LEVEL 3 PROJECT STUDY PLAN

FOR THE

CLERMONT COUNTY, OHIO

2015 WATER QUALITY SAMPLING PROGRAM

APRIL 13, 2015

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1. OBJECTIVES

As it has for the past 19 years, the Clermont County Office of Environmental Quality (OEQ) will be conducting a multi-faceted water quality sampling program in 2015. The program will involve collecting field data and water samples from a number of locations around the County in support of various initiatives, and data collected from each site is specific to those initiatives (Table 1). Data will be used for estimation purposes, i.e. to ascertain contaminant concentrations and loadings at various locations and within various watersheds. According to the latest U.S. EPA guidelines, projects generating newly-collected data require a set of performance criteria that are of sufficient quality and quantity to address the project's goals (EPA/240/B-06/001). Clermont County OEQ has developed such performance criteria in the form of Data Quality Objectives for laboratory accuracy, laboratory precision, field accuracy, and field precision (See attached Quality Assurance Project Plan).

1.1. CONTINOUS WATER QUALITY MONITORING STATIONS & WET WEATHER SAMPLING

Stream level and precipitation will be collected at four monitoring stations to support various water quality projects discussed below, for the Office of Environmental Quality and to support waste water projects such as the Inflow and Infiltration program. Temperature, pH, specific conductance, and dissolved oxygen (D.O.) will be recorded every 15 minutes at two of the four monitoring stations so that staff can identify any potential water quality issues in the watershed of these sites and monitor long term changes in water quality. Time paced, wet weather sampling may also be conducted as weather permits at the autosampler stations to document nutrient loads during high flows. A discharge rating curve will be developed at the EFRM34.8 site via a contract with United States Geological Survey (USGS).

1.2. AMBIENT WATER QUALITY MONITORING

Samples will be collected at four locations, at the mouths of HUC 12 watersheds, on a biweekly basis to characterize EFLMR loadings to support model development.

1.3. AGRICULTURAL BEST MANAGEMENT PRACTICE MONITORING

Time paced wet weather sampling will occur in an agricultural drainage in support of a project demonstrating agricultural non-point source (NPS) best management practices (BMP). Stream stage and precipitation (at one location) will be continuously logged every 5 minutes at the four locations. Discharge will also be measured at these locations.

1.4. SOLOMUN RUN DAM REMOVAL PROJECT

Staff will conduct a habitat survey upstream, downstream and at the old lowhead dam at Chatfield College to document any difference in habitat upstream and downstream from the dam in East Fork LMR.

Table 1. 2015 Sample Locations & Analytes.

Location	Sample ID	Field Parameters	Laboratory Parameters
Continuous Water Quality Monitoring Stations			
EFLMR RM 34.8 at Main St., 15 minutes continuous sensing & wet weather	EFRM34.8	level, discharge, precipitation, D.O., specific conductance, temperature, pH	TP, ortho-P, NH_3, NO_2, NO_3, TKN, SS
Grassy Fork RM 0.2 at Glancy Corner-Marathon Rd., 15 minute continuous sensing & wet weather	GRSSY0.2	level, precipitation, D.O., specific conductance, temperature, pH	TP, ortho-P, NH_3, NO_2, NO_3, TKN, SS
Stonelick Creek RM 0.9 at US 50., 15 minute continous sensing & wet weather	STEFLMR	level, precipitation	TP, ortho-P, NH_3, NO_2, NO_3, TKN, SS
Shayler Creek RM 1.7 at Baldwin Rd., 15 minute continous sensing & wet weather	SHYLR1.7	level, precipitation	TP, ortho-P, NH_3, NO_2, NO_3, TKN, SS
Ambient Water Quality Monitoring			
Poplar Creek RM 2.1 @ Macaedonia Rd.	POPLR2.1	D.O., specific conductance, temperature, pH	ortho-P, TP, NH_3, NO_2, NO_3, TKN, SS, TOC, *E.coli,* atrazine, simazine alachlor, glyphosate
EFLMR RM 70.1 at Wise Rd.	EFRM70.1	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP, NH_3, NO_2, NO_3, TKN, SS, TOC, *E.coli,* atrazine, simazine alachlor, glyphosate
EFLMR RM 75.3 at Canada Rd	EFRM75.3	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP, NH_3, NO_2, NO_3, TKN, SS, TOC, *E.coli,* atrazine, simazine alachlor, glyphosate
Dodson Creek RM 1.4 at St. Rt. 134	DODSN1.4	discharge, level, D.O., specific conductance, temperature, pH	ortho-P, TP, NH_3, NO_2, NO_3, TKN, SS, TOC, *E.coli,* atrazine, simazine alachlor, glyphosate
Agricultural Best Management Practice Monitoring			
Upstream of BMP	CWLUS	discharge, level	ortho-P, TP, NH3, NO2, NO3, TKN, SS, atrazine, simazine alachlor, glyphosate
influent to submerged vegetated bed	SVBINF	discharge, level	ortho-P, TP, NH3, NO2, NO3, TKN, SS, atrazine, simazine alachlor, glyphosate
effluent to submerged vegetated bed	SVBEFF	discharge, level	ortho-P, TP, NH3, NO2, NO3, TKN, SS, atrazine, simazine alachlor, glyphosate
Downstream of BMP	CWLBP	discharge, level	ortho-P, TP, NH3, NO2, NO3, TKN, SS, atrazine, simazine alachlor, glyphosate
Solomon Run Dam Removal Project			
Solomon Run @ St. Martin Reservoir	SOLMN2.9	QHEI	NA
Solomon Run DS of St. Rt. 251	SOLMN3.3	QHEI	NA
Solomon Run @ Brown County Inn Rd.	SOLMN4.1	QHEI	NA

2. POINT AND NONPOINT SOURCE ISSUES

Table 2 provides a summary of the point and nonpoint sources of pollution in the watersheds of each sampling location.

Table 2. Summary of point and nonpoint sources of pollution for each sampling location.

Sample ID	Figure No.	Point Source Issues	Non-Point Source Issues
Continuous Water Quality Monitoring Stations			
EFRM34.8	1	WWTPs	HSTS, urban stormwater, agriculture, livestock, wildlife
GRSSY0.2	2	N/A	agriculture, HSTSs, wildlife
STEFLMR	3	WWTPs, Stonelick Lake	HSTS, urban stormwater, agriculture, livestock, wildlife, golf club
SHYLR1.7	3	N/A	I/I, HSTS, urban stormwater, agriculture, wildlife
Ambient Water Quality Monitoring			
POPLR2.1	4	N/A	I/I, HSTS, urban stormwater, agriculture, wildlife
EFRM70.1	5	WWTPs	HSTS, agriculture, livestock, wildlife, quarries
EFRM75.3	6	WWTPs, Huhtamaki Plastics, WTP	HSTS, agriculture, wildlife, hog confinement facility
DODSN1.4	7	Quarry, WWTPs	HSTS, agriculture, livestock, wildlife, quarries
Agricultural Best Management Practice Monitoring			
CWLUS	8	N/A	agriculture, HSTSs, wildlife
SVBINF	8	N/A	agriculture, HSTSs, wildlife
SVBEFF	8	N/A	agriculture, HSTSs, wildlife
CWLBP	8	N/A	agriculture, HSTSs, wildlife
Solomon Run Dam Removal Project			
SOLMN2.9	9	WWTP	agriculture, HSTSs, livestock, wildlife
SOLMN3.3	9	N/A	agriculture, HSTSs, livestock, wildlife
SOLMN4.1	9	N/A	agriculture, HSTSs, livestock, wildlife

2.1. CONTINUOUS WATER QUALITY MONITORING STATIONS & WET WEATHER SAMPLING

OEQ will maintain water quality monitoring stations at four locations in the county. These stations will record stream level and rainfall at all five sites, and temperature, pH, specific conductance, and D.O. at the GRSSY0.2 & EFRM34.8 sites year-round, unless there is thick ice development, every 15 minutes. These data are then examined by OEQ personnel in an effort to identify any potential water quality issues in these watersheds. Data from these stations will be used to further understand source water protection issues and to monitor long term changes in water quality. Rainfall data from these stations will also assist in getting relevant hydrological data during the event based sampling study as well as support miscellaneous projects in the Clermont County Water Resources Department. OEQ hired USGS to operate a gaging station at EFRM34.8 to develop a rating curve and collect discharge measurements for the upper watershed and lake models. This data is published on the USGS website, but discharge measurements will be reported along with water quality data. Discrete, wet weather sampling may occur, as needed, at the EFRM34.8, SHYL1.7, GRSSY0.2 and STEFLMR sites for ammonia, nitrate, nitrite, total phosphorus, total kjeldahl nitrogen, and suspended solids (Table 1).

