PIPE JACKING CASE STUDY

St. Helier Flood Alleviation Scheme

PIPE JACKING ASSOCIATION

www.pipejacking.org

PROJECT	St. Helier Flood Alleviation Scheme
CLIENT	States of Jersey
CONTRACTOR	J Murphy & Sons Ltd
PIPE SUPPLIER	Stanton Bonna
TUNNELLING MACHINE	Herrenknecht AVN
VALUE	£4,500,000

PROJECT OVERVIEW

The North St. Helier Flood Alleviation Scheme is an addition to a major drainage project that was constructed in the mid-1990s to alleviate flooding in St. Helier on the Island of Jersey and to prevent diluted sewage being discharged directly to the sea during storm conditions. Business and shopping districts in the north of St. Helier had been subject to flooding as recently as 2010. The new scheme was designed to prevent such flooding occurring in the future.

DESCRIPTION OF WORKS

The North St. Helier Flood Alleviation Scheme involved the construction of a 23m deep 8.0m internal diameter shaft from the bottom of which two parallel 67m long 1200mm internal diameter tunnels were driven to connect to an existing 2.74m internal diameter stormwater tunnel. An overflow chamber with connection pipework was constructed adjacent to the new shaft to divert flows from existing surface water and foul sewers into the new shaft.

The lower half of the shaft and the two tunnels were excavated through Jersey shale. The shaft was excavated inside a secant piled primary lining and ground treatment was carried out to reduce the permeability of the rock at the base of the shaft. The two tunnels were driven using a slurry pipe-jack TBM. The avoidance of the de-watering of an over-lying peat layer during shaft and tunnel construction was of paramount importance.

The TBM broke-through at the ends of the two tunnel drives at reception chambers that were excavated from inside the existing stormwater tunnel. The TBM was then transported 350m along the stormwater tunnel to be lifted out of an existing access shaft.

FURTHER INFORMATION: www.murphygroup.co.uk

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HERRENKNECHT Tunnelling Equipment

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