

Hotham-Williams River Action Plan

Hotham-River Nature Reserve Detailed site plan



Prepared for
Peel-Harvey Catchment Council
By Urbaqua
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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.
4. South32 Worsley Alumina.

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Figure 1: Hotham River Nature Site Concept - Restoration Plan

Legend

Revegetation

- Comprehensive restoration of 30m riparian buffer zone
- Spot removal/replacement of weeds and problem exotics
- Proposed partnership weed control/revegetation with the landowner
- Cross section locations (refer to cross section plan (Figure 2))

Access

- Proposed fencing
- Fencing to boundary of nature reserve

Bank stability

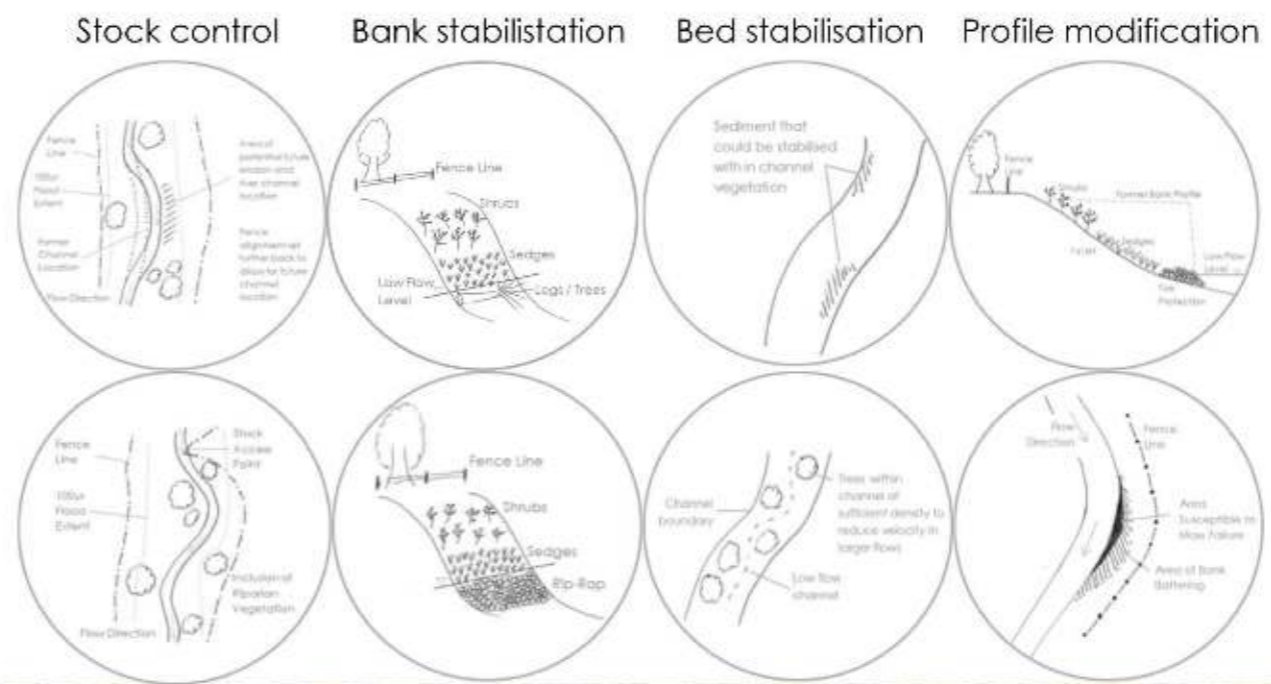
- Woody debris (where required)

Notes:

