PORTAGE COUNTY HEALTH DEPARTMENT

STORM WATER PROGRAM

2014 ILLICIT DISCHARGE DETECTION AND ELIMINATION ANNUAL REPORT

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Introduction

This annual report documents the implementation and current status of the Portage County Combined General Health District's (PCCGHD) Storm Water Program. This is in accordance with the tenant of the contractual agreement between PCCGHD and the Portage County Board of Commissioners (PCBC) to execute part of the requirements of the Portage County Storm Water District program. The purpose of this report is to offer a succinct compilation of all PCCGHD Storm Water Program's activities, analysis and achievements in 2014. Furthermore, it will help the Portage County Storm Water District to fulfill its Ohio Environmental Protection Agency's (Ohio EPA) annual report submission requirement for the Storm Water Permit Program with the objective of achieving sustainable water quality.

2014 Action Plan

PCCGHD Storm Water Program's 2014 action plan consisted of the following components:

1. To work with all institutions involved in the program, namely Portage County Commissioners (PCC), Portage County Engineer's Office (PCEO), Portage County Soil and Water Conservation District (SWCD). In addition, build on the working relationships with townships, villages, and the citizens for their cooperation to ensure the program's success.

2. Ensure that PCCGHD personnel involved in the program were adequately trained through continuous education to detect and identify failing household sewage treatment systems (HSTS) and illicit discharges. Training will include the use of necessary sampling and mapping equipment such as: water quality testing equipment, Global Positioning System (GPS) units and Geographical Information System (GIS) software for data collection and mapping. Furthermore, staffs will be trained on the design requirements for HSTSs and the monitoring requirements to determine a public health nuisance and the installation of replacement systems.

3. Establish an official written Illicit Discharging Sewage Systems Policy.

4. Continue to compile, organize, and investigate the scope of potential illicit discharges. Research a portion of the PCCGHD HSTS files, note potential failing discharges and compile information received from villages, townships, county engineer, SWCD, and the general public.

5. Update the existing comprehensive database of suspected and reported illicit discharges to be utilized in the execution of field work, documentation and reporting.

6. Accept, record, and compile sewage nuisance complaints from, villages, townships, government entities, and residents. Investigate complaints and perform dye testing to confirm public health nuisances and illicit discharges. Issue notices of violation, as necessary, to obtain compliance.

7. Gather information from Portage County SWCD regarding discharges that were not from HSTS. Assist SWCD (when requested) with training of village, township, and municipal employees, as well as the development of educational materials, public announcements, and information for homeowners.

8. Map storm water outfall points from GPS spatial data collected by SWCD.

A significant amount of time will be spent in the field locating, identifying, and investigating possible illicit discharges through random inspection of HSTS, nuisance complaints, and home transfer inspections. These on-going field activities will be prioritized in the following manner:

1. Upon receipt of a nuisance complaint alleging suspected illicit discharge from residents, townships, or municipal entities, PCCGHD will investigate, confirm with dye testing, issue a notice of violation and, if necessary, begin action to enforce correction.

2. Inspections of HSTS for real property transfer are performed in a timely manner upon request. Property owner(s) of any illicit discharging system detected during the inspection are informed by a notice of violation to correct the violation. If necessary, action to enforce correction will start after six (6) months.

3. Routinely evaluate sites for confirmation of suspected illicit discharges recorded in the PCCGHD database by knocking at doors to request permission to inspect the entire property to locate and examine the illicit discharging points.

    a. If the owner is home and grants permission, Storm Water Program Staff will conduct an inspection.

        i. If a suspected illicit discharge is located, permission is requested to conduct a dye test.

        ii. If permitted to conduct a dye test, staff proceeds with the test.

        iii. If an illicit discharge is confirmed, staff follows the enforcement procedure mentioned above.

    b. If the owner refuses permission to inspect the property or to dye test, apply for a search warrant to conduct the inspection and dye test.

    c. If no one is home, use PCCGHD's right of inspection, granted by the original sewage system permit on file, to inspect the property for the illicit discharge.

        i. If no illicit discharge is observed, record it in the Storm Water Program database.

        ii. If an illicit discharge is observed, contact the owner to schedule dye testing as soon as possible.

4. During inspections of suspected illicit discharges on file, any other unrelated potential illicit discharges that are discovered will be investigated.

5. After all discharges in PCCGHD sewage permit files have either been confirmed or eliminated as illicit discharges, Storm Water Program Staff will visually search all road ditches in the Storm Water District for possible undiscovered illicit discharges.

6. Finally, staff members obtain GPS coordinates for the locations of all confirmed illicit discharges in conjunction with inspection and download into the GIS database.

In conclusion, the PCCGHD Storm Water Program continues to collaborate and receive the support and cooperation of all stakeholders in the PCCGHD jurisdiction to make the program a success by ensuring that the goal of achieving sustainable water quality is realized.

Achievements

In pursuance of the Storm Water Program's 2014 action plan to detect and eliminate illicit discharges under PCCGHD jurisdiction, Storm Water Program staff rigorously followed the roadmap towards achieving the long term objective of sustainable water quality. The PCCGHD under the auspices of the health commissioner, the environmental director, storm water supervisor and all other supporting staffs continued to enhance the healthy working relationships with townships, villages, County Engineer's office, Water Resources Department, Soil and Water Conservation District and the citizenry to achieve our storm water goals.

Consequently, all nuisance complaints received were investigated promptly. With homeowners and residents permission, HSTSs and laundry drains were dye tested or sampled to determine the validity of the complaints and determination of a public health nuisance. The components and status of the HSTSs serving the affected houses are documented. Additionally, the geographical coordinate points of the locations of confirmed illicit discharges are captured with handheld GPS units and uploaded into the Storm Water GIS database.

Besides verbally informing parties involved in nuisance complaints about the outcome of the investigations, emails , letters and notices of violation were also sent indicating whether complaints were justified or untenable. Additionally, corrective action was initiated after validation of waste water illicit discharging complaint. Furthermore, we encouraged everyone to continue to report any future waste water nuisance they may observe, even if previous complaints were found unjustifiable.

Owners of illicitly discharging septic systems or laundry drains were given twenty-one days (21) upon the receipt of the notice to correct any violations and avoid escalated enforcement action by complying with the Ohio Department of Health (ODH) Sewage Treatment System and the PCCGHD Home Sewage Treatment Regulation 13.01 to 13.20. In addition, the addresses of failing systems that require upgrade, replacement or sewer connection were referred to our staff sanitarians in charge of replacement/repair or sewer connection to manage and supervise the process. Finally, legal enforcement actions were pursued against recalcitrant and uncooperative property owners to ensure the elimination of the determined public nuisance when all reasonable attempts to convince them to repair their illicit discharging problem failed.

Cognizant of the enormous economic hardships affecting (some of) the homeowners, health department staff worked with institutions such as the Portage County Regional Planning Commission (PCRPC), Neighborhood Development Services (NDS), Community Action Council, and the United States Department of Agriculture (USDA), to assess possible funding for HSTS replacement, repair, and public sewer construction or connection into an existing one.

Homeowners with financial burden who could not afford the replacement or repair from their own resources are referred to the above-mentioned institutions for possibility of funding assistantship. However, financial assistance from these institutions are not guaranteed and only offered when funds are available. Furthermore, qualification for such financial assistance in the form of soft loans or grants is means-tested and applicants must meet certain conditions determined by the individual funding organization without any influence from the PCCGHD as to how funding is disbursed or who is

considered for assistantship. Available funding assistantship to qualified applicants is disbursed on first come first serve basis.

Suspected Illicit Discharging Complaints

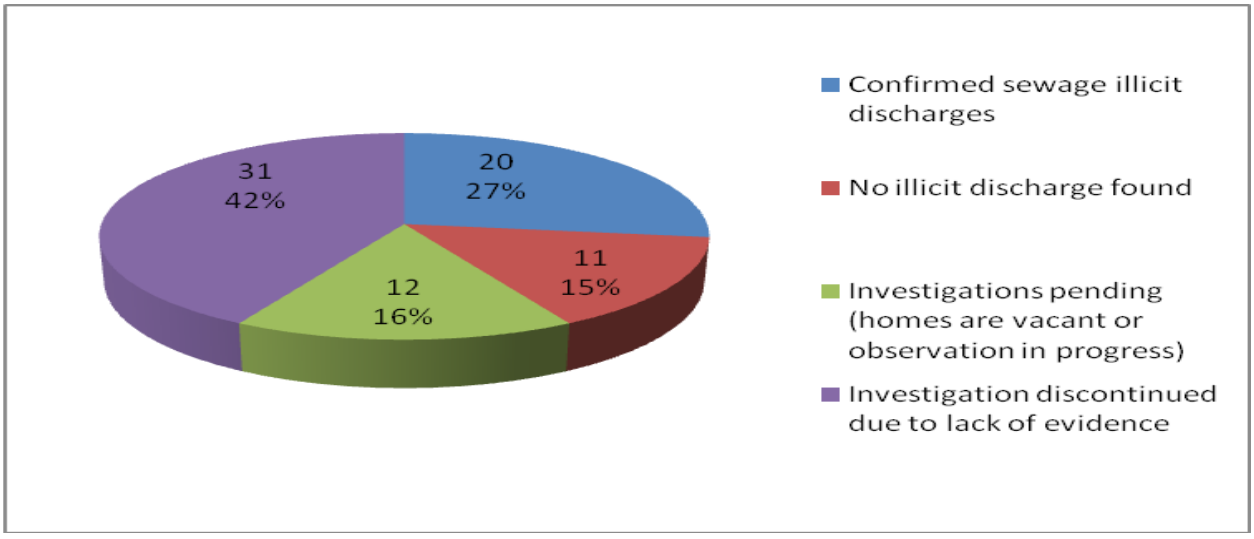
In 2014, PCCGHD received 74 suspected illicit household wastewater discharging complaints. These nuisance complaints were fairly distributed across the townships and villages we deal with. The status of the 74 complaints is as follows:

A thorough investigation of the seventy four (74) suspected illicit discharging nuisance complaints confirmed twenty (20) of them to be in violation, eleven (11) were found unjustifiable and twelve (12) are still pending because the homes are either vacant or further examinations are needed to ascertain validity of the complaints. Thirty-one (31) of the complaints could not be investigated because the complainants wanted to remain anonymous and did not want to continue with the process for fear of offering information they thought could potentially reveal their identity to the people they are complaining about. This information is summarized in Table 1 and Figure1.

Table 1

Confirmed sewage illicit discharges	20
No illicit discharge found	11
Investigations pending (homes are vacant or observation in progress)	12
Investigation discontinued due to lack of evidence	31
Total	**74**

Figure 1: Pie chart showing the distribution of the status of complaints



Status of Repairs/Replacement Orders

A total of twenty (20) HSTS repairs/replacement orders were issued in 2014 as a result of nuisance complaint investigations or home sale inspection that turned into nuisance complaint. Eight (8) repairs/replacements were completed and the nuisance complaints were abated. We still have twelve (12) systems ordered for repairs/replacement. This information is summarized in Table 2.

Table 2: Repairs/replacement status

Sewer tie-ins or repairs ordered	0
Gray water to septic tie-in ordered	0
Correction ordered via PCCGHD aeration program	0
System repairs/replacements completed	8
System repairs/replacement in progress	12
Total repair/replacement orders	**20**

Suspected Discharging Household Sewage Treatment System Database

A comprehensive database of suspected discharging systems in the Storm Water District has been compiled for the Storm Water Program. This database, containing over 3000 suspected discharging HSTSs, is updated continuously throughout the year as new information becomes available. The Storm Water Program staff believes the actual number of discharging systems far exceeds what is collated in the database. A summary of the total suspected discharges compiled per townships and villages in the county as at December 31, 2014, can be found in the Table 3 below.

