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Construction of EirGrid's converter station in north Wales gives foundation to piling technique research

Work progressing on an electricity converter station in Shotton, near Deeside, is to incorporate a research project by the National University of Ireland, Galway (NUI Galway) to investigate new techniques for piling.

The converter station makes up part of the East West Interconnector project, which is being developed by EirGrid, the independent electricity transmission system operator in the Republic of Ireland. Keller is the specialist piling sub-contractor who will be completing the works on the site in Flintshire.

690 Driven Cast In-Situ (DCIS) piles, with a capacity of 75 tonnes, will be driven into the site of the converter station as foundation support to the various areas. DCIS piles have been found to be very effective at supporting much higher loads than the more commonly encountered pre-cast concrete or continuous flight auger piles in granular soils. In conjunction with NUI Galway, Keller will be carrying out fundamental research to see how these high capacities are achieved.

The main objective of the test at Shotton is to understand how the changes in strain in a DCIS pile before it is brought into service, due to pile driving, concrete curing and other factors, influences the axial load behaviour when loaded. This test is part of an overall research project which is intended to provide further insight into attaining improved pile design installation capabilities.

Dr Bryan McCabe of NUI Galway, says, 'The ground conditions at Shotton are ideally uniform making this site a fantastic location to undertake some fundamental research. Construction companies are rightly keen to ensure their works are as cost effective and sustainable as they can be.

Prior to the piling work commencing, preparation work and analysis of the site and soils was necessary to evaluate the ground conditions to compile a ground model for the pile design. These works commenced at the end of March and were completed by the beginning of May. Work included designing the pile based upon the soil and engineering parameters derived from the ground model. In addition a working platform had to be designed to safely support the 100ton piling rig. The DCIS piling work is to provide support to the Converter Building, Spare Parts Building, and the Valve Cooling Tower.

Sean Meagher, EirGrid's East West Interconnector project manager in Wales said, "We're delighted to be involved with this research project and hope the findings will help advance construction techniques

for the future. As well as bringing benefits to electricity users on both sides of the Irish Sea, this project should provide valuable information to be used in the construction industry the world over.”

Eirgrid’s East West Interconnector project will see undersea and underground cables transporting electricity between Wales and Ireland. The 260km of cables will come ashore at Barkby Beach, Prestatyn, and when completed, will have a capacity to carry 500MW of electricity which is the equivalent of supplying power to around 300,000 homes.

The interconnector will be able to transport power in bulk and high quality in both directions between Ireland and Wales, providing benefits to electricity consumers on both sides of the Irish Sea. It will have the potential to create access to a new market for energy generated in Wales, supporting the energy sector in adapting to meet the challenges posed by climate change and fuel security.”

Keller is the specialist piling sub-contractor who will be completing the works on the site in Flintshire, for John Sisk Ltd and ABB.

Photo Captions;

Photo 1 – Team on site – (from left) Simon Olldman, Parsons Brinckerhoff and Steve Shaw from ABB, Kevin Elway from the University of Gallway, Peter Stamp and George Wagstaff, both of Keller.

Photo 2 – Team on site 2 – (from left) George Wagstaff, from Keller and Kevin Elway, from the University of Gallway.

Photo 3 – The piles on site.

Ends

Enquiries to the EirGrid Wales press office on 029 2055 6146