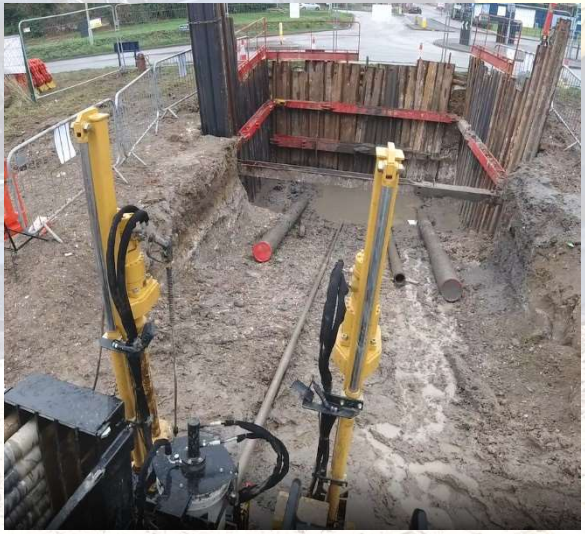
Project: Outfall
Value: £1,810,000
Duration: 12 Months
Start Date: November 2020
Client: Erith Contractors Ltd.
Role: Sub- Contractor
Completed: November 2021

Project Description:
The construction site was located at Ebbsfleet Garden City, a development site consisting of 7000 houses in Dartford, close to Blue Water shopping centre.
Our client was the Principal Contractor carrying out a major enabling and infrastructure works.

The Principal Contractor had already installed a number of pipes awaiting connection to the river Thames to enable effluent treatment water to be discharged from the development site, pending installation of pipes under a rail crossing located at Swanscombe in Dartford.

The proposed mains installation routes passed under an established live network rail UTX crossing at Craylands Lane, off London Road.

Complete Moling Services (Southeast) Ltd. were known by the client as proven specialist drillers and were engaged to Horizontal Direction Drill and install 312M of 1 No: 355mm, 3 No: 315mm and 1 No: 80mm SDR 11 pipes under the railway line at a proposed depth of 19M.



Challenges:

1) The project was extremely challenging as there was a very narrow permit restriction authorised by the rail network to cross beneath the railway lines.

   As a result, the design was extremely tight with a 10M corridor permitted leaving minimal clearance distance between the 5 pilot drills and subsequent pipe insertions.

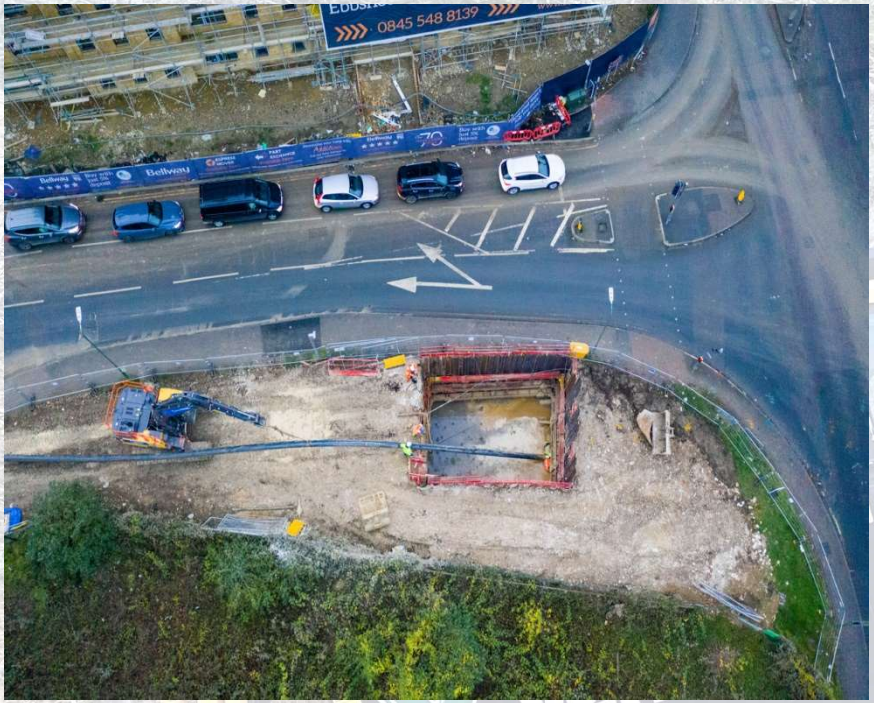
   The HDD ream sizes were 800mm diameters leaving little room for deviation.

