

# Hotham-Williams River Action Plan

## *Yornaning Dam Detailed site plan*



Prepared for  
**Peel-Harvey Catchment Council**

By **Urbaqua**

**June 2022**

### **Disclaimer and Limitation**

This document is published in accordance with and subject to an agreement between Urbaqua and the Client, Peel-Harvey Catchment Council (PHCC), for who it has been prepared for their exclusive use. It has been prepared using the standard of skill and care ordinarily exercised by environmental professionals in the preparation of such Documents.

This report is a qualitative assessment only, based on the scope of services defined by the Client, budgetary and time constraints imposed by the Client, the information supplied by the Client (and its agents), and the method consistent with the preceding. Urbaqua has not attempted to verify the accuracy or completeness of the information supplied.

Any person or organisation that relies upon or uses the document for purposes or reasons other than those agreed by Urbaqua and the Client without first obtaining the prior written consent of Urbaqua, does so entirely at their own risk and Urbaqua, denies all liability in tort, contract or otherwise for any loss, damage or injury of any kind whatsoever (whether in negligence or otherwise) that may be suffered as a consequence of relying on this Document for any purpose other than that agreed with the Client.

Copying of this report or parts of this report is not permitted without the authorisation of the Client or Urbaqua.

### **Acknowledgements**

Urbaqua would like to acknowledge the following organisations for their significant contribution to this project:

1. Peel-Harvey Catchment Council.
2. Newmont Boddington.
3. Shire of Cuballing (for funding towards the Yornaning Dam field assessment).
4. South32 Worsley Alumina.

# Peel-Harvey Catchment Council - Hotham-Williams River Action Plan

## Figure 1: Yornaning Dam Site Concept - Restoration Plan

Changes to access and amenities in this plan may occur and this will be communicated to PHCC by the Shire of Cuballing who will be engaging Urbaqua to update the plans once further information is available

- Legend**
- Revegetation**
- Demonstration planting with signage
  - Comprehensive restoration of 30m riparian buffer zone
  - Revegetation completed by the Shire of Cuballing
  - Bank stabilisation (incl. woody debris, where required)
- Access**
- Existing**
- Pedestrian access
  - Boardwalk
  - Vehicle access
  - Bollards
  - Additional pedestrian access
- Proposed**
- Additional boardwalk
  - Boundary fencing
- Existing amenities**
- Play equipment
  - River restoration information
  - Shelter / picnic facilities
  - General information & directional signage for wayfinding
  - Camping area



Existing conditions:



- Notes:**
- 1 Revegetation - comprehensive weed removal and revegetation of minimum 10m riparian buffer in these areas (30m preferred where tenure and land-use allow).
  - 2 Revegetation - accessible demonstration area for revegetation with higher value species incorporating explanatory signage and trees to improve riparian shading.
  - 3 Additional areas of comprehensive revegetation by Shire of Cuballing.
  - 4 Overnight camping area with informally marked bays and bollards to prevent access to bush areas.
  - 5 Vehicle access with definition of day-parking and camping areas.
  - 6 Principal information board.
  - 7 Future pedestrian bridge providing connection to proposed footpath connection into townsite.

Signage will include information to acknowledge Noongar and European history of the River at Yornaning Dam site and communicating its cultural and historical significance, including the way the Noongar people and Europeans have valued this place throughout history."

Project activities outside of the main focal areas on public land will be in close consultation with neighbouring landholders.

## 1 SITE DESCRIPTION

The Yornaning Dam is located on a tributary to the Hotham River and was built in 1896 to provide water for steam trains on the Perth-Albany train line. It includes two creeks that flow into the dam within areas of remnant vegetation that are part of the Yornaning Dam Reserve. There is rural land south and north-east of the reserve, along with the CBH facilities near the railway line. The dam is used for recreation by the community and there are vehicle tracks throughout the site including one crossing near the railway bridge. The recreational areas in the western part of Yornaning Dam have picnic and camping areas surrounded by native woodland. The reserve is known for its orchids and excellent birdwatching.

The two channels entering the dam were observed to have severe erosion in parts as well as poor vegetation conditions, limited stream cover and lack of habitat diversity. Both channels feature heavily reduced or absent riparian vegetation and prominent exotic ground cover vegetation.

