TAKT BUILDING
CERTIFICATE OF AUTHORITY
EXPIRY
ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR

GENERAL

THESE DRAWINGS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES TO BE REFERRED TO THE ENGINEER. ALL DIMENSIONS SHOWN ARE TO BE VERIFIED ON SITE. ENGINEERING DRAWINGS MUST NOT BE SCALED. MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE RELEVANT S.A.A. CODES. BUILDER TO ALLOW FOR SHRINKAGE OF TIMBER IN CONSTRUCTION. PROVIDE 90mm Ø AG DRAINS TO UP STREAM PERIMETER OF ALL BUILDINGS AND CONNECT TO STORMWATER SYSTEM VIA SILT PITS

FOUNDATION NOTES

F1– CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SITE INVESTIGATION REPORT BY: RC ENGINEERING CONSULTANCY, NO. 11469–1 DATED 13TH OCT 2017 THE SITE CLASSIFICATION TO AS2870–2011 IS CLASS 'P/H2' SOLE RELIANCE HAS BEEN PLACED ON THIS REPORT

F2– THE CONTRACTOR IS TO ALLOW IN HIS TENDER FOR ANY ADDITIONAL INVESTIGATIONS NECESSARY TO FURTHER ESTABLISH SITE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL MATERIALS AND CONSTRUCTION TECHNIQUES NECESSARY TO ACHIEVE THE REQUIRED FOUNDATION PARAMETERS.

F3– THE MINIMUM SAFE BEARING CAPACITY OF THE FOUNDATION MATERIAL IS TO BE:

REQUIRED SAFE BEARING CAPACITY	kPa
BORED PIER	160

F4– EXCAVATIONS SHALL BE UNDERTAKEN TO THE MINIMUM DEPTHS NOMINATED AND TO THE LEVEL NECESSARY TO ACHIEVE THE REQUIRED SAFE BEARING CAPACITY, THE CONTRACTOR SHALL ENGAGE A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY AND REPORT ON THE BEARING CAPACITY OF THE EXPOSED FOUNDATIONS.
F5– ANY OVER EXCAVATION NECESSARY TO ACHIEVE THE REQUIRED BEARING CAPACITY SHALL BE BACKFILLEO WITH I5MPa CONCRETE TO THE STRUCTURAL FOOTING LEVEL.

F6– ALL FOUNDATIONS ARE TO BE FREE OF WATER AND LOOSE OR DELETERIOUS MATERIAL PRIOR TO PLACING CONCRETE.

F7– PAD FOOTINGS ARE TO BE FOUNDED 100mm INTO THE NOMINATED MATERIAL UNLESS OTHERWISE NOTED AND PROVIDED WITH A 50mm BLINDING LAYER OF 15 MPa CONCRETE.

F8– STRIP FOOTINGS ARE TO BE FOUNDED 100mm MINIMUM INTO FIRM UNDISTURBED NATURAL MATERIAL AND A MINIMUM OF 800mm BELOW FINISHED SURFACE LEVEL, UNLESS OTHERWISE NOTED.

F9– RAFT SLABS AND SLABS ON GROUND SHALL BE UNDERLAIN BY A HEAVY DUTY SEALED POLYTHENE VAPOUR BARRIER.

F10– BORED PIERS AND PILES ARE TO BE CONSTRUCTED TO WITHIN 75mm OF THE DESIGNATED PLAN LOCATION AND SHALL BE WITHIN 0.5 OF TRUE VERTICALITY. THE CONTRACTOR SHALL ALLOW FOR AND PROVIDE TEMPORARY LINERS AS NECESSARY TO PRESERVE THE INTEGRITY OF THE BORED HOLE PRIOR TO PLACING CONCRETE.

F11– ALL GROUND SLABS ARE TO BE UNDERLAID BY A 50mm MINIMUM DEPTH LEVEL SAND BED.

F12– THE CONTRACTOR SHALL NOTIFY THE PROJECT BUILDING SURVEYOR TO INSPECT ALL FOOTING EXCAVATIONS PRIOR TO POURING.
F13– EXISTING ADJACENT FOOTINGS SHALL NOT BE UNDERMINED. NEW FOOTING FOUNDING DEPTH SHALL MATCH, BUT NOT EXCEED, ADJACENT FOOTING FOUNDING DEPTH. IF REQUIRED FOOTING DEPTH CANNOT BE ACHIEVED, THIS OFFICE SHALL BE NOTIFIED FOR FURTHER GUIDANCE.

F14– CONSTRUCTION OF FOOTINGS AND BASEMENT RETAINING WALLS SHALL BE CARRIED OUT SUCH THAT ADJACENT NEIGHBOURING EARTH IS NOT DISTURBED. REFER TO THIS OFFICE IF FURTHER GUIDANCE IS REQUIRED.

F15– ALL EXISTING ADJOINING PROPERTY FOOTINGS OR STRUCTURES SHALL NOT BE UNDERMINED. ANY EXCAVATION WORKS FOR CONSTRUCTION OF FOOTINGS OR RETAINING WALLS SHALL NOT ENCROACH BEYOND THE 45° LINE OF INFLUENCE.

F16– THE BUILDER SHALL ENSURE THAT STABILITY AND STRUCTURAL INTEGRITY OF ALL EXISTING ADJOINING PROPERTY FOOTINGS AND STRUCTURES ARE MAINTAINED DURING CONSTRUCTION OF ALL FOOTINGS AND BASEMENT RETAINING WALLS AND IN THE PERMANENT STATE.

F17– WHICH EVER IS SHALLOWER. ALTERNATIVELY THESE TREES COULD BE REMOVED OR TREE ROOT BARRIERS PLACED.

F18– DENOTES 3L12TM x 2000 LONG TIED TO UNDERSIDE OF TOP MESH.

GENERAL WAFFLE NOTES

WAFFLE PODS SHOULD NOT BE LEFT UNPROTECTED FOR MORE THAN THREE DAYS OF CONTINUAL WET WEATHER.
A MINIMUM RIB WIDTH OF 110mm MUST BE MAINTAINED WHERE PLUMBING RISERS CLASH WITH RIBS. THIS MAY BE ACHIEVED BY CUTTING END OFF BOXES AND LAPPING REINFORCEMENT.
CONCRETE STRENGTH TO BE F'c=25MPa AND IS TO BE WELL VIBRATED. POUR RIBS AS PART OF SLAB.
THIS DETAIL SHEET SHALL BE READ IN CONDUCTION WITH THE FOOTING PLAN, ARCHITECTURAL DRAWINGS, SOIL REPORT AND AS 2870–2011.

STEELWORK NOTES

S1– ALL MATERIALS, WORKMANSHIP, FABRICATION AND ERECTION SHALL COMPLY WITH AS1538, AS15354, AS3828, AS4100, THE PROJECT SPECIFICATION AND THE REQUIREMENTS OF THE RELEVANT AUTHORITIES.

S2– HOT ROLLED SECTIONS AND PLATE SHALL BE GRADE 300 IN ACCORDANCE WITH AS3679. HOLLOW SECTIONS SHALL BE GRADE 350 1N ACCORDANCE WITH AS1163. PURLINS AND GIRTS SHALL BE ZINCLALUME AND GRADE 450 IN ACCORDANCE WITH AS1538 UNLESS NOTED OTHERWISE ON THE DRAWING.

S3– ALL BOLTS NUTS AND WASHERS SHALL BE GALVANISED UNLESS OTHERWISE APPROVED:
– 4.6/S REFERS TO GRADE 4.6 COMMERCIAL BOLTS TO AS11110 TIGHTENED TO A SNUG TIGHT CONDITION.
– 8.8/S REFERS TO GRADE 8.8 HIGH STRENGTH STRUCTURAL BOLTS TIGHTENED TO A SNUG TIGHT CONDITION.
– 8.8/TB REFERS TO GRADE 8.8 HIGH STRENGTH STRUCTURAL BOLTS TENSIONED AS A BEARING JOINT.
– 8.8/TF REFERS TO GRADE 5.8 HIGH STRENGTH STRUCTURAL BOLTS TENSIONED AS A FRICTION JOINT.
HOLDING DOWN BOLTS NOT TO BE SUBSTITUTED WITH CHEMICAL ANCHORS.

