

NOTES:

1. Provide Transverse joints at 4.0m spacings.
2. Provide longitudinal joints at centreline & shoulder.
3. Concrete strength to be 32 MPa.
4. Lap Reinforcement fabric 250mm.
5. Floodway signage to be installed in accordance with MUTCD (Part 2, Figure 4.27).
6. Delineation to be installed on floodway shoulder at maximum 5m centres and spaced evenly to suit floodway length. Delineation to be installed at centreline of two-lane floodway.
7. Floodway depth markers to be installed at lowest point on floodway aligned to downstream side.

WATERWAY BARRIER WORKS - COMPLIANCE NOTES

1. Floodway site to be checked on Queensland Government spatial data layer *Queensland Waterways for Waterway Barrier Works* to determine is assessable or self-assessable codes apply.
2. Summary of design criteria for Low Impact (Green) waterways:
 - (a) Minimum culvert aperture width = 1.2m.
 - (b) Culverts to be installed at (or below) existing bed level.
 - (c) Culvert gradient to be no steeper than the waterway bed gradient.
3. Summary of design criteria for Moderate Impact (Amber) waterways:
 - (a) Minimum culvert aperture width = 2.4m.
 - (b) Culverts to be installed at (or below) existing bed level.
 - (c) Culvert obvert to be 300mm min. above bed level.
 - (d) Floor roughening (to simulate natural bed conditions) required if culverts are installed less than 300mm below bed level.
 - (e) Culvert gradient to be no steeper than the waterway bed gradient.
4. Summary of design criteria for High Impact (Red) waterways:
 - (i) Culvert aperture width = 100% of the low flow channel width.
 - (ii) Culvert gradient to be no steeper than the waterway bed gradient.
 - (iii) Outermost culvert cells and upstream wingwalls to include baffles.
 - (iv) Culvert cells to be aligned parallel with the direction of flow.
 - (v) Must also comply with one of the following three options:

Option 1:

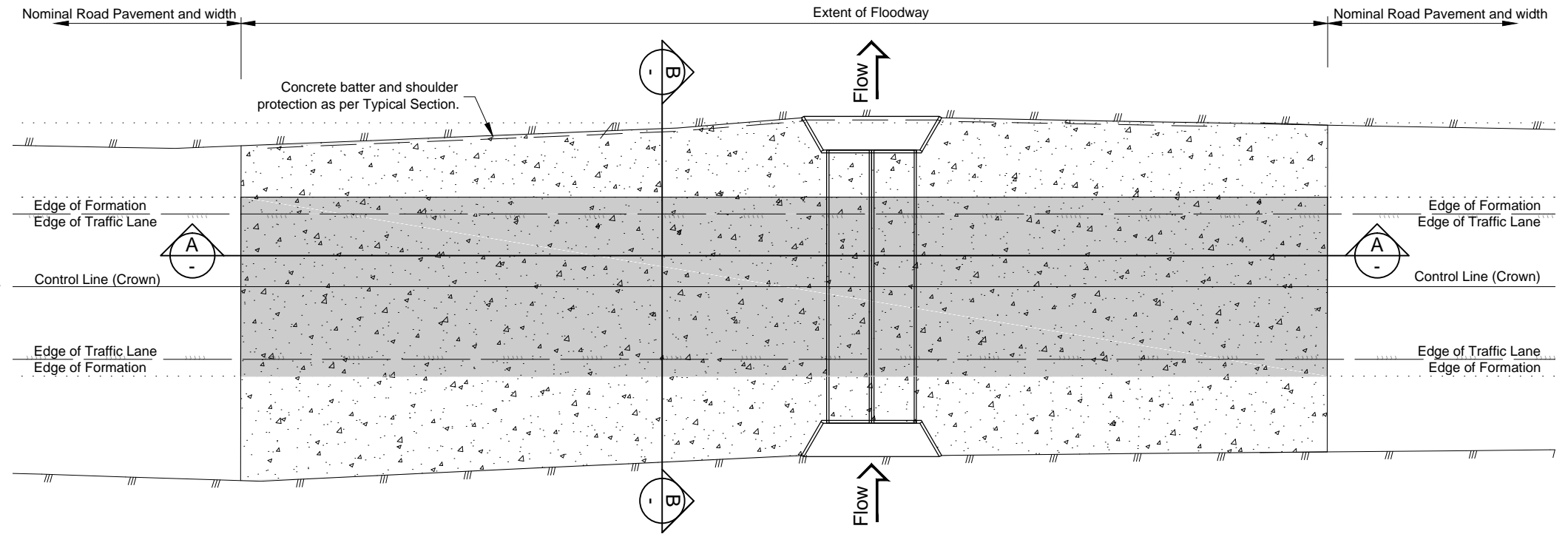
 - (a) Culvert aperture width = 75% of the main channel width.
 - (b) All culverts to be installed minimum 300mm below bed level.
 - (c) Culvert obvert to be 600mm min. above bed level.
 - (d) Depth of cover over the culverts to be max. 750mm.

