

**GENERAL:**

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH CONTRACT DOCUMENTS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS DURING THE COURSE OF THE CONTRACT. READ THE DRAWINGS CAREFULLY AND REFER ANY DISCREPANCIES TO THE SUPERINTENDENTS REPRESENTATIVE FOR DECISION PRIOR TO PROCEEDING WITH THE WORK.
- ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND FABRICATION. DO NOT OBTAIN DIMENSIONS BY SCALING FROM THE DRAWINGS.
- REFER TO CIVIL DRAWINGS FOR DETAILS OF THE SITE SPECIFIC REQUIREMENTS FOR EACH BUS SHELTER.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE (U.N.O.). WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE RELEVANT STANDARDS ASSOCIATION OF AUSTRALIA (SAA) CODES AND RELEVANT BUILDING AUTHORITY.
- ALL SEATS, CIRCULATION SPACES, SIGNAGE, SURFACE INDICATORS (TGSIs), DIMENSIONS AND STANDARD LAYOUT FOR DISABILITY ACCESS AND MOBILITY SHALL COMPLY WITH THE CURRENT VERSION OF AS 1428.1, AS1428.2, AS1428.5, AS/NZS 1428.4.1, AS2890.6, DISABILITY STANDARDS FOR ACCESSIBLE PUBLIC TRANSPORT 2002 AND DISABILITY DISCRIMINATION ACT.
- THE BUILDER SHALL BE RESPONSIBLE FOR THE STRUCTURE DURING INSTALLATION AND PROVIDE ADEQUATE PROPPING, SUPPORT AND SAFETY BARRIERS/FENCES AS REQUIRED ON SITE.
- WHERE DTC STANDARDS ARE REFERENCED THESE REFER TO STANDARDS WITHIN THE NORTHERN TERRITORY DEEMED TO COMPLY MANUAL PREPARED BY THE DEPARTMENT OF INFRASTRUCTURE, PLANNING & LOGISTICS.
- THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING LOADS (TO AS 1170.2 AND AS 1170.1):

WIND LOADS (IN ACCORDANCE WITH AS 1170.2)	
IMPORTANCE LEVEL;	2
M <sub>s</sub> , M <sub>t</sub>	1 , 1
WIND REGION	C
REGIONAL WIND SPEEDS; V <sub>500</sub> V <sub>20</sub>	69.3m/s (ULS) 45m/s (SLS)
TERRAIN CATEGORY	2
INTERNAL PRESSURE COEFFICIENT (C <sub>Pi</sub> )	-
LIVE LOADS (IN ACCORDANCE WITH AS 1170.1)	
FLOOR - SLAB	5kPa
THE ALLOWABLE FOUNDATION BEARING PRESSURE	100kPa
CONCRETE EXPOSURE CLASSIFICATION	B2 - 1KM FROM COAST LINE

**DEEMED TO COMPLY (DTC) REFERENCES:**

- THE FOLLOWING TABLE LISTS CLADDING PRODUCTS TO BE USED FOR THIS STRUCTURE & FIXING REQUIREMENTS IN ACCORDANCE WITH THE DTC MANUAL. EQUAL OR BETTER PRODUCTS OTHER THAN THOSE LISTED (AND COVERED BY THE DTC MANUAL) MAY SUBSTITUTE WITH WRITTEN APPROVAL FROM THE SUPERINTENDENT:

	ELEMENT
	ROOF CLADDING
MANUFACTURER	BLUESCOPE LYSAGHT
PRODUCT	CUSTOM ORB
DTC REFERENCE.	FIXED TO CURRENT RELEVANT DTC

**FOUNDATIONS:**

- FOUNDATION MATERIAL (AFTER EXCAVATING) IS ASSUMED TO HAVE A SAFE BEARING CAPACITY OF 100kPa. CONTRACTOR TO VERIFY SOIL BEARING PRESSURE PRIOR TO CONSTRUCTION.
- SUB-BASE FOR SLAB ON GROUND AND BACKFILL OVER FOOTINGS SHALL BE APPROVED GRANULAR MATERIAL, COMPACTED IN LAYERS OF 150mm MAX. TO AT LEAST 95% MAXIMUM MODIFIED DRY DENSITY (MDD) IN ACCORDANCE WITH AS 1289.
- SURFACE TO BE STRIPPED OF ALL ORGANIC MATTER (E.G. TOP SOIL). PROOF ROLL SUBGRADE TO 95% MDD.
- TESTING OF MATERIALS AND FOR COMPACTION SHALL BE DETERMINED BY THE SUPERINTENDENT IF NECESSARY.
- FOUNDATIONS SHALL BE INSPECTED PRIOR TO PLACEMENT OF CONCRETE.

