

CASE STUDY

Petrifond Foundation

Montreal, Quebec

Problem

The Ministry of Transport of Quebec needed to construct a new bridge in Gatineau, Quebec. The new bridge is located over environmentally sensitive wet lands, and as such, the general contractor was denied access onto the wet lands. The use of earth dyke for construction access was not feasible. With these restrictions, the apparent option for access to construct the bridge piers was a temporary trestle.

Solution

In the winter of 2006, Petrifond Foundation Company Limited, a speciality foundation contractor, was awarded a contract to install 3 large diameter caissons to support the entire Pier 3 bridge alignment for a length of 183m (600ft). The caissons were designed with a permanent steel casing 3600mm diameter x 25mm wall thickness (12ft x 1in), produced by one of Skyline Steel's rolled & welded facilities and supplied by Skyline P.H.P. Canada ULC. The steel casing lengths were custom fabricated at our facility to accommodate the anticipated bedrock profile. The casings varied from 12m (40ft) to 20m (66ft) in length and weighing up to 45 tons.

Result

Caissons were installed through the overburden and seated into the bedrock, with 9m rock sockets. The bedrock sloped 30 degrees along the transverse alignment of the pier footprint, making the caisson installation very challenging to achieve the stringent verticality tolerance of 1%. The caissons were then cleaned out and the bedrock sockets inspected. The inspection included a submersible camera



Steel casing being delivered to site

placed underwater and the bedrock socket walls, and rock core samples were taken at the caisson bottom. The data collected was then analyzed by the Ministry of Transportation and, upon approval, the caisson was ready to be concreted. The caisson work was completed in three months without any project delays.

Project Partners

Structural Consultant

Genivar

Montreal, Quebec, Canada

General Contractor

GTS-Loiselle Joint Venture

Foundation Contractor

Petrifond Foundation Co. Ltd.

Montreal, Quebec, Canada

Products

45 Tons of Rolled & Welded Steel Pipe
3600mm diameter, 25mm wall thickness