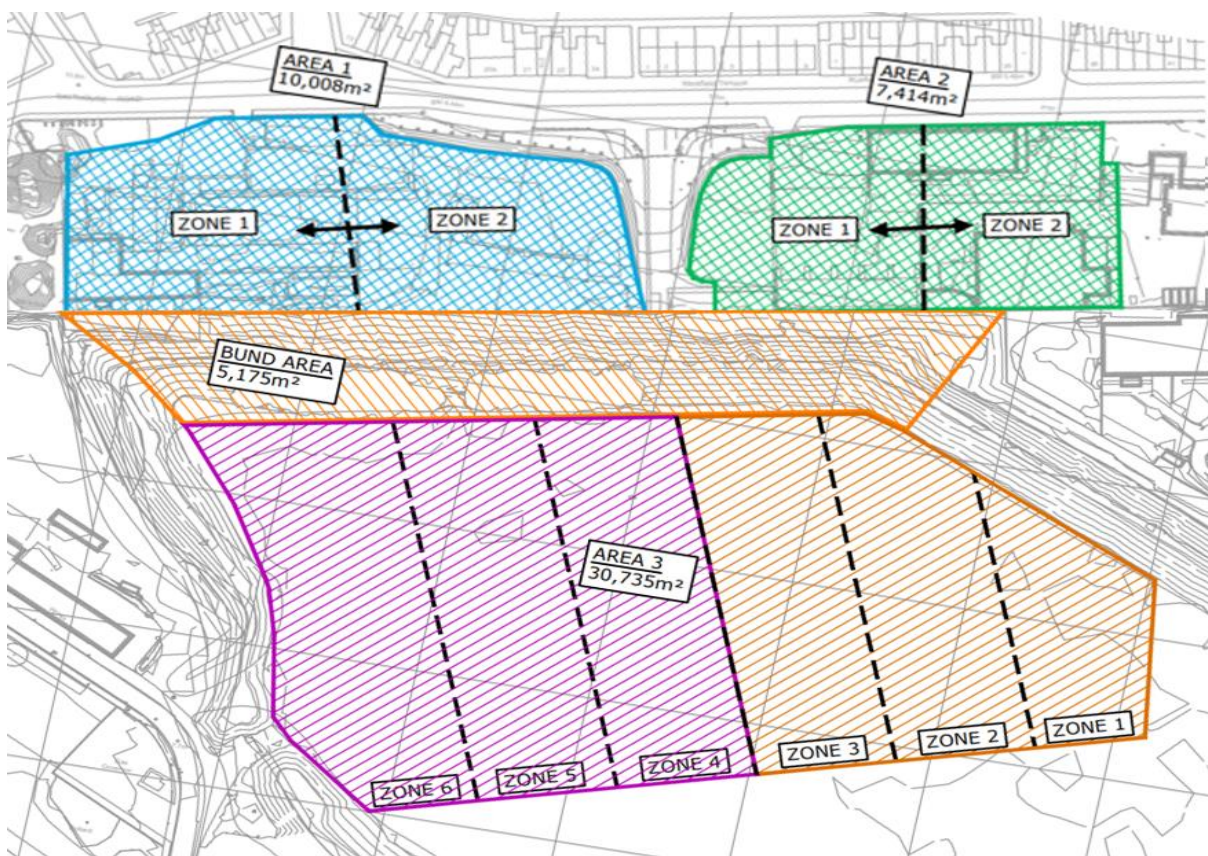


Marina Dock Barrow in Furness - Site Remediation

Project	JJM2975 - Dock Yards - Remediation and Stabilisation
Location	Marina Dock Barrow in Furness
Client	Barrow Borough Council
Key works delivered	Excavations, screening and crushing and Stabilisation
Project Duration	June 23 - Nov 23
Stabilised Area	110,000m ³ modified and 240,000m ² stabilised
Earthworks	By JJMac Ltd



PROJECT OVERVIEW

- Demolition and Re-development of the former Marina Dock Yards
- The site required approx 100,000m³ of Material Remediation – approx. 2.0m deep
- High Levels of Hydrocarbons and traces of asbestos in the form of chrysotile ACM were identified in the made ground.
- Remediation was required to a depth no greater than 2.0m BGL to encapsulate the soils, reduce the potential for leaching and potential migration of soluble contaminants through the drift strata to the sandstone bedrock.

PROJECT CHALLENGES

- Developing REMSTRAT Remediation Strategy with Client and Consultants for submission and approval by EA to ensure the works are carried out efficiently and Cost effectively.
- The project has a very stringent Validation Testing and Compliance schedule.
- Proximity to other works on site meant very well managed works and deliveries were always required.

ENGINEERING AND SOLUTIONS TO OVERCOME THE CHALLENGES

- Validation of soils to show that all soil concentrations are below the site specific remediation targets (SSRT) for the protection of human health, controlled waters and the wider environment.
- Locked in stabilisation was specified for the Made Ground soils that were deemed to have soil leachate exceedances (with a min treatment thickness of 2.00 m).
- Cut and fill operation to create a suitable development platform, essentially to provide a 'shovel ready' site on which to develop.
- Replacement of material (as part of the cut and fill) in accordance with the Earthworks Specification and engineering requirements.
- Our site team set to work with the MC team to develop a system to allow both earthworks and stabilisation to progress efficiently.
- All Environmental Permitting including **Standard Rules** SR2008 remediation Permits including MPP2 – **Mobile Plant Licence** for Remediation of Land and Groundwater submitted by JJMac.
- In-situ treatment of the Formation material in 300mm deep layer with 1.0% Cement.
- All subsequent layers were treated with 1.0% cement
- Independent Design and testing carried out by independent Laboratories



REMEDIATION and STABILISATION WORKS

JJMac operate a fleet of very agile equipment.

Tractor mounted Wirtgen 250WS Mixers were selected for this project due to the challenging site conditions earlier on in the project.

Our Dustless Stehr was also utilised for all works near the existing offices during any windy conditions which enabled us to progress works in all conditions.



EXCAVATIONS for SCREENING and CRUSHING

Sitewide excavations to approx. 2.0m deep was undertaken in sections and phases to minimise material movement and stockpiling

Screening and Crushing of made ground material was carried out prior to being replaced in 300mm layers for cement stabilisation.



STABILISATION WORKS

Stabilisation was undertaken



COMPLETED WORKS



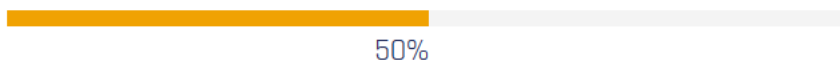
ADVANTAGES

The Cement Stabilisation works had numerous advantages to this site.

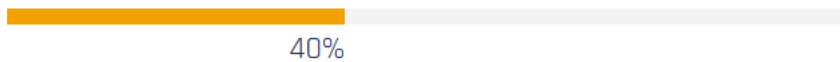
- Encapsulation of all leachates with cement binder reducing the need for any offsite disposal
- Capping layers and subbase replacement offers huge Reduction of Primary Aggregates
- Reduction of Lorries from the surrounding roads

BENEFITS TO CLIENT

Cost Saving



Programme Reduction



Vehicle Movements Reduction



Imported Aggregate Reduction



Material Sent To Landfill Reduced By



Stone Layer Depth Reduction

