AMENDED IN RED
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Queensland Government

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Preparatory Environmental Recovery Works
Ross River Site RM2S1 [Oonoonba PDA] – DRFA Stage 1 Site #2

Introduction - Terrace Extension and Bank Stabilisation

The main Disaster Recovery Funding Arrangements (DRFA) bank stabilisation works proposed for the RM2S1 [Oonoonba PDA] project site involve widening the bank full width of the Ross River at its narrowest point to a minimum of 120 metres. This was the main recommendation to reduce the erosive forces experienced in the 2019 event in a report prepared for Townsville City Council (TCC) to model and analyse natural channel river restoration designs proposed by TCC.

Works will be undertaken conjointly on both banks of the river upstream of the North Coast Rail line, as part of a unified design and flood resilience approach for the Ross River and Townsville floodplain. The proposed works on the south bank (see Figure 1) will consist of:

- Extending the salt couch and mangrove terrace eastwards of the existing terrace;
- Re-profiling the river bank at the new location to the south of the newly extended terrace;
- Erosion prevention and stabilisation of the extended terrace and new river bank, including revegetation;
- Revegetation [10m-15m] from the top of the newly created river bank for long-term bank stability.

Figure 1 Main Bank Stabilisation Works (All Within Open Space Zone)

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL
Approval no: DEV2021/1175
Date: 7 June 2021

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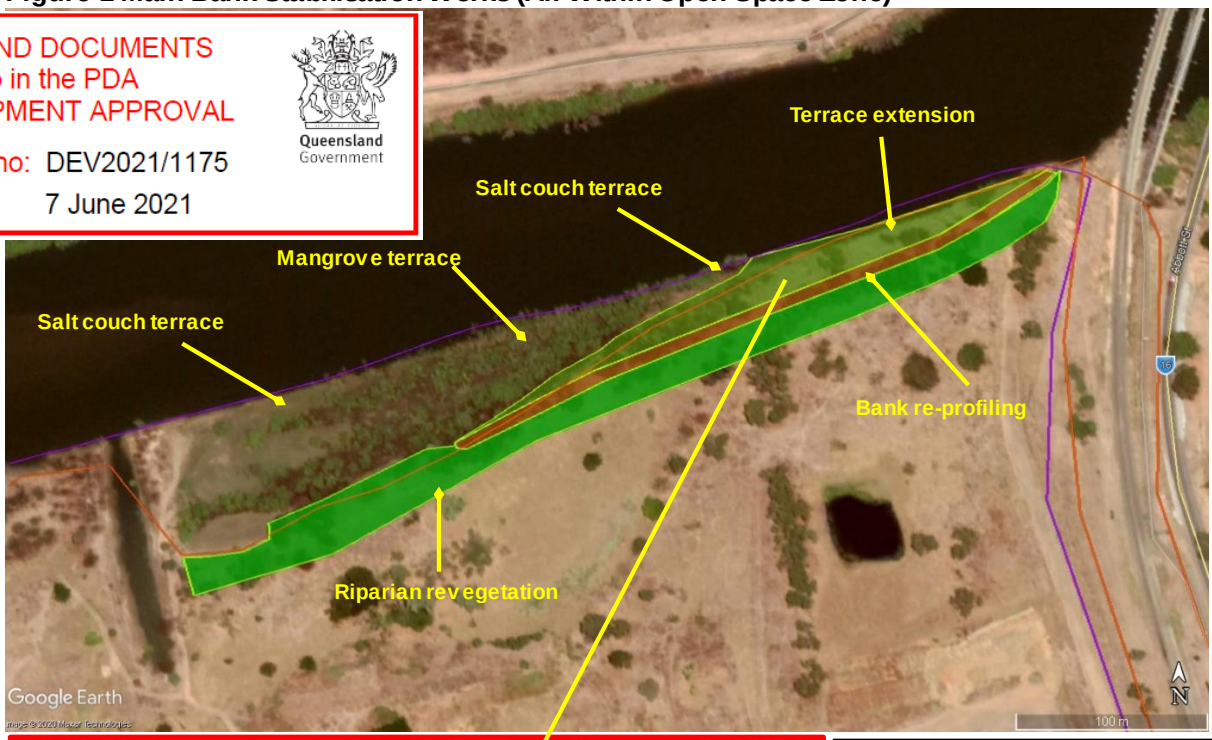


Notes
Main figure - the terrace extension area is shaded green and the 'new' and re-profiled bank location is shaded brown. The bank batter will be 1:3 to 1:4 batter to facilitate revegetation works to further stabilise the bank over the long term. The riparian revegetation zone is shaded dark green.

The inset shows the proposed works in relation to the larger PDA area and the Open space zone [light blue shading].

Revegetation i.e. planting and natural regeneration, is a key action for long-term bank stability.

Design and Validation
The process for determining the most effective river stabilisation and erosion prevention measures involved highly experienced catchment and waterway management professionals and included:

- Commissioning of the report titled ***Ross River Bank Stabilisation: Geomorphic Processes and Opportunities*** (AECOM 2019);
- Analysing the environmental damage and fluvial geomorphology of the river before preparing concept designs to restore the natural features of the river (see Attachment 1 John Gunn - Qualifications and Experience);
- An independent review of the concept designs in the report titled ***Ross River Banks - Concept Review: Ross River Bank Stabilisation*** (AECOM 2020) [a requirement of the Department of Environment and Science (DES) for final DRFA funding approval];
- Further validation of the river restoration designs by other highly experienced local and Australian experts in the erosion and sediment control (ESC), stream hydrology and floodplain management fields.