The Shire of Cuballing has been carrying out restoration and other works at the Yornaning Dam for several years. This has included definition of walk trails and installation of board walk crossings, upgraded parking areas, playground, and picnic facilities. The Shire has also successfully carried out revegetation in a degraded area of remnant bushland, which largely consists of wandoo woodland. In 2021, the Shire received a Tidy Towns award under the category of Environmental Sustainability - Nature Conservation.

## 2 CONSULTATION

Consultation with key stakeholders and community commenced in February 2021 and has included the following:

- Site visits with and formal presentation to the Shire of Cuballing, with direct feedback.
- Meeting with landholders adjacent to the project site.
- Information session for the local community, with direct feedback.

Key comments from consultation were:

- Dieback has been identified at the site.
- Boundary fencing at the site is inadequate in parts, particularly along the southern boundary.
- Motorbikes have been accessing the site from adjacent properties.
- There is an unofficial mountain bike track that is used by a Wheatbelt group that they have requested remains unofficial.
- Previous activities carried out by the Shire need to be captured in the restoration maps.
- Proposed activities in the restoration maps need to include future plans of the Shire to improve the reserve, in addition to environmental restoration works recommended as a result of the original RAP site assessment.

## 3 CONCEPT DESCRIPTION

The recommended works have been identified in response to the original site assessment, subsequent stakeholder consultation, site visits and desktop assessment.

As a site with significant cultural and biological value the restoration plan focuses on increasing the health of native vegetation through comprehensive removal of exotic vegetation within the riparian zone and revegetation with native species. Revegetation will provide significant benefit to the site by increasing bank stability, supporting water quality treatment through in-stream vegetation, creating

habitat diversity, and decreasing exposure with canopy cover. Additionally, areas of demonstration planting can provide opportunity for public education through walking trails and information boards.

To allow for continued recreational use and to increase public awareness of the cultural and biological values of the dam, the concept plan recognises the extensive works previously completed by the Shire of Cuballing and includes suggestions for new and updated information boards.

## 4 PROPOSED WORKS

The proposed works at the site are presented in Figures 1 and 2.

### 4.1.1 River restoration

The concept plan includes comprehensive weed removal and revegetation of the banks of the two channels that flow to Yornaning Dam. Revegetation focuses on the riparian zone and a 10 m buffer, and where land tenure and land-use allow, the buffer is increased to 30 m.

Two areas have been identified for demonstration of revegetation. Within these areas, vegetation with species of higher cultural and ecological value can be included and showcased along existing walking trails with additional informational signage. Suitable tall tree species will need to be part of all revegetation efforts, to improve riparian shading, which protects the water column from overheating, improves habitat and assists with long term control of weeds.

#### Estimated quantities for river restoration works:

Item	Unit	Amount
Temporary fencing	Length (m)	3,350
Woody debris	Volume (cum)	200
Geofabric	Area (sqm)	230
Revegetation	Area (sqm)	77,680

Notes:

1. Temporary fencing will be installed to protect sections of comprehensive and demonstration revegetation.
2. Geofabrics will be installed to banks identified for bank stability measures (as per Figure 1).

### 4.1.2 Public amenity, use and access

The majority of public access and use works have been previously completed by the Shire of Cuballing.

Considerable work has been undertaken by the Shire of Cuballing at this site to improve public amenity and provide formalised access and visitor management facilities. Works already completed include:

- Formalising of public access ways and provision of wayfinding signage.
- Upgrades to vehicle access track and bollards to control entry to bush areas.
- Provision of toilet facilities.
- Provision of a playground, picnic benches and shelters.
- Revegetation in bushland adjacent to public access.
- Installation of boardwalks across channels.

Future upgrades that could be considered for the site include provision of marked areas for day parking and overnight camping as well as updates to existing signage. Signage updates could provide

river restoration information and information gathered for acknowledging Noongar history of the River at Yornaning Dam and communicating its cultural significance and the way the Noongar people have valued this place throughout history.

#### **Works previously completed at the site**

---



#### **4.1.3 Adjacent landowner management**

PHCC works with landholders in offering advice about managing natural areas, and opportunities for access to funding when it is available.

This communication process can occur with owners of properties located next to the Yornaning Dam site, with the aim of future on-ground projects such as revegetation, weed control, and protection of existing vegetation, particularly in relation to the River ecosystem.

Access to the site via adjacent properties is already limited, fencing upgrades may be required if any degraded fencing is identified.

