

Happy Valley outfall channel

Community Working Group
Meeting 3 (22 October 2013)

Agenda

- Welcome and Introductions
- Minutes of previous meeting
- Project Update
- Constructability and access
- Current site
- Landscape Principles and Plan
- Visual representation- Tablets
- Reference Group – Statement
- Broader communication / agreed steps
- Close



Project Update/ Timeline

What have we been doing?

Monday, 13 January 2014

Update/ timeline

- **12 November 2012**
Community Information session
- **4 December 2012**
1st Community Working Group Meeting
- **May 2013**
Website live
- **June 5 2013**
SKM delivered Report 1, SA Water requested further consideration of remedial options
- **17 July 2013**
SKM delivered Report 2
- **30 July 2013**
Community Working Group meeting 2

Update/ timeline

- **30th July to October 22**
 - Constructability industry review
 - Engaged an independent arborist
 - Site visits
 - SKM further developed concept design
 - Oxigen landscape architects engaged to develop and integrate landscape concept
 - Community design brief given further consideration
 - Initial cost estimates and risk assessments undertaken
 - Engaged Convergen to design and produce a visualisation model to demonstrate the concept plans

Community Design Brief

- *Natural looking materials to stabilise the banks and enhance the landscape; creating a creek like environment*
- *Retention of existing significant vegetation, with a minimalist approach to tree removal*
- *The structural integrity of the channel is paramount and some tree removal is likely to be critical to the future viability of the channel and flood mitigation*
- *Relocating the existing stock fence*
- *In areas identified as high risk, safety fencing may be required*
- *The landscaping should rehabilitate and complement the existing vegetation by introducing new indigenous ground covers and understory.*
- *Enhance the existing pedestrian walking trails*

Constructability and Access

Monday, 13 January 2014

Constructability

Advice from construction and engineering industry regarding remediation works:

Issues:

- Large Voids
- Potential for collapse when working from channel
- Machines need to get in and out of the voids
- Access into channel
- 20 tonne excavator required
- Too unsafe to dig out void with weight on top (weight bearing)
- Clearance of channel is required before backfilling

Construction Options

Option A

- **Work from top of channel**

- 50 tonne excavator would be required (significant reach)

- No machines of that size in SA

- Instability of banks

- Machine would not be stable (unsafe working environment)

- Impossible to restore fill to voids without laying back banks and removing trees

