ILLICIT DISCHARGE INVESTIGATION OF THE US-16, LAW, AND FRACASSI DRAINS IN OAKLAND COUNTY

FINAL REPORT

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EXECUTIVE SUMMARY

Illicit discharge investigations were conducted in 2013 along three Oakland County storm drains: US-16, Law, and Fracassi. Investigations revealed likely or possible illicit sanitary connections at several locations. In some areas, the local communities were contacted to confirm and oversee correction of the illicit connections. In other areas, additional investigations are needed by the Oakland County Water Resources Commissioner (WRC) in order to narrow down potential illicit connections. The suspected problems and recommended follow-up actions are listed below.

Summary of Likely and Possible Illicit Connections

Drain	Suspected Problem	Recommended Follow-up Actions
US-16	Likely illicit sanitary connections (unplugged or failed bulkheads) at several storm manholes along Shiawassee Rd.	City of Farmington to confirm results and inspect/plug/repair abandoned sanitary leads or overflows.
Law	Likely illicit sanitary connections from 5 homes along Vailwood Court	Bloomfield Twp to dye test homes to confirm results and oversee correction.
Law	Possible illicit sanitary connections along Wilshire Drive south of Vailwood Ct.	WRC to conduct a CCTV inspection between manhole 7926 and the outlet.
Law	Possible illicit sanitary connections along Sycamore Drive	WRC to conduct additional investigations along the length of the drain.
Fracassi	Possible illicit sanitary connections	WRC to conduct additional investigations along the length of the drain.

BACKGROUND

This report is being submitted in accordance with provisions of the Interagency Agreement between the Alliance of Rouge Communities (ARC) and the Oakland County Water Resources Commissioner (WRC) dated November 12, 2013. WRC conducted illicit discharge Investigations on three County Drains within the Rouge Watershed with the purpose of identifying and eliminating sources of sewage contamination to the drains and to the Main and Upper Branches of the Rouge River in Oakland County. The three drains investigated during the project period were: the US-16 Drain located in Farmington and Farmington Hills, the Law Drain located Bloomfield Township, and the Fracassi Drain located in Southfield. These drains were selected based upon historical elevated *E. coli* dry weather screening and sampling data collected by WRC under their Illicit Discharge Elimination Program (IDEP) for Oakland County. Elevated counts of *E. coli* bacteria and the presence of other pollutants associated with sewage contamination indicate a high probability of upstream illicit discharge sources being present. This effort supports the activities required under the Federal NPDES General Storm Water Permit issued to Oakland County in 2003. A map of the project area and drain locations and historical sampling data are included in Figure 1 and Table 1 of Appendix A.

INTRODUCTION

During the project period, WRC conducted illicit discharge investigations on each of the three County drains as described herein. All three of these drainage systems are large enclosed storm drain systems that serve as conveyance for smaller local storm drain systems including street drains and residential and commercial properties. Maps were obtained and the drains were segmented and observation / sampling locations were selected based on system manhole locations. Surveys were conducted at selected manholes to identify inlets into the county drain system. Inlets were examined during dry weather for flow and evidence of sewage contamination (toilet paper, grey water, soap suds, staining, etc.) Water samples were collected at locations exhibiting dry weather flow and samples were analyzed for *E. coli* bacteria at the Walled Lake –Novi Waste Water Treatment Facility (WWTF). Physical observation and sampling data were reviewed and used to identify segments of each drain with suspected sanitary discharges. Additional samples and observations were made in order to confirm and isolate specific segments of the drain and, where possible, identify specific inlet (s) to the drain with evidence of sanitary sewage. Closed Circuit Televising (CCTV) was further used to identify and visually inspect connections in between manhole locations and identify specific properties with possible sanitary illicit connections. A summary of results of investigation on each drain is provided below.

US-16 DRAIN INVESTIGATION

The US-16 Drain is a large enclosed storm drain located along the northern border of Farmington and Farmington Hills. The Drain parallels Grand River Ave and Shiawassee Road and discharges to the Upper Rouge River in Shiawassee Park near Farmington Road. The Drain services local storm water laterals from residential subdivisions on both the north and south side of Shiawassee Road and businesses along Grand River Ave west of Shiawassee. During the project period, a survey of manholes along Shiawassee Road and Grand River Ave was conducted and dry weather flow samples were collected and analyzed for *E. coli*. Physical examination of manhole locations indicated the presence of dry weather flow throughout the system. A map of sampling locations and a table of survey results appear in Figure 2 and Table 2 of Appendix B.

Examination and sampling of manholes west of the Grand River /Shiawassee junction (locations 4416-4420) indicates that flow is coming from the retention pond for the residential subdivision and commercial property on the north side of Grand River. Physical examination and sampling of manholes in this section of the Drain did not indicate any potential sewage contamination issues.

Examination and sampling from manholes on Shiawassee east of Grand River Ave. (locations 4406-4415) indicates that there is a high probability of intermittent sanitary discharges to this system at multiple locations. Although physical observations and *E. coli* sampling results did not verify any direct sanitary flow connections, consistent elevated bacteria levels and the presence of multiple sanitary overflow connections from the sanitary system paralleling the storm drain system (as witnessed in the manhole structures) indicates that there is a high probability of intermittent discharges of sanitary sewage from the sanitary sewer to storm drain. This most likely only occurs during times of peak sanitary flow in the system.

Results

Manhole surveys discovered multiple connections from the sanitary sewer to the storm drain system which either have not been plugged or have been plugged and may be leaking (see notes for manholes 4406, 4408B, 4409C, 4410, 4413 and 4415 in Table 2, Appendix B for more details). Additionally, manhole 4407B has a sanitary house lead for the property running directly through it. The house lead may be damaged with sanitary sewage infiltrating through the wall of the brick manhole structure.