## **5 NEXT STEPS**

The delivery of the site upgrades is dependent on available funding. At this stage, weeding and revegetation can be undertaken without any further investigation, however further detailed design cannot be undertaken without detailed site survey and is required for:

- Bank and bed stabilisation techniques.

Other considerations for the implementation of the works include:

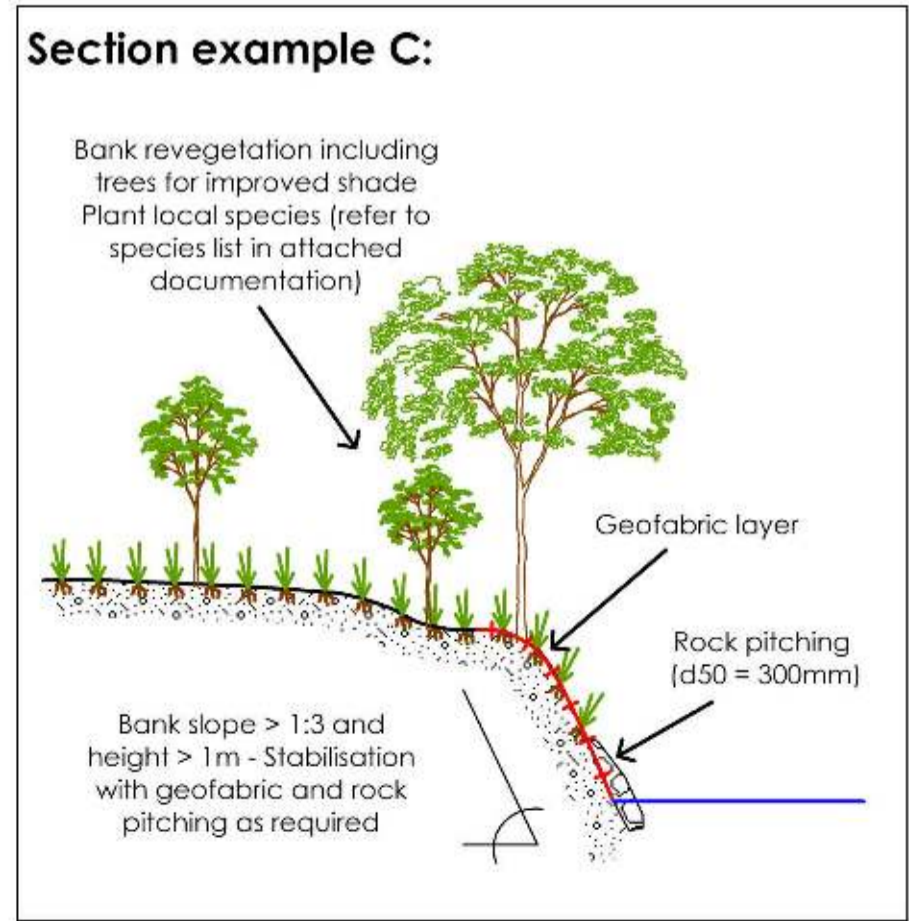
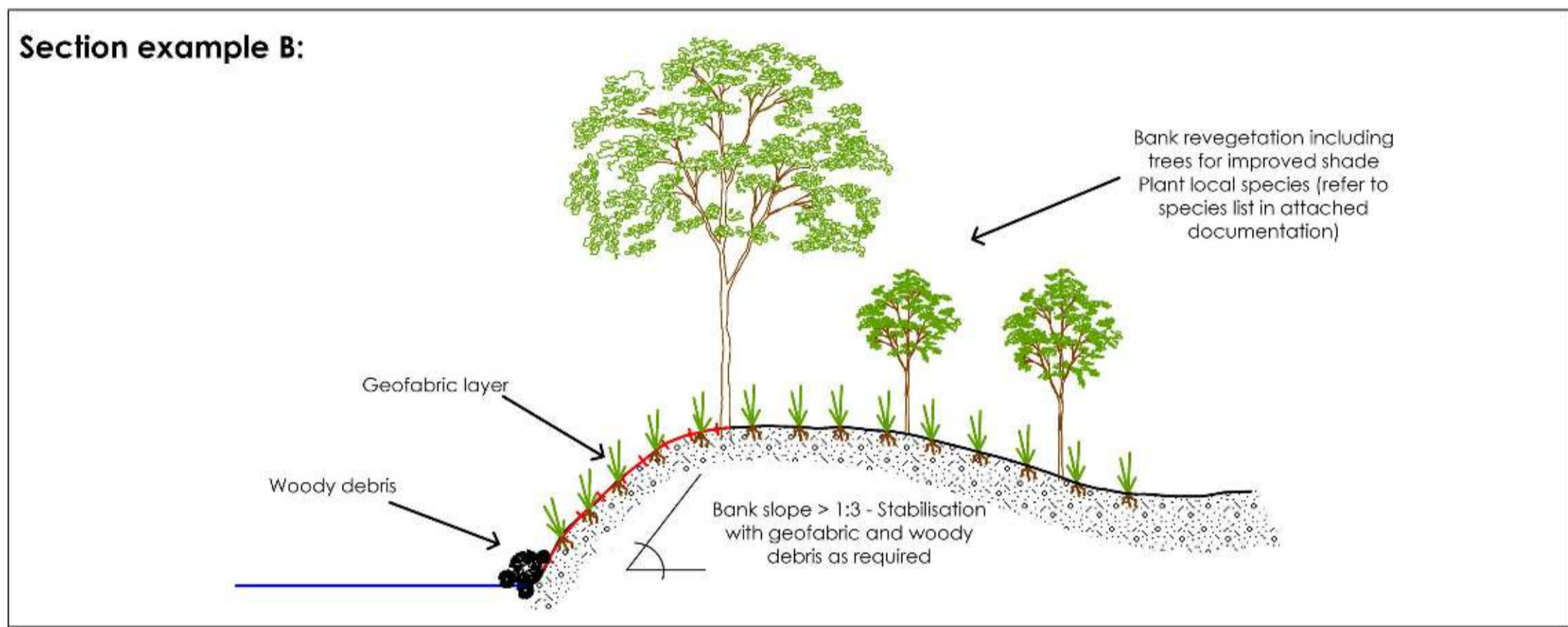
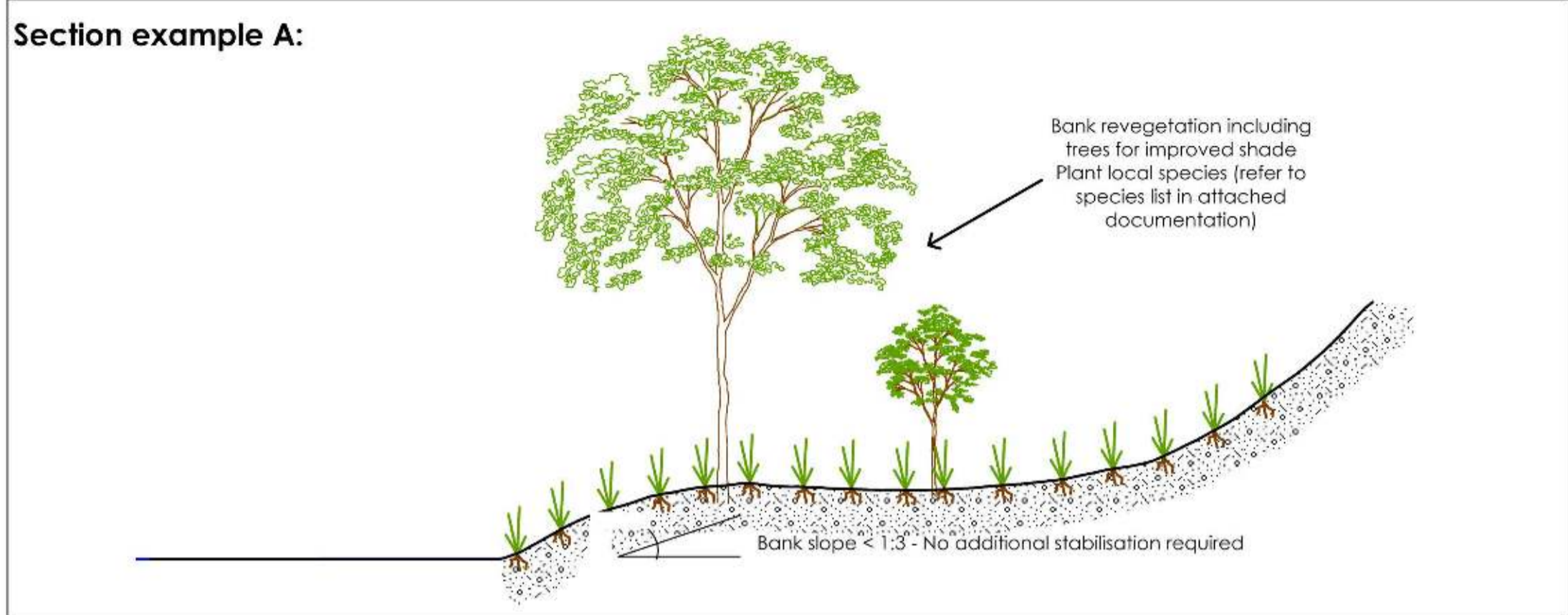
- Dieback management in accordance with recommendations made by BARK Environmental in the dieback assessment and report carried out in 2020.

