



GENERAL NOTES

- 1.1. These drawings shall be read in conjunction with all reference drawings and specifications, including Main Roads standard specifications, and with such other written instructions as may be issued during the course of the contract. All discrepancies shall be referred to the Design Engineer for decision before proceeding with work.
- 1.2. All materials and workmanship shall be in accordance with the relevant and current Australian Standards or codes and with the by-laws and ordinances of the relevant authorities except where varied by the project specification.
- 1.3. During construction, the site shall be maintained in a safe and stable condition. Temporary bracing shall be provided by the Contractor as required to keep the works and excavations stable at all times.
- 1.4. The Contractor shall implement erosion and sediment control measures during construction, and limit the disturbance of soils to that necessary for construction of the project.
- 1.5. Trade names have been used for a particular product requirement but equivalent products may be submitted for approval.
- 1.6. Dimensions
- (a) Height, chainages, horizontal curves, vertical curves and coordinates are all in metres.
 - (b) All dimensions are in millimetres.
 - (c) All heights are to Australian Height Datum.
 - (d) All coordinates are to MGA94 Zone 56 on the GDA94 Datum.
 - (e) Dimensions shall not be scaled from drawings.
- 1.7. Refer to Design Packages 100CIDD20 and 200CIDD20 for details and setout of culvert structures.
- 1.8. Refer to Design Packages 100STBR21, 100STBR22, 100STBR61, 200STBR41, 200STBR42, and 200STBR64 for details and setout of bridge structures.
- 1.9. Refer to Design Packages 100CIRF01, 200CIRF01, 100CIEW01 and 200CIEW01 for details of road furniture (koala fencing) and clearing and grubbing.

DESIGN CRITERIA

- 2.1 Design of the fauna crossings is in accordance with DTMR Fauna Sentitive Road Design Manual. Design loads have been determined in accordance with AS 1170 using the following perimeters:-

Concrete Unit Weight (Including steel reinforcement)		24kN/m ³ Insitu
		24kN/m ³ Precast
Soil Unit Weight	Dry	20kN/m ³
	Saturated	22kN/m ³
Galvanised Steel Conductors Unit Weight		0.894kg/m
Structural Steel Unit Weight		77kN/m ³
Earthquake		In accordance with AS 1170 Part 4
Design Wind Speed (In accordance with AS 1170 Part 2)		Ultimate Limit State – Return period: 500 years
		Serviceability Limit State – Return period: 20 years
		Region B – Regional wind speed: V ₅₀₀ = 57 m/s V ₂₀ = 38m/s
		Terrain category 2
		M _t = 1.0
		M _s = 1.0
Fauna Ladder	Dead Load	6kg/m
	Live Load	0.6kN Point Load
Fauna Rails	Dead Load	40kg/m
	Live Load	15kg/m koala

CONCRETE NOTES

- 3.1. Concrete mix design including proportions of additives and cementitious replacement materials shall be in accordance with MRTS70 (10/11) and the Durability Plan and shall be submitted for approval prior to the placement of any concrete.
- 3.2. All concrete shall be compacted using an immersion type vibrator vertically. Vibration in each location should continue until air bubbles cease to appear.
- 3.3. Exposure classification, concrete class and cover to be as follows:-

Element	Exposure Class	Class Strength f'c (MPa)
Anchor Blocks:	B2	S40/20
Fauna Pole Footing	B2	S40/20
Mass Concrete	–	N20/20
Blinding Concrete	-	N20/20

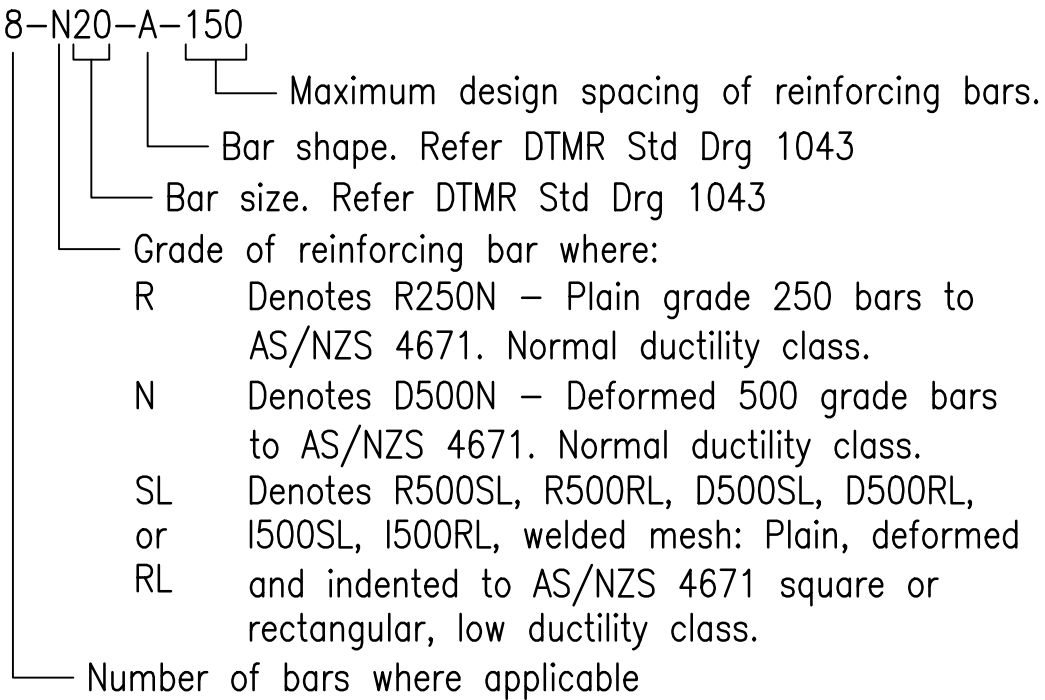
- 3.4. Backfill shall be general backfill (pH>5.5) IN ACCORDANCE WITH MRTS04 Clause 19.2.2.

