

## CASE STUDY

# Rapid Recovery: IWS Swiftly Restored Wastewater Infrastructure After Hurricane Helene

**Location:** Spruce Pine, North Carolina

## HIGHLIGHTS

Rapid deployment of BluBox Modular MBR Systems® restored essential wastewater services post disaster.

Swift action mitigated a public health crisis and lifted a “do not flush” order.

75,000 to 150,000 GPD produced by each unit serving approximately 300 households in the affected area.

## RAPID RESPONSE ENABLED COMMUNITY RECOVERY

The catastrophic impact of Hurricane Helene across the Southeast created an urgent need for infrastructure recovery, exemplified by the crisis in Spruce Pine, North Carolina. This case study highlights the swift and effective response of Integrated Water Services (IWS), detailing their solutions and the positive outcomes achieved in rapidly restoring critical wastewater treatment services to the affected community.

## CHALLENGES FACED

- **Wastewater Treatment Plant Destruction & Public Health Crisis:** The destruction of the primary wastewater treatment plant triggered a “do not flush” order, creating an imminent public health crisis due to lack of sanitation and contamination of water sources, harming the environment including fish populations.
- **Urgent Need for Rapid Remediation Amidst Logistical Difficulties:** Immediate and effective restoration of wastewater treatment was crucial to protect the community, a challenge compounded by logistical difficulties including road/infrastructure damage and equipment and personnel shortages typical after a natural disaster.
- **Inoperable Infrastructure & Extensive Damage:** Wastewater treatment plant was buried under silt after the flood. Months of work were needed to restore its operations. Before a temporary solution arrived, city officials urgently sought ways to bring the plant back online while simultaneously addressing widespread damage to the city’s old and already failing sewer infrastructure caused by the floodwaters.



## SOLUTIONS IMPLEMENTED

- **Rapid Deployment of Modular MBR Systems:** IWS swiftly deployed pre-engineered modular BluBox systems, leveraging their compact and modular design for quick installation and operation.
- **Integrated Treatment Capabilities:** The deployed systems included EQ tanks for flow management, advanced membrane filtration for high-quality effluent, and onboard UV disinfection for enhanced safety without harmful byproducts.
- **Strategic Multi-Site Implementation:** IWS deployed the BluBox MBR systems at two separate locations within Spruce Pine, ensuring broader coverage and enhanced resilience of the restored wastewater infrastructure.



## OUTCOME AND IMPACT

- **Rapid Restoration of Vital Services:** At two critical infrastructure breaks, IWS's BluBox units acted as immediate, full-scale wastewater treatment replacements. Each BluBox was positioned to process 75,000-150,000 GPD, serving ~1,000 people and enabling full restoration within two weeks, averting a major public health crisis.
- **Protection of Public and Environmental Health:** The advanced MBR technology delivered high-quality effluent, safeguarding both the community's health and the nearby streams. The solution directly addressed the public health risks associated with the "do not flush" order.
- **Enhanced Community Resilience:** The successful and rapid restoration of essential infrastructure significantly aided Spruce Pine's overall recovery from the devastating hurricane.



Facing the complete failure of essential wastewater infrastructure and a looming public health crisis, IWS's swift and strategic implementation of modular, high-performance treatment technology delivered remarkable results. The ability to rapidly establish effective wastewater treatment not only mitigated immediate health risks and environmental concerns but also played a vital role in the community's broader recovery efforts. This case study underscores the importance of innovative, rapidly deployable solutions in disaster response, demonstrating how agile technology and expert response can significantly enhance community resilience in the face of devastating natural events.

"After the storm, we were working frantically trying to take care of our wastewater since our system had been flooded. We placed BluBox units at crucial places in our wastewater system. If we didn't have these units, we'd have no chance of our business community being able to open back up. Our schools are going to be able to have regular days where our little guys won't have to go to portable units, and we couldn't be more appreciative."

**Darlene Butler**, Town Manager

