

# GEOSPRAY®

Geopolymer Mortar



## CASE STUDY:

### Sewer Pipe Rehab Santa Cruz, Bolivia

#### OVERVIEW

Santa Cruz is situated on the Pirai River in eastern Bolivia. It is one of the fastest growing cities in the world and is home to more than 1.6 million people. SAGUAPAC, the cooperative responsible for the administration of the city's water and sanitary sewer services, was concerned a section of reinforced concrete sewer pipe that had been installed in the 1960s was beginning to show signs of microbial induced corrosion which could eventually lead to structural failure of the pipeline if not addressed.

#### SOLUTION

Before this project, very little if any trenchless rehabilitation had been completed in Bolivia. The standard rehab solution was "Dig and Replace", but since the expansive growth in Santa Cruz over the last 2 decades the costs and public disruption caused by this type of solution had risen quickly.

The water authority conducted a search of cost effect rehabilitation solutions that could be used locally. Due to the international experience and technical support presence, GeoTree Solutions GeoSpray® geopolymer was selected as the lining material and Caricap as the contractor for installation.

#### CONCLUSION

The project was undertaken between early May and June 2017. The 1116 meters of 1-meter nominal diameter pipe was separated into 7 segments between manholes. The manholes were nominally spaced 185 m apart. The geopolymer lining was centrifugally cast with a 25 mm structural lining to create a new pipe within a pipe and designed to carry the load of the nearly 4 meters of cover.

The liner was applied in a single pass, completing half of the distance per manhole at a time. The cost of the project was less than 50% of the estimate for a traditional "Dig and Replace" solution that would have created significant traffic distribution on the busy thoroughfare. The water authority was excited to have completed the project without any of this disruption because all equipment could be staged on the median between the traffic lanes.

#### PROJECT DETAILS

**Location:** Santa Cruz, Bolivia  
**Application:** 1116 linear meters of 1m diameter RCP Sewer  
**Installation:** May, 2017  
**Client:** SAGUAPAC  
**Installer:** Caricap Bolivia  
**Product used:** GeoSpray



Geopolymer lining on 1m sewer pipeline



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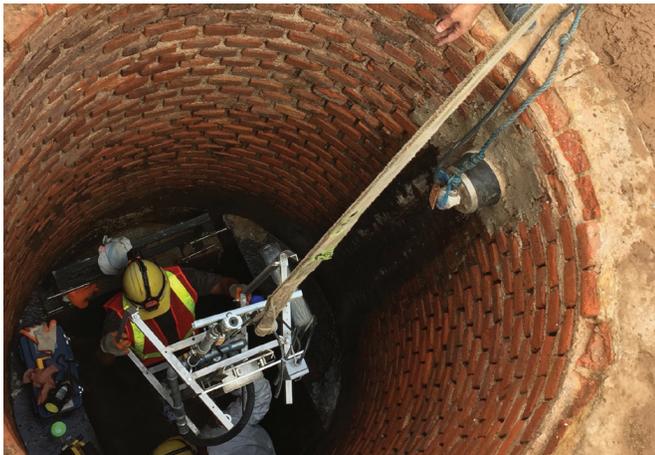
Sewer Pipe Rehab  
Santa Cruz, Bolivia



Water authority cleaning the sewer



Existing condition of sewer with corrosion above the flow line



Cast equipment being lowered into manhole



Completed Geopolymer liner



The Caricap/SAGUAPAC team

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