Case Study

St Joseph's Catholic Primary School, Exmouth

Transforming an unused rainwater harvesting asset into an intelligent water management solution



SDS Systems

SDS Intellistorm® smart rainwater harvesting system; SDS SYMBiotIC™ smart water management platform.

SDS Customer

St Joseph's Catholic Primary School.

Client

Torbay Council.

Project

St Joseph's Catholic Primary School rainwater harvesting system upgrade.

Purpose

To restore and modernise the school's existing rainwater harvesting infrastructure, reducing potable water consumption while improving system resilience and supporting sustainability education.

Brief to SDS

To upgrade an existing rainwater harvesting system that had been out of service for several years, retaining as much of the original equipment as possible while introducing intelligent monitoring, improved operational resilience and reliable non-potable water supply for toilet flushing.

Timing

The upgrade was commissioned in April 2026.

Project Background Information

St Joseph's Catholic Primary School in Exmouth is an established seven-classroom primary school founded in 1904. Following the destruction of much of the original school building during storms in 1987, the school moved into temporary accommodation before reopening in a new purpose-built facility in September 1992. Today, the school occupies an exceptional site overlooking the Exe estuary and welcomes pupils from a range of faith and non-faith backgrounds.

With a strong commitment to environmental responsibility and sustainability education, the school

had an existing rainwater harvesting system originally installed to capture rainfall from approximately 600m² of roof area and reuse it for toilet flushing. The system formed part of the school's wider approach to reducing potable water consumption and improving sustainable water management.

The original installation incorporated a 15m³ underground storage tank with mains water backup. Excess rainfall was directed to a swale and rain garden, providing additional sustainable drainage benefits and supporting wider stormwater management objectives within the River Exe catchment.

Following a technical failure in 2020, the rainwater harvesting system remained unused for several years. Recognising the environmental and financial benefits of restoring the system, the school's Multi-Academy Trust, together with the Local Education Authority, approached SDS to investigate whether the existing infrastructure could be modernised and brought back into effective operation rather than replaced.

Project Objectives

To reinstate the school's rainwater harvesting system, improving water efficiency, increasing operational resilience, and extending the life of the existing infrastructure while supporting sustainability and environmental education.

Project Requirements

The upgraded system was required to retain the existing underground storage tank while replacing outdated control equipment with a modern intelligent rainwater management solution.

The installation needed to provide a reliable supply of harvested rainwater for toilet flushing, while incorporating automatic backup arrangements to ensure uninterrupted operation during periods of low rainfall, equipment faults or power interruptions.

The solution also needed to provide continuous monitoring of system performance, allowing the school to quantify water savings and demonstrate the environmental benefits of rainwater reuse.

SDS Product Features

SDS upgraded the existing rainwater harvesting infrastructure by equipping the original underground storage tank with a new SDS Intellistorm® smart management system with integrated SDS SYMBiotIC™ monitoring.

New break tanks were installed within the loft space above the toilet facilities, providing automatic failover capability. This ensures the toilets remain operational even if the underground storage tank becomes temporarily empty, the pump requires attention or there is a temporary power interruption.

SDS Intellistorm® continuously monitors stored water levels and system performance, while SDS SYMBiotIC™ provides remote monitoring and reporting, enabling the school to track rainwater reuse and water savings. By combining the existing storage infrastructure with modern control, monitoring and resilience features, SDS delivered a cost-effective solution that significantly extends the operational life of the rainwater harvesting system.

Issues Overcome

Rather than replacing the existing rainwater harvesting infrastructure, the project focused on maximising the value of the original installation while introducing modern smart water management technology.

The underground storage tank remained structurally suitable for continued use, allowing SDS to focus the upgrade on improving system intelligence, reliability and operational resilience.

Careful integration of new monitoring, control and backup systems enabled the school to benefit from a modern rainwater reuse solution while avoiding the additional cost, disruption and environmental impact associated with a complete system replacement.

The addition of automatic failover storage significantly improved operational resilience, giving the school confidence that toilet facilities would remain operational under normal operating conditions.

Results

The upgraded system has successfully brought the school's rainwater harvesting infrastructure back into operation, transforming an unused asset into a modern, intelligent water reuse system.

Within just a few months of commissioning, approximately 50,000 litres of rainwater had already been reused for toilet flushing, significantly reducing demand for mains water and lowering operating costs.

The combination of SDS Intellistorm® and SDS SYMBiotIC™ provides continuous monitoring of rainwater reuse and system performance, allowing the school to quantify water savings while creating valuable educational opportunities around sustainability, the water cycle and responsible water management.

Andy Baker, Mechanical Building Services Engineer, Torbay Council, said: *"Torbay Council engaged SDS to reinstate the Rainwater Harvesting System, and appreciated their pragmatic approach to re-engineering the existing assets. By upgrading rather than replacing the existing infrastructure, SDS delivered a cost-effective, resilient solution that extends the life of the original investment while supporting both the school's environmental objectives and wider sustainable water management goals."*