Recommendations

A table indicating the results of sampling and manhole surveys along with recommendations for inspections and repairs appears in Table 2, Appendix B. This information has been turned over to the City of Farmington for review. The City of Farmington Public Services will follow up with inspections of manholes along Shiawassee Road in order to evaluate the identified sanitary overflow connections and complete an examination of the storm and sanitary systems along Shiawassee in order to locate and eliminate any additional sanitary connections. (It should be noted that previous (March 2000) CCTV footage from the US-16 Drain is available for review). All sanitary overflow connections will be evaluated, plugged, or repaired as necessary to eliminate sanitary overflow into the storm drain system. The system will be monitored after the corrections have been completed.

LAW DRAIN INVESTIGATIONS

The Law Drain is a series of 9 separate enclosed drains systems all of which discharge to Heather Lake, an impoundment of the Main Branch of the Rouge River located east of Telegraph Road and south of Square Lake Road in Bloomfield Township. These drains service the residential subdivisions surrounding the Lake. Previous investigations and sampling of the Lake at the drain outlets have indicate elevated *E. coli* concentrations throughout the Lake. Of most concern were two outfalls at the western end of the Lake which drain portions of Wilshire Drive, Vailwood Court, and Sycamore Drive. These two storm drains systems were targeted for IDEP investigations under this project.

During the Project period, a survey of manholes on the two storm drain systems was conducted and samples were collected and analyzed for *E. coli*. CCTV inspection of the drain system along Vailwood Ct. was perform in order to locate illicit connection(s) to the storm drain containing sanitary sewage. A map of sampling locations and a table of survey results appear in Figure 3 and Table 3 of Appendix B. CCTV records are provided in Appendix C.

Wilshire Drive and Vailwood Ct. Inspections

The enclosed drain system along Wilshire Dr., and Vailwood Ct. was examined for dry weather flow and evidence of sanitary sewage at the outlet (6605) and at upstream manholes (7930-6689). Dry weather flow and evidence of sanitary sewage (grey water, odor and toilet paper and solids) were found in the main channel flow at all manholes up to manhole 7966. A flush of sanitary sewage and visible solids were observed at manhole 7926 on November 20, 2013. Sampling of the flow for *E. coli* confirmed the

presence of sewage. A CCTV inspection was used to isolate properties with potential illicit connections to the Drain.

Results

Video inspection of the system between MH 7966 to MH 6688 and MH 6688 to MH 6689 found a total of five connections from residential properties on the west side of Vailwood Ct. and along the cul-de-sac at the end of the street. These connections appear on the as-built drawings, so they may have been installed during of construction of the drain. Active sanitary flow was observed in the two most downstream connections which tap the drain just north of MH 7966 and MH 6688. The remaining three connections did not have active flow but signs of sanitary debris at the outlets were observed.

Recommendations

A table indicating the results of sampling and manhole surveys and results of the CCTV inspections can be found in Appendices B and C. This information has been turned over to Bloomfield Township for review. Bloomfield Township Engineering and Environmental Services (EES) is in the process of contacting homeowners of suspect properties (See Appendix D). Dye testing will be used to confirm illicit connections to the storm drain and the availability of a sanitary sewer will be confirmed. It is anticipated that elimination of the illicit connections will be accomplished through enforcement of local plumbing and building codes and ordinances.

In addition, a CCTV inspection should be conducted between manhole 7926 and the outlet to determine the presence of possible illicit connections.

Sycamore Drive Inspections

Physical observations were conducted and samples were collected and analyzed for *E. coli* at the outlet to Heather Lake (6607) across from Wilshire Drive and at manholes 7941-7931 on Sycamore Dr. Heavy dry weather flow was present throughout the system. Physical examination did not indicate the presence of sanitary sewage (grey water, solids, odors, color, floatables) but *E. coli* concentrations were elevated at multiple locations.

Results

Although *E. coli* counts were elevated at many locations, they were not high enough to indicate a direct sewage source and there was no physical evidence of sewage contamination. Dry weather flow is prevalent throughout the system. Properties on this street have many low lying areas with high groundwater levels and backyard drainage systems connected to the system.

Recommendations

Additional sampling is necessary to isolate any potential sewage sources from groundwater / surface water flow influences.

FRACASSI DRAIN INVESTIGATIONS

The Fracassi Drain is a series of interconnected enclosed drains located in the southwest corner of Southfield at Inkster Rd. and 8 Mile Rd. The Drain services residential neighborhoods and extends four blocks east of Inkster Rd. and from 8 Mile Rd north to Adelein St. The Fracassi Drain discharges to the enclosed Emily Drain which discharges to the Main Branch of the Rouge River just north of 8 Mile Rd. at Beech Daily Rd.

During the project period, samples of the Fracassi Drain were collected at the discharge point to the Emily Drain and at manhole locations for storm water laterals entering the drain along Bryon St. The drain is relatively deep 18-20 feet, and difficult to sample. The drain has substantial continuous dry weather flow along the length of its system except for the lateral entering from the north on Inkster Road. A map of sampling locations and a table of survey results appear in Figure 4 and Table 4 of Appendix B.

Results

Observational and sampling data from the outlet to the Emily Drain (MH 3794) and from manhole locations for laterals coming into the drain on Byron Street (6217-6236) indicate that there is continuous flow in the main channel of the drain from street laterals north of Byron Street except Inkster Road. The main channel of the drain is very deep making it difficult to sample and hard to ascertain flow and physical observations from street level. None of the samples collected had any physical indications of sewage contamination (color, odor, floatables, sheens, etc.). All of the manholes, except at Inkster Road, which was dry, had elevated *E. coli* concentrations. Although some results were greater than 1,000 cfu/100 ml (colony forming units per 100 milliliters), they were not high enough to indicate a direct sewage source. Based on these results, a decision was made not to collect additional samples or perform investigations of the connecting street laterals due to time and budget constraints of the grant.

