

DUNBALL NEW BRIDGE

SOMERSET

BRIDGE & SCOUR PROTECTION

Product: PA6 Woven Gabions

Problem

When the Sowey-King's Sedgemoor drain (KSD) scheme was designed in the 1960's, it was recommended that the original A38 bridge at Dunball (now the southbound carriageway to Bridgwater) would be replaced at a future date with a wider span to address a significant narrowing of the King's Sedgemoor Drain at this location.

This was never done, and today there is a constricted channel of about 200m length, just upstream of Dunball sluice.

Dunball sluice is the only outlet for the King's Sedgemoor drain (KSD) into the River Parrett and – when tidal conditions allow or pumps are used – out to sea, so it is important for the Somerset Levels and Moors that water should be able to flow through Dunball as smoothly as possible.

The damaging effects of this were felt during the floods of 2013/14 a short distance downstream, in the scouring out of the foundations and the potential weakening of the pillars under Dunball New Bridge – which carries A38 traffic northbound.

Solution

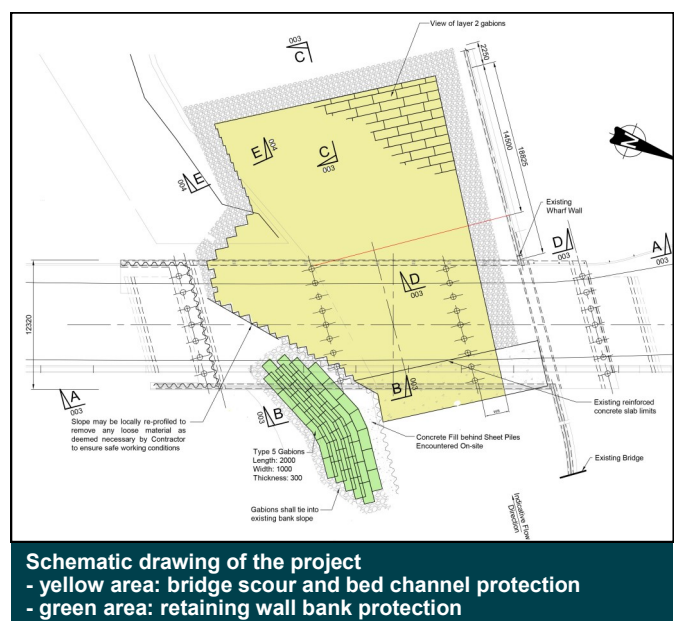
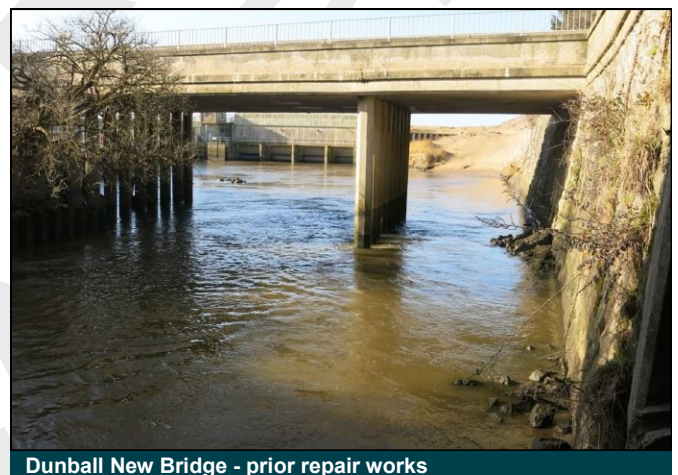
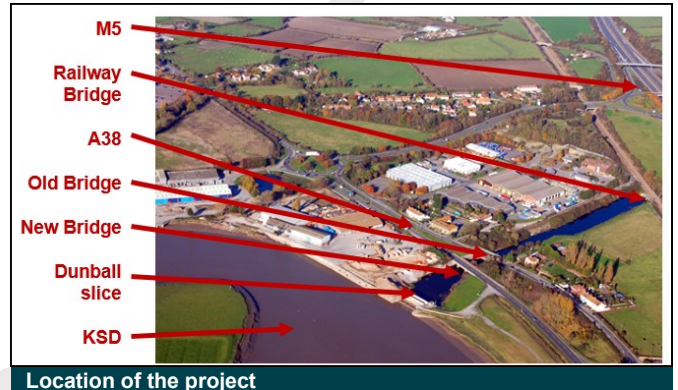
To repair and avert possible future problems, work under Dunball Old Bridge was followed up by a Somerset County Council scheme to repair and strengthen Dunball New Bridge. WSP/PB designed the solution consisting in protecting the piers and the channel bed with double layer of 300mm thick gabion basket. The bridge bank was also reinstated with a gabion retaining wall structure.

