

Enoggera Creek Bennett Road box culvert fishway

PS08



(Photo: Ross Kapitzke 08/12/07)



(Photo: Ross Kapitzke 13/04/10)



(Photo: Ross Kapitzke 21/05/10)

- Bennett Road box culvert fishway project is located on Enoggera Creek – a tributary of the Brisbane River in Brisbane
- Enoggera Creek is a major waterway in Brisbane's western suburbs and has up to 11 native freshwater fish species
- the crossing is a barrier to fish migration under most flow conditions and is located within valuable habitat areas in the creek
- project developed through collaboration with Dept of Infrastructure and Planning & Brisbane City Council – 2010 completion

CLIENT AND PARTNERS



Department of Infrastructure and Planning



Brisbane City Council



PROJECT OBJECTIVES

- provide for upstream fish passage at crossing
- retain integrity and function of culvert structure
- establish fish passage design for typical structure
- provide demonstration site for community

SCOPE OF WORK

- concept design of fishway facility
- design and development of culvert fishway
- specialist construction guidance for fishway facility
- hydraulic and biological monitoring and evaluation

CROSSING DESCRIPTION

- 2-cell 3000 x 1800 mm box culvert 12 m long
- box culvert slope approx 1 in 200 (0.5%)
- upstream and downstream aprons with wingwalls
- water surface drop (0.5 m) at downstream apron

MIGRATION BARRIERS

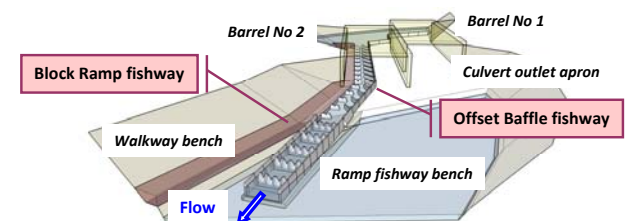
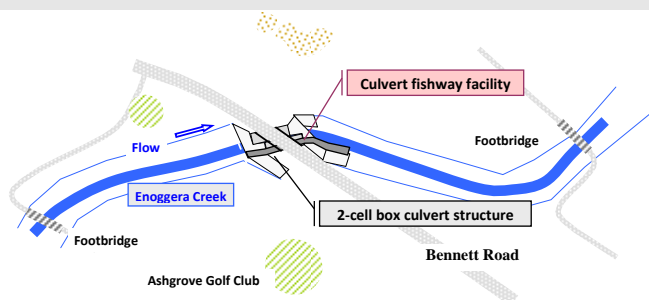
- water surface drop downstream of culvert
- shallow water depths on downstream apron
- high velocity in culvert in low and medium flows
- regular culvert cross section and lack of rest place

MITIGATION MEASURES

- Zone A (downstream channel) – ramp fishway
- Zone B (outlet) – apron offset baffle fishway
- Zone C (barrel) – offset baffle fishway for culverts
- Zone D (inlet) – baffles and fishway exit works

OTHER FEATURES

- hydraulic and biological monitoring facilities (gauge boards, flow control boards)
- access facilities (walkway, steps, handrails)
- provisions for adaptation and testing



Fish passage planning and design for small waterway structures

James Cook University School of Engineering and Physical Sciences provides consulting, research and development services in fish passage planning and design, and development of fishway technology for small waterway structures (e.g. road culverts, grade control). Fish passage facilities including baffled and ramp structures are designed to meet multipurpose design requirements for these sites, to overcome hydraulic barriers (e.g. high velocities, water surface drop), and to mitigate aquatic fauna connectivity impacts in the waterway. An ecohydraulics approach is adopted using integrated physical and biological performance assessment within the stream environment. Consulting services include catchment prioritisation, corridor scale planning, project design, site evaluation and product development.

CONTACT

Ross Kapitzke, Environmental Engineer

Ph: 0402 316 404

Web: <http://www.jcu.edu.au/fishpassagedesign/>

E: ross.kapitzke@jcu.edu.au





(Source: Ross Kapitcke 29/05/10)



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Walaman Fishways – Brisbane City Council – Enoggera Creek Bennett Road culvert – Fishway flows 330 U/S depth



(Source: Ross Kapitcke 15/10/10)



(Source: Ross Kapitcke 15/10/10)



(Source: Ross Kapitcke 15/10/10)



(Source: Ross Kapitcke 15/10/10)

Walaman Fishways – Brisbane City Council – Enoggera Creek Bennett Road culvert – Fishway flows 430 U/S depth

(Source: Ross Kapitcke 21/12/10)



(Source: Ross Kapitcke 21/12/10)



(Source: Ross Kapitcke 21/12/10)



(Source: Ross Kapitcke 21/12/10)



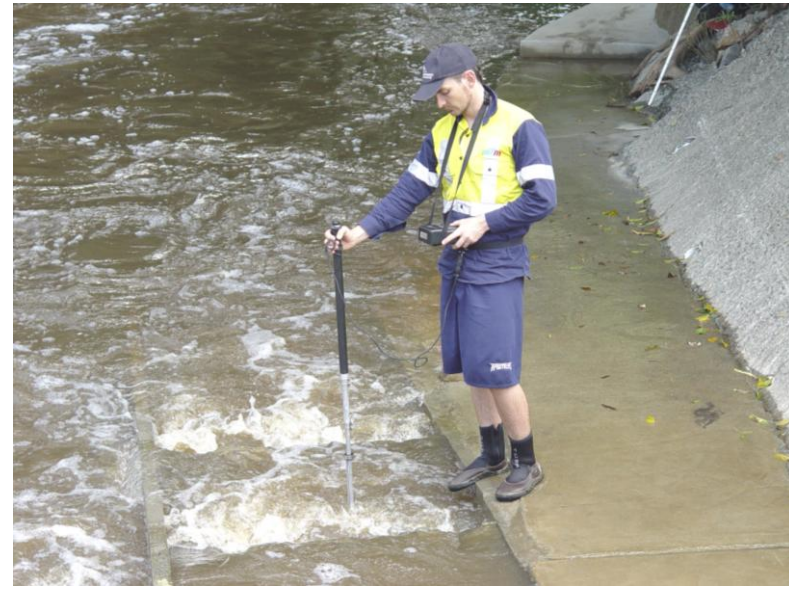
Walaman Fishways
Prefabricated fishway products

E: info@walaman.com.au
Web: <http://walaman.com.au>

Walaman Fishways – Brisbane City Council – Enoggera Creek Bennett Road culvert – Fishway flows 600 U/S depth



(Source: Ross Kapitcke 11/08/10)



(Source: Ross Kapitcke 22/01/11)



(Source: Ross Kapitcke 22/01/11)



(Source: Ross Kapitcke 22/01/11)

Walaman Fishways – Enoggera Creek Bennett Road culvert fishway – Hydraulic monitoring



(Source: Ross Kapitcke 15/01/11)



(Source: Ross Kapitcke 16/01/11)



(Source: Ross Kapitcke 16/01/11)



(Source: Ross Kapitcke 19/01/11)

Walaman Fishways – Enoggera Creek Bennett Road culvert fishway – Biological monitoring with fish cage



(Source: Ross Kapitcke 22/01/11)

(Source: Ross Kapitcke 22/01/11)



(Source: Ross Kapitcke 16/01/11)

(Source: Ross Kapitcke 16/01/11 and 22/01/11)

Walaman Fishways – Enoggera Creek Bennett Road culvert fishway – Biological monitoring – Fish community