Recommendations

Sampling data collected during the project period and historical sampling data suggests that the Drain may be receiving intermittent discharges of sanitary sewage from upstream sources, but it was difficult to isolate a particular segment of the Drain for advanced IDEP investigation. The depth of the Drain, continual dry weather flow volume, and the likelihood of an intermittent sanitary discharge source make it difficult to isolate specific drain laterals with potential sanitary sewage sources. A hydrologic flow study, additional sampling of the drain during peak sanitary flow and possibly other testing methodologies are recommended to distinguish between, groundwater, surface water, and sanitary sewage flow.

APPENDIX A: LOCATION MAPS AND HISTORICAL SAMPLING DATA

Figure 1: Project Area Location Map

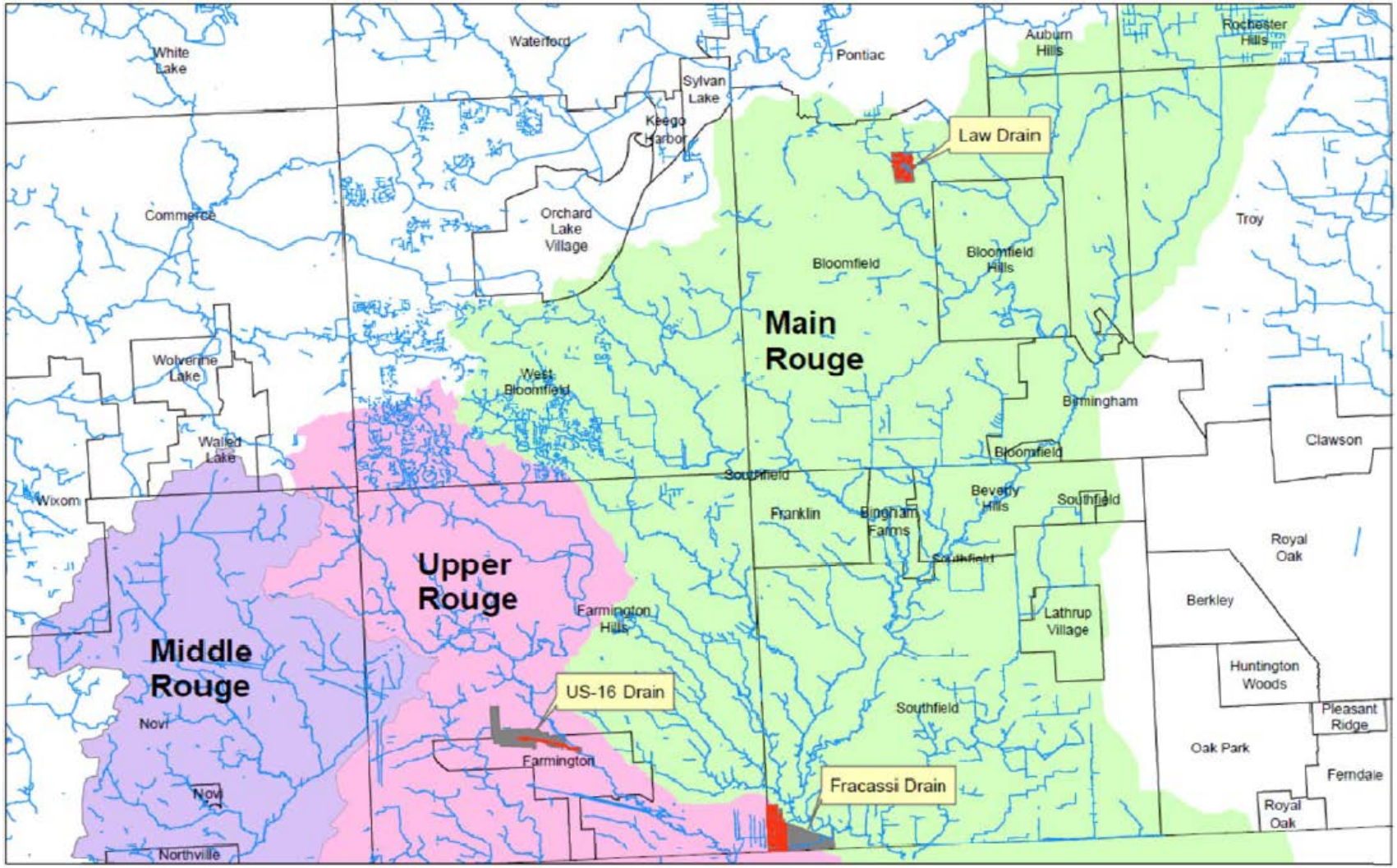

Table 1: WRC Historical *E. coli* Sampling Data, Fracassi, Law and US-16 Drains

Sample Date	Time	Drain Name	Sample ID	CAMS Asset ID	Location	Parameter	Results	Units
4/25/2008	11:17 AM	Fracassi Drain	MH #1	6208	Southfield	*E. coli*	3485	CFU/ 100 ml
6/20/2008	9:50 AM	Fracassi Drain	MH #3	6216	Southfield	*E. coli*	546	CFU/ 100 ml
6/20/2008	9:45 AM	Fracassi Drain	MH #1	6208	Southfield	*E. coli*	3453	CFU/ 100 ml
6/20/2008	10:00 AM	Fracassi Drain	MH #26	6209	Southfield	*E. coli*	9880	CFU/ 100 ml
6/26/2008	9:55 AM	Fracassi Drain	MH #28	6211	Southfield	*E. coli*	11913	CFU/ 100 ml
6/30/2008	9:50 AM	Fracassi Drain	MH #5	6227	Southfield	*E. coli*	1325	CFU/ 100 ml
6/30/2008	9:55 AM	Fracassi Drain	MH #28	6211	Southfield	*E. coli*	2104	CFU/ 100 ml
10/20/2008	10:18 AM	Fracassi Drain	MH #6	6235	Southfield	*E. coli*	26347	CFU/ 100 ml
10/20/2008	10:10 AM	Fracassi Drain	MH #5	6227	Southfield	*E. coli*	<100	CFU/ 100 ml
10/21/2008	9:30 AM	Fracassi Drain	MH #26	6209	Southfield	*E. coli*	554	CFU/ 100 ml
10/21/2008	9:20 AM	Fracassi Drain	MH #29	6214	Southfield	*E. coli*	11849	CFU/ 100 ml
10/21/2008	9:15 AM	Fracassi Drain	MH #28	6211	Southfield	*E. coli*	329500	CFU/ 100 ml
10/27/2008	9:30 AM	Fracassi Drain	MH #30	6213	Southfield	*E. coli*	10248	CFU/ 100 ml
7/19/2010	8:30 AM	Law Drain	.02	6608	Bloomfield Twp.	*E. coli*	2047	CFU/ 100 ml
7/19/2010	9:10 AM	Law Drain	.00	6609	Bloomfield Twp.	*E. coli*	1232	CFU/ 100 ml