Table 2 summarizes the possible point and nonpoint sources of pollution in the watersheds of each sampling location. The site in the EFLMR at river mile 34.8 has a wide variety of point and nonpoint sources in the watershed as this site drains a catchment over 237 square miles. The East Fork LMR watershed upstream from this site is primarily rural and receives runoff from agriculture, livestock, and Home Sewage Treatment Systems (HSTSs). There is some urban storm water runoff from villages such as the Village of Williamsburg where the EFRM34.8 sampling site is located. The site in Grassy Fork receives runoff from row crop agriculture and may drain failing HSTSs. Shayler Creek is likely influenced from inflow and infiltration as a sewer lines runs through this stream in many locations. Land use in the Stonelick Creek watershed is primarily row crop agriculture with parts of the watershed transitioning from being rural to suburban in nature. The STEFLMR site is under the influence of agricultural contaminants and HSTSs. The village of Newtonsville has a dense concentration of HSTSs, many of which are failing. STEFLMR drains the village of Newtonsville and may receive elevated concentrations of nutrients and bacteria from that area. The Cedar Trace Golf Club is located in the Brushy Fork headwaters and could contribute contaminants associated with fertilizers to the STEFLMR site.

Point sources in the EFLMR upstream from river mile 34.8 include discharge from five WWTPs (New Vienna, Lynchburg, St. Martin, Fayetteville-Perry, and Williamsburg), one package WWTP (Snow Hill Country Club), and a water treatment plant (New Vienna). There are two WWTPs that discharge in the Stonelick Creek watershed. The Clermont Northeastern Local Schools WWTP discharges into the headwaters of Brushy Fork, influencing the STEFLMR site. The Stonelick State Park WWTP discharges into Stonelick Lake, which is upstream from STEFLMR. The Solomon Run site at river mile 2.9 is downstream from the Saint Martin WWTP There are no known point sources in the Grassy Fork, or Shayler Creek watersheds.

