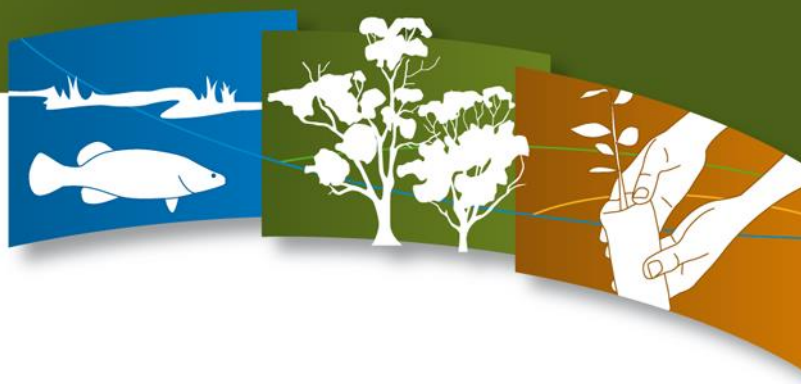
Works on Waterway Guidelines
Ford Crossing



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Introduction

Ford type crossings may be used in waterways where the frequency of crossing is low. Fords are not acceptable for regular stock movements such as on dairy farms due to animal wastes being directly discharged to the waterway and typically can not meet safety criteria as primary access for a dwelling.

Potential Waterway Impacts

The impacts of fords can include:

- Reduced capacity for fish and aquatic fauna movement;
- Reduction in wildlife and aquatic fauna habitat in the immediate vicinity of the crossing;
- Adverse impacts on macrophyte communities;
- Contaminants from vehicles reduce water quality;
- Increased nutrient loads where crossings are used for stock movement;
- Sediment input during construction.

Assessment Criteria

Fish Passage

Connectivity through a waterway has been identified as an essential component of healthy fish populations as it allows for access to important spawning, dispersal, feeding, refuge, juvenile and adult habitats. Stream barriers such as ford or culvert crossings, can result in a loss of connectivity and has been attributed to the decline in many native fish species in Australian waterways (O'Connor, Stuart & Campbell-Beschorner, 2017).

Fords can cause significant disruptions to fish passage and should only be used in class 3 or streams in line with these guidelines (Table 1).

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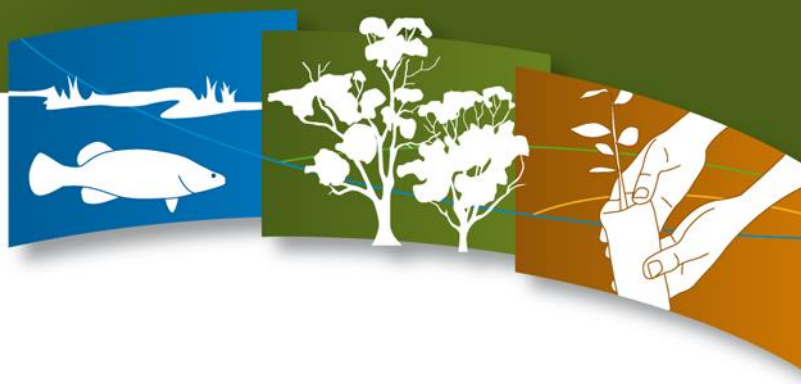

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Table 1 Minimum preferred structures for Fish Passage.

Classification	Stream Characteristics	Minimum Preferred Structure
Class 1 - Major fish habitat	Large named permanently flowing stream. Aquatic vegetation present. Known fish habitat.	Bridge
Class 2 – Moderate fish habitat	Smaller named permanently or intermittent flowing stream. Aquatic vegetation present. Known fish habitat.	Large box culvert or bridge
Class 3 – Minimal fish habitat	Named or unnamed watercourse with intermittent flow.	Box culverts
Class 4 – Unlikely fish habitat	Named or unnamed stream with flow during rain events only.	Ford or pipe culverts

The ford crossing is to be a defined crossing point using rock or concrete generally set a minimum of 300-400mm below water level to maintain natural flow velocities (Figure 1). However, this will be reviewed on a case by case basis dependent on the waterway.

Where the ford is raised above the bed level to improve trafficability, the downstream side of the ford is to be a graded rock chute adequate to provide for fish passage. The rock chute is to extend the full width of the stream and include an apron zone.

Depth indicators and signage should be provided. These are mandatory if the crossing is open to public access.

Local drainage from the approach access track should be directed to sedimentation basins or grassed filter zones to trap sediments. The batters of the access track excavated into the stream bank should be on a slope of 1(v):2(h) or flatter to facilitate the establishment of a grass cover. Table drains at the toe of the batters should be stabilised with graded rock.

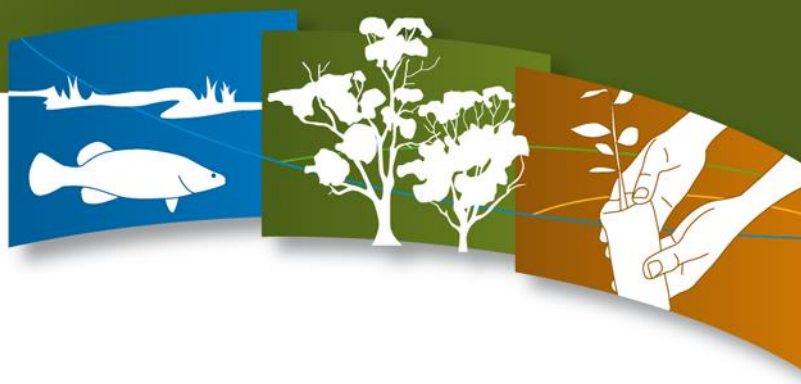

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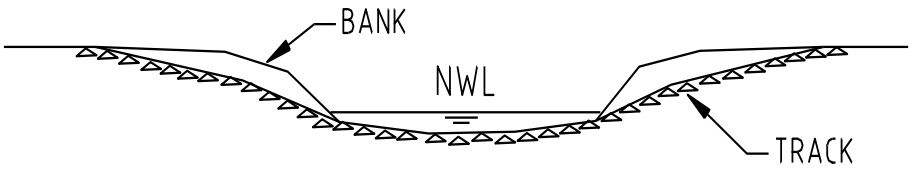
Figure 1: Rock Ford



NWL = Normal Water Level

References

J. O'Connor, I. Stuart, R. Campbell-Beschorner (2017) Guidelines for fish passage at small structures. Arthur Rylah Institute for Environmental Research Technical Report Series No. 276. Department of Environment, Land, Water and Planning, Heidelberg, Victoria