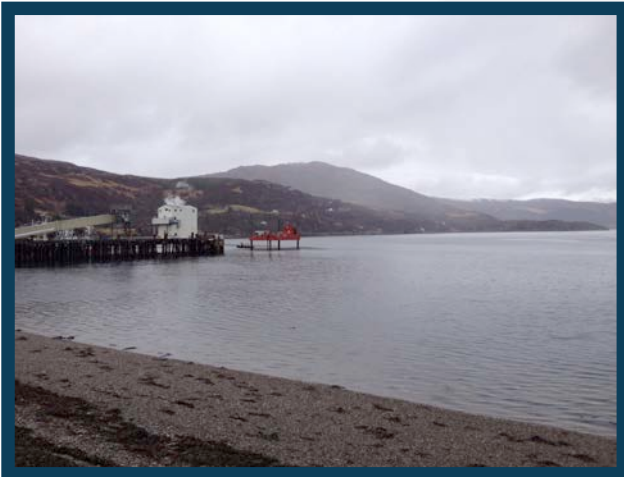




Jack-up barge "Emotion" set up over borehole location



Jack-up barge "Emotion" working off end of existing pier.



## Ground Investigation

Causeway Geotech were appointed by Ullapool Harbour Trust to complete an overwater ground investigation to provide geotechnical information for the input to the design of an extension to the existing ferry berth. Site operations were conducted in March 2013.

The scope of works comprised four boreholes put down through overburden to depths of 42m below existing seabed level. Causeway Geotech commissioned specialist marine plant subcontractor Abco Marine to supply a modular C5 jack-up barge (Emotion) and workboat to successfully execute the works, which were completed ahead of schedule and without incident. Emotion had a deck area of some 18m x 18m and was equipped with 27m long jack legs.

The jack-up barge was equipped with a Dando 3000 light cable percussion boring rig which was used to put the boreholes down by telescopic drilling methods, commencing in 250mm diameter to advance through the heavy uppermost strata, and subsequently reducing to 200mm diameter which continued until the boreholes achieved their scheduled termination depths.

Works were carried out on a continuous 24/7 basis, with a best practicable means (BPM) to environmental mitigation, not least noise and vibration. Acoustic screening barriers were erected around the perimeter of the deck to impede the shoreside noise pollution. In addition to this, the plant employed was all selected in advance with a strong emphasis on minimising noise emissions, with heavily silenced generators and power packs used. Attention to detail when formulating the deck plan in advance of mobilisation was also a key factor in the planning stages, with the positioning and orientation of deck furniture being critical to minimising the potential for noise travelling to the shoreside receptors.

The site operations were completed in eight days in mid March 2013, which was well ahead of schedule, with favourable weather conditions further bolstering the excellent team performance on the ground.



## Project Details

The site operations were carried out under the supervision of an experienced Site Engineer from Causeway Geotech who directed the drilling crews on site. A representative from Wallace Stone LLP, consulting engineers acting on behalf of the Client, Ullapool Harbour Trust, maintained a presence on site to oversee the execution of works and ensure they were being carried out in accordance with the specification.

An experienced barge crew were provided by Abco Marine to liaise with the Causeway Geotech Site Engineer and hence efficiently coordinate all marine operations. Jack-up moves were meticulously planned and executed to preclude having an impact on the Ullapool-Stornoway ferry which was operating twice daily and using the adjacent berth. Setting up of the jack-up barge over each borehole location was critical to ensure the berthing line was kept clear of any obstructions so as to not impede on the ferry. This resulted in some meticulous manoeuvring of the jack-up when positioning to ensure the boreholes were still positioned within the scheduled tolerances.

The ground conditions encountered were typified by coarse fluvio-glacial deposits which were successfully penetrated by means of light cable percussion boring methods using a Dando 3000 rig. Two experienced drilling crews were deployed to work back-to-back shifts, thus continuing works on a 24/7 basis which assisted with meeting the Client's programme needs.

Causeway Geotech's impeccable safety record was furthermore boosted by completing the works with zero incidents.

The subsequent reporting phase, comprising both factual and interpretative reports, was also completed on schedule, thus completing another successful contract to the Client's satisfaction.



Putting down a borehole adjacent to ice plant on the existing pier

## Project Summary

- Overwater ground investigation
- Completed off a jack-up barge
- Four no. boreholes to 42m depth
- Working in a fully operational harbour
- Cable percussion boring
- Geotechnical sampling and testing
- Laboratory testing
- Factual and Interpretative Reporting
- Completed ahead of schedule
- Zero incidents