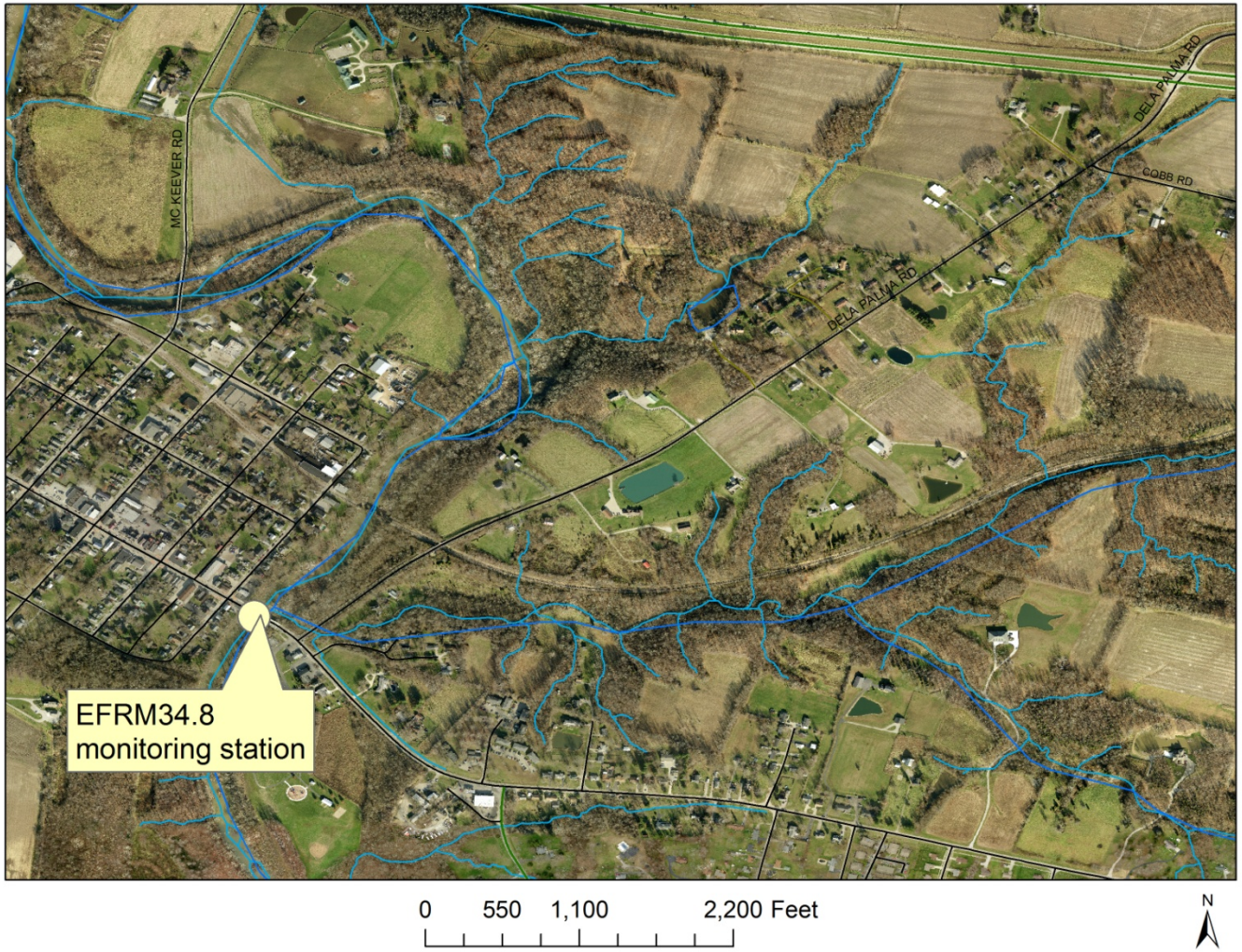


Figure 1

2015 Water Quality Monitoring Program
Continuous Water Quality Monitoring Stations

Figure 2

2015 Water Quality Monitoring Program
Continuous Water Quality Monitoring Stations

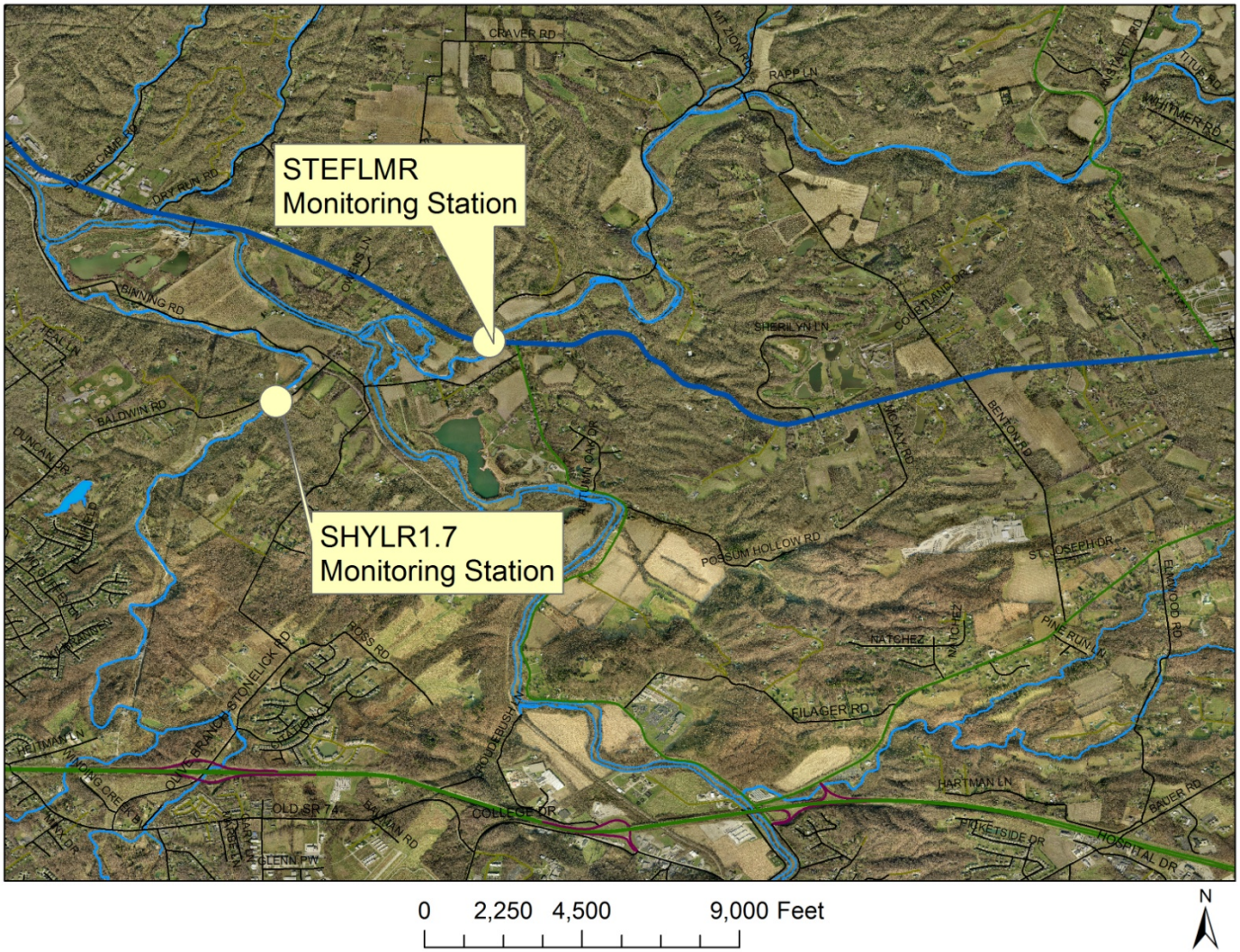


Figure 3

2015 Water Quality Monitoring Program
Continuous Water Quality Monitoring Stations

2.2. AMBIENT WATER QUALITY MONITORING

OEQ will collect biweekly grab samples from April through July at the mouth of four HUC 12 watersheds in the EFLMR (Table 2). This sampling design will aid in determining the source of any biological impairment identified in the upcoming TMDL and will help calibrate modeling efforts by the East Fork Water Quality Coordinators. The East Fork Water Quality Coordinators are combining efforts to identify how source water protection would impact water quality in the watershed and the economics of drinking water treatment and recreational use in Harsha Lake. Ambient sampling sites are shown in Figures 4 – 7. Table 2 summarizes the possible point and nonpoint sources of pollution in the watersheds of each sampling location.

Poplar Creek drains a predominantly agricultural/rural watershed where the majority of households use HSTSs to treat their waste. Poplar Creek drains the village of Bethel which is sewered and may contribute contaminants associated with inflow and infiltration (I/I). There are no NPDES permits in the watersheds of Poplar Creek.

Sites located within the main stem of the East Fork of the Little Miami River (EFRM75.3, EFRM70.1) upstream of Harsha Lake have a wide variety of point and nonpoint sources in the watershed as these sites drain catchments over 80 square miles. Table 2 summarizes the possible point and nonpoint sources of pollution in the watersheds of each sampling location. The upper East Fork watershed is primarily rural and receives runoff from agriculture, livestock, and Home Sewage Treatment Systems (HSTS). The Pork Champs hog confinement facility located on Rapid Ford Road drains is in the watershed of the EFRM75.3 site. This site is reported to have a nutrient management plan; however, may still be a significant source of pollutant loads to the East Fork LMR.

Point sources in the upper EFLMR watershed include discharge from three WWTPs (New Vienna, Lynchburg, St. Martin), one package WWTP (Snow Hill Country Club), and a water treatment plant (New Vienna). The EFRM75.3 drains the New Vienna WTP & WWTP as well as the Huhtamaki Plastics Industry which discharges cooling water to the river.

