

Case Study

Client National Grid / Amec / ABRhead Consortium

Project date 2008

Case Study date August 2008
Budget £110K fees

Project: Grain to Shorne 900mm Gas Pipeline

The construction of a new underground 21km-long 900mm-diameter gas pipeline in Kent was required to meet the increased supplies of imported gas required by the UK to meet future demand.

Services provided

Geotechnical Engineering;
Civil & Structural Engineering

Description of project

The scheme consisted laying a 900mm gas pipeline using various techniques such as open cut trench, deep auger bores to road and ditch crossings and horizontal directional drilling to cross areas of protected marshland bird reserves.

Merebrook undertook detailed slope stability analysis for the open trench sections of the project to determine the temporary safe working conditions for the varying ground conditions along the route. These ground conditions included alluvial clay; river terrace deposits; London clay and Lambeth group sand and clay deposits.

Design co-ordination and checks were also undertaken for each individual sheet piled and braced deep pit used for the auger bore drives. These pits were up to 15m deep and were often below the adjacent water table.

Merebrook was responsible for the daily inspections, checking and recording of all the excavations allowing authorization for the work to commence each day in accordance with the site procedures.

Detailed structural calculations were also undertaken to ensure acceptable pipe stresses were not exceeded during repeated pipe pulls using horizontal directional drilling techniques and advice was given on expected temporary winch and crane loads during various winching operations.

Foundation options were provided to the client to enable cost effective solutions to be sought to overcome extremely poor ground conditions. These included piled and ground replacement solutions.

Advice and reports were also provided with respect to ground conditions encountered and appropriate construction techniques required, to support the client when liaising with statutory bodies.

Finally, following the successful completion of the laying of the pipeline, Merebrook has provided further advice and reports dealing specifically with the geotechnical aspect for pipeline lower and lay procedures. It is envisaged that this advice will be incorporated into national best practice guidelines for pipe laying in the UK and Europe which are currently being drafted.

