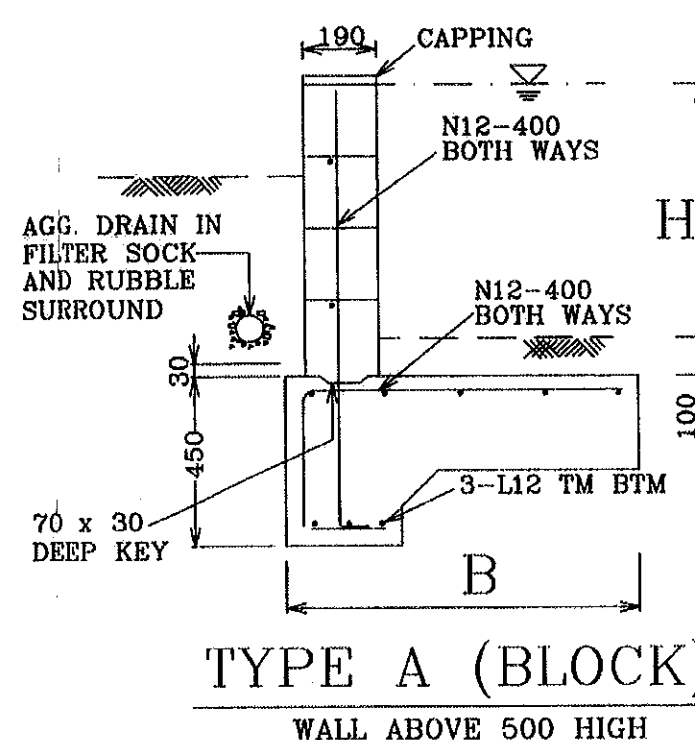
CAD REF. ENG/RAWSON JOB No. D2338 SHEET No. 1



H	1100	800	600
B	700	550	400



H	2000	1600	1200	800	600
B	1200	1000	800	600	500



OPTION 1 BRICK RETAINING WALL SCALE 1:20

OPTION 2 BLOCK RETAINING WALL SCALE 1:20

NOTES FOR RETAINING WALL CONSTRUCTION

- IF WALL IS BELOW 500mm USE TYPE B OTHERWISE TYPE A SHOULD BE USED.
- IT IS IMPORTANT THAT THE BRICK OR BLOCK WALL FOOTING TO BE FOLLOWED ACCORDINGLY.
- LEVELS ARE CRITICAL, PRIOR TO ANY CHANGES CONTACT ENGINEER.
- DURING CONSTRUCTION, PRIOR TO CONCRETE BEING POURED FOR THE FOOTING, ENGINEER MUST INSPECT THE WORKS.

NOTES FOR BLOCK RETAINING WALL

- HOLLOW BLOCKS GRADE 12 (AS 1500), $F'_c = 12\text{MPa}$
- CLEAN OUT ALL CORES.
- MORTAR 1:4 (CEMENT : SAND).
- GROUT ALL CORES, $F'_c = 12\text{ MPa}$, SLUMP 230mm, 10mm MAX. AGG. IN 600mm MAX. LIFTS.
- CONCRETE FOOTINGS $F'_c = 25\text{ MPa}$.
- ALLOWABLE BEARING PRESSURE 150 KPa.

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J. NASSERI
BE, FIEAust.,
NPER, CPENG

16 Feb. 2010.

SYMBOLS & NOTATIONS

--- STORMWATER LINES	SL FINISHED SURFACE LEVEL
o DOWNPIPE	FFL FINISHED FLOOR LEVEL
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UTIL 225x100 GRATED BOX DRAIN	---X SEDIMENT CONTROL BARRIER
INV INVERT LEVEL (PIPE / PIT)	--- PROPOSED BOUNDARY
	---S SEWER

ISSUE	AMENDMENTS	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

CLIENT: RAWSON HOMES (MR & MRS TURNBULL)
LOT 46, (H/No.4) WAKEHURST PARKWAY, SEAFORTH

DESIGNED HA DRAWN HA CHECKED JN SCALE AS SHOWN

HYDRAULIC DETAILS

RETAINING WALL DETAILS

CAD REF. ENG/RAWSON JOB No. D2338 SHEET No. 7