

Client: J Murphy & Sons / Network Rail  
Site: FTN/GSMR Node Site  
Location: Castleton, Greater Manchester

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## Project Description

GTL Partnership were employed by Murphy's to design, supply and supervise the installation and testing of helical (screw) piles for Network Rail FTN/GSMR node south of Rochdale in Greater Manchester.

## Geotechnical Ground Conditions

The soils investigation indicated superficial deposits overlaying a dense to very dense sand layer at 5 m below ground.

The site investigation of a borehole with SPT and Dynamic Probe Super Heavy were used for the design of the piles.

The presence of a soft layer of clay immediately above the sands was taken into account in the calculation of the helical piles tension capacity.



## Helical Pile Design and Testing

GTL designed the helical piles for a RDS narrow base, with loads of 70kN in compression and 37kN in Tension.

GTL carried out a static analysis using the combined bearing capacities to generate the required pile capacity in tension and compression.

GTL predicted the settlement and movements under load using industry recognised software in Oasys Pdisp and Alp.



## Installation

The 8.5m piles were installed and tested during two night possessions in sub zero temperatures. Once again the use of helical piles was proved to be the correct solution, enabling the install team to avoid the many existing services without delay to the programme.