

Duke Shore Wharf

London

Team 2100 is the Environment Agency's 10-year programme to refurbish and replace tidal flood defences in London and the Thames estuary. At Duke Shore Wharf progressive wall strengthening techniques were undertaken on this small and highly sensitive site next to the River Thames.



The project

The scope of the works comprised the design and installation of a grouting system followed by the construction of raking Pali Radice minipiles to strengthen the downstream section of the 30m length of the existing river gravity wall.

The challenge

The project had several major challenges including working on top and to the rear of the unstable, severely undermined structure together with the need to prevent pollution of the river from the grouting and piling works. Also the works were within 4m of occupied residential buildings which meant limited working space and access within a residential courtyard. The presence of timber piles, grillage and a king post wall within and beneath the concrete river wall were also an issue.

The solution

The river wall instability, proximity of the occupied residential buildings and the challenging obstruction boring requirements were addressed by using our rotary compact restricted access rigs. A controlled grouting exercise was employed initially to backfill and seal the voids within the wharf before installing the stabilising cored minipiles (Pali Radice). A controlled set cement bentonite mix with accelerator was used for injection into the river wall voids and foreshore materials which was sufficiently viscous to avoid washout into the watercourse. Trials were undertaken to refine the design grout mixes and develop a range with different set times for use on site as required. Injections were initially undertaken at low tide with inspections on the foreshore. Grouting was followed by the installation of the alternately raking stabilising cored Pali Radice mini piles cored through and permanently bonded to the existing river wall.

Project facts

Owner(s)

Environment Agency

Keller business unit(s)

Keller UK

Main contractor(s)

Team 2100

Solutions

Containment

Markets

Infrastructure

Techniques

Pali Radice

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