PROPOSED NEW CONTAINER SHELTER

TYSONS ROAD, TABBITA, NSW, 2652

LOT DP1220512
LOT SIZE - 149000 m^2
LGA: CARRATHOOL SHIRE COUNCIL

STRUCTURAL ENGINEERING DESIGN FOR:

MANILDRA GROUP

STRUCTURAL DESIGN LOADS SUMMARY

THE STRUCTURAL ELEMENTS SPECIFIED IN THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED IN COMPLIANCE WITH THE APPLICABLE AUSTRALIAN STANDARDS AND THE BUILDING CODE OF AUSTRALIA TO ACCOMMODATE THE FOLLOWING LOAD REQUIREMENTS.

1. PERMANENT, IMPOSED & OTHER ACTIONS (#REF - AS/NZS 1170.1:2002)

FLOOR	LIVE LOAD		DEAD LOAD (kPa)
	UDA (kPa)	CA (kN)	
ROOF	0.25	1.10	0.40
FLOOR	-	-	-

2. WIND ACTIONS (#REF - AS/NZS 1170.2:2021)

WIND REGION	A0
IMPORTANCE LEVEL	2
ANNUAL PROBABILITY OF EXCEEDANCE	500 YEARS
ULT. REGIONAL WIND SPEEDS (V_t)	45 m/s
SERV. REGIONAL WIND SPEEDS ($V_{r,S}$)	37 m/s
CRITICAL WIND DIRECTION	WEST
WIND DIRECTION MULTIPLIER (M_d)	1.0
TERRAIN CATEGORY	1.0
TERRAIN/HEIGHT MULTIPLIER ($M_{z,cat}$)	0.91
SHIELDING MULTIPLIER (M_s)	1.0
TOPOGRAPHIC MULTIPLIER (M_t)	1.017
HILL - SHAPE MULTIPLIER (M_h)	1.017
MIN. ULTIMATE SPEED ($V_{des,\theta}$)	41.37 m/s
ULTIMATE WIND PRESSURE ($q_{des,\theta}$)	1.0300 kPa
EQUIVALENT AS 4055:2021 WIND CLASS	N/A

3. SNOW & ICE ACTIONS (#REF - AS/NZS 1170.3:2003)

SNOW ACTION (F_{sn})	N/A
ICE ACTION (F_{ice})	N/A

4. EARTHQUAKE ACTIONS IN AUSTRALIA (#REF - AS/NZS 1170.4:2007)

IMPORTANCE LEVEL, TYPE OF STRUCTURE	N/A
PROBABILITY FACTOR (k_p)	N/A
HAZARD FACTOR (Z)	N/A
SITE SUB-SOIL CLASS	N/A
STRUCTURE HEIGHT (h_n)	N/A
EARTHQUAKE DESIGN CATEGORY	N/A

5. CLIMATE (#REF - abcb.gov.au/resources/climate-zone-map *)*

CLIMATE ZONE	4 - HOT DRY SUMMER, COOL WINTER
DEPTH OF DESIGN SUCTION CHANGE (Hs)	3.0 m

6. RETAINING WALL (#REF - AS/NZS AS4678:2002)

SURCHARGE PRESSURE	N/A

SHEET NUMBER	SHEET TITLE
S00	STRUCTURAL ENGINEERING COVERSHEET
S01	FOOTING PLAN
S02	STRUCTURAL MEMBER PLAN
S03	STRUCTURAL MEMBER DETAILS
S04	GENERAL NOTES

THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTS. THE STRUCTURAL DESIGN IS BASED ON ALL DIMENSIONS AND GUIDANCE PROVIDED BY MANILDRA GROUP.

CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

FOR CONSTRUCTION

SJL CONSULTING ENGINEERS

Principal: Shane Lutze
B.Eng [Mech] - M.Eng.Sci [Struct]
MIEAust - NER (Mech & Struct): 7120849
RPE QLD (Mech & Struct): 28994
RPE VIC (Mech & Struct): PE0010096
RPE TAS (Mech & Struct): 708732979