Option 2:

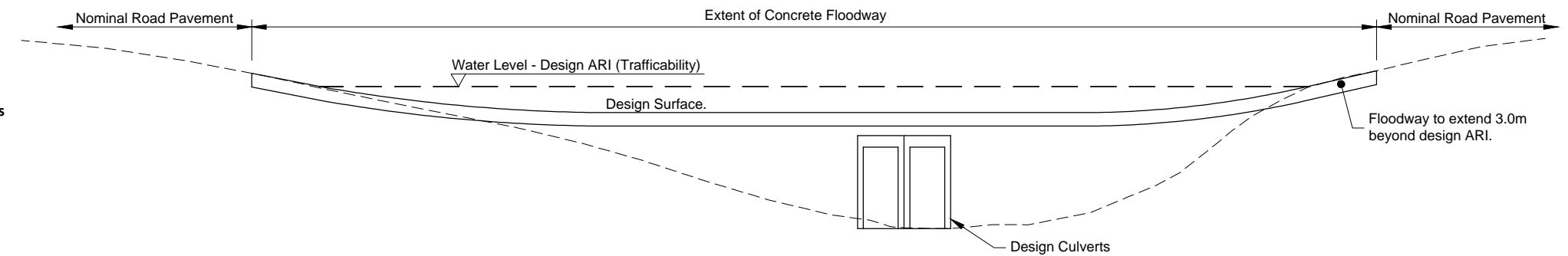
 - (a) Culvert aperture width = 75% of the main channel width.
 - (b) At least one culvert cell in the crossing to be installed minimum 300mm below bed level. Obvert of cell to match remaining cells. Remaining culverts to be installed at (or below) existing bed level.
 - (c) Floor roughening (to simulate natural bed conditions) required for culverts installed less than 300mm below bed level.
 - (d) Culvert obvert to be 600mm min. above bed level.
 - (e) Depth of cover over the culverts to be max. 750mm.

Option 3:

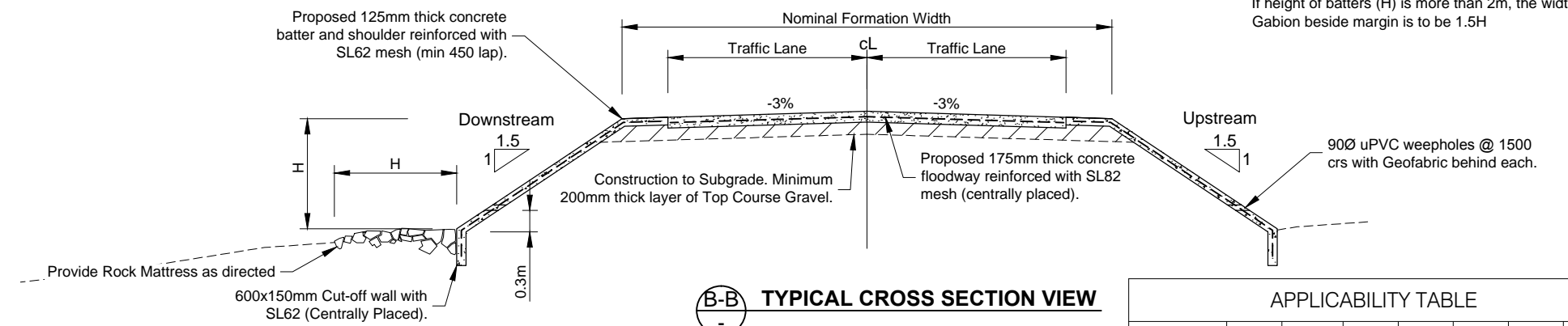
 - (a) Minimum culvert aperture width = 3.6m.
 - (b) All culverts to be installed minimum 300mm below bed level.
 - (c) Culvert obvert to be 300mm min. above bed level.
 - (d) Maximum deck height of the crossing is 1.2m above the lowest point of the natural stream bed.
 - (e) Depth of cover over the culverts to be max. 300mm.
 - (f) Crossing incorporates min. 1200mm wide box culvert, or 2/900 pipes.
 - (g) Rock chute is constructed adjacent to each bank.
5. Refer *Code for self-assessable development - Minor waterway barrier works - Part 3: culvert crossings* for more information and alternate treatments.



TYPICAL PLAN VIEW
Scale 1:250



TYPICAL LONGITUDINAL SECTION VIEW
A-A



TYPICAL CROSS SECTION VIEW
B-B

Note

Extent of batter protection to be confirmed on-site by the works engineer.
If height of batters (H) is more than 2m, the width of Gabion beside margin is to be 1.5H

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	No	Yes	Yes	Yes
Applicable DWG	CMDG-R-095A						

REVISIONS	DATE
B IRC ADDED	12/2016
A ORIGINAL ISSUE	04/2016

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Capricorn Municipal Development Guidelines
Incorporating:
Banana Shire Council (BSC) Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

**FLOODWAY –
CULVERT CROSSING**

ROADS	
STANDARD DRAWING	
CMDG-R-095	
REV.	A B