7/19/2010	9:50 AM	Law Drain	.05	6607	Bloomfield Twp.	*E. coli*	99854	CFU/ 100 ml
7/19/2010	10:30 AM	Law Drain	.06	6605	Bloomfield Twp.	*E. coli*	>1002500	CFU/ 100 ml
11/27/2012	10:33 AM	Law Drain	6609	6609	Bloomfield Twp.	*E. coli*	100	CFU/ 100 ml
11/27/2012	11:44 AM	Law Drain	6607	6607	Bloomfield Twp.	*E. coli*	210	CFU/ 100 ml
11/27/2012	11:14 AM	Law Drain	6608	6608	Bloomfield Twp.	*E. coli*	1,151	CFU/ 100 ml
11/27/2012	11:59 AM	Law Drain	6605	6605	Bloomfield Twp.	*E. coli*	127,000	CFU/ 100 ml
11/27/2012	1:32 PM	Law Drain	7929	7929	Bloomfield Twp.	*E. coli*	153,000	CFU/ 100 ml
8/18/1999	9:43 AM	US16 Drain	0299.00	7801	Farmington / F. Hills	*E. coli*	>10025	CFU/ 100 ml
9/3/1999	9:59 AM	US16 Drain	0299.01	4422	Farmington / F. Hills	*E. coli*	>10025	CFU/ 100 ml
9/3/1999	9:45 AM	US16 Drain	0299.06	4409	Farmington / F. Hills	*E. coli*	>10025	CFU/ 100 ml
2/16/2000	9:30 AM	US16 Drain	0299.10	4413	Farmington / F. Hills	*E. coli*	>200500	CFU/ 100 ml
2/16/2000	9:45 AM	US16 Drain	0299.13	4416	Farmington / F. Hills	*E. coli*	>200500	CFU/ 100 ml
2/16/2000	10:15 AM	US16 Drain	0299.16N	4420	Farmington / F. Hills	*E. coli*	98	CFU/ 100 ml
2/16/2000	10:30 AM	US16 Drain	0299.16S	4420	Farmington / F. Hills	*E. coli*	4	CFU/ 100 ml
2/23/2000	9:30 AM	US16 Drain	0299.13	4416	Farmington / F. Hills	*E. coli*	10357	CFU/ 100 ml
2/23/2000	10:00 AM	US16 Drain	0299.14	4418	Farmington / F. Hills	*E. coli*	770	CFU/ 100 ml
2/23/2000	10:30 AM	US16 Drain	0299.15	4419	Farmington / F. Hills	*E. coli*	810	CFU/ 100 ml
4/10/2000	12:20 PM	US16 Drain	0299.14	4418	Farmington / F. Hills	*E. coli*	57	CFU/ 100 ml
5/26/2000	12:00 PM	US16 Drain	0299.13	4416	Farmington / F. Hills	*E. coli*	79	CFU/ 100 ml
5/5/2008	11:30 AM	US16 Drain	MH #3	4406	Farmington / F. Hills	*E. coli*	2414	CFU/ 100 ml
7/30/2009	12:35 PM	US16 Drain	MH #4	4407	Farmington / F. Hills	*E. coli*	2630	CFU/ 100 ml
4/14/2008	11:45 AM	US16 Drain	MH #3	4406	Farmington / F. Hills	*E. coli*	4790	CFU/ 100 ml
5/5/2008	11:40 AM	US16 Drain	MH #4	4407	Farmington / F. Hills	*E. coli*	2402	CFU/ 100 ml

APPENDIX B: DRAIN SURVEY / SAMPLING LOCATION MAPS AND RESULTS

Figure 2: US-16 Drain Sampling Locations and Results

US 16 Drain,
IDEP Investigation
Sampling Points
Farmington / Farmington Hills

Figure 3: Law Drain Sampling Locations and Results

Law Drain , Illicit Discharge Investigation Sampling Points.