Ph: +61 411 981 094
Email: shane@sjlconsulting.com.au

SJL Consulting Engineers Pty Limited
ABN: 20 651 944 151

PROJECT
PROPOSED CONTAINER SHELTER

CLIENT
MANILDRA

TYSON ROAD, TABBITA, NSW, 2652

DRAWING TITLE
STRUCTURAL ENGINEERING COVERSHEET

SCALE
AS SHOWN

PROJECT ID
24001A

REVISION
IFC

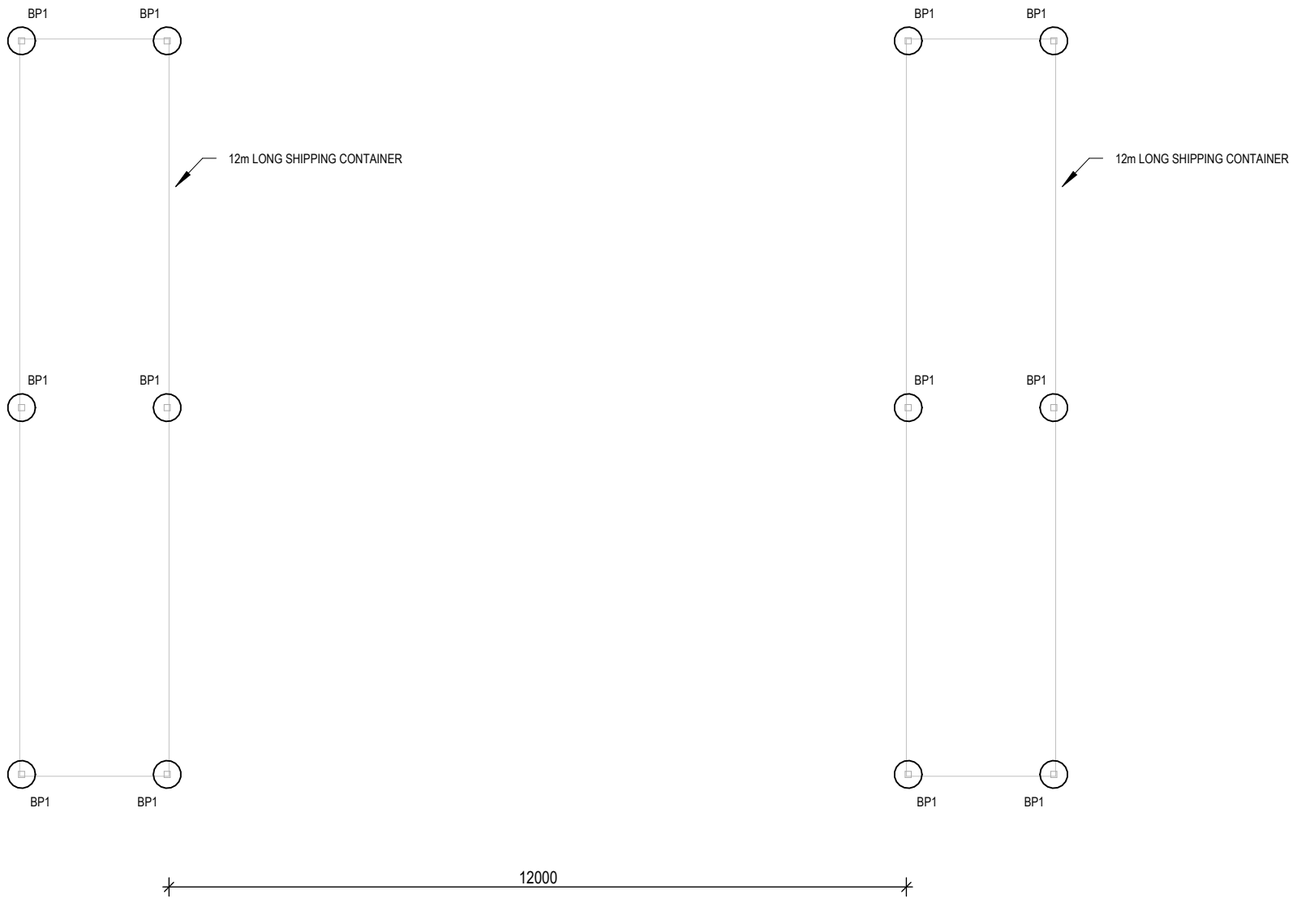
DRAFT BY: **ODG/IJM**

ENG BY: **ODG**

VERIFIED BY: **SJL**

ISSUE	AMENDMENT	DATE
A	ISSUED FOR CLIENT REVIEW	09.04.24
IFC	ISSUED FOR CONSTRUCTION	12.04.24

DRAWING NO.
S00



1 FOOTING PLAN

1 : 100

CONCRETE SLAB & FOOTING SPECIFICATIONS

CONSTRUCTION DESIGN - CONTAINERS SHED ON CONCRETE BORED PIERS FOR H1-D SITE.

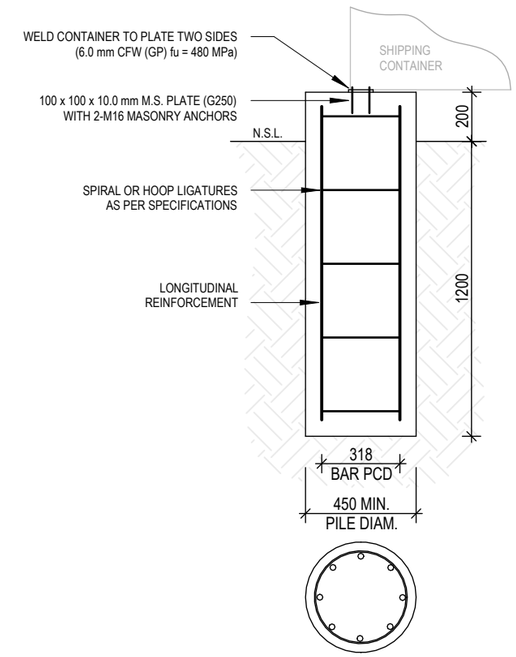
SOIL CLASSIFICATION BASED ON CLAUSE 2.2 AS2870-2011 *"INTERPRETATION OF PERFORMANCE OF EXISTING FOOTINGS"* AND LOCAL KNOWLEDGE.

