Project Fact Sheet

Client – Farrans Construction Ltd

Project – Northumberland Energy Park

Location – Blyth, Northumberland, UK

Start Date – 22nd July 2019

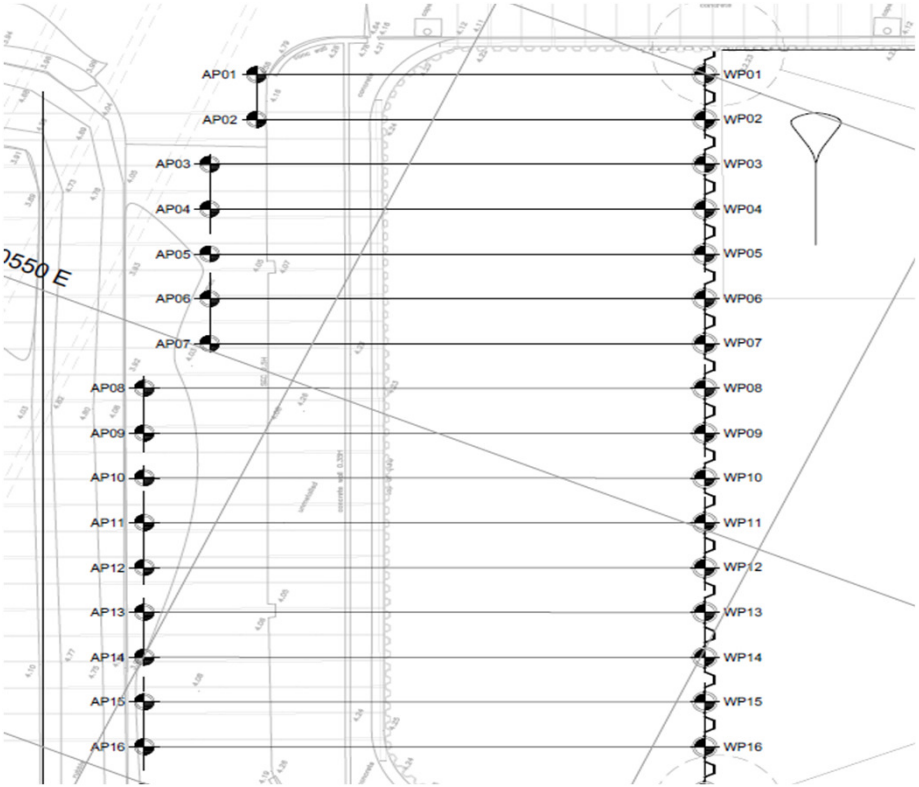
Completion of Piling – February 2020

Contract Value – Approx. £32m

Project Brief – Following on from our successful installation of the south side deep water berth 9 & 10 at Montrose Harbour, Farrans Construction engaged Trench Control services again to utilise our hydraulic piling gate for a similar deep water berth in the north east of England. Northumberland Energy Park Phase 1 is to transform an existing dock into a deep water berth with jack up barge capabilities and is part of a strategic land development plan for the Blyth estuary.
The new deep water berth will provide docking and servicing of service ships for the offshore energy sector in this area including wind turbine and wave energy technology.

Project Parameters – Most of the existing dock will be removed but several listed structures had to be preserved during construction as they form historical significance from the industrial background of this area.

The remit for piling was defined in 3 sections
1.Combi-wall installation Tubes & Sheets on land
2.Anchor-Piles installation of tubes
3.Marine works – Permanent & Temporary sheet pile installation off a barge at sea



Design Drawing Showing Combi-Wall & Anchors

Combi-Wall Installation -
A new combi-wall was constructed utilising 912mm diameter steel tubes 21m long pitched at 2680mm centres and AZ46-700 steel sheet piles infills. These combi tubes were pitched into position using Trench Controls ALPS system (Auto Levelling Piling System) which allows extremely accurate installation of tubular piles without the need for labour intensive ground gates giving our client fast and accurate installation.

As the ALPS system is adjustable the tubes can be installed well within the 75mm tolerance indicated in the speciation and the distance from clutch to clutch is consistent to drive the AZ sheets between tubes without the need for alterations to sheets and to ensure no de-clutching.

Once the combi tubes were pitched into position and are to vibro refusal, Trench control team impacted these tubes using CG300 impact hammer to initial refusal level. The main contractor then proceeded to core out the internals of each tube removing the debris from inside the tubes. TCL would then return to the cored tube and impact again to the design depth required.

