

# STORMHARVESTER

## SMART FLOW PREDICTOR

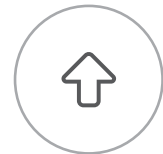
Accurate predictions on inflows and levels within sewer networks, pumping stations and wastewater treatment works.

Smart Flow Predictor is a module of Intelligent Sewer Suite that allows accurate predictions on upcoming flows or levels at the following locations;

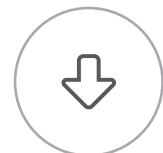
- Individual points in a sewer network
- Pumping stations
- Wastewater treatment works

By leveraging hyperlocal accurately forecasted rainfall prediction systems, the flow and level predictions are accurately provided in both wet and dry weather conditions across the sewer network.

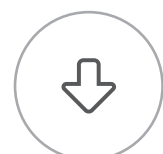
Accurate flow and level predictions provide opportunities for sewer assets and wastewater treatment works to become 'smart' by pre-empting rather than reacting to events.



INCREASE ASSET/SYSTEM  
EFFICIENCY



REDUCE ASSET/SYSTEM  
ENERGY USAGE



REDUCE CARBON  
FOOTPRINT

## WASTEWATER TREATMENT WORKS PROCESS OPTIMISATION

Smart Flow Predictor gives wastewater treatment assets and operators the ability to 'look several hours into the future'.

When assets and operators have the ability to see into the future, pre-emptive actions may be taken to optimise performance across the treatment process;

- Chemical dosing processes when future inflow volumes are predicted with high confidence
- Screens can be cleaned and prepared before peak flows arrive
- Separator performance can be optimised based on upcoming inflow rates
- Storm tanks can be made ready when the treatment works pass forward flows are predicted to be exceeded
- Aeration and blower activities can be optimised based on predicted incoming volumes.
- Sediment tanks can be prepared when shock loads are predicted



## PUMP OPTIMISATION

A step-change in pump optimisation is now possible. Pump performance can be dramatically improved because these assets can now 'see several hours into the future' using StormHarvester's predictive capabilities. Pump efficiency can be greatly improved by;

- Deferring pumping when low flows are anticipated, and maximising pumping during low energy tariff periods
- Pumping earlier when high flows are predicted and preparing the pumping chambers before increased inflow onset
- Regulating flows across the network using flow predictions

# CASE STUDY

## WESSEX WATER

### The Problem:

Wessex water provides water and sewerage services to 2.8 million people in the South West of England with 35,000km of sewers, clearing 13,000 blockages a year at a cost of £5m.

Wessex were looking for a technology company to assist them in identifying potential non-compliant out-of-sewer pollution events before they occurred. They wanted to use real-time alerts to identify potential non-compliant out-of-sewer events and proactively direct maintenance crews to remedy issues before they resulted in service failures (pollution or flooding incidents).

“One of the biggest problems we have serving our customers is not knowing where and when blockages will occur, or are likely to occur, in the wastewater network”

Jody Knight, Asset Technology Manager Wessex Water

### The Solution:

Across the summer of 2020 StormHarvester provided near real-time level predictions and sewer blockage alerts to Wessex Water. These alerts were provided for the entire wastewater catchment of Bath, in South West England. The near real-time predictions and blockage alerts provided by StormHarvester were used to identify potential non-compliant out-of-sewer pollution events before they occurred and proactively direct maintenance crews to these locations to remedy issues before they resulted in service failures (pollution or flooding incidents).

StormHarvester’s Intelligent Sewer Suite deployed a suite of customised machine learning algorithms on both CSO and pumping station sensor data and corresponding hyperlocal rainfall forecast data to predict network levels and detect potential blockage formations in real-time. Only existing sensors were used for this purpose and no new sensor installations were required.

“The Stormharvester system used machine learning to set safe operating windows for each asset. Each time these had a significant breach, we received alerts, which in turn were passed to the Operations team so that they could respond”

Edmund Willatts, Assets Reliability Engineer Wessex Water

## Water Utility

Wessex Water   
YTL GROUP

# CASE STUDY

## WESSEX WATER

### The Results:

Wessex Water considered the alerts provided by StormHarvester a significant improvement on the previous situation where operational staff were regularly overwhelmed by the large number of high-level and overflow alarms occurring in the control room during periods of heavy rainfall.

The Wessex data revealed the following:

- A huge reduction in relevant control room alarms: If the StormHarvester solution had been implemented instead of the incumbent alarm system, a **96%+** reduction in control room alerts would have been achieved
- A high degree of blockage alert accuracy: **90%** of alerts StormHarvester provided were relevant and required
- Blockage formations were identified over 14 days before they resulted in service failures

“The Stormharvester team identified sewer blockages that using our normal working processes we may not have spotted until they had resulted in unwanted sewer overflow events”

Jody Knight, Asset Technology Manager Wessex Water

“During the trial, StormHarvester were able to identify sewer blockages very early on and we were therefore able to get the Operation teams to proactively intervene. This significantly increased our chances of making it quicker and easier to prevent spillages”

“This ‘condition based sewer maintenance’ vs. the scheduled cleaning regime will be key to making Operational teams more productive and efficient going forward”.

Edmund Willatts, Assets Reliability Engineer Wessex Water

## Water Utility



## Savings



96% reduction in control room alerts



90% accuracy in blockage \$ telemetry alerts