

## Level 3 Project Study Plan

### *2017 Stickney Creek Restoration Environmental Monitoring*

#### (1) Objectives

In 2017, the Northeast Ohio Regional Sewer District (NEORSRD) plans to conduct stream monitoring activities at one site on Stickney Creek, a tributary to Big Creek, in Brooklyn, Ohio. This sampling will be conducted by the NEORSRD's Environmental Assessment group in the Water Quality and Industrial Surveillance (WQIS) Division and will occur from June 15 through September 30, 2017 (through October 15 for fish sampling assessments), as required in the Ohio EPA *Biological Criteria for the Protection of Aquatic Life Volume III* (1987b).

The objective of the study is to monitor the creek prior to a restoration project that will be completed there in the near future. This project is currently in the pre-design phase, but may include relocating a reach of the stream to prevent it from causing structural damage to a nearby combined sewer along with habitat improvements. Until recently, that sewer has been leaking combined sewage into the creek, but has since been repaired. Once the restoration project is complete, additional monitoring will be conducted to determine any improvements in water quality, habitat and biological communities that occurred because of it.

Stream monitoring activities will be performed by NEORSRD Level 3 Qualified Data Collectors certified by Ohio EPA in Fish Community Biology, Benthic Macroinvertebrate Biology, Chemical Water Quality, and Stream Habitat Assessment. Fish and macroinvertebrate community health will be evaluated through the use of Ohio EPA's Index of Biotic Integrity (IBI) 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 NEORSRD Macroinvertebrate Field Sheet, and Qualitative Habitat Evaluation Index (QHEI) results in order to identify impacts to the communities and to show any spatial trends. Water chemistry data will also be compared to the Ohio Water Quality Standards to determine attainment of applicable uses (Ohio EPA, 2017).

#### (2) Point/Nonpoint Sources

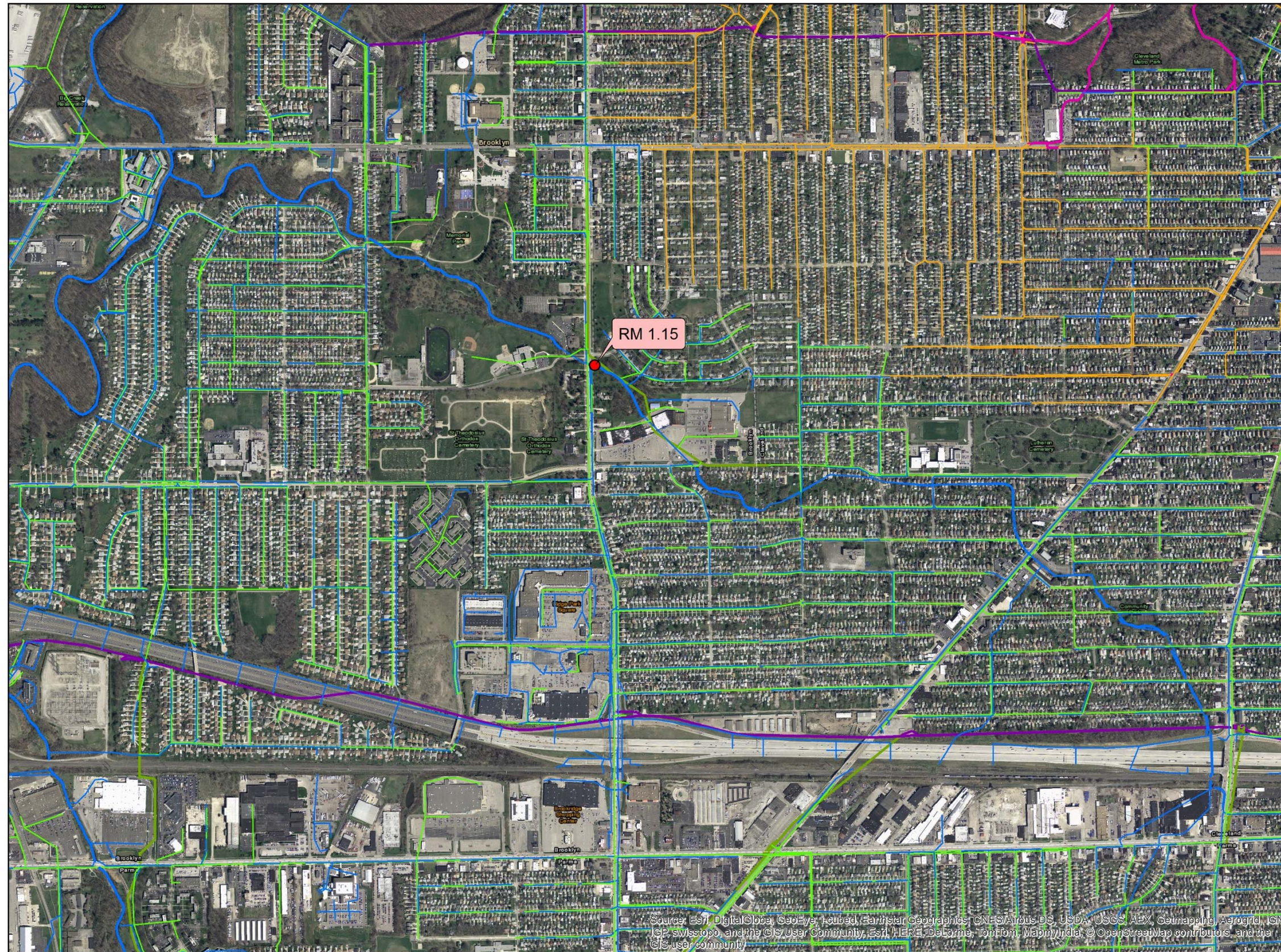
Point Sources	Nonpoint Sources
Storm Sewer Outfalls	Urban Runoff
Septic Tanks	Spills

A map has been provided in Section 6 to show point sources that may be influencing the water quality at the sample location.

(6) Sampling Location

The following sample location will be surveyed on Stickney Creek during the 2017 field season. The benthic macroinvertebrate and water chemistry collection site is located near the midpoint of each electrofishing zone, indicated by RM. GPS coordinates are recorded at the downstream end of each electrofishing zone.

Location	Latitude	Longitude	River Mile	Description	HUC	Purpose
Upstream of Ridge Road	41.433399	-81.735081	1.15	Stickney Creek Upstream of Ridge Road	04110002 Cuyahoga	Evaluate water chemistry, fish, macroinvertebrates prior to stream restoration project



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#### Legend

- Sample Point
- CSO Outfall
- Regional Drainage
- Local Combined Sewer
- Local Sanitary Sewer
- Local Storm Sewer
- NEORSO CSO Combined Sewer
- NEORSO CSO Responsibility Sewer
- NEORSO Intercommunity Relief Sewer
- NEORSO Interceptor
- District Facility



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