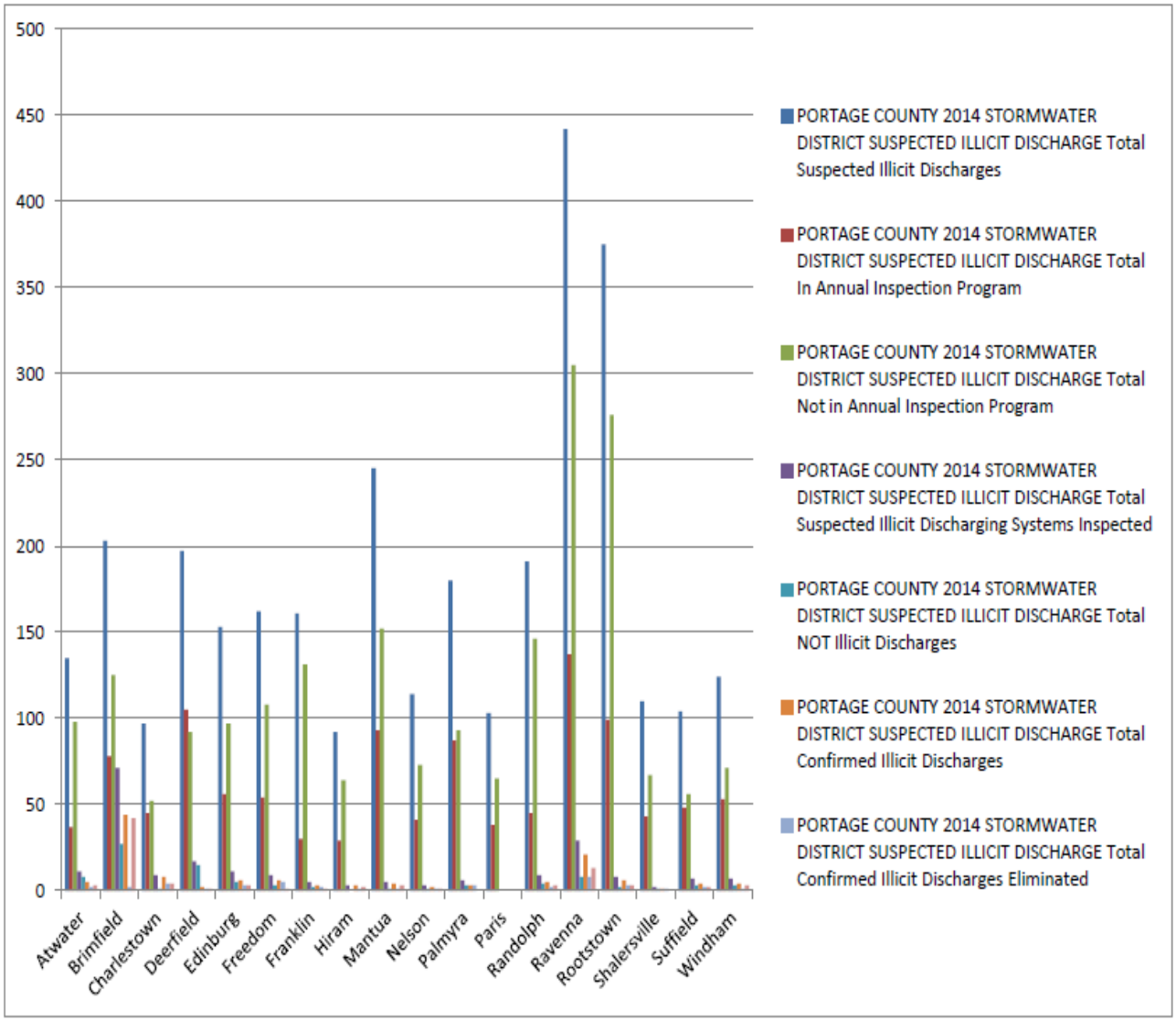
Table 3: Distribution of 2014 Suspected HSTS Discharging System and Status

PORTAGE COUNTY 2014 STORMWATER DISTRICT SUSPECTED ILLICIT DISCHARGE

Township	Total Suspected Illicit Discharges	Total In Annual Inspection Program	Total Not in Annual Inspection Program	Total Suspected Illicit Discharging Systems Inspected	Total NOT Illicit Discharges	Total Confirmed Illicit Discharges	Total Confirmed Illicit Discharges Eliminated	Total Confirmed Illicit Discharges Pending Replacement/ Repair
Atwater	135	37	98	11	8	5	2	3
Brimfield	203	78	125	71	27	44	2	42*
Charlestown	97	45	52	9	1	8	4	4
Deerfield	197	105	92	17	15	2	1	1
Edinburg	153	56	97	11	5	6	3	3
Freedom	162	54	108	9	3	6	5	1
Franklin	161	30	131	5	2	3	2	1
Hiram	92	29	64	3	0	3	1	2
Mantua	245	93	152	5	1	4	1	3
Nelson	114	41	73	3	1	2	1	1
Palmyra	180	87	93	6	3	3	3	0
Paris	103	38	65	0	0	0	0	0
Randolph	191	45	146	9	4	5	2	3
Ravenna	442	137	305	29	8	21	8	13
Rootstown	375	99	276	8	2	6	3	3
Shalersville	110	43	67	2	1	1	1	0
Suffield	104	48	56	7	3	4	2	2
Windham	124	53	71	7	3	4	1	3
Total	**3188**	**1118**	**2071**	**212**	**87**	**127**	**42**	**85**

*Brimfield has an extraordinary high number of total confirmed illicit discharging systems pending repair/replacement suspended enforcement due to on-going discussions of sewer project possibilities in some Brimfield communities.

Figure 2: Bar Graph of Distribution of 2014 Suspected Illicit Discharges



Maps of Suspected Household Sewage Treatment Sewage Discharging Systems

Using ESRI GIS software, Storm Water Program staff created maps depicting visual representation of the distribution of the suspected discharging HSTSs in the county, townships, and villages. Hydrolines (water bodies) and road features are overlaid on the map to put the locations of the suspected discharging HSTSs in geographical context. A selection of these suspected discharging HSTS maps are also provided below (see Figures 3 – 6).

Figure 3: Spatial distribution of 2014 Suspected Illicit Discharging HSTS

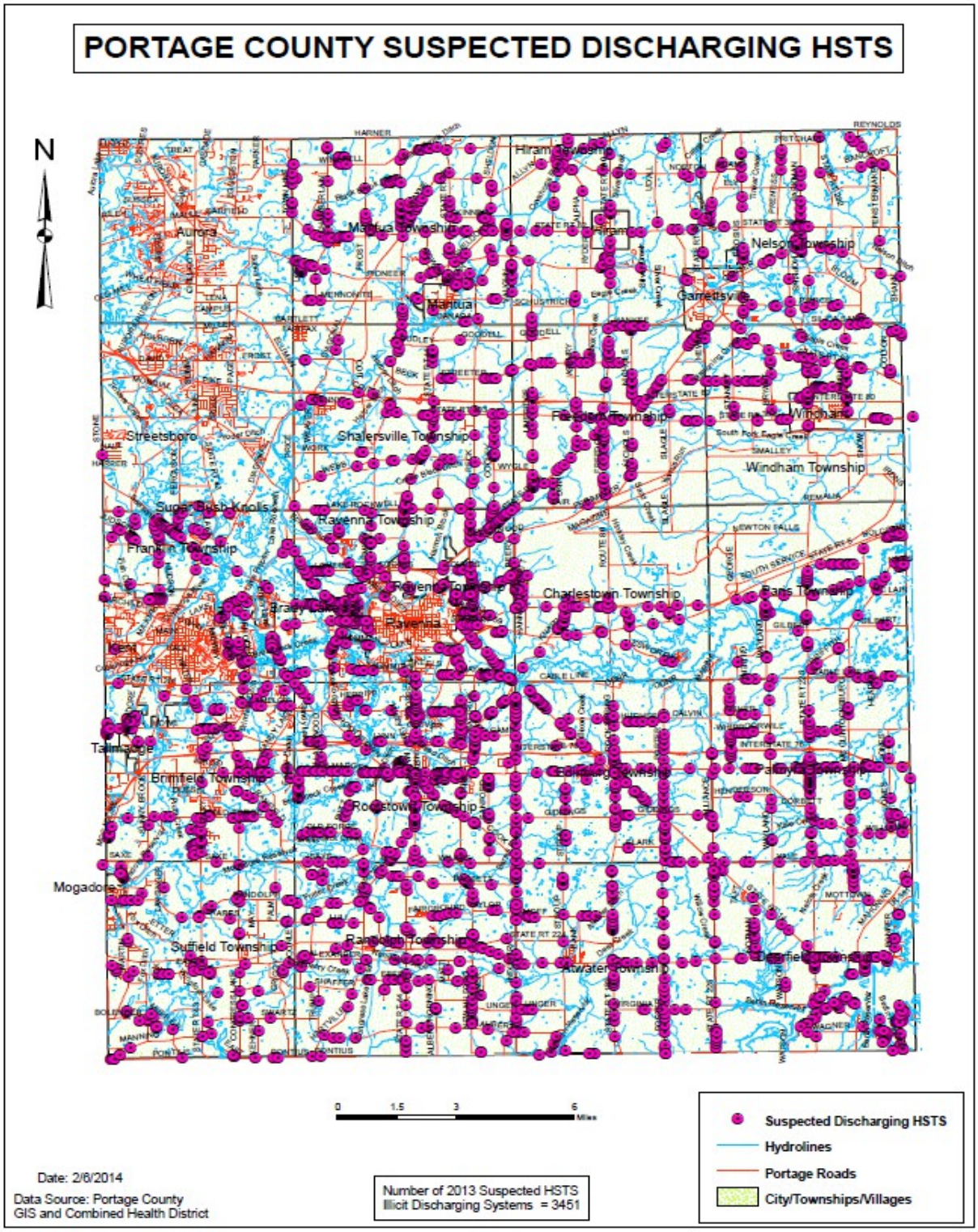

PORTAGE COUNTY SUSPECTED DISCHARGING HSTS
N
Hiram Township
Aurora
Mantua Township
Mantua
Nelson Township
Garrettsville
Streetsboro
Shalersville Township
Freedom Township
Windham
Windham Township
Ravenna Township
Franklin Township
Charlestown Township
Ravenna
Tallmadge
Brimfield Township
Rootstown Township
Mogadore
Suffield Township
Randolph Township
Atwater Township
0 1.5 3 6
Miles
Suspected Discharging HSTS
Hydrolines
Portage Roads
City/Townships/Villages
Date: 2/6/2014
Data Source: Portage County
GIS and Combined Health District
Number of 2013 Suspected HSTS
Illicit Discharging Systems = 3451

Figure 4

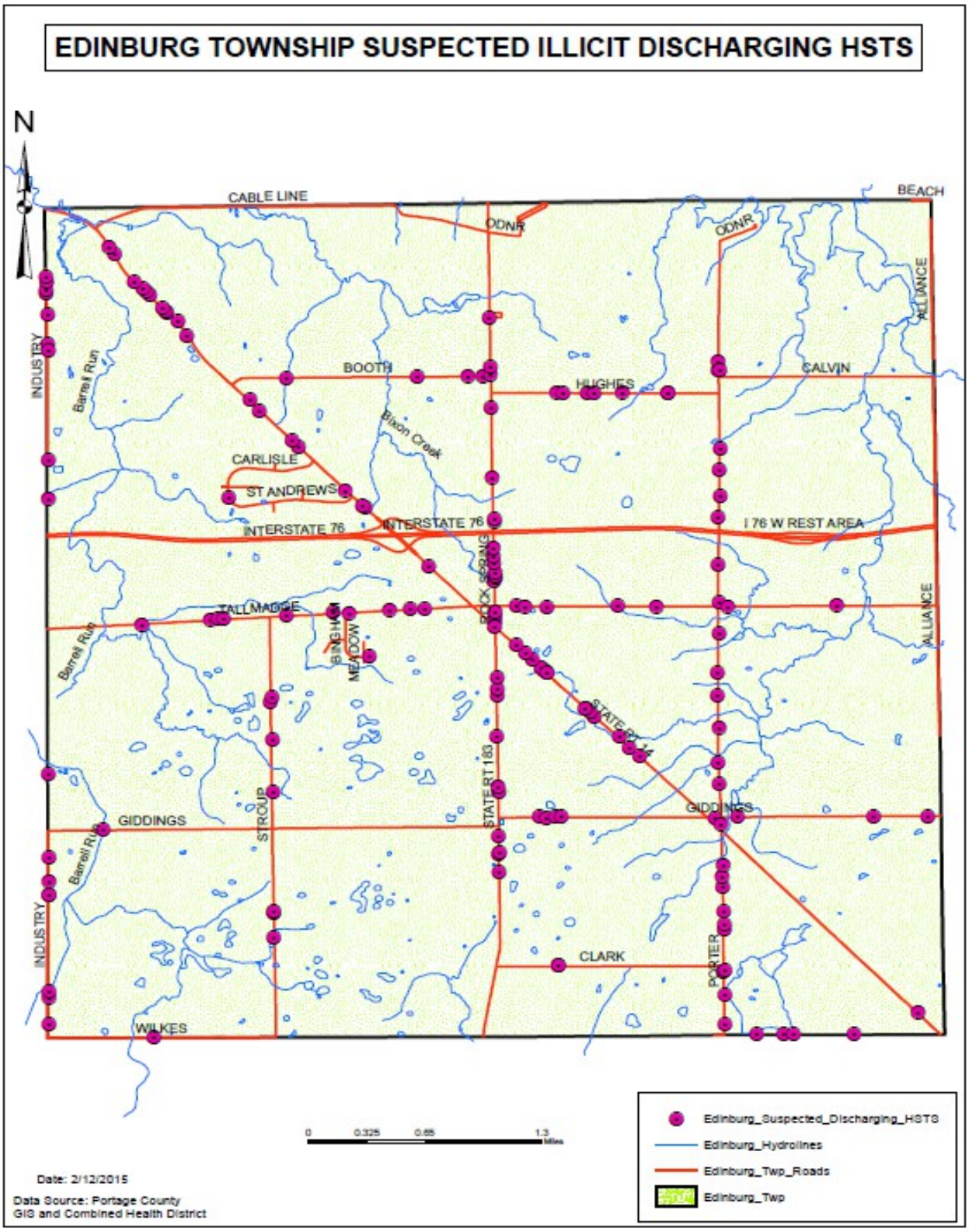

EDINBURG TOWNSHIP SUSPECTED ILLICIT DISCHARGING HSTS
N
CABLE LINE
ODNR
ODNR
BEACH
ALLIANCE
INDUSTRY
Barrel Run
BOOTH
HUGHES
CALVIN
Bixon Creek
CARLISLE
ST ANDREWS
INTERSTATE 76
INTERSTATE 76
I 76 W REST AREA
ROCK SPRING
TALLMADGE
BINEHAM
MEADOW
ALLIANCE
Barrel Run
STATE RT 14
STATE RT 183
GIDDINGS
GIDDINGS
STROUP
Barrel Run
INDUSTRY
CLARK
PORTER
WILKES
0
0.325
0.65
1.3
Miles
Edinburg_Suspected_Discharging_HSTS
Edinburg_Hydrolines
Edinburg_Twp_Roads
Edinburg_Twp
Date: 2/12/2015
Data Source: Portage County
GIS and Combined Health District