- Unsafe work practice

- Option B

- **Work from within channel (no access)**

- Lower a machine in by crane

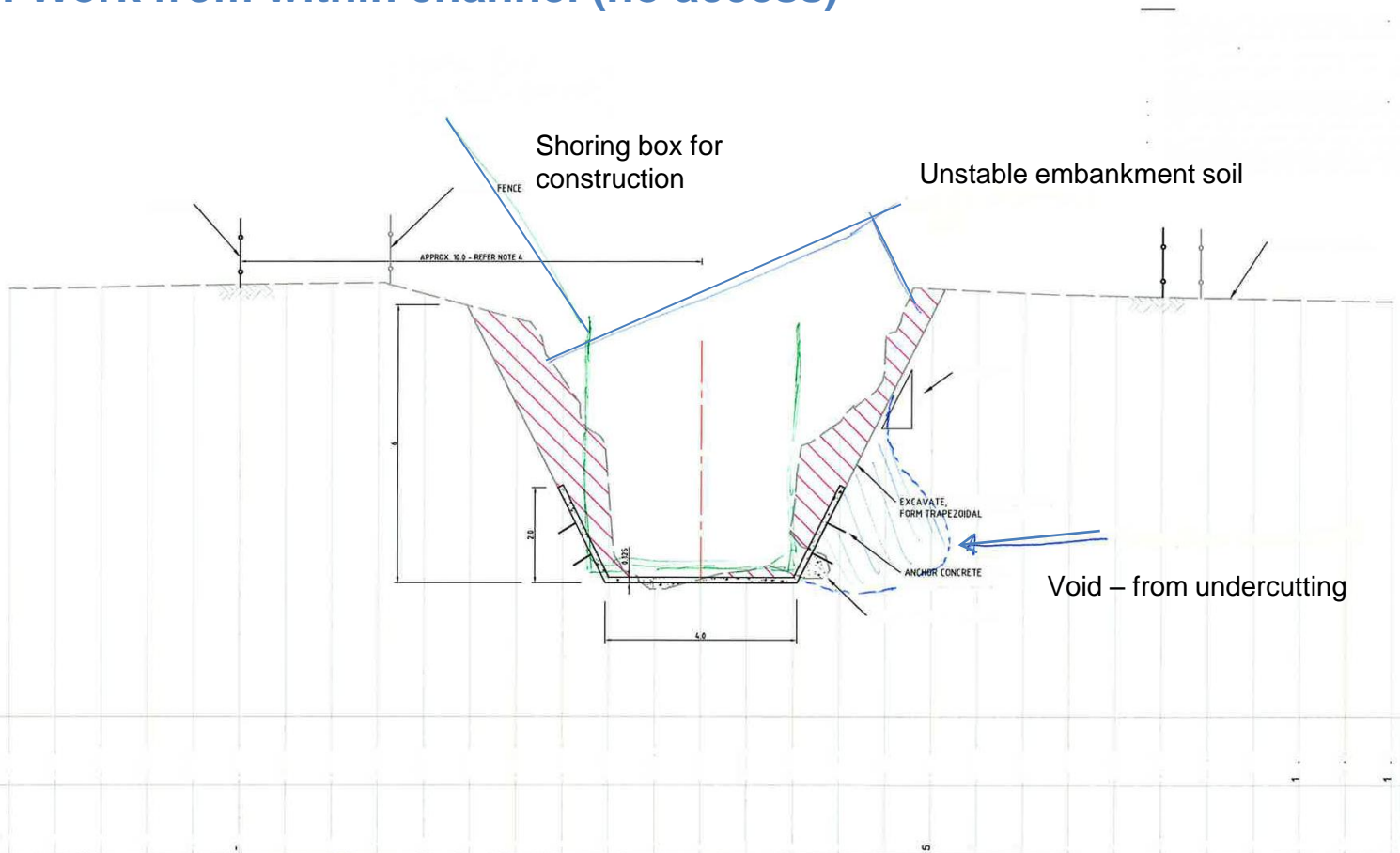
- Would require shoring or sheet piles to stabilise banks, and would require tree removal

- Presence of trees would affect reach of excavator

- Instability of banks

- Unsafe work practice

Option B: Work from within channel (no access)