PA6 gabions were chosen to make the drainage most effective and prevent turbulence and channel erosion at high flows. The bridge structure has restricted headroom which will constrain the lifting and placement of rip-rap, prefilled PA6 woven gabion baskets were also chosen to increase and reduce the construction programme.

The solution proposed will minimise damaging turbulent flows encountered in the outlet channel to Dunball tidal sluice.

This improvement was a priority to avoid future erosion problems.

PA6 gabion were chosen in order to achieve the requested 120 years design life.



Main Client:

SOMERSET COUNTY COUNCIL
SOMERSET RIVERS AUTHORITY

Main Contractor:

DYER&BUTLER

Installer:

SCOUR PROTECTION

Engineer Consultant:

WSP/PARSON BRINCKERHOFF

Products used:

PA6 WOVEN GABIONS (nr 600, 2x1x0.3)

Date of construction:

July 2016 - August 2016



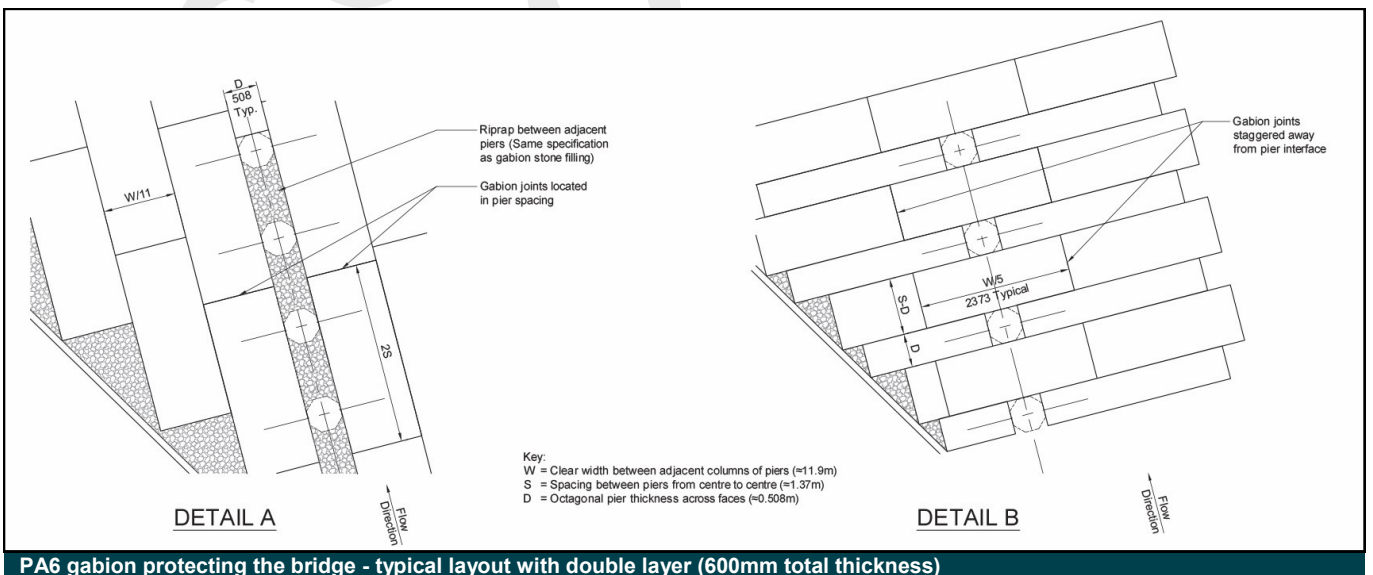
Prefilled gabion on the pontoon ready to be placed on the channel bed



General view during construction - July 2016



PA6 gabion bank protection complete in August 2016



PA6 gabion protecting the bridge - typical layout with double layer (600mm total thickness)