Legend

- MS 4 Discharge Points
- MS 4 IDEP Sampling Point
- Drain Structures
- IDEP Sampling Points
- Open Water Course
- WRC Detention Pond
- WRC Retention Pond
- Open Channel
- Lake / Pond
- Swamp / Marsh
- Municipal Boundary

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Elimination Program

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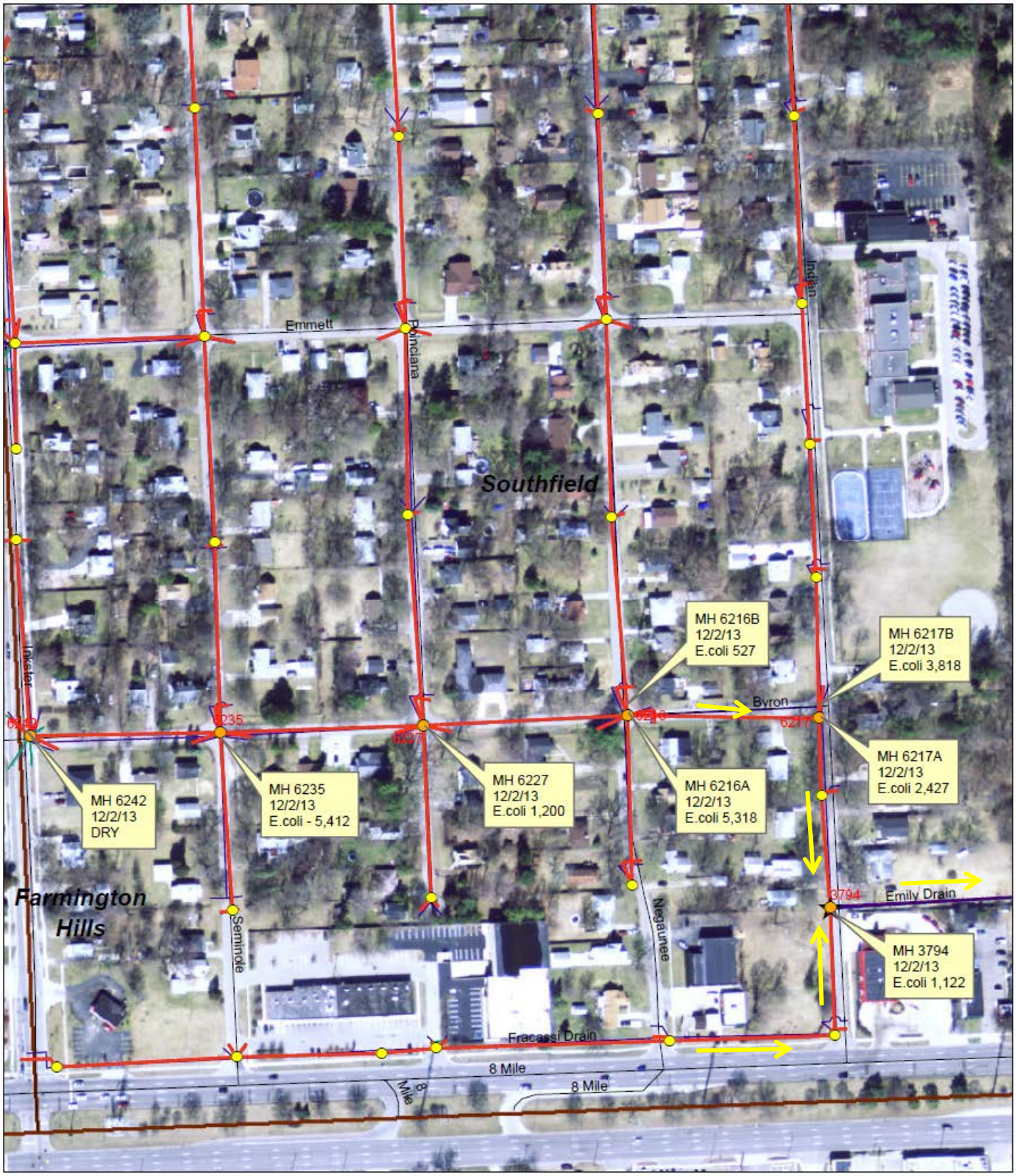
Figure 4: Fracassi Drain Sampling Locations and Results



Fracassi Drain, IDEP Investigation, Southfield

Legend

- Drain Outlet
- MH Locations
- Sampling Locations
- Fracassi Drain
- Open County Drains
- Enclosed County Drains
- Open Water Course
- Municipal Boundary

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Table 2: US-16 Drain MH Survey and Sampling Results

