

## CASE STUDY

# UNDERGROUND STORAGE TANK REHABILITATION IN CHANDLER, AZ

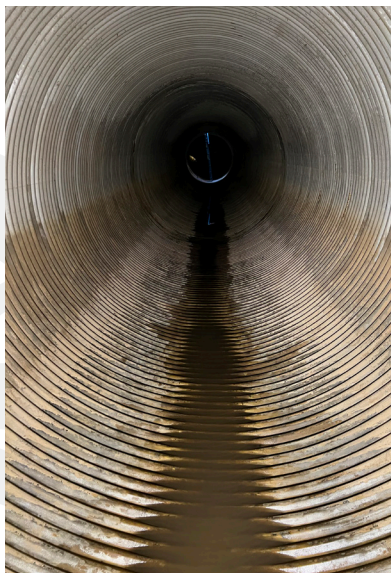
**Private business owner searching for a trenchless rehabilitation solution for underground storage tank repairs.**

### THE CHALLENGE

In early 2022, one of 26 underground storage tanks located beneath a Chandler, Arizona shopping center collapsed during a truck delivery. The collapsed tank had to be completely dug up and replaced, causing traffic issues and slowing down deliveries to local shops. Without quick intervention, the owner of the Shoppes at Casa Paloma ran the risk of the center's parking lot collapsing in on itself, which would cause sinkholes and or building failure and could threaten the safety of shoppers, workers, and business owners. The owner soon reached out to Vortex Lining Systems (VLS) in search of a rehabilitation solution that was less disruptive, time consuming, and expensive than dig and replace methods. The VLS team came up with a plan to assess the aging tanks, line the structures, and stabilize the surrounding soil.

### THE SOLUTION

This project was completed in two phases, with the first leg taking place in July - August 2022 and the second in April - September 2023. The VLS crew first used ground penetrating radar (GPR) equipment to assess all 26 corrugated metal, 96" diameter storage tanks and locate any voids in the



**VORTEX**  
services



### PROJECT SNAPSHOT

#### PROJECT

Underground Storage Tank  
Rehabilitation

#### CONTRACTOR

Vortex Lining Services

#### PROBLEM

26 aging, 96" diameter storage tanks located underneath a shopping center were on the verge of collapse.

#### SOLUTION

The VLS squad used GPR technology to inspect all 26 tanks and locate any voids in the surrounding soil. They then spin-cast the structures using GeoKrete® structural geopolymer and injected I&I Guard®-MSF soil stabilization foam into nearby voids.

#### CONTACT

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### VORTEX PRODUCTS USED



- GeoKrete®
- I & I Guard®-MSF

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surrounding soil. This initial inspection process took about one week. The squad then spin-cast five of the structures using GeoKrete® structural geopolymer, which restored the tanks' structural integrity. Next, the crew injected I & I Guard®-MSF soil stabilization foam into the surrounding voids to prevent leaks. Casa Paloma's owner was impressed with the team's efforts in this first portion of the project and soon requested the crew to come back and finish repairing the tanks still requiring rehabilitation.

In April 2023, the VLS crew got back to work at Casa Paloma. The squad began by CCTV inspecting the five tanks that they had already rehabilitated, confirming that the structures were still in good condition. Next, the crew spin-cast eight more tanks with GeoKrete geopolymer and then lined the inverts of two additional structures. They then once again filled in voids around the tanks using I & I Guard-MSF soil stabilization foam, finishing up work in September.

### THE RESULTS

The owner has been pleased with the VLS crew's rehabilitation work. The team was able to complete the repairs at night, which allowed the shopping center to function as normal and only caused minor disruptions to Casa Paloma's day-to-day operations. Additionally, the VLS team's equipment footprint was contained in a small area of the parking lot away from the entrances of the shops.



## IMPACT

1

Injected I & I Guard®-MSF soil stabilization foam into the voids surrounding the tanks to create a watertight barrier and prevent future leaks.

2

Saved the owner time and money by using trenchless rehabilitation methods rather than traditional dig and replace to repair the tanks.

3

Finished both parts of this rehabilitation job on time and within the client's budget.

