

City of Richmond Culvert Stabilization

Void fill, Soil Stabilization, Inflow, and Infiltration Mitigation of over 1 mile of Culvert in Richmond, BC



About The Project

Contractor SlabJack Geotechnical	Location Richmond, BC	Product Used Terrathane™ 24-042
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[Learn More About Terrathane™ 24-042](#)

Problem

The **City of Richmond in British Columbia** was preparing for a major roadway expansion when they ran into a problem requiring culvert stabilization. The culvert joints experienced severe soil loss due to inflow and infiltration (I&I). In order to complete their roadway expansion, they had to address their compromised culverts and re-establish the support soil bearing capacity.

The 10ft x 5ft box culvert measured approximately 1700 meters long, or 5600 feet, and were 3-8ft below grade on average. The infiltration had been happening for some time, having an average of 1 – 1 1/2ft of silt that settled on the culvert floor. The culvert access points comprised of manholes that were located every 300 feet. The culverts had to be dammed off to minimize standing water, and the silt removed prior to injections.

Solution

The solution was to use the [TerraThane 24-042](#) geotechnical polyurethane to stabilize the soils, [fill the voids](#), and [seal the joints](#) against future I&I.

SlabJack Geotechnical approached the project by drilling 2 rows of holes, separated by 4 ft, with injection intervals at every 5 ft. The injections were made with 3 man teams, 1 crew member managing the truck, and 2 crew members injecting simultaneously from within the culvert. The simultaneous injection approach helped to maximize the spread of the polyurethane and to ensure the voids were filled, joints were sealed, and soil contact was re-established with the culvert.

Results

On a daily basis, [SlabJack Geotechnical](#) would stabilize 150 ft of the culvert. They worked from the same manhole for two days, injecting 150 ft to one side on one day and 150ft to the other on the next day, and then switch to the next manhole. They would inject approximately 400-500 lbs of polyurethane per injection location, with up to 15,000 lbs injected in a single day. The project took place over 9 weeks with the entirety of the culvert being stabilized against future erosion and settlement.

Project Gallery

