

In Situ Stabilization in Tight Urban Conditions

Contaminant Containment for a High-Density Mixed-Use Development

PROJECT: Gowanus Nevins Street

CLIENT: Charney Companies, LLC

LOCATION: Brooklyn, NY

SERVICES: In Situ Stabilization

CHALLENGE

Cascade Environmental was contracted to perform in situ stabilization (ISS) at a redevelopment site along the Gowanus Canal in Brooklyn, NY. The objective was to contain coal tar-related MGP contamination to enable safe residential and commercial development.

The project came with significant challenges:

Urban Constraints: The treatment zone sat between two 24-story buildings under construction, leaving minimal room for equipment staging.

Limited Site Access: With 10+ contractors on-site and restricted gate access, deliveries and equipment mobilization had to be carefully coordinated.

Below-Grade Obstructions: Cascade encountered substantial underground debris in 24 of the 210 treatment columns, which impacted depth targets and equipment performance.

Regulatory and Logistical Pressure: Tight permitting windows, overlapping schedules, and dense infrastructure demanded precise coordination and rapid adaptation.

SOLUTION

Cascade was selected for its proven ability to implement ISS in logistically constrained environments. The team used a cement and GGBFS mix to stabilize contaminated soils, preventing contaminant migration.

Key solution elements included:

- A two-stage pilot study using both BG28 and BG36 drill rigs to identify optimal tooling and mixing methods.
- Final selection of the BG36 rig with an 8-foot mixing head to maximize efficiency.
- Pre-treatment probing during project downtime to identify and mitigate subsurface obstructions before full-scale ISS began.

This approach met NYSDEC standards and allowed treatment without extensive soil removal or off-site disposal, minimizing neighborhood disruption.



PROJECT EXECUTION

The team implemented full-scale ISS across 210 soil columns. Work progressed in phased zones from the northern to southwestern site boundaries to accommodate construction and site logistics.

Additional efforts included:

- Close coordination with the Engineer of Record, Impact Environmental, and regulatory stakeholders.
- Daily communication with on-site contractors to maintain safe operations in tight quarters.
- On-the-fly troubleshooting of equipment issues and flexible scheduling to adapt to shifting site access.

Despite the complexity, Cascade maintained a zero-incident safety record during the 10-month project, including five months of active mixing.

RESULTS

Cascade completed the full-scale ISS scope six weeks ahead of schedule.

Post-treatment permeability testing demonstrated a dramatic reduction in soil permeability—from an estimated 1×10^{-4} to an average of 2.83×10^{-7} — effectively locking contaminants in place and meeting NYSDEC criteria.

Though 24 columns could not be treated due to insurmountable obstructions, a secondary contractor was brought in to address those areas. All columns within Cascade's treatment scope met the client's remediation goals.

CONCLUSION

The Gowanus Nevins Street ISS project illustrates Cascade's capacity to execute technically demanding remediation in high-density urban environments.

While the project was impacted by client-side leadership turnover and logistical complexity, it earned internal recognition for cross-team coordination and safe execution under pressure. Awarded Cascade's 2025 "Collaboration in Action" Award, this project stands as a model of how smart planning, flexible execution, and commitment to safety can deliver exceptional results despite real-world obstacles.

