

MEMORANDUM

KINDIRA WATERWAY CROSSING ACCEPTABLE DEVELOPMENT REQUIREMENT COMPLIANCE

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INTRODUCTION

Egis Pty Ltd has been engaged by Mirvac Pty Ltd to provide advice and to confirm compliance to the *Accepted Development Requirements for operational work that is constructing or raising waterway barrier works* (Department of Primary Industries, 2025), referred to as the ADR, for the interim waterway crossing connecting the ROL04 and ROL05 of the Kindira Development for the purposes of site construction.

PROPOSED WORKS

The proposed works consists of the construction of a causeway type crossing with culverts to allow for continuous flow through the crossing. Figure 1 shows the location of the proposed works. The crossing is located within a red mapped waterway. The proposed crossing will be in place for over 180 days and hence forms the definition of 'permanent' works.

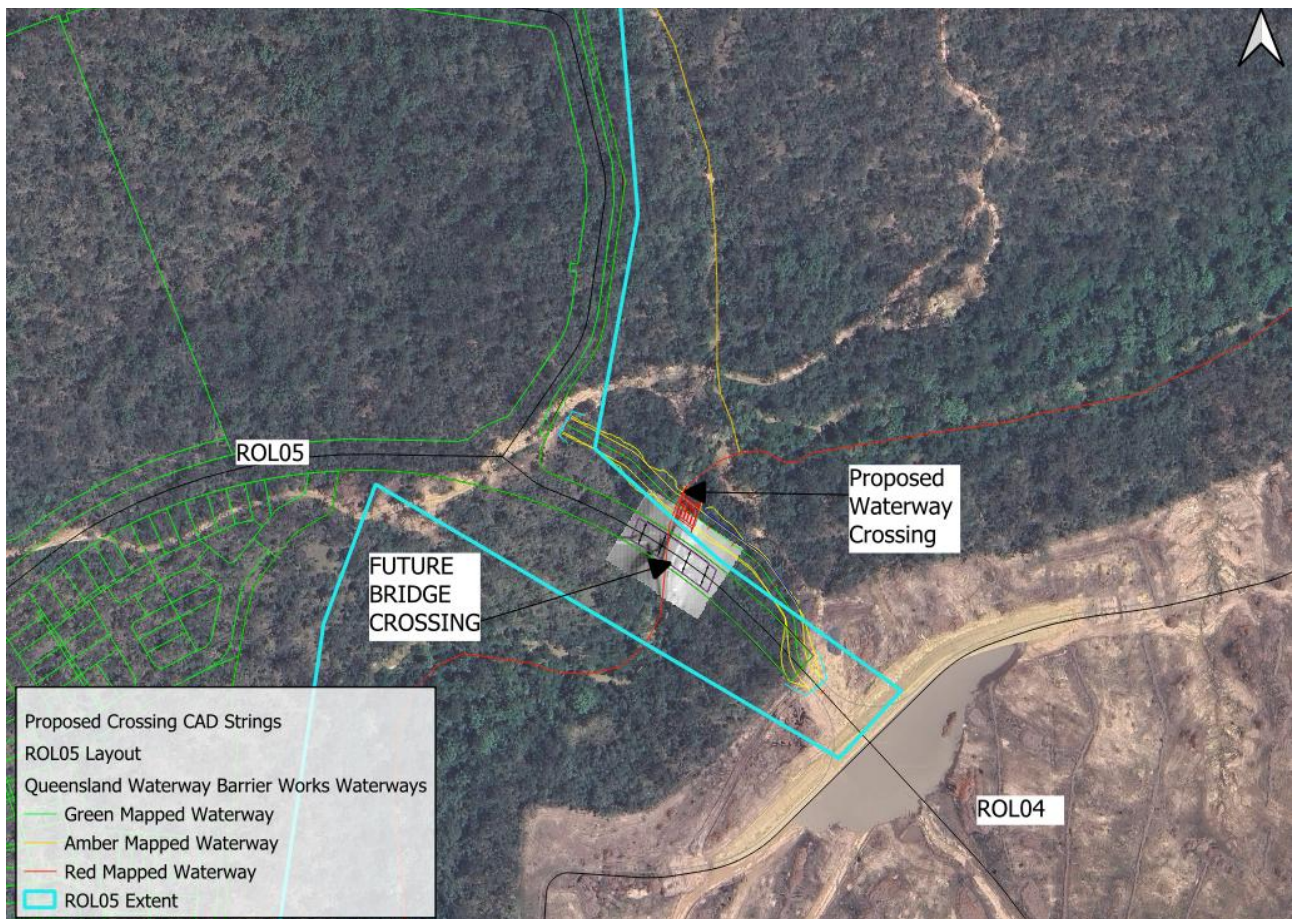


FIGURE 1: LOCATION OF PROPOSED CROSSING

COMPLIANCE CRITERIA

The compliance criteria used for this assessment to the ADR (2025) specification under a red mapped waterway in the eastern drainage basin, new culvert crossing option 2.

DESIGN COMPLIANCE

Red waterway crossing option 2 as per Figure 11 in the ADR (2025) has been deemed most appropriate for the crossing.

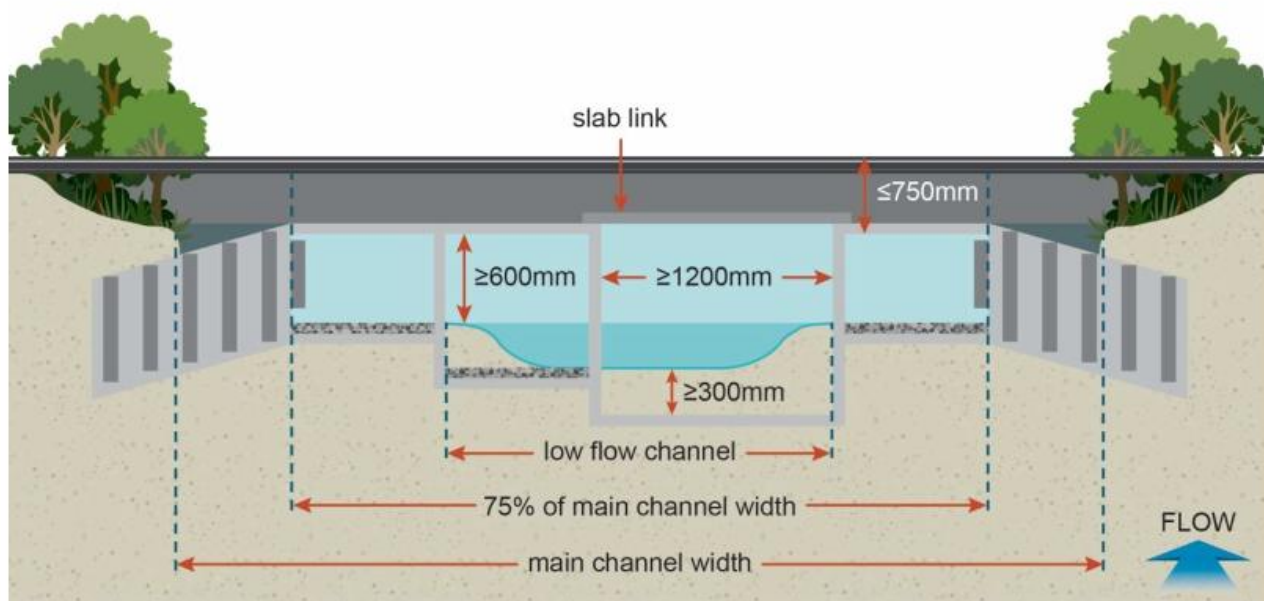


Figure 11. Culvert crossing option 2 (cross-section of waterway) – red waterway

FIGURE 2: ADR RED CROSSING OPTION 2 EXCERPT

Figure 3 below shows a long section through the proposed crossing with the relevant compliance criteria in alignment with Figure 2.