Figure 5

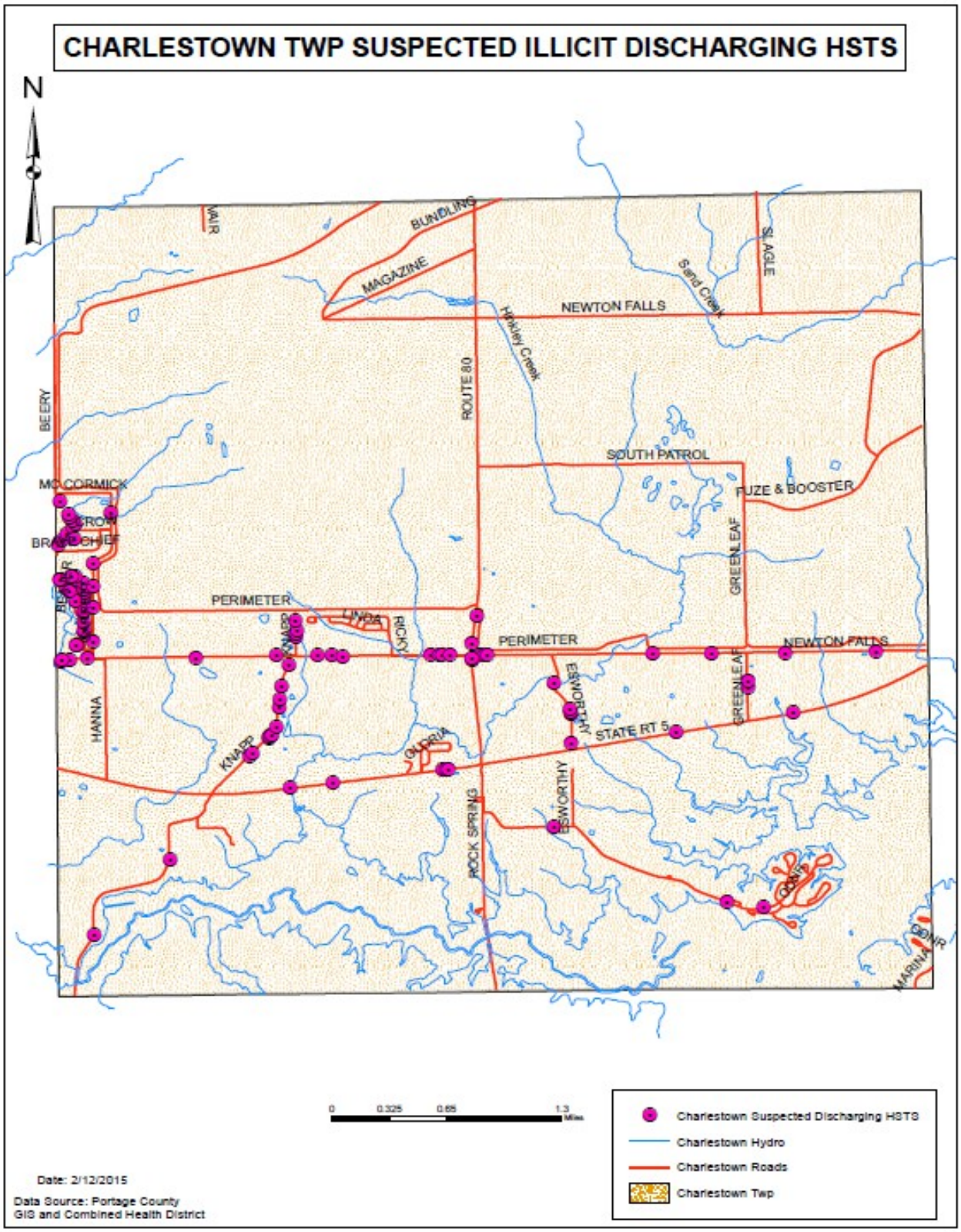
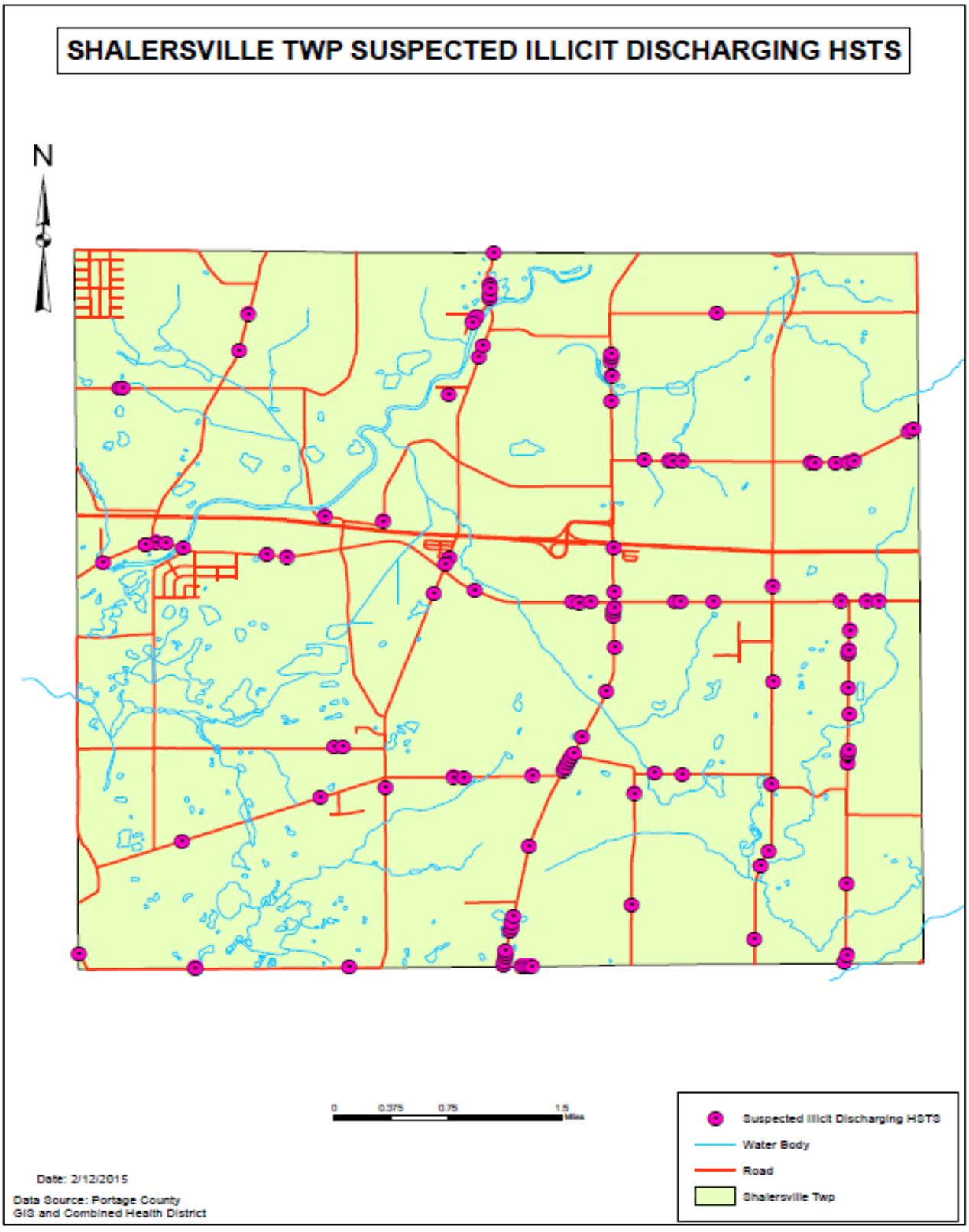

CHARLESTOWN TWP SUSPECTED ILLICIT DISCHARGING HSTS
N
BUNDLING
MAGAZINE
NEWTON FALLS
Sand Creek
SLAGLE
Hinkley Creek
ROUTE 80
BEERY
SOUTH PATROL
FUZE & BOOSTER
MC CORMICK
GREENLEAF
PERIMETER
LINDA
KNAPP
PERIMETER
NEWTON FALLS
HANNA
ESWORTHY
STATE RT 5
GREENLEAF
KNAPP
OLDRIA
ROCK SPRING
ESWORTHY
0 0.325 0.65 1.3 Miles
Charlestown Suspected Discharging HSTS
Charlestown Hydro
Charlestown Roads
Charlestown Twp
Date: 2/12/2015
Data Source: Portage County GIS and Combined Health District

Figure 6



Household Sewage Treatment System (Off-lot Discharging) Inspections

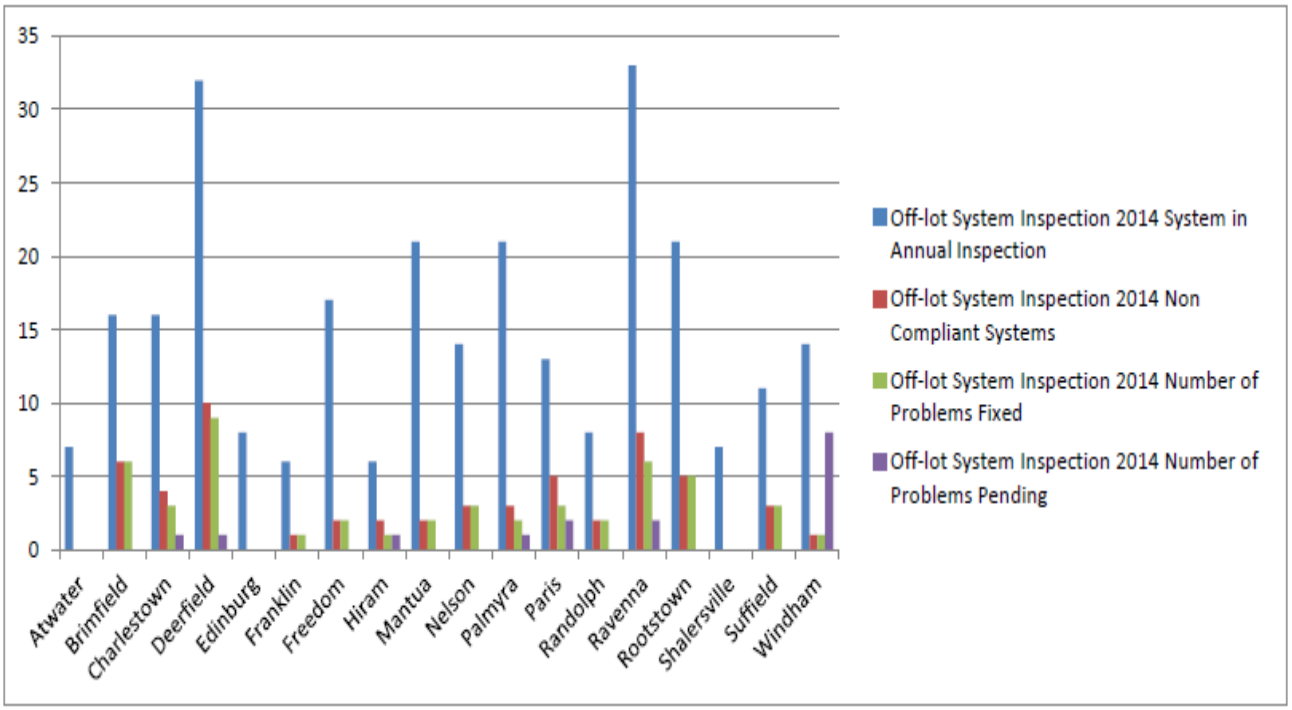
The Storm Water Program staff continued the routine random inspection of the over three thousand suspected discharging HSTSs in the Storm Water database, to detect and eliminate illicit discharges. One thousand one hundred eighteen (1118) of these systems are confirmed off-lot discharging systems inspected annually by PCCGHD or private service providers. Fifty-seven (57) out of two hundred seventy-one (271) off-lot discharging systems inspected by PCCGHD were found to be non-complaint. Letters were sent to the owners to repair the systems. The problems are quite often associated with failing electrical components and system motor issues. Forty-nine out of the fifty-seven non-compliant systems were fixed by the owners by the end of the year. The remaining sixteen are still pending completion and will continue to pursue enforcement to make sure that the problems are corrected. Table 4 below is a summary of off-lot system inspection activities.