**CONCRETE:**

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- ALL FORMWORK SHALL CONFORM TO AS 3610. RE-SHORING IS NOT PERMITTED.
- CONCRETE CHARACTERISTICS SHALL BE AS FOLLOWS U.N.O.

STRUCTURAL ELEMENT	COMPRESSIVE STRENGTH (F'c -28 DAYS MPa)	SLUMP (mm)	MAX. AGGREGATE SIZE (mm)
MASS CONCRETE FOOTPATHS	25	65 ± 15	20
SHELTER SLAB ON GROUND	32	65 ± 15	×10 exp. AGG.

- \* USE 50/50 QUANTITY KATHERINE AND MT BUNDY 10mm AGGREGATE, FOR EXPOSED FINISH ON THE SLAB
- THERE SHALL BE NO CHANGES OF LEVEL BETWEEN EXISTING FOOTPATH/KERB AND THE NEW CONCRETE SLAB.
  - ENSURE TACTILE INDICATORS ARE SECURELY FIXED.
  - DIMENSIONS OF CONCRETE ELEMENTS IN THESE DRAWINGS DO NOT INCLUDE APPLIED FINISHES THICKNESS.
  - A CONTINUOUS ACCESSIBLE PATH OF TRAVEL AND ANY CIRCULATION SPACES SHALL HAVE A SLIP-RESISTANT SURFACE. THE TEXTURE OF THE SURFACE SHALL BE TRAVERSABLE BY PEOPLE WHO USE A WHEELCHAIR AND THOSE WITH AN AMBULANT OR SENSORY DISABILITY.
  - ABUTMENT OF SURFACES SHALL HAVE A SMOOTH TRANSITION. DESIGN TRANSITION SHALL BE 0 mm. CONSTRUCTION TOLERANCES SHALL BE AS FOLLOWS:
    - 0 ± 3 mm VERTICAL
    - 0 ± 5 mm, PROVIDED THE EDGES HAVE A BEVELLED OR ROUNDED EDGE TO REDUCE THE LIKLIHOOD OF TRIPPING.
  - NO ADMIXTURES ARE TO BE USED WITHOUT WRITTEN APPROVAL OF THE SUPERINTENDENT.
  - ALL CONCRETE TO BE COMPACTED USING MECHANICAL VIBRATION.
  - NO HOLES OR CHASES OTHER THEN THOSE SHOWN ON THESE DRAWINGS SHALL BE MADE IN CONCRETE WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT.
  - THE CONCRETE SLAB IN AND ATTACHED TO THE SHELTERS SHALL BE CLEANED BY ACID WASHING AND COATED TO PROVIDE A IMPERVIOUS SURFACE WITH 2 COATS OF CLEAR SOLVENT SEALER AS PER MANUFACTURERS DIRECTIONS.
  - BROOM FINISH TO ALL NEW TRAFFICABLE CONCRETE SURFACES (ASIDE FROM KERBS), ACROSS THE DIRECTION OF TRAVEL TO PROVIDE A SLIP RESISTANT SURFACE FINISH.