Figure 4

2015 Water Quality Monitoring Program
Ambient Water Quality Monitoring

Figure 5

2015 Water Quality Monitoring Program
Ambient Water Quality Monitoring

Figure 6

2015 Water Quality Monitoring Program
Ambient Water Quality Monitoring

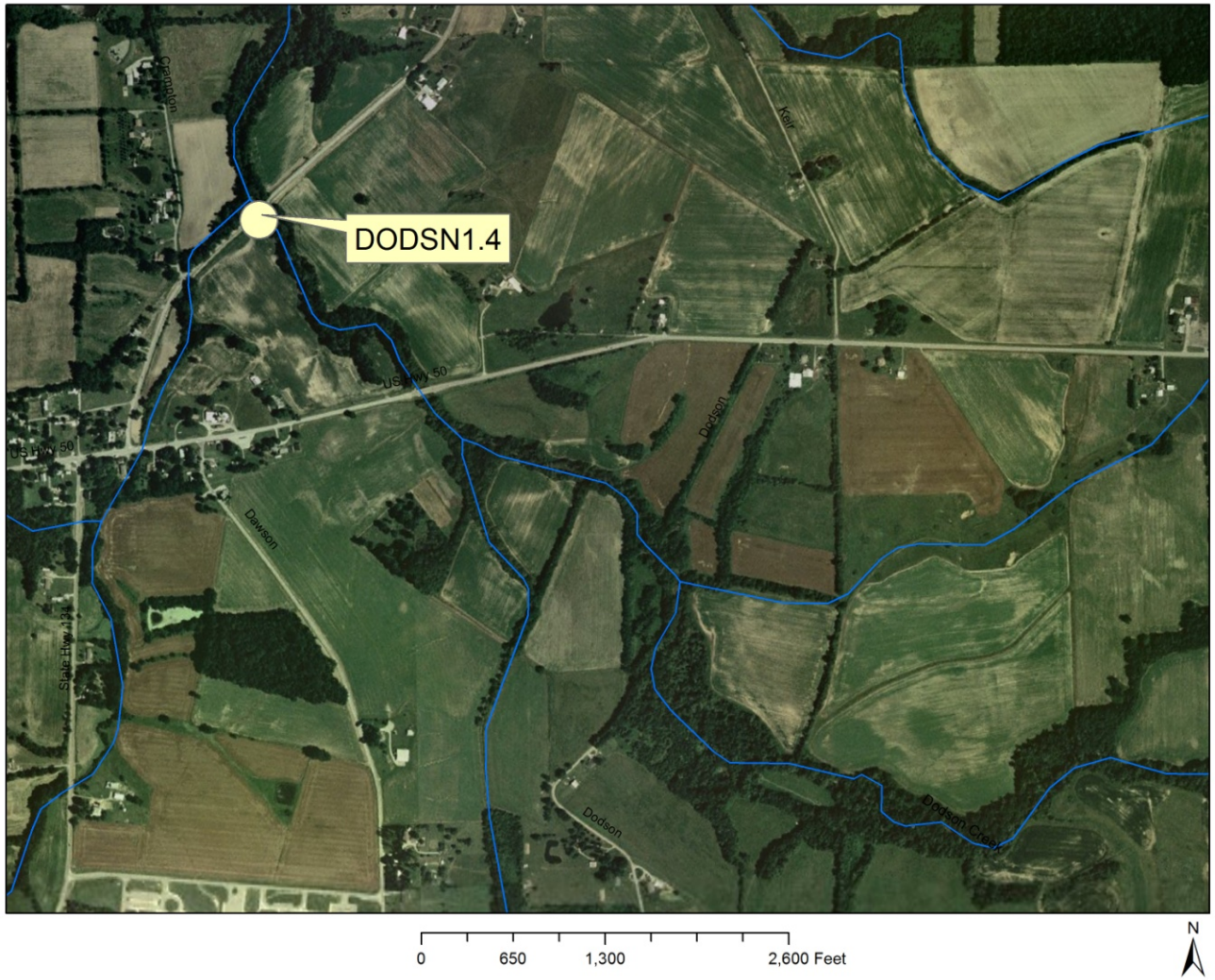


Figure 7

2015 Water Quality Monitoring Program
Ambient Water Quality Monitoring

2.3. AGRICULTURAL BEST MANAGEMENT MONITORING

OEQ, in collaboration with the East Fork Water Quality Coordinators group is measuring the effectiveness of an innovative agricultural BMP in the Grassy Fork watershed, in an attempt to measure the economics of using BMPs to improve water quality on a scale large enough to improve drinking water treatability and recreational quality in Harsha Lake. The four monitoring stations (Figure 8) will record stage at all four sites and rainfall at one site every 5 minutes. Discharge measurements will be conducted in an attempt to develop rating curves for the two open channel sites (CWLUS & CWLBP). Area-velocity meters are being used to calculate discharge in the piped locations (SVBINF & SVBEFF). Discharge data will be used to calculate pollutant loads entering and leaving the system. Rainfall data will assist in getting relevant hydrological data during the event based sampling study. Flow or time paced, wet weather sampling and ambient sampling will occur at the four locations.

Grassy Run has a predominantly agricultural land use and therefore receives runoff from row-crops and any failing HSTSs. There are no known point sources of pollution in the Grassy Fork watershed.

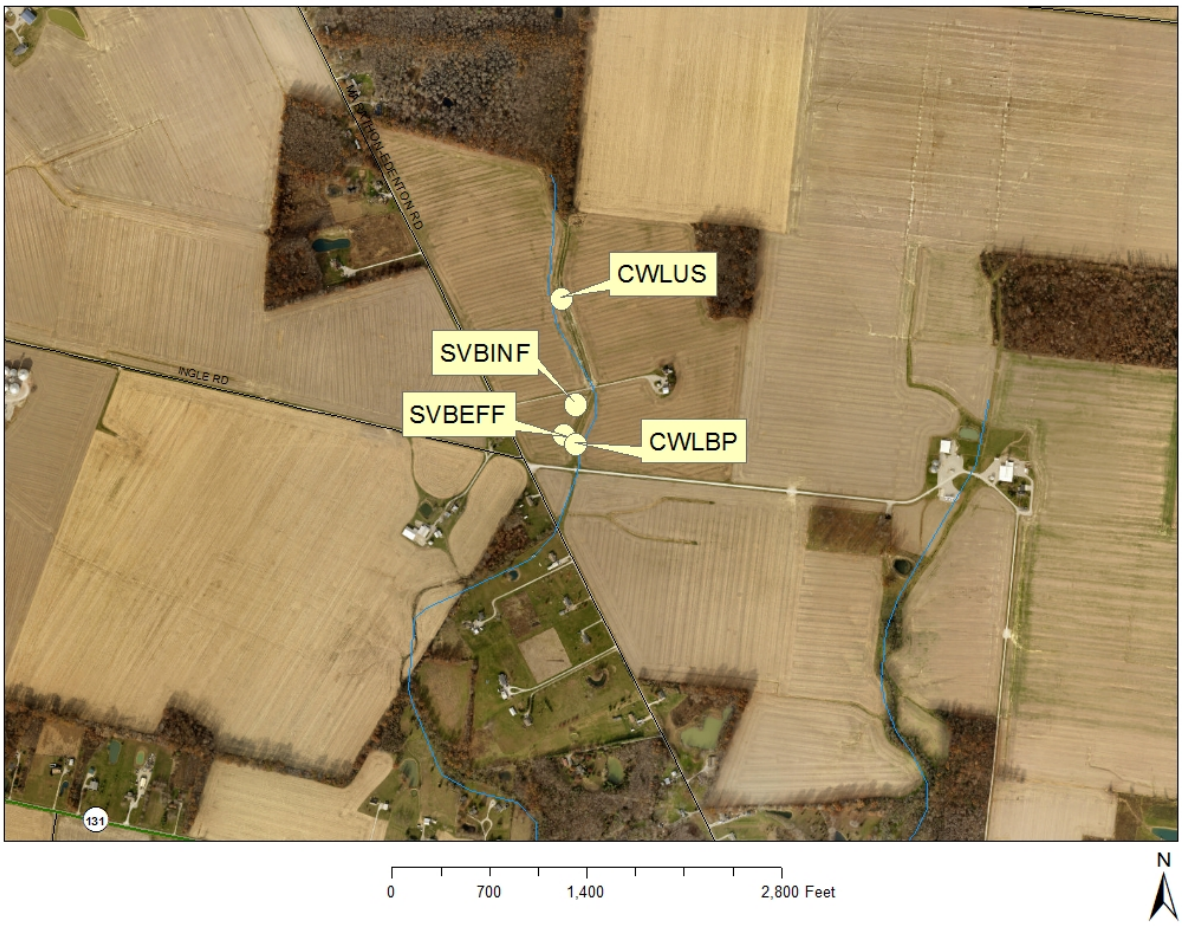


Figure 8

2015 Water Quality Monitoring Program
Agricultural BMP Monitoring

2.4. SOLOMON RUN DAM REMOVAL PROJECT

The East Fork LMR Watershed Collaborative funded the removal of the dam on Solomon Run in St. Martin; monitoring locations are shown in Figure 9. Solomon Run is being assessed to identify any habitat improvements resulting from the removal of the Chatfield College lowhead dam on instream habitat. Table 2 summarizes the possible point and nonpoint sources of pollution in the watershed of these sampling locations.

The Solomon Run watershed is primarily rural and receives runoff from agriculture, livestock, and Home Sewage Treatment Systems (HSTSs). The Solomon Run site at river mile 2.9 is downstream from the Saint Martin WWTP.

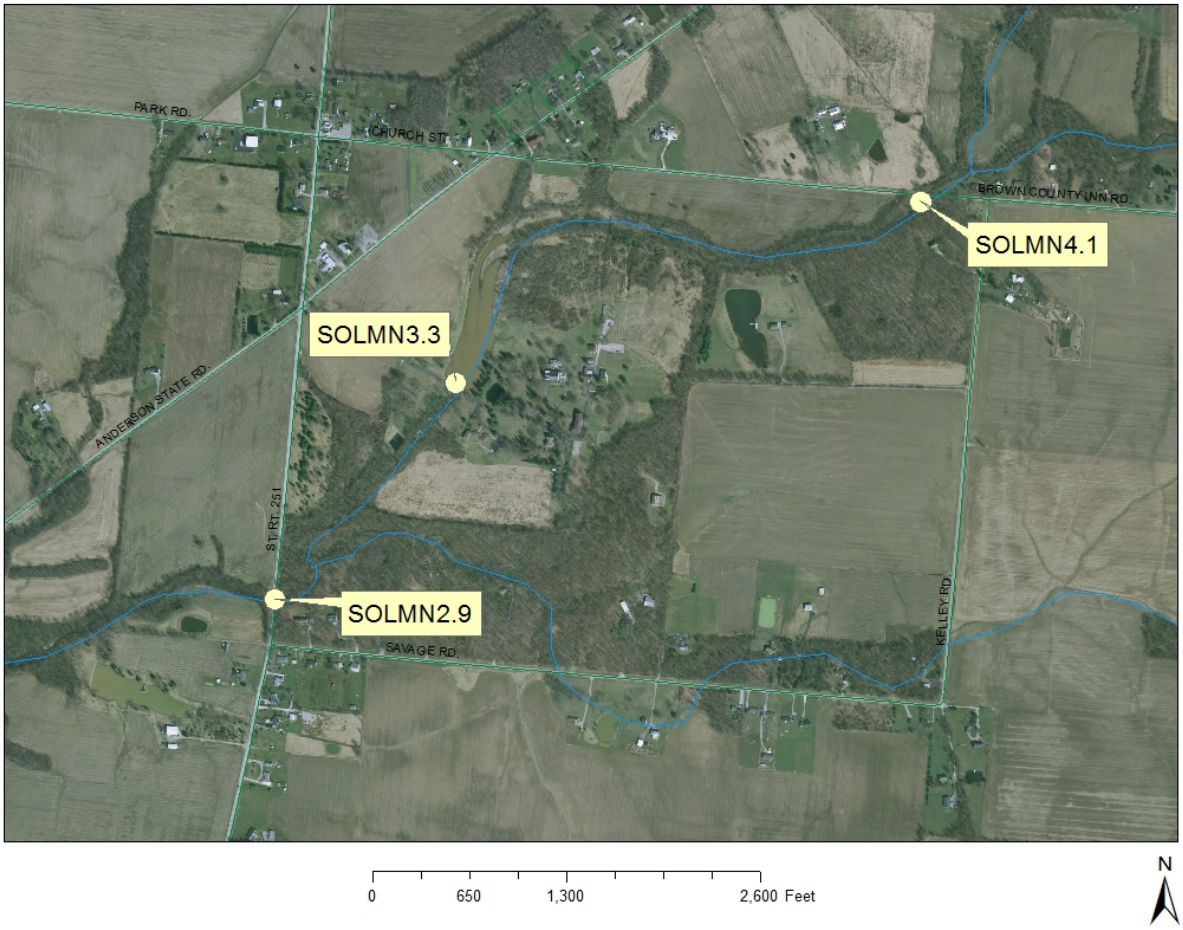


Figure 9

2015 Water Quality Monitoring Program
Habitat Assessment

3. PARAMETERS FOR EACH SAMPLING LOCATION

A list of field measurements and analytes for each sampling location is presented in Table 1.

4. IDENTIFICATION OF FIELD AND LABORATORY METHODS

Standard Operating Procedure (SOP) documents have been developed for all of the field sampling and data collection activities associated with this study. These SOPs are included in Appendices B, C, D, & E of this Study Plan, along with a Quality Assurance Plan that lists all of the analytical methods used by the contract laboratory, including detection limits (Appendices A, D, & E). Field measurements and sample collection techniques were developed in accordance with the "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices". Level and discharge measurements, along with rating curve development, will be conducted according to USGS manual "Measurement and Computation of Streamflow" (water supply paper 2175). Habitat assessments conducted will follow Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (Ohio EPA, 2006).

The Clermont County Wastewater laboratory, which is also responsible for NPDES permit testing for all of the County's Waste Water Treatment Plants, will be analyzing ortho-phosphorus, total phosphorus suspended solids, *E. coli*, ammonia, nitrite, and nitrate samples. Pace Analytical, Englewood, Ohio is accredited by the New Jersey Department of Environmental Protection NELAC Program (See QAP in Appendix D), and will be analyzing TOC, DOC, and TKN. Additionally, In the event the wastewater laboratory is short staffed or have an abnormally high work load, NO2NO3 and total phosphorus testing may be sent out to Pace for analysis. Summit Environmental Testing Laboratories, Cuyahoga Falls, Ohio (See QAP in Appendix E), will be analyzing for glyphosate, alachlor, atrazine, and simazine and is certified for these parameters by Ohio EPA. All laboratories have a complete set of SOPs on file for all laboratory procedures (Clermont SOP: Appendix B; Pace QAM/SOP: Appendix D; Summit QAM/SOP: Appendix E). Analytical procedures were developed from either the 18th, 20th or 22nd Edition of the Standard Methods for the Examination of Water and Wastewater, Methods for Chemical Analysis of Water and Waste (USEPA, 1983), or Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (USEPA 2008).

5. EXPLANATION OF PLANNED SAMPLING LOCATIONS

A detailed explanation of planned sampling locations for 2015 is provided in Section 2 and Table 3. Detailed maps of the sampling locations are provided in Figures 1 – 9. Georeferencing data, i.e. boundaries for each map (north and south latitudes and east and west longitudes) are provided in Table 4. Figure 10 is a map of the scale in Figures 1 – 9.

Table 3. Georeferencing Data for Sampling Locations in The East Fork Little Miami River, HUC 05090202.

Sample ID	Figure No.	Point Source Issues	Non-Point Source Issues
Continuous Water Quality Monitoring Stations			
EFRM34.8	1	WWTPs	HSTS, urban stormwater, agriculture, livestock, wildlife
GRSSY0.2	2	N/A	agriculture, HSTSs, wildlife
STEFLMR	3	WWTPs, Stonelick Lake	HSTS, urban stormwater, agriculture, livestock, wildlife, golf club
SHYLR1.7	3	N/A	I/I, HSTS, urban stormwater, agriculture, wildlife
Ambient Water Quality Monitoring			
POPLR2.1	4	N/A	I/I, HSTS, urban stormwater, agriculture, wildlife
EFRM70.1	5	WWTPs	HSTS, agriculture, livestock, wildlife, quarries
EFRM75.3	6	WWTPs, Huhtamaki Plastics, WTP	HSTS, agriculture, wildlife, hog confinement facility
DODSN1.4	7	Quarry, WWTPs	HSTS, agriculture, livestock, wildlife, quarries
Agricultural Best Management Practice Monitoring			
CWLUS	8	N/A	agriculture, HSTSs, wildlife
SVBINF	8	N/A	agriculture, HSTSs, wildlife
SVBEFF	8	N/A	agriculture, HSTSs, wildlife
CWLBP	8	N/A	agriculture, HSTSs, wildlife
Solomon Run Dam Removal Project			
SOLMN2.9	9	WWTP	agriculture, HSTSs, livestock, wildlife
SOLMN3.3	9	N/A	agriculture, HSTSs, livestock, wildlife
SOLMN4.1	9	N/A	agriculture, HSTSs, livestock, wildlife

Table 4. Georeferencing Data for Figures.

site	North	South	East	West
	Decimal Degrees	Decimal Degrees	Decimal Degrees	Decimal Degrees
Figure 1	39.065	39.048	-84.031	-84.055
Figure 2	39.196	39.128	-83.983	-84.037
Figure 3	39.148	39.080	-84.141	-84.237
Figure 4	38.986	38.964	-84.091	-84.114
Figure 5	39.229	39.211	-83.8	-83.83
Figure 6	39.293	39.270	-83.767	-83.791
Figure 7	39.211	39.194	-83.787	-83.817
Figure 8	39.193	39.170	-83.998	-84.028
Figure 9	39.220	39.203	-83.871	-83.903
Figure 10	39.366	38.884	-83.586	-84.45

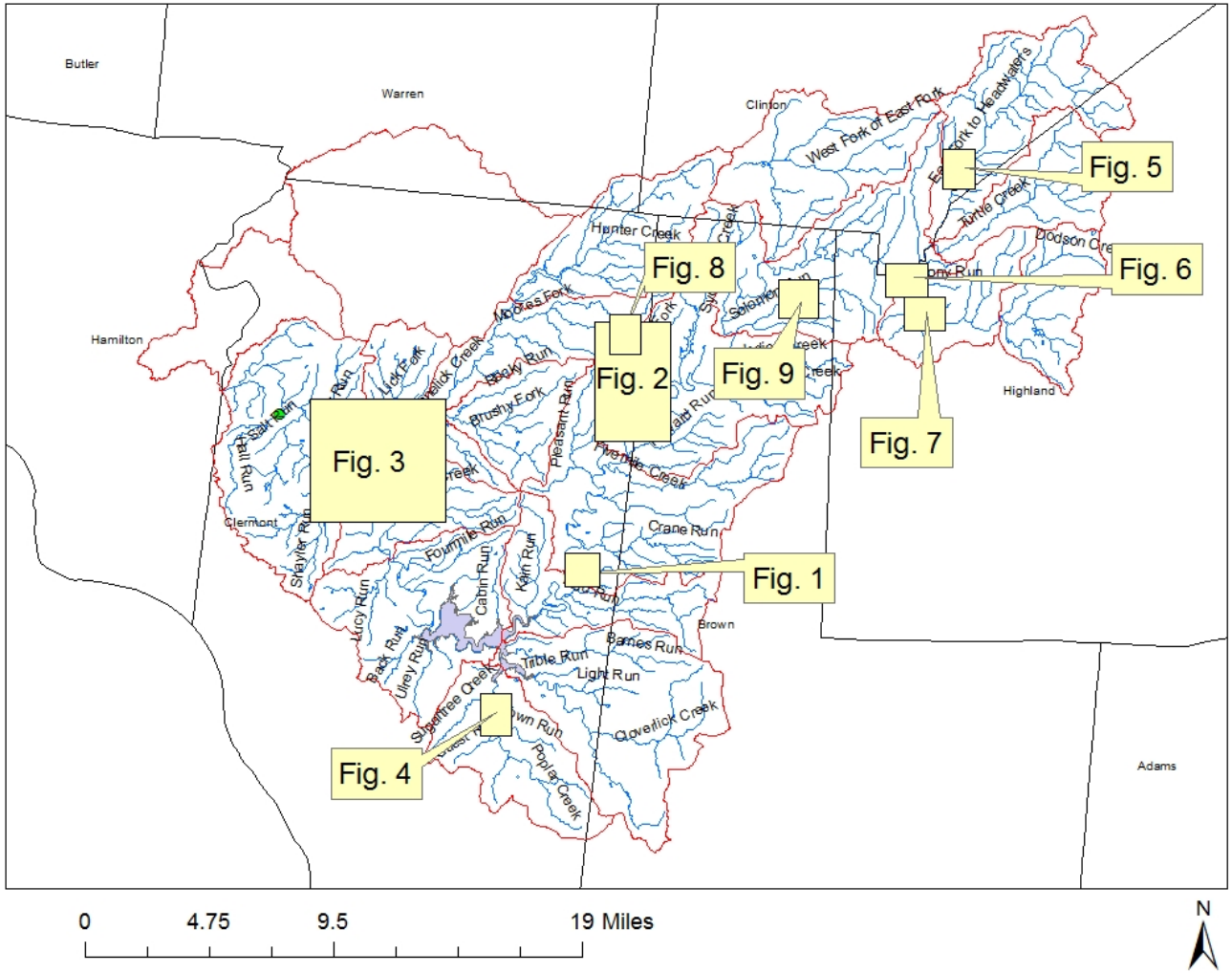


Figure 10.

Water Quality Monitoring Program
Continuous Monitoring Stations, Wet Weather Sampling, Ambient Sampling, & Grassy Fork Monitoring

5.1. CONTINOUS WATER QUALITY MONITORING STATIONS & WET WEATHER SAMPLING

The monitoring station located on the EFLMR at river mile 34.8 was owned and operated by the United States Geological Survey prior to its use by OEQ. This location is close to the inflow at East Fork Lake and represents a large portion of the loading to the lake, making it an ideal source water monitoring location. Grassy Fork was chosen as a representative agricultural watershed for source water monitoring and will also be identified as a target watershed in applications for Conservation Reserve Enhancement Programs and Environmental Quality Incentives Programs. The County hopes to observe water quality improvements in Grassy Fork as BMPs are applied in the watershed. The Shayler Creek station was sited because it represents an urban watershed with sewer inflow and infiltration issues. Stonelick Creek was sited because it is a major tributary to the EFLMR and it represents a primarily rural/suburban watershed with mostly HSTS as the wastewater treatment method.

5.2. AMBIENT SAMPLING

OEQ placed some of the ambient sampling locations near the mouths of HUC 12 watersheds in anticipation of the TMDL monitoring conducted by OEPA. These sites were selected based on watershed characteristics, historical use attainment, and/or the existence of historical data. POPLR2.1 was chosen because has a mixed forested/residential land use with no NPDES permits except for Harsha Lake in the EFLMR site. Sampling at POPLR2.1 is continuing to document any changes in water quality that could be associated with the United States Department of Agriculture's Asian Longhorned Beetle Cooperative Eradication Program. DODSN0.1 was chosen because it is designated an exceptional warmwater habitat (EWH) and lacks any hog confinement facilities. EFRM70.1 and EFRM75.3 were chosen to represent the EFLMR headwaters and agricultural sites. EFRM70.1 is downstream from Lynchburg's WWTP while EFRM75.3 is upstream from the WWTP yet drains a hog confinement facility.

5.3. AGRICULTURAL BEST MANAGEMENT PRACTICE MONITORING

Clermont County chose Grassy Fork as a watershed test-bed or demonstration project for agricultural best management practices for a variety of reasons. It is geologically similar to other agricultural tributaries to the EFLMR, the watershed lies mostly within Clermont County, and OEQ observed high nutrient concentrations in Grassy Fork in 2009. GRSSY0.2 was chosen as the outlet from the watershed to the EFLMR and is the home to a continuous monitoring station.

In 2012 an Agricultural Best Management Practice (AgBMP) was constructed to remove nitrogen and some phosphorus from a small drainage. Water quality is sampled at four points in the AgBMP: water flows into the AgBMP detention basin and is sampled at the upstream site, CWLUS. The water is held in a detention basin for 24 hours, then is diverted to the submerged vegetated bed for nitrogen removal. Sampling occurs at the inflow (SVBINF) and outflow (SVBEFF) of the vegetated bed. During a >1" storm, water bypasses the vegetated bed via a check dam and flows through the bypass channel. Sampling ocurrs below the outflow of the vegetated bed and the bypass channel at CWLBP. These four sampling locations will allow us to determine nutrient removal from the vegetated bed alone and from the entire system.

5.4. SOLOMON RUN DAM REMOVAL PROJECT

The low head dam at Chatfield College was removed to reestablish the natural hydrology of the stream, improve the biological quality of the river, and enhance the connectivity of Solomon Run. Habitat assessments will be conducted in 200 meter reaches upstream and downstream of the former location of the lowhead dam as well as

in the restored section of stream immediately upstream of the old dam, to determine what impact the dam removal project had on instream habitat.

6. SCHEDULE OF PLANNED SAMPLING ACTIVITIES

6.1. CONTINOUS WATER QUALITY MONITORING STATIONS & WET WEATHER SAMPLING

OEQ will maintain water quality monitoring stations at four locations in the county. These stations each contain an ISCO Model 4220 Flow Meter with a submerged pressure transducer to measure stream level and a tipping bucket rain gage. OEQ will also have YSI 600-series datasondes deployed at GRSSY0.2 & EFRM34.8 to measure temperature, pH, specific conductance, and D.O. The flow meter is programmed to collect these data every 15 minutes. All data from the station are downloaded biweekly via telephone modem to a computer using ISCO's Flowlink software. The data are then examined by OEQ personnel in an effort to identify any potential water quality issues in these watersheds.

The monitoring stations have ISCO refrigerated auto-samplers (model 6700 FR or 6712 FR) which can be triggered by the flow meter to sample when water level reaches a certain height. Each location will be programmed to sample when water level increases by an amount characteristic of a 0.5" or greater rain storm. This sampler "enable" level will be different for each station and will fluctuate throughout the year depending on the current water level or base flow conditions. This "enable" trigger will be modified monthly during autosampler inspections. The autosampler will be programmed to collect separate samples representing the rising limb, peak flow, and falling limb of the hydrograph for each site. Samples will be collected at any time during the year, pending wet weather conditions being met. The number of wet weather events sampled per year will vary depending on data necessity, lab personnel availability, and weather conditions.

6.2. AMBIENT SAMPLING

Beginning April 1st through July 31st, OEQ will conduct biweekly sampling at POPLR2.1, EFRM70.1, EFRM75.3, & DODSN1.4 (Table 1). Samples will be analyzed for the parameters identified in Table 1. Glyphosate, alachlor, atrazine, and simazine will only be tested between April and June (dependent on management practices and weather) sampling events. After each grab sample has been collected, cross sections, stream level, and velocity will be measured, where possible and necessary, in each sampling location.

6.3. AGRICULTURAL BEST MANAGEMENT PRACTICE MONITORING

There are four water quality monitoring stations on Cornwell's farm where the AgBMP is located. These stations each contain either an Avalanche sampler with 720 flow module, or a 6700 portable autosampler with 720 flow module and a 2150 area-velocity meter. The 720 pressure transducers give us level when the water depth is below 1". The site at CWLUS has a tipping bucket rain gage. The flow meters and autosamplers are programmed to collect stage, discharge and rainfall data every 5 minutes. All data from the station are downloaded biweekly directly or via a cellular modem to a computer using ISCO's Flowlink software. The data will then be used to schedule sampling events or calculate nutrient loads.

The monitoring stations have ISCO auto-samplers (model 6712 Avalanche or 6700) which can be triggered by the flow meter to sample programmed thresholds of discharge, stage or rainfall have been exceeded. Each sampler

will be programmed to trigger during a rain event. This sampler "enable" threshold will be different for each station and will fluctuate throughout the year depending on the current water level or base flow conditions. This "enable" trigger will be modified monthly during autosampler inspections and/or directly before an expected rain event. The autosampler will be programmed to collect separate samples representing the rising limb (when bypass is not active), peak flow (when bypass is active), and falling limb (bypass is not active) of the hydrograph for each site. Samples will be collected at any time during the year, pending wet weather conditions being met. Staff is targeting five wet weather events but the number of events sampled per year will vary depending on data necessity, lab personnel availability, and weather conditions.

Ambient monitoring will be conducted as needed at the sites (Table 1) year round to capture influences of agricultural cover crops on water quality. Ambient monitoring would likely take place during the wet season as the system dries up during the dry season. Samples will be analyzed for the parameters identified in Table 1. Glyphosate, alachlor, atrazine, and simazine will only be tested in April-June (dependent on management practices and weather). Discharge measurements will be made as necessary for the discharge rating curve.

6.4. SOLOMON RUN DAM REMOVAL PROJECT

Habitat assessment will occur during summer low flow conditions, between June and September 30th, according to OEPA protocol.

7. QUALITY ASSURANCE/QUALITY CONTROL PLAN OR MANUAL

A detailed Quality Assurance Plan for OEQ, which applies to all chemical and physical sampling and all analytes being processed in the Clermont County Wastewater Lab, is included in Appendix A of this Study Plan. A QAP for Pace Analytical, which covers samples being analyzed for TOC, NO2NO3 and TKN, is included in Appendix D. The NELAC accreditation expires on June 30th, 2015, before the end of scheduled sampling activities for Clermont County. Clermont County will monitor NELAC certification status and obtain renewed certifications once they become available. A QAP for Summit labs, which covers samples being analyzed for glyphosate, alachlor, atrazine, and simazine, is included in Appendix E.

8. WORK PRODUCTS

Data collected in the Grassy Fork watershed will be summarized in a final report upon the closing of the Conservation Innovation Grant. Interpretation of Clermont County's 2015 sampling program will be presented in semi-monthly water quality meetings held by the East Fork Water Quality Cooperative. The presentations are then posted on the OEQ website (www.oeq.net). Copies of these presentations will be submitted to OEPA upon request and most data will be entered into the Credible Data database. Exceptions to database entry include continuous (15 minute interval) monitoring data. Eventually, data from the 2015 sampling may be used in conjunction with other data in the development of models in the East Fork Watershed.

9. LIST OF QUALITY DATA COLLECTORS AND OTHER PERSONNEL

Hannah Lubbers, Project Manager for the Clermont County Office of Environmental Quality, has been certified by the Ohio EPA as a Level 3 Quality Data Collector (QDC) for Chemical Water Quality Assessment (QDC No. 274), effective December 31, 2012. She will also be responsible for all data collection activities associated with Clermont County's 2015 sampling program, either by personally collecting samples or supervising those individuals involved in sample collection activities. These individuals may include personnel from the Clermont County Soil and Water Conservation District, the Clermont County Sewer District Laboratory, the Clermont County General Health District, and/or the Clermont County Stormwater Department. Contact information for Ms. Lubbers is provided below:

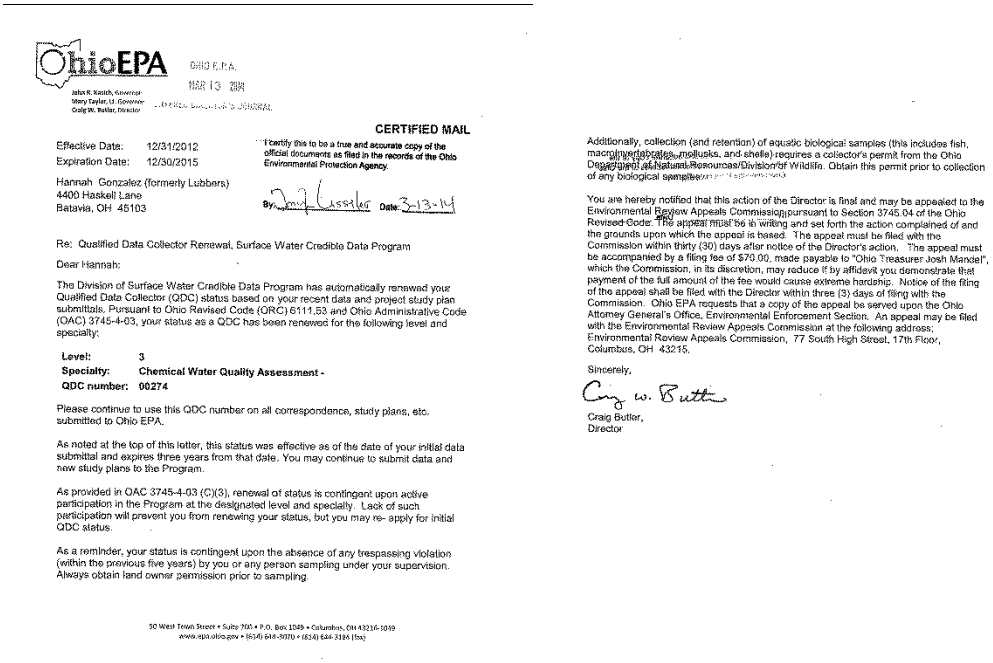
Hannah Lubbers, Project Manager
Clermont County Office of Environmental Quality
4400 Haskell Lane
Batavia, Ohio 45103
Phone: (513) 732-7894
Email: hlubbers@clermontcountyohio.gov

Supervision of non-Level 3 QDCs will include the following:

- A thorough review of the Project Study Plan and the sampling locations prior to any sample collection activities. Each sample site will be visited once before sampling by both the Level 3 QDC project manager and any non-level 3 QDC sample collectors.
- A thorough review of all relevant Standard Operating Procedures and Ohio EPA references by the Level 3 QDC project manager with any non-level 3 QDC sample collectors prior to any sample collection activities
- Training of the non-level 3 QDCs by the Level 3 QDC project manager in the use of all sampling equipment, including, but not limited to, the YSI data sondes and current meter prior to any sample collection activities. One training will be conducted in the office and one in the field.
- Direct supervision by the Level 3 QDC project manager of the individual's initial sample collection activities during the first sample round to ensure compliance with the SOPs and Study Plan.

10. DOCUMENTATION OF LEVEL 3 QDC STATUS

Figure 11 is a copy of the certified letter from OEPA Director Craig Butler to Hannah Lubbers approving her as a Level 3 Quality Data Collector for Stream Chemical Water Quality Assessment.



OhioEPA

OHIO E.P.A.
MAR 13 2014
CERTIFIED MAIL

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

Effective Date: 12/31/2012
Expiration Date: 12/30/2015

Hannah Gonzalez (formerly Lubbers)
4400 Haskell Lane
Batavia, OH 45103

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: [signature] Date: 3-13-14

Re: Qualified Data Collector Renewal, Surface Water Credible Data Program

Dear Hannah:

The Division of Surface Water Credible Data Program has automatically renewed your Qualified Data Collector (QDC) status based on your recent data and project study plan submittals. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, your status as a QDC has been renewed for the following level and specialty:

Level: 3
Specialty: **Chemical Water Quality Assessment -**
QDC number: **00274**

Please continue to use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status was effective as of the date of your initial data submittal and expires three years from that date. You may continue to submit data and new study plans to the Program.

As provided in OAC 3745-4-03 (C)(3), renewal of status is contingent upon active participation in the Program at the designated level and specialty. Lack of such participation will prevent you from renewing your status, but you may re- apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain land owner permission prior to sampling.

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049
www.epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

Additionally, collection (and retention) of aquatic biological samples (this includes fish, macroinvertebrates, mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of any biological samples.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00, made payable to "Ohio Treasurer Josh Mandel", which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 77 South High Street, 17th Floor, Columbus, OH 43215.

Sincerely,

Craig W. Butler

Craig Butler,
Director

Figure 11.

Documentation for Level 3 Qualified Data Collector
Lubbers: Chemical Water Quality Assessment

11. IDENTIFICATION OF CONTRACT LABORATORIES

2015 Ortho-phosphorus, total phosphorus, *E. coli*, suspended solids, ammonia, nitrite, and nitrate analyses will be performed by the Clermont County Water and Sewer District laboratory, under the supervision of Mrs. Shannon Risner.

Shannon Risner, Laboratory Manager
Clermont County Water and Sewer District
1003 U.S. Route 50
Milford, Ohio 45150
Phone: (513) 965-4800
Email: srisner@clermontcountyohio.gov

The analyses for TOC and TKN will be conducted by Pace Analytical. TOC, NO2NO3, and TKN analysis will be conducted under the supervision of the Wet Chemistry Supervisor, Jordan Harris.

Pace Analytical Services, Inc
25 Holiday Drive
Englewood, Ohio 45322
Phone: (937) 832-8242 ext. 28
Fax: (937) 832-2868

The analyses for glyphosate, alachlor, atrazine, and simazine will be conducted by Summit Environmental Testing Laboratories under the supervision of the Technical Director, John Troost.

Summit Environmental Testing Laboratories
3310 Win Street
Cuyahoga Falls, Ohio 44223
Phone: (330) 253-8211
Fax: (330)253-4489

12. PERMIT

Not Applicable

13. DIGITAL PHOTO CATALOG

A digital photo catalog of all sampling locations will be maintained for ten years including photos of the specific sampling location, riparian zone adjacent to the sampling location, and general land use in the immediate vicinity of the sampling location. See Figure 12 for certification letter.

14. VOUCHER SPECIMENS

Not Applicable

15. STATEMENT REGARDING CRIMINAL TRESPASSING

Mrs. Lubbers has not been convicted of or pleaded guilty to a violation of section 2911.21 of the Revised Code (criminal trespass) or a substantially similar municipal ordinance within the previous five years. See Figure 12 for the criminal trespassing statement.

CLERMONT COUNTY OHIO

BOARD OF COUNTY COMMISSIONERS
ROBERT L. PROUD • EDWIN H. HUMPHREY • DAVID H. UIBLE

WATER RESOURCES DEPARTMENT

March 28th, 2015

Ohio EPA, Division of Surface Water
Standards and Technical Support Section
P.O. Box 1049
122 S. Front Street
Columbus, Ohio 43216-1049

Dear Mr. Reynolds,

The purpose of this letter is to fulfill the requirements outlined in Appendix A of Section 3745-4-06 (13), (14), (15), (16), & (17) of the Ohio Administrative Code describing the requirements of a Level 3 Study Plan.

This letter certifies that:

13. The Clermont County Office of Environmental Quality will create a digital photo catalog of all sampling locations in its Project Study Plan, and maintain that catalog for ten years. The catalog will include photos of the specific sampling location, riparian zone adjacent to the sampling location, and general land use in the vicinity of the sampling location.
14. No macroinvertebrate or fish data is being collected as part of this study
15. Ms. Lubbers will maintain and make available to the director, for each sampling location, the name of the water body sampled, the sampling location latitude and longitude, the sampling location river mile where possible or practicable, general location information, the USGS HUC 8 number and name, and the purpose for data collection at each sampling location.
16. Ms. Lubbers is the lead qualified data collector for this study and is approved for all project data types.
17. Ms. Lubbers has never been convicted of or pleaded guilty to a violation of Section 2911.21 of the Ohio Revised Code (criminal trespass) or a substantially similar municipal ordinance.

Sincerely,

Hannah Lubbers, Project Manager
Clermont County Office of Environmental Quality

513.732.7970 4400 Haskell Lane Batavia, OH 45103 www.ClermontCountyOhio.gov

Figure 12

Lubbers Trespassing and Digital Photo Catalog Certification Letter