FOUNDATION NOTES

- 4.1. Services and other items in the vicinity of footings are to be located and confirmed on site before commencing the installation works. Any clashes shall be reported to the designer.
- 4.2. Upon completion of boring the footing, the excavation shall be cleaned of all loose, disturbed and remoulded soil and sediment to expose a firm base of undisturbed material.
- 4.3. The noise wall post and concrete footing shall be installed on the same day as the footing hole excavation.

REINFORCING STEEL

- 5.1. Reinforcing steel to be read in conjunction with MRSD 1043 (09/12).
- 5.2. Reinforcing steel to be in accordance with AS/NZS 4671 and MRTS71 (01/15).
- 5.3. Reinforcing steel nomenclature on this set of drawings is as follows:



- 5.4. Location definitions:
- | | | | |
|-----|------------------------------|-----|------------------------------|
| BF | Denotes Bottom face | TF | Denotes Top face |
| T&B | Denotes Top and bottom | NF | Denotes Near face |
| FF | Denotes Far face | EF | Denotes Each face |
| ES | Denotes Equally spaced | EW | Denotes Each way |
| LV | Denotes Length varies | ALT | Denotes Alternate bar |
| AP | Denotes Alternatively placed | AS | Denotes Alternatively spaced |
- ABR Denotes Alternate bar reversed
- 5.5. Manufacturers and processors of steel reinforcement must hold a valid certificate of approval, issued by the Australian Certification Authority for Reinforcing Steel (ACRS), and registered to MRTS71 (01/15).

ELEMENT	COVER
Anchor Block	85
Fauna Pole Footing	85

- 5.6. Reinforcement to be hot dip galvanised to AS/NZS 4680 where shown.
- 5.7. All reinforcement shall be firmly supported with placement and material on concrete chairs at no greater than 1 metre centres both ways. All reinforcement shall be securely tied with wire ties and all tie ends shall be turned into the member clear of the cover zone. Mesh shall be supported on concrete chairs at 800 maximum centres. Placement and material of all chairs and spacers in accordance with MRTS70 (10/11).
- 5.8. Laps and other splices in reinforcing steel shall only be made at the positions shown on the drawings unless alternative or extra locations are approved in writing by the Administrator.
- 5.9. Side and end laps in welded mesh reinforcement shall be in accordance with AS5100.5 clause 13.2.4.
- 5.10. Minimum splice lengths unless noted otherwise are as follows:

Bar Size: mm	N12	N16	N20	N24	N28	N32	N36	N40
Minimum Lap Length	400	520	750	1000	1250	1550	1850	2000

- 5.11. For horizontal bars with more than 300mm of concrete cast below the bar the splice lengths shall be 1.25 times the values shown in the above table. Where more than 50% of reinforcement is spliced at points of maximum stress, lap lengths shown in the table are multiplied by 1.3.
- 5.12. Reinforcing bars shown on the drawings are represented diagrammatically and not necessarily in true projection. Reinforcing bars to be laid coplanar to maintain specified clear concrete cover.

STEELWORK NOTES

- 6.1. Steelwork to be fabricated to MRTS78 (01/16) 'Fabrication of Structural Steelwork'.
- 6.2. Hot rolled steel sections and flat bar to be Grade 300 to AS/NZS 3679.1, UNO.
- 6.3. RHS and SHS tube to be Grade C450L0 to AS/NZS 1163, UNO.
- 6.4. CHS tube to be Grade C350L0 to AS/NZS 1163 UNO.
- 6.5. Steel plate to be Grade 350 minimum to AS/NZS 3678, UNO.
- 6.6. All steelwork to be hot dip galvanised to AS/NZS 4680 unless shown otherwise. Prior to galvanising, all weld splatter and welding slag is to be removed.
- 6.7. All hollow section material manufactured to AS/NZS 1163 will require abrasive blasting to develop a surface profile of 50µm prior to hot dip galvanising.
- 6.8. All plate material manufactured to AS/NZS 1594 will require abrasive blasting to develop a surface profile of 50µm prior to hot dip galvanising.
- 6.9. All members to be branded with suitable type number after fabrication.