FOOTINGS ARE TO BE FOUNDED BELOW THE TOPSOIL/FILL, AND ANY UNCONTROLLED FILL, IF ENCOUNTERED, AND ONTO THE NATURAL BEARABLE MATERIAL @ OR BELOW 1200MM. THE FOOTING DESIGN ASSUMES THAT THE BEARING CAPACITY OF THE SOIL IS 100kPa AT THE ABOVE DEPTH.

CONCRETE STRENGTH:	25 MPa
PIER SPECIFICATIONS:	BP1 - 450 DIAMETER x 1200 MIN. DEPTH, 8N12 WITH R10 TIES @ 300CTS MAX.

NOTES AND SPECIFICATIONS:

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT SAA CODE AS3600 CONCRETE STRUCTURES, AND AS 2159 PILING – DESIGN AND INSTALLATION WITH AMENDMENTS.
2. ALL CONCRETE TO HAVE A MINIMUM CHARACTERISTIC STRENGTH OF 25MPA.
3. MINIMUM CLEAR CONCRETE COVER TO BE 65MM.
4. ALL CONCRETE SHALL BE PLACE AND VIBRATED TO OPTIMUM COMPACTION.
5. PILE CASINGS TO BE USED FOR CONSTRUCTIONS PURPOSES WHERE REQUIRED.
6. REINFORCEMENT IS TO BE APPROPRIATELY SUPPORTED DURING CONCRETE CURING AND IS TO BE LOCATED IN THE CENTER OF THE PILE NOT MORE THAN 150MM ABOVE THE PILE BASE.
7. ALL REINFORCEMENT IS TO BE MINIMUM 500PLUS REBAR AND IS TO CONFORM TO THE REQUIREMENTS OF AS 4671 STEEL REINFORCING MATERIALS.
8. SPIRAL LIGATURE TO BE ANCHORED AT EACH END BY ONE AND ONE HALF FULL TURNS OF THE HELIX.
9. LONGITUDINAL REINFORCEMENT TO BE 100MM CLEAR OF PILE ENDS I.E. OVERALL CAGE LENGTH TO BE 200MM LESS THAN PILE DEPTH.
10. CONCRETE TO BE POURED ON THE SAME DAY AS THE DRILLING OF THE PILE.
11. ALL HOLD DOWN BOLTS TO BE MINIMUM GRADE 4.6 PLACED CENTRALLY WITHIN THE PILE.
12. THE CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR ALL DIMENSIONS.
13. THE SOIL TYPE IS THE MINIMUM SOIL TYPE ENCOUNTERED BELOW AN ALLOWANCE OF 500MM TOPSOIL.
14. EXCAVATIONS IN EXCESS OF 600MM ARE NOT TO OCCUR WITHIN 3M OF THE PILE EDGE.



TYPICAL BORED PIER DETAIL

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DRAFT BY: **ODG/IJM**

ENG BY: **ODG**

VERIFIED BY: **SJL**

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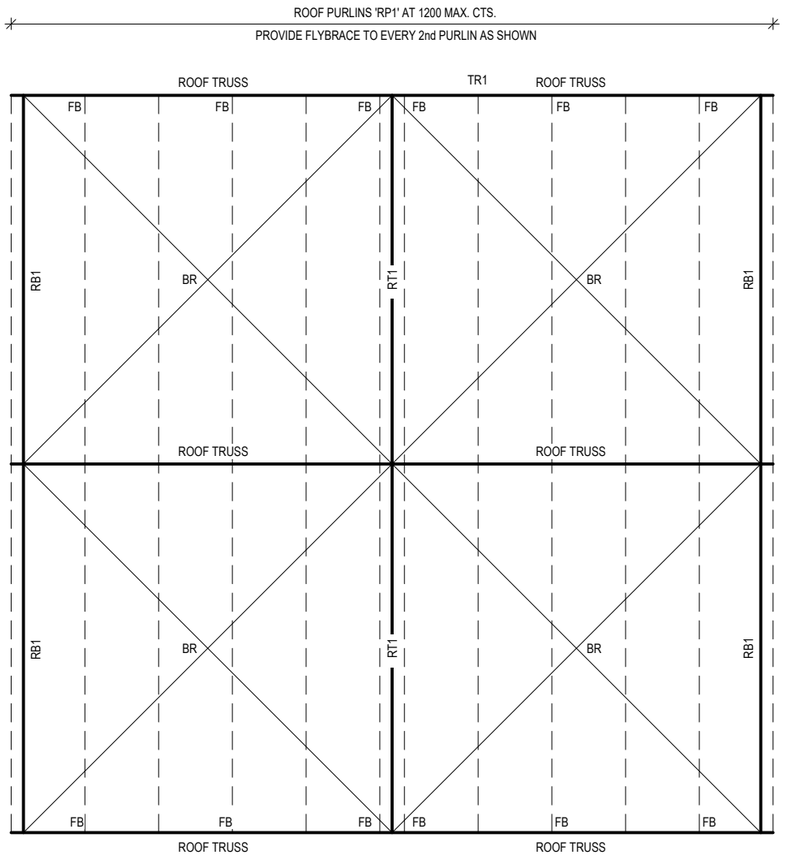
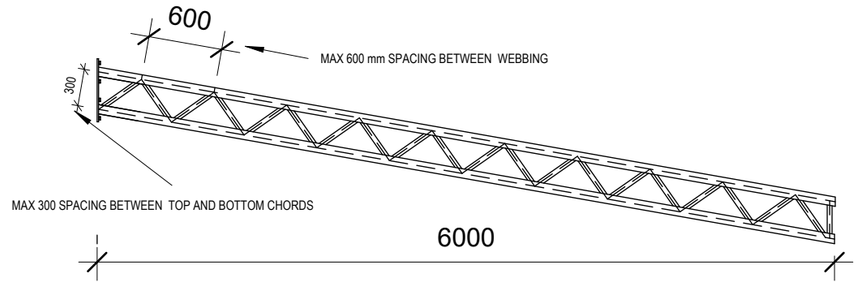
DRAWING NO. **S01**