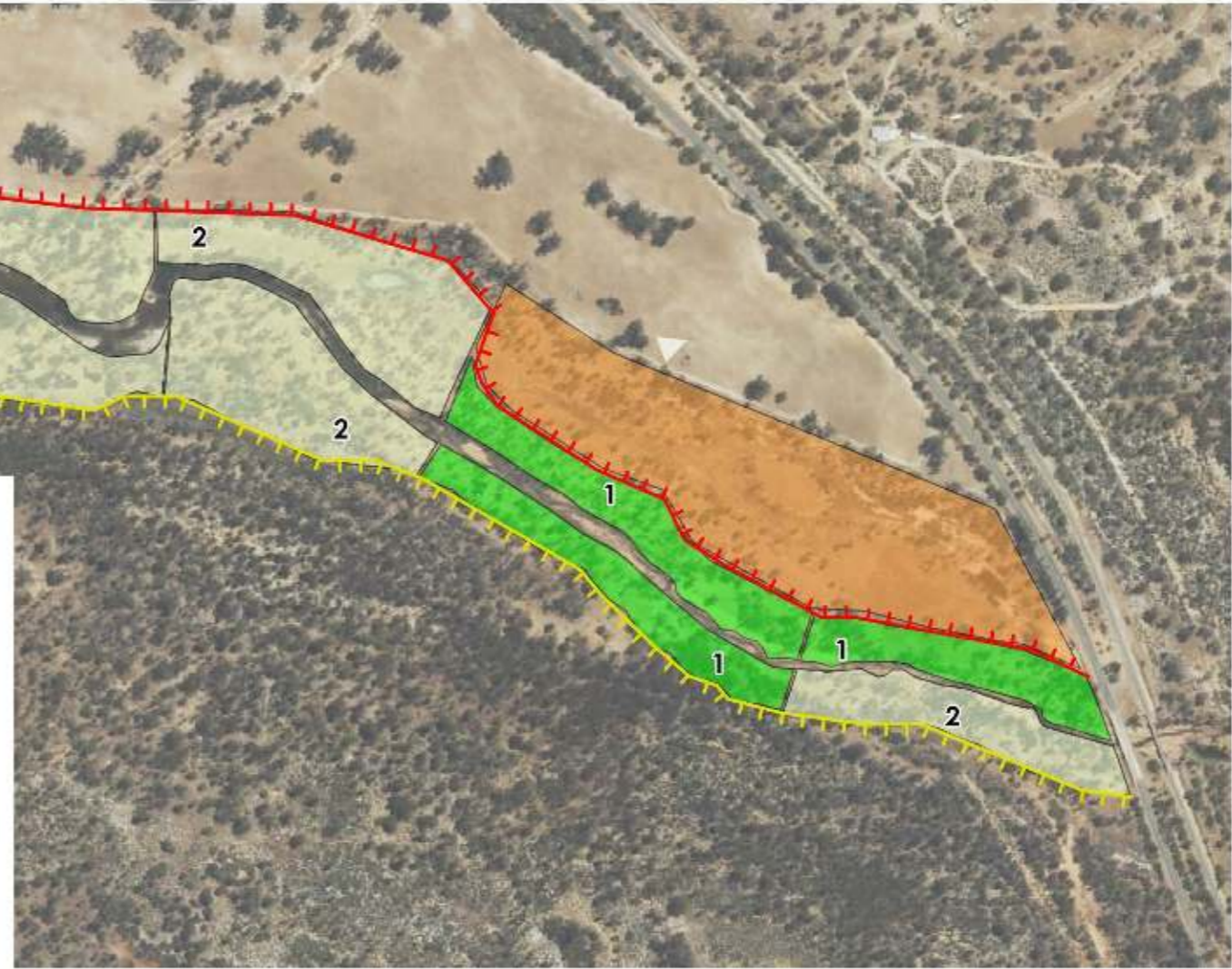
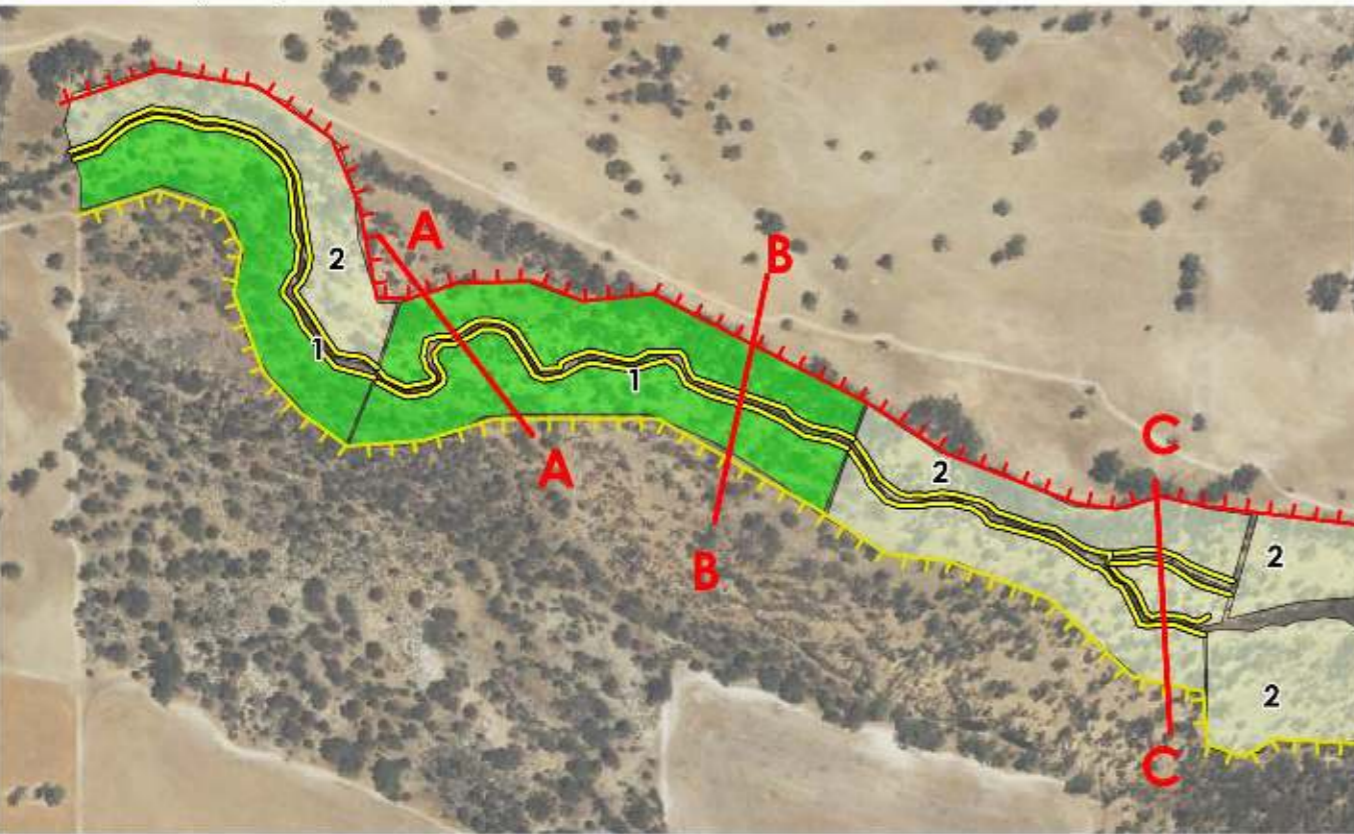
- 1 Revegetation – comprehensive weed removal and revegetation of minimum 10m riparian buffer in these areas (30m preferred where tenure and land-use allow).
- 2 Revegetation – spot removal of weeds and problem exotics, replacement with natives species where necessary.