Construction Options

Option C

- **Work from within channel (with access)**

- Create access ramp into the culvert

- Work into channel to clear channel, remove top of banks and clear culverts

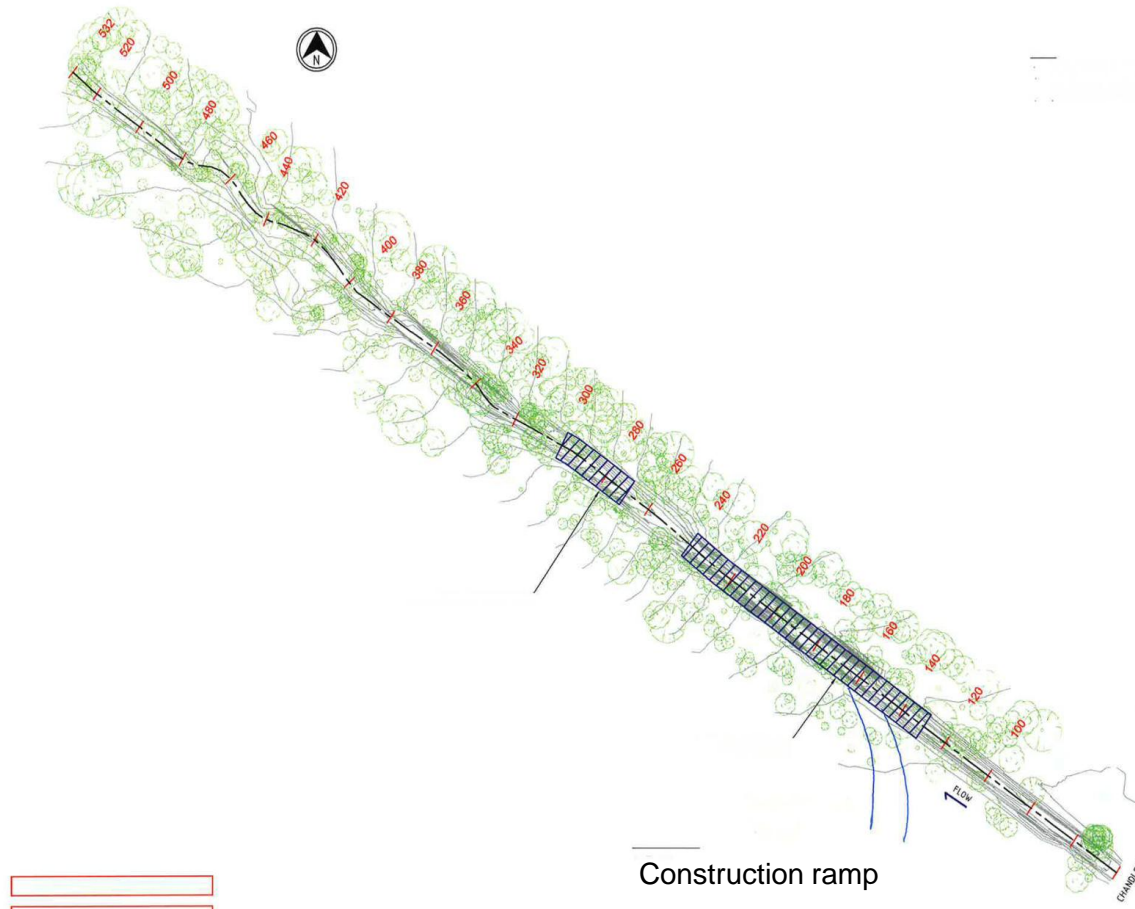
- Re-establish bank integrity through re-grading where necessary

- Some tree loss necessary but able to be controlled

- Safe access in and out of channel

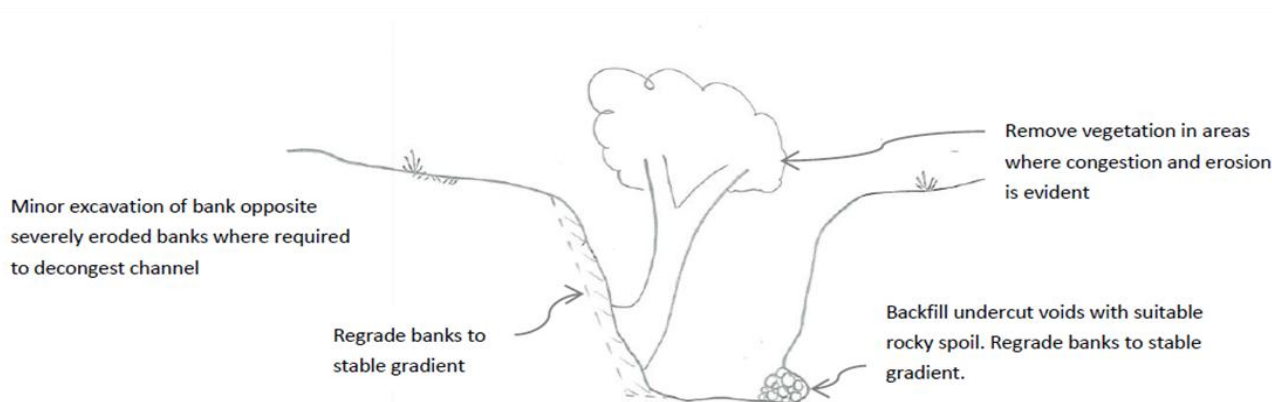
- Limited use of shoring

Option C: Work from within channel (with access)



Tree removal

- Targeted approach
- Advice sought from constructability experts and arborists
- Strategic tree removal
 - Remove vegetation in areas where congestion and erosion is evident
 - Remove vegetation that is in the lower reaches of the bank
 - Detailed design may identify additional trees to retain