I.D.	SECTION TYPE	SECTION SIZE	COMMENT
BR	ROOF BRACING	20mm DIAMETER SOLID ROD (G300)	INSTALLED AS PER DETAIL
FB	FLY BRACING	50 x 5.0 EA (G300)	CONNECTIONS AS PER DETAIL
RB1	CONTAINER BEAM	100 x 50 x 5.0 RHS (G350)	CONNECTIONS AS PER DETAIL
RP1	ROOF PURLINS	STRAMIT EC20019	1200 MAX CTS. WITH 1 ROW BRIDGING
RT1	RIDGE TIE	75 x 3.0 SHS (G350)	CONNECTIONS AS PER DETAIL
TRUSS	TOP/BOTTOM CHORDS	75 x 3.0 SHS (G350) AT 300 CTS.	CONNECTIONS AS PER DETAIL
TRUSS	WEBBING	40 x 2.5 SHS (G350)	CONNECTIONS AS PER DETAIL



2 STRUCTURAL MEMBER PLAN

1 : 100



1 TRUSS SECTION

1 : 50

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ENG BY: **ODG**

VERIFIED BY: **SJL**

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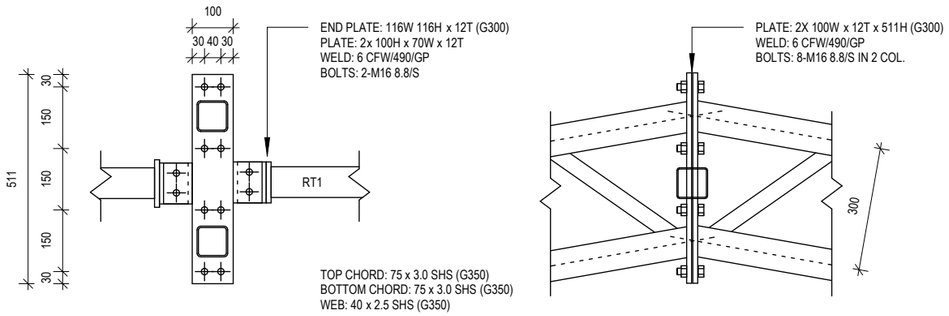
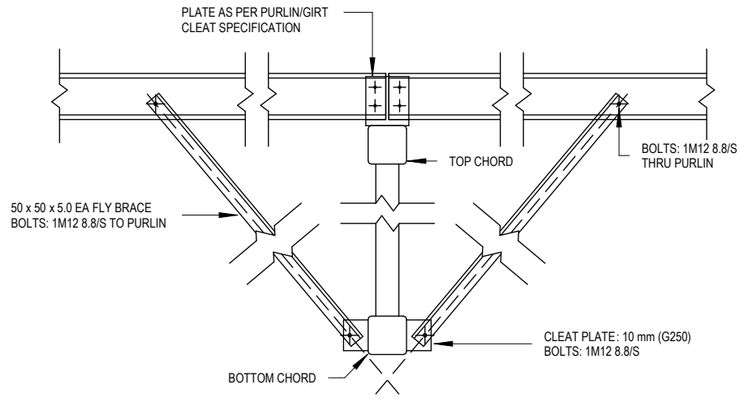
DRAWING NO. **S02**



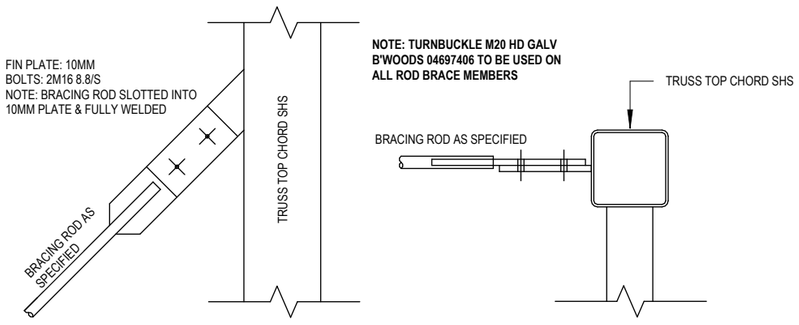
1 TYPICAL APEX CONNECTION

1 : 15



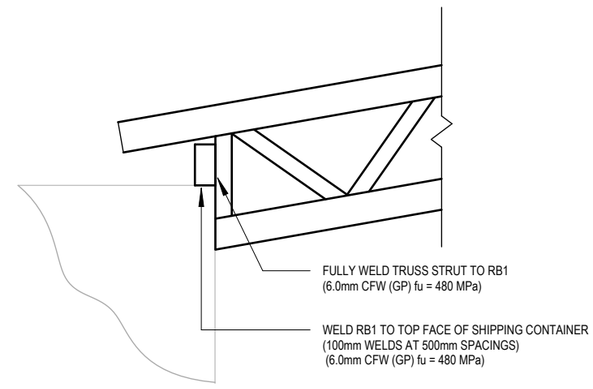
2 FLY BRACE DETAIL

N.T.S.