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

Bank and channel interventions:



Existing conditions:



Revegetation examples:



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1 SITE DESCRIPTION

The Hotham River Nature Reserve site is so called due to the River flowing along the northern boundary of the Nature Reserve which is under the management authority of the Department of Biodiversity Conservation and Attractions. The site is bound to the north by private agricultural land and is located directly downstream of where the Hotham River intersects the Great Southern Highway. The Hotham River Nature Reserve site features a wide channel that transitions to a highly active meandering channel with eroding, retreating banks (Figure 1). There is considerable sediment deposition and woody debris within the channel, with a heavily damaged wooden weir to inhibit flows.

Riparian vegetation is dominated by scattered trees and exotic ground cover, with minimal shrub layers and dying trees limiting the shading of the River. Field inspections noted high severe erosion in meandering sections downstream, and the presence of algae in the water column and substrate consistently throughout the reach, particularly in stagnant pools.

2 CONSULTATION

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

- Presentation to the Shire of Cuballing, with no specific feedback given.
- Information session for the local community, with no specific feedback given.

3 CONCEPT DESCRIPTION

The main focus of this plan illustrated in Figure 1, is to restore the channel to a more stable form by carrying out stabilisation works such as strategic placement of logs. In combination with controlled stock access, weed control and revegetation, the aim of the plan is to improve the health and habitat at a site scale. Fencing and some areas of weed control and revegetation will require a future partnership agreement with the adjacent landholder.

It is not recommended to remove the weir due to the presence of the numerous samphire species which are well established and assist in stabilising the channel environment.

These works have been informed by the original field assessment, further desktop assessment, site visits and community consultation.

4 PROPOSED WORKS

The proposed works are detailed in Figure 1 and are recommended as follows.

4.1.1 River restoration

- Comprehensive weed removal in degraded areas with spot weed removal and control of exotics in other areas (see Figure 1).
- Bank stabilisation works as indicated in Figures 1 and 2. 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.
- Revegetation of minimum 10m riparian corridor, extending to 30m where permitted by land tenure and land use.

