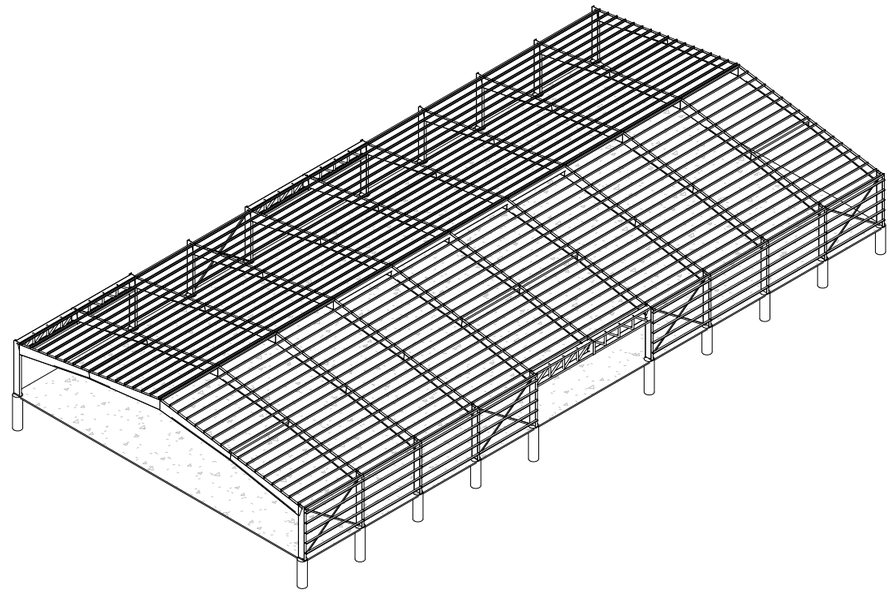
STEEL SUPPLIES SAY STREET

8-12 SAY STREET ST & 4 HARTOG PLACE EAST WAGGA WAGGA, NSW, 2650

LOT 3 DP 858049
LOT SIZE - 5650m2
LGA: WAGGA WAGGA CITY COUNCIL

STRUCTURAL ENGINEERING DESIGN FOR:
STEEL SUPPLIES

BUILDING DESIGN BY: *REWARD CHARACTER DESIGNS*
0406 140 093
rewardcharacterdesigns@hotmail.com



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	0.1	1.10	0.10
FLOOR	5.0	15.5	-

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	3.0
TERRAIN/HEIGHT MULTIPLIER ($M_{z,cat}$)	0.9568
SHIELDING MULTIPLIER (M_s)	0.929
TOPOGRAPHIC MULTIPLIER (M_t)	1.0
HILL - SHAPE MULTIPLIER (M_h)	1.0
MIN. ULTIMATE SPEED ($V_{des,\theta}$)	40.00 m/s
ULTIMATE WIND PRESSURE ($q_{des,\theta}$)	0.96 kPa

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	2
PROBABILITY FACTOR (k_p)	1
HAZARD FACTOR (Z)	0.09
SITE SUB-SOIL CLASS	Ce
STRUCTURE HEIGHT (h_n)	9.3m
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

SHEET NUMBER	SHEET TITLE
S00	STRUCTURAL ENGINEERING COVERSHEET
S01	FOOTING & SLAB PLAN
S02	SLAB LAYOUT
S03	CONCRETE DETAILS - SHEET 1
S04	CONCRETE DETAILS - SHEET 2
S05	STRUCTURAL MEMBER PLAN
S06	ELEVATIONS
S07	STRUCTURAL MEMBER SCHEDULE
S08	STRUCTURAL DETAILS 1
S09	STRUCTURAL DETAILS 2
S10	STRUCTURAL DETAILS 3
S11	STRUCTURAL DETAILS 4
S12	GENERAL NOTES

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CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

FOR CONSTRUCTION

CRESCO AUSTRALIA

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
RPE NSW (Mech & Struct): PRE0002298

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Email: s.lutze@cresco-group.com.au

CRESCO AUSTRALIA PTY. LTD.
ABN: 20 651 944 151

PROJECT
STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST WAGGA WAGGA, NSW, 2650

DRAWING TITLE
STRUCTURAL ENGINEERING COVERSHEET

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

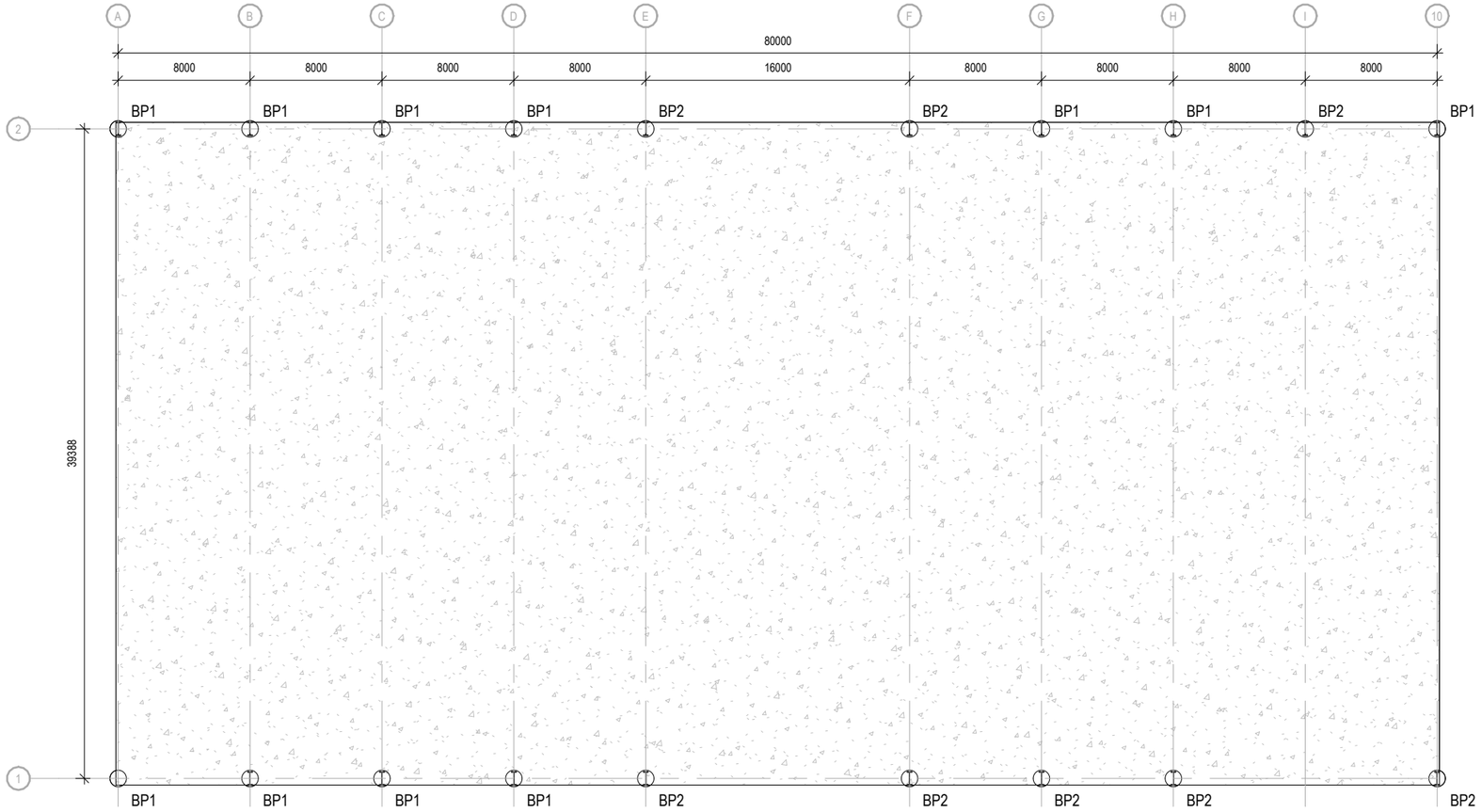
DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

ISSUE	AMENDMENT	DATE
A	ISSUED FOR CLIENT REVIEW	17.10.24
IFC	ISSUED FOR CONSTRUCTION	17.01.25

DRAWING NO.
S00



CONCRETE SLAB & FOOTING SPECIFICATIONS

CONSTRUCTION DESIGN - STEEL PORTAL FRAME WAREHOUSE ON BORED PIERS.

