

River remediation on a Bunnings budget – A geomorphic assessment of DIY river remediation works

Elyssa De Carli^{1,2}, Nick Barker¹, Chris Miekle¹

¹SLR Consulting

²University of Wollongong

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ABSTRACT

In late 2022 unauthorised works were undertaken by a landowner within a major creek southeast of Brisbane in Queensland, Australia. The creek is part of a network that connects to the Brisbane River and is subject to historical flash flooding. Unauthorised works included diversion of the main channel and construction of a bund wall approximately 90m long and 3 to 4m high, excavation of bedrock and removal of riparian vegetation across the site. Water Act delegates issued a series of compliance notices, and in mid-2023 the landowner/perpetrator undertook remediation works to restore the creek. It is understood that the landowner did not seek expert or specialist advice to undertake the remediation works and was generally non-compliant when advised to do so. This is a tale of river remediation on a Bunnings budget, where lowest prices are just the beginning.

SLR undertook a geomorphic assessment of the DIY remediation works to assess the degree of further channel intervention required to restore the creek. A taxonomic framework was used to identify features which exert a critical control upon the river character (confining margins, structural elements and geomorphic units), to assess the likelihood of ongoing impacts. Key concerns included remediation of the secondary channel and floodplain; characterized by an increased elevation of 1 to 1.5m and a lack of hydraulic roughness and geomorphic diversity. To re-instate the secondary channel, highly erodible earthworks from the removal of the bund wall were spread across the site, low-cost Bunnings stock hessian matting was used in the place of Jute Mesh to line the base of the new channel and household Bunnings plants were used in combination with natives for revegetation.

The DIY remediation works pose ongoing risks for the creek known for historical flash flooding. A key concern is that the increase in floodplain elevation isolates the secondary channel and floodplain to re-working solely during high flow events. The highly erodible nature of the bed materials, coupled with the lack of hydraulic roughness and geomorphic diversity, poses ongoing risks for large-scale geomorphic change through stripping, erosion and downstream deposition. Further channel intervention was recommended to upgrade the DIY remediation works using well-established management guidelines and a previously remediated downstream reach as an example of best practice.