

Case Study

Davyhulme Administration Building, Manchester

SDS upgrades WwTW's rainwater harvesting system to improve resilience and reliability



SDS Systems

SDS Intellistorm® Smart Rainwater Management.

SDS Customer

United Utilities.

Client

Davyhulme Wastewater Treatment Works (WwTW).

Project

Reinstatement and upgrade of a rainwater harvesting system serving the Administration Building at Davyhulme WwTW, Manchester.

Purpose

To restore rainwater reuse for toilet flushing within the administration building while improving system resilience, reliability and operational control.

Brief to SDS

United Utilities required a replacement rainwater harvesting system that could reutilise the existing storage tank, fit within the original footprint, integrate with existing pipework connections and be significantly more robust against cold weather conditions.

Timing

System installation was completed in December 2025.

Project Background Information

Davyhulme WwTW is one of the largest and most historically significant wastewater treatment facilities in Europe, serving the city of Manchester and surrounding urban areas. A rainwater harvesting system had previously been installed to supply non-potable water for toilet flushing within the site's administration building. Following a particularly cold weather event, the system suffered extensive damage due to inadequate frost protection, resulting in split pipework and failed fittings. While the original rainwater storage tank remained structurally sound, the wider system could not be economically repaired and required a full replacement.

Project Objectives

The primary objective was to reinstate rainwater reuse within the administration building while ensuring the new system was sufficiently ruggedised to withstand exposure and cold weather conditions. The solution also needed to provide operational flexibility, allow simple monitoring and control, and support future resilience objectives at the site.

Project Requirements

The replacement system needed to integrate fully with existing inlet and outlet connections without increasing the physical footprint of the installation. Pipework had to be more durable and better protected against environmental exposure, and the system needed to be capable of operating reliably with minimal maintenance intervention. In addition, United Utilities required the ability to automatically manage mains water top-up and retain the option for controlled rainwater release ahead of storm events.

SDS Product Features

SDS supplied and installed an Intellistorm® Smart Rainwater Management kiosk, incorporating an on-demand pump, meters, valves, monitoring and control hardware within a compact, enclosed unit. The kiosk includes integrated frost protection to safeguard critical components and ensure system resilience during cold weather. New MDPE pipework was installed and insulated using UV-stabilised lagging to improve durability and protect against environmental exposure. The Intellistorm® system also provides intelligent control of rainwater reuse and can be configured to manage mains water top-up and pre-emptive tank drawdown to support wider flood risk management objectives.

Issues Overcome

The principal challenge was delivering a significantly more robust system while working entirely within the confines of the original installation area. Existing pipe entry and exit points to the building had to be retained, requiring careful coordination of layout and connections. Reusing the original tank while replacing all other components demanded a tailored design approach to ensure compatibility and long-term reliability.

Results

The project has delivered a modern, intelligent rainwater harvesting system at the administration building at Davyhulme WwTW, restoring non-potable water reuse and improving overall operational resilience.

The system is designed so that the break tank prioritises rainwater supply first, meaning potable water is only used when necessary. Even in the event of a mains water failure, the toilets would continue to function, supporting continuity of service. Based on current usage, the system is expected to offset at least 3,000 litres per month, reflecting the modest demand of an office environment with around 15 weekday occupants, as confirmed through monitoring data.

Once fully operational, the installation will reduce reliance on potable water, improve water efficiency on site, and support United Utilities' wider sustainability and resilience objectives at Davyhulme WwTW — a facility in operation since 1894, serving between 1.2 and 1.6 million people and home to some of the UK's most advanced wastewater treatment infrastructure.

George Hewitt, Project Delivery Lead Operations, United Utilities, said:
"SDS delivered a robust and intelligent rainwater harvesting solution that restored non-potable water reuse at our Davyhulme Administration Building while improving resilience, reliability and operational control. The Intellistorm® system supports our wider sustainability objectives, reduces reliance on potable water and was delivered professionally within the constraints of the existing infrastructure."

