

AquaticEngineering

Working Above Water, On Water & Under Water

Case Study : North Portsea Island Flood Alleviation Scheme



Client: Environment Agency / Portsmouth City Council / Eastern Solent Coastal Partnership

Main Contractor: Team Van Oord

Contractor: AquaticEngineering

Duration: 2015 – 6 months

Value: £44,000,000

The North Portsea Island Scheme covers 8.4km of coastline from Tipner through to Milton. Most of the area is low-lying and many of the current coastal defences are approaching the end of their effective lives. Predictions indicate that sea levels are set to rise by up to a meter over the next 100 years, meaning the flood risk to the area will increase. The new scheme is designed to reduce the risk of flooding from the sea to over 4,200 homes, 500 businesses, and critical infrastructure over the next 100 years.



Team Van Oord approached AquaticEngineering in the spring of 2015 – they had been awarded phase one of a £44m, 10-year flood protection scheme for the north of Portsea Island, however the site included considerable salt marshes which required protection during the deconstruction of the existing defences and its subsequent considerably strengthened replacement.

Deployment of silt/protection curtains in tidal zones is problematic due to the twice daily passage of tidal water, the curtain is required to contain suspended solids in the water column and yet still allow for the ebb and flow of the tide without allowing turbidity to spill out of the construction zone..

AquaticEngineering faced this dilemma many times and have consequently designed an innovative and successful solution to the problem, a bespoke curtain over 700m in length was designed and fabricated for the site. Each curtain has to be designed according to the tidal ranges of any particular site and it is therefore impossible to buy this system off the shelf. Although the deployment site was reasonably sheltered the rigors of a twice daily tide for 6 months determined that the curtains fabric should be robust enough to cope with the energies exerted on it and yet not be cost inhibitive.



The bespoke one piece curtain was fabricated at AquaticEngineering's modern 6000ft² factory on the Isle of Wight and subsequently transport adjacent to the salt marsh site requiring protection.



Portsea Island is a small, low-lying island which contains a large proportion of the city of Portsmouth. It is the third largest (by population) of any island in the British Isles after the mainlands of Great Britain and Ireland, and has the highest population density.

Initial site preparation work involving the removal of vegetation (overseen by Ecosulis of Bath) and the deployment of the protective curtain was completed and phase one construction works began on 5 May and expected to continue until October 2015.



AquaticEngineering prepare the site by deploying a robust anchoring system into the benthic silt.



The shallow water, during certain tides allowed for manual deployment and anchoring of the curtain – please note: AquaticEngineering have a strict 'no lone working' policy and do not wear hard hats when 'in the water' deploying curtains away from construction, plant or machinery. However as would be expected they wear full PPE at all other times.



Successfully deployed and awaiting construction to commence!

2 months later



Once the defenses are built, the area will be enhanced through an extensive replanting program. This will increase the diversity of plants in the area, improving the current ecosystems and habitats for wildlife.



NEWS FLASH:

The coastal defense project, currently in development across the north of Portsea Island, has won a prestigious award at the Environment Agency's National Project Excellence Awards. Chosen from over 50 projects across the UK, it was voted unanimously as the winner for making the best submission to the Environment Agency's Large Projects Review Group.

The Environment Agency was particularly impressed with the level of flood protection the new defenses will provide – one of the highest in the country outside of London. They also commended the way the team have incorporated the impacts of climate change over the next 100 years into the design.



All curtains are manufactured entirely by AquaticEngineering on the Isle of Wight

[24hr 365 day Emergency Fabrication & Nationwide Installation Service](#)

100% satisfaction service – we will attend site at short notice if the curtain is compromised in any way by boat traffic or any other unforeseen occurrence to promptly rectify the situation.

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