Estimated quantities for river restoration works:

Item	Unit	Amount
Temporary fencing	Length (m)	2,580
Rocks (d50 = 300mm)	Volume (cum)	-
Geofabric	Area (sqm)	1,260
Revegetation	Area (sqm)	127,850

Notes:

1. Temporary fencing will be installed to protect sections of comprehensive and demonstration revegetation.
2. Geofabric will be installed to banks with slopes steeper than 1:3 to assist with stabilisation during vegetation establishment.

4.1.2 Adjacent landowner management

The Nature Reserve provides a significant vegetation buffer for the River at this location and it provides an opportunity to work with DBCA in carrying out complimentary activities. For example, the Reserve contains mapped areas of *Phytophthora dieback* and future mapping and treatment exercises would benefit long term management of the remnant vegetation.

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 Hotham River Nature Reserve 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.

Fencing is required to control stock access to the river. This should be located outside of the riparian zone above the top-of-bank and at least 15m from the high water mark in accordance with PHCC minimum fencing requirements. However, fencing requirements may be modified to permit stock access to the river where this is absolutely necessary and bank grades and vegetation permit.

5 NEXT STEPS

Delivery of the plan will be guided by available funding. At this stage, weed control and revegetation can be undertaken without any further investigation, however further detailed design cannot be undertaken without site survey and is required for:

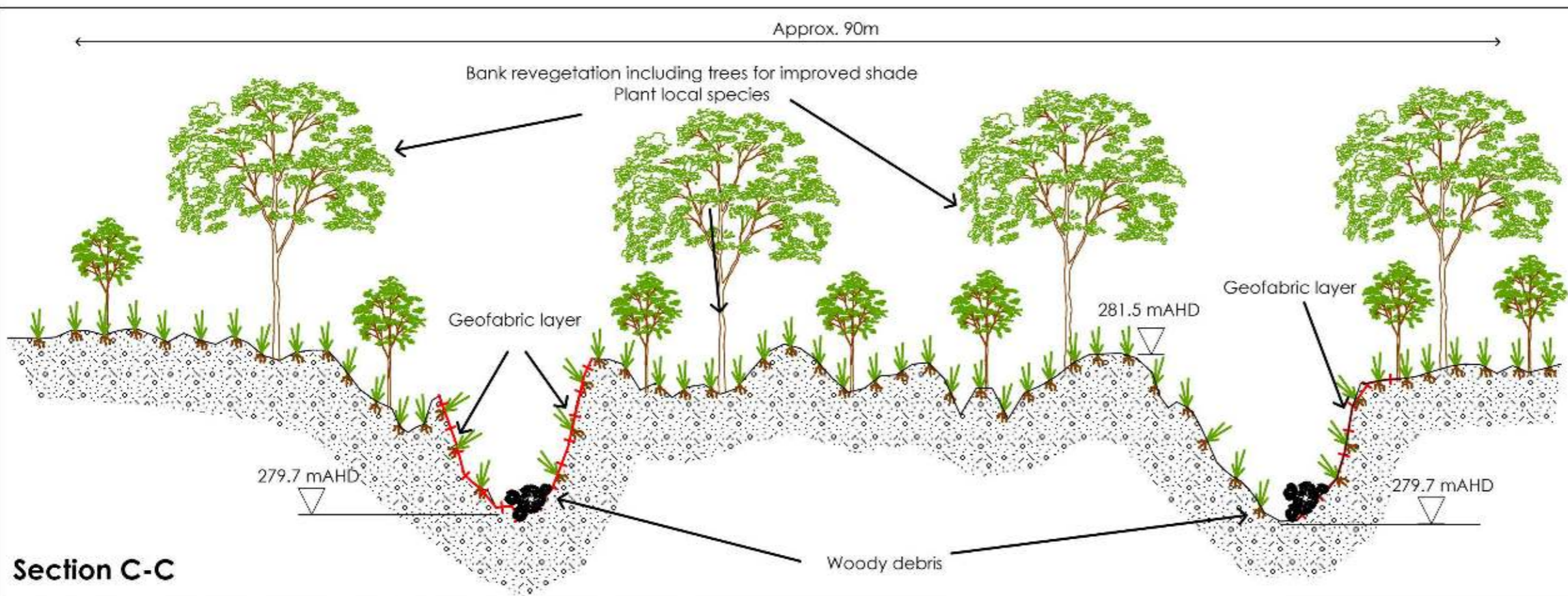
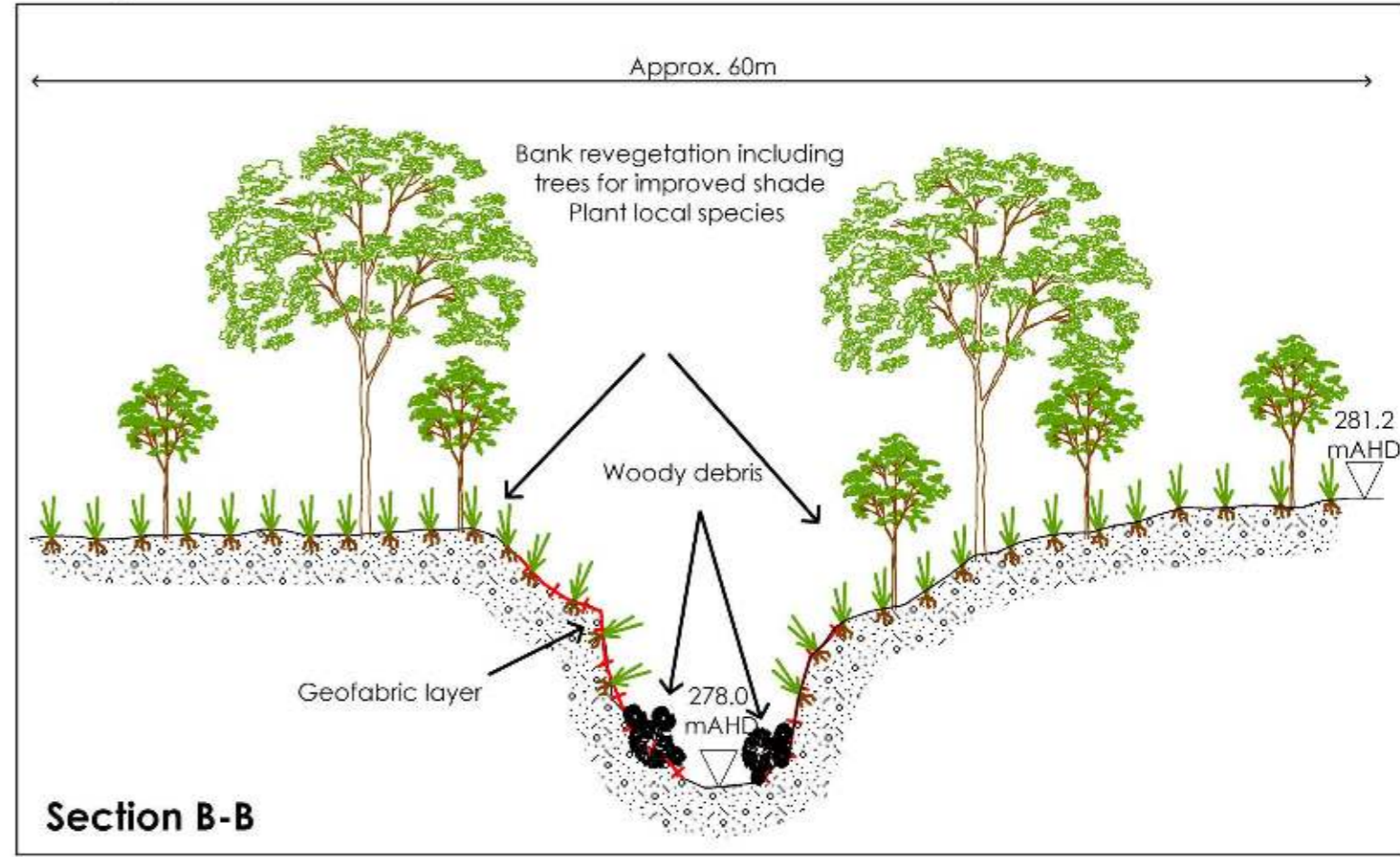
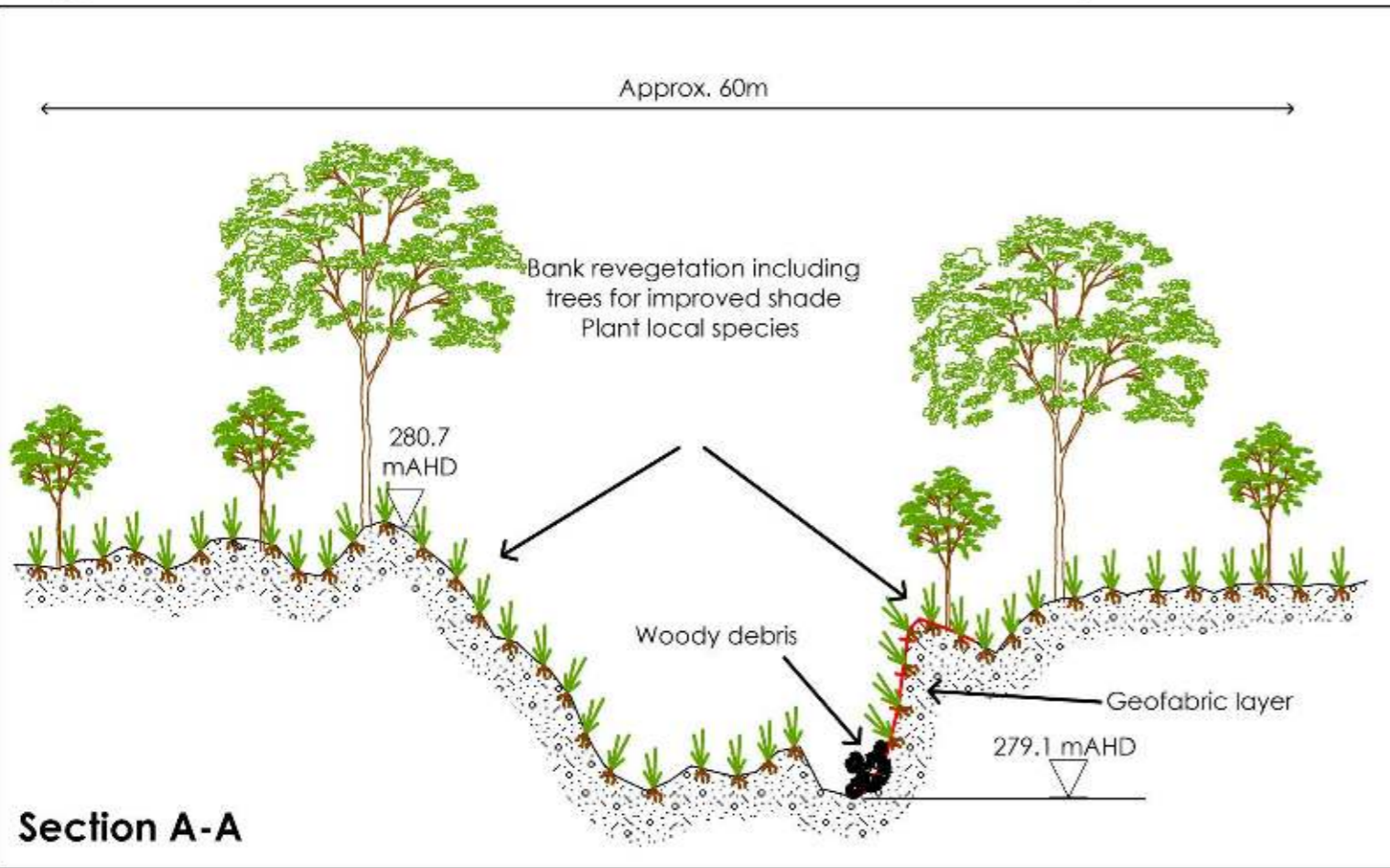
- Location of proposed fencing including specification of materials.
- Bank and bed stabilisation techniques.
- Protection of samphire habitat during stabilisation and revegetation works.

Other considerations for the implementation of the works include:

- 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.

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Figure 2: Hotham River Nature site concept - Cross section plan



- Notes:**
- Minor modification of bank shape may be required for vehicle/equipment access and/or local stabilization.
 - 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.
 - 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.

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Not to scale



- Formal partnership with representatives from the Noongar community.
- Formal partnership with Local Governments to seek funding for the parts of the plans involving public amenity.
- Potential partnership activities with DBCA for value-adding to the management of the Nature Reserve by carrying out complimentary and appropriate restoration works including *Phytophthora* dieback treatment.



Client: Peel-Harvey Catchment Council

Report	Version	Prepared by	Reviewed by	Submitted to Client	
				Copies	Date
Draft	V1	SSh	HBr	electronic	1 October 2021
Revised draft	V2	SSh/HBr	HBr	electronic	15 February 2022
Final report	V3	SSh/HBr	HBr	electronic	8 April 2022
Revised final report	V4	SSh/HBr	HBr	electronic	28 June 2022

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