S4– ALL WELDS SHALL BE SP (STRUCTURAL PURPOSE) IN ACCORDANCE WITH AS1554. ALL BUTT WELDS SHALL BE FULL STRENGTH COMPLETE PENETRATION WELDS. ALL ELECTRODES SHALL BE AS PER AS/NZS 4855–B–49XX.

S5– STEELWORK THAT IS TO BE CONCRETE ENCASED, GALVANISED, FIRE SPRAYED OR MATING SURFACES OF FRICTION TYPE JOINTS SHALL BE LEFT UNPAINTED AND CLEARED FREE OF SCALE AND RUST. ALL OTHER STEELWORK SHALL BE SURFACE CLEANED, PRIME COATED IN ACCORDANCE WITH AS2312 TO SUIT SITE EXPOSURE CONDITIONS. UNLESS NOTED OTHERWISE, ALL EXPOSED STEELWORK SHALL BE HOT DIP GALVANISED.

S6– THE CONTRACTOR SHALL PROVIDE ALL CLEATS, TRIMMING ANGLES AND DRILL ALL HOLES NECESSARY FOR SUPPORT AND FIXING OF ALL CLADDING, FLASHING AND OTHER REQUIRED ELEMENTS TO THE STEEL SUCH SECONDARY FRAMING IS NOT NECESSARILY SHOWN ON THE STRUCTURAL DRAWINGS.
S7– ALL TRUSSES, RAFTERS LINTELS AND BEAMS SHALL BE PRE–CAMBERED 2.5mm PER METRE OF LENGTH UNLESS OTHERWISE APPROVED.

S8– UNLESS OTHERWISE DETAILED, ALL CONNECTIONS SHALL DEVELOP THE FULL SHEAR CAPACITY OF THE MEMBER AND CONFORM WITH THE FOLLOWING MINIMUM REQUIREMENTS:
– BASE PLATES 20mm.
– 4No. M24 HO. BOLTS TO BASE PLATE
– GUSSETS AND CLEATS 10mm PLATE.
– 6mm CONTINUOUS FILLET WELDS ALL ROUND.
– 2No. M12 8.8/S BOLTS TO PURLINS AND GIRTS.
– 2No. M20 8.8/S BOLTS FOR MEMBERS UP TO 200mm DEEP.
– MEMBERS OF GREATER DEPTH BOLTED IN ACCORDANCE WITH AISG STANDARD STRUCTURAL CONNECTIONS.

S9– THE CONTRACTOR PRIOR TO CONSTRUCTION SHALL HAVE PREPARED AND CERTIFIED BY AN APPROVED REGISTERED BUILDING PRACTITIONER A DETAILED ERECTION SEQUENCE IDENTIFYING ALL CRANAGE, TEMPORARY BRACING AND SUPPORT REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY, MAINTENANCE AND REMOVAL OF ALL SUCH TEMPORARY WORKS.

S10– THE ENDS OF ALL HOLLOW SECTION MEMBERS ARE TO BE SEALED WITH 6mm PLATE CONTINUOUSLY FILLET WELDED.

S11– THE CONTRACTOR PRIOR TO COMMENCEMENT OF FABRICATION SHALL SUBMIT FOR WITNESSING BY THE ENGINEER A COMPLETE SET OF CHECKED AND INDEPENDENTLY VERIFIED SHOP DRAWINGS.

S12– WELDING SHALL BE PERFORMED BY AN EXPERIENCED OPERATOR IN ACCORDANCE WITH AS1554.

S13– THE CONTRACTOR SHALL ENGAGE THE SERVICES OF AN APPROVED WELDING INSPECTOR AS DESCRIBED IN AS2214 TO INSPECT AND REPORT TO THE PRINCIPAL ON FABRICATION AND ERECTION.

S14– STEELWORK SHALL BE ERECTED IN A SAFE MANNER IN ACCORDANCE WITH THE APPROVED ERECTION SEQUENCE, THE REQUIREMENTS OF THE RELEVANT AUTHORITIES, AS3828 AND UNDER THE SUPERVISION OF SUITABLY QUALIFIED AND EXPERIENCED PERSONNEL.

S15– STEELWORK TO BE CONCRETE ENCASED SHALL BE COMPLETELY WRAPPED WITH FGW41 GIRDER MESH CENTRALLY PLACED. CONCRETE ENCASING TO BE 50mm MINIMUM.

S16– COLUMNS AND MULLIONS SHALL HAVE THEIR BASE PLATES TIGHTLY PACKED WITH 40MPa MORTAR UPON COMPLETION OF LEVELLING AND PLUMBING.

S17– ALL STEELWORK BELOW GROUND OR FINISHED SURFACE LEVEL SHALL BE COATED WITH 2 COATS OF AN APPROVED EPOXY PAINT PROTECTED BY A 75mm COVER OF CONCRETE.

S18– REFER TO CONCRETE SPECIFICATION, NOTES AND DETAILS OF ADDITIONAL REQUIREMENTS FOR SHEAR STUDS AND METAL TRAY DECK FORMWORK.

S19– REFER TO CONSULTANTS DRAWINGS AND SPECIFICATIONS FOR STEELWORK ADDITIONAL TO THAT SHOWN ON THE STRUCTURAL DRAWINGS.

S20– ALL STRUCTURAL STEEL THAT IS TO BE FIREPROOFED SHALL NOT BE PAINTED. STRUCTURAL STEEL NOT REQUIRED TO BE FIREPROOFED SHALL BE SHOP PAINTED WITH AN APPROVED CORROSION RESISTANT PRIMER. STEEL SHALL BE PAINTED IN STRICT ACCORDANCE WITH THE AISC SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. PRIOR TO PAINTING, ALL STEEL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH SSPC–SP3. ALL PAINTS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO THEIR USE.

STRUCTURAL STEELWORK GALVANISING

GV1– ALL EXPOSED STRUCTURAL STEELWORK, BOLTS & FIXINGS ARE TO BE HOT DIP GALVANISED IN ACCORDANCE WITH A54680. STRUCTURAL STEEL ELEMENTS ARE TO HAVE A MINIMUM ZINC MASS OF 600 g/m2. PROVIDE 10mm DIAMETER GALVANISING DRAIN HOLES AS REQUIRED. ALL GALVANISING DRAIN HOLES ARE TO BE PLUGGED WITH SILICONE SEALANT & PAINTED TO MATCH GALVANISED STRUCTURE AFTER ERECTION.
GV2– ANY CHIPS OR FLAKING OF GALVANISING COATING TO STRUCTURAL STEELWORK PRIOR TO OR DURING ERECTION IS TO BE TOUCHED UP WITH TWO COATS OF ZINC RICH PAINT.

GV3– ALL GALVANISED STRUCTURAL STEELWORK IN CONTACT WITH THE GROUND IS TO BE COATED WITH DULUX AMERLOCK 400 TO 100mm ABOVE FINISHED SURFACE LEVEL. REFER MANUFACTURES SPECIFICATIONS FOR APPLICATION.

MASONRY

ARTICULATION JOINTS IN MASONRY WALLS

REFER TO ARTICULATION JOINT PLAN WHICH TAKES PRECEDENCE OVER NOTE BELOW.
ALL MASONRY WALLS SHALL BE ARTICULATED WITH VERTICAL JOINTS AT LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER AND IN ACCORDANCE WITH THE FOLLOWING CRITERIA: THE MAXIMUM DISTANCE BETWEEN ARTICULATION JOINTS SHALL BE TWICE THE HEIGHT OF THE MASONRY WALL PANEL BUT NO MORE THAN 6m. IN ADDITION JOINTS SHALL BE PROVIDED AT ALL LOCATIONS WHERE CONCENTRATION OF STRESS OR VARIATION IN THE DEVELOPMENT OF STRESS MAY OCCUR. FOR EXAMPLE : AT A CHANGE IN WALL HEIGHT (FOR EXAMPLE CHANGE IN STOREY HEIGHT) AT A CONSTRUCTION JOINT IN A SLAB AT WINDOWS AND DOOR OPENINGS AT RETURNS WHICH EXCEED 700mm AT JUNCTIONS OF WALLS CONSTRUCTED FROM DIFFERENT MATERIALS (FOR EXAMPLE, CLAY, CONCRETE ,SAND, LIME OR STONE) BETWEEN SECTIONS OF BUILDING WHICH ARE SUPPORTED ON DIFFERENT FOUNDATION SYSTEMS

MASONRY: BRICKWORK

B1– ALL BRICKWORK AND ITS TESTING SHALL COMPLY WITH THE CURRENT A.S.3700 SAA MASONRY CODE.