Table 4

HSTS (Off-lot Discharging) Inspections 2014 by PCCGHD				
Township	**Systems in Annual Inspection**	**Non Compliant Systems**	**Number of Problems Fixed**	**Number of Problems Pending**
Atwater	7	0	0	0
Brimfield	16	6	6	0
Charlestown	16	4	3	1
Deerfield	32	10	9	1
Edinburg	8	0	0	0
Franklin	6	1	1	0
Freedom	17	2	2	0
Hiram	6	2	1	1
Mantua	21	2	2	0
Nelson	14	3	3	0
Palmyra	21	3	2	1
Paris	13	5	3	2
Randolph	8	2	2	0
Ravenna	33	8	6	2
Rootstown	21	5	5	0
Shalersville	7	0	0	0
Suffield	11	3	3	0
Windham	14	1	1	8
Total	**271**	**57**	**49**	**16**

The bar chart below shows the graphical representation of off-lot system inspection activities and the distribution of the activities in the townships and villages across Portage County.

Figure 7: Bar Chart of HSTS (Off-lot Discharging) Inspections



The remaining suspected discharging systems (2071) that are not in the annual inspection program are randomly inspected. During storm water inspection of these systems, a suspected illicit discharging HSTS such as a filterbed that needs further evaluation is dye tested to determine whether the system is illicitly discharging or not. Similar to nuisance complaints, the geographical coordinate points of the locations of all confirmed illicit discharges are captured with GPS and uploaded into the Storm Water GIS database. When discharging HSTSs are determined to be causing a public health nuisance, the owners are given six (6) months limit, upon notification, to correct these violations by installing an approved HSTS in accordance with the ODH sewage treatment systems regulations and the PCCGHD Home Sewage Treatment Regulations 13.01 to 13.20 in order to avoid escalated enforcement through the court system.

The random storm water inspections conducted so far indicate that some communities are replete with overwhelming numbers of illicitly discharging HSTSs. These systems are either completely failing or do not meet current United States Environmental Protection Agency (USEPA) National Pollutant Discharge Elimination System (NPDES) standards. PCCGHD is working with some of the residents of these communities who have expressed strong desires to get sewer systems to achieve their objective. This collaboration is yielding positive results. With support from the County Engineer's office, and the Water Resources Department, the County Commissioner's Office has directed the Water Resources Department to initiate feasibility studies of providing sanitary sewer service for Oakwood Acres in Brimfield Township, Lynwood Drive in Brimfield Township, and Bryn Mawr Street and Seabury Drive in Ravenna Township. Portage County Water Resources Department and the County Commissioners are working hard to get the Lynwood Drive sewage project underway. With the support of the Storm Water Program, Portage County Water Resources is also working with Ravenna City to allow the residents of Bryn Mawr and Seabury to tie into the city's sewer system. The Water Resources Department has also completed the architectural drawings of the sewer project for the Oakwood Acres in Brimfield Township, and is working hard to obtain easement from property owners of the north side of Howe Road, Brimfield Township in order to continue the process of getting the project started.

HSTS inspections and dye testing of a number of homes on Wall Street, Sanmar Street and Mabel Ave in Ravenna Township also determined that most of the systems there are illicitly discharging sewage and are in need of repair or replacement. The PCCGHD storm water program will be working with the home owners after dye testing all the remaining homes through our enforcement process to come up with the best solution to ratify the persistent public health nuisance problems caused by the HSTS in the neighborhood.

In addition to the nuisance complaints, annual inspection program, and routine random storm water inspections, Storm Water Program Staff also performed point of sale inspections of HSTSs upon request. The enforcement is the same as dealing with illicit discharges found during a storm water routine inspection. The owners of illicit discharging HSTSs found during point of sale inspections are given six (6) months limit from the date a notice of violation is issued to correct these violations. Homeowners are required to install an approved HSTS in accordance with the ODH sewage treatment system regulations and the PCCGHD Home Sewage Treatment Regulations in order to avoid legal enforcement through court. It must be noted that PCCGHD does not stop the sales process when we determine the HSTS is causing a nuisance during a point of sale inspection despite the issuance of replacement/repair orders to enforce correction of the public health problem. If a property transfers, the new property owner becomes responsible to eliminate the public health nuisance and the illicit discharge.

Education and Community Outreach

The PCCGHD Storm Water Program has created a brochure and a flier (shown in Figure 8 and 9) offering a succinct explanation of the objective and goal of the storm water program as part of our educational outreach. Additionally, the brochure explains the importance of proper maintenance of a HSTS, and offers information on myths and facts about HSTSs. PCCGHD Storm Water staff gives homeowners copies of this brochure during inspections. Staff also notifies them instantly about findings of the inspection of their systems by a check mark as to whether it:

(a) Passed visual survey,

(b) Is failing, needs repaired/replaced, or

(c) Needs further evaluation.

Furthermore, the PCCGHD Health Commissioner, the Environmental Health Director, the Storm Water Program Supervisor and Storm Water Specialists managing the program attended city, township and village public meetings and forums as part of our community outreach engagement whenever the opportunity presented itself. Finally, Storm Water Program staffs offer information and education on HSTS operation management, evaluation of HSTS, repairs/replacement of HSTS, and prevention of storm water contamination by phone, email, and office consultation on an on-going basis.

Figure 8

Myths and Facts about Household Sewage Treatment (Septic) Systems

MYTH: *A septic system will work forever once installed; you do not need any maintenance or pumping. "If it ain't broke why fix it?" If you are not having problems, don't worry about a septic system.*

FACT: *A septic system properly maintained on regular basis could last between 20-30 years on the average. Lack of proper maintenance shortens the lifespan of a septic system and eventually leads to costly repairs or replacement, if it is allowed to get to the "problem" stage.*

MYTH: *Regular maintenance of a septic system is more expensive than fixing the system once it has failed.*

FACT: *It is far cheaper to prevent a system failure than it is to correct.*

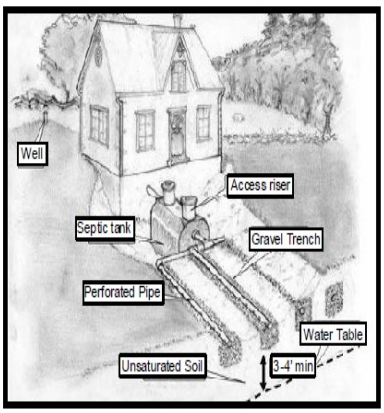
MYTH: *Septic system additives will help grow the bacteria needed and take the place of having the septic tank pumped regularly.*

FACT: *Scientific study of experts in Canada and the United States have found that septic system additives do not keep a system "healthy" and definitely do not take the place of regular maintenance of a septic system.*

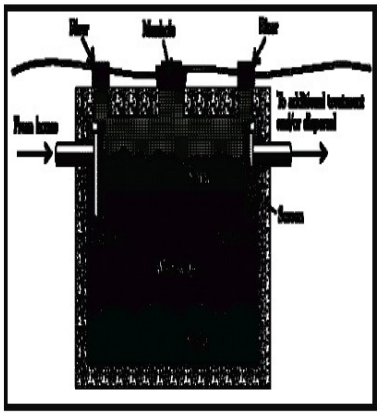
MYTH: *Household chemicals, such as disinfectants, medicines, paint thinner, water softener brine, etc. are not harmful to a septic system.*

FACT: *The septic tank and leaching system are full of living organisms (bacteria) that make the septic system work properly. Normal household cleaners that are introduced into the septic system in moderation will not adversely affect it. Excessive amounts of these products can have a detrimental effect on the organisms.*

A Typical Trench-Style Septic System



Cross Section of a Septic Tank



Portage County Health Department
Administration Building
449 South Meridian Street
Ravenna, OH 44266

Phone: 330-296-9919
Fax: 330-297-3597
Email: pchd@portageco.com
http://www.co.portage.oh.us/healthdepartment.htm

Portage County Health District Environmental Division

Proper Maintenance For Your Septic System

Portage County Health Department
Administration Building
449 South Meridian Street
Ravenna, OH 44266

Phone: 330-296-9919
Fax: 330-297-3597
Email: pchd@portageco.com
http://www.co.portage.oh.us/healthdepartment.htm

Figure 9

The Portage County Health District is conducting an EPA-mandated storm-water management program. This program is based on the premise that areas with illicit septic discharging systems have a greater potential to impact water quality. Currently, a stormwater specialist is inspecting all suspected illicit discharging septic systems and septic nuisances in the entire Health District, for the purpose of detecting and correcting failing systems. Homeowners with properly functioning systems will not be required to upgrade to meet today's standards.

Maintenance of Your Septic System Protects Your Investment, Saves Money, and Reduces Risk to Streams and Drinking Water

- ☑ Properly maintained septic system can last over 20 years.
- ☑ Improper maintenance leads to costly damage, repair and replacement.
- ☑ New septic systems currently cost between $9,000 and $25,000.
- ☑ Improperly maintained system pollutes soil, streams and drinking water systems.

THERE IS NO FEE FOR THE INSPECTION CONDUCTED.

You do not have to contact the Portage County Health District, unless instructed in the Findings Section.

Findings of Stormwater Inspection

We included a copy of your septic system record.

☐ Yes

☐ No, not available

We determined your system:

☐ Passed the visual survey

☐ Is failing, needs repaired/ replaced. Please contact the district stormwater specialist listed below.

☐ Needs further evaluation. Please contact the district stormwater specialist listed below.

AMOS SARFO: 330-296-9919, Ext. 111 or asarfo@portageco.com

For more information please visit www.co.portage.oh.us/healthdepartment.htm or contact the district stormwater specialist listed above.

Proper Maintenance Is Very Important For Your Septic System

- ☑ Have your system inspected periodically by a septic expert and pump the tank at least every 3 years. A list of sewage tank cleaners could be obtained from this department or the Yellow Pages.
- ☑ Avoid using any type of chemical or biological septic tank additive. They are not necessary for proper functioning of a septic tank, nor do they reduce the need for routine tank pumping.
- ☑ Avoid dumping paints, household cleaners, oils, or fats down your drains. Never flush items such as cat litter or paper towels.
- ☑ Avoid driving and parking vehicles on your septic system.
- ☑ Direct rainwater and surface water away from the leachfield.
- ☑ Avoid "flooding" your system by using too much water at one time.
  - ☑ Wash laundry throughout the week instead of all on one day.
  - ☑ Repair leaky faucets, and toilets.
  - ☑ Run the washing machine and dish washer only when they are full.

Illicit Discharging Sewage System Policy

Effective April 24, 2014, PCCGHD established an official written Illicit Discharging Sewage Systems Policy to clearly define appropriate procedures in addressing illicit discharging sewage systems detected through various health department Storm Water and Sewage Treatment System Program activities. This policy outlines corrective requirements/options and enforcement timeframes for ALL illicit discharging sewage systems discovered via: property transfer evaluations, home use changes, lot split proposals, nuisance complaints; and those within Portage County Health Department's Annual Aeration Inspection Program. A copy of this policy is included in *Appendix A*.

Microbiological Ditch Sampling

The PCCGHD Storm Water Program performed microbiological sampling of roadside ditches and catch basins to detect and eliminate illicit discharges in prioritized areas of the county. These areas were selected based on the number of nuisance complaints received or a high concentration of suspected illicit discharging HSTSs in an area based on the suspected illicit discharging HSTS maps shown above in Figures 4. Generally, samples were collected during a dry weather period with less than 0.1 inch of precipitation observed across a minimum of 72 hours to avoid precipitation wash off or dilution of water contamination in drainage ways.

Health Department staff sampled one hundred twenty-four (124) roadside ditches and catch basins for E. coli contamination across the PCCGHD storm water program jurisdiction. The objective was to take at least four samples from each of the eighteen (18) townships or villages in the program. However, PCCGHD Storm Water Program staff were able to obtain these microbiological water samples from only nine (9) townships in the county due to weather conditions. Inclement weather conditions, time constraints, and difficulty in accessing the water source from acceptable locations made it difficult for us to achieve the overall goal. The areas that PCCGHD Storm Water Program staff could not sample in 2014 will be the priority during the 2015 sampling period.