STEELWORK NOTES (CONT.)

BOLTS

- 6.10. Commercial grade bolt assemblies to be:-
- Class 4.6 to AS 1111.1
 - Nuts to be class 5 to AS 1112.1
 - Washers for class 4.6 bolts to AS 1237
 - Snug tightened to AS 5100.6
- 6.1. High strength bolt assemblies to be:-
- Bolts class 8.8 to AS/NZS 1252
 - Nuts class 8 to AS/NZS 1252
 - Washers for class 8.8 bolts to AS/NZS 1252
 - Snug tightened to AS5100.6 unless shown otherwise
- 6.12. All bolts and nuts to be hot dip galvanised to AS 1214. All washers to be hot dip galvanised to AS/NZS 4680 unless shown otherwise.
- 6.13. Square cup head bolt to be grade 4.6 with a class 5 nut, to AS1390.
- 6.14. UNO, all bolts shall be in 2mm clearance holes.
- Chemset anchors for fixings to concrete shall be "HILTI HIT-RE 500" or approved similar and shall be installed to manufacturer's recommendations. UNO, all anchors shall be hot dip galvanised to AS/NZS 4680 with minimum thickness of 42µm.
- 6.15. For supply of both nuts and washers, refer to TMR Technical Note 66.
- 6.16. All stainless steel bolts and nuts to be Grade 316 A4-70 to BS EN ISO 3506 and installed using Unasco stainless steel thread seal tape.

WELDING NOTES

- 7.1. Welding symbols to AS 1101.3.
- 7.2. Structural Steel:-
- All welding to AS/NZS 1554.1.
- All welds, except location tack welds, to be SP category.
- Welding consumables to be controlled hydrogen type G493 to AS/NZS ISO 14341-B, or T493 to AS/NZS 17632-B unless noted otherwise.
- All welding shall be carried out in the fabrication yard. No field welding permitted.
- After fabrication, all posts to have weld splatter and welding slag removed prior to hot dip galvanising to AS/NZS 4680.
- 7.3. Reinforcing Steel:-
- Welding of bar splices to AS/NZS 1554.3
- All welds, except location tack welds, to be SP category.
- Tack welding for location purposes to AS/NZS 1554.3 Clauses 3.3.1 and 3.3.2.
- Welding shall not be carried out within 75mm from any bent portion of bar.
- Welding consumables to be B-G49X or B-T49X.
- Welding consumables to AS/NZS ISO 17632 or AS/NZS 14341.

ABBREVIATIONS

- 8.1. Abbreviations used are in accordance with AS 1100, DTMR 'Drafting and Design Presentation Standards' and DTMR 'Bridge Design Drafting Manual'.
- 8.2. Additional abbreviations used throughout the set are as follows: -

AHD – Australian Height Datum	MRSD – Queensland Government Department of Transport and Main Roads Standard Drawing
CIP – Cast-in-place	NFC – No chamfer or fillet
CJ – Construction joint	NTS – Not to scale
Dia – Diameter	R – Radius
DN – Nominal diameter	RC – Reinforced concrete
EGL – Approximate existing ground level	SOP – Setout point
FSL – Finished surface level	typ – Typical
FL – Flat bar	TMR – Queensland Government Department of Transport and Main Roads
galv – Hot dip galvanised	UG – Underground
HD – Heavy duty	UNO – Unless noted otherwise
Ht – height or reduced levels to Australian Height Datum	WPM – Waterproof membrane
MRTS – Queensland Government Department of Transport and Main Roads Technical Specification	

DESIGN CODE AND DESIGN LOADING: AS5100-2004, AS1170.2-2011 AND TMR DESIGN CRITERIA FOR BRIDGES AND OTHER STRUCTURES										BIS No.				 Queensland Government		
Associated Job Nos		Survey Data		Scales	SUNSHINE COAST COUNCIL				Drawn	M. Alzate	MISCELLANEOUS STRUCTURES FAUNA CROSSING – GENERAL NOTES SHEET 1					
		Datum	GDA94		BRUCE HIGHWAY (BRISBANE – GYMPIE)				Checked	B. Condon						
Auxiliary Drg Nos		Horiz. Grid	MGA94 (Z56)		CTL CHGE 58380 – 67200				Designed No.	J. Savage						
		Height Origin	AHD Derived		Reference Points				Verified No.	E. O'Donovan 12689						
		Survey Books	280002		Dimensions shown in millimetres except where shown otherwise				Design Reviews (RPEQ)							
A Issued For Construction					Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP	F. Ngu No. 10510 Date. 20/12/18		ENGINEERING CERTIFICATION (RPEQ)				
Revisions/Descriptions		Certification	Date	Microfiled	13	9.02	8.92	5.6	21A			ENG. AREA	NAME	SIGNATURE	NO.	DATE
CAD FILES		C:\batch\plot\28010A1-DES-000STOS01-DRG-0006.dwg			Through Chainage from Start Rd 10A – Ch. 58.38 to 67.20km							Structural	E. O'Donovan	E. O'Donovan	12689	20/12/18