

Level 3 Project Study Plan

2013 Shaw Brook Environmental Monitoring

(1) Objectives

Shaw Brook is an urbanized stream located in Cuyahoga County, Ohio, and is tributary to Lake Erie. The Northeast Ohio Regional Sewer District intends to conduct general watershed monitoring in 2013 at River Mile (RM) 0.40, upstream of Lakeshore Boulevard. The data collected at RM 0.40 will consist of water chemistry sampling, aquatic habitat assessment, and fish and macroinvertebrate community sampling. The purpose of this study, therefore, is to determine the effect of upstream combined sewer overflows (CSOs) and other environmental factors on the biological communities inhabiting Shaw Brook.

Fish and macroinvertebrate community health will be evaluated through the use of Ohio EPA's Index of Biotic Integrity (IBI), Modified Index of Well-Being (MIwb), and Invertebrate Community Index (ICI). An examination of the specific characteristics of the biological communities will be used in conjunction with water quality data, the NEORSO Macroinvertebrate Field Sheet, and Qualitative Habitat Evaluation Index (QHEI) results in order to identify impacts to the communities. Results will be compared to historic data to show temporal as well as spatial trends. Water chemistry data will also be compared to the Ohio Water Quality Standards to determine attainment of applicable uses (Ohio EPA, 2009b)¹.

(2) Point/Nonpoint Sources

Point Sources	Nonpoint Sources
Combined Sewer Overflows	Urban runoff
	Spills

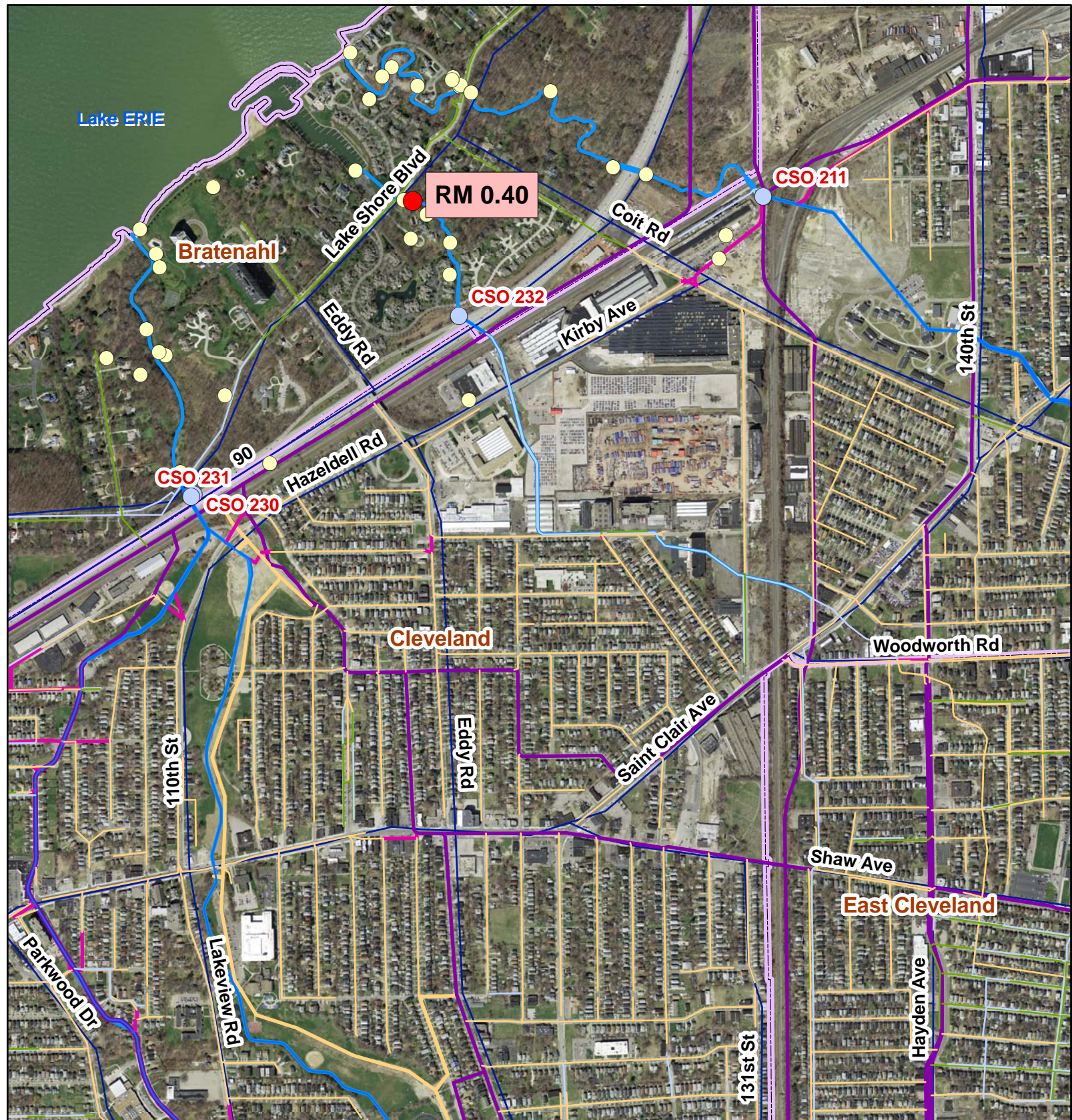
(6) Sampling Locations

The following electrofishing and macroinvertebrate sample location will be surveyed during the 2013 field season. The HD and water chemistry collection site is located near the midpoint of the electrofishing zone, indicated by river mile. GPS coordinates are recorded at the downstream end of the electrofishing zone.

Location	Latitude	Longitude	River Mile	Description	HUC 8	Purpose
Shaw Brook	41.5554	-81.6018	0.40	Upstream of Lakeshore Boulevard	Ashtabula-Chagrin 04110003	Evaluate impacts to fish, macroinvertebrates, water chemistry, and habitat

¹ See appendix H for a list of all references.

The map below shows point sources that may be influencing the water quality at the Shaw Brook RM 0.40 sample location. These point sources, along with the nonpoint sources listed in the table above, may be impacting the water quality and health of the fish and benthic macroinvertebrate communities in Shaw Brook.



Shaw Brook Environmental Monitoring

- Sample Location
- ~ Stream
- CSO Outfall
- Outfall
- ~ NEORSD CSO Control Sewer
- ~ NEORSD CSO Responsibility Sewer
- ~ NEORSD Intercommunity Relief Sewer
- ~ NEORSD Interceptor Sewer
- ~ Local Combined Sewer
- ~ Local Culverted Stream
- ~ Local Sanitary Sewer
- ~ Local Storm Sewer