**SOLAR LIGHTING**

ANY LIGHTING PROVIDED MUST COMPLY WITH CLAUSE 19.1 IN AS1428.2

FOLLOWING MINIMUM LEVELS OF MAINTENANCE ILLUMINATION ARE RECOMMENDED :

ENTRANCES AND WALKWAYS :150lx  
GENERAL DISPLAY AREAS: 200-300lx

**OPERATING COMPONENTS FOR BUS SHELTER SOLAR LIGHTS**

- 1 x 80W SOLAR MODULE
- 1 x PV x 690T AGM BATTERY
- 1 x MORNING STAR SL OL REGULATOR/TIMER
- TRI-LOBIAL SECURITY BOLTS
- UV POLYCARBONATE LENS

LIGHT TO COME ON AT 1800hrs TO 2400hrs & ON AGAIN 0500hrs TO 0700hrs

**TACTILE NOTES:**

- PROVIDE TILE TACTILE GROUND SURFACE INDICATORS (TGSIs) AND INSTALL IN ACCORDANCE WITH DIPL ROAD WORKS SPECIFICATION AND COMPLY WITH CURRENT AS/NZS 1428.4.1 REQUIREMENT.
- USE SURFACE APPLIED TILES ON EXISTING CONCRETE AND CAST IN TILES ON NEW CONCRETE.
- PROVIDE CAST IN UNITS WITH LUGS, WHICH ARE EMBEDDED IN THE CONCRETE SUBSTRATE AND WHICH ENABLE REPLACEMENT OF TGSi UNIT IF IT NEEDS TO BE REPLACED.
- TGSi MUST ACHIEVE A MIN OF PERFORMANCE CRITERIA MENTIONED IN CURRENT DIPL ROAD WORKS SPECIFICATIONS AND UPDATES.
- CONFIRM CONTRAST COLOUR WITH SUPERINTENDENT PRIOR TO INSTALLATION.

**STEELWORK:**

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 4100 AND AS 1554, BUILDING CODE OF AUSTRALIA (BCA) AND NT WORK SAFE REGULATIONS.
- ALL WELDS TO BE 6mm CONTINUOUS SPECIAL CLASS FILLET WELDS U.N.O.
- ALL WELDS SHALL BE PREFORMED BY A QUALIFIED WELDER IN ACCORDANCE WITH AS 1554 AND WITH E41XX ELECTRODES AND MAGNETIC PARTICLE TESTED.
- ALL BOLT TYPES (AND DESIGNATIONS WHERE USED) SHALL BE AS FOLLOVED:
  - 4.6/S - COMMERCIAL BOLTS TO AS 1111 AND AS 1112 SNUG TIGHT.
  - 8.8/S - HIGH STRENGTH STRUCTURAL BOLTS, NUTS AND HARDENED WASHERS TO AS 1252, SNUG TIGHTLY ONLY.
- ALL BOLTS, NUTS AND WASHERS INCLUDING H.D. BOLTS/REO ARE TO BE TOP DIP GALVANISED. ALL CAST-IN FERRULES AND CHEMICAL ANCHORS TO BE PASSIVATED ZINC COATED. ALL GALVANISED COMPONENTS CAST-IN TO CONCRETE MUST BE PASSIVATED.
- ALL STEELWORK SHALL HAVE STEEL GRADE AS FOLLOWS:
- ALL STRUCTURAL STEELWORK SHALL BE DEGREASED, GRIT BLASTED TO CLASS 2.5 AND SHOP PRIMED WITH ONE COAT OF INORGANIC ZINC SILICATE 75 MICRONS THICK IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION U.N.O.
- FINISH COATS TO STEELWORK TO BE HIGH GLOSS 2 COATS ZINC RICH TWO PACK AND TO BE COMPATIBLE WITH THE PRIMER AND IN ACCORDANCE WITH COLOUR SCHEDULE AND SPECIFICATIONS.
- STEELWORK THAT IS SITE WELDED OR SUSTAINS ANY OTHER TYPE OF SURFACE DAMAGE SHALL BE THOROUGHLY DEGREASED USING SOLVENT IN ACCORDANCE WITH AS1627.1, RINSED THOROUGHLY WITH CLEAN WATER AND LIGHTLY ABRADED. PAINT SHOULD CONFORM TO AS/NZS 3750.9 'PAINTS FOR STEEL STRUCTURES - ORGANIC ZINC-RICH PRIMER' APPLIED IN TWO COATS BY BRUSH TO PROVIDE A TOTAL FILM THICKNESS OF A MINIMUM OF 30 MICRON MORE THAN THE LOCAL COATING THICKNESS REQUIREMENTS IN AS/NZS 4680, AND SHOULD CONTAIN NOT LESS THAN 85% ZINC IN THE DRIED PAINT FILM.
- ENSURE ALL DISSIMILAR METALS ARE SEPARATED BY ELECTROLYTIC ISOLATION, USE RUBBER STRIPS AND WASHERS OR OTHER ACCEPTABLE MEANS OF SEPARATION.

