





London is highly vulnerable to surface water flooding due to its dense urban environment and impermeable surfaces. Heavy rainfall often overwhelms drainage systems, a problem expected to worsen with climate change, which brings more intense storms. This persistent issue has led to the need for innovative solutions. One area frequently affected by flooding is Seven Kings High Road. To address this, Redbridge Council initiated a pilot project in Summer 2024 using the Hydrorock system to reduce surface water flooding working with its partners Kenson Highways and SANDS.





Seven Kings High Road has a history of surface water flooding during heavy rainfall, disrupting local businesses and creating hazards for pedestrians and drivers. Additionally, excess water from the road often flows into the already-overburdened Thames Water sewer system. This situation required a sustainable solution without impacting upon parking on the busy High Road, leading to the trial of the Hydrorock water attenuation system.







The Hydrorock system is an innovative solution to reduce the risk of surface water flooding. The highly permeable stone wool, blocks made from natural Basalt rock, act like natural aquifers beneath the road surface. Rapidly absorbing and holding water during heavy rain and then gradually releasing it when the drainage system can handle the flow. This prevents immediate surges of water into the drainage system, reducing road flooding.

At Seven Kings High Road, the Hydrorock system spans a catchment area of 1,223 square meters, with an attenuation capacity of 52.6 cubic meters. This equates to storing over 52,600 liters of water, or more than 701 five-minute showers, which would otherwise flood the road or enter the stressed Thames

Water sewer system.



One major advantage of the Hydrorock system is its ability to mitigate flooding without affecting road use. Installed beneath the surface, the system does not reduce parking capacity, a critical factor in busy urban and commercial areas like Seven Kings High Road. Additionally, by holding water and releasing it gradually, the system eases the burden on local drainage infrastructure and reduces the risk of sewer overflows.









To further improve flood prevention, permeable surface materials were installed over the Hydrorock blocks. These materials allow additional rainwater to be absorbed into the ground, reducing surface runoff and enhancing the overall effectiveness of the flood management system.





Since its installation in mid-2024, Seven Kings High Road has not experienced the flooding that previously affected the area. The Hydrorock system has performed as expected, preventing flooding even during heavy rains. As a result, Seven Kings High Road businesses have not experienced the disruptions that previously affected the area, which often made it inaccessible during storms. The system also helps reduce pressure on the Thames Water sewer system, benefiting nearby areas as well.



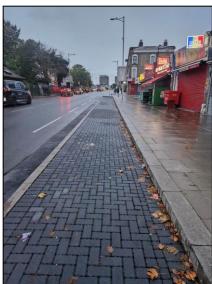




Despite the excavation challenges from numerous in-ground utilities, the the installation was completed without major delays, due to the ability of Hydrorock to readily fit around existing infrastructure.

While the Hydrorock system has a lower carbon footprint than conventional drainage solution, such as plastic crates, Redbridge Council's commitment to sustainability means carbon offset measures will be taken to balance the environmental considerations.















Redbridge Council's Cabinet Member for Environment and Sustainability, Cllr Jo Blackman, said: "Redbridge Council is always looking to be at the forefront of adopting innovative solutions to address challenges. We're proud to be working with partners like Kenson Highways and Hydrorock to deliver this scheme. By integrating easy to install and low maintenance technology to tackle surface water flooding, we are not only improving the safety and accessibility of our roads but also enhancing our resilience to the growing impacts of climate change. This project is a great example of our commitment to protecting our borough while being forward-thinking".

Dhiresh Bhatt, Head of Highways and Transportation at Redbridge Council said "Innovation is key to adapting our borough's infrastructure to the challenges of climate change. The installation of the Hydrorock system on Seven Kings High Road is a prime example of how we can use new technology to tackle long-standing issues like surface water flooding. We are very happy with the results so far, and the positive impact it has had on the local area. This project demonstrates that with the right approach, we can

reduce flood risk while preserving the functionality of our roads and supporting our local businesses"

Lee Wheatley, Director for Kenson Highways, said: "We're thrilled to have partnered with Redbridge Council and Hydrorock on this innovative pilot to reduce flood risk. The installation was straightforward, and it's exciting to see how this new approach can help manage water more effectively in urban spaces. Our priorities align with Redbridge's commitment to innovative solutions and we're proud to be a dedicated partner in helping achieve their flood resilience goals."

Steve Colville, Managing Director of Hydrorock, said: "Hydrorock is delighted to have partnered with Redbridge Council and Kenson Highways in this project aimed at transforming surface water management across the Borough. Thanks to Dhiresh and the team for seeking out our highly innovative drainage solution, which enabled the project to readily overcome its many installation challenges. Really pleasing to see how it is already benefitting the local community"