SITE CLASSIFICATIONS ARE BASED ON AITKEN ROWE GEOTECHNICAL ENGINEERING REPORT (S24-101) DATED 20/05/2024. THE BORED AND CAST-IN-PLACE PILE FOOTING SYSTEM ARE TO BEAR ONTO THE UNDERLYING **NATURAL STIFF TO VERY STIFF CONSISTENCY CLAY-BASED MATERIAL AT OR BELOW A DEPTH OF 1.5M TO 2.0M** MEASURED FROM THE EXISTING SURFACE AS REQUIRED AND THE FOOTING SYSTEM MAY BE PROPORTIONED FOR AN **ALLOWABLE END BEARING PRESSURE OF 175KP a AND AN ALLOWABLE SHAFT ADHESION OF 17.5KPa WITHIN THE CLAY-BASED FORMATION**.

CONCRETE STRENGTH:	32 MPa (BORED PIERS) 40 MPa (SLABS)
DAMP PROOF MEMBRANE:	PROVIDE A 0.2 mm THICK HIGH IMPACT RESISTANT DAMP PROOFING MEMBRANE TO THE UNDERSIDE OF SLABS AND FOOTINGS
BORED PIERS:	BP1 - 1000 DIAMETER x 3200 mm MIN. DEPTH WITH 13-N20 EQUALLY SPACED, N10 LIGS @ 250 C/C. & ADDITIONAL 2-N20 LIGS BP2 - 1000 DIAMETER x 4000 mm MIN. DEPTH WITH 13-N20 EQUALLY SPACED, N10 LIGS @ 250 C/C. & ADDITIONAL 2-N20 LIGS
SHED SLAB THICKNESS:	SLAB THICKNESS (T): 150 mm UNLESS NOTED OTHERWISE, SLAB TO BE INSTALLED ON 50 mm SAND BLINDING AND REINFORCED WITH LAYER OF FABRIC AS SPECIFIED, PLACED WITH A MINIMUM COVER OF 40 mm BOTTOM OF SLAB, WITH ADDITIONAL REINFORCEMENT AS INDICATED.
SHED SLAB MESH:	SL102 TOP, 40 mm MINIMUM COVER

EXTRA CONSTRUCTION NOTES

1. IF UNKNOWN FILL IS FOUND OR IN DOUBT DURING EXCAVATION, CONTACT CRESCO AUSTRALIA IMMEDIATELY. WHERE FILL IS REQUIRED UNDER SLABS ROLLED FILL IS TO BE USED- ROLLED FILL CONSISTS OF MATERIAL COMPACTED IN LAYERS BY REPEATED ROLLING WITH AN EXCAVATOR. ROLLED FILL SHALL NOT EXCEED 600 COMPACTED IN LAYERS NOT MORE THAN 300 THICK FOR SAND MATERIAL OR 300 COMPACTED IN LAYERS NOT MORE THAN 150 THICK FOR OTHER MATERIAL.

NOTE: THIS DESIGN IS BASED ON CONCRETE STRUCTURES STANDARD AS.3600:2018, AND PILED FOOTINGS DESIGN AND INSTALLATION STANDARD AS.2159:2009

1 **SLAB AND FOOTING PLAN**
1 : 350

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FOR CONSTRUCTION

CRESCO AUSTRALIA

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B.Eng [Mech] - M.Eng.Sci [Struct]
MIEAust - NER (Mech & Struct): 7120849
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CRESCO AUSTRALIA PTY. LTD.
ABN: 20 651 944 151

PROJECT
STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
FOOTING & SLAB PLAN

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

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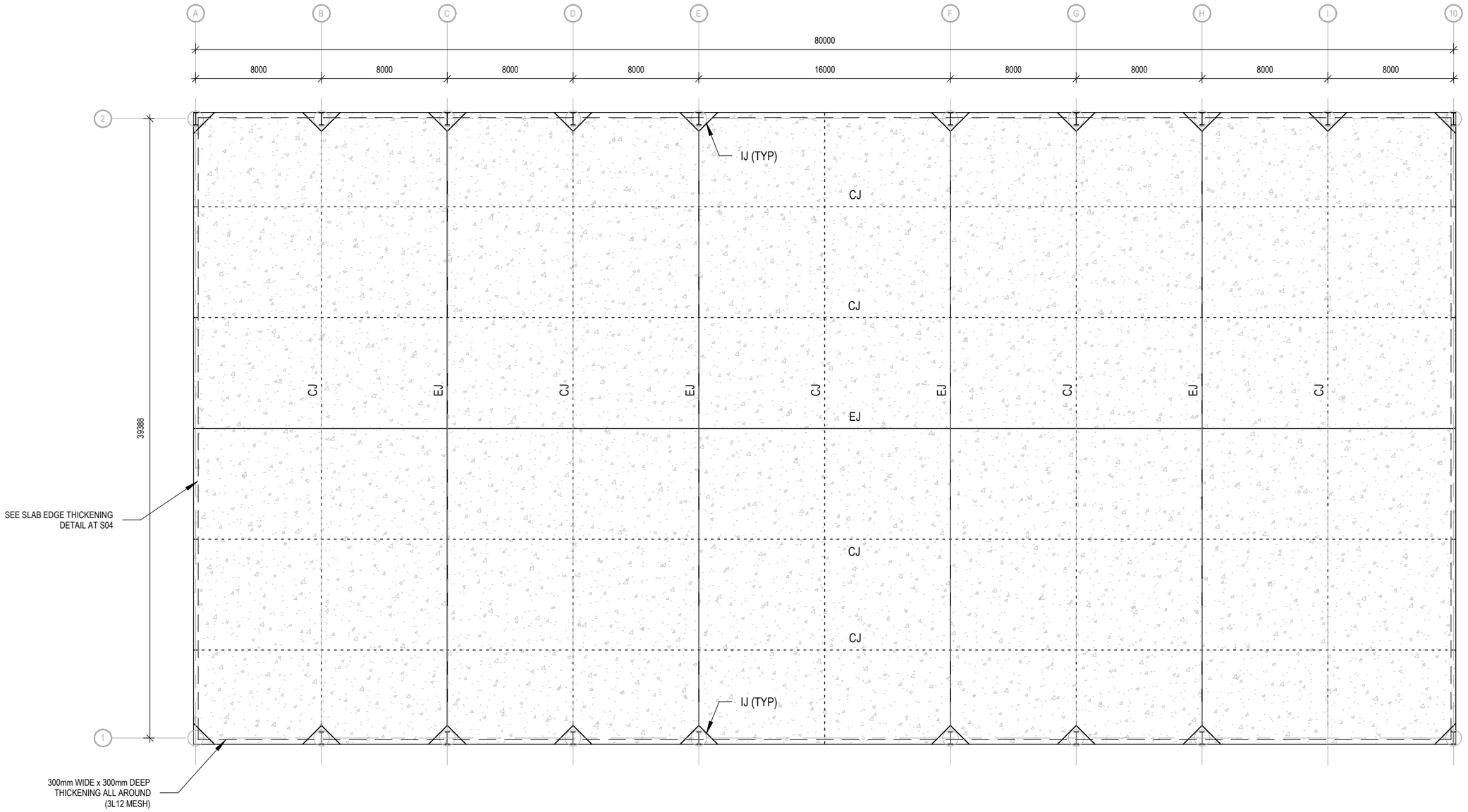
DRAWING NO.
S01

NOTE: PROVIDE CONTROL JOINTS (CJ), EXPANSION JOINTS (EJ), AND ISOLATION JOINTS (IJ), WHERE INDICATED ON PLANS, AS PER DETAILS ON SHEET S03.



