



# Trenching and Cables



Subsea power cables are critical yet vulnerable aspects of any offshore project. Using a combination of geotechnical, geophysical, GIS and in-house modelling resources we are able to optimise and engineer the most challenging cable routes. Our work in this sector for major contractors and developers has stimulated innovation, with aspects such as thermal conductivity of soils being investigated in more detail.

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## Feasibility

### Desk Top Study

- Bespoke, site-specific, geological, geotechnical and geohazard studies
- Risk registers identifying anthropogenic, geological and geotechnical hazards
- Preliminary routing
- Permits and consent

### Survey Management

- Scope and specification of survey
- Survey procurement and tender assessment
- Onshore management of survey
- Offshore client representation
- Management of reporting and laboratory testing

## Data Management and GIS

- Manage, interrogate and visualise project data sources
- Integration of data sources and development of ground models
- Determine geotechnical parameters for design

## Interpretive Reporting

- In depth knowledge of data acquisition and testing methods
- Expert geological understanding
- Detailed appreciation of soil parameters and their use in cable routing and burial design

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## Engineering

### Corridor and Route Surveys

- Survey design according to DTS conclusions
- Acquisition and interpretation of hydrographic, seismic and engineering geophysics survey data
- Integrated interpretation correlating geophysical quantities to geotechnical soil parameters
- On board design of In-Field Selected Route

### Route Engineering

- Landing site and route assessments
- Route design
- Scour assessments and sediment mobility
- Seabed slope stability assessment
- Burial Risk Assessments / Cable Protection Requirements

### Cable Trenching

- Trenching equipment suitability assessment
- Trencher performance prediction
- Trencher design and optimisation
- Supervision of onshore and offshore trenching operations
- Performance assessment and forensic studies

### Modelling

- 2D and 3D finite element analysis (Abaqus, Plaxis)
- Finite difference modelling
- Bespoke in-house software
- Scale trencher trials

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## Asset Management

### Pre-installation Support

- ITT and methodology support and due diligence
- Installation engineering reviews
- HDD engineering due diligence
- Route Position Lists (RPLs) and Straight Line Diagrams (SLDs), charting
- Geotechnical design of temporary work



### Installation Support

- Management of pre-lay survey
- Real-time geotechnical and construction support and advice
- Client representation for installation
- Post installation Charting and Data Management
- Post lay burial risk assessment to establish adequate burial depths and target additional projection

### Operation and Maintenance

- Recommendation for O&M programme
- Review of as installed data and documentation
- Management of monitoring programme to meet license conditions
- Ongoing monitoring and assessment of seabed changes
- Recommendation for additional survey or protection methods

### Modelling

- Ensure seabed risks have been appropriately mitigated, industry guidelines and standards have been followed in a diligent manner
- Leveraging our experience to provide an objective analysis to manage cost and liabilities.