B2– THE UNCONFINED COMPRESSIVE STRENGTH OF A BRICK UNIT TO BE MIN. OF 25MPa AND COMPRESSIVE STRENGTH OF MASONRY TO BE A MIN. OF 5.5MPa.

B3– ALL BED AND PERPENDICULAR JOINTS SHALL BE SOLIDLY FILLED WITH MORTAR, WITHOUT FURROWING. TO A NOMINAL THICKNESS OF 10MM JOINTS SHALL BE NOT LESS THAN 6MM NOR MORE THAN 12MM THICK.

B4– THE MORTAR MIX FOR BRICKWORK SHALL BE 1:1:6

B5– BRICK TIES SHALL HAVE A MINIMUM EMBEDMENT OF 50MM IN THE MORTAR JOINT IN EACH LEAF OF BRICKWORK. AND SHALL COMPLY WITH THE REQUIREMENTS OF A.S. 2699 SIZE, TYPE, HORIZONTAL AND VERTICAL SPACING SHALL COMPLY WITH A.S. 3700 SAA CODE CLAUSE 3.8 ALL TIES TO BE GALVANIZED.

B6– ALL WALL TIES MUST BE GALVANISED.

B7– USE MORTAR TYPES M2, M3 OR M4 AS APPLICABLE TO EXPOSURE ENVIRONMENT, IN ACCORDANCE WITH A.S. 3700.

TIMBER:

T1– ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AS1684, AS1720 AND THE VICTORIAN TIMBER FRAMING MANUAL B.C.A. AND ADCM.

T2– ALL SIZES NOMINATED ARE FINISHED DIMENSIONS.

T3– ALL TIMBER IS TO BE SEASONED UNLESS NOTED OTHERWISE.

T4– ALL TIMBER IS TO BE OF A DURABILITY APPROPRIATE TO ITS USAGE AND BE PROTECTED OR PRESERVATIVE TREATED AS SPECIFIED.

T5– ALL BOLTS AND FIXINGS TO BE GALVANISED UNLESS NOTED OTHERWISE.

T6– TOP PLATES ON MASONRY WALLS TO BE TIED DOWN WITH HOOP–IRON STRAPS AT 1200mm CENTRES SECURED INTO FOOTINGS OR EMBEDDED 75mm INTO A MASONRY BED JOINT AT LEAST 1200mm BELOW THE TOP OF THE WALL.

T7– ALL WALLS AND PARTITIONS TO BE SUPPORTED ON BEARERS OR DOUBLE FLOOR JOISTS.

T8– TIMBER FRAMING ABUTTING STEELWORK, MASONRY OR CONCRETE TO BE FIXED AT 900mm CENTRES WITH M12 FASTENERS.

T9– PLYWOOD BRACING TO BE 7mm F11 PLYWOOD FIXED IN ACCORDANCE WITH AS1684. TYPE 'G' BRACING UNIT UNLESS NOTED OTHERWISE TO ACHIEVE 3.4kN/m FOR WALLS UPTO 2700mm HIGH. ALL EDGES OF PLYWOOD ARE TO BE FULLY SUPPORTED. PROVIDE TRIMMERS AT FREE EDGES AND AT SHEET LAPS.

T10– HOOP IRON BRACING TO BE 30mm x 0.8mm GALVANISED STRAP LEVERED TAUT, LOOPED AND TRIPLE NAILED AT ENDS AND SECURED TO EACH INTERMEDIATE MEMBER WITH 3 No. 30mm x 2.8mm GALVANISED CLOUTS.

T11– ALL ROOF MEMBERS TO BE TIED DOWN SUFFICIENTLY TO ENABLE THE FULL MEMBER CAPACITY TO BE GENERATED.

T12– PROPRIETARY ROOF TRUSSES TO BE SPACED AT 900mm CENTRES MAXIMUM UNLESS NOTED OTHERWISE AND PROVIDED WITH ALL SECONDARY FRAMING NECESSARY TO ENSURE THEIR STABILITY. TIMBER PURLINS AND CEILING BATTENS SHALL BE PROVIDED APPROPRIATE TO THE CLADDING MATERIALS AND TRUSS SPACING.

CONCRETE

C1– ALL WORKMANSHIP, MATERIALS AND TESTING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AND AS3600, A COPY OF WHICH SHALL BE MAINTAINED ON SITE AT ALL TIMES.

C2– SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE APPLIED FINISHES. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB DEPTH.

C3– CEMENT SHALL BE "GP" GENERAL PURPOSE PORTLAND CEMENT, GB" GENERAL PURPOSE BLENDED CEMENT, OR "SR' SULPHATE RESISTING CEMENT, AS APPROPRIATE. THE USE OF CHLORIDE ADMIXTURES AND SILICA FUME OR FLY ASH AS CEMENT SUBSTITUTES ARE EXPRESSLY FORBIDDEN.

C4– UNLESS NOTED OTHERWISE, CONCRETE SHALL BE GRADE N32, WITH:
– MINIMUM CEMENT CONTENT OF 320kg/cub.m.
– MAXIMUM WATER CONTENT OF 165 l/ cub.m,
– COARSE AGGREGATE SIZE OF 20mm, AND
– MAXIMUM SHRINKAGE AT 56 DAYS OF 600 MICROSTRAIN.
DETAILS OF ALL PROPOSED MIX DESIGNS SHALL BE FORWARDED TO THE ENGINEER PRIOR TO INCORPORATION IN THE WORKS.

C5– THE CONTRACTOR SHALL GIVE THE ENGINEER 48 HOURS NOTICE OF HIS INTENTION TO POUR CONCRETE AND SHALL ENSURE THAT ALL NECESSARY PREPARATORY WORKS HAVE BEEN UNDERTAKEN BY THIS TIME.

C6– ALL EMBEDMENTS SHALL BE HOT DIP GALVANISED.

C7– CONCRETE SHALL BE THOROUGHLY COMPACTED WITH HIGH FREQUENCY VIBRATORS TO ENSURE A DENSE, HOMOGENEOUS CONCRETE FREE OF AIR VOIDS AND POCKETS.

C8– CONCRETE SHALL BE FINISHED TO ACCORD WITH ARCHITECTURAL REQUIREMENTS AND TO SUIT THE INTENDED PURPOSE OF ITS SURFACE.

C9– CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER.

C10– UNLESS APPROVED OTHERWISE, ALL CONCRETE SHALL BE CURED BY A COVERING OF HESSIAN MAINTAINED CONTINUALLY MOIST FOR SEVEN DAYS.

C11– ALL SHRINKAGE CRACKS SHALL BE MADE GOOD BY FULL PENETRATION EPOXY INJECTION.

C12– ALL CONCRETE ELEMENTS ARE TO BE SEPARATED FROM GROUND CONTACT WITH AN IMPERVIOUS 0.2mm MINIMUM THICKNESS POLYTHENE BARRIER AND SEPARATED FROM MASONRY ELEMENTS WITH 2 LAYERS OR MALTHOID OR SIMILAR APPROVED.

C13– ALL GROUND SLABS ARE TO BE UNDERLAIN BY A 25mm MINIMUM DEPTH LEVEL SAND BED.

C14– CONCRETE PUMP LINES AND SIMILAR SHALL BE ADEQUATELY SUPPORTED TO AVOID DISPLACING, DISTORTING OR DAMAGING REINFORCEMENT, TENDONS, FORMWORK, EMBEDMENTS AND MEMBRANES.

C15– THE CONTRACTOR IS TO VERIFY SET OUT OF ALL CONCRETE ELEMENTS AND EMBEDMENTS PRIOR TO PLACEMENT AND CONFIRM ACCURACY OF SAME IMMEDIATELY CONCRETE HAS SET.

C16– FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610, AND SHALL BE INSPECTED AND CERTIFIED BY THE FORMWORK DESIGN ENGINEER TO VERIFY COMPLIANCE TO AS3610.

C17– NON–PERMANENT FORMWORK SHALL BE COATED WITH AN APPROVED RELEASE AGENT OF A TYPE COMPATIBLE WITH PROPOSED SURFACE FINISHES.

C18– CAMBERS TO FORMWORK SHALL BE AS NOTED ON THE DRAWINGS WITH CONCRETE PLACED TO MAINTAIN THE NOMINATED STRUCTURAL DEPTHS.

