



Overview

Network Rail worked with Detectronic to address persistent road flooding caused by elevated water levels within a trackside drainage network. The issue was leading to repeated road closures and reactive maintenance, with silt build-up identified as a likely contributor due to the location and configuration of the system.

The project focused on deploying level monitoring to provide early flood warning and establish a clearer understanding of drainage performance to enable proactive maintenance.

Project Background

The site had a history of regular road flooding where water levels in the trackside drainage network rose above road level during rainfall events. The drainage layout and limited access made it difficult to identify emerging capacity issues before flooding occurred.

Floodwater entering the network was also contributing additional silt, increasing the frequency of blockages and creating a cycle of reactive intervention and disruption.

Network Rail required greater visibility of drainage behaviour to break this cycle.



■ CASE STUDY

Objective

The objective was to:

- Provide early warning when water levels approached flood risk thresholds
- Capture continuous level data along the drainage run
- Identify trends indicating silt build-up or partial blockages
- Enable targeted, proactive maintenance such as jetting or controlled pumping
- Reduce road flooding, closures, and reactive responses



Our Approach

Detectronic deployed LIDoTT Alarm level monitors across multiple manholes within the affected drainage section.

Monitoring at several locations provided a clearer picture of how the drainage network behaved as a system rather than at a single point. Alert thresholds were configured to notify teams when levels indicated a risk of flooding, while continuous data capture enabled longer-term analysis.



■ CASE STUDY

Why LIDoTT Alarm

LIDoTT Alarm was selected because it:

- Provides reliable real-time alerts
- Delivers high-quality trend data for performance analysis
- Is cost-effective, allowing multiple installations within the same location
- Offers API capability for integration with Network Rail's telemetry systems

This allowed Network Rail to move from simple alarming to data-driven decision-making.



Results and Insights

The data clearly demonstrated the impact of maintenance activity.

Following a jetting and cleaning exercise, monitoring showed a noticeable reduction in baseline water levels, confirming the removal of silt-related restrictions. Subsequent data indicated more stable behaviour, with water levels rising during rainfall and returning to normal operating conditions.

This established a clear definition of “normal” system performance for the site.



■ CASE STUDY

Use of Data

Alerting is already in place to warn of potential flood conditions.

The next phase will use Detectronic's API to feed data into Network Rail's telemetry systems, enabling deeper analysis of trends and faster identification of deviations from normal behaviour. This will support further refinement of alarm thresholds and more efficient maintenance planning.





Outcome

Following the success of the installation, Network Rail has engaged Detetriconic on an additional site to replicate the approach.

With baseline trends now established ahead of the next rainfall season, Network Rail will be able to identify potential issues earlier, reduce flooding risk, and lower overall maintenance demand. Preventing road flooding at this location is also expected to reduce silt ingress, further improving long-term network performance.



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