

# Upgrading wastewater infrastructure to meet catchment growth

stonbury

We delivered capital growth and maintenance works at a live treatment works in Scotland, overcoming deep excavation and service challenges to meet catchment growth.

## In summary

- Significant population growth within the catchment area prompted the upgrade of key infrastructure at a live wastewater treatment works
- Working in limited access zones, we constructed a new pumping station, RC base, chambers, and duct routes under limited conditions
- Vacuum excavation and hand-digging were used to safely navigate complex buried services, with reused materials reducing cost and carbon impact

## The need

A wastewater treatment works in Scotland required upgrades to support a rapidly growing local population. The site needed new pumping capacity, control infrastructure, and interconnecting pipework – all delivered within the constraints of an operational facility with restricted access.

## The solution

Following permit approvals and service tracing, the topsoil was stripped and excavation began. A temporary works feasibility study was required for the nitrifying tertiary filter (NTF) pumping station, with a full design developed due to the depth exceeding three metres.

A reinforced concrete base for the MCC kiosk and NTF pumping station was formed and poured, including a 22m<sup>3</sup> concrete pour using the tremie method. Precast rings and a concrete jacket completed the structure, which was backfilled in layers with temporary shoring removed along the way.

Alongside this, a new valve chamber was installed, followed by deep excavations for interconnecting pipelines and services. Where live utilities were present – including power, water, and chemical dosing lines – vacuum excavation was used to prevent strikes. One section required particularly careful handling, with a live process pipe located at 2.4m depth. Vacuum excavation enabled safe location of interconnecting pipes without disruption to live services.

Across the site, duct runs and storm return rising mains were installed, requiring extensive hand-digging due to the number of charted and uncharted shallow services. Despite the tough conditions, our team maintained high standards and morale throughout – a superb effort given the physical demands and precision required.

Additional works included draw pit installation, biofilter repairs, and road extensions, all finished to specification with kerbing and tarmac.

To minimise waste and carbon impact, over 2,000m<sup>3</sup> of excavated soil was screened on site using a riddle bucket attachment, producing topsoil suitable for reuse. This avoided import and disposal costs, while supporting the client's sustainability KPIs.

## The benefits

- Increases treatment capacity to meet long-term population growth.
- Maintains safe delivery standards through vacuum and hand excavation.
- Minimises environmental impact through onsite reuse of screened soil.
- Completes critical upgrades within a live site without disruption to operations.

**2,000m<sup>3</sup>**

of soil screened and reused on site

**3m+**

deep excavations requiring full temporary works design



Create