1 SLAB LAYOUT
1 : 275

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DRAWING TITLE
SLAB LAYOUT

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ENG BY: **IJM**

VERIFIED BY: **SJL**

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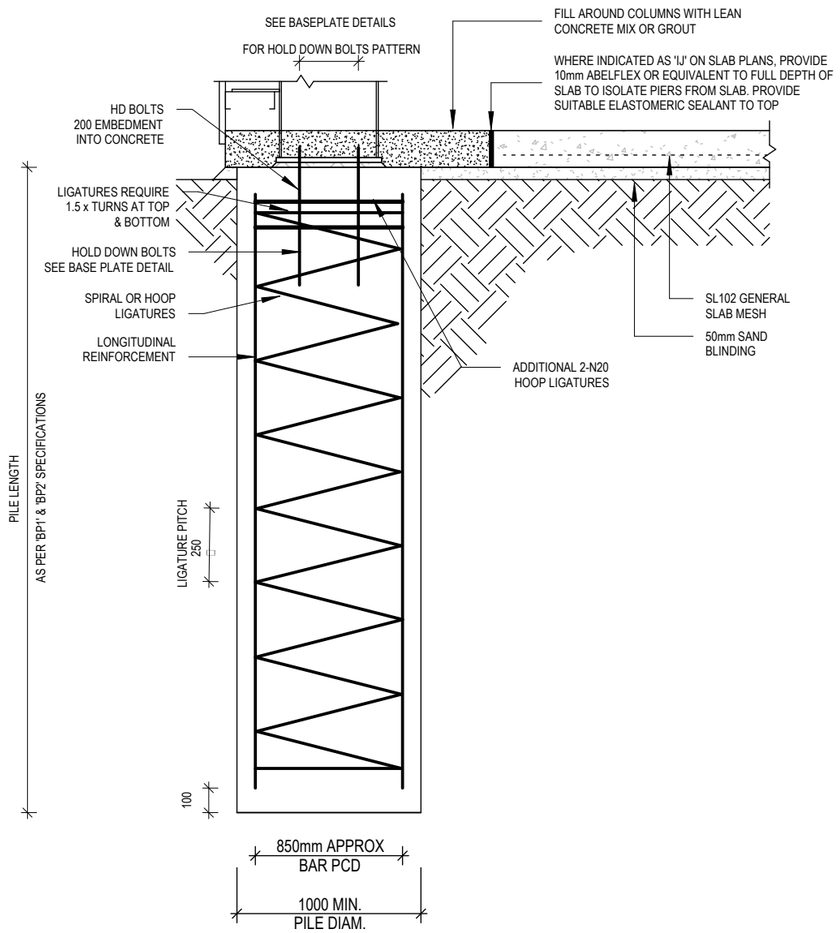
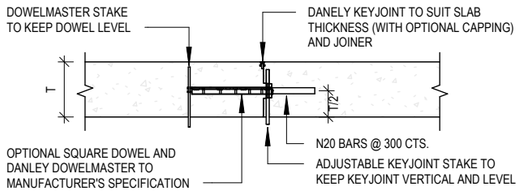
DRAWING NO.
S02

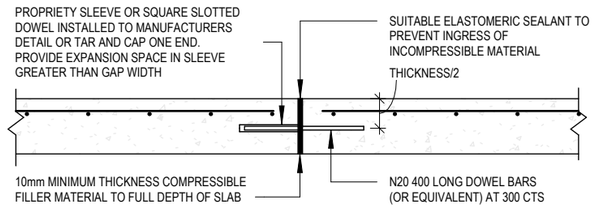


1 **1000 DIA. BORED PIER DETAIL**
1 : 25



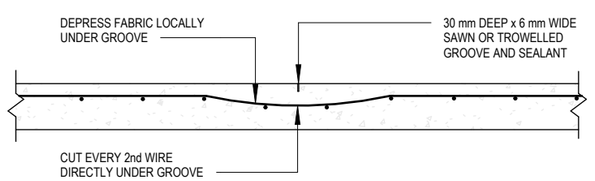
RECOMMENDED 'DANLEY' KEYJOINT EXPANSION JOINT SYSTEM

DENOTED AS 'EJ' ON SLAB PLANS



TYPICAL DOWEL/EXPANSION JOINT DETAIL

DENOTED AS 'EJ' ON SLAB PLANS



TYPICAL CONTROL JOINT DETAIL

DENOTED AS 'CJ' ON SLAB PLANS

NOTE: ENSURE SAWCUT IS MADE WITHIN 24 HOURS OF CASTING SLAB

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STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
CONCRETE DETAILS - SHEET 1

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
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VERIFIED BY: **SJL**

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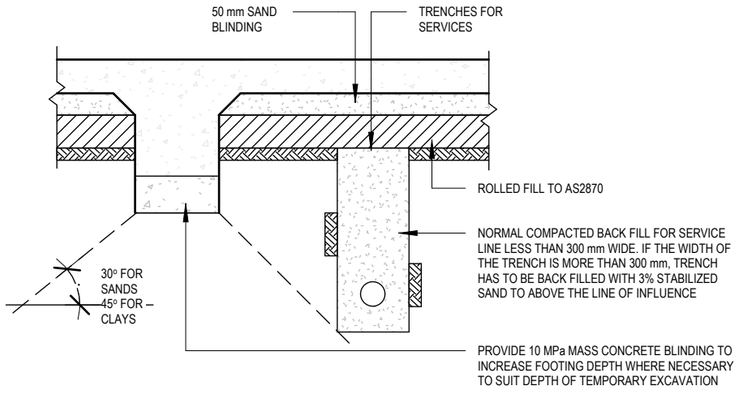
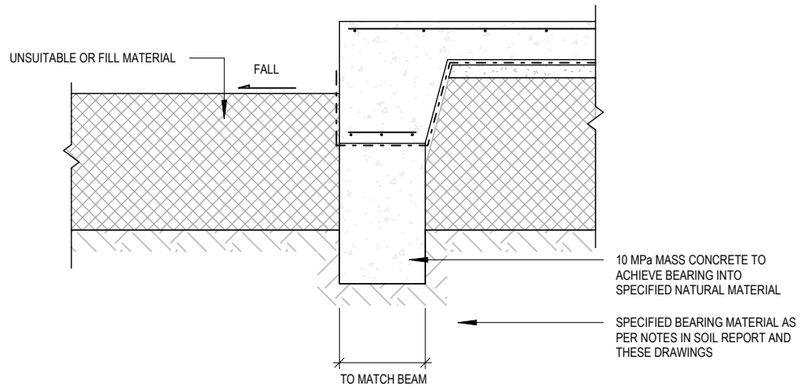
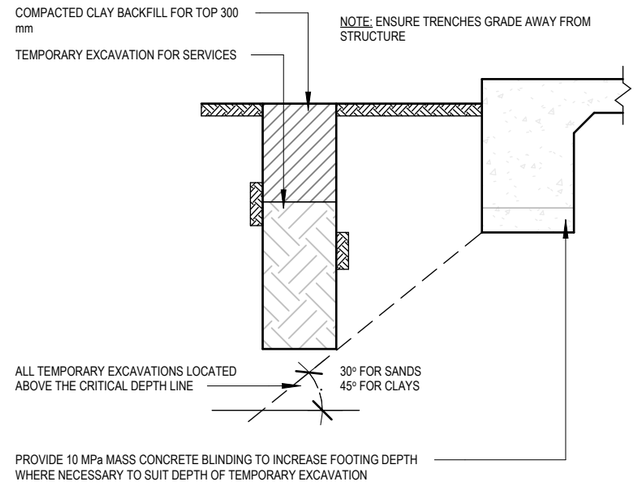
DRAWING NO.
S03