3 ROD ROOF BRACE DETAIL

N.T.S.



4 CONTAINER CONNECTION

1 : 15

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DRAWING NO. **S03**

GENERAL & LOADING

1. THESE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.

2. SHOULD ANY AMBIGUITY, DISCREPANCY, INCONSISTENCY OR ANOMALY EXIST OR SEEM TO EXIST IN THE STRUCTURAL DRAWINGS PLEASE NOTIFY SJL CONSULTING ENGINEERS FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.

3. CONSTRUCTION USING THESE STRUCTURAL DRAWINGS SHALL NOT COMMENCE UNTIL THE STRUCTURAL DRAWINGS ARE DESIGNATED "FOR CONSTRUCTION" OR "ISSUED FOR CONSTRCTION (IFC)".

4. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS, ALL RELEVANT CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BUILDING CODE OF AUSTRALIA, EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.

5. ALL DIMENSIONS SHOWN ON THESE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE BUILDER FROM SITE MEASUREMENT. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.

6. UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.

7. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT STANDARDS AUSTRALIA CODES AND THE BUILDING CODE OF AUSTRALIA AS PER THE LOADS IN THE STRUCTURAL ENGINEERING DESIGN REPORT.

8. SUPERIMPOSED LIVE LOADS ARE GENERALLY IN ACCORDANCE WITH AS1170.1. WIND LOADS ARE IN ACCORDANCE WITH AS 1170.2. THE RELEVANT PROVISIONS OF AS 1170.4 HAVE BEEN APPLIED.

9. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT OF CONSTRUCTABILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO SJL CONSULTING ENGINERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE BUILDER.

10. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERLOADED. TEMPORARY BRACING SHALL BE PROVIDED BY THE CONTRACTOR IN ORDER TO KEEP THE BUILDING WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

11. NO CHANGES IN ANY STRUCTURAL ELEMENT DOCUMENTED IN THESE STRUCTURAL DRAWINGS SHALL BE MADE WITHOUT REFERENCE TO THE STRUCTURAL ENGINEER. NO SUBSTITUTIONS SHALL BE MADE WITHOUT REFERENCE TO THE STRUCTURAL ENGINEER.

12. PROPRIETARY ITEMS WHERE SPECIFIED ON THE STRUCTURAL DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN RECOMMENDATIONS.

13. THE STRUCTURAL ENGINEER ACCEPTS NO RESPONSIBILITY FOR ANY WORKS NOT INSPECTED OR NOT APPROVED BY THE STRUCTURAL ENGINEER DURING CONSTRUCTION.

14. A MINIMUM OF FORTY EIGHT (48) HOURS NOTICE IS REQUIRED FOR ALL ENGINEERING INSPECTIONS.

15. U.N.O. DENOTES UNLESS NOTED OTHERWISE.

PILING

1. ALL PILES/BORED PIERS SHALL BE INSTALLED IN ACCORDANCE WITH AS2159, 'PILING - DESIGN AND INSTALLATION'.

2. IF THE POSITION OF ANY PILE/BORED PIER REQUIRES ALTERATION, SJL CONSULTING ENGINEERS MUST BE CONSULTED PRIOR TO COMMENCEMENT OF FUTURE WORK.

FOUNDATIONS

1. FOOTINGS HAVE BEEN DESIGNED TO AS3600.

2. FOOTINGS CONSTRUCTION SHALL COMPLY WITH AS3600 AND AS2870.

3. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH "*INTERPRETATION OF PERFORMANCE OF EXISTING FOOTINGS*" AND LOCAL KNOWLEDGE.

4. FOOTINGS SHALL BE LOCATED CENTRALLY UNDER COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.

5. FOOTINGS SHALL BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID EITHER SOFTENING OF THE FOUNDING MATERIAL OR DRYING OUT BY EXPOSURE.

6. EXCAVATE FOR FOOTINGS TO THE NOMINATED SIZE AND DEPTH. FOOTING FOUNDING MATERIALS AND LEVELS ARE PROVISIONAL AND ARE SUBJECT TO ACTUAL SITE CONDITIONS AND APPROVAL BY THE GEOTECHNICAL ENGINEER. (SEE NOTE 4 ABOVE). FOUNDING MATERIAL SHALL BE INSPECTED AND APPROVED BEFORE PLACING MEMBRANES OR REINFORCEMENT OR CONCRETE.