Manhole ID	Asset ID	Sample ID	Date Sampled	*E. coli* Results	Location	Comments	Recommendations
FAT106002	4421	4421	11/13/2013	7,898	Shiawassee, Center Lane W of Warner St	Center lane in Shiawassee hard to access requires traffic control	None
FAT106003	4422	4422	11/13/2013	4458	Shiawassee Center lane E of Warner St.	Center lane in Shiawassee hard to access requires traffic control	None
FAT106004	4406	4406	11/13/2013 11/25/2013 12/3/2013	28,655 6,578 17,251	On S. side of traffic island at Warner / Shiawassee junction, against S. Curb at 32219 Shiawassee	pics road CB drain on Shiawassee inlet Elevated *E. coli*. Possible connection from sanitary MH 4406B	Inspect, confirm connection from san. MH is bulk headed
FAC MH	NA	4406 B	12/4/2013	545000	Between sidewalk and street at 33219 Shiawassee. just S of MH 4406	Upper terminus sanitary MH for Warner St. (need to confirm w FAC), 6" san. lead in west wall, outlet in n.w. comer of MH possible connection to Storm MH 4406. toilet paper, floatables in bottom channel	Inspect, confirm connection to sanitary on Warner. Bulkhead outlet to storm Drain MH 004
FAT106005	4407	4407	11/13/2013 11/25/2013 12/3/2013	135,500 6624 6,666	At property line for 33315 Shiawassee in E. bound lane.	Pass through MH on US 16 Drain, elevated *E. coli* from flow channel	High *E. coli*, check for upstream sanitary connections.
MH not in WRC GIS	NA	4407B	11/13/2013 11/25/2013 12/3/2013	11,298 7,113 7,539	In front of 33335 Shiawassee. MH in E. bound lane. MH Not in WRC storm plans	Sanitary house lead running through MH. S. wall of MH is continually wet. Spoke w Homeowner- front yard is sinking at sidewalk. Possible collapsed house lead. Flow in MH. Tested high for *E. coli*. No solids present	Inspect MH and add to WRC GIS. CCTV sanitary lead for damage.
FAT109001	NA	4408	11/13/2013 11/25/2013 12/3/2013	16,646 3,786 2,840	S.W. corner of Farmington and Shiawassee	Pass through MH on US 16 Drain, MH elevated *E. coli*. 2' pvc pipe in top N. wall of MH. Unknown origin	Unpermitted 2" PVC
MH not in WRC GIS	NA	4408B	12/3/2013	2,875	Upstream of MH 4408 across from Church	Picks up curb CB on Shiawassee. Possible Sanitary Overflow connection in N. wall of MH at mid level. Shelf is wet with standing water below inlet. Flow in main channel has elevated *E. coli*.	Inspect MH and add to WRC GIS. Confirm sanitary overflow connection. Plug and seal.
FAT109002	4409	4409	11/13/2013	11,246	at intersection of Grace and Shiawassee E. bound lane	MH has solid cover	Replace Solid Cover with perforated storm lid.
MH not in WRC GIS	NA	4409B	11/13/2013	2,213	E bound Shiawassee at 33601, downstream of MH 4410	Half way between Hillcrest and Cass upstream of 4409C	Inspect MH. Add to WRC GIS
MH not in WRC GIS	NA	4409C	11/13/2013	4,057	E bound Shiawassee at 33551 Hillcrest , downstream of MH 4409B	At Hillcrest, has inlet from for catch basin. Inlet from FH storm lateral on Hillcrest. San. overflow inlet on N. wall of MH. is bulk headed at san. MH outlet. Does not appears to be leaking	Inspect MH, Add to WRC GIS, Seal sanitary overflow Inlet

FAC MH	NA	4009D	11/13/2013	<50	Next to 4409C connects FH lateral to Drain	FH MH connects FH storm lateral from Hillcrest to MH 4409C	None
FAT109003	4410	4410	11/13/2013	1,776	E. bound Shiawassee at Cass	Has inlet from FAC storm lateral MH 4410B. Sanitary inlet in N. wall of MH is plugged but is wet below the inlet may be leaking.	Inspect MH and sanitary plug
FAC MH	NA	4410B	11/13/2013	<50	Across from MH 4410	MH for FAC lateral on Hillcrest. Connects to MH 4410	None
FAT109004	4411	4411	11/13/2013	866	E bound Shiawassee Across for Glenview intersection	Has Inlet from FAC storm lateral MH 4411B Across St.	None
FAC MH	NA	4411B	11/13/2013	50	W. bound Shiawassee Across from MH 4411	Connects Local Storm lateral for Glenview.	None
FAT109005	4412	4412	11/15/2013	685	E. bound Shiawassee in front of Across from 34002	Connects MH with MH 4413 across St.	None
FAT109006	4413	4413	11/15/2013	555	On w. side of driveway for 34002 in grass.	Connects with MH 4413,. Has inlet from sanitary MH to the east. Inlet is plugged on the sanitary MH side. Does not appears to be leaking	Inspect MH. Seal sanitary inlet on storm side.
MH not in WRC GIS	NA	4415B	11/15/2013	<50	N.W. corner of Glenview (W. outlet to Shiawassee) at 34036 Glenview	Connects Storm CB on Shiawassee. Has inlet from Sanitary MH, just north in grass. Inlet has trickle flow, but is plugged at sanitary MH	Inspect MH. Add to WRC GIS, Inspect connection from sanitary MH. for leaks or other connections. Seal inlet at storm MH.
FAT109008	4415	4415	11/15/2013	50	N.E. corner of Locust and Shiawassee by telephone pole	Has 8 " Clay tile pipe entering from n.w. appears to be running directly under 34036 Glenview. Inlet is dry.	Determine origin / purpose of connection if possible.
FAT109009	4417	4417	11/25/2013	<50	E of Tana St by Graveyard. MH is in Middle W. bound Grand River	MH hard to access requires traffic control	None
FAT110001	4416	4416	11/25/2013	100	Across from Gill in Right lane of W. bound Grand River.	MH in Right hand lane of traffic requires traffic control. Storm inlets from pond / apts.	None
FAT110002	4418	4418	11/25/2013	50	Up on grass easement between road and sidewalk, across from detention pond.	Has storm inlet form pond	None
FAT11003	4419	4419A	11/25/2013	<50	In grass easement between Road and sidewalk	Has inlets from road CB and local storm from the north	None
NA	NA	4419B	11/25/2013	<50	Inlet from local storm to MH 4419	Sampled trickle flow from pipe	None
FAT110004	4420	4420A	11/25/2013	<50	In right hand turn lane for Commercial complex at	Has inlets from local storm from S. side of Grand River., N. from parking lot and	None

					Harley Davidson Dealership Driveway.	N.W from unknown source	
NA	NA	4420B	11/25/2013	155	Inlet from local storm MH on S. side of Grand River into MH 4420	Sampled trickle flow from pipe	None
NA	NA	4420C	11/25/2013	<50	Inlet N.W pipe into MH 4420	Sampled trickle flow from pipe	None