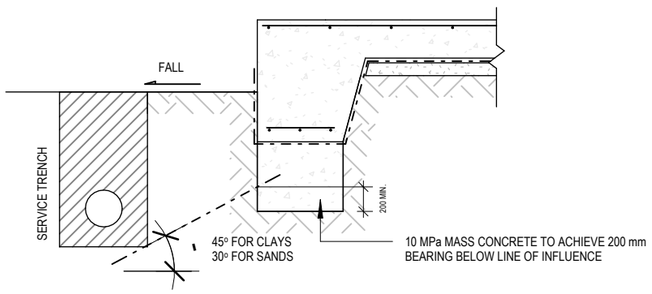
TRENCH BACK FILL DETAILS



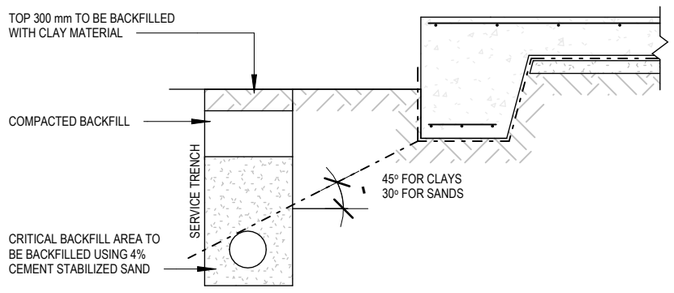
UNDERPIN DETAIL TO ACHIEVE MINIMUM BEARING



TEMPORARY EXCAVATION DETAIL

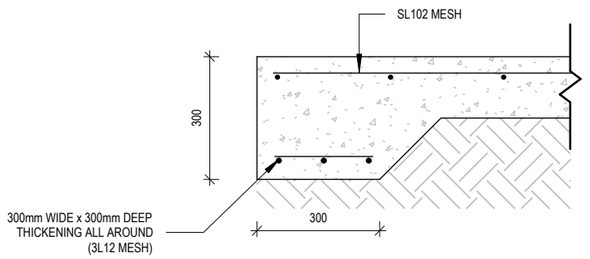


UNDERPIN DETAIL AT EXISTING SERVICE TRENCH



SERVICE TRENCH

NOTE: STABILITY OF SERVICE TRENCHES TO BE MAINTAINED DURING CONSTRUCTION



SLAB EDGE THICKENING DETAIL

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CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

FOR CONSTRUCTION

CRESCO AUSTRALIA

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PROJECT
STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
CONCRETE DETAILS - SHEET 2

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

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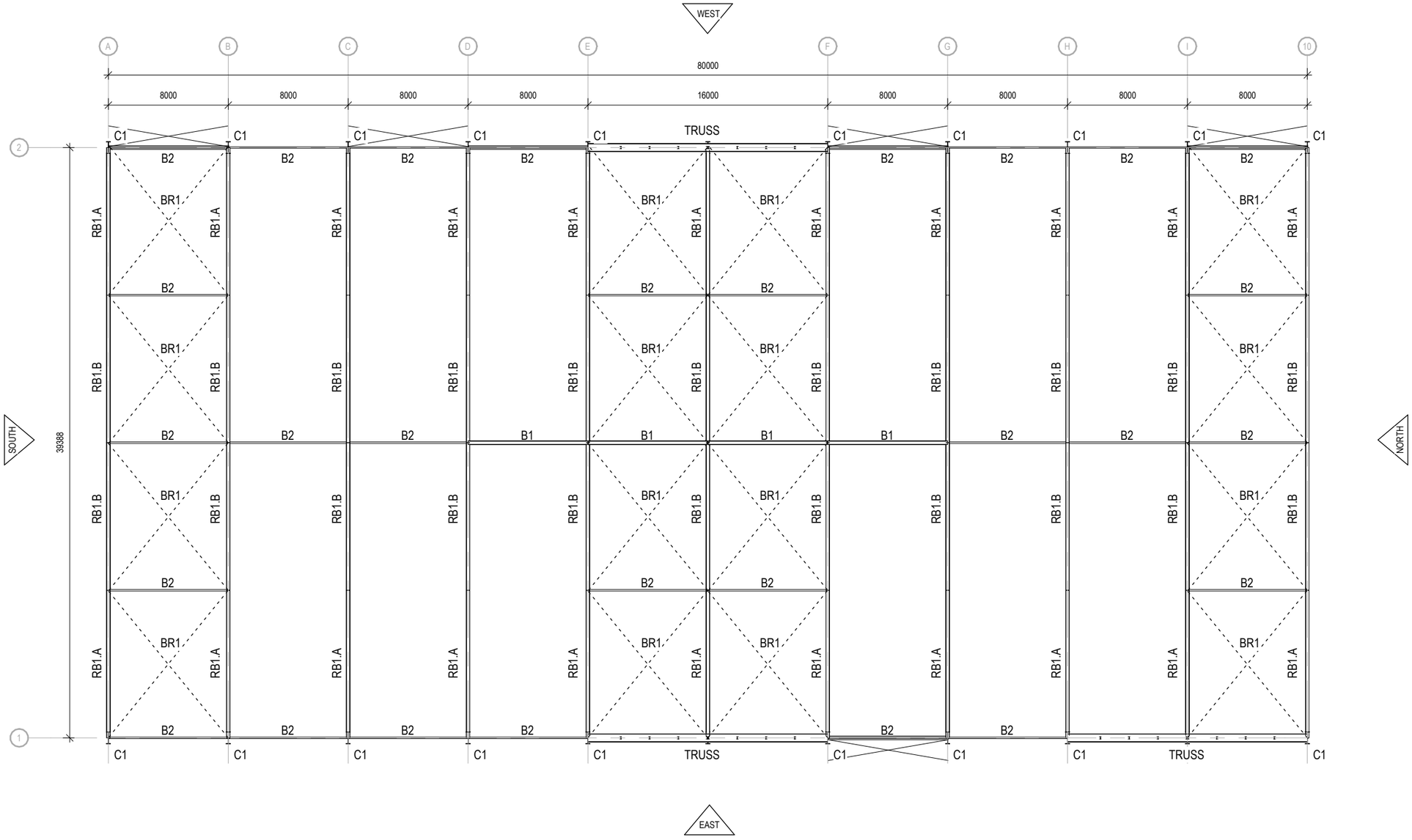
S04



