DEMEX
Demolition | Civil | Remediation

REGIONAL
DEMOLITION
MARINE
INFRASTRUCTURE

BATEMANS BAY BRIDGE

MAR - DEC 2021
JOHN HOLLAND
$11 M

Located in a coastal town in southern New South Wales, the Bateman's Bay Bridge demolition project was undertaken as a collaborative arrangement with the principal contractor, John Holland. The demolition formed part of the $274 million Batemans Bay Bridge replacement project, which involved removal of the old Batemans Bay Bridge that spanned the Clyde River built and completed by Department of Main Roads in 1956.

The bridge comprised ten spans with a central steel vertical lift truss, which at maximum height reached 23 metres. The spans ranged in size and mass from 19 metres and 120 tonnes for the back spans to 37 metres and 210 tonnes for the truss spans.

PROJECT HIGHLIGHTS

- Demolition of 307 metre bridge across the Clyde River.
- Innovative demolition method allowed for bridge spans to be removed in entirety in single lift.
- Custom designed and fabricated submersible diamond wire saw used to cut concrete piers of varying diameters from 2.3 metres up to 3.6 metres.
- Over 90 percent of materials recycled and 100 percent steel salvaged.
- Project delivered during peak of state COVID border restrictions.
- No significant environmental or safety incidents for DEMEX managed works

PROJECT METHODOLOGY

Due to the project's complex nature, a global team of industry leading engineers was engaged to design a unique demolition methodology, encompassing both the superstructure and substructure. In terms of the superstructure, each bridge span was pre-jacked to verify the weight and gain centre of gravity.

The span was then lifted as a single unit using multiple Self-Propelled Modular Transporters (SPMTs) positioned on an AMS1803 54 metre x 21 metre barge. The barge relocated the bridge span to a specially constructed temporary jetty where the SPMTs drove the bridge span to the processing pad. Finally, the bridge span was deconstructed on ground using excavators. This process was adopted for the majority of bridge spans, with the exception of the back spans which were lifted and removed in full using a 400 tonne crawler crane and a M16000 Manitowoc fitted with a MAXER, effectively making the crane a 700 tonne crane.

*All images supplied by South Coast Pix

STEEL RECYCLED	842 TONNES
CONCRETE RECYCLED	4,792 TONNES
CUSTOM DESIGNED SUBMERSIBLE DIAMOND SAW CUTTER	$1.2 M
PROJECT WASTE RECYCLED	90%

CHALLENGES

Lowering and removal of the two 105 tonne counterweights using strand jacks from the lift span presented a challenge. This was overcome using following measures:

- Relocating the navigation channel
- Securing lift span in a closed position
- Installing the strand jacks, ancillary equipment, counterweight supports and worker access using a 130 tonne mobile crane positioned on the bridge deck
- Lowering counterweights to the bridge deck using strand jacks
- Using a complex catchment area to prevent materials entering the waterway during processing. Mechanical processing was done using a 23T zero-swing Volvo excavator.

Substructure elements were removed with a $1.2 million custom designed submersible diamond wire saw adjustable for varying diameter caissons (2.3, 3.0, and 3.6 metres).

Where caissons could not be fully withdrawn and did not pose a hazard to navigation they were cut above seabed level to minimise disturbance.

The project was conducted under strict environmental controls and although there was a requirement for a significant amount of hazardous waste removal, including asbestos, no incidents were recorded. Furthermore, the project team recovered and recycled all steel from the project despite the presence of heavy metal containing paint.

In terms of safety, the project was a standout success. There were no serious safety incidents during DEMEX managed works, a function of the high safety awareness among team members, robust safety systems, and careful planning and execution of works.

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