

Rosedale Abbey Village, England

Client: Ryedale District Council

Country: UK

Length of Pipe: 2000m

No. of Valves: 28

Volume of Flow: 10 l/sec

Specialist Feature: Steep gradients, rocky ground, stream crossings.



The picturesque village of Rosedale Abbey lies deep within the North Yorkshire Moors National Park - an area of great natural beauty and environmental sensitivity.



Stream crossing

Very popular with holiday makers, the village contains peaceful caravan parks and several restaurants and pubs. The population varies greatly between winter and summer.

The village is situated in a steep sided valley along side the River Severn. In the past, an inadequate sewerage system within the village meant that the risk of polluting the river was always present, particularly so in the summer months.

Having made the decision to install a mains sewerage system to serve the village, Ryedale District Council designers were faced with some difficult problems to overcome. The river and a tributary stream had to be crossed by the sewers and the environmental impact of the construction work had to be kept to an absolute minimum. This meant that fixing pipes to the existing bridges was not acceptable - the pipes had to cross under the deeply cut stream and river.

To use conventional sewerage techniques would have meant pumping stations at each crossing together with some deep trenching works in difficult ground. Iseki were asked to assess the possibility of using The Vacuum Way and were able to offer a cost effective and well engineered sewerage system. This enabled the environmental impact to be kept to a minimum with shallow, narrow trenches and a single pumping station located away from the attractive village centre.



Construction work

Vacuum Pipework

Vacuum sewers in polyethylene, sized from 110mm to 160mm diameter, with electro-fusion joints.

Vacuum Station Equipment

Two liquid ring vacuum pumps each rated at 370 cubic metres/Hr (Nash).

Two no dry well discharge pumps each rated at 10.5 l/sec duty-assist (Biwater).

Vacuum collection vessel volume 4.5 cubic metre fully protected with suitable paint and tested to Lloyds certification.

Motor control cabinet - fully automatic with programmable PLC. All pumps start in rotation and all conditions are remotely monitored via station telemetry in a central control office, which minimises personnel attendance. Bespoke valve monitoring system which monitors the open / closed mode of each interface valve located around the village, such that each valve within the village can be individually observed from the vacuum station.

Exhaust gases are filtered by passing them through a biological filtration unit situated close to the vacuum station which is within the sewerage treatment works site.

Summary

The Vacuum Way enabled the river and streams to be crossed without the need for separate pumping stations. The shallow trenches offered specific construction advantages on the steep streets of the village. The system is sufficiently flexible to cope well with the wide seasonal variety in sewerage flows.

Possible Applications for Iseki Redivac's

Vacuum Technology

- Rural community sewerage schemes
- Industrial developments
- Supply bases
- Housing developments / compounds
- Hazardous waste collection
- Airports & military installations
- Beach developments
- Remote villages