



# Design and Construction of NBAQ4 Water Transfer Scheme

#### Join industry professionals for an informative technical presentation on the NBAQ4 project design to supply water to the people of Manila.

## 6.00 - 7.00pm | Thursday 12 September 2019

Hawken Auditorium Level 1, 447 Upper Edward Street, Brisbane, QLD 4000

You'll hear from GHD's Tunnel Practice Leader and NBAQ4 Project Manager, Brendan Henry, for an insight into the NBAQ4 project and its design, implementation, considerations, and execution.

Based in the Philippines, the NBAQ4 project will provide water supply for around seven million residents of Manila and is a critical piece of water supply infrastructure for Manila Water Company Inc.

The design has been completed by GHD across Philippine, Australian and UK offices with construction by NovaBala JV of CMC, Chun Wo and First Balfour. Event assembly and light refreshments will take place prior to the presentation from 5.30 - 6.00 pm. Following the presentation, there is designated time for open discussion and questions for the presenter.

For more information about the presenter and the topic, please see the next page.

#### TICKETS

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## **Presenter and Topic Information**

Based in the Philippines, the NBAQ4 project will provide water supply for around seven million residents of Manila and is a critical piece of water supply infrastructure for Manila Water CompanyInc.

The scheme requires a new 3m diameter precast concrete lined tunnel 7.3km long, driven through very weak volcanic rock and soil. The TBM will be driven from the Balara WTP with an EPB TBM designed to negotiate three, 80m-radius sections of the tunnel drive. The TBM will be driven into a new water Intake Structure in the La Mesa reservoir, and will dock there with the shield left in place.

The Intake is connected to shore by a 150m-long access bridge and is constructed within a 32m-deep steel pipe pile cofferdam with 30m head of water. The tunneling works are executed from a 55m long mined tunnel in very weak rock with soil like parameters and supported with forepoling, steel ribs and shotcrete.

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### **Brendan Henry**

Tunnel Practice Leader & NBAQ4 Project Manager, GHD

With more than 25 years of civil engineering experience working as both contractor and consultant in four continents, Brendan is experienced in the planning, design and construction of tunnels, shafts and tunnel systems for road, rail, sewer, water and mines.

He has managed delivery for PPP, EPCM, D&C and design only projects with multi-disciplined and multi-cultural teams. Brendan has in-depth experience as contractor and designer for high risk TBM tunnelling in urban environments and difficult, mixed ground conditions.

