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CASE STORY

Challenge - Solution - Results

Marine geophysical survey in subway extension project

CLIENT

The consultant company ÅF Infrastructure AB and Stockholm County Council (Stockholms läns landsting)

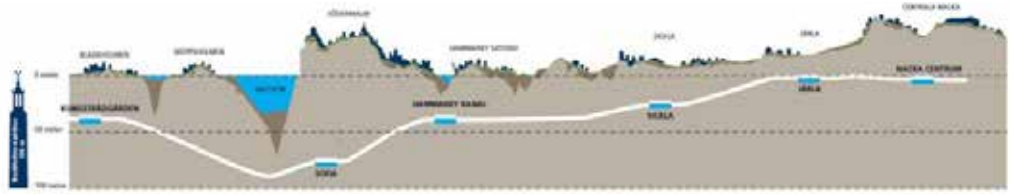
Stockholms läns landsting

INNOVATION BY EXPERIENCE

CHALLENGE

Extend a subwayline through a marine environment

In the project of extending a subway line in Stockholm Sweden, the bedrock quality in the bay of Saltsjön needed to be investigated. The project creates additional challenges in finding the most appropriate method for a marine environment that can handle potential gas pockets and is resistant enough to various electric disturbances frequent in urban areas.



SOLUTION

RES/IP

The resistivity method was chosen, complying with the requirements and complexity of the project. The system used in the survey consists of ABEM Terrameter LS with 12 channels and marine cabling with 64 take-outs at 7 meter spacing, complemented by SAS LOG300 to measure the variance in water resistance. For data processing, Res2Dinv was used. The resistivity cable was placed on the sea bottom and the take-outs acted as electrodes.

SYSTEMS USED IN SURVEY

- ABEM Terrameter LS (12 channels)
- Marine cable with 64 take-outs at 7 meter spacing
- SAS LOG300
- Res2Dinv for data processing

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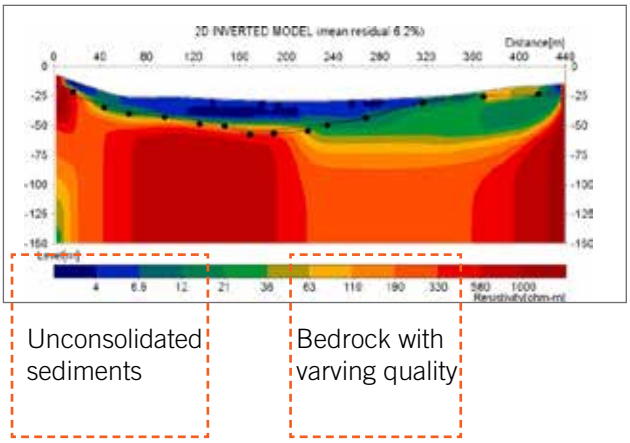
RESULTS

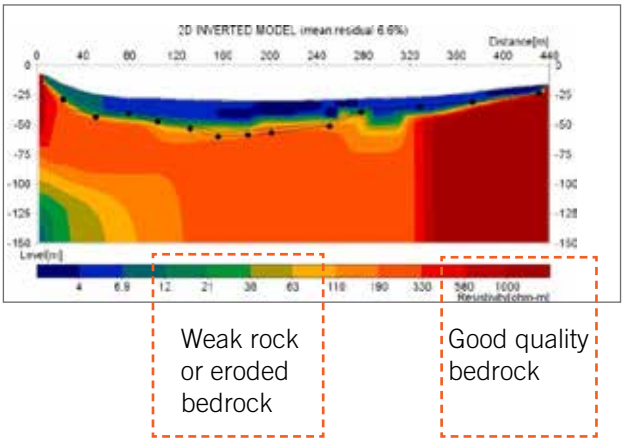
Five (5) parallel profiles were measured for the survey and Pole-Dipole array was used for increased depth. The processed data concluded the variations of the bedrock, from weak or eroded bedrock to good quality bedrock as well as seeing the effects of the existing dockside construction.

The data images on the right shows two seperate lines.

1.Line with dots = Geotechnical drillings, and interpretation of depth to bedrock
2.Line without dots = Interpretation of depth to bedrock based on ERT

The planned building start of the subway extension is 2018/2019.





Acknowledgements

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