1 STRUCTURAL MEMBER PLAN

1 : 300

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8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
STRUCTURAL MEMBER PLAN

SCALE
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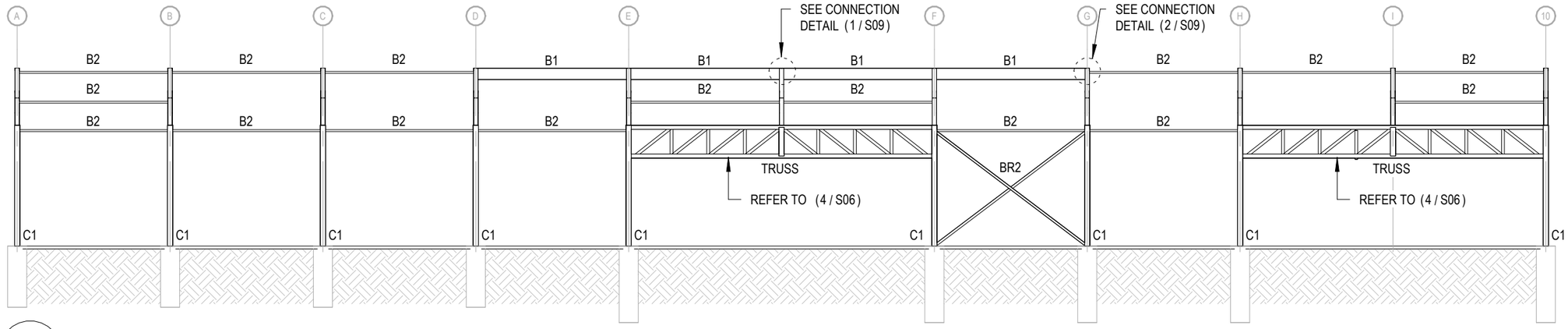
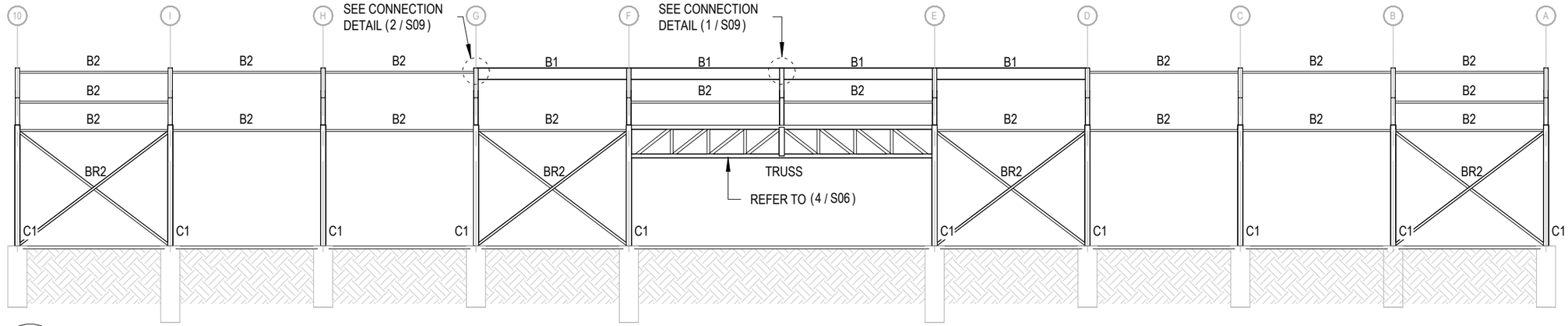
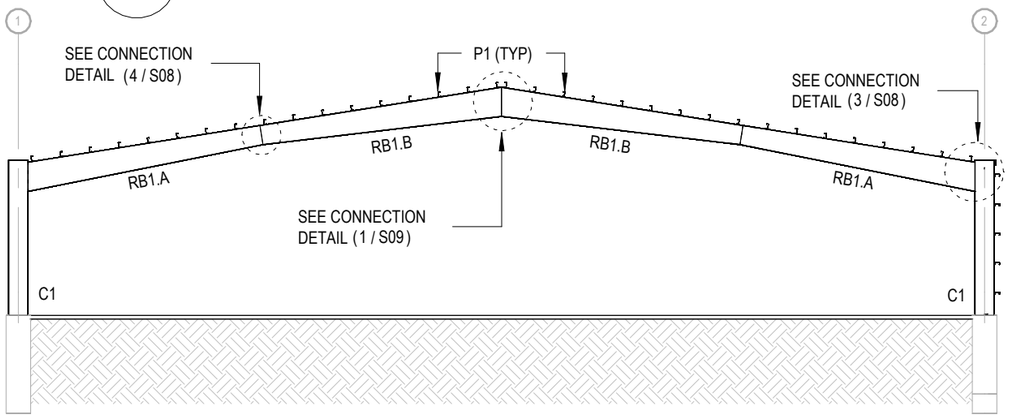
S05



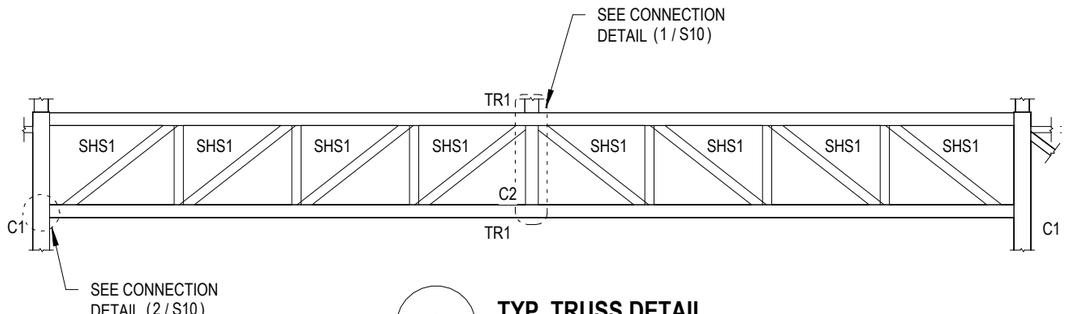
1 EASTERN ELEVATION
1 : 250



2 WESTERN ELEVATION
1 : 250



3 TYP. NORTHERN & SOUTHERN ELEVATION
1 : 250



4 TYP. TRUSS DETAIL
1 : 100

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CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
ELEVATIONS

SCALE
AS SHOWN

PROJECT ID
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REVISION
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DRAFT BY: **EVP**

ENG BY: **IJM**

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DRAWING NO.
S06

STRUCTURAL MEMBER SCHEDULE

I.D.	SECTION TYPE	SECTION SIZE	COMMENT
B1	RAFTER TIES	610 UB 101 (G300)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
B2	COLUMN/RAFTER TIES	150 x 5.0mm SHS (G350)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
C1	COLUMN	800 WB 146 (G300)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
C2	TRUSS COLUMN	530 UB 92 (G300)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
SHS1	TRUSS DIAGONAL & VERTICAL WEB	150 x 6.0mm SHS (G350)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
TR1	TRUSS TOP & BOTTOM CHORD	530 UB 92 (G300)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
BR1*	ROUND ROOF BRACING	24 mm ROUND BAR (G300)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
BR2*	WALL EA BRACING	125 x 8 EA (G300)	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
RB1.X	ROOF RAFTER	TAPERED BEAM (G350) 800mm TO 1200mm DEEP FLANGES: 230W x 20T mm WEB: 12T mm	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS REFER TO FABRICATION PLANS FOR BEAM GEOMETRY
P1	PURLINS	C30024 AT 1200 CTRS MAX	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
G1	WALL GIRTS	C30024 AT 1500 CTRS MAX	REFER TO FABRICATION PLAN FOR CONNECTION DETAILS
	BRIDGING	FOR PURLINS AND GIRTS	1 ROW OF BRIDGING TO MANUFACTURER'S SPECIFICATIONS
	FLY BRACE	FOR PURLINS AND GIRTS	PROVIDE FLY BRACING EVERY SECOND PURLIN AND GIRTS

