

STORMHARVESTER®

**INTELLIGENT  
SEWER SUITE**

## Early Blockage Detector.

Early detection of restrictions and blockages to enable predictive, condition-based maintenance across sewer networks

## Early Blockage Detector.

The Early Blockage Detector is a module in Intelligent Sewer Suite which detects rapid forming restrictions and blockages across sewer networks before they turn into a network outage. It provides a platform to monitor all sewers in a network using existing level and flow sensors.

By using the StormHarvester Early Blockage Detector, duty controllers will no longer be overwhelmed by the high numbers of control room alarms during wet weather events.

This module silences alarms for consented events and only provides alarms/alerts for unconsented events so maintenance crews can quickly be directed to incidents of greatest impact. This enhances the controller's ability to deploy operational resources to best effect, minimising network outages.



NO ADDITIONAL  
LEVEL / FLOW  
SENSORS REQUIRED



INTEGRATES WITH  
EXISTING SENSORS

# HOW IT WORKS.

The Early Blockage Detector works by using StormHarvester’s machine learning level prediction software to create safe operating windows for each sewer level monitor, across the sewer network. In the scenario where either the upper or lower threshold of this operating window is breached, near real-time alerts for a possible blockage/anomaly are delivered. Specific alerts enable rapid response, recovery and repair activities reducing network outages and their potential environmental impact.



ADVANCED  
MACHINE LEARNING  
ANALYTICS



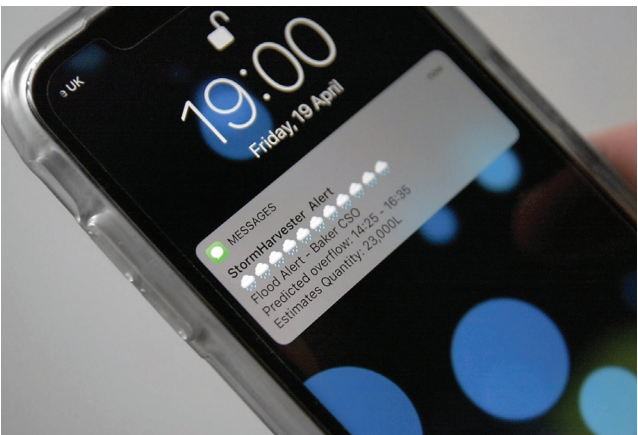
EARLY DETECTION  
OF BLOCKAGE  
FORMATIONS



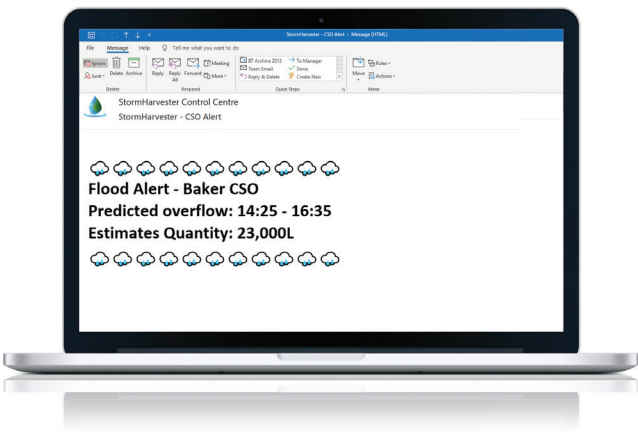
AUTOMATED API,  
SMS AND EMAIL  
WARNINGS



IMPROVED  
EMERGENCY CREW  
EFFICIENCY



SMS: Near real-time predictions and alerts



Email: Near real-time predictions and alerts

## 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





## 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