THE UNIVERSITY OF NEWCASTLE AUSTRALIA

TUNRA BULK SOLIDS

Feasibility Study for the Recovery and Pumping of Marine Sediment

Project Scope:

Bulk Solid Material: Marine Sediments

Equipment: Twin screw feeder, twin screw mixer, swing tube, twin cylinder positive displacement pump and 100 meters of 1.6 MPa 90 mm plastic pipe.

Problem: Recovering and pumping marine sediment to a shore landfill.

Problem Solving Approach:

Bulk Flyash Grout Pty Ltd contracted TUNRA Bulk Solids to assist in demonstrating the feasibility of recovering and pumping marine sediment to a shore landfill without the addition of extra water.

The analysis of representative sediment samples resulted in a particle size distribution of 25% > 500 µm and 75% < 500 µm and a particle density of 2.8 t/m^3.

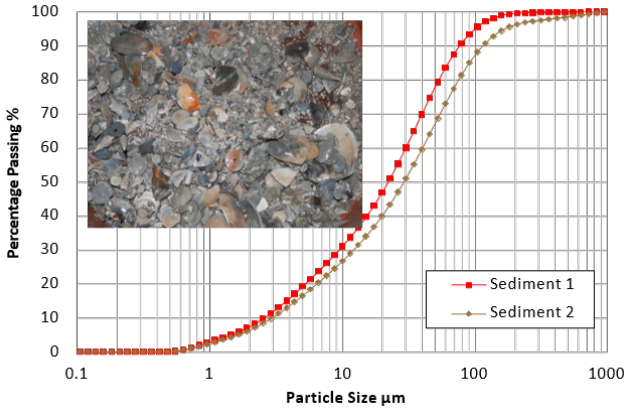

Figure 1: Particle Size Distribution of Marine Sediment

The required equipment to recover and pump the marine sediment was loaded onto a barge which was placed above the extraction point in the habour.

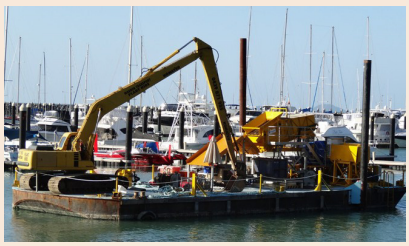

Figure 2: Barge with Equipment

Figure 3: Backhoe Loading Feeder

Figure 4: Sediment in Twin Screw Feeder

Project Outcomes:

It was demonstrated that marine sediment could be excavated from the bottom of a harbour, mixed and pumped to a disposal area on shore over a distance of 100 meters. No additional water had to be added to pump the paste and, when placed on shore, the deposited sediment produced no supernatant water.

Figure 5: Placed Sediment in Shore Landfill

Advancing the Bulk Materials Handling discipline Globally

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