*REFER TO STRUCTURAL MEMBER PLAN AND ELEVATIONS FOR REQUIRED BRACING LOCATIONS

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CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

FOR CONSTRUCTION

CRESCO AUSTRALIA

Principal: Shane Lutze
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CRESCO AUSTRALIA PTY. LTD.
ABN: 20 651 944 151

PROJECT
STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
STRUCTURAL MEMBER SCHEDULE

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

ISSUE	AMENDMENT	DATE
A	ISSUED FOR CLIENT REVIEW	17.10.24
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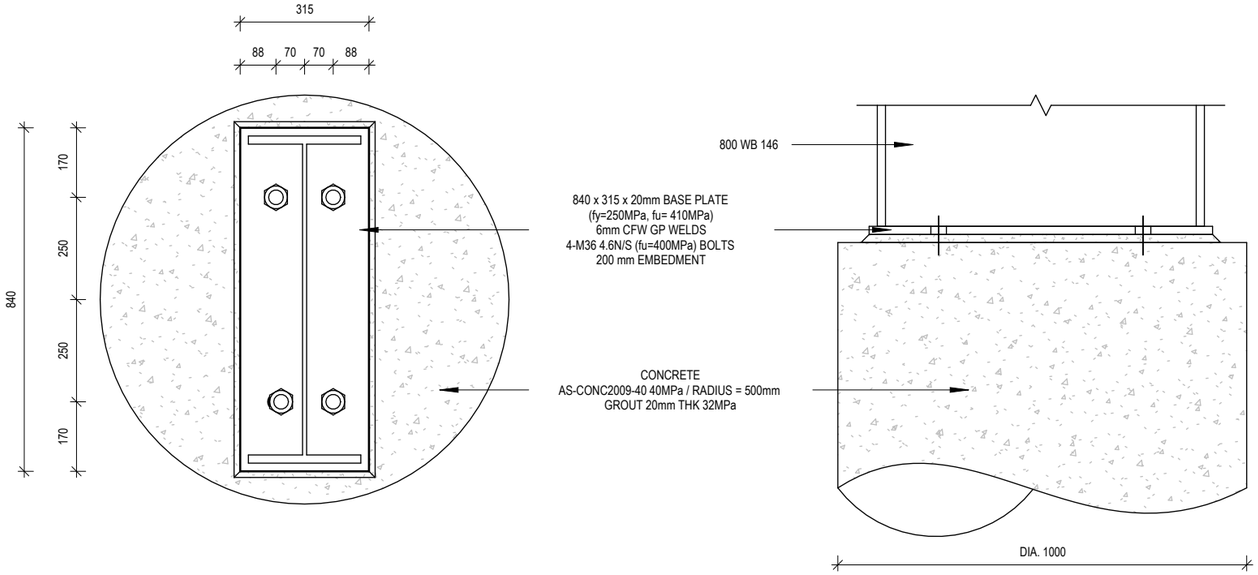
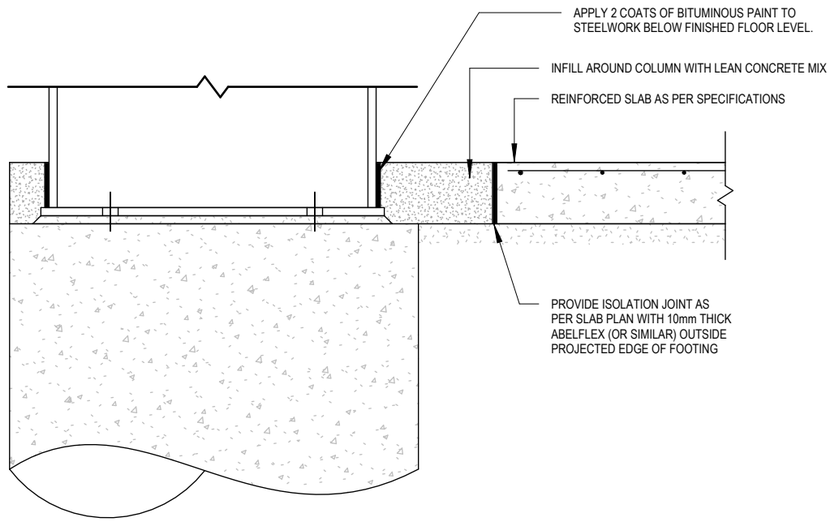
DRAWING NO.
S07



1 TYP. BASEPLATE DETAILS
1 : 15



2 TYPICAL DETAIL FOR PROTECTION OF BASEPLATE & COLUMN
1 : 15

3 TAPERED BEAM TO COLUMN CONNECTION
1 : 15

4 TYPICAL SPLICING DETAIL
1 : 15

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STEEL SUPPLIES

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DRAWING TITLE
STRUCTURAL DETAILS 1

SCALE
AS SHOWN

PROJECT ID
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REVISION
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ENG BY: **IJM**

