

Tier 1 is set along the alignment of the existing bank toe, with reprofiling extending up the bank face from that point.

The second tier will comprise alluvial cobble and gravel material to tie into the level of the existing terrace top and capped with a layer of topsoil and willow mattress.

Existing bank alignment (blue)

Proposed bank alignment (red)

2.- Layers of willow brushwood mattress. Relatively dense structure but open enough to allow soil backfill. An even cover of between 150 mm - 200 mm depth, consisting a mix of 25 mm to 50 mm diameter rods.

Downstream tie in point NN 77106 21774

Water of Ruchill

Large wood buried with root plates facing the direction of flow. Large rock can be used as ballast with locally sourced alluvial material used to backfill the structures and fill the voids.

All suitable trees with intact rootplates to be removed from the current channel margins and used in the new rootwad. Trees unsuitable to use on the new works should be placed as new habitat features in the wider floodplain.

Site won cobble/gravel backfill (50mm to 150mm) to be used as a foundation to the tier 1 trees and to fill the voids between the large wood.

1.- Imported live willow (100mm diameter, 1.5m - 2m length) stabilising post. Spacing required = 750 mm centres [or alternatively 200mm dia. live willow posts at TBC mm centres]

Filcrist flat pack otter holt kit (black) 1200x830x380mm or similar, with the installation entrances comprising 225mm dia. corrugated drainage pipes with the overall installation partially buried and covered with turves or brash. The installation works to be supervised by the Ecological Clerk of Works. Locations indicative only and are expected to be field fitted.

3.- Imported live willow stakes (50-100mm diameter, 1.3-1.4m length) placed at 0.5m centres will provide additional stability as vegetation is established on the new graded bank slope.

4.- Regrade bank including a four-tier large wood internal structure.

Tiers 1, 2 and 4 including trees > 150mm diameter and ~ 6m length, with 1m overlap between the trees in tiers 1 and 2.

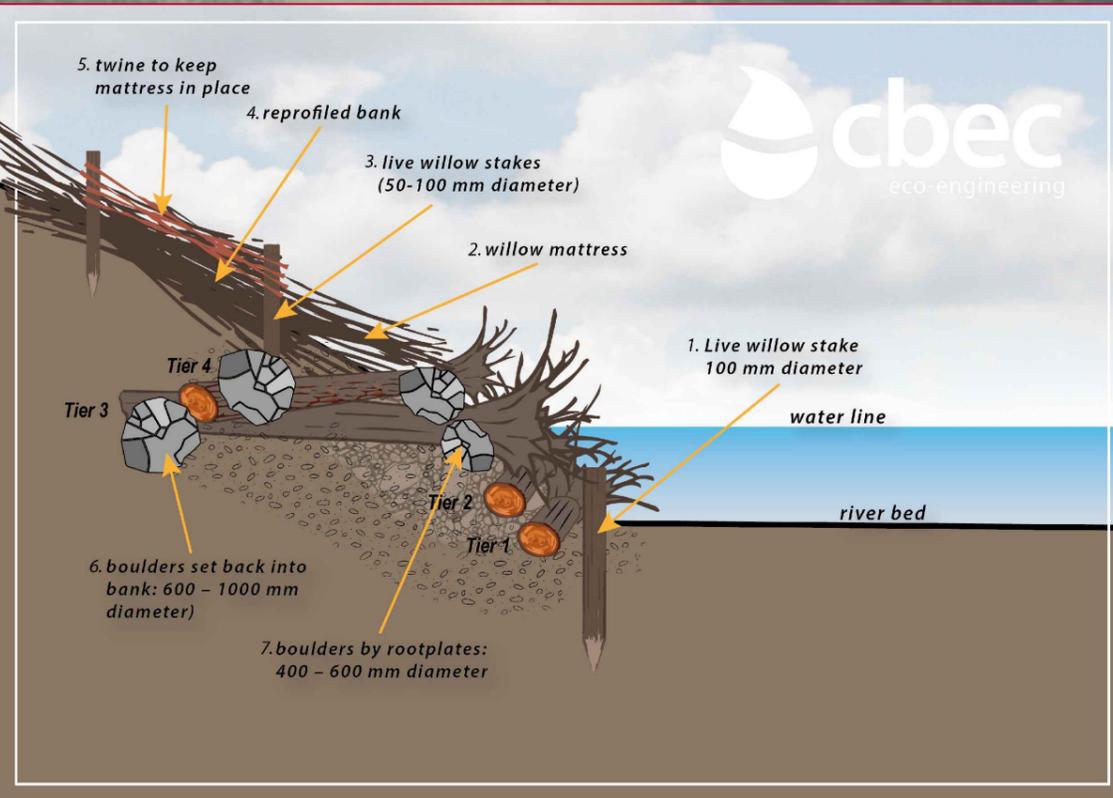
5.- 8 mm coir twine or 4 mm galvanized wire fencing twine to keep willow mattress in place.

Removal of existing exposed rip rap within a ~40 m section with reuse of the boulders within the design. NN 7727 2165 (upstream) NN 7724 2168 (downstream)

Upstream tie in point NN 77275 21641

At upstream end, bank protection would grade/ tie into existing boulder toe protection opposite the vegetated island.

Total length of works is 225m  
\* FEATURES NOT TO SCALE



SAFETY HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risk normally associated with the types of work detailed on this drawing, note the following risks and information.	
* Please note that risks listed here are not exhaustive.	
CONSTRUCTION	
* Working in close proximity to deep water environments.	
* Disturbing or striking existing utilities and services.	
MAINTENANCE/CLEANING	
* No unusual hazards/risks	
DECOMMISSIONING/DEMOLITION	
* No unusual hazards/risks	
It is assumed that all works will be carried out by a competent contractor working.	

LEGEND	
	Existing bank alignment
	Proposed bank alignment
	Willow mattress
	Live willow stakes
	Flat pack otter holts (or similar)
	Tier 1 & 2
	Tier 3
	Tier 4
* FEATURES NOT TO SCALE.	

Quality Project No. : 21-1036

Project Title  
**Comrie Bank Protection**

Drawing Title  
**PROPOSED DESIGN**

Designed by	Scale @ A3 1:700
Date 28/02/2022	British National Grid ORD SURV GB
Date 28/02/2022	
Date 28/02/2022	Version 1
	Date 28/02/2022



Drawing Number  
**1**