   The varying and hard ground conditions added to the challenge of keeping the pilot drill on track.

2) Whilst carrying out the directional drilling, unknown underground structures were encountered.

   Further investigations by the client identified information of redundant concrete structures which were over 100 years old.

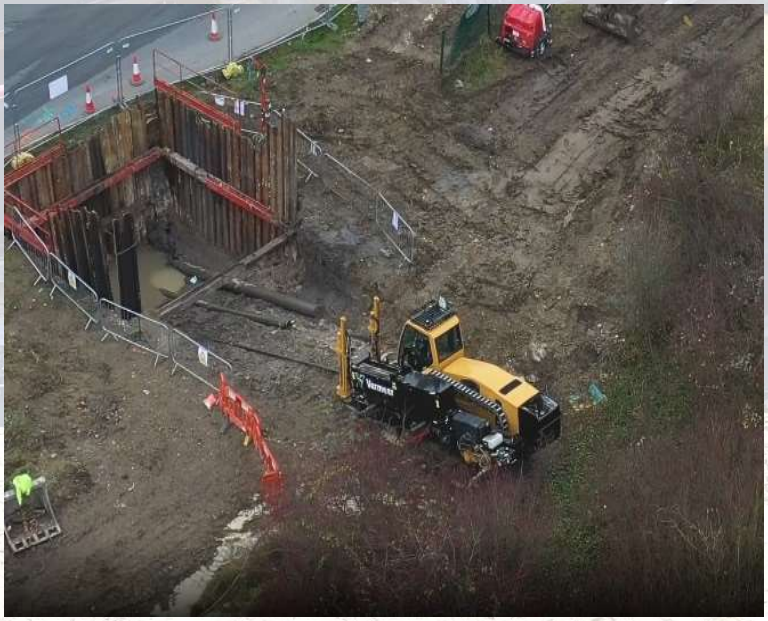
The client discussed scenarios and capabilities with CMS in liaison with specialist engineers and designers to find resolution.
It was agreed to increase drill depths until the obstructions were cleared, when cleared, the drill depth was to be further increased to ensure the pipes were installed clear of the obstruction.



The variation raised many issues, including the extra depth exceeding the CMS 20T HDD rig torque capability to drill at the extra depth and meterage, and the current digi-track F5 GPS system could not track the direction and location of the drill head at this depth.

To overcome this issue, CMS travelled to Holland to engage Brownline, an established and prominent Horizontal Directional Drilling company recognised for providing the most advanced Gyro steering services for Horizontal Directional Drilling equipment.

CMS procured the Gyro Steering technology required to calculate and track the drill by using GPS coordinates.
CMS also imported a 50T HDD rig to enable the specialist Gyro equipment to be pushed through with the required torque capabilities for the tasks.



Outcome:
The concrete obstructions were circumvented at a depth of 27 Meters and all pipes were installed to the clients' specifications.

CMS innovations, in liaison with Brownline's specialist services, enabled the delivery of the project preventing re-designed routes which would have made the existing newly installed pipework redundant, adding many kilometres of pipe diversion causing substantial additional costs to the client and their stakeholders, as well as major impact to the client delivery programme.

Client site Manager “a great effort to overcome the complex issues encountered on this project”.

See the Video at https://completemoling-se.co.uk/directional-drilling