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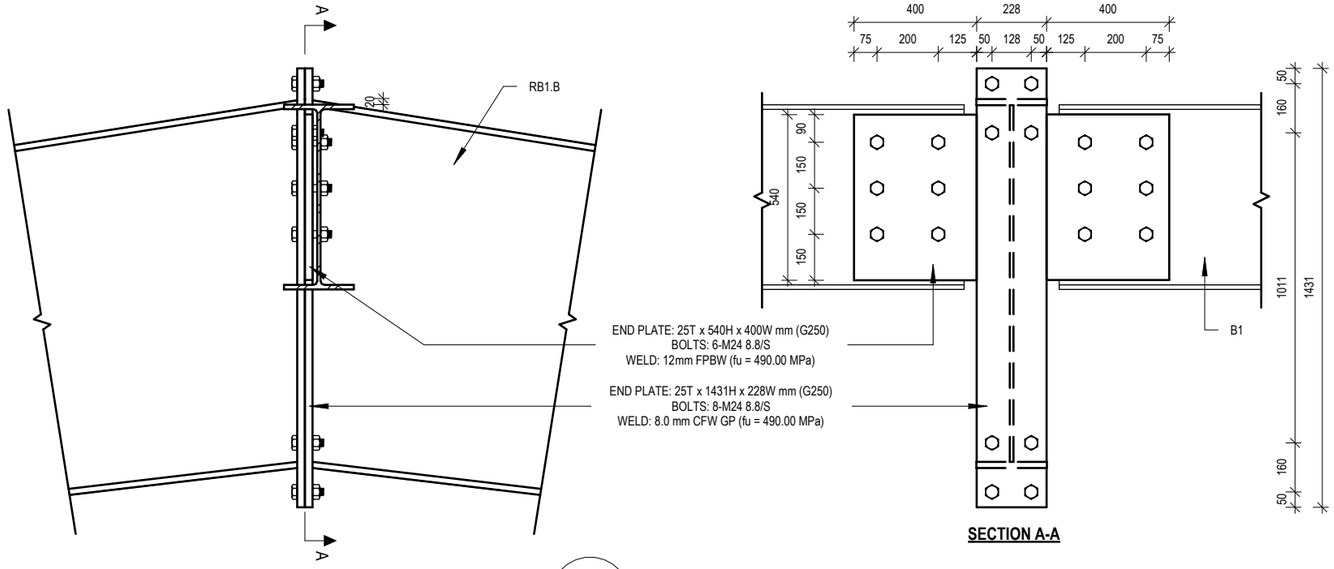
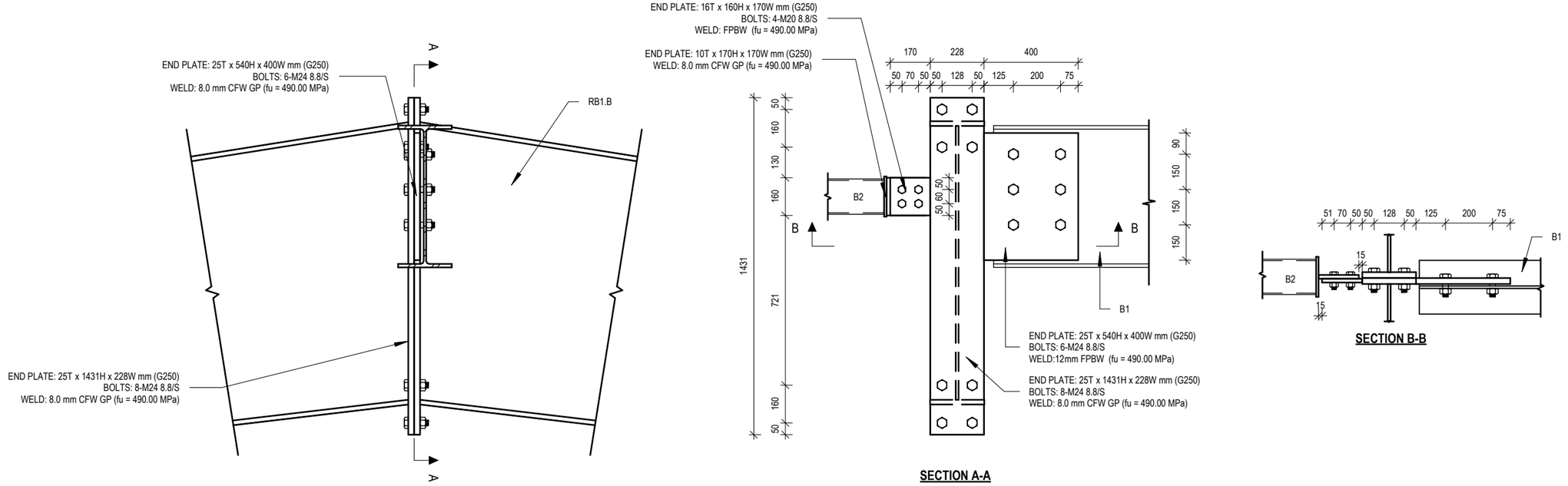
DRAWING NO.
S08



1 TYP. APEX CONNECTION - TYPE 1

1 : 20



2 TYP. APEX CONNECTION - TYPE 2

1 : 20

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STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
STRUCTURAL DETAILS 2

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

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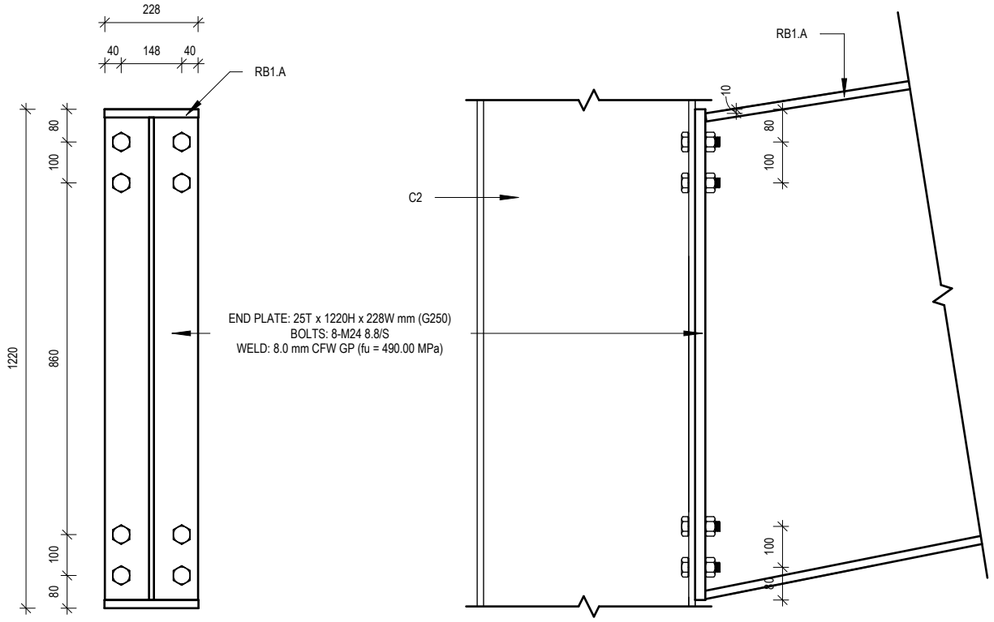
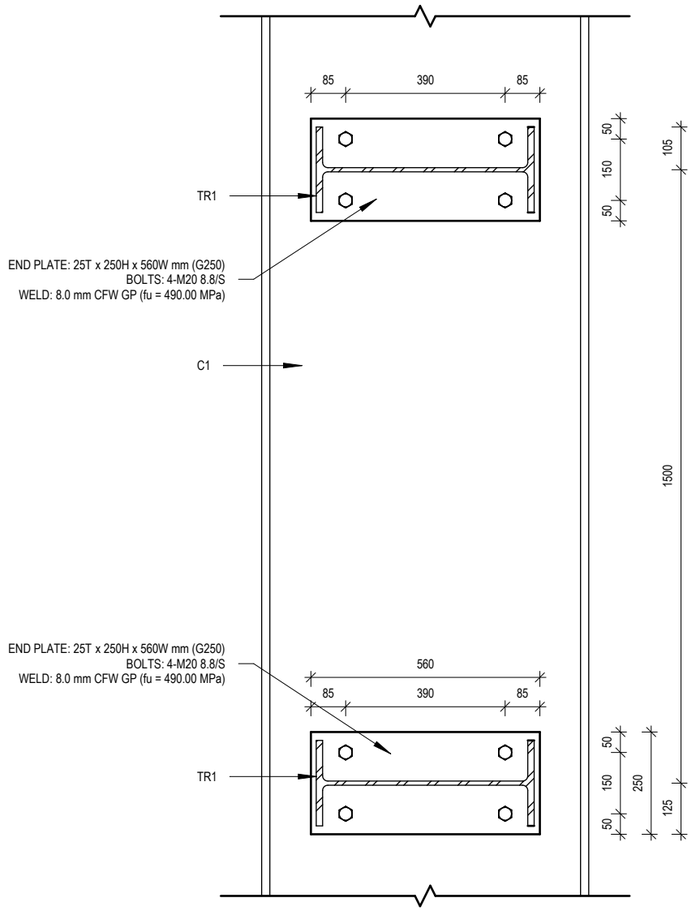
DRAWING NO.
S09

