

Case History, No. 53

July 2017

Problem

A former manufacturing site, located in New Windsor, New York contained a plume of volatile organic compounds (VOCs). This plume was migrating from the site into an adjacent creek and surrounding properties.

Solution

A Waterloo Barrier® containment cell (see Figure 1) was selected due to its low hydraulic conductivity (10^{-7} cm/sec or less) to contain the plume of VOCs within the cell and enhance the pump and treat system that was also implemented as part of the remediation plan.

In these cases, a pressure grouting system was used to form a seal between the bottom of the Waterloo Barrier® and the bedrock (see Figure 2). The remainder of the sheet piles were driven 5 feet into a till layer and sealed using a standard tremie method to ensure the full length of the interlock is sealed.

The Waterloo Barrier® cell was successful in containing the plume and enhancing the pump and treat system that constructed after the installation of the cell.

All the installed sheet piles (see Figure 3) were keyed into the underlying low permeable till layer. However, in some



Figure 1. Containment Cell

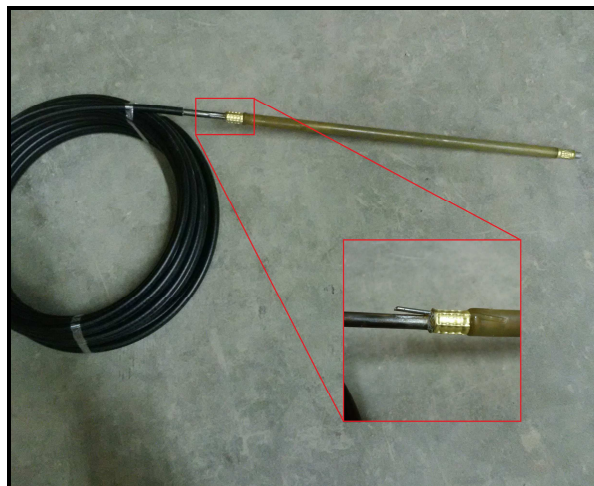


Figure 2. Pressure Grouting - Packer & Tubing

SITE SUMMARY

Barrier: 56,255 square feet of Waterloo Barrier® WEZ95 **Depth:** 34 to 59 feet



WATERLOO BARRIER® CONTAINMENT CELL/ENHANCED PUMP & TREAT FORMER MANUFACTURING SITE, NEW WINDSOR, NY

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areas, the sheet piles were driven to refusal and into the weathered shale bedrock. In order to enhance the seal between the bottoms of the installed piles and the weathered bedrock, a low permeable grout was pressure injected at 2' spacing via the readily available interlock joints. A flexible injection hose along with an inflatable packer was inserted into the sealable cavity and lowered to within 18" of the bottom of the joint. The packer was then inflated, sealing the cavity in this area and forcing the injected grout downward and into the bedrock and along the bottom of the cutoff wall. Hence, this procedure enhanced the seal between the bottom of the sheet pile and the bedrock.



Figure 1. Driving of Sheet pile

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