Table 3: Law Drain MH Survey and Sampling Results

Wilshire/ Vailwood Ct. Storm Drain Survey and Sampling Results							
Manhole ID	**Asset ID**	**Sample ID**	**Date Sampled**	***E. coli* Results**	**Location**	**Comments**	**Recommendations**
BLT033094	6605	6605	11/19/2013	25,200	Outlet to lake behind 315 Wilshire	Outlet submerged, grey water discharge	Investigate upstream source
BLT033096	7930	7929A	11/19/2013	<50	Pipe for CB at 290 Wilshire connects to MH 7929	Trickle Flow, CB Dry no evidence of sewage	None
BLT033095	7929	7929B	11/19/2013	41,780	In front of 290 Wilshire outlets flow form the north . Outlets west to outfall at lake.	Dry weather flow, grey water, odor	Investigate upstream source
BLT033097	7928	7928A	11/19/2013	23,721	In front of 298 Wilshire, has inlet from east from back yard CB.	Dry weather flow, grey water, odor	Investigate upstream source
BLT033097	7928	7928 B	11/19/2013	1,369	Pipe from backyard CB at 298 Wilshire into MH 7928	trickle flow, from CB no color, odor.	None
BLT033098	7927	7927A	11/19/2013	50	CB on Wilshire Directly across from MH 7927	Trickle flow from CB across St.	None
BLT033098	7927	7927B	11/19/2013	40,064	At S.E. corner of Wilshire & Vailwood	Dry weather flow, grey water, odor	Investigate upstream source
BLT033104	7926	7926	11/20/2013	545,500	off N. side of end of driveway for 302 Vailwood. Has connecting 6" storm running E. along property line. No flow	Trickle flow on 11/19 could not get sample, returned on 11/20. Observed flush of sewage, heavy flow with solids.	CCTV between upstream MH for illicit connections (See attached CCTV inspection results)
BLT033107	7966	7966	11/19/2013	NA	at n. end of property line between 302 an 306 Vailwood. just s. of circle drive for 306	Trickle flow hard to get sample on 11/19. Observed light flow w/ toilet paper on 11/20	CCTV between upstream MH for illicit connections (See attached CCTV inspection results)
BLT033108	6688	6688	11/19/2013	<50	At s. end of property line between 310 and 306 Vailwood	Trickle flow hard to sample.	CCTV between upstream MH for illicit connections (See attached CCTV Inspection results)
BLT03109	6689	6689	11/19/2013	NA	at end of Cul-de-sac in front yard of 318 Vailwood	Terminus MH, no flow, dry	None

Sycamore Storm Drain Survey and Sampling Results							
Manhole ID	**Asset ID**	**Sample ID**	**Date Sampled**	***E. coli* Results**	**Location**	**Comments**	**Recommendations**
BLT033110	6607	6607	11/19/2013	3,039	Outlet to lake, behind 331 Wilshire	Concrete pipe outlet underwater, end section is damaged	Have maintenance inspect end section for repair. Additional sampling / investigation needed
BLT033111	7941	7941	11/20/2013	16,832	On w. side at end of driveway for 331 Wilshire	Dry weather flow, clear no odor, inlet from 7940, outlet to Lake	High *E. coli* additional sampling / investigation needed
BLT03112	7940	7940	11/20/2013	36,151	In grass on N. side of Traffic island on E . side of sycamore at 334	Dry weather flow, clear, no odor. Pipe inlet from west, no flow.	High *E. coli* additional sampling / investigation needed
BLT033115	7939	7939	11/20/2013	23,612	At N. end of circle drive for 338 Sycamore	Dry Weather Flow, clear, no odor	High *E. coli* additional sampling / investigation needed
BLT033116	7938	7938	11/20/2013	7,836	At N. end of circle drive for 342 Sycamore	Dry Weather Flow, clear, no odor	High *E. coli* additional sampling / investigation needed
BLT033117	7937	7937	11/20/2013	15,648	On n. side of driveway between 342 and 346 Sycamore	Dry Weather Flow, clear, no odor	High *E. coli* additional sampling / investigation needed
BLT033118	7936	7936	11/20/2013	265	On E. side of driveway between 346 and 350 Sycamore	Dry Weather Flow, clear, no odor	None
BLT033119	7935	7935	11/20/2013	<50	At property line between 354 and 350 Sycamore	Dry Weather Flow, clear, no odor. Pipe coming in from N. No flow	None
BLT033121	7934	7934	11/20/2013	201	At end of driveway for 358 Sycamore	Dry Weather Flow, clear, no odor	None
BLT033122	7933	7933	NA	NA	At end of drive for 362 Sycamore	trickle flow, could not sample, Pipe com ing in from Street CB to the S.	None
BLT033125	7932	7932	11/20/2013	6,238	At end of Cul-de-sac in front of 366 Sycamore	Dry Weather Flow, clear, no odor. Flow coming from drain at low area in back yard of property	High *E. coli* additional sampling / investigation needed

