Teretek® Re-levels Concrete Slab in Critical Factory Receiving Area

PROJECT PROFILE
N19AR204

mainmark

INDUSTRY
Industrial

STRUCTURE
Factory

PROBLEM
Subsided concrete slab

LOCATION
Bega, NSW, Australia

DURATION / YEAR
1 Day / July 2019

TECHNOLOGY
Teretek®

BUSINESS UNIT
Mainmark Australia

Summary

The Bega Cheese factory is a high-tech processing facility based in the NSW regional town of Bega. The iconic dairy factory, which produces approximately 20,000 metric tons of cheese each year, operates around the clock with delivery trucks entering and leaving the site's receiving area day and night.

The constant heavy vehicle movements and underlying weak ground conditions had caused the receiving area's concrete slab to settle approximately 40mm below its original level. Water seepage beneath the slab was considered to be a contributing factor to the slab's subsidence.

The settlement, which affected 3 truck bays across a 50m^2 area, was particularly concerning to Bega Cheese. If the subsidence continued, the receiving area would become unusable, causing delivery delays and loss of revenue. There was also a concern that further settlement would affect pipes underneath the slab, which included irrigation and wastewater pathways that were crucial to the factory.

Bega Cheese approached Mainmark following a recommendation from a third-party contractor who had used Mainmark's Teretek® resin injection technology previously and was impressed with the company's expertise in slab re-levelling. While Bega Cheese had considered alternative rectification solutions for this project, these would have involved excavation and slab replacement, requiring the receiving area to shut down for up to 4 weeks.

Using Mainmark's Teretek non-invasive resin injection solution, Bega Cheese was able to remediate the concrete slab quickly and cost-effectively while allowing the factory's receiving area to operate with minimal disruption.

Objectives

Mainmark was tasked with delivering a ground improvement and re-levelling solution to three delivery bays within the Bega Cheese receiving area. The solution was required to lift the area's concrete slab back to its original level, strengthen the underlying ground, and fill any voids to ensure long-term stability and support.

Solution

Mainmark remediated the concrete slab using its proprietary Teretek resin injection solution. Teretek was chosen for its ability to return the sunken slab back to its original level within a matter of hours, compared to traditional and highly invasive re-levelling or slab replacement methods that would have taken weeks to complete.

As the Bega Cheese facility contained a network of essential service pipes underneath the slab, including sewer, water, storm water and power, the pipes needed to be located and marked using CCTV inspection and testing prior to Mainmark commencing the work.

Mainmark then proceeded to inject the engineered Teretek polyurethane resin deep beneath the sunken sections of the three transport bays, filling any voids to maximise ground support. The controlled force generated by the Teretek expanding resin gently lifted the slab back to level with Mainmark closely monitoring the soil and site conditions to ensure the appropriate level of lift was achieved.

Teretek's fast and accurate resin injection methodology enabled the works to be completed with minimal disruption to the facility, only closing one transport bay at a time, for 1-2 hours each. This allowed Bega Cheese to continue its operations and prevent any significant logistical or financial impact to the business.

Mainmark successfully re-levelled the concrete slab in a single day, with the client very satisfied with the outcome.

"We're really happy with the solution that Mainmark provided to the affected areas, which was both cost and time effective," Bega Cheese Maintenance Supervisor, Todd Campbell, said.

"It was a problematic situation that would have required us to shut down critical sections of the factory for weeks if we had approached it with conventional methods. The team was professional and efficient. I would definitely recommend Mainmark to others and would call on them if a similar issue occurred in the future."