



CASE STUDY - ELECTRICAL SUBSTATION SLAB LIFT

Canada



THE PROBLEM

During construction of an electrical substation, engineered elevation specifications were communicated incorrectly. The concrete slab was poured well and remained structurally sound, but the finished elevation was approximately 2-3 inches too low.

The issue was not the quality of the concrete; it was the final elevation. The project team needed a way to bring the pad closer to the required specification without destroying a massive, newly poured reinforced slab.

The replacement option would have required breaking up and removing the pad, re-forming, re-pouring, and waiting for the new concrete to cure. With late-fall conditions approaching, replacement would have delayed the project schedule into spring of the next year.

Several critical challenges defined the project:

- **Massive load conditions:** the slab alone was 955,742 lbs, or 478 tons.
- **Large footprint:** 20.72 ft wide by 111.22 ft long
- **Thick structural section:** 31 inches
- **Dense reinforcement:** the slab contained 3 rows of rebar at 4 inches on-center.
- **Precision elevation correction:** lift 2.4 inches
- **Schedule pressure:** a full replacement would have pushed construction into the next spring instead of keeping the project near its regular schedule.

ECO Concrete Leveling was brought in to perform the lift using HMI 402 Hydrofoam.





THE SOLUTION

ECO Concrete Leveling used HMI 402 Hydrofoam to raise the electrical substation slab in a controlled, staged injection process.

Because the pad contained a significant amount of reinforcement, the injection pattern and spacing were dictated by concrete scanning. A standard hole pattern was not practical. Instead, injection locations were selected around the scan results to avoid the dense rebar layout while still placing material in the zones needed to create controlled lift.

The ECO crew injected 1,718 lbs of HMI 402 Hydrofoam beneath the slab. Material was injected incrementally while the crew monitored slab movement, allowing the lift to be adjusted as the foam expanded and built support below the concrete.

Key project specifications included:

- **Material:** HMI 402 Hydrofoam
- **Foam used:** 1,718 lbs.
- **Slab weight:** ~955,742 lbs / ~478 tons
- **Lift achieved:** ~2.4 inches

Using polyurethane injection eliminated the need to demolish and replace the pad. It also avoided additional disposal, labor, forming, re-pouring, curing, and the long seasonal delay associated with a replacement approach.



THE SUMMARY

ECO Concrete Leveling successfully raised the massive electrical substation slab approximately 2.4 inches using 1,718 lbs of HMI 402 Hydrofoam.

The polyurethane lifting solution provided a faster and more economical alternative to replacement. The work was completed for less than 50% of the estimated replacement cost and helped keep the project much closer to its regular construction schedule instead of delaying completion into spring of the next year.

For the customer, the solution avoided the cost, disruption, and downtime of a re-pour. For ECO, the project was a profitable, high-value job that demonstrated the capability of HMI 402 Hydrofoam on a large-scale industrial concrete lifting application.

This project demonstrates how a structurally sound but out-of-elevation slab can be corrected using a scan-based injection plan, controlled lift monitoring, and the right polyurethane material for the job.

PROJECT SNAPSHOT

Application	Electrical substation slab / equipment pad
Contractor	ECO Concrete Leveling
Material	HMI 402 Hydrofoam
Foam Used	1,718 lbs
Slab Size	20.72 ft W × 111.22 ft L × 31 in thick
Load Managed	~955,742 lbs / ~478 tons
Reinforcement	3 rows of rebar at 4 in. on-center
Lift Achieved	~2.4 in.
Replacement Avoided	Demolition, re-pour, cure time, and schedule delay into spring of the next year
Project Impact	Completed for less than 50% of replacement cost and kept the project closer to its regular schedule