



**GLOBAL**  
ENVIRONMENTAL  
ENGINEERING INC.

Client: Elk Rapids Township

Project Budget: \$400,000.00  
Contract Start Date: Nov, 2006  
Completion Date: Mar, 2015



## Elk Rapids Sportsman's Club Elk Rapids Township Elk Rapids, MI

The use of the subject property as a small arm firing range for at least 70 years caused lead contamination in the soil on site. Global has been working closely with Elk Rapids Township since 2006 to remediate this site in annual intervals to stay within their annual budget for eventual use as a township park in the future. To adequately delineate and assess soil and groundwater contamination across the site Global prepared and executed a sampling plan. Upon completion of sampling activities a Risk Assessment was performed which evaluated the potential threat to human health and the environment and determined remedial actions were needed at the site. Due to RCRA concerns Global reviewed methods to render the soil characteristically non-hazardous without triggering the land disposal restrictions. Among the methods reviewed a method of amending the soil with phosphate was evaluated. A bench test was conducted, as well as, a pilot study at the Sportsman's Club. The use of phosphate proved to be an effective method to render excavated soil from the site non-hazardous, saving the Township thousands of dollars in disposal costs.