STEEL MEMBER	STEEL GRADE	CORRESPONDING STANDARD
HOT ROLLED PLATES	250	AS 3678
HOT ROLLED STEEL SECTIONS	300	AS 3679
RECTANGULAR & SQUARE HOLLOW SECTIONS	350	AS 1163

**COLOUR SCHEDULE:**


HANDRAILS AND GRAB RAILS WOULD NORMALLY BE COLOUR CONTRASTED WITH THEIR BACKGROUND AND SHOULD NOT INTRUDE INTO THE MINIMUM ACCESSIBLE PATH OF TRAVEL.

STRUCTURAL FRAME	COLOUR	AUSTRALIAN STANDARD COLOUR CODE	COMMENTS
STRUCTURAL FRAME, STRUCTURAL COLUMNS	GRAPHITE GREY	N65	
METAL PANELS, STRUCTURAL ROOF BEAM	BLUE JADE	T24	
PANEL FRAMES, SEAT STRUCTURE	SILVER GREY	N24	
FRONT LEADING EDGE OF CORNER COLUMN	GOLDEN YELLOW	Y14	REFER TYPICAL SIDE ELEVATION CS-3707

**DRAWING SCHEDULE**

BUS SHELTER TYPE MODULE	DRAWING NUMBER	DRAWING SHEET TITLE
TYPE 14B - 4 BAY	CS-3706	GENERAL NOTES
	CS-3707	TYPICAL PLAN, ELEVATION & SECTION
	CS-3708	TYPICAL SECTIONS DETAILS
	CS-3709	SLAB LAYOUT PLAN AND DETAILS (OPTION 1)
	CS-3710	SLAB LAYOUT PLAN AND DETAIL (OPTION 2)
	CS-3711	ROOF FRAMING PLANS & DETAILS
	CS-3732	BUS STOP TYPICAL SEAT AND TIME TABLE DETAILS

DRAWING IS TYPICAL ONLY. OBTAIN BUILDING PERMIT BEFORE CONSTRUCTION.

<p><b>WARNING</b> BEWARE OF UNDERGROUND SERVICES. THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.</p>					<p><b>CONCURRED STRUCTURAL ONLY</b> NORTHERN TERRITORY GOVERNMENT DEPARTMENT OF INFRASTRUCTURE, PLANNING &amp; LOGISTICS Level 4, Highway House, Palmerston Circuit, Palmerston PO Box 61, Palmerston NT 0831 Signed: <i>Jorge Mu</i> 06/04/22 Registration No.: 33896ES</p>		<table border="1"> <tr> <td>DRAWN</td> <td>DIPL</td> <td>CHECKED</td> <td>DIPL</td> </tr> <tr> <td>DATE</td> <td>APR 2022</td> <td>DATE</td> <td>APR 2022</td> </tr> <tr> <td>DESIGNED</td> <td>DIPL</td> <td>CHECKED</td> <td>DIPL</td> </tr> <tr> <td>DATE</td> <td>APR 2022</td> <td>DATE</td> <td>APR 2022</td> </tr> <tr> <td>DESIGN LEADER</td> <td>DIPL</td> <td>DESIGN DIRECTOR</td> <td>DIPL</td> </tr> <tr> <td>DATE</td> <td>APR 2022</td> <td>DATE</td> <td>APR 2022</td> </tr> </table>		DRAWN	DIPL	CHECKED	DIPL	DATE	APR 2022	DATE	APR 2022	DESIGNED	DIPL	CHECKED	DIPL	DATE	APR 2022	DATE	APR 2022	DESIGN LEADER	DIPL	DESIGN DIRECTOR	DIPL	DATE	APR 2022	DATE	APR 2022			<p>STANDARD DRAWINGS BUS SHELTERS &amp; ASSOCIATED INFRASTRUCTURE</p> <p><b>SHELTER - TYPE 14B - 4 BAY</b> GENERAL NOTES</p>		
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