

# Environmental & Science & Engineering MAGAZINE

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## MONITORING LAKE WATER QUALITY

Surveys reveal key factors leading to harmful algal blooms and changing dissolved oxygen levels

Managing sewer blockages helps prevent costly overflows

Continuous testing can prevent WWTP pump motor failures

Advanced water treatment needed for CECs and DBPs

# GAS VAPOUR MITIGATION SYSTEM SUPPORTS \$400 MILLION REDEVELOPMENT PROJECT

By **Peter Ceribelli**

As brownfield sites proliferate, redeveloping these properties is important environmentally and economically. The USEPA states that there are more than 450,000 brownfield sites in the U.S. To date, more than \$8 billion in public and private funds have targeted 694 brownfield site cleanups and attracted 42,000 jobs.

The investment is well spent. Cleaning these sites and redeveloping them has an economic benefit, boosting residential property values by up to 15.2% within 2 km of the sites, according to a 2017 report.

But the economic boost is felt beyond property owners, with local municipalities generating additional tax revenue in the year following cleanup, according to another report.

Moreover, according to the EPA, “through fiscal year 2018, on average, \$16.86 was leveraged for each EPA brownfields dollar and 8.6 jobs leveraged per \$100,000 of EPA brownfields funds expended on assessment, cleanup, and revolving loan fund cooperative agreements.”

## CASINO PROJECT

Penn National Gaming, one of the largest regional gaming operators in the U.S., decided to expand its Hollywood Casino concept to Columbus, Ohio, in 2012. Originally, the company planned on developing and building the casino near the city's downtown. However, it selected a site in Columbus' west side neighborhood in an effort to help spur much-needed growth in that region, as well as allow Penn to create a more expansive entertainment complex.

The project was massive, not just for the size of the casino itself, which would be more than 354,000 ft<sup>2</sup> when completed, but the project involved redeveloping a 123-acre brownfield site, previously home to an automotive factory, the former Delphi auto parts plant.

Delphi closed the plant in 2007 and



*Applying the Liquid Boot vapour intrusion barrier system.*

attracted little interest from developers in the interim, owing to site contamination. As a result, before construction could commence, Penn needed to remediate the heavily contaminated soil. Chemicals, including cyanide and vinyl chloride, were found in 81 different areas of the site. Gas vapours from these compounds posed potential human health risks.

## THE CHALLENGE

One major challenge was the size of the brownfield site. The 123-acre site made soil removal, the traditional method of soil remediation, extremely costly. Additionally, the site design, which included a significant amount of penetrations through the gaming floor of the casino, would be costly and time-consuming. Finally, developers had committed to a tight time frame, which required a fast-acting and effective solution.

## THE SOLUTION

For Hollywood Casino, the client chose the CETCO Liquid Boot 500® gas vapour mitigation system, coupled with a Geovent™ gas venting system. Formulated for horizontal applications, the gas vapour mitigation system is a spray-applied, elastic, monolithic membrane. It was used to seal multiple penetrations in the casino's footings, grade beams, pile caps and other irregular surfaces, delivering a fully-adhered gas vapour barrier system.

Geovent is a low-profile trenchless collection and venting system designed to improve efficiency while reducing installation costs. It can be used as an active or passive under-slab venting system depending on the specific project and consists of a three-dimensional vent core that is wrapped in a non-woven, needle-punched filter fabric. Installed directly on the subgrade, costly trenching and potential interference to existing underground utilities can be eliminated.

## THE RESULTS

Utilizing CETCO's gas vapour mitigation system and Geovent allowed the client to develop this larger brownfield site after initially considering a much smaller site and building layout.

Installation was completed successfully and on schedule, helping the client open the casino on time under a tight time frame.

Today, Hollywood Casino Columbus employs more than 900 people and is one of the most successful casinos in Ohio, attracting roughly 3 million visitors annually. Since its opening in 2012, 41 small and large businesses have opened or expanded in the neighborhood near the casino, including a \$3.5 million supermarket and a \$1.5 million bowling alley. And, none of this would have been possible without the redevelopment of a brownfield site. ■

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