C19– MINIMUM STRIPPING TIMES FOR CONCRETE ELEMENTS SHALL BE AS FOLLOWS: WALLS AND COLUMNS – 3 DAYS, PROVIDED THAT CURING IS MAINTAINED FOR A FURTHER 7 DAYS. BEAMS AND SLABS – 7 DAYS, PROVIDED THAT THE FULL SELF WEIGHT AND ANY SUPERIMPOSED LOADS ARE BACKPROPPED AND CURING IS MAINTAINED FOR A FURTHER 7 DAYS.

C20– THE INSTALLATION AND BACKPROPPING OF METAL TRAY DECK FORMWORK SHALL BE IN ACCORDANCE WITH AS3610 AND THE MANUFACTURERS REQUIREMENTS.

C21– SPECIFIC PROPPING REQUIREMENTS FOR COMPOSITE CONSTRUCTION SHALL BE AS NOTED ON THE DRAWINGS.

C22– PROPS TO SLABS AND BEAMS INTENDED TO SUPPORT UNREINFORCED MASONRY WALLS SHALL BE REMOVED PRIOR TO CONSTRUCTION THEREOF.

C23– ALL EXPOSED EDGES SHALL HAVE 15MM CHAMFERS UNLESS NOTED OTHERWISE.

CONCRETE

CONCRETE DESIGN STRENGTHS (F'c AT 28 DAYS) TO BE AS FOLLOWS:
GRADE : 15 MPa FOR BLINDING CONCRETE
GRADE : 20 MPa FOR BORED PIERS
GRADE : 25 MPa FOR RAFT SLABS
GRADE : 25 MPa FOR STRIP FOOTINGS

CLEAR CONCRETE COVER TO REINFORCEMENT, UNLESS NOTED TO BE AS FOLLOWS :

BELOW GROUND :

BEAMS, PEDESTALS & STRIP FOOTINGS :	65
WALLS :	30
PAD FOOTINGS :	75

ABOVE GROUND

COLUMNS : 50 , BEAMS : 25
INTERNAL SLABS : 20, EXTERNAL SLABS : 30

REINFORCEMENT

C24– REINFORCEMENT SHALL BE SUPPLIED AND FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF AS1302, AS1304 AND AS3600 AND THE STANDARDS REFERENCED THEREIN.

C25– COVER TO REINFORCEMENT SHALL BE AS REQUIRED BY AS3600, AS NOTED ON THE DRAWINGS AND AS NECESSARY TO SATISFY THE SPECIFIED FIRE RATING REQUIREMENTS APPROPRIATE TO THE CONCRETE GRADE AND EXPOSURE CLASSIFICATION.
C26– REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.

C27– SPLICES IN REINFORCEMENT SHALL BE AS SHOWN ON THE DRAWINGS OR TO THE APPROVAL OF THE ENGINEER. WELDING OF REINFORCEMENT IS NOT PERMITTED WITHOUT WRITTEN APPROVAL.

C28– ALL REINFORCEMENT SHALL BE SUPPORTED IN ITS CORRECT POSITION BY APPROVED BAR CHAIRS, SPACERS OR SUPPORT BARS AT 900mm CENTRES MAXIMUM AND BE SECURELY TIED IN POSITION TO PREVENT DISLOCATION DURING CONCRETE PLACEMENT.
C29– WHERE REINFORCEMENT IS NOT OTHERWISE DETAILED PROVIDE N12 AT 300mm CENTRES BOTH WAYS TOP AND BOTTOM AND 2 N16 BARS 2000mm LONG DIAGONALLY TOP AND BOTTOM AT OPENINGS AND RE–ENTRANT CORNERS IN SLABS AND WALLS.
C30– ALL ADDITIONAL REINFORCEMENT AS NECESSARY TO FULFIL CONSTRUCTION REQUIREMENTS SHALL BE DETERMINED BY THE CONTRACTOR AND PROVIDED BY HIM AT HIS OWN EXPENSE.

C31– REINFORCEMENT IN ALL STRUCTURES IN CONTACT WITH OR CLOSE TO WATER SHALL BE HOT DIP GALVANISED.

C32– ALL REINFORCEMENT USED SHALL BE 500 MPa AND DUCTILITY CLASS 'N' UNLESS NOTED OTHERWISE

SLAB ON GROUND SPECIFICATION

SUBGRADE PREPARATION :

STRIP THE SURFACE MATERIAL INCLUDING TURF, TOPSOIL AND ALL ORGANIC MATTER TO A MINIMUM DEPTH OF 150mm BELOW NATURAL SURFACE. REMOVE ALL OLD DEBRIS, TREE ROOTS ETC. STOCKPILE TOPSOIL SEPARATELY. THE EXPOSED AREA SHOULD BE PROOF ROLLED TO ENSURE THAT NO LOCALISED SOFT SPOTS EXIST. IF ANY SUCH AREAS ARE REVEALED THEY SHOULD BE MADE GOOD WITH CLEAN GRANULAR FILL COMPACTED TO A DENSITY EQUIVALENT TO THAT SURROUNDING SOIL PRIOR TO PLACING FILL MATERIAL, THE SURFACE OF THE SITE SHALL BE COMPACTED TO 100% STANDARD DRY DENSITY AS MEASURED BY AS1289 AND TESTED AT THE RATE OF ONE TEST PER 100 SQUARE METRES OF SURFACE AREA. FILL MATERIAL, APPROVED BY THE ENGINEER, SHALL BE SPREAD AND COMPACTED, IN UNIFORM LAYERS NOT EXCEEDING 150mm LOOSE DEPTH. THE MINIMUM DEGREE OF COMPACTION OBTAINED SHALL BE 100% OF THE STANDARD DRY DENSITY AS MEASURED OBTAINED BY ASI289. THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADJUSTED DURING COMPACTION AS NECESSARY TO ENSURE THAT THE SPECIFIED COMPACTION IS OBTAINED. THE FILL MATERIAL SHALL BE COMPACTION TESTED AT THE RATE OF ONE TEST PER 100 SQUARE METRES OF SITE AREA PER LAYER OF FILL INDEPENDANT N.A.T.A. TEST REPORTS ARE TO BE SUPPLIED.

SLAB :

MAXIMUM SLUMP 80mm W/C RATIO 0.54. MINIMUM CEMENT CONTENT 310kg/m3. ALL TO BE COMPACTED USING AN IMMERSION VIBRATOR. ALL TO BE CURED USING SAND KEPT MOIST FOR A MINIMUM OF 7 DAYS. A CONTINUOUS POLYTHENE VAPOUR BARRIER 0.2mm THICK SHALL BE PLACED UNDER THE ENTIRE SLAB. ALL JOINTS ARE TO BE TAPED. 50mm SAND BENEATH POLYTHENE THROUGHOUT. ALL PLUMBING PIPES AND DRAINAGE TO BE ARTICULATED OR ISOLATED AT INTERSECTION WITH SLAB AND EXTERNAL WALLS. 40mm COVER TO REINFORCEMENT IN TRENCHES 30mm COVER TO TOP REINFORCEMENT IN SLAB UNLESS NOTED OTHERWISE. NO CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.