Current Site

Existing Landscape Character

- Unirrigated grass with scattered native and non-native trees.
- Scattered shrubs with minimal understorey
- Presence of dead vegetation (poorly maintained areas)
- Steeply battered drain alignment with a mixed rock, concrete and gravel base
- Formal trees and understorey adjacent residential subdivision (Tandana Court - Allworth Drive)
- Residential garden extensions into the corridor





Erosion and undermining



Landscape Principles and Plans

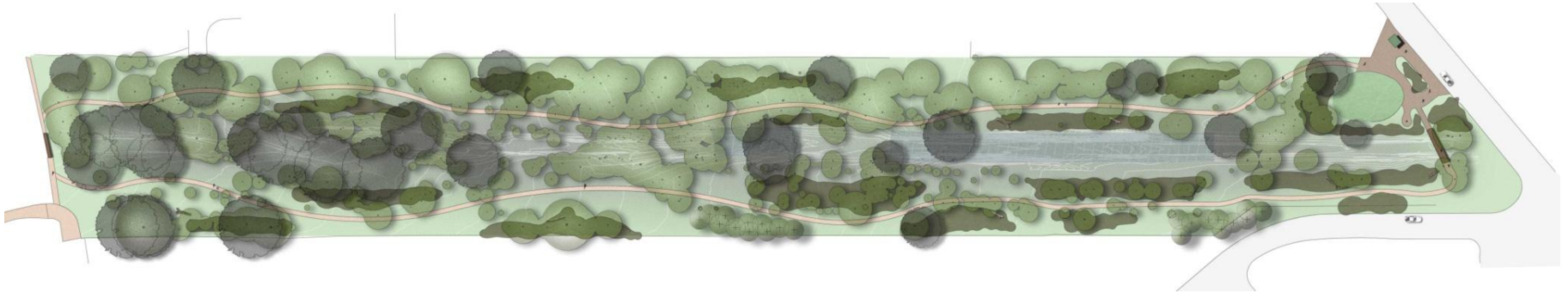
Landscape Principles

- The project presents an opportunity to:
 - Retain existing vegetation where possible
 - Provide compensatory planting for all tree removals
 - Define pathways and retain existing access points
 - Improve biodiversity and habitat opportunities – Pre- European Vegetation opportunity
 - Allow access for drain and landscape maintenance
 - Improve amenity and experience
- The stop and re-think approach has enabled the identification of opportunities to enhance the environment and general amenity and improve biodiversity
- A once off opportunity for additional funding to be brought forward to deliver an improved outcome is possible

Landscape proposal

- Retain existing trees outside the drain corridor and improve biodiversity with the establishment of native low shrubs and groundcovers
- Retain existing Aleppo Pines outside erosion corridor
- Retain existing Aleppo Pines within erosion corridor where possible
- Replace Aleppo Pines impacted by the drain works with new advanced native trees and select seed producing shrubs (Black Cockatoo)
- Retain open grassland and lift canopies of existing vegetation to improve sightlines (casual surveillance) and ease of ongoing maintenance
- Realign select sections of existing pathways to improve drainage and deter access in hazardous areas
- Retain current access points from adjacent areas