The laboratory results determined that forty-nine (49) of the samples, representing 40% of the total collected, exceeded the acceptable E. coli colony count of 1030 MPN/100mL NPDES permit limit for secondary contact. The remaining seventy-five (75), denoting 60%, were within the satisfactory limits. With this information, the areas exceeding the acceptable E. coli count limits will receive prioritized attention to detect and eliminate the source of the contamination, if possible, to prevent public health hazards in future endeavors. The complete sampling data is included in *Appendix B*.

Microbiological and Biochemical River, Creek, and Tributary Sampling

PCCGHD staff also performed microbiological and biochemical sampling of rivers, creeks, and tributaries to detect any biochemical activity indicative of water contamination or illicit discharging in the county. Sampling locations were largely selected from areas downstream or adjacent to higher concentrations of residential homes, commercial, or agricultural land use where and when water was accessible. Overall, eighty-four (84) samples were collected from sixteen (16) townships and villages during the year.

The laboratory test results found eighteen (18) of the samples exceeding the acceptable E.coli colony count of 1030 MPN/100 mL NPDES permit limit for secondary contact. Seventeen out of those samples had elevated total suspended solids (TSS) as well. This appears to suggest a correlation between high levels of E. coli colony count and TSS in these samples. In those results where higher TSS levels did not show a correlation with higher values of other tested biochemical parameters, it is suspected they may have resulted from stream disturbances caused during the sampling process or other confounding factors.

Furthermore, phosphorous levels exceeded the not-uncommon level of 1.0 mg/L for agricultural areas in only two samples, both of which correlated with high E. coli values. None of the sample results for total dissolved solids (TDS) exceeded the 1500 mg/L standard. Additionally, not single sample result for carbonaceous biochemical oxygen demand (CBOD) exceeded the 15 mg/L NPDES standard for direct discharge.

The results also determined that all the sample results for nitrate/nitrite were far below the unacceptable 10mg/L maximum limits for drinking water. The pH values of all the sample results fell within the acceptable range of 6.5 to 8.5 as well. The laboratory results also indicated that none of the eighty-four samples showed values outside of the acceptable ranges for ammonia, fluoride, hardness, or potassium. We will prioritize rivers, creeks, and tributaries that have poor sample results and give them special attention. This will help the PCCGHD to determine the cause and source of the problems if any as well as find sustainable measures to eliminate and prevent future occurrences. A table showing the detail results of the sampled rivers, creeks and tributaries is found in *Appendix C*.

Storm Water Task Force Meeting

The Health Commissioner, the Environmental Health Director, the Storm Water Supervisor and the Storm Water Specialists managing the Storm Water Program attended quarterly Portage County Storm Water Task Force meetings. At these meetings, the PCCGHD presented a written summary of the statistics of inspections, consultations, and correspondence concerning the Storm Water Illicit Discharge Program. Table 6 shows a summary of 2013 storm water/illicit discharge program activities. The table shows the inspections, dye testing, microbiological (E. coli) and micro biochemical sampling, office/field consultations or research, GIS and data search. It also summarizes orders issued for replacement/repairs, court appearances, telephone consultations and field research as they occur during our daily activities.

Table 6

STORM WATER/ILLICIT DISCHARGE PROGRAM 2014 ANNUAL INSPECTION DATA												
	Inspection/ Dye Testing	Office: Consultation/ Research	Office: GIS and Data	Field Consultation	Orders Issued	HSTS Replacements	Prosecutor Consultation	Court Appearance	Eng/Soil Water Consultation	Telephone	Field Research	Totals
TOWNSHIPS												
Atwater	7	18	1	2	2	1	0	0	0	19	0	50
Brimfield	90	30	4	5	5	2	10	10	0	37	6	199
Charlestown	1	2	1	0	0	0	2	2	0	5	5	18
Deerfield	15	9	0	0	0	0	0	0	0	10	2	36
Edinburg	5	6	1	1	1	0	0	0	0	14	0	28
Franklin	8	8	0	0	0	0	7	7	0	15	0	45
Freedom	7	2	1	1	1	0	0	0	0	2	0	14
Hiram	7	3	0	0	0	0	0	0	0	10	0	20
Mantua	48	21	1	8	8	0	0	0	0	30	0	116
Nelson	21	13	1	10	10	0	0	0	0	25	0	80
Palmyra	10	17	1	0	0	1	2	2	0	34	8	75
Paris	0	0	0	0	0	0	0	0	0	0	0	0
Randolph	0	25	1	5	5	0	0	0	0	34	0	70
Ravenna	132	52	5	12	12	0	2	2	0	60	8	285
Rootstown	73	35	2	5	5	1	0	0	0	32	0	153
Shalersville	39	39	1	6	6	1	0	0	0	30	6	128
Suffield	22	15	2	2	2	0	0	0	0	18	0	61
Windham	2	1	1	1	1	0	0	0	0	5	0	11
General	0	0	0	0	0	0	0	0	0	125	29	154
Township Totals	487	296	23	58	58	6	23	23	0	505	64	1,543
CITIES/VILLAGES												
*Aurora	6	8	2	0	0	0	0	0	0	9	6	31
Brady Lake	0	0	0	0	0	0	0	0	0	0	0	0
Garrettsville	0	0	0	0	0	0	0	0	0	0	0	0
Hiram Village	0	0	0	0	0	0	0	0	0	0	0	0
Mantua Village	0	0	0	0	0	0	0	0	0	0	0	0
Mogadore	0	0	0	0	0	0	0	0	0	0	0	0
Ravenna												
*Streetsboro	1	1	1	2	2	0	0	0	0	3	3	12
Sugar Bush Knolls	0	0	0	0	0	0	0	0	0	0	0	0
Windham Village	0	0	0	0	0	0	0	0	0	0	0	0
Cities/Villages Totals	7	9	3	2	2	0	0	0	0	12	9	43

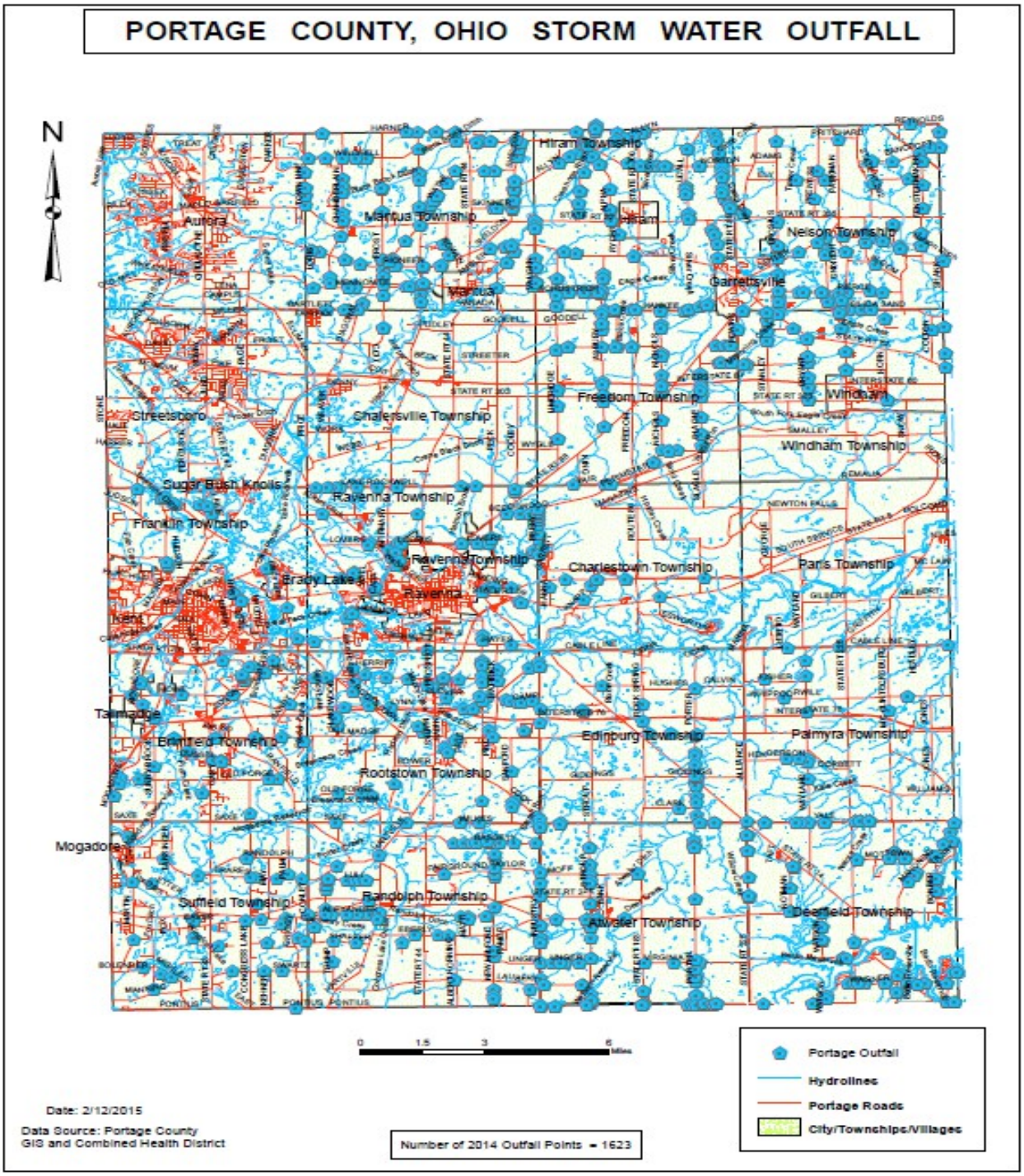
TOTAL INSPECTION	494
TOTAL TELEPHONE	517
OFFICE: CON/RES	305
OFFICE: GIS & DATA	26
FIELD RESEARCH	73
TOTAL CON	394
OVERALL TOTAL	1809

Notwithstanding all the achievements attained in 2014, PCCGHD recognizes that in addition to other illicit discharges which are from non-sewage sources, there are many illicit discharging sewage systems without any permit on file. Both types of issues will be dealt with when discovered in the future.

Storm Water Outfalls

Spatial data of storm water outfall points collected by SWCD and the PCEO with handheld GPS units were mapped. The outfall point database and map will be used in subsequent years to support the Storm Water Program's monitoring, detection, and elimination of illicit discharges. Figure 10, below, is the GIS outfall map depicting the visual representation and distribution of the known outfall points.

Figure 10



Appendix A: Appendix A: Storm Ditch Illicit Discharging System Policy

Portage County Health Department
Ravenna, Ohio

Title: Illicit Discharging Sewage Systems Policy	Program area: Wastewater/Stormwater (Environmental)
Approved by:	
Health Commissioner Date: 4/24/2014	Director Date: 4-23-14
Original Effective Date: 4/24/2014	Supervisor Date: 4/23/14
Reviewed/Revised Dates:	

POLICY PURPOSE:
To clearly define for all employees the accurate procedures to follow in addressing illicit discharging sewage systems discovered through various programs/activities.

PROCEDURES:

Home Sale/Property Transfer Evaluations:

ALL discharging systems not covered under an NPDES permit will be deemed unacceptable as an illicit discharge and will be required to be replaced: with an on-lot soil-absorption based system if possible; or an NPDES permitted discharging system IF an on-lot system is not possible, and there is an acceptable discharge point, and there is no sewer available and accessible within 400 feet of the property. * ' **

•Enforcement action will proceed after 6 months if system replacement has not been initiated.

Home Use Changes – Addition or Home Replacement:

ALL discharging systems not covered under an NPDES permit will be deemed unacceptable as an illicit discharge and will be required to be replaced: with an on-lot soil-absorption based system if possible; or an NPDES permitted discharging system IF an on-lot system is not possible, and there is an acceptable discharge point, and there is no sewer available and accessible within 400 feet of the property. * ' **

•For those homes serviced by "Class I" aeration discharging systems installed between 1986 and 2006 that fall within the Portage County Health Department's Annual Inspection Program, IF the homeowner chooses NOT to proceed with the proposed home use changes, no enforcement action will be taken at that time, with notification of the status as an illicit discharge indicating that replacement will become necessary in the future upon any property transfer, home use changes, lot split, malfunction that cannot be repaired to original manufacturer's specifications, or other further enforcement action enacted by the Ohio EPA and/or the Health Department. **

Appendix A: Storm Ditch Illicit Discharging System Policy Continuation

Lot Splits – Lots with Existing Home and Sewage System On Them:

Evaluation/Inspection of the existing sewage system will be required as part of the lot review. **ALL** discharging systems not covered under an NPDES permit will be deemed unacceptable as an illicit discharge and will be required to be replaced with an on-lot soil-absorption based system in order to approve the splitting off of the lot. In addition to this required new system to be installed, an approved designated replacement system area will also be required to approve the split.