GENERAL FRAMING NOTES

FOR ALL OTHER FRAMING REFER TO ARCHITECTURAL DRAWINGS. ALL FRAMING TO BE IN ACCORDANCE WITH AS1684–2010. SPEED BRACING REQUIRED TO ALL RAFTERS. BUILDER TO ENSURE STABILITY OF STRUCTURE DURING CONSTRUCTION. DOUBLE STUD UNDER EACH END OF ALL LINTELS AND BEAMS U.N.O. 110 MIN END BRG. TO ALL STEEL BEAMS U.N.O. ALL OTHER FRAMING NOT SHOWN SHALL BE OBTAINED FROM VICTORIAN TIMBER FRAMING HANDBOOK. BUILDER TO ALLOW FOR LATERAL WALL MOVEMENTS IN CATHEDRAL / RAKED CEILING AREAS

PROPOSED TOWNHOUSE DEVELOPMENT
ADDRESS : 178 BALCKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

STRUCTURAL DRAWINGS LIST

S1	CONSTRUCTION NOTES
S100	GROUND FLOOR SLAB PLAN
S101	FOOTING DETAIL SHEET 1
S102	FOOTING DETAIL SHEET 2
S103	FOOTING DETAIL SHEET 3
S104	FOOTING DETAIL SHEET 4
S200	FIRST FLOOR FRAMING PLAN
S300	ROOF PLAN
S301	FRAMING DETAIL SHEET 1
S302	FRAMING DETAIL SHEET 2
S303	FRAMING DETAIL SHEET 3
S304	FRAMING DETAIL SHEET 3
S400	GROUND FLOOR WALL BRACING & ARTICULATION JOINT PLAN
S500	FIRST FLOOR FRAMING PLAN
S501	BRACING DETAIL SHEET 1
S502	BRACING DETAIL SHEET 2
S600	MEMBER SCHEDULES SHEET 1
S601	MEMBER SCHEDULES SHEET 2

OHS REGULATIONS NOTES

AT ALL TIMES, CONSTRUCTION SHALL BE CONDUCTED IN STRICT ACCORDANCE WITH THE OHS ACT, OHS REGULATIONS AND RELEVANT OHS CODES OF PRACTICE. THESE DRAWINGS MAY ONLY PERTAIN TO THE PERMANENT FINAL STATE OF THE PROPOSED STRUCTURE/CONSTRUCTION. THEY DO NOT NECESSARILY PERTAIN TO THE TEMPORARY STATE OF CONSTRUCTION OR THE CONSTRUCTION WORKPLACE, WHERE THE BUILDER SHALL ARRANGE FOR ALL NECESSARY DESIGN AND SPECIFICATION FOR ANY SUCH TEMPORARY WORKS FOR THE TEMPORARY STATE OF CONSTRUCTION AS REQUIRED, TO ENSURE STRUCTURE STABILITY, PREVENT STRUCTURE OVERSTRESS AND ENSURE WORKPLACE SAFETY, SINCE THESE WORKS DEPEND ON PARTICULAR CONSTRUCTION METHODS ADOPTED BY THE BUILDER eg. TRENCHING, EXCAVATION, PROPPING, SHORING, HANDRAILS, BARRIERS, ERECTION METHODS, PERSONAL PROTECTIVE EQUIPMENT, ETC.

Revision:	Eng:	By	Date:	Issue /Amendment
A	E.S	L.NG	18.12.17	ISSUE FOR CONSTRUCTION

ISSUED FOR CONSTRUCTION

engineering consultancy
Address: L1–U2/1880 HUME HWY CAMPBELLFIELD VIC 3061
Tel: (03) 9357 7744 Email: info@rceng.com.au
Website: www.rcengineeringconsultancy.com.au

PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
CONSTRUCTION NOTES

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: N/A	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S1	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 27/01/2018
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

LEGEND:

- DENOTES 110 BRICKWALL OVER.
- DENOTES STUD WALLS OVER.
- DENOTES SLAB STEP DOWN REF' TO ARCH'S DWGS
- DENOTES SET DOWN IN SLAB
- DENOTES STARTING POINT FOR LAYING OF VOID FORMERS.
- DENOTES 3-L12TM (OR 3/N12, 2000 LONG) TIED TO UNDERSIDE OF TOP MESH. BARS MAY BE DELETED WHERE SLAB MESH LAPS AT INTERNAL CORNERS.
- BP1 – DENOTES MASS CONCRETE 2.3M DEEP BORED PIER.
- DENOTES SHOWER RECESS REF. ARCH DRAWINGS FOR SPECIFICATION.

GROUND FLOOR SLAB PLAN

MEMBER	SIZE
BR1	2/120x45 MGP10 CONTINUE
GFJ1	90x45 MGP10 @600 CTS CONTINUE

PAD/WIDEN/STRIP FOOTING

MARK	SIZE
W1	600x1090x385 MIN DEEP.
PF1	600SQx600 MIN DEEP.
PF2	1300x600x600 MIN DEEP.
SF1	300x600 DEEP 3L12TM BOTTOM

Revision:	Eng:	By	Date:	Issue /Amendment
A	E.S	L.NG	18.12.17	ISSUE FOR CONSTRUCTION

REFER TO DRAWING S1 FOR CONSTRUCTION NOTES

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
GROUND FLOOR SLAB PLAN

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:100	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S100	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 17/01/2018
NUMBER: U 27714-20170702D
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

REFER ALL 'RD', 'RW', 'MFD', 'IFM' TO WAFFLE SLAB TABLE

TYPICAL WAFFLE SLAB CROSS SECTION

TYPICAL SECTION THROUGH WAFFLE SLAB

TYPICAL TIMBER/STEEL COL. TO WIDEN EXT./INT. RIB

WAFFLE SLAB TABLE (P/H2 CLASS)		
GENERAL WAFFLE PARAMETERS		
BOX HEIGHT	(H)	– 300mm
SLAB THICKNESS		– 85mm
INTERNAL RIB WIDTH	(IW)	– 110mm
EXTERNAL RIB WIDTH	(RW)	– 400mm
STEM WIDTH		– 250mm
OVERALL DEPTH	(RD)	– 385mm
RIB SPACING		– 1200 Max. CTS
WIDENED RIB WIDTH	(WR)	– 400mm
REINFORCEMENT		
SLAB MESH		– SL92
INTERNAL RIB		– 1/N12 BAR BOTTOM
		– 1/N12 BAR TOP REF' PLAN FOR LOCATION
EXTERNAL RIB		– 2/4–L12TM BOT. & 4–L12TM TOP.
WIDEN RIB		– 2/4–L11TM BOT. & 4–L11TM TOP.

NOTE: IF THE RIBS ARE WIDENED, ADDITIONAL REINFORCEMENT WILL BE REQUIRED.
REFER TO WIDEN SCHEDULE ON THIS DRAWING.

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FOOTING DETAIL SHEET 1

STRUCTURAL DRAWING

Designed: E.S	Drawn: L.NG	Approved: R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S101	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

NOTE:
ADD 1-N12x1200 LONG BAR FOR EACH CUT WIRE IN EACH DIRECTION FOR SLAB TOP REINFORCEMENT

IN THE EVENT THAT THA SLAB MESH NEEDS TO BE CUT DUE TO PIPE PENETRATION, PROVIDE A 600x600 OFF CUT OF MESH, LAP & TIE TO UNDERSIDE OF SLAB MESH.

SLAB PIPE PENETRATION DETAIL

TYPICAL FOOTING INTERSECTION/CORNER DETAIL

BASE PLATE INTERNAL BASE PLATE ON SLAB EDGE

PROVIDE MINIMUM EDGE DISTANCES TO BOLTS (REFER MANUFACTURER'S DETAILS)
PROVIDE 20mm NON-SHRINK GROUT UNDER BASE PLATES

STEEL COLUMN BASE PLATE DETAIL

DEPTH OF TRENCH BELOW SLAB OR FOOTING (mm) 'H'	BACKFILL MATERIAL
H<300	COMPACTED SITE DERIVED FILL
300>H<800	COMPACTED GRANULAR FILL
H<800	3%CEMENT STABILIZED SAND

NOTE :
SITE DERIVED FILL TO BE WELL COMPACTED IN NOT MORE THAN 0.15 m LAYERS BY A MECHANICAL ROLLER TO 95% MINIMUM RELATIVE MODIFIED COMPACTION . CLAY FILL SHALL BE MOIST DURING COMPACTION .

TYPICAL DETAIL WHERE NEW OR EXISTING SERVICES PIPE PASSES BENEATH SLAB.

N.T.S

TYPICAL DETAIL WHERE NEW OR EXISTING SERVICES PIPE PASSES BENEATH FOOTINGS

N.T.S

TYPICAL PIPE PENETRATION DETAIL

N.T.S

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FOOTING DETAIL SHEET 2

STRUCTURAL DRAWING

Designed: E.S	Drawn: L.NG	Approved: R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S102	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT

ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0

RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

TYPICAL SEWER EDGE BEAM DETAIL
N.T.S

TYPICAL FINAL SITE DRAINAGE
WHERE APPLICABLE
N.T.S

NOTE:
UNLESS NOTED OTHERWISE, WHERE A NEW FOOTING IS LOCATED CLOSE TO AN EXCAVATION, BATTER, EXISTING FOOTING, EXISTING SERVICE OR NEW SERVICE WHICH IS DEEPER THAN THE NEW FOOTING, THE EXCAVATION FOR THE NEW FOOTING SHALL BE DEEPENED AND BACKFILLED WITH BLINDING CONCRETE AS INDICATED BELOW.

