

PROJECT

FORTH CROSSING BRIDGE OFF SHORE JET GROUTING CURTAIN



PROJECT NAME

Forth Replacement Crossing

CLIENT

TRANSPORT of SCOTLAND

ENGINEER

HOCHTIEF Solutions

GENERAL CONTRACTOR

Forth Crossing Bridge JV
Hochtief Dragados
American Bridge Morrison

SPECIALIST CONTRACTOR

RODIO GmbH Spezialtiefbau

CONTRACT VALUE

EURO 1.25 Mio. CHF 1.53 Mio.

BEGINNING OF WORKS

October 2012

END OF WORKS

April 2013

■ JOB DESCRIPTION

The Forth replacement Crossing is a cable-stayed motorway 2,7 km long bridge, which crosses the famous Firth of Forth northwest from Edinburgh. The design involves the construction of four sunked caisson foundations. For three of these it has been foreseen to realize a curtain of jet grouting around the caisson and down to the bedrock in order to avoid any inlet of soil and instability during the underwater excavation inside the caisson. The drill rig is installed on a platform placed on top of the caisson. A temporary steel casing is placed from the working platform 2-3 meters inside the seabed. The main soil layers are sandy gravelly deposits and compact clay tills. To achieve the required column diameter of 1.85 m, here the DUPLEX Jet Grouting method (RODINJET 2 ®) was chosen. Following this method, the high-pressure cement grout jet that cuts the soil, is coated by an air jet to increase its action radius. Every hole is surveyed with inclinometer. The max. drill depth achieves 48 m.

■ WORK QUANTITIES

Total of 3.200 Meter of vertical jet grouting columns Ø 1.85m

■ MAIN EQUIPMENT

1 Drill rig Casagrande C7

1 fully automatic mixing plant type METAX JM30

1 high pressure pump type METAX MP7-E-CO

1 Air compressor Atlas Copco XAHS 375

Full automatic recording of drilling and jet grouting parameters by means of LT3 LUTZ System.



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Vertical Jet Grouting

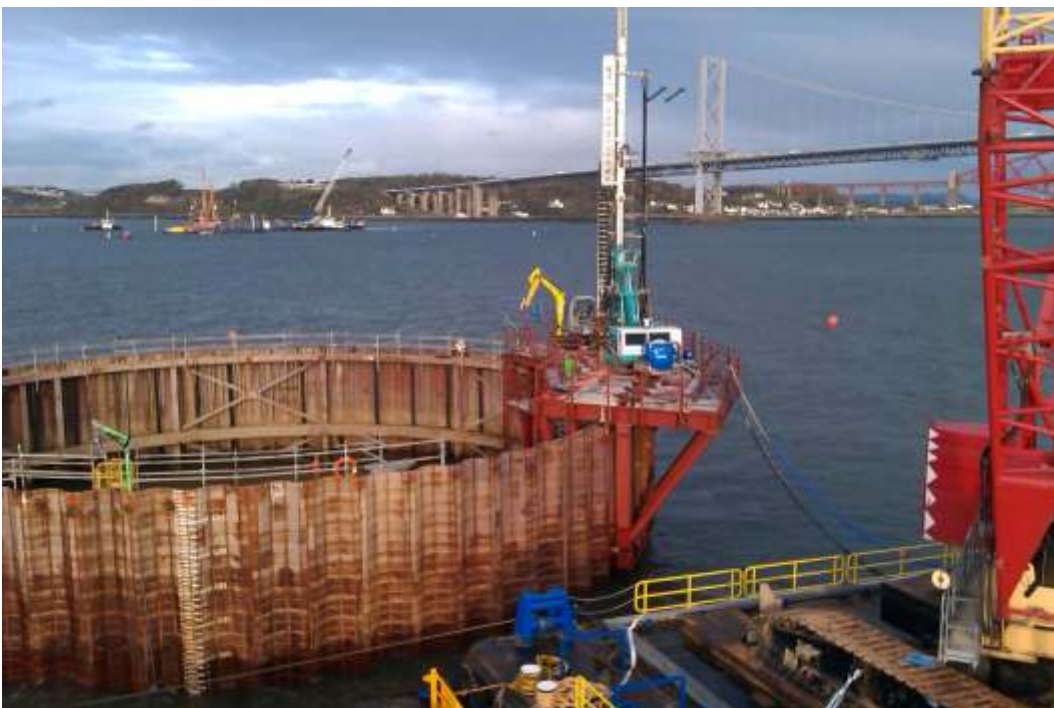


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Drill rig on north tower with service barge



Drill rig working on the south tower



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Vertical
Jet Grouting