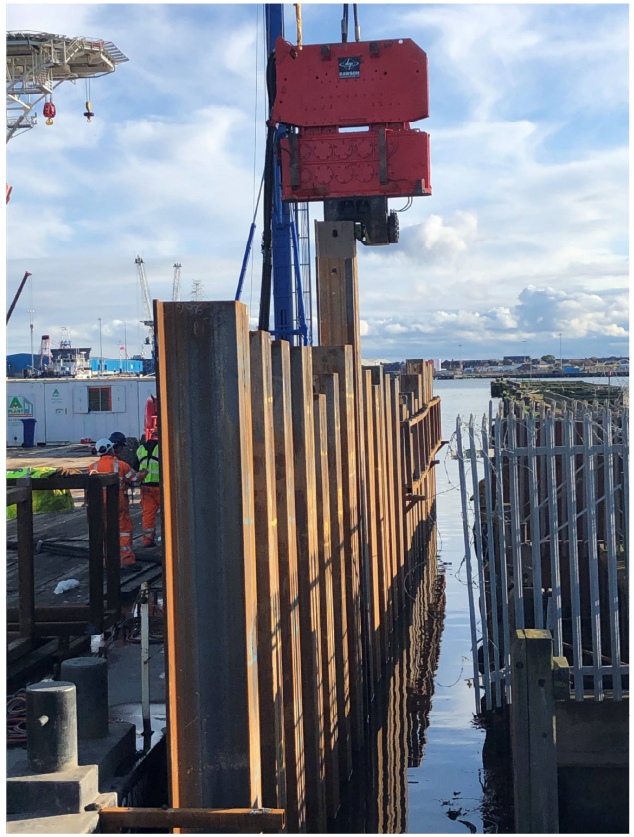
The coring contractor would then core between the impacted tubes to allow us install the AZ sheet piles which would be vibro installed before being impacted to design depth using crane mounted cx110 impact hammer.

Anchor-Piles -

The combi-wall tubes are to held back in position by a row of dead men anchor piles (762mm diameter) 9m long Installed behind the combi tubes and connected by tie bars anchoring tube to tube. The anchor tubes were installed using TCL leader piling rig and were vibrated to refusal from the crane platform. Once all the tubes had been installed to vibro refusal they required to be impacted to depth using 90t crawler crane & CX110 impact hammer. As the designed finish depth for these anchors was approx. 1.5m below existing ground level, TCL manufactured an insert driving cap which allowed us to drive these below the existing ground level

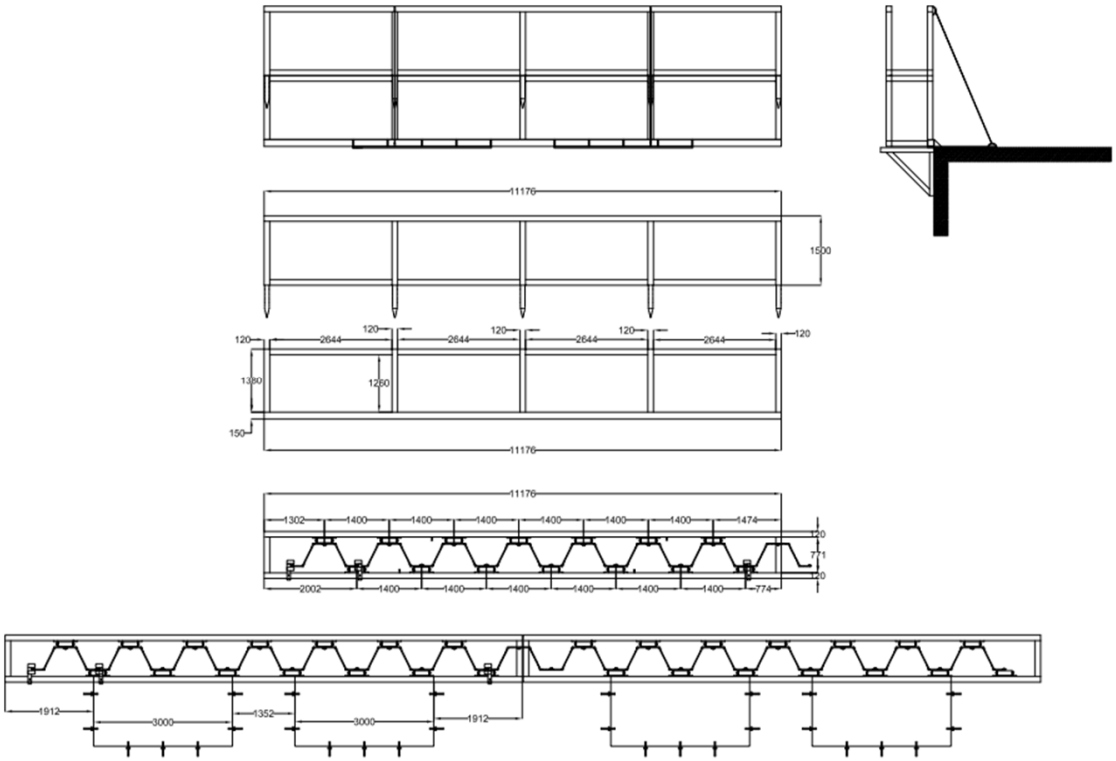
Driving Cap For Anchor Tubes

Pitching Tube Through Gate



Permanent Protection Piles From Barge

Barge Works – Installation of AZ-Sheet piles connecting to existing protected structure over water involving post coring and impacting to design depth. TCL installed permeant protection wall sheets and temporary dock closure wall sheets to allow berth to be de-watered.
TCL designed a demountable top and bottom piling gate for the barge so that sheets could be held in position and kept vertical whilst the tides raised and lowered by rollers.



Barge Gate Design

Barge Gate Sheet Installation

Fished Product – Once all aspects of our temporary & permanent elements had been installed the remaining anchor ties and concrete mass works could commence. Dewatering could begin and the dredging of materials to create the deep water berth could commence to completion.

Mid Way Through Construction Phase

Image of Completed Works

The new dock, which is funded by a £32 million public sector investment is an extension of the current dock facilities and work is set to be completed on the project by May 2021. Trench Control Ltd installed and completed all elements of there works within program as specialist piling sub-contractor