

Ruddiman Creek – Muskegon, MI

Technical Summary of Environmental Data and Issues

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Executive Summary

The Ruddiman Creek watershed is located in an urban area of Muskegon County that includes the cities of Muskegon, Muskegon Heights, Norton Shores, and Roosevelt Park. The watershed contains a mix of residential, commercial, and industrial development homes, a schoolyard, and a city park bordering the stream banks. Important natural features include Ruddiman Pond, a 21-acre water body, three stream branches (North, West, and Main Branches), and 34 acres of wetlands. Historical wastewater and stormwater discharges, improper hazardous waste management practices, and the input of contaminated groundwater have all contributed the degradation and contamination of this important local resource. A series of investigations conducted by the U.S. Army Corps of Engineers, the Michigan Department of Environmental Quality (MDEQ), and several consultants have determined that:

- Sediments in main branch of Ruddiman Creek and Ruddiman Pond are highly contaminated with toxic metals (cadmium, chromium, and lead) and PCBs at concentrations that exceed the MDEQ's site specific Sediment Quality Criteria (SQC) for human contact and aquatic life.
- Concentrations of heavy metals and organic chemicals in the sediments in the West Branch and the North Branch of Ruddiman Creek do not exceed the MDEQ's site specific SQCs.
- Contaminated groundwater was found to be entering the creek at various locations in the three branches. A disposal area for waste drums was found next to the creek in a residential area. The waste materials and surrounding soils were found to contain drums with high levels of heavy metals and solvents. The cleanup of the Drum Dump would require the removal of approximately 16,000 cubic yards of waste materials and contaminated soil.
- Ruddiman Pond and the adjacent wetlands function as deposition and storage areas for contaminants. In many cases, the highest levels of contaminants were found in the top three feet of the sediment. This pattern suggests that heavy metals and organic chemicals are still entering the system from nonpoint sources.
- Approximately 51,178 cubic yards of contaminated sediment were recommended for removal to achieve concentrations that were below the SQCs.

The presence of contaminated sediments and industrial waste in a residential area is problematic for several reasons. Children have unrestricted access to contaminated areas of Ruddiman Creek where levels of lead and PCBs exceed sediment quality criteria. The shallow nature of the creek plus the presence of a park and numerous walking paths create a situation where children can readily come into contact with contaminated sediments and soils. Furthermore, the presence of contaminants at concentrations that exceed SQCs suggests that adverse ecological impacts are likely. In consideration of these factors, it is critical that the remediation of contaminated sediments in Ruddiman Creek take place as soon as possible. The remediation solution should include the removal and control of source areas and the restoration of the creek, pond, and wetlands to an ecologically functional and sustainable system.