



CHINAMANS CREEK BRIDGE

MAR - MAY 2021
GEORGIU
\$1.1 M

DEMEX was engaged by Georgiou to undertake demolition of the Chinaman Creek bridge, which was part of the \$123.7 million Cairns Southern Access Corridor.

The project presented multiple unique and demanding challenges, including environmental management due to Alkali Silica Reaction (ASR), and waste management of polystyrene cores from bridge plinths.

CHALLENGES

Demolition works consisted of removal of 68 prestressed concrete bridge deck units; relieving slabs; abutments; and three piers consisting of headstocks and 16 piles with pile encasements. The bridge needed to be removed in its entirety down to riverbed level, a factor complicated by strong tidal and current movements and severe tropical storms delivering over one metre of rain during the project.

The bridge's location within the Great Barrier Reef Marine Park, which included the protected habitat of saltwater crocodiles within the work area, meant demolition was conducted under strict environmental conditions. To manage these factors,

DEMEX installed two custom designed, multi-layered floating blankets to prevent slurry and debris from impacting the waterway and local environment. Additionally, a custom designed and fabricated crocodile dive enclosure was used to allow underwater cutters to remove bridge piles at the riverbed. These innovations were significant contributors to the project being delivered without recording any health and safety incidents. ASR damage to the bridge deck units and piles presented the risk of complete or partial break up or collapse during crane lift operations. This was addressed in the demolition methodology by increasing crane size; revising crane positioning; increasing the quantity of saw cuts; and removing the headstock and piles in smaller sections.

OUTCOMES

During project planning, DEMEX identified an opportunity to donate and repurpose bridge decks. All remaining demolition waste was mechanically processed, including capture and removal of deck unit polystyrene cores. Waste was processed and sorted and resulted in 97percent of demolition waste to be recycled or repurposed and minimal waste entering landfill for disposal.