



# HMNB Clyde Restraint Piles

**Project Name:**  
HMNB Clyde, Restraint Piles

**Location:**  
HMNB Clyde, Faslane

**Client Name:**  
AMEC Capital Projects

**Date:**  
May - June 2009

## Project Summary

The new £150m Valiant Floating Jetty was delivered from its construction base at Greenock to the Faslane Submarine Base in May 2009, with the towing and temporary securing being supervised by Briggs Marine Contractors. The jetty is 200m x 38m x 12.5m and displaces 44,000te.

This state of the art facility was permanently moored in place by four large restraint piles and is able to rise and fall with the tide. These 81m long piles were installed by Briggs and are some of the largest tubular lateral restraints ever to be installed.

## Our Work

Prior to the arrival of each pile, a 10m high pre-fabricated piling gate was installed on the floating jetty and the pile was then pitched into the gate and hydraulic rams on the gate were used to ensure its position and verticality. A pre-determined toe level was required for each pile, so a pile-top drill rig was used to remove seabed material within the pile and therefore reduced internal skin friction. With drilling complete, the impact hammer was used to drive each pile to its finished level.

The linkspan was then lowered onto bearings located on both the floating jetty and the approach viaduct. Mechanical rigging was assembled and operated insitu to ensure exact horizontal positioning.

- 2No. 2m diameter x 50 thick x 81m long steel tubular piles. Weight = 180t each
- 2No. 2.5m diameter x 50 thick x 81m long steel tubular piles. Weight = 210t each
- 1No. 520t pre-fabricated linkspan structure

## Result

Construction activities were within a nuclear authorised operation naval base, with the nature of works dictated to by tight installation tolerances.

Piles were required to be installed to a pre-determined level in the rockhead and strict programming co-ordination had to be carried out to suit availability of specialist equipment.

- 'Taklift 7' Barge c/w 1400t capacity shear leg crane
- 'Dina M' Barge c/w Manitowoc 4100 ringer crane (350t capacity)
- S500 IHC Impact Hammer. Weight = 120t.
- 'Clark Avon' Barge c/w 55t capacity crane