

PIPELINE ANCHORING

Client: **Anglian Water Plc**
Installer: **Keliston Engineering**

Requirements

To prevent any movement or uplift, a 300m long 900mm diameter outfall pipeline was secured to the seabed in Harwich harbour using Duckbill MR2 stainless steel ground anchors with 16mm grip bars.

Operating from a barge, Keliston Engineering assembled the pipe which was floated out into the harbour and sunk with concrete collars to the seabed 8-10m below, where it was secured with 36 pairs of Duckbill anchors.

Using a purpose built rig mounted onto a vibrating hammer, each anchor was driven through 6m of silt and a further 5m of dense gravels before being tensioned to a working load of 90kN.

Polypropylene straps were secured across the pipeline between each pair of anchors by means of webbing cleats to restrain the pipe and prevent it floating off the seabed should it ever become empty. Even under extreme sea water conditions Duckbills proved to be an extremely efficient and cost-effective means of securing the outfall pipeline.



Client: **Eden District Council for
North West Water Plc
The Environment Agency**
Installer: **D.W. Craig Ltd**

Requirements

The route of a new sewer pipeline took it across the River Eamont at Penrith, Cumbria where it needed to be firmly secured into a trench cut into the river bed to avoid any likelihood of future uplift and possible contamination of the river water.

Replacing an original upvc sewer pipe that had shifted, a new 225mm diameter ductile iron pipeline, was laid into a trench and secured with 10 pairs of Duckbill MR3 stainless steel anchors using a breaker mounted on a JCB. The anchors were driven 3m into the river bed gravels and, as they involve no grout curing time, they could be immediately tensioned to a working load of 40kN.

Kevalar straps were secured across the pipeline between each pair of anchors, by means of webbing cleats and load nuts, to rapidly and cost-effectively restrain the pipeline and prevent it from floating should it become empty.