•Enforcement action will proceed after 6 months if system replacement has not been initiated.

•In the event that the lot split is not approvable, and/or the homeowner chooses NOT to proceed with the proposed lot split, for those homes serviced by "Class I" aeration discharging systems installed between 1986 and 2006 that fall within the Portage County Health Department's Annual Inspection Program and are found upon inspection to be operating properly and not creating an observable nuisance, no enforcement action will be taken at that time, with notification of the status as an illicit discharge indicating that replacement will become necessary in the future upon any property transfer, home use changes, lot split, malfunction that cannot be repaired to original manufacturer's specifications, or other further enforcement action enacted by the Ohio EPA and/or the Health Department. **

Nuisance Complaints:

ALL discharging systems not covered under an NPDES permit, or that are not "Class I" aeration systems installed between 1986 and 2006 that fall within the Portage County Health Department's Annual Aeration Inspection Program will be deemed unacceptable as an illicit discharge and will be required to be replaced: with an on-lot soil-absorption based system if possible; or an NPDES permitted discharging system IF an on-lot system is not possible, and there is an acceptable discharge point, and there is no sewer available and accessible within 400 feet of the property. * ' **

"Class I" aeration discharging systems installed between 1986 and 2006 that fall within the Portage County Health Department's Annual Aeration Inspection Program and are found upon inspection to be operating properly and not creating an observable nuisance will "pass" the inspection, with notification of the status as an illicit discharge indicating that replacement will become necessary in the future upon any property transfer, home use changes, lot split, malfunction that cannot be repaired to original manufacturer's specifications, or other further enforcement action enacted by the Ohio EPA and/or the Health Department. **

"Class I" systems found upon inspection to be malfunctioning will be required to be repaired to original manufacturer's specifications and will then be sampled by the Health Department to ensure they meet the 20/40 BOD/SS standards.

Those "Class I" systems that cannot be repaired to original manufacturer's specifications, cannot meet the 20/40 BOD/SS standards, or that remain in non-compliance with noted repair requirements will be required to be replaced: with an on-lot soil-absorption based system if possible; or an NPDES permitted discharging system IF an on-lot system is not possible, and there is an acceptable discharge point, and there is no sewer available and accessible within 400 feet of the property. * ' **

Appendix A: Storm Ditch Illicit Discharging System Policy Continuation

Portage County Health Department's Annual Aeration Inspection Program:

"Class I" aeration discharging systems installed between 1986 and 2006 that fall within the Portage County Health Department's Annual Aeration Inspection Program and are found upon inspection to be operating properly and not creating an observable nuisance will "pass" the inspection and be designated a "Working System", with notification of the status as an illicit discharge indicating that replacement will become necessary in the future upon any property transfer, home use changes, lot split, malfunction that cannot be repaired to original manufacturer's specifications, or other further enforcement action enacted by the Ohio EPA and/or the Health Department. **

Systems found upon inspection to be malfunctioning will be required to be repaired to original manufacturer's specifications and will then be sampled by the Health Department to ensure they meet the 20/40 BOD/SS standards.

Those that cannot be repaired to original manufacturer's specifications, cannot meet the 20/40 BOD/SS standards, or that have repeatedly been found to be malfunctioning or in non-compliance with noted repair requirements will be required to be replaced: with an on-lot soil-absorption based system if possible; or an NPDES permitted discharging system IF an on-lot system is not possible, and there is an acceptable discharge point, and there is no sewer available and accessible within 400 feet of the property. * ' **

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* In the event that an on-lot soil-absorption based system is not possible, there is no acceptable discharge point for an NPDES permitted discharging system, and there is no sanitary sewer service available and accessible to the property, a sealed vault holding tank will be the only available replacement system option for the required elimination of the illicit discharge.

** "Class I" aeration discharging systems installed between 1986 and 2006 that fall within the Portage County Health Department's Annual Aeration Inspection Program MAY be able to be upgraded to NPDES standards and thus qualify for NPDES permit coverage with the inclusion of additional treatment components, in lieu of full system replacement, if such additions are approvable per the manufacturer, ODH/TAC, the Ohio EPA, and the Health Department.

Storm Water Ditch E. Ecoli Sampling			
CTV	Date Sampled	Location	MPN Value
Charlestown	11/12/14	(CHA 14-1) Roadside Ditch E, Side Knapp Rd. (#6262)	110
Charlestown	11/12/14	(CHA 14-2) Culvert E. Side Kanpp Rd. (#6030)	<10
Charlestown	11/12/14	(CHA 14-3) C. Basin E. Side Ellsworth Rd., 200 Ft. S. of #6101	540
Charlestown	11/12/14	(CHA 14-4) Roadside Ditch N. Side Newton Falls Rd. (#6856)	<10
Charlestown	11/12/14	(CHA 14-5) C. Basin E. Side Rock Spring Rd. (#6375) across from Twp. Hall	85
Charlestown	11/12/14	(CHA 14-6) Culvert W. Side of Rock Spring Rd., 50 Ft. N. of #6135	<10
Charlestown	11/12/14	(CHA 14-7) Roadside Ditch W. Side Rock Spring Rd., (#6099)	960
Charlestown	11/12/14	(CHA 14-8) C. Basin N. Side Newton Falls Rd. (#6670)	87,000
Charlestown	11/12/14	(CHA 14-9) Roadside Ditch N. Side Newton Falls Rd. (#6541)	570
Charlestown	11/12/14	(CHA 14-10) Roadside Ditch N. Side Newton Falls Rd. (#6398)	10
Charlestown	11/12/14	(CHA 14-11) R. Ditch N. Side Newton Falls Rd., 10 Ft. W. of Knapp Rd.	31
Charlestown	11/12/14	(CHA 14-12) Roadside Ditch W. Side Knapp, 10 Ft. N. of Newton Falls Rd.	63
Charlestown	11/12/14	(CHA 14-13) Culvert E. Side Knapp Rd., (#6423)	490
Charlestown	11/12/14	(CHA 14-14) Culvert W. Side Garrett Rd., 50 Ft. S. of #6455	170
Charlestown	11/12/14	(CHA 14-15) Roadside Ditch S. Side Indian Canoe Trail (#5521)	1,300
Charlestown	11/12/14	(CHA 14-16) C. Basin W. Side Buckskin Rd., J. N. of #6497	62
Charlestown	11/12/14	(CHA 14-17) Culvert W. Side of Bronco, 1500 Ft. N. of Waterfall Trail	<10
Charlestown	11/12/14	(CHA 14-18) Culvert W. Side Waterfall Trail (#5667)	41
Charlestown	11/12/14	(CHA 14-19) Culvert W. Side Brave Chief Lane (#6710)	69,000
Deerfield	10/28/14	(DEE 14-1) Roadside Ditch SE Side of Alliance Rd., 200 Ft. N. of Yale Rd.	220
Deerfield	10/28/14	(DEE 14-2) Roadside Ditch S. Side Yale Rd., J. W. #8160	55,000
Deerfield	10/28/14	(DEE 14-3) Roadside Ditch S. Side Yale Rd., 100 Ft. E. of SR 225	220
Deerfield	10/28/14	(DEE 14-4) Roadside Ditch E. Side McClintocksburg Rd. (#2526)	>240,000
Deerfield	10/28/14	(DEE 14-5) Roadside Ditch N. Side McClintocksburg Rd. 100 Ft. N. of #2195	14,000
Deerfield	10/28/14	(DEE 14-6) Roadside Ditch S. Side SR 224, 1000 Ft. W. of #10204	430
Deerfield	10/28/14	(DEE 14-7) Roadside Ditch E. Side Bonner Rd. (#2030)	150
Deerfield	10/28/14	(DEE 14-8) Roadside Ditch W. Side Bonner Rd., 50 Ft. N. SR 224	86
Deerfield	10/28/14	(DEE 14-9) Roadside Ditch E. Side Bonner Rd., 50 Ft. N. SR 224	2,200
Deerfield	10/28/14	(DEE 14-10) Roadside Ditch E. Side SR 14, 1000 Ft. N. of Bridgeview Rd.	52
Deerfield	10/28/14	(DEE 14-11) Roadside Ditch N. Side Wagner Rd. (#10328)	100
Deerfield	10/28/14	(DEE 14-12) Roadside Ditch 262 Hawthorne Rd.	290
Deerfield	10/28/14	(DEE 14-13) Roadside Ditch E. Side Watson Rd. (#1093)	150
Deerfield	10/28/14	(DEE 14-14) Roadside Ditch E. Side Notman Rd. (#1550)	160
Deerfield	10/28/14	(DEE 14-15) Roadside Ditch W. Side Notman Rd. (#1600)	170
Deerfield	10/28/14	(DEE 14-16) Roadside Ditch W. Side Notman Rd. (#1693)	8
Edinburg	10/27/14	(EDI 14-1) R. Ditch N. Side Tallmadge Rd.(#5835), 0.5 Mi. W. Stroup Rd.	98
Edinburg	10/27/14	(EDI 14-2) Culvert S. Side Tallmadge Rd. (#6726), 1000 Ft. N. of SR 14	>24,000
Edinburg	10/27/14	(EDI 14-3) Roadside Ditch S. Side Tallmadge Rd., 800 FT. E. of SR 14	44
Edinburg	10/27/14	(EDI 14-4) Roadside Ditch E. Side Rock Spring Rd., J. N. of #4125	20,000
Edinburg	10/27/14	(EDI 14-5) Roadside Ditch W. Side Rock Spring Rd., J. S. of #4265	>240,000
Edinburg	10/27/14	(EDI 14-6) Roadside Ditch W. Side Rock Spring Rd., J. S. of #4388	6,200
Edinburg	10/27/14	(EDI 14-7) Roadside Ditch E. Side Rock Spring Rd., J. S. of #4518	1,800
Edinburg	10/27/14	(EDI 14-8) Roadside Ditch E. Side Rock Spring Rd. (#4958)	32

