



EPOXYTEC™

Sealing Portage's Future Using Underground Innovation

Nestled along the shores of Lake Michigan, the City of Portage, Indiana, is a community that understands the importance of maintaining its hidden assets — the vast network of pipes and manholes that make up its sanitary sewer collection system.

In the realm of municipal infrastructure, the unseen components often play the most crucial roles. The City of Portage recently undertook a project to rehabilitate manholes in its collection system. Like many American cities, this community of 36,000 residents faces the ongoing challenge of maintaining and upgrading its aging infrastructure. The collection system that manages wastewater and stormwater is a critical part of this infrastructure. When issues arise in this system, they must be addressed promptly and effectively to prevent more significant problems down the line.

This project, executed by Indiana-based Culy Contracting, sheds light on the importance of regular maintenance and the application of advanced materials in preserving critical underground assets. Culy Contracting has built its reputation on tackling collection system challenges, leveraging their expertise in trenchless technologies and infrastructure rehabilitation.

As a member of Epoxytec's Certified Applicator Network (ECAN), Culy has received specialized training in structural epoxies for manhole rehabilitation. Epoxytec LLC, a subsidiary of the Tnemec Company, Inc., supplies advanced liners, protective coatings, and repair products tailored for collection system environments and provides local Indiana support from Redox Coating Consultants, LLC for product selection. This combination of experience, specialized training, and local product support makes Culy Contracting an excellent choice for municipalities like Portage, qualifying their ability to execute such critical operations effectively.

The rehabilitation process began with a thorough assessment of the manhole's condition, identifying the leaking top barrel joint as the primary concern and noting other areas needing reinforcement and protection. As ECAN contractors, Culy Contracting was

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Featured Products

CPP Sprayliner

Mortartec Hydrxx-3



Project Information

Location

City of Portage, MI

Completion Date

2024

Structure

Sanitary Sewer Manhole

Owner

City of Portage

Applicator

Culy Contracting





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Sealing Portage's Future Using Underground Innovation (cont.)

well-versed in top-of-the-line products with access to a diverse "toolbox" of solutions. This expertise allowed them to develop a tailored rehabilitation plan, selecting the most appropriate products to address each specific area of concern effectively.

Surface preparation is a critical first step in any rehabilitation project. In this case, the team employed high-pressure water blasting at 5,000 psi to clean the manhole surface. This process removed debris, loose material, and contaminants that could interfere with the adhesion of repair materials.

With the surface prepared, the team moved on to addressing specific problem areas within the manhole. The top barrel joint, identified as the primary source of leakage, received special attention. The team sealed this joint using a combination of a hydrophobic polyurethane grout and Epoxytec's Mortartec Hydrxx-3, a quick-setting, industrial-grade hydraulic cement leak stopper (water plug). Hydrxx-3 arrests active water infiltration. Tnemec's Series 217 MortarCrete, a single-component, ultra rapid setting, hydraulic cementitious resurfacer, was used to restore the deteriorated concrete surfaces around the manhole joints, voids, and pipe connections.

With water infiltration stopped and preparatory work complete, the team moved on to the main phase of the rehabilitation: the application of Epoxytec's structural epoxy liner, Series 456 CPP Sprayliner. This step involved using heated plural component spray equipment to coat the entire interior surface of the manhole. Series 456 CPP Sprayliner is a 100% solids, high-build structural epoxy lining designed specifically for wastewater environments. Its selection for this project was based on several factors, including its ease of application and its ultra-high build capabilities.

One of the key advantages of CPP Sprayliner is the capability of application directly to concrete substrates. This characteristic streamlines the rehabilitation process, saving time and reducing the complexity of the project. The high-build nature of the product allows it to be applied in thick layers, providing robust protection against corrosion and abrasion.

Leyton Peavler, Culy Contracting's project manager, emphasized the product's versatility. "CPP Sprayliner is a great product for direct to concrete applications," said Peavler. "Its high-build application makes it our go-to when we are lining concrete manholes and wet wells that do not need a cementitious underlayment." This endorsement highlights the product's efficiency and effectiveness in various infrastructure rehabilitation scenarios.

"Challenges encountered during the rehabilitation were minimal," noted Peavler. This statement speaks to both the expertise of the Culy Contracting team and the effectiveness of the chosen materials. The project was described by Peavler as "a typical manhole needing lining prior to force main tie-in activation," suggesting that the methods and materials used could be applicable to many similar projects across the country.

While the technical aspects of the project are notable, it's important to consider the broader implications of such maintenance work. Infrastructure rehabilitation projects like this one in Portage play a crucial role in extending the lifespan of municipal assets. By addressing issues proactively and using advanced materials, cities can avoid more costly and disruptive repairs in the future.

