Reinforcing coastal wastewater outfalls on the North Sea

We delivered urgent structural repairs and erosion protection to safeguard a wastewater outfall at risk of collapse.

stonbury

In **summary**

- → A coastal outfall discharging into the North Sea was at risk due to deteriorating joints and structural instability.
- → To protect the asset from tidal erosion and storm damage, we completed foundation reinforcement, concrete repairs, and reinstatement works using environmentally friendly, rapid-cure materials.
- → The work was carefully planned around tidal windows to keep the programme on track due to conditions only permitting work at low tides.

The **need**

A wastewater outfall along the North Sea was found to have significant joint deterioration and insufficient structural support.

With daily tidal impact and storm events increasing the risk of collapse, urgent repairs were required to stabilise the structure and mitigate long-term erosion.

The **solution**

We worked flexibly around tide times and weather conditions to carry out the works with minimal environmental impact.

The team used an environmentally friendly mortar resistant, which was higher resistance to salt attack than standard mortars and concrete repair products, alongside a high-strength concrete containing an accelerator to reduce cure time and limit tidal damage.

Excavation around the outfall enabled the installation of sixteen new foundation pads, poured in shuttering to reinforce the structure and improve stability.

With the foundations complete, the team moved on to final joint repairs and work on the maintenance hole. A concrete cap was installed over the existing utility ring using steel reinforcement and shuttering to complete the structural repairs.

To protect the outfall from future wave and storm erosion, 1,400 tonnes of rock armour were placed down both sides and over the top of the outfall using an excavator.

Due to the nature of the site, working hours were adjusted daily. Several critical tasks were required to be completed in the early hours or at weekends to make the most of good tides and maintain deadlines. Our teams worked closely with the both client and local residents to minimise disturbances, including noise pollution, when working close to residential properties in the early hours of the morning.

Before handover, access roads and surrounding grassland were reinstated, including the topsoil, which was sourced locally to reduce environmental impact.

The **benefits**

- Stabilises a key wastewater asset vulnerable to collapse
- Extends the lifespan of the structure with reinforced foundations
- Enhances environmental resilience with wave protection and local reinstatement
- Minimises disruption through tidal working and low-impact materials

1400t
tonnes of rock armour placed

24/7
tidal scheduling with early morning and weekend working

Maintain