Appendix B: Storm Ditch Sampling Data Continuation

Edinburg	10/27/14	(EDI 14-9) Roadside Ditch E. Side Porter Rd., J. S. of #4743	20,000
Edinburg	10/27/14	(EDI 14-10) Roadside Ditch E. Side Porter Rd. (#4378)	8,200
Edinburg	10/27/14	(EDI 14-11) Roadside Ditch W. Side Porter Rd., (#4075)	410
Edinburg	10/27/14	(EDI 14-12) Roadside Ditch 50 Ft. W. of Porter/Tallmadge Rds.	20
Edinburg	10/27/14	(EDI 14-13) Roadside Ditch E. Side Porter Rd., 50 Ft. S. of Porter/Tallmadge	1,600
Edinburg	10/27/14	(EDI 14-14) Roadside Ditch N. Side Giddings, 200 Ft. E. of Porter Rd.	800
Edinburg	10/27/14	(EDI 14-15) Roadside Ditch E. Side of SR 14, J. N. of #3322	20
Edinburg	10/27/14	(EDI 14-16) Roadside Ditch W. Side of SR 14 (#2771)	17,000
Edinburg	10/27/14	(EDI 14-17) Roadside Ditch N. Side Yale Rd., J. E. of #7501	200
Edinburg	10/27/14	(EDI 14-18) Roadside Ditch E. Side Porter Rd., 800 Ft. N, of Yale Rd.	20
Edinburg	10/27/14	(EDI 14-19) Roadside Ditch W. Side Porter Rd., 800 Ft. N, of Yale Rd.	210
Edinburg	10/27/14	(EDI 14-20) Roadside Ditch NE Corner of Giddings & SR 183	10
Edinburg	10/27/14	(EDI 14-21) Culvert E. Side SR 183 (#3820)	150
Edinburg	10/27/14	(EDI 14-22) Roadside Ditch E. Side SR 183 (#4553)	20
Edinburg	10/27/14	(EDI 14-23) Roadside Ditch E. Side SR 14 (#5100)	2,500
Edinburg	10/27/14	(EDI 14-24) Roadside Ditch W. Side Industry Rd. (#4851)	100
Hiram	11/13/14	(HIR 14-1) C. Basin N. Side Pioneer Trail (#6799)	16,000
Hiram	11/13/14	(HIR 14-2) Roadside Ditch NW Corner of SR 700 & Pioneer Trail	<10
Hiram	11/13/14	(HIR 14-3) C. Basin NE Corner of SR 700 & Pioneer Trail	41
Hiram	11/13/14	(HIR 14-4) Roadside Ditch, 200 Ft. S. of #11267 SR 700	200
Hiram	11/13/14	(HIR 14-5) Roadside Ditch E. Side of SR 700, 50 Ft. S. of #12000	48
Hiram	11/13/14	(HIR 14-6) Roadside Ditch W. Side SR 700, 50 Ft. N. of #12000	150
Hiram	11/13/14	(HIR 14-7) Roadside Ditch N. Side of Norton Rd. (#7013)	>24,000
Hiram	11/13/14	(HIR 14-8) Culvert N. Side Winchell Rd. (#6704)	1,900
Hiram	11/13/14	(HIR 14-9) Culvet S. Side Winchell Rd. (#6564)	98
Hiram	11/13/14	(HIR 14-10) Roadside Ditch S. Side Winchell Rd. (#6194)	16
Hiram	11/13/14	(HIR 14-11) Roadside Ditch S. Side Winchell Rd. (#6167)	86
Hiram	11/13/14	(HIR 14-12) Roadside Ditch E. Side Washburn Rd. (#12837)	700
Hiram	11/13/14	(HIR 14-13) Roadside Ditch SW Corner Herr Dr. & Allyn Rd.	>24,000
Hiram	11/13/14	(HIR 14-14) Roadside Ditch W. Side Alpha Rd. (#2171)	82
Hiram	11/13/14	(HIR 14-15) Roadside Ditch E. Side Alpha Rd. (#11836)	6,200
Hiram	11/13/14	(HIR 14-16) Roadside Ditch S. SIde SR 82 (#6023)	310
Mantua	10/28/14	(MAN 14-1) 11523 SR 44	14,000
Mantua	10/28/14	(MAN 14-2) 12743 SR 44	8
Mantua	10/28/14	(MAN 14-3) 12612 SR 44	9
Mantua	10/28/14	(MAN 14-4) 12079 SR 44	>48,000
Mantua	11/13/14	(MAN 14-5) C. Basin E. Side Sheldon Rd., 500 Ft. S. of #12170	86
Mantua	11/13/14	(MAN 14-6) Roadside Ditch N. Side Wayne Rd. (#5103)	280
Mantua	11/13/14	(MAN 14-7) C. Basin S. Side Wayne Rd. (#4998)	<10
Mantua	11/13/14	(MAN 14-8) Roadside Ditch S. Side Wayne Rd. (#4881)	31
Mantua	11/13/14	(MAN 14-9) Roadside Ditch N. Side Wayne Rd. (#4881)	65
Mantua	11/13/14	(MAN 14-10) Roadside Ditch N. Side Wayne Rd. (#4791)	160
Mantua	11/13/14	(MAN 14-11) C. Basin N. Side Herman Rd. (#3981)	980
Mantua	11/13/14	(MAN 14-12) Roadside Ditch E. Side Mantua Center Rd. (#12408)	670
Mantua	11/13/14	(MAN 14-13) Roadside Ditch W. Side Mantua Center Rd. (#12408)	<10
Mantua	11/13/14	(MAN 14-14) Roadside Ditch E. Side Mantua Center Rd. (#12074)	74
Mantua	11/13/14	(MAN 14-15) Roadside Ditch W. Side Mantua Center Rd. (#12074)	5,600
Mantua	11/13/14	(MAN 14-16) Roadside Ditch W. Side Wayne Rd., 500 Ft. s. of #4205	2,000
Mantua	11/13/14	(MAN 14-17) Roadside Ditch E. Side Wayne Rd., 500 Ft. S. of #4205	54

Appendix B: Storm Ditch Sampling Data Continuation

Mantua	11/13/14	(MAN 14-18) Roadside Ditch W. Side Wood Hollow Dr. (#4169)	<10
Mantua	11/13/14	(MAN 14-19) C. Basin SW Corner Wayne Rd. & Wood Hollow Dr.	2,100
Mantua	11/13/14	(MAN 14-20) C. Basin W. Side Vincent Dr. (#12785)	1,200
Mantua	11/13/14	(MAN 14-21) Culvert E. Side Vincent Dr., 50 Ft. S. of #12826	100
Mantua	11/13/14	(MAN 14-22) Roadside Ditch W. Side Samuel Dr. J. S. of #3287	10
Mantua	11/13/14	(MAN 14-23) Roadside Ditch E. Side Samuel Dr., J. S. of #3287	<7
Mantua	11/13/14	(MAN 14-24) Roadside Ditch W. Side Samuel Dr. (#12813)	10
Nelson	9/24/14	(NEL 14-1) C. Basin W. Side of Mills Rd. (#1749)	5
Nelson	9/24/14	(NEL 14-2) Roadside Ditch N. Side of SR 305 (#9265)	62
Nelson	9/24/14	(NEL 14-3) Roadside Ditch W. Side SR 305 Rd., 1/4 mi. W. of Circle	22
Nelson	9/24/14	(NEL 14-4) Roadside Ditch W. Side Parkman Rd., 1000 Ft. N. of Circle	520
Nelson	9/24/14	(NEL 14-5) Roadside Ditch S. Side Center Rd. , 500 Ft. S. of Sophia Rd.	6,100
Paris	11/4/14	(PAR 14-1) Culvert S. Side #8716 Newton Falls Rd.	0
Paris	11/4/14	(PAR 14-2) Roadside Ditch N. Side #8919 Newton Falls Rd.	0
Paris	11/4/14	(PAR 14-3) Culvert E. Side #6342 Wayland Rd.	4,900
Paris	11/4/14	(PAR 14-4) Roadside Ditch W. Side 50 Ft. S. of #6211 Wayland Rd.	980,000
Paris	11/4/14	(PAR 14-5) Roadside Ditch W. Side #5615 Wayland Rd.	39,000
Paris	11/4/14	(PAR 14-6) Roadside Ditch E. Side #6580 SR 225	930
Paris	11/4/14	(PAR 14-7) Culvert N. Side #9682 Minyoung Rd.	0
Paris	11/4/14	(PAR 14-8) Culvert NW Corner Minyoung & Holcomb Rds.	45,000
Paris	11/4/14	(PAR 14-9) C. Basin NE Corner Minyoung & Walnut Rds.	1,900,000
Paris	11/4/14	(PAR 14-10) C. Basin NW Corner Minyoung & Walnut Rds.	92,000
Paris	11/4/14	(PAR 14-11) C. Basin W. Side 100 Ft. S. of #10417 McClintocksburg Rd.	520
Paris	11/4/14	(PAR 14-12) Culvert E. Side 100 Ft. S. of #10417 McClintocksburg Rd.	20,000
Paris	11/4/14	(PAR 14-13) Roadside Ditch S. Side #10703 Newton Falls Rd.	0
Paris	11/4/14	(PAR 14-14) C. Basin W. Side #6815 Benita Rd.	8,700,000
Paris	11/4/14	(PAR 14-15) C. Basin E. Side #6814 Gordon Rd.	1,600,000
Paris	11/4/14	(PAR 14-16) C. Basin SW Corner Benita & Newton Falls Rds.	46,000
Paris	11/4/14	(PAR 14-17) Roadside Ditch S. Side #9467 Griffith Rd.	2,200
Paris	11/4/14	(PAR 14-18) Roadside Ditch S. Side Cable Line Rd, 200 Ft. E. of #9992	320
Ravenna	9/23/14	(RAV 14-1) C.Basin W. Side Peck Rd. (#6381)	21,000
Ravenna	9/23/14	(RAV 14-2) Stream W. Side Peck Rd. (#6381)	83,000
Ravenna	9/23/14	(RAV 14-3) C. Basin N. Side Harding Rd. (#4907), 1/3 mi. w. of Peck Rd.	17,000
Ravenna	9/23/14	(RAV 14-4) Culvert W. Side Woodbine(#6367), S. Washington Rd.	9,900
Ravenna	9/23/14	(RAV 14-5) Culvert W. Side Woodbine(#6367), N. Washington Rd.	210
Ravenna	9/23/14	(RAV 14-6) C. Basin SW Corner of Harding & Glenwood Rds.	20
Ravenna	9/23/14	(RAV 14-7) Culvert E. Side Fernald Rd. (#6247)	42,000
Ravenna	9/23/14	(RAV 14-8) N. Side Cooley, W. of 7684	200
Ravenna	9/23/14	(RAV 14-9) C. Basin S. Side of SR 59 (#5068)	5,100
Ravenna	9/23/14	(RAV 14-10) C. Basin N. Side of Hayes Rd. (#4777)	3,900
Shalersville	9/19/14	(SHA 14-1) Roadside Ditch 7788 SR 44	85,000
Shalersville	9/19/14	(SHA 14-2) Roadside Ditch 7822 SR 44	340
Shalersville	9/19/14	(SHA 14-3) Roadside Ditch 7937 SR 44	84
Shalersville	9/19/14	(SHA 14-4) Roadside Ditch 8149 SR 44	1,400
Shalersville	9/19/14	(SHA 14-5) Roadside Ditch 8906 SR 44	20
Shalersville	10/27/14	(SHA 14-6) 9192 SR 44	480
Shalersville	10/27/14	(SHA 14-7) 9252 SR 44	990
Total Sample			**124**