CONTRACTOR TO MAINTAIN STABILITY OF ALL WORKS AND EXISTING BUILDINGS AT ALL TIMES.

TYPICAL FOOTING NEAR SERVICE PIPE DETAIL
N.T.S

MESH TO BE LAPPED AS SHOWN ABOVE

MESH LAPPING

STAGGER SPLICES. DO NOT ALLOW MORE THAN 3 BUNDLED BARS IN ANY LOCATION.

2 LAYERS OF REINFORCEMENT PLACEMENT REQUIREMENT

RE – ENTRANT CORNER REINFORCEMENT DETAIL
N.T.S

FLEXIBLE SERVICE PIPING VERTICALLY THROUGH SLAB
N.T.S

REINF'T BAR	N12	N16	N20	N40
LAP LENGTH	400	600	700	800

REINF'T BAR LAPPING

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FOOTING DETAIL SHEET 3

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S103	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 17/01/2018
NUMBER BS-U 27714-201[illegible]02/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

TYPICAL PERIMETER FOOTING DETAIL

TYPICAL INTERNAL FOOTING DETAIL

SHOWER RECESS

SECTION G1 S100

SECTION G2 S100

SECTION G3 S100

Revision:	Eng:	By	Date:	Issue /Amendment
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Tel: (03) 9357 7744 Email: info@rceng.com.au
Website: www.rcengineeringconsultancy.com.au

PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FOOTING DETAIL SHEET 4

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S104	Revision: A

MKT BUILDING SURVEYORS PTY LTD BUILDING PERMIT

ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0

RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

LEGEND:

- FL – DENOTES FLOOR LINTEL REFER TO S600
- RL – DENOTES ROOF LINTEL REFER TO S600
- GL – DENOTES GARAGE LINTEL REFER TO S600
- B – DENOTES STRUCTURAL BEAM REFER TO S600
- DS – DENOTES COLUMN/POST REFER TO S601
- DENOTES WALLS UNDER
- DENOTES WALLS OVER
- DENOTES INTERNAL LOAD BEARING WALLS UNDER
- DENOTES BOX GUTTER.
- GT – DENOTES ASSUMED GIRDER TRUSS LOCATION
- INDICATES SPAN OF RAFTER AND FLOORJOIST
- INDICATES EXTENT RAFTER AND FLOORJOIST
- DENOTES SHOWER RECESS REF. ARCH DRAWINGS FOR SPECIFICATION. PROVIDE SEASONED PLATE AS REQUIRED.

FIRST FLOOR & LOWER ROOF PLAN

2/90x45 MGP10 POST UNDER EACH OF ALL LINTELS/ROOF LINTELS & BEAMS UNLESS NOTED OTHERWISE.

RAFTERS NOTE:
SCREW FIX END OF RAFTERS TO WALL (TYP)

PROVIDE MIN 3/90x45 MGP10 UNDER ALL GT & TG

TRUSS MANUFACTURER TO ACCOMODATE FOR SOLAR HOT WATER PANELS, SKYLIGHT & A.C UNIT

Revision:	Eng:	By	Date:	Issue /Amendment
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REFER TO DRAWING S1 FOR CONSTRUCTION NOTES

ISSUED FOR CONSTRUCTION

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FIRST FLOOR & LOWER ROOF PLAN

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:100	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S200	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT

ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0

RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

TRUSS ROOF TO BE DESIGNED PER ROOF TRUSS MANUFACTURER'S SPECIFICATION.

TRUSS ROOF TO BE DESIGNED PER ROOF TRUSS MANUFACTURER'S SPECIFICATION.

UPPER ROOF PLAN

2/90x45 MGP10 POST UNDER EACH OF ALL ROOF LINTELS UNLESS NOTED OTHERWISE.

LEGEND:

UL — DENOTES UPPER ROOF LINTEL REFER TO S600

GT — DENOTES ASSUMED GIRDER TRUSS LOCATION

— DENOTES WALLS UNDER

PROVIDE MIN 3/90x45 MGP10 UNDER ALL GT & TG

SCREW FIX END TRUSS TO WALL FRAME (TYPICAL)

TRUSS MANUFACTURER MUST CONSIDER ADDITIONAL LOADS FROM SOLAR PANELS DURING THE DESIGN OF ROOF TRUSSES AND DO THEIR OWN ACCOMMODATIONS FOR GT AND POSTS SUPPORTING GT.

COLUMN SUPPORT NOTE:
ALL TIMBER POSTS OR STEEL COLUMNS NOT SUPPORTED BY A BEAM OR LINTEL ARE TO BE SUPPORTED BY AN EQUIVALENT MEMBER DOWN TO GROUND LEVEL REFER TO TYPICAL BLOCKING DETAIL.

TRUSS MANUFACTURER TO ACCOMODATE FOR SOLAR HOT WATER PANELS, SKYLIGHT & A.C UNIT

ROOF TRUSSES TO BE ENGINEERED DESIGN. ROOF TRUSS MANUFACTURER TO INSTALL ALL ROOF BRACING AS REQUIRED, INCLUDING END WEB BRACING FROM ROOF TRUSS TOP CHORDS TO ROOF CEILING LEVEL.

FFL NOTE:
FFL NOTED ON PLAN
INDICATIVE ONLY FOR FFL
REFER ARCHITECTURAL DRAWING

FIRE RATING NOTE:
FIRE RATING OF ALL STEEL COLUMNS AND BEAMS TO ARCHITECT'S/BUILDING SURVEYOR'S/FIRE ENGINEER'S DETAIL AND REQUIREMENTS.

TRUSS DESIGN NOTE:
- ROOF TRUSSES TO MANUFACTURER'S DESIGN & SPECIFICATIONS.
- TWO COPIES OF SHOP DRAWINGS TO BE PROVIDED TO ENGINEER PRIOR TO FABRICATION FOR VERIFICATION OF DESIGN ASSUMPTIONS.
- NO RESPONSIBILITY WILL BE TAKEN IF SHOP DRAWINGS NOT SUPPLIED.
- IT IS THE BUILDER & TRUSS MANUFACTURER'S RESPONSIBILITY THAT ALL GIRDER & TRUNCATED ROOF TRUSSES ARE SUPPORTED ON ADEQUATE SUPPORTS. IF GIRDER & TRUNCATED TRUSSES FALL ON LINTELS OR BEAMS, THE MEMBER SIZES NOMINATED NEED TO BE DOUBLED AND THIS OFFICE NEEDS TO BE NOTIFIED IMMEDIATELY.
- NO RESPONSIBILITY WILL BE TAKEN IF THIS IS NOT DONE.
- TRUSS MANUFACTURER TO ALLOW FOR SKYLIGHTS, SOLAR PANEL AND CONDENSOR REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS.

Revision:	Eng:	By	Date:	Issue /Amendment
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REFER TO DRAWING S1 FOR CONSTRUCTION NOTES

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PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
UPPER ROOF PLAN

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:100	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S300	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

TYPICAL WINDOW DETAIL

TYPICAL WINDOW DETAIL (NO BRICK)

FLOOR JOIST INTO WALL

TYPICAL SUPPORT TO END WALL RUNNING PARALLEL TO FLOOR JOISTS

TYPICAL ROOF BRACING DETAIL

FLOOR JOIST CONNECTION DETAIL

FLOOR JOIST CONNECTION DETAIL

FLOOR JOIST CONNECTION DETAIL

FLOOR JOIST CONNECTION DETAIL

TYPICAL FLOOR JOISTS TO TIMBER BEAM OPTIONAL

FLOOR JOISTS OVER LOAD BEARING WALL

EXTERNAL STUD FRAME TO STEEL/TIMBER BEAM DETAIL

TYPICAL TIMBER BEAM CHAMFER

FLOOR JOIST OVER NON-LOADING WALL DETAIL

TYPICAL FLOOR TO FLOOR TIMBER POST SUPPORT

Revision:	Eng:	By	Date:	Issue /Amendment
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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FRAMING DETAIL SHEET 1

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S301	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 13/01/2018
NUMBER BS-U 27714-20170000
RELEVANT BUILDING SURVEYOR
Mindi Tran
BS-U 27714

TIMBER BEAM TO BRICK PIER DETAIL

T – LINTEL DETAIL

TIMBER BEAM TIE DOWN TO BRICK WALL DETAIL

BOLTS TABLE		
TIMBER BEAM		
BEAM DEPTH	BOLTS	CLEAT/ANGLE SIZE
UP TO 130	2M12 4.6/S	125x75x8UA
140 TO 220	2M16 4.6/S	125x75x8UA
240 TO 350	3M16 4.6/S	125x125x10EA
360 TO 400	3M20 4.6/S	125x125x10EA
TYPICAL FOR ALL CONNECTIONS. UNLESS DETAILED OTHERWISE		

SECTION 1A

SECTION F1 S200

TYPICAL TIMBER BEAM TO STUD DETAILS

BUILDER TO ENSURE 15mm CLEAR DISTANCE BETWEEN TOP & BOTTOM OF STEEL BEAM AND FLOORING/PLASTER.