7. FOOTING EXCAVATIONS MUST BE FREE OF LOOSE EARTH, TREE ROOTS, MUD OR DEBRIS IMMEDIATELY BEFORE POURING CONCRETE.

8. FOOTINGS SHALL BE LAID ON A 0.2 mm POLYTHENE MEMBRANE, CONTINUOUS, LAPPED 200 mm MINIMUM AND TAPED AT JOINTS, PUNCTURES AND SERVICE AND PIPE PENETRATIONS. MEMBRANE TO EXTEND UNDER AND TO THE SIDES OF ALL SLABS, BEAMS AND THICKENINGS.

FORMWORK

1. THE DESIGN, CERTIFICATION, CONSTRUCTION, INSPECTION AND PERFORMANCE OF THE FORMWORK AND FALSE WORK SHALL BE THE RESPONSIBILITY OF THE FORMWORK SUB-CONTRACTOR; EXCEPT TO THE EXTENT THAT FORMWORK DESIGN IS SHOWN ON THE STRUCTURAL DRAWINGS.

2. FORMWORK SHALL BE CERTIFIED BY A STRUCTURAL ENGINEER EXPERIENCED IN FORMWORK DESIGN IN ACCORDANCE WITH WORKCOVER REGULATIONS AND THE WORKCOVER CODE OF PRACTICE.

3. FORMWORK SHALL BE DESIGNED IN ACCORDANCE WITH AS 3610. THE DESIGN SHALL ACCOMMODATE MOVEMENTS AND LOAD RE-DISTRIBUTION DUE TO ANY POST TENSIONING.

4. THE FORMWORK SHALL NOT BE DESIGNED TO RELY ON RESTRAINT OR SUPPORT FROM THE PERMANENT STRUCTURE WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER.

5. DESIGN INFORMATION FOR THE FOUNDATIONS UNDER THE FORMWORK SHALL BE DETERMINED BY THE FORMWORK SUB-CONTRACTOR FROM THE CONDITIONS EXISTING ON SITE AT THE TIME OF CONSTRUCTION. REFER TO THE GEOTECHNICAL REPORT FOR THE SITE.

6. FORMWORK CONSTRUCTION DIMENSIONAL TOLERANCES AND STRIPPING TIMES SHALL COMPLY WITH AS3610 AND AS3600 UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER.

7. FORMED CONCRETE SURFACES SHALL HAVE FORMWORK CLASS 3 AND OFF FORM SURFACE FINISHES IN ACCORDANCE WITH AS3610.

8. DO NOT PLACE PERMANENT LOADS ON THE CONCRETE STRUCTURE UNTIL AFTER FORMWORK AND PROPPING IS REMOVED.

9. BEFORE PLACING REINFORCEMENT IN THE FORMWORK, APPLY A RELEASE AGENT TO THE FACE OF THE FORMWORK COMPATIBLE WITH THE REQUIRED SURFACE FINISH.

10. DIMENSIONAL TOLERANCES SHALL COMPLY WITH AS3610 FOR THE APPROPRIATE FINISH CLASS.

11. CHAMFER RE-ENTRANT ANGLES AND FILLET AT CORNERS BY 25 mm UNO.

12. BEFORE PLACING CONCRETE, REMOVE ALL WATER, DUST, AND DEBRIS FROM THE FORMWORK.

FILL ALL HOLES LEFT BY FORM TIE BOLTS WITH MORTAR MATCHING THE SURFACE COLOUR OF THE FINISHED SURFACE.

CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF AS3600 INCLUDING AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

2. READYMIX CONCRETE SUPPLY SHALL COMPLY WITH AS1379.
3. CONCRETE QUALITY (U.N.O.):
STRENGTH GRADE - AS PER PLANS
SLUMP - 50mm MIN. 80mm MAX.
MAX AGG. SIZE - 20mm
CEMENT TYPE -
MAX W/C RATIO - 0.4
MAX SHRINK STRAIN - 600microns @ 56days
THE NORMAL CLASS CONCRETE (N) SHALL COMPLY WITH THE REQUIREMENTS SETOUT IN AS1379. THE SPECIAL CLASS CONCRETE (S) SHALL COMPLY WITH ALL THE REQUIREMENTS FOR AN EQUIVALENT STRENGTH NORMAL CLASS CONCRETE AS SPECIFIED IN AS 1379 EXCEPT FOR THE PROPERTIES LISTED ABOVE

4. PROJECT ASSESSMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1379. SUBMIT RESULTS OF PROJECT ASSESSMENT TO THE STRUCTURAL ENGINEER.

5. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

6. CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESSES OF APPLIED FINISHES. SIZES SHALL NOT BE CHANGED WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.

7. DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS. SLABS AND BEAMS ARE TO BE POURED TOGETHER UNLESS APPROVED OTHERWISE BY THE STRUCTURAL ENGINEER.

8. ALL EXPOSED CORNERS MINIMUM CHAMFER 20 mm x 45°. INSURE COVER TO REINFORCEMENT IS MAINTAINED.
9. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

10. WHERE NOT SHOWN ON THE STRUCTURAL DRAWINGS CONSTRUCTION JOINTS SHALL BE LOCATED TO THE APPROVAL OF THE STRUCTURAL ENGINEER.

11. CONDUITS, PIPES ETC. SHALL ONLY BE LOCATED IN THE MIDDLE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO THE REINFORCEMENT.

