

InQuik[®]

BRIDGING SYSTEMS



CASE STUDY: BYRON SHIRE

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Byron Shire Council replaces a collapsed causeway with an InQuik Bridge:

Designed, built and open for traffic in just over 3 months.

A fully laden garbage truck had collapsed Durrumbul Road Causeway, and whilst thankfully nobody was injured, it meant the team at Byron Shire Council had to act quickly to come up with a solution.

Considering the urgency of replacement, flood risk and with a school on one side of the causeway, Bridge Knowledge and InQuik were engaged in mid-November 2017 with the goal of having a permanent solution in place and open for traffic within 4 months

The Byron Shire Bridge Engineer had heard a lot about the InQuik system and was keen to understand if it would be suitable for this project. Its top-down installation method could minimise impact on the waterway, and the 2 stage "place and pour" installation process could meet the tight project timeframe.

About

Byron Shire is located on the far north coast of NSW, and shares boundaries with the Tweed, Lismore and Ballina Local Government Areas. Brisbane is approximately 200 km north and Sydney approximately 800 km to the south. Byron Shire is 556 km² in size and the region is famed for its rural beauty and beaches. There are currently 33 bridges and 88 causeways that are under the Shire's responsibility.



Challenges

The Byron council had to decide between spending funds on repair of the causeway, or replace the causeway with a more robust, permanent solution. DPI Fisheries recommended a bridge in order to minimise disturbance of the waterway, so after careful consideration the Council decided to release a tender for the replacement bridge option calling for 100 year design life, T44 load rating, and most importantly the shortest possible program.

Following the collapse of the old causeway, the project was urgently pushed through as high priority, despite the significant challenges faced from the annual wet season.

A tight window of 3-4 months for the project included design, piling works and adjustment of road approaches for increased flood immunity, and from this time-lapse installation video of the project you can see the impact of heavy rain encountered at numerous times during the project: <http://inquik.com.au/projects/durrumbul-causeway-bridge-for-byron-shire-council>

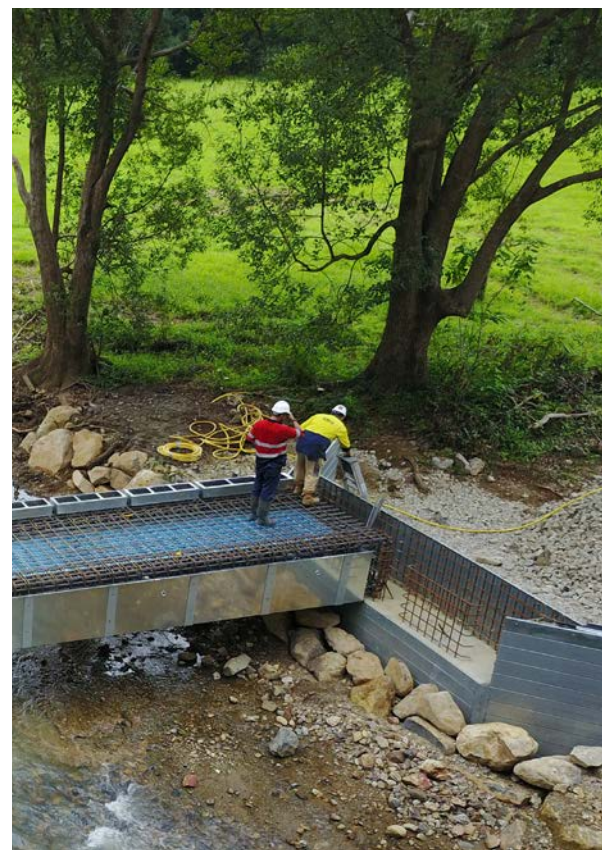
The 4 key reasons for selecting InQuik as the optimum solution through the tender process were:

- 1) The timely and efficient 2 stage “place and pour” installation process.**
- 2) Minimal impact on the waterway & surrounding environment - supported by NSW Fisheries (DPI).**
- 3) Cost-effective, premium solution.**
- 4) Minimal maintenance costs over the 100 year “whole of life” asset plan.**

How We Helped

The InQuik system was selected as it met all the above structural criteria, as well as the very tight timeline for design and construction. The InQuik solution would help to shorten the window on road closures, minimise the impact of weather delays, and improve the flow of the Brunswick River.

The InQuik bridge project was a collaborative process, with InQuik and Bridge Knowledge being onsite and engaged to coordinate the design, supply and installation of the bridge with Byron Shire Council and SRG.



Results

The Durrumbul Road causeway has now been replaced with a low maintenance structure that will provide safer, reliable access for the local community for many decades to come.

Constructed in just over 3 months, there was a period of heavy rain that caused serious delays to substructure construction, but had a very limited impact on the superstructure build due to its ease and speed of installation.

The community has welcomed the completed project. The bridge provides 'increased flood immunity', as it will handle floods much better, and is less likely to overtop.

In addition to the new causeway, road approaches have been improved as well as signage and kerb barriers on the causeway. There is now no load limit at this site, and within the next year or two it is envisaged that all causeways between Main Arm Village and Mullumbimby will be removed and replaced with bridges.

Key Project Points

- The InQuik team provided superb customer service and site support throughout the entire project.
- Efficient 2-step "place and pour" installation minimised the environmental impact on the waterway.
- The speedy superstructure installation process minimised exposure to and risks associated with weather delays.
- Mitigated safety and WHS risks due to lightweight components, top down installation and reduced site time.