TIMBER BEAM TO COLUMN TIE DOWN CONNECTION DETAIL

PERSPECTIVE TIMBER BEAM TO TIMBER POST CONNECTION DETAIL

TIMBER BEAM TO LINTEL TIMBER BEAM

HOLDING DOWN DETAIL OF LINTEL TO DOUBLE STUD OR POST

(TIE DOWN DETAIL FOR LINTEL SUPPORTING STEEL DECK ROOF & WALL ONLY)

PERSPECTIVE TIMBER BEAM TO STEEL BEAM CONNECTION DETAIL

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FRAMING DETAIL SHEET 2

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S302	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED UNDER BUILDING
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
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BS-U 27714

TYPICAL STEEL BEAM TO STEEL COL. DETAILS

TIMBER BEAM/LINTEL TO STEEL COL. CONNECTION DETAIL

NOTE 'D' DENOTES BOLT DIAMETER

TYPICAL STEEL BEAM TO SC1 CONNECTION DETAIL

PFC/UB TO STEEL LINTEL CONNECTION DETAIL

TYPICAL TIMBER POST ONTO STEEL BEAM CONNECTION DETAIL

STEEL BEAM TO BRICK WALL CONNECTION DETAIL

STUD WALL TO COLUMN MASONRY WALLS TO SHS POSTS

PERSPECTIVE STEEL BEAM PFC TO SHS CONNECTION DETAIL

PERSPECTIVE STEEL BEAM UB/UC TO SHS CONNECTION DETAIL

PERSPECTIVE STEEL BEAM TO STEEL BEAM CONNECTION DETAIL

TYPICAL TIMBER STUD TO STEEL COLUMN CONNECTION DETAIL

BOLTS TABLE		
STEEL BEAM (UB/UC)		
UP TO 200UB/UC	2M16 8.8/S	10mm THICK
250UB/UC	2M20 8.8/S	10mm THICK
310UB/UC	3M20 8.8/S	12mm THICK
360UB/UC	3M20 8.8/S	12mm THICK
410UB/UC	4M20 8.8/S	12mm THICK
STEEL BEAM (PFC)		
UP TO 230PFC	2M16 8.8/S	10mm THICK
250PFC	2M20 8.8/S	12mm THICK
300PFC	3M20 8.8/S	12mm THICK
380PFC	3M20 8.8/S	16mm THICK
TYPICAL FOR ALL CONNECTIONS. UNLESS DETAILED OTHERWISE		

Revision:	Eng:	By	Date:	Issue /Amendment
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PROJECT:
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178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FRAMING DETAIL SHEET 3

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S303	Revision: A

MKT BUILDING SURVEYORS PTY LTD
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RELEVANT BUILDING SURVEYOR
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BS-U 27714

DETAIL D1 S200

DETAIL D2 S200

DETAIL D3 S200

DETAIL D4 S200

DETAIL D5 S200

DETAIL D6 S200

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FRAMING DETAIL SHEET 4

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S304	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT

ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0

RELEVANT BUILDING SURVEYOR
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BS-U 27714

LEGEND:

TS2x2400 – DENOTES VERTICAL BRACING "METAL STRAP–TENSIONED" REFER TO S501 (2400 DENOTES BRACED LENGTH)

PB2x2700 – DENOTES VERTICAL BRACING "PLYWOOD" REFER TO S501 (2700 DENOTES PLYWOOD SHEET LENGTH)

PB1x2700 – DENOTES VERTICAL BRACING "PLYWOOD" REFER TO S501 (2700 DENOTES PLYWOOD SHEET LENGTH)

TS1x2400 – DENOTES VERTICAL BRACING "METAL STRAP–TENSIONED" REFER TO S501 (2400 DENOTES BRACED LENGTH)

GROUND WALL BRACING

Revision:	Eng:	By	Date:	Issue /Amendment
A	E.S	L.NG	18.12.17	ISSUE FOR CONSTRUCTION

REFER TO DRAWING S1 FOR CONSTRUCTION NOTES

ISSUED FOR CONSTRUCTION

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Tel: (03) 9357 7744 Email: info@rceng.com.au
Website: www.rcengineeringconsultancy.com.au

PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
GROUND FLOOR WALL BRACING

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:100	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S400	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT

ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0

RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

LEGEND:

TS1x2400 – DENOTES VERTICAL BRACING "METAL STRAP–TENSIONED" REFER TO S501 (2400 DENOTES BRACED LENGTH)

PB1x2700 – DENOTES VERTICAL BRACING "PLYWOOD" REFER TO S501 (2700 DENOTES PLYWOOD SHEET LENGTH)

FIRST FLOOR BRACING PLAN

Revision:	Eng:	By	Date:	Issue /Amendment
A	E.S	L.NG	18.12.17	ISSUE FOR CONSTRUCTION

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
FIRST FLOOR BRACING PLAN

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:100	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S500	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
BUILDING PERMIT NUMBER BS-U 27714-170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

PLYWOOD: PLYWOOD SHALL BE NAILED TO FRAME USING 30mmx2.8mm Ø GALVANIZED FLAT-HEAD NAILS OR EQUIVALENT.

MINIMUM PLYWOOD THICKNESS (mm)		
STRESS GRADE	450mm STUD SPACING	600mm STUD SPACING
No nogging (except horizontal butt joints)		
F8	7	9
F11	4.5	7
F14	4	6
F27	3	4.5
One row of nogging		
F8	7	7
F11	4.5	4.5
F14	4	4
F27	3	3

NOTES:

1 FOR PLYWOOD FIXED TO BOTH SIDES OF THE WALL, SEE CLAUSES 8.3.6.5 AND 8.3.6.10. (AS 1684.2-2010.)
2 NO OTHER RODS OR STRAPS ARE REQUIRED BETWEEN TOP OR BOTTOM PLATE.
3 FIX BOTTOM PLATE TO FLOOR FRAME OR SLAD WITH NOMINAL FIXING ONLY. SEE TABLE 9.4 (AS 1684.2-2010.)

PB1 BRACE DETAILS

(BRACING CAPACITY - 3.4 kN/m)

PLYWOOD: PLYWOOD SHALL BE NAILED TO FRAME USING 30X2.8 Ø GALVANIZED FLAT-HEAD NAILS OR EQUIVALENT.
SHEATHING SHALL BE NAILED TO TOP AND BOTTOM PLATES AND ANY HORIZONTAL JOINTS AT 50MM CENTRES.

MINIMUM PLYWOOD THICKNESS, mm		
STRESS GRADE	STUD BRACING (mm)	
	450	600
F8	7	9
F11	6	7
F14	4	6
F27	4	4.5
FASTENER SPACING (s), mm		
TOP & BOTTOM PLATE:	50	
VERTICAL EDGES	150	
INTERMEDIATE STUDS	300	
FIXING OF BOTTOM PLATE TO FLOOR FRAME OR SLAB		
A 13kN CAPACITY CONNECTION AT EACH END AND INTERMEDIATELY AT MAX. 1200mm CENTRES		

NOTE:

FOR PLYWOOD FIXED TO BOTH SIDES OF THE WALL, SEE CLAUSES 8.3.6.5 AND 8.3.6.10. (AS 1684.2-2010.)

PB2 BRACE DETAILS

(BRACING CAPACITY - 6.0 kN/m)

METAL STRAPS - TENSIONED:

TS1 BRACE DETAILS

(BRACING CAPACITY - 1.5 kN/m)

METAL STRAPS - TENSIONED - WITH STUD STRAPS:

TS2 BRACE DETAILS

(BRACING CAPACITY - 3.0 kN/m)

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
BRACING DETAIL SHEET 1

STRUCTURAL DRAWING

Designed: E.S	Drawn: L.NG	Approved: R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S501	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 17/01/2018
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

SPLICE PLATE MUST BE OF SAME SIZE AND STRESS GRADE AS TOP AND BOTTOM PLATES.

