



# Trench Control Ltd – Piling & Ground Support Systems

## Project Fact Sheet

**Client** – McLaughlin & Harvey

**Project** – Installation of flood defence walls along the bank of the Water of Leith

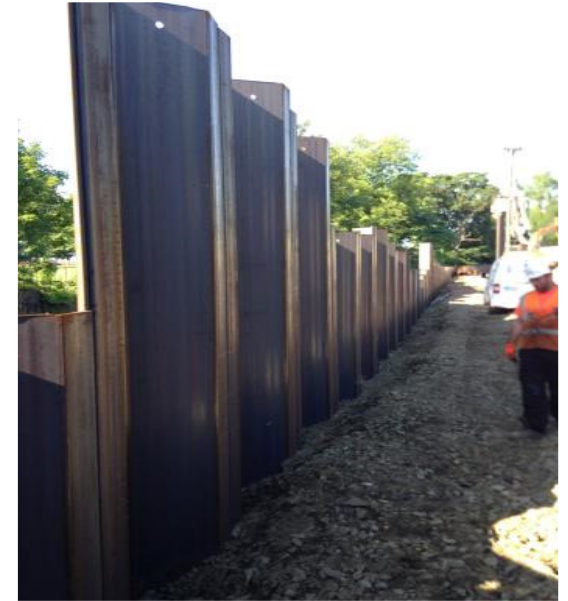
**Location** – Water of Leith River, Edinburgh, Scotland

**Start Date** – 09<sup>th</sup> June 2016

**Completion of Piling** – 27<sup>th</sup> June 2017

**Contract Value** – £14m

**Project Brief** – Trench Control were appointed specialist piling sub-contractor by McLaughlin & Harvey to install steel sheet piles of varied lengths and specifications, installed using a number of different methodologies to suit the changing dynamic of the pile line



**Overview** – Design and build works include construction of piled structural walls and earth embankments, approximately 1,500m and 600m respectively, associated flood gates, and the provision of pumping stations to assist with drainage on the dry side of the wall.

Works also include the demolition and removal of four bridges and the provision of two new bridges over the river. Ancillary works include utility diversions, drainage, reinstatement of roads, hard standings, footpaths, and the provision of hard and soft landscaping. The completed project will protect private properties and businesses from flooding from the Water of Leith



Temporary stoned platform to allow installation at bank edge



Pile line running close to the rear of existing buildings

Due to the long lineal run of piles there was significant variance in the space available to pile, the nature of the ground and the methodology required to complete the installation.





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**Leader Rig** – The Leader Rig was used for 80% of all piling works required. This was completed in areas where space was both freely available and at a premium. Trench Control's experience in Leader Rig installation allowed the Rig to be used in areas where the margin for error was very low.



Narrow platform built into the Leith river to allow leader rig access to all areas



Leader Rig with less than 0.5m clearance

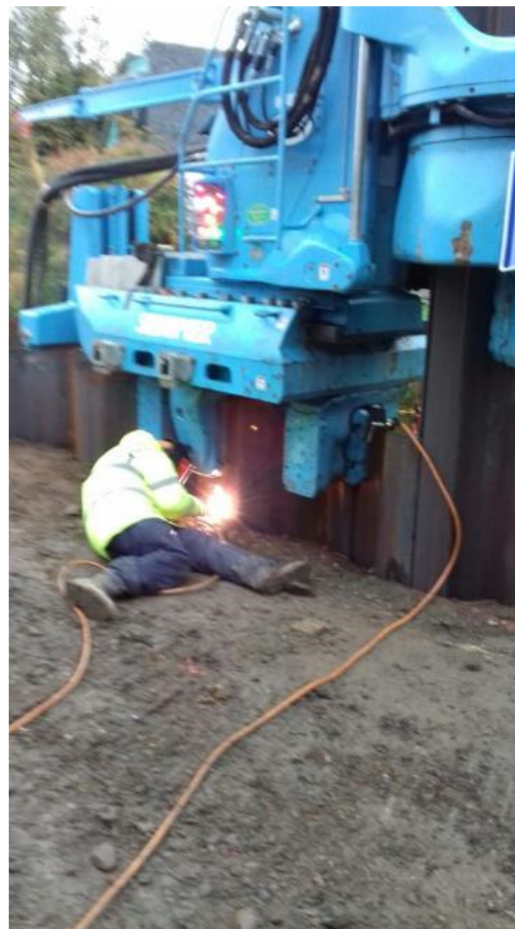
**Silent Press** – In an area of extremely tight access where vibration limits were set at 5mm/s the Giken Silent Press was utilised. After attempting to press the ground it & employ the additional water jetting it was evident that the ground was too firm. To ensure that every attempt was made to complete the installation using vibration less technology a water jet was also used to try and break the ground during the pressing. However the ground remained too stiff so conventional piling was then utilised to complete the section.



Giken Silent Press



Pile Press reaching design depth



Welding Clutches for improved reaction



Still ground causing damage to pile toe





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**Conventional Piling** – In areas of tight access where the Leader Rig was unable to track to the pile line, Trench Control utilised conventional piling methods to complete the installation. A ground gate provided the guide for the straight sections and as shown below the operatives were skilfully able to follow the gentle curve of the river bank



Trench Control Ground Gate



Gentle curve following the rivers course