SEAWALL REPAIR NETWORK

Case Study

Vashon Island Seawall Stabilization

A residential waterfront property on Vashon Island, Washington, had soil loss behind a 10-inch concrete seawall along Puget Sound. The engineering drawings showed 3-6 inches of material loss, creating stability concerns. Ram Jack West performed SW-RP1 seawall repair foam injection, coordinating with Wolden Structural Engineering, and obtained permits through local authorities.



Initial Assessment

Field inspection documented voids and sunken grade behind the seawall. The site's location in a King County area vulnerable to sea level rise necessitated environmental protection during construction.

Proposed Solution

SW-RP1 was selected for its ability to penetrate loose soils, expand upon contact with water, and create a watertight structural matrix behind the seawall. The material transforms the surrounding soil into an impermeable mass, preventing soil erosion and providing long-term stabilization. The repair plan included 20 injection points at 6-ft depth with corresponding 2.5-inch filters to manage future drainage and prevent the buildup of hydrostatic pressure.

Procedures

1. Obtained all necessary environmental permits and installed protective barriers along the shoreline before starting work.
2. Identified panel joints with soil loss, and prepared access 1 foot behind each joint.
3. Injected SW-RP1 deep into the soil to stabilize and fill voids, approximately 1 gallon per vertical foot.
4. Core-drilled panels at the water line at 5-foot intervals.
5. Placed 2.5-inch pressure control filters in each hole for hydrostatic relief.
6. Removed temporary controls and restored the site post-completion.

Results

The two-day project successfully stabilized soil behind the seawall and eliminated voids. Work was completed without in-water activities and minimal site disturbance. Compared to traditional seawall replacement, this approach achieved approximately 70-80% cost savings while providing permanent stabilization and eliminating the need for heavy excavation equipment.