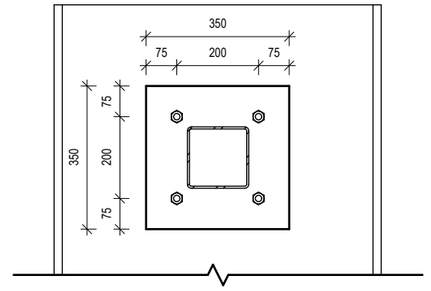


1 RAFTER TO TRUSS COLUMN
1 : 15



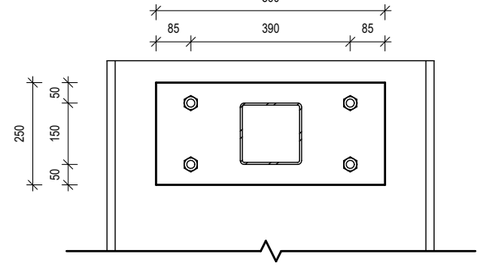
2 TRUSS TO COLUMN CONNECTION
1 : 15

PLATE: 16T x 350H x 350W mm (G250)
WELD: 8.0 mm CFW GP (fu = 480.00 MPa)
BOLTS: 4-M16 8.8/S



3 COLUMN TIES CONNECTION 1
1 : 15

END PLATE: 25T x 250H x 560W mm (G250)
WELD: 8.0 mm CFW GP (fu = 490.00 MPa)
BOLTS: 4-M20 8.8/S



4 COLUMN TIES CONNECTION 2
1 : 15

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CLIENT
STEEL SUPPLIES

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WAGGA WAGGA, NSW, 2650

DRAWING TITLE
STRUCTURAL DETAILS 3

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

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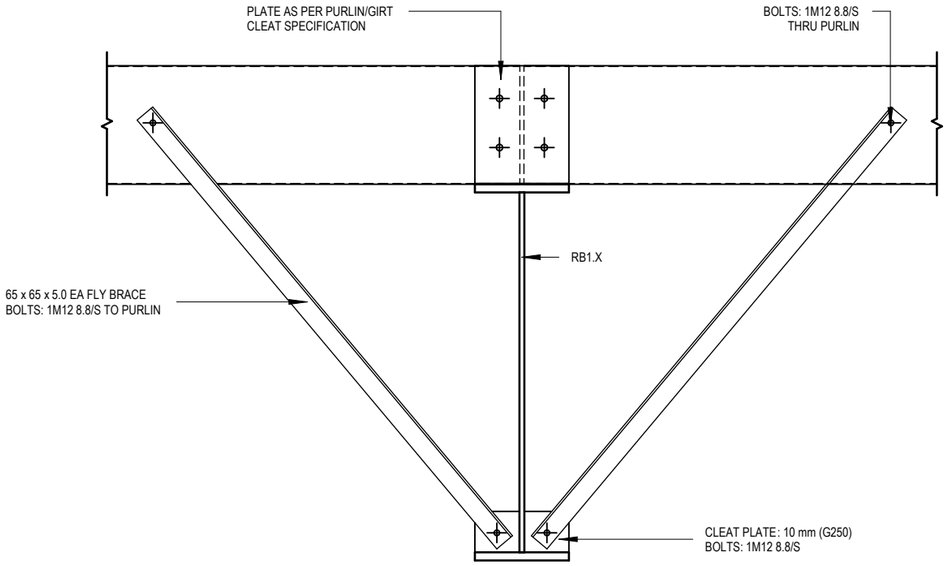
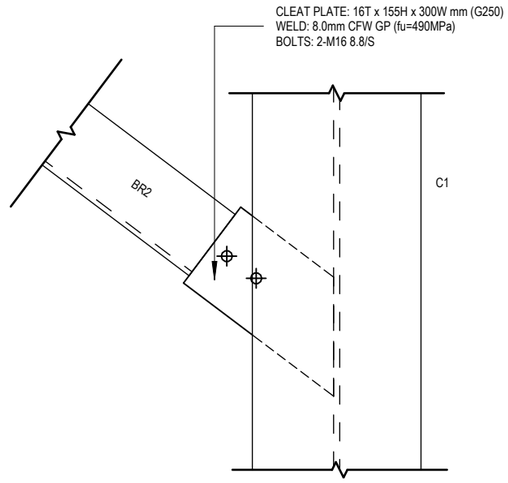
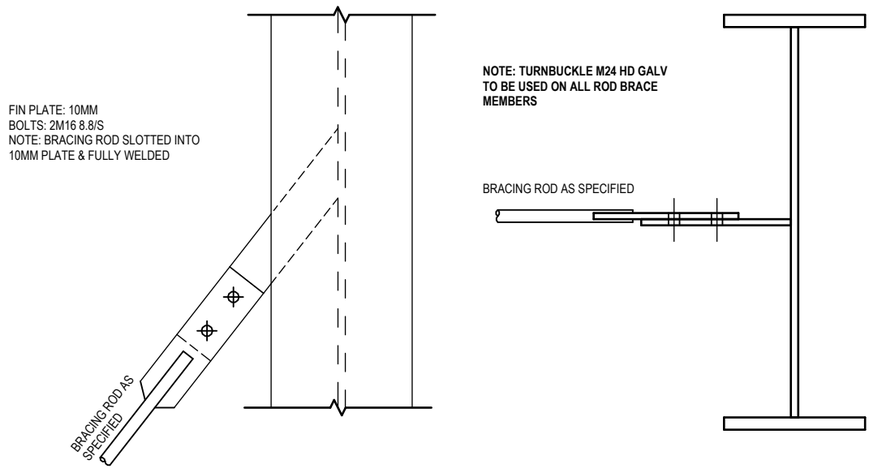
DRAWING NO.
S10



1 FLY BRACE DETAIL
1 : 15



2 TYPICAL ANGLE BRACE DETAIL
1 : 10



3 ROD ROOF BRACE DETAIL
1 : 10

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DRAWING TITLE
STRUCTURAL DETAILS 4

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

ISSUE	AMENDMENT	DATE
A	ISSUED FOR CLIENT REVIEW	17.10.24
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DRAWING NO.
S11

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 CRESCO AUSTRALIA 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 CRESCO AUSTRALIA 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, CRESCO AUSTRALIA 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 **GEOTECHNICAL INFORMATION PROVIDED BY AITKEN ROWE GEOTECHNICAL ENGINEERING REPORT "S24-101 GEOTECHNICAL INVESTIGATION" ON 20/05/2024**.

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.

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
MIN. CEMENT CONTENT -
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 REWARD CHARACTER DESIGNS PROVIDED ARCHITECTURAL PLANS, DATED 08.11.23. THE STRUCTURAL DESIGN IN BASED ON ALL DIMENSIONS WITHIN AFOREMENTIONED PLANS.

CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

FOR CONSTRUCTION

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PROJECT
STEEL SUPPLIES SAY STREET

CLIENT
STEEL SUPPLIES

8-12 SAY STREET ST & 4 HARTOG PLACE EAST
WAGGA WAGGA, NSW, 2650

DRAWING TITLE
GENERAL NOTES

SCALE
AS SHOWN

PROJECT ID
23054

REVISION
B

DRAFT BY: **EVP**

ENG BY: **IJM**

VERIFIED BY: **SJL**

ISSUE	AMENDMENT	DATE
A	ISSUED FOR CLIENT REVIEW	17.10.24
IFC	ISSUED FOR CONSTRUCTION	17.01.25

DRAWING NO.
S12