SPLICE DETAIL FOR TOP & BOTTOM PLATES

BRACING WALL AT RIGHT ANGLES TO JOISTS

END FIXING OF BOTTOM WALL PLATE TO TIMBER FRAME

BRACING WALL PARALLEL TO JOISTS
(NO STUD WALL UNDER)

WHERE TOP AND BOTTOM PLATES IN BRACED SECTIONS ARE NOT CONTINUOUS THEY MUST BE SPLICED AS SHOWN IN THIS DETAIL

INTERSECTING WALLS

CORNER LOCATIONS

2 NAILS THROUGH EACH STUD TO BLOCKING OR NOGGING.

WALL JUNCTION DETAIL
(APPLIES TO ALL BRACING TYPES)

MASONRY BRICK TO VENEER WALL ARTICULATION JOINT DETAIL

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PROJECT:
PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
BRACING DETAIL SHEET 2

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: 1:20	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S502	Revision: A

MKT BUILDING SURVEYORS PTY LTD
BUILDING PERMIT
ISSUED 20/12/2017
NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

MEMBER SCHEDULE

Mark	Member Size	Comment
UL1	90x45 MGP10	
UL2	140x45 MGP10	
UL3	140x45 MGP10	
~~UL4~~	~~2/190x45 MGP10~~	
UL5	190x45 MGP10	
UL6	90x45 MGP10	
UL7	90x45 MGP10	
UL8	90x45 MGP10	
UL9	90x45 MGP10	
UL10	90x45 MGP10	
RL1	120x45 MGP10	
RL2	120x45 MGP10	
RL3	190x45 MGP10	
RL4	150x75 PFC + 200x8 PLATE — 6 CFW 300 EACH END THEN HIT 150 MISS 150 ALTERNATING EACH SIDE	
RL5	190x45 MGP10	
RL6	90x45 MGP10	
RL7	2/140x45 MGP10	
RL8	140x45 MGP10	
RL9	190x45 MGP10	
GL1	180x75 PFC + 220x10 PLATE — 6 CFW 300 EACH END THEN HIT 150 MISS 150 ALTERNATING EACH SIDE	
GL2	180x75 PFC + 200x10 PLATE — 6 CFW 300 EACH END THEN HIT 150 MISS 150 ALTERNATING EACH SIDE	
GL3	120x45 MGP10	
GL4	90x45 MGP10	
GL5	T SECT WITH A 200x10PL VERT & 200x10PL HOR WELD TOGETHER — 6 CFW 300 EACH END THEN HIT 150 MISS 150 ALTERNATING EACH SIDE	

MEMBER SCHEDULE

Mark	Member Size	Comment
B1	140x45 MGP10	
B2	2/240x45 HYSPAN LVL	
B3	240x45 MGP10	
B4	100x50 PFC	
B5	2/240x45 HYSPAN LVL	
B6	2/300x45 HYSPAN LVL	
B7	2/300x45 HYSPAN LVL	
B8	N.U	
B9	2/300x45 HYSPAN LVL	
B10	250x90 PFC	
B11	2/240x45 HYSPAN LVL	
B12	2/300x45 HYSPAN LVL	
B13	2/400x45 HYSPAN LVL – 4800mm MIN BACK SPAN – 1000mm MAX CANTILEVER	
B14	180x75 PFC	
B15	200x75 PFC	
B16	140x45 MGP10	
B17	240x45 HYSPAN LVL	
B18	250UB37.3	
B19	2/240x45 MGP10	
B20	190x45 MGP10	
B21	2/190x45 MGP10	
B22	2/360x45 HYSPAN LVL – 5000mm MIN BACK SPAN – 1700mm MAX CANTILEVER	
B23	N.U	
B24	2/190x45 MGP10	
B25	2/240x45 HYSPANLVL – 600mm MIN BACK SPAN – 400mm MAX CANTILEVER	

MEMBER SCHEDULE

Mark	Member Size	Comment
RB1	2/290x45 MGP10 – 1400mm MIN BACK SPAN – 2000mm MAX CANTILEVER	
RB2	290x45 MGP10	
RB3	2/90x45 MGP10	
WB1	2/190x45 MGP10	
R1	190x45 MGP10 @ 600 CTS.	
R2	90x45 MGP10 @ 600 CTS.	
WP1	240x45 MGP10–M12 BOLTS 250 CTS	HANG INTO BRICKWALL
O.R1	150x75 PFC	
RWP1	190x45 MGP10 M12 CHEMSET @ 600 CTS.	
RWP2	140x45 MGP10 M12 CHEMSET @ 600 CTS.	
FJ1	300 PRYDA LONGREACH @ 450 CTS MANUFACTURERS DESIGN AND SPECIFICATIONS.	
FJ2	PRYDA LONG REACH @ 450 CTS TO MANUFACTURES DESIGN & SPECIFICATIONS.	
RT	ROOF TRUSS TO MAN. DESIGN & SPEC.	
FL1	2/190x45 MGP10	
FL2	230x75 PFC + 200x10 PLATE — 6 CFW 300 EACH END THEN HIT 150 MISS 150 ALTERNATING EACH SIDE	
FL3	120x45 MGP10	
FL4	200x75 PFC + 200x10 PLATE — 6 CFW 300 EACH END THEN HIT 150 MISS 150 ALTERNATING EACH SIDE	
FL5	N.I.U	
FL6	N.I.U	
FL7	120x45 MGP10	
FL8	190x45 MGP10	

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PROPOSED TOWNHOUSE DEVELOPMENT
178 BLACKSHAWS ROAD
SOUTH KINGSVILLE VIC 3015

DRAWING TITLE:
MEMBER SCHEDULE

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: N/A	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S600	Revision: A

MKT BUILDING SURVEYORS PTY LTD
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NUMBER BS-U 27714-20170702/0
RELEVANT BUILDING SURVEYOR
Minh Tran
BS-U 27714

STEEL LINTEL SCHEDULE SUPPORTING BRICKWORK

SPAN	BRICKWALL HEIGHT OVER LINTEL	
	UPTO 1000mm	UPTO 3000mm
900	90x6 EA	90x6 EA
1200	90x6 EA	90x8 EA
1500	90x6 EA	100x10 EA
1800	100x6 EA	150x90x8 EA
2100	100x8 EA	150x90x10 EA
2400	150x90x8 UA	150x90x16 UA
2700	150x90x10 UA	CONTACT ENGINEER

NOTE:
1. ALL EXTERNAL STEEL LINTELS TO BE HOT DIPPED GALVANISED
2. UNEQUAL ANGLE (UA) SHALL BE PLACE LONG LEG VERTICAL
3. FOR BRICKWORKS UPTO 1000mm END BEARING TO BE 110mm MIN. UNO.
4. FOR BRICKWORKS MORE THAN 1000mm END BEARING TO BE 150mm MIN. UNO.
5. BUILDER TO CHECK ARCHITECTURAL WINDOWN SCHEDULE PRIOR USING THIS TABLE
6. FOR FULL BRICK PROVIDE 2 LINTELS PER WINDOW OPENING, UNO

MEMBER SCHEDULE

Mark	Member Size
DS	DOUBLE 90x45 MGP10
TS	TRIPLE 90x45 MGP10
P1	100x100 (F7) CYPRESS PINE
P2	2 / 90x45 (F17) KDHW
P3	3 / 90x45 (F17) KDHW
C1	89x89x5.0 SHS – C350
SC1	75x75x5.0 SHS – C350

ABBREVIATIONS

SHS	SQUARE HOLLOW SECTION	
RHS	RECTANGULAR HOLLOW SECTION	
CHS	CIRCULAR HOLLOW SECTION	
UB	UNIVERSAL BEAM	
UC	UNIVERSAL COLUMN	
PFC	PARALLEL FLANGE CHANNEL	
EA	EQUAL ANGLE	
UA	UNEQUAL ANGLE	
LLH	LONG LEG HORIZONTAL	
LLV	LONG LEG VERTICAL	

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MEMBER SCHEDULE

STRUCTURAL DRAWING

Designed:	Drawn:	Approved:
E.S	L.NG	R.C.
Scale: N/A	Date: DEC 2017	Status:
Job No: 11469	Drawing No: S601	Revision: A