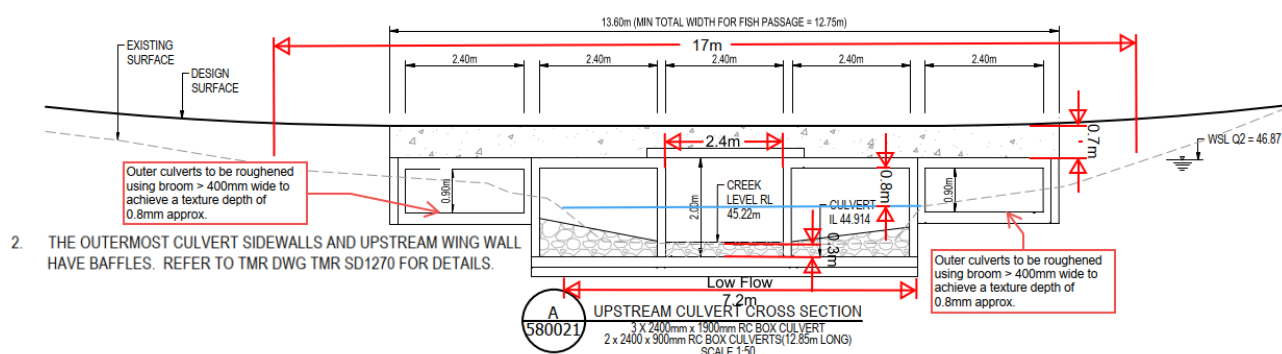


FIGURE 3: LONG SECTION OF PROPOSED WATERWAY CROSSING

Table 1 below details the conformance to each of the requirements for the ADR compliant crossing as per section 5.2.1.

TABLE 1: ADR COMPLIANCE TABLE

Criteria	Compliance Achieved?	Comment
Works within the waterway commence and finish within 180 calendar days.	Yes	Works to construct the crossing will be complete within 180 calendar days.
The combined culvert cell aperture width spans a minimum of 100% of the low flow channel width.	Yes	Low Flow Channel = 7.5m Wide (Refer to Figure 3)

Criteria	Compliance Achieved?	Comment
The culvert is installed at a gradient no steeper than the waterway bed gradient	Yes	Bed Gradient = 0.8 % Culvert Gradient = 0.8 %
New culvert cells are aligned parallel, within 10°, to the direction of water flow to minimise turbulence.	Yes	Culvert Skew from Water Flow = 0°
The outermost culvert sidewalls and upstream wingwalls have baffles.	Yes	Baffles to be installed as per TMR SD 1270
Option 2 – Eastern Basin Criteria		
The combined width of the culvert cell aperture(s) spans a minimum of 75% of the main channel width	Yes Main Waterway Width = 17m (defined by the Q2 flood level). Required Culvert Width = 12,750mm Culvert Width = 12,960 mm	Refer to Figure 3.
The obvert of the culvert cell(s) is a minimum of 600 mm above the level that water commences to flow through the culvert, or bed level, for ephemeral waterways	Yes	Refer to Figure 3.
The depth of cover is no greater than 750 mm or the culvert does not flow full at a 50% Annual Exceedance Probability or lower flows	Yes – depth of cover is less than 750mm	Refer to Figure 3.
At least one culvert cell in the crossing is set a minimum of 300 mm below bed level, unless installed on bedrock where the natural bed surface is maintained. These culvert cell(s): - have a minimum width of 1200 mm for a box culvert or 1500 mm diameter for a pipe culvert - have an obvert no lower than the obvert of the highest culvert cell in the culvert crossing, except where slab	Yes Box Culvert width = 2400mm Link slab used – Obvert of slab link = top of adjacent box culvert. Low flow culverts (submerged >300mm) aligned with low flow channel.	Refer to Figure 3.

Criteria	Compliance Achieved?	Comment
links are incorporated and the obvert of the slab link barrel is no higher than the top of the adjacent box culvert are aligned with the low flow channel of the waterway.		
All other culverts in the crossing are: - at or below bed level - roughened throughout the culvert invert to approximately simulate natural bed conditions.	Yes Culverts to be roughened using coarse broom brush.	Refer to Figure 3.

CONCLUSION

This memorandum has been produced to confirm that the proposed crossing proposed to link ROL04 and ROL05 is compliant to ADR (2025).

Notification to the Department of Primary Industries (DPI) of more than 20 days before commencing the works is required. This notification will be submitted by Egis Pty Ltd.

DISCLAIMER

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