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CASE STUDY

Rukert Terminal

Baltimore, Maryland

History

Family owned Rukert Terminals prides itself as a cornerstone of the Baltimore Ports system. When their 45 year old sheet pile bulkhead began moving away from land and demonstrating signs of global stability failure, they recognized their relieving platform was in grave danger. Rukert was looking beyond a temporary "band aid" fix and in search of a long term solution that could address the immediate structural issues and meet deeper draft requirements for future marine demands.

Problem

In Baltimore Harbor, Rukert Terminals owns and operates a sheet pile bulkhead structure. An existing pier sitting on the bulkhead was founded on wooden piling. Horizontal restraint to the vertical piling was provided by additional wooden piling driven on a batter. A low water relieving platform on the waterside of the bulkhead was also founded on wooden piles.

After 45 years of service, the wooden piling under the relieving platform began sliding away from the land. This caused the pier to rotate towards the water causing the battered piles to fail. With the entire structure breaking away from the land, it was time for remedial action.

Solution

While addressing the existing wall problem, the engineers at Moffat & Nichols also upgraded the port structure to meet future vessel requirements.

Moffatt & Nichol designers specified a high modulus combined wall system. Although a light to mid range sheet pile section would have sufficed for the intermediate panels, the

Pipe-AZ Installation Template

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Plan view: Wall Profile

48" OD Spiralweld Pipe

engineers were committed to the system's long term durability. Thus, the sheet pile web and flange thickness had to be equivalent to the modular pile section.

Result

As a foundation solutions provider, Skyline Steel had been working with the project designers and contractor to provide alternate material options. Although king pile systems were considered, volatile pricing and availability played a major role in the final decision. In the end, Moffatt & Nichol chose to specify a Pipe-AZ combined wall. Skyline Steel delivered 48" x 0.750" spiralweld pipe direct from our Iuka, MS plant. The AZ sheets and connectors came from Luxembourg.

Lastly, McLean Contracting Company (McLean) fabricated the connectors directly onto the pipe for speed of installation in the field. The 59' C-9 connectors were installed on pipe which was spliced to achieve a length of 90'. The pipe was also coated by McLean.

Project Partners

Owner
Rukert Terminals
2021 South Clinton Street
Baltimore, Maryland 21224-0163
Ph: 410-276-1013

Marine Contractor
McLean Contracting Company
6700 McLean Way
Glen Burnie, MD 21060-6480
Ph: 410-553-6700

Engineer
Moffatt & Nichol
2700 Lighthouse Point East, Suite 501
Baltimore, MD 21224
Ph: 410-563-7300

Products

2,500 NT of 48" x 0.750" wall spiralweld pipe in 90' lengths with fabricated Z pile connectors

850 NT of AZ-36 sheet piles at 60' lengths

2500 NT of HP 14 x 89 partially coated CTE