12. SLABS AND BEAMS SHALL BE CONSTRUCTED TO BEAR ONLY ON THE BEAMS, WALLS, COLUMNS, ETC. SHOWN ON THESE STRUCTURAL DRAWINGS. ALL OTHER BUILDING ELEMENTS SHALL BE KEPT 15 mm MINIMUM CLEAR FROM THE SOFFITS OF THE STRUCTURE.

13. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE SHALL BE COMPACTED WITH MECHANICAL VIBRATORS. VIBRATORS SHALL NOT BE USED TO SPREAD CONCRETE.

14. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, OR BY PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAY ON CURING COMPOUNDS THAT COMPLY WITH AS3799 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED (REFER MANUFACTURERS SPECIFICATION). POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE PROTECTED FROM WIND AND TRAFFIC. PVA COMPOUNDS OR BLACK SHEETING IS NOT PERMITTED. SUBMIT DETAILS OF PROPOSED CURING METHOD FOR APPROVAL.

15. CONSTRUCTION SUPPORT PROPPING IS TO BE LEFT IN PLACE WHERE NEEDED TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. ALL BACKPROPPING SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. NO BRICKWORK OR PARTITION WALLS ARE TO BE CONSTRUCTED ON SUSPENDED LEVELS UNTIL ALL PROPPING IS REMOVED AND THE SLAB HAS ABSORBED ITS DEAD LOAD DEFLECTION.

16. MAINTAIN FULL THICKNESS FOR SET DOWNS, DEPRESSED OR SLOPED SLABS U.N.O. SET DOWNS OR FALLS IN SLABS OR BEAMS ARE NOT PERMITTED UNLESS SHOWN ON THESE STRUCTURAL DRAWINGS.

17. DEWATER AS NECESSARY PRIOR TO PLACING CONCRETE. THE SURFACE FINISH OF THE CONCRETE SHALL BE AS SPECIFIED ON THE ARCHITECTURAL DRAWINGS OR PROJECT SPECIFICATION U.N.O.

REINFORCEMENT

1. ALL REINFORCING BARS SHALL BE GRADE D500N TO AS4671 U.N.O. ALL MESH SHALL BE GRADE 500L TO AS4671 AND SHALL BE SUPPLIED IN FLAT SHEETS.
REINFORCEMENT SYMBOLS ARE IN ACCORDANCE WITH AS4671, AS1302 & AS1304.

2. CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE AS FOLLOWS U.N.O.

EXPOSURE CLASSIFICATION TO AS3600 -
CONCRETE GRADE TO AS3600 - AS PER PLANS
FIRE RATING -
MIN. COVER - AS PER PLANS

3. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS. IN EXPOSURE CONDITION B2, C AND SUSPENDED WORK USE ONLY PLASTIC OR CONCRETE CHAIRS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS WITH TIE WIRE.

4. REINFORCEMENT NOTATION SHALL BE AS FOLLOWS IN THE FOLLOWING ORDER
No. OF BARS IN GROUP - BAR GRADE - NOM. BAR SIZE (mm) - SPACING (mm)
FOR EXAMPLE - 17 N20-250

5. THE FIGURES FOLLOWING THE FABRIC SYMBOLS RL, SL, L, TM IS THE REFERENCE NUMBER FOR FABRIC IN ACCORDANCE WITH AS4671.

6. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.

7. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. LAPS SHALL BE IN ACCORDANCE WITH AS3600 AND NOT LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR. LAP REINFORCEMENT AS PER BELOW U.N.O.

N12 - 450
N16 - 675
N20 - 925
N24 - 1200
N28 - 1500
N32 - 1800
N36 - 2100

BASED ON 32 MPa CONCRETE, 50mm COVER, CLASS N REINFORCEMENT AND LESS THAN 300 mm CONCRETE BELOW BAR.

8. SITE BENDING OF REINFORCING BARS SHALL BE DONE WITHOUT HEATING USING MECHANICAL BENDING TOOLS.

9. WELDING OR THREADING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THESE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.

10. JOGGLES TO BARS SHALL BE 1 BAR DIAMETER OVER A LENGTH OF 12 BAR DIAMETERS.

11. FABRIC SHALL BE LAPPED 2 TRANSVERSE WIRES PLUS 50mm.

12. BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF TIE WIRE.

13. THE STRUCTURAL ENGINEER SHALL BE GIVEN 48 HOURS NOTICE FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL HAS BEEN OBTAINED FROM THE STRUCTURAL ENGINEER.

COG & HOOKS TO BE STANDARD IN ACCORDANCE WITH AS3600.

STRUCTURAL STEEL

1. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS4100 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS. FABRICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 14 OF AS4100. ERECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 15 OF AS4100.

2. UNLESS NOTED OTHERWISE, ALL STEEL SHALL BE OF THE FOLLOWING GRADE IN ACCORDANCE WITH THE FOLLOWING AUSTRALIAN STANDARDS:

(G300) - UNIVERSAL BEAMS & COLUMNS, PARALLEL FLANGE CHANNELS & ANGLES TO AS/NZS 3679.1
(G300) - WELDED SECTIONS TO AS/NZS 3679.2
(G250) - HOT ROLLED PLATES, FLOOR PLATES AND SLABS TO AS/NZS 3678
(C350) - HOLLOW SECTIONS TO AS 1163
(G450)/(Z350) - COLD FORMED PURLINS & GIRTS TO AS 1397

TEST CERTIFICATES CONFIRMING CONFORMANCE TO THE ABOVE STANDARDS AND GRADES SHALL BE SUPPLIED TO THE STRUCTURAL ENGINEER.