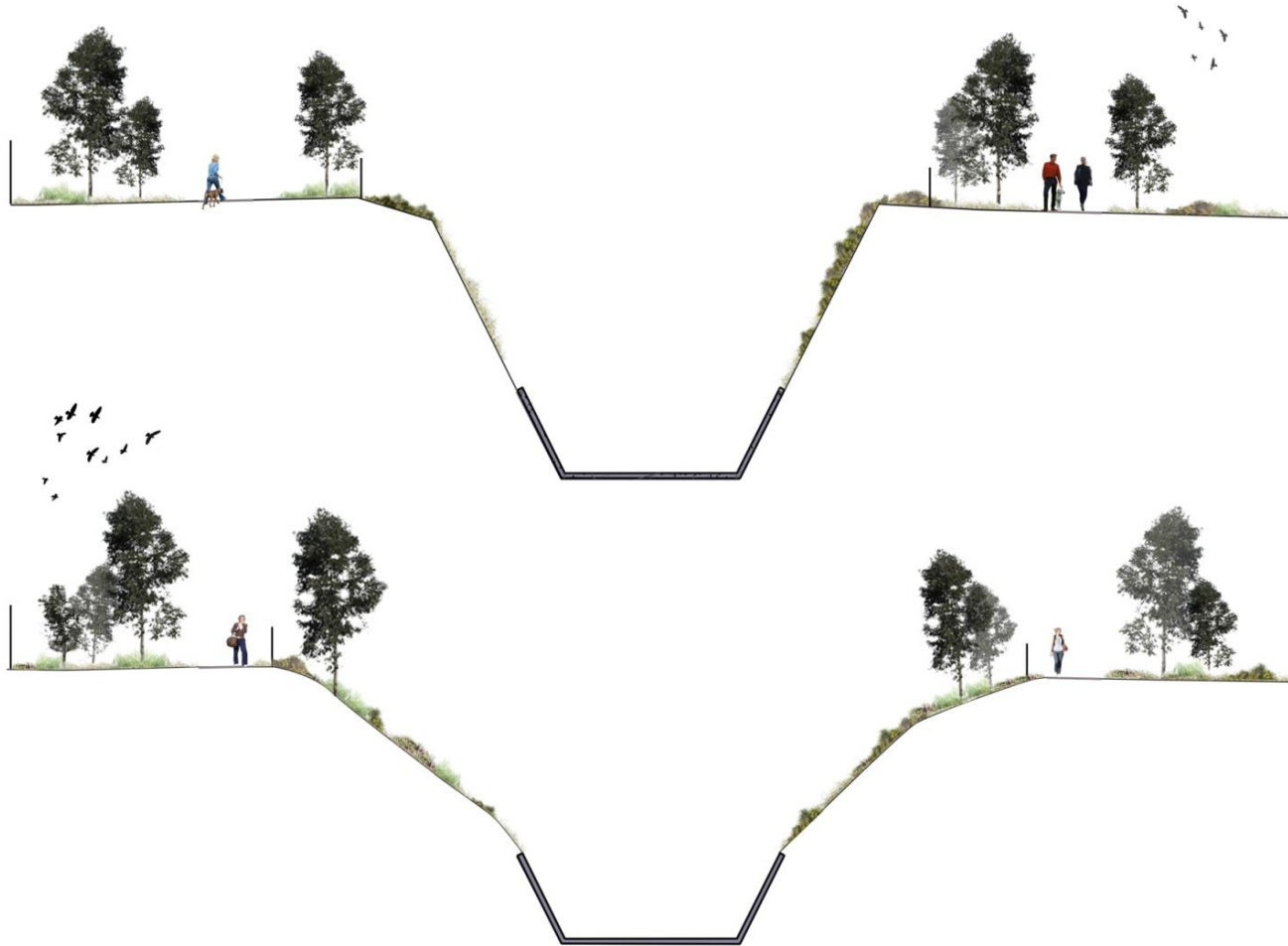
Landscape Plan



Landscape plan overlay



Landscape cross section



Happy Valley Outfall Channel Native Vegetation Assessment

- A desktop assessment of the Happy Valley outfall channel was undertaken to determine the vegetation species based on Pre-European Vegetation Mapping of the site (DEWNR).
- Historically, this site supported a *Eucalyptus microcarpa* +/- *E. leucoxylon* ssp. *leucoxylon* Woodland over a grassy and herbaceous understorey
- The site has a distinctive soil type called a Black Cracking Clay (Bay of Biscay Clay). This soil type was strongly associated with Grey Box Woodland Vegetation (*Eucalyptus microcarpa*)
- This Woodland Community is critically endangered under the Environmental Protection Biodiversity Conservation Act (EPBC)
- Project presents an opportunity to re-introduced endangered vegetation back into the area
- Discussions with City of Onkaparinga to explore options of linking our planned revegetation of the outfall channel into the council wetlands

Pre-European Vegetation Mapping



Highlighting (red) historically supported an *Eucalyptus microcarpa* +/- *E. Leucoxyton* Woodland over a grassy and herbaceous understory