- Prioritisation of environmental restoration aspects of the plan, with secured funding.
- Further funding for restoration activities to be investigated and applied for with project partners.
- Aboriginal Heritage Approvals process through Department of Planning, Lands and Heritage.
- Approvals for modification of bed and banks through Department of Water and Environmental Regulation.
- Implementation of low impact activities such as revegetation, weed control and feral animal control.
- Formal partnership with representatives of the Noongar families connected to Yornaning Dam.
- Formal partnership with Local Governments to seek funding for the parts of the plans involving public amenity.

The works can be undertaken collectively or individually, and during further detailed design, consideration should be given to the following:

- Materials, quantities and installation of bank stabilisation structures and formal/informal access points for recreation.
- Where banks are modified but unable to achieve a 1:3 grade, some form of matting is likely to be required. This may also be required where the sediment is sandy or otherwise unstable.

Peel Harvey Catchment Council - Hotham-Williams River Action Plan  
 Figure 2: Yornaning Dam concept - Cross section examples plan  
 - For selection of bank stabilisation methods



- Notes:**
- Minor modification of bank shape may be required for vehicle/equipment access and/or local stabilisation.
- Geo-fabric (slopes steeper than 1:3):
    - o Install below summer water levels (under rock pitching).
    - o Install around existing vegetation where required.
    - o Laid in direction of flow at base of slopes (to 1m above summer w.l.).
    - o Roll geofabric downslope over remainder of bank.
    - o Bury at top of bank.
    - o Pin as per manufacturer requirements.
    - o Overlap geo-fabric maps by 100mm.
    - o Include slits for planting.
  - Rock pitching (on slopes steeper than 1:3 and higher than 1m):
    - o d50 size of 300mm.
    - o Hard, durable rocks that are not susceptible to weathering.
    - o Larger rocks to be installed at the base of the slopes.
    - o Smaller rocks to be used to fill gaps and form tightly packed layer.
    - o Two layers of rocks.
    - o Rock pitching grade >1:2.
    - o Rock pitching to be installed to at least 1m above summer w.l.
    - o Toe trench, up to 400mm (back filled with rocks).
  - Woody debris (tree trunks, collapsed trees) may be used instead of rock pitching depending on local conditions, access or availability of material:
    - o Pinned/anchored to (or buried into) the bank.
    - o Aligned in a downstream direction.
    - o Use only native species.

\* ©2021. While Urbaqua has taken care to ensure the accuracy of this product, Urbaqua and client make no representations or warranties about its accuracy, completeness or suitability for any particular purpose. Urbaqua and client cannot accept liability of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred as a result of the product being inaccurate, incomplete or unsuitable in any way and for any reason.  
 Data source: PHCC, Created by:YY Projection: MGA zone 50.

Not to scale





**Client: Peel-Harvey Catchment Council**

Report	Version	Prepared by	Reviewed by	Submitted to Client	
				Copies	Date
Draft	V1	AT	HBr	Electronic	Oct 2021
Final report	V2	AT/HBr	HBr	electronic	8 April 2022
Revised final report	V3	AT/HBr	HBr	electronic	27 May 2022
Revised final report	V4	AT/HBr	HBr	electronic	28 June 2022

**Urbaqua**

*land & water solutions*

Suite 4/226 Carr Place

p: 08 9328 4663 | f: 08 6316 1431

e: [info@urbaqua.org.au](mailto:info@urbaqua.org.au)

[www.urbaqua.org.au](http://www.urbaqua.org.au)