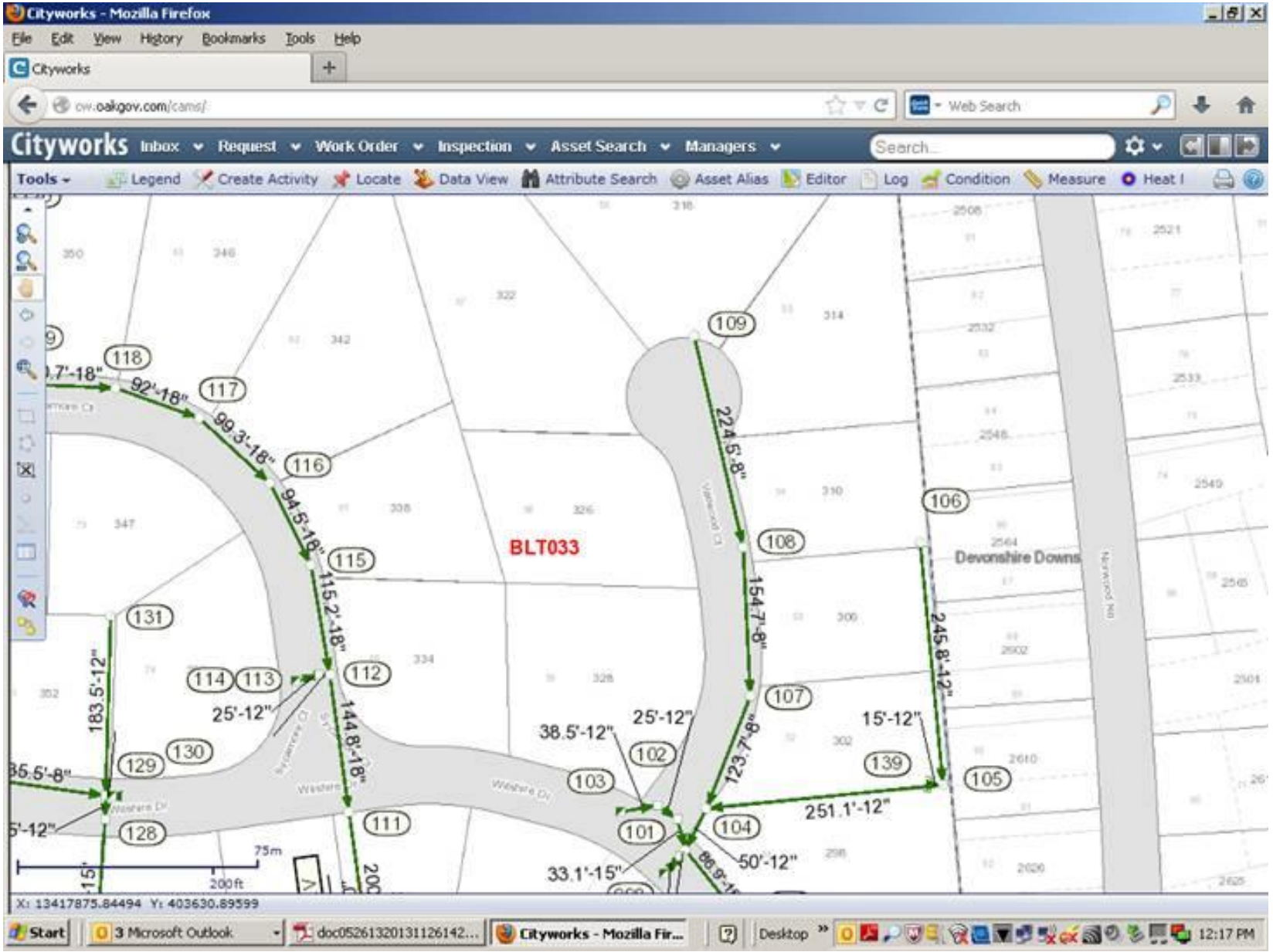
Table 4 : Fracassi Drain MH Survey and Sampling Results

Manhole ID	**Asset ID**	**Sample ID**	**Date Sampled**	***E. coli* Results**	**Location**	**Comments**	**Recommendations**
SOT123001	3794	3794	12/2/2013	1,122	Outlet to Emily Drain in N. bound lane of Linden across from alley for 27000. Linden. Sanitary cover on manhole	Junction chamber. Manhole is off centered to south. Cannot see flow channel, difficult to sample. Elevated *E. coli*	Additional sampling / Investigation necessary to confirm Identify source.

SOT123053	6217	6217A	12/2/2013	2,427	At intersection of Linden @ Byron	Flow in main channel from the west Sampled, 18-20 ft. depth, hard to sample. Addition pipe from N. Elevated *E. coli*	Additional sampling / Investigation necessary to confirm Identify source.
SOT123053	6217	6217B	12/2/2013	3,318	At intersection of Linden @ Byron, Storm Inlet from N. lateral	Sampled flow from pipe in N. wall of manhole at Mid center. Elevated *E. coli*	Additional sampling / Investigation necessary to confirm Identify source.
SOT123101	6216	6216A	12/2/2013	5,318	At Intersection of Nauganee St. @ Byron	Flow in main channel from the west Sampled, 18-20 ft. depth, hard to sample. Additional pipe N ., S. & SW. flow and street C inlet from S. W. Elevated *E. coli*	Additional sampling / Investigation necessary to confirm Identify source.
SOT123101	6216	6216B	12/2/2012	527	At Intersection of Nauganee St. @ Byron. Storm inlet from N. lateral	Sampled flow from pipe in N. wall of manhole at Mid center. Elevated *E. coli*. Pipe from S & SW S.W. were dry	Additional sampling / Investigation necessary to confirm Identify source.
SOT123172	6227	6227	12/2/2013	1,200	At Intersection of Poinciana @ Byron	Sampled flow from main channel. Inlets from, N, S. and Street CBs from SE and SW. All inlets were dry. Elevated *E. coli*	Additional sampling / Investigation necessary to confirm Identify source.
SOT123327	6235	6235	12/2/2013	5,412	At Intersection of Seminole and Byron	Sampled flow from main channel. Inlets from, N, S. and Street CBs from SE and SW. All inlets were dry. Elevated *E. coli*	Additional sampling / Investigation necessary to confirm Identify source.
SOT123298	6242	6242	NA	NA	N E corner of Byron and Inkster Rd.	Inlets from N on Inkster and Street t CBs for Inkster and Bryon from the NW and S E. all inlets and main channel were dry.	None

APPENDIX C: CCTV REPORT FOR THE LAW DRAIN

Reference Map for CCTV Labeling



OCWRC
1 Public Works
Waterford, MI
Tel.: (248) 858-1127
Fax:
Email:

Table of