Yellow- Tailed Black Cockatoo

- Yellow-Tailed Black Cockatoo are prevalent in the area due to the presence of Aleppo Pines (one of their food sources)
- There are alternative food sources of a Native variety that can be introduced into the area to continue to promote a native environment, while also keeping the cockatoo is regular abundance
- Yellow-Tailed Black Cockatoo favourite meal is those fruits that are present on the Hakea Carinata. An erect shrub grows that grows to 1.5-3m tall, flowers through spring, easily grown from seed and looks after itself once established

Hakea Carinata- Fruits and Flowers



Hakea Carinata – Fruits and Flowers

Beaumont Common example



13/01/2014

Heyward Park example

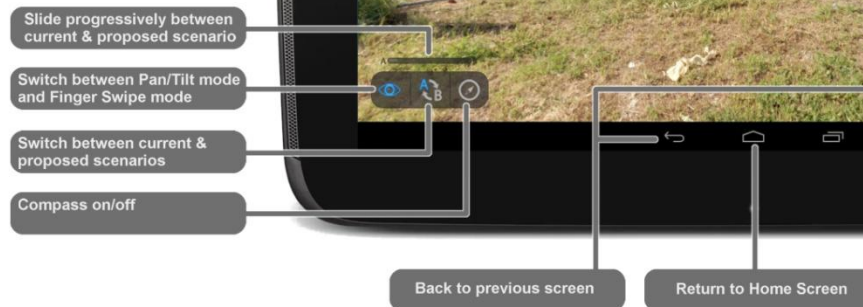


Tablet visualisations

INTERACTIVE TABLET INTERFACE & IMMERSIVE ENVIRONMENT VISUAL GRAPHICS

The immersive environment technique is designed to help users visualise how a development will look from the ground view. Static pictures often do not give a sense of distance or perspective, whereas the immersive environment allows users to look in any direction, even straight up or down.

Convergen uses industry leading techniques to make sure the images are as accurate as possible, and have implemented the technology in a range of industries, including mining, transport, windfarms and more.



To use:

- select a viewpoint on the interactive map;
- hold the tablet at arms length, and lift the tablet or turn around, as if looking through a virtual window;
- pinch to zoom;

Reference Group Statement

13/01/2014

Reference Group support statement

- The SA Water Happy Valley Outfall Channel Reference Group was established to develop, and obtain alignment on a concept for the upgrade and rehabilitation of the Happy Valley Outfall channel.
- Following a series of meetings and the development of a design brief, the reference Group supports SA Water remediating the Happy Valley Outfall Channel in accordance with the following principles:
 - Areas to be rehabilitated include chainage 185 – 240 and 260-300 (approximate)
 - While every effort will be made to retain some Aleppo Pine trees in these locations, majority removal will be necessary
 - The majority of Aleppo Pine Trees outside these chainage locations will be retained (except for some tree removal within the base of the channel)
 - The landscaping will rehabilitate and complement the existing vegetation by introducing new indigenous ground covers and understory

Reference Group Support Statement.....

- Following a series of meetings and the development of a design brief, the reference Group supports SA Water remediating the Happy Valley Outfall Channel in accordance with the following principles:
 - Banks to be laid back in channel locations to be rehabilitated to enable new vegetation to enter the channel banks
 - Concrete lining will be used at the base of the channel to prevent erosion (rehabilitated areas only)
 - Relocation of the existing stock fence will be necessary (with further consideration to be given to fencing types in consultation with the reference group
 - Enhance the existing pedestrian walking trails
- Overall construction outcome to reflect the concept design as presented and supported by the Reference group on Tuesday 22 October 2013

Reference Group Support Statement.....

- Upon the basis of this support, SA Water will proceed to:
 - Develop detailed concept plans
 - Seek further input from the reference group to further shape the concept plan based on the principles outlined
 - Seek full financial approval
 - Seek Development Assessment Commission approval
 - Procure a suitable contractor on a design and construct contract

Broader communication & agreed steps

Broader communication

- Information uploaded to website
- Landscape and channel rehabilitation plans provided to wider community
- Opportunity for broader community feedback
- Information sessions if required
- Fact sheet

Next Steps

- Reference Group Support Statement sign off
- Concept incorporated into detailed design
- Detailed design prepared and costed
- Contractor procured for D & C
- Community reference group opportunities
 - Influence detailed design
 - Landscape plans

Close