Preparatory Works – Vegetation Management
Prior to undertaking the proposed DRFA funded environmental recovery program (ERP) Ross River bank stabilisation and flood resilience works [see Figure 1] the vegetation will need to be removed from the areas to be excavated. The preparatory vegetation management works required are:

1. **Terrace extension and bank re-profiling area**
   All vegetation will need to be removed from an area of approximately 5,800m^2 to enable the terrace extension and bank stabilisation works to proceed unhindered. The majority of the woody vegetation being removed is Leucaena with Guinea Grass being the main understory vegetation. Leucaena is thickest to the south of the existing mangrove terrace just above the level of saltwater/tidal influence.

2. **Riparian Revegetation Area**
   The secondary area for preparatory vegetation management works is approximately 23,000m^2 and adjoins the main preparatory works area, as shown in Figure 2. The secondary area consists of the higher ground in the Open Space zone [Oonoonba PDA Development Scheme] where:
   a) Riparian revegetation plantings adjacent to the re-profiled bank will take place;
   b) Leucaena and other non-native invasive species will be removed to prevent re-infestation of the main bank stabilisation work area and to reduce competition to facilitate native regrowth;
   c) Set down and processing areas will be established to support the main bank stabilisation works.

The secondary area also includes the northern end of the terrace extension and bank re-profiling works area [see Figure 1] where native trees will be retained. The fine scale design of the bank stabilisation works for the eastern end will be undertaken on-ground to ensure the best possible integration of the works with the remaining in situ, 'stable' elements of the terrace and bank.

All of the removed vegetation will be recycled on site for use in revegetation areas in line with the actions in the Strategic Site Management Plan (SSMP) previously submitted to EDQ in November 2020.

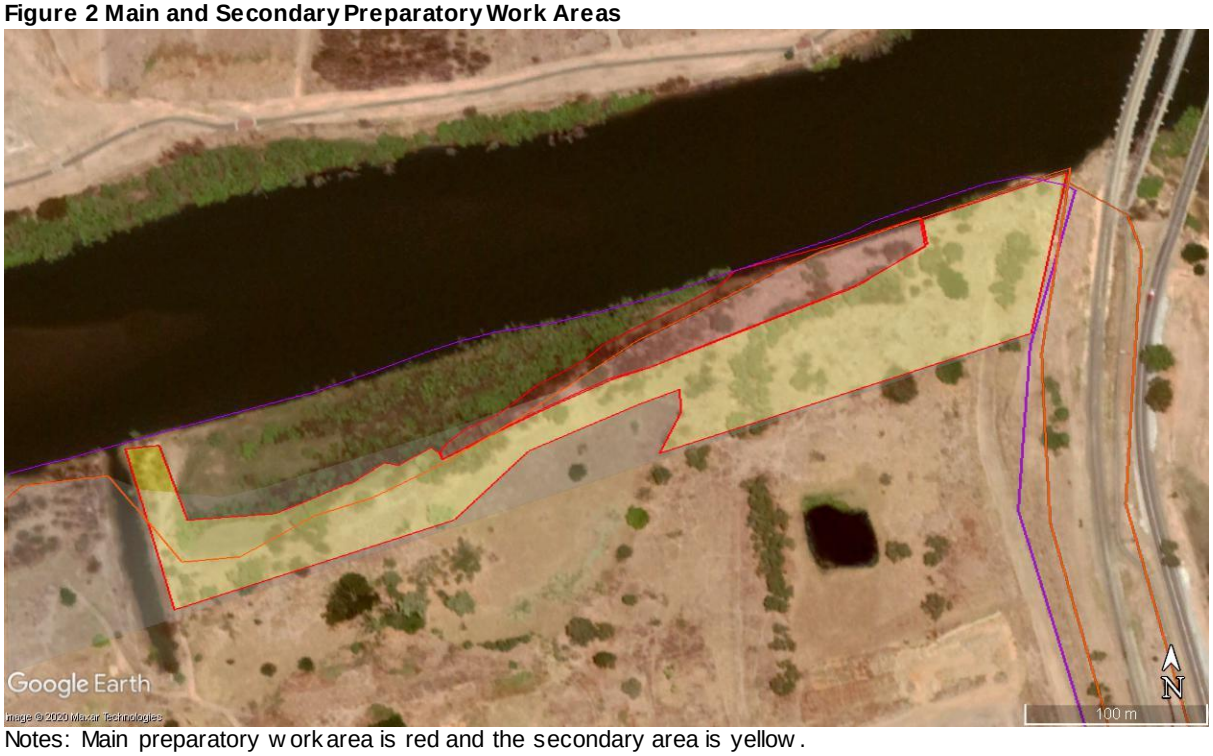
Permission Requested
Permission to access the Oonoonba PDA Open space zone is requested to implement the preparatory works above. Approval of set down and processing pads in the secondary preparatory work area [see Figure 2] is also requested for the duration of the project. This will enable the removed vegetation to be treated with beneficial microbes and stored while it is being transformed into a humus [carbon] rich organic soil for later use to enhance revegetation areas.

Non-native woody vegetation will be removed and set down areas will be slashed along with access tracks and any other areas requested to create a safe work environment in the Open space zone.

Some of the essential riparian revegetation works can take place where the terrace extension and bank re-profiling works are not impeded immediately after the removal of the non-native vegetation.

If permission is received and the preparatory works occur early in 2021 this will enable two wet seasons to be utilised to establish the native vegetation and/or groundcover and hopefully avoid the cost of and need for follow up watering and or the installation of a temporary irrigation system.

Figure 2 Main and Secondary Preparatory Work Areas



Notes: Main preparatory work area is red and the secondary area is yellow.