

NADARZYN, Poland

Client: Local Administration of Nadarzyn

Country: Poland

Length of Pipe: 16km

No. of Valves: 244

Volume of Flow: 20 litres/second

Specialist Feature: Widely scattered building in narrow streets. Difficult terrain with high water table.



Nadarzyn is a town situated approximately 30 km south of the capital city of Poland, Warsaw. The town and the surrounding area is flat with Nadarzyn itself being sparsely populated with houses and local amenities widely spread.

The water table is only approximately 1m below the existing ground level and trial holes found the soil conditions to be very poor. With these challenging ground conditions and the cost implications associated with installing a conventional gravity system it became apparent that an alternative solution would be needed. ISA POLSKA Sp. z.o.o. met the challenge by designing a vacuum sewerage system which vastly reduced the construction period and the projects capital costs.

With sewer and chamber depths being considerably reduced, a 35% capital cost saving was passed onto the client and the single vacuum station significantly reduced the operation and maintenance costs of the local water company.

Vacuum Pipework

The polyethylene pipework in sizes ranging from $\varnothing 90\text{mm}$ to $\varnothing 280\text{mm}$.

Vacuum Station Equipment

Three vacuum pumps manufactured by Busch each with a capacity of $630\text{m}^3/\text{hr}$ each.

Two submersible discharge pumps each rated at 20 l/s.

Steel cylindrical 16m^3 vacuum vessel, vertically mounted underground on a concrete base.



Outside view of Nadarzyn Vacuum Station



$630\text{m}^3/\text{hr}$ Vacuum Pumps inside Nadarzyn Vacuum Station

Fully automated motor control centre is uses a programmable PLC to control the operation of vacuum and discharge pumps.

The valve monitoring console is situated alongside the MCC and monitors the open/closed mode of each interface valve located around the town.

Exhaust gases are filtered by passing them through a biological filter located outside the vacuum station building.

Summary

The 'Vacuum Way' proved to be the ideal solution to overcome the engineering difficulties resulting from the difficult ground conditions and offered a 35% capital cost saving to the client while minimising the operational cost for the local water company.

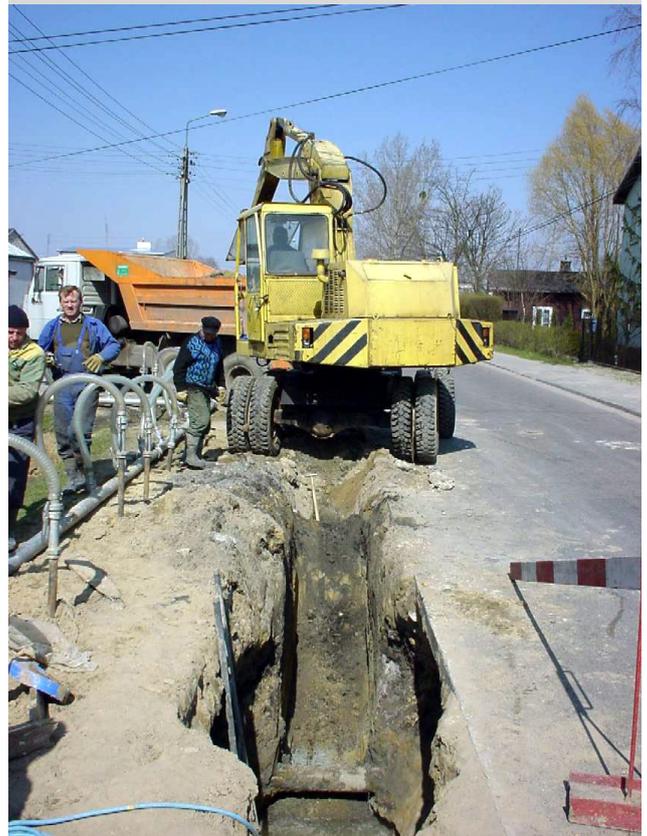
Possible Applications for Iseki Redivac's Vacuum Technology

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

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Fabrication of sewer junction



Installation underway in narrow trenches. Cost effective solutions to many difficult drainage problems