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FEATURES

Client	Port of Helsinki, Finland
Project	Hernesaari Cruise Quay (LHD)
Location	Hernesaari / West Harbour, Helsinki
Period	April 2017 – October 2018
Contractor	Terramare Oy

SCOPE

Construction of the new 313-metre long retaining quay wall including backfilling, coping beam, erosion protection slabs, field constructions and storm bollards. Public utility services including water and wastewater piping will also be installed in the quay. Terramare delivered the quay wall fully equipped, including fenders, bollards and rescue ladders.

A Site during the installation of the quay wall elements. The picture shows a completed line of elements positioned on the sea bed, and backfilling has already begun.

QUANTITIES | SLIPFORM CASTING

Quay wall elements	K + S = 69 pcs
230-tonne K-elements	35 pcs
90-tonne S-elements	34 pcs
Quay wall elements, height	13 m
Concrete structures, total	7,500 m ³
Reinforcement steel, total	1,216 tonnes

QUANTITIES | RETAINING QUAY WALL

Quay wall length	313 m
Quay wall depth	-12.54 m
Quay wall height	2.8 m (from 0-level)
Coping beam length	313 m
Erosion protection slabs	1,400 m ³

MAIN PLANT

Slipform casting equipment, floating crane, grab dredger and excavators on land.



INTRODUCTION

Terramare implemented the 313-metre long cruise ship quay ordered by the Port of Helsinki next to Helsinki West Harbour. The cruise ship quay at the southern tip of Hernessaari can receive vessels up to 330 metres long.

SLIPFORM CASTING | QUAY WALL ELEMENTS

The contract was initiated with the slipform casting of massive quay wall elements, which was carried on top of a 350 metres long and 35 metres wide backing embankment, implemented by rock-filling in the sea in an earlier preconstruction contract.

A total of 69 massive quay wall elements, over 13 metres high, were produced by slipform casting. Of these, 35 were 230-tonne K-elements, and 34 were the 90-tonne S-elements. The slipform casting comprised a total of 1,216 tonnes of steel and 7,500 cubic metres of concrete.

The elements were transferred, using a floating crane, from the backing embankment to the quay line on the seabed, levelled to -12.54 metres. Backfilling work on the quay structure was also started alongside the installation of the elements. The sea-facing connecting point of the quay was supported by bored piles and Gewi bars.

QUAY IMPLEMENTED FULLY-EQUIPPED

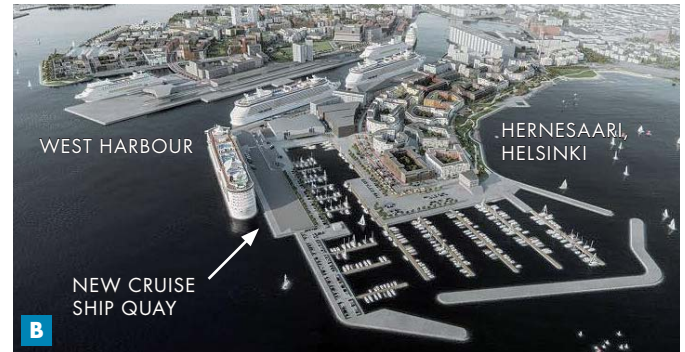
In addition to element installation, backfilling and the connecting structure, the contract included the construction of the quay coping beam, the adjacent harbour field, equipped with public utility services, and the superstructure. In front of the quay wall elements, an erosion slab was cast all the way to the sea bottom to combat the erosion impact of cruise ship propellers. Four massive storm bollards also were implemented in conjunction with the quay. The quay was delivered fully equipped, including fenders, bollards, protective beams, edge barriers and ladders.

The new cruise ship quay replaces the West Harbour’s Melki quay, which has been withdrawn from use to make way for a new residential area and bridge work.

The Hernessaari cruise ship quay was completed in October 2018.

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WEST HARBOUR, HELSINKI, FINLAND
NEW 313-METRE LONG CRUISE SHIP QUAY
AT HERNESAARI



- B** Artist’s impression of the completed Hernessaari cruise ship quay.
- C** The slipform casting site of the quay wall elements on the embankment.
- D** The 13-metre high quay wall elements ready for installation.
- E** Installing the quay wall’s elements with the floating crane.