3. THE FABRICATOR SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING OTHER ELEMENTS SHOWN ON ANY OTHER CONSULTANTS DRAWINGS TO THE STEEL WHETHER OR NOT DETAILED ON THE STRUCTURAL DRAWINGS.

4. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEELWORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.

5. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THESE STRUCTURAL DRAWINGS.

6. ALL STEELWORK SHALL BE SECURELY TEMPORARILY BRACED BY THE ERECTOR AS NECESSARY TO STABILISE THE STRUCTURE DURING ERECTION.

7. GROUT STRUCTURAL STEEL COLUMNS WITH AN APPROVED NON-SHRINK GROUT IN ACCORDANCE WITH AS4100.

8. BOLTING CATEGORIES ARE IDENTIFIED ON THESE STRUCTURAL DRAWINGS IN THE FOLLOWING MANNER.

(4.6/S) - COMMERCIAL BOLTS OF GRADE 4.6 TO AS 1111 SNUG TIGHTENED
(8.8/S) - HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 SNUG TIGHTENED
(8.8/TB) - HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 TENSION BOLTED

9. ALL BOLTS SHALL BE M20 CATEGORY 8.8/TB U.N.O.
NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED U.N.O. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER U.N.O.

10. REFER TO CORROSION PROTECTION NOTES FOR SURFACE TREATMENT.

11. ALL WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1554.1. ELECTRODES SHALL BE TO EITHER AS1553, AS1858, AS2203 OR AS2717, AS APPROPRIATE.

12. U.N.O., ALL FILLET WELDS SHALL BE 6mm CONTINUOUS CATEGORY GP USING E41XX ELECTRODES OR EQUIVALENT U.N.O. ALL BUTT WELDS SHALL BE COMPLETE PENETRATION BUTT WELDS CATEGORY GP TO AS1554.1.

THE EXTENT OF NON-DESTRUCTIVE WELD EXAMINATION SHALL BE AS NOTED BELOW.

FILLET WELDS GP,SP - VISUAL INSPECTION - 100% OF TOTAL LENGTH GF WELD
BUTT WELDS GP - VISUAL INSPECTION - 100% OF TOTAL LENGTH GF WELD
BUTT WELDS SP - VISUAL INSPECTION - 100% OF TOTAL LENGTH GF WELD
BUTT WELDS SP - RADIOGRAPHIC OR ULTRASONIC - 10% OF TOTAL LENGTH GF WELD

RADIOGRAPHIC OR ULTRASONIC EXAMINATION SHALL BE TO AS1554.1, AS2177.1 AND AS2207 AS APPROPRIATE.

CORROSION PROTECTION

1. STRUCTURAL STEELWORK NOT ENCASED IN CONCRETE SHALL HAVE THE FOLLOWING CORROSION PROTECTION.

BOLTS, NUTS, WASHERS & H.D. BOLTS.
- HOT DIP GALV. TO AS/NZS 4680

ALL STEELWORK U.N.O.
- REMOVE ALL FABRICATION DEFECTS INCLUDING BUT NOT LIMITED TO; SHARP EDGES AND CORRECTION OF WELDING DEFECTS SUCH AS SPATTER AND ROUGH WELD BEADS. CLEANING SURFACE AS PER AS1627.1
- TO BE HOT DIP GALVANIZED TO AS4680

ALL GALVANISING OF STRUCTURAL STEELWORK SHALL BE TO AS4680. ANY DAMAGE TO GALVANISING TO BE REPAIRED WITH ZINC ALLOY STICK AS PER AS 2312. THE CONTINUOUS AVERAGE ZINC COATING MASS SHALL BE 600g/m^2 (550g/m^2 MINIMUM). ALL PAINTING IS TO BE APPLIED OFF SITE USING METHODS RECOMMENDED BY PAINT MANUFACTURER.

WHERE ONSITE WELDS ARE REQUIRED, ZINC RICH PRIMER TO BE APPLIED TO MANUFACTURERS SPECIFICATIONS.

THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTS. THE STRUCTURAL DESIGN IS BASED ON ALL DIMENSIONS AND GUIDANCE PROVIDED BY MANILDRA GROUP.

CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

FOR CONSTRUCTION

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PROJECT
PROPOSED CONTAINER SHELTER

CLIENT
MANILDRA

TYSON ROAD, TABBITA, NSW, 2652

DRAWING TITLE
GENERAL NOTES

SCALE
AS SHOWN

PROJECT ID
24001A

REVISION
IFC

DRAFT BY: **ODG/IJM**

ENG BY: **ODG**

VERIFIED BY: **SJL**

ISSUE	AMENDMENT	DATE
A	ISSUED FOR CLIENT REVIEW	09.04.24
IFC	ISSUED FOR CONSTRUCTION	12.04.24

DRAWING NO. **S04**