Appendix C: Microbiological Biochemical Sampling Data

Micro Biological Sampling of Rivers, Creeks and Tributaries in 2014

Name	Sample Point	Stream	TSS (mg/L)	Ammonia (mg/L)	E.Coli (MPN/ 100 mL)	CBOD (mg/L)	Fluoride (mg/L)	Hardness (mg/L)	Nitrate/Nitrite (mg/L)	pH (S.U.)	Phosphorus (mg/L)	TDS (mg/L)	Potassium (mg/L)
ATW-1	W. side of Stroup Rd., 0.5 mi. S. of Waterloo Rd.	Unnamed Trib. Of Mahoning	8.60	0.30	93	3.07	0.184	220	0.15	7.6	0.07	450	3.3
ATW-2	SR 183, just S. of SR224	Unnamed Trib. Of Mahoning	18.00	0.66	3,300	2.94	0.157	290	0.29	7.2	0.20	470	4.7
ATW-3	Alliance Rd., N. of SR224	Willow Cr.	4.00	0.35	170	<2	0.212	410	0.34	7.8	0.07	640	5.9
ATW-4	Stroup Rd., at #1502	Unnamed Trib. Of Mahoning	8.60	0.28	330	<2	0.219	350	0.08	7.6	0.08	310	4.3
ATW-5	W. side of Industry Rd. at #1045	Unnamed Trib. Of Mahoning	2.27	0.44	38	<2	0.197	310	0.35	7.7	0.08	420	2.9
BRI-2	S. side of Lynn Rd., between Lakewood & Sandy La	Fedder Canal	3.20	0.22	150	<2	0.164	270	0.41	7.8	0.10	360	2.9
BRI-4	Old Forge Rd., between Congress Lk. & Randfield R	Morrow Ditch	20.00	0.40	98	4.46	0.136	130	0.52	6.9	0.20	290	3.4
BRI-5	N. side of Howe Rd., just E. of Sunnybrook Rd.	Plum Cr.	20.00	0.20	640	2.56	0.170	210	2.36	7.7	0.08	350	4.4
BRI-6	Tallmadge Rd., just E. of Sunnybrook Rd.	Plum Cr.	5.80	0.26	140	3.63	0.172	210	0.14	<4.0	0.08	440	3.0
BRI-7	Sunnybrook Rd., 0.5 mi. S. of Howe Rd.	Unnamed Trib. Of Plum Cr.	7.60	0.18	750	2.34	0.170	150	1.02	7.3	0.10	290	4.0
CHA-1	N. side of SR 5, W. of drive at #6175	Hinckley Cr.	456.00	0.44	1,400	<2	0.176	360	<0.05	7.6	1.35	490	3.7
DEE-2	Just N. of 2012 Notman Rd.	Unnamed Trib. Of Willow Cr.	2.80	0.78	230	3.05	0.216	250	2.42	7.5	0.37	440	5.5
DEE-3	SR 224, just E. of Notman Rd.	Unnamed Trib. Of Willow Cr.	4.00	0.44	440	2.22	0.239	360	1.13	7.4	0.06	1200	6.7
DEE-4	Yale Rd., just E. of #9661	Unnamed Trib. Of Willow Cr.	105.00	0.64	390	4.35	0.224	210	0.05	7.5	0.21	380	7.8
DEE-5	McClintocksburg Rd., N. of Mottown Rd.	Unnamed Trib. Of Mahoning	93.00	1.36	440	3.40	0.279	180	0.45	7.2	0.16	430	9.3
DEE-6	Yale Rd., just E. of #9554	Unnamed Trib. Of Mahoning	6.00	0.48	4,600	<2	0.204	360	0.22	6.5	0.15	880	7.8
DEE-7	Mahoning Rd., just S. of Woodard Rd.	Unnamed Trib. Of Mahoning	10.80	0.38	40	2.95	0.190	170	<0.05	7.4	0.12	300	6.8
EDI-1	N. side of Tallmadge Rd., E. of 5650 Tallmadge Rd.	Barrel Run	1.40	0.19	120	2.32	0.159	350	0.2	6.9	0.06	470	3.0
EDI-2	S. side of Giddings Rd., just E. of Industry Rd.	Barrel Run	5.00	0.10	20	2.04	0.161	250	1.76	7.4	0.07	350	2.6
EDI-3	E. side of Rockspring Rd., just N. of Tallmadge Rd.	Unnamed Trib. Of W. Br. Res	144.00	8.00	3,600	12.94	0.216	420	7.57	7.3	2.13	620	22
EDI-4	W. side of Porter Rd., just S. of Tallmadge Rd.	Unnamed Trib. Of W. Br. Res	2.20	0.44	300	<2	0.223	280	0.13	7.9	0.04	470	7.9
EDI-5	S. side Tallmadger Rd.(7903), betw. Alliance & Port	Silver Cr.	4.40	0.32	31	<2	0.161	670	0.07	7.9	<0.04	1000	5.0
EDI-6	N. Side. of Booth Rd. (6586), just W. of Rock Spring	Unnamed Trib. Of W. Br. Res	5.00	0.28	88	<2	0.183	330	<0.05	7.1	<0.04	610	4.2
FRE-1	E. side of King Rd., between Vair & SR 303	Unnamed Trib. Of Mahoning	7.20	0.05	98	3.49	0.165	120	<0.05	7.6	0.05	180	3.7
FRE-2	E. side of Freedom Rd., between Vair & Nichols Rd	Hinckley Cr.	143.00	0.15	320	4.63	0.185	190	1.79	7.8	0.23	300	3.3
FRE-3	E. side of Slagle Rd., between SR 303 and Smalley	South Fork Eagle Creek	5.60	0.11	52	2.29	0.173	220	<0.05	8.1	0.04	290	5.4
FRE-4	E. side of Slagle Rd., just S. of Ohio Turnpike	South Fork Eagle Creek	280.50	0.14	160	2.45	0.222	250	<0.05	8	0.06	510	5.1
HIR-1	Hankee Rd., just W. of SR 700	Unnamed Trib. Of Eagle Cr.	31.00	0.01	390	<2	0.178	160	0.52	7.6	0.11	390	4.1
HIR-2	SR 82, just E. of Rolling Meadow Dr.	Silver Cr.	18.00	0.01	31	<2	0.133	150	0.48	7.7	0.09	250	3.1
HIR-3	Pioneer Tr., just E. of Limeridge Rd.	Unnamed Trib. Of Eagle Cr.	20.00	0.01	20	2.26	0.136	130	1.37	7.6	0.07	180	2.7
HIR-4	Winchell Rd., just E. of Washburn Rd.	Cuyahoga R.	3.00	0.01	98	<2	0.114	100	0.17	7.5	0.09	200	3.6
HIR-5	Norton Rd., just E. of SR 700	Silver Cr.	5.00	0.02	100	<2	0.124	120	0.24	7.6	0.08	190	3.1
MAN-1	E. side of SR 44	Cuyahoga R.	4.50	0.01	130	<2	0.108	120	0.17	7.5	0.11	200	3.4
MAN-2	S. side of Wayne Rd.	Herbert Ditch	16.00	0.02	31	2.28	<0.1	76	0.01	7.3	0.07	160	<2.0
MAN-3	N. side of Winchell Rd.	Black Brook	18.00	0.01	41	<2	0.145	210	0.56	7.7	0.07	320	2.8
MAN-4	SR 82, just W. of Vaughn Rd.	Cuyahoga R.	5.33	0.01	98	<2	0.115	110	0.15	7.5	0.08	200	3.6
NEL-1	Bancroft Rd., just E. of Garrettsville Nelson Rd.	Grand R.	62.00	0.03	1179.5	10.00	0.143	130.00	2.1	7.4	0.8	240	4.1
NEL-2	N. side of Kennedy Ledge Rd.	Grand R.	152.00	0.06	<5	6.70	0.193	160	<0.05	7.4	0.62	180	3.1
NEL-3	E. side of Nicholson Rd.	Tinkers Cr.	514.00	0.06	268.5	13.30	0.145	160	1.89	7.1	1.98	160	3.0
NEL-4	S. side of Silica Sand Rd., across from #9645	Ditch	202.00	0.07	37	6.70	0.123	170	0.09	7.0	0.99	240	3.6
PAL-1	S. side of Whippoorwill Rd., just W. of Jones Rd.	Unnamed Trib. Of Kale Cr.	3.00	0.24	170	2.62	0.208	150	<0.05	7.4	0.09	440	7.0
PAL-2	N. side of Tallmadge Rd., just W. of Jones Rd.	Kale Cr.	5.20	0.24	160	<2	0.198	490	<0.05	7.2	0.07	800	6.7
PAL-3	Williams Rd., just E. of SR 225	Unnamed Trib. Of Kale Cr.	2.00	0.22	73	<2	0.170	220	0.86	<4.0	0.07	390	7.5
PAL-4	Yale Rd., just E. of SR 225	Unnamed Trib. Of Kale Cr.	6.80	0.20	20	<2	0.240	370	0.08	7.8	0.13	880	9.1
PAL-5	SR 225, just N. of Yale Rd.	Unnamed Trib. Of Kale Cr.	6.00	0.19	4,400	<2	0.189	580	0.61	7.6	0.08	1000	8.8
PAR-1	S. side of drive at 10165 Newton Falls Rd.	Outlet of Spring Sunshine La	28.80	0.39	49	3.31	0.160	280	1.5	7.6	0.59	380	0.4
PAR-2	N. side of McClintocksburg Rd., just N. of #6145	Unnamed Trib. Of Mahoning	8.00	0.29	1,600	3.33	0.202	240	0.28	7.7	0.08	330	4.4
PAR-3	N. side of Gilbert Rd., between Windham & McClin	Unnamed Trib. Of Mahoning	4.80	0.20	89	<2	0.168	120	0.11	7.6	<0.04	220	3.1
PAR-4	W. side of Windham Rd., N. of Gilbert	Mahoning R.	6.40	0.23	140	<2	0.183	110	0.07	7.2	<0.04	210	3.3
PAR-5	E. side of Windham Rd., N. of Griffith	Unnamed Trib. Of Mahoning	14.00	0.10	610	3.67	0.203	250	0.17	7.5	0.07	460	6.0
PAR-6	S. side of Cable Line Rd. at #9058	Unnamed Trib. Of Mahoning	3.20	0.07	640	<2	0.180	170	0.46	7.2	<0.04	270	0.4
RAN-1	New Milford Rd., just S. of Wilkes Rd.	Unnamed Trib. Of Potter Cr.	8.40	0.16	110	3.60	0.166	190	0.12	7.5	0.10	250	2.6
RAN-2	E. side New Milford Rd., just N. of Bassett Rd.	Unnamed Trib. Of Potter Cr.	161.70	0.14	1,100	3.14	0.188	220	0.14	7.9	0.22	300	3.2
RAN-3	E. side of Ranfield Rd., W. of SR 44	Congress Lake Outlet	7.50	0.12	280	<2	0.164	250	0.33	7.5	0.08	350	4.1
RAN-4	E. side of Hartville Rd., just N. of Bassett Rd.	Unnamed Trib. Of Potter Cr.	23.00	0.16	5,800	2.30	0.172	200	0.09	7.7	0.08	260	3.8
RAN-5	Johnnycake Rd., just N. of Hartville Rd.	Potter Cr.	9.20	0.13	150	3.31	0.183	250	0.4	7.8	0.10	360	3.3
RAN-6	Hartville Rd., just N. of Randolph Rd.	Potter Cr.	15.60	0.09	120	4.09	0.182	300	0.46	7.8	0.08	370	3.2
RAN-7	Waterloo Rd., W. of SR 44	Congress Lake Outlet	5.60	0.10	170	<2	0.177	280	0.38	7.9	0.10	380	3.0
RAN-8	Hartville Rd., N. of Eberly, at #1250	Unnamed Trib. Of Congress	21.00	0.10	350	2.81	0.175	300	0.73	7.8	0.22	390	3.2
RAN-9	S. side of Laubert Rd. (#3214), E. of Hartville Rd.	Congress Lake Outlet	38.00	1.02	2,100	2.66	0.198	280	1.6	7.3	0.13	390	2.8
RAN-10	S. side of Laubert Rd., E. of #3462	Congress Lake Outlet	10.80	0.28	250	2.87	0.187	310	0.43	7.7	0.06	410	3.1
RAV-11	W. side of PeckRd. (#6381)	Unnamed Trib. Of West Bran	250.00	2.00	17,000	7.75	0.392	220	21.5	7.2	0.42	760	35.0
ROO-1	E. side of New Milford Rd., just S. of Greenwood R	Unnamed Trib. Of Breakneck	8.40	0.32	5,500	<2	0.176	160	0.48	7.4	0.09	310	4.8
ROO-2	N. side of Tallmadge Rd., just W. of Biltz Rd.	Breakneck Cr.	12.50	0.56	510	<2	0.178	240	0.28	7.7	0.09	350	8.6
ROO-3	Tallmadge Rd., between Rootstown Rd. & Kline Rd	Hudson R.	28.60	0.00	1,100	2.61	0.167	200	0.42	7.5	0.32	310	4.3
SHA-1	W. side of Diagonal Rd., 1000 Ft. N. of Frost Rd.	Unnamed Trib. Of Cuyahoga	172.00	0.07	<20	7.84	0.194	130	0.82	2.6	0.21	360	5.2
SHA-2	S. side of Frost Rd., 200 Ft. E. of Diagonal Rd.	Unnamed Trib. Of Cuyahoga	45.00	0.06	4,700	5.69	0.193	140	0.75	7.8	0.13	240	5.5
SHA-3	S. side of SR 303	Mahoning R.	8.00	0.10	300	4.15	0.215	160	0.36	7.6	0.05	360	5.3
SHA-4	W. side of SR 44	Harper Ditch	44.00	0.07	<10	2.21	0.173	160	0.12	7.8	0.08	250	3.3
SHA-5	S. side of Lake Rockwell Rd., 500 Ft. E. of #3780	Ravenswood Golf Course Dit	242.00	0.08	150	4.09	0.155	76	0.4	7.2	0.13	140	2.7
SUF-1	Martin Rd., just S. of Sunnybrook Rd.	Mogadore Res. Outlet	10.80	0.22	590	2.78	0.137	130	0.06	7.7	0.09	210	2.5
SUF-2	Congress Lake Rd., N. of Randolph Rd.	Unnamed Trib. Of Mogadore	228.00	0.28	1,100	3.79	0.156	250	0.39	7.5	0.03	350	3.1
SUF-4	E. side of Martin Rd., at Etter Rd.	Fox Ditch	17.00	0.29	130	2.51	0.143	320	1.69	7.7	0.08	450	2.4
SUF-5	Congress Lake Rd., just S. of Waterloo Rd.	Unnamed Trib. Of Potter Cr.	400.00	0.26	31,000	10.12	0.135	190	1.4	7.2	0.90	290	8.5
SUF-6	Canfield Rd., just E. of May Rd.	Potter Cr.	31.00	0.22	4,400	<2	0.187	260	0.87	7.7	0.14	370	7.6
WIN-1	W. side of Parkman, just S. of SR 82	Unnamed Trib. Of Eagle Cr.	4.80	0.06	40	<2	0.169	150	0.29	7.6	<0.04	220	2.8
WIN-2	W. side of Stanley Rd., just S. of Werger Rd.	Unnamed Trib. Of Eagle Cr.	22.00	0.05	60	<2	0.181	190	0.06	7.6	0.05	300	2.8
WIN-3	E. side of Parkman Rd., 0.5 mi. N. of SR 82	Unnamed Trib. Of Eagle Cr.	4.80	0.05	190	<2	0.168	190	0.7	7.8	0.07	280	2.8
WIN-4	Silica Sand Rd., just E. of Parkman Rd.	Unnamed Trib. Of Eagle Cr.	4.80	0.03	61	<2	0.150	200	0.6	7.6	0.07	290	3.2
WIN-5	Silica Sand Rd., just W. of Colton Rd.	Unnamed Trib. Of Eagle Cr.	6.00	0.01	120	<2	0.167	190	0.66	7.8	0.06	280	3.0
WIN-6	S. side of SR 82, just W. of Colton Rd.	Unnamed Trib. Of Eagle Cr.	19.00	0.01	400	2.02	0.216	200	0.38	7.8	0.05	320	2.9
WIN-7	SR 82, just W. of Horn Rd.	Unnamed Trib. Of Eagle Cr.	244.00	0.02	20	4.84	0.254	130	0.41	7.3	0.17	370	4.0
WIN-8	N. side of Gotham Rd., just W. of Stanley Rd.	Unnamed Trib. Of Eagle Cr.	84.00	0.05	1,200	5.76	0.212	160	0.72	7.6	0.39	440	4.4
Frequency			83.00	83.00	80.00	50.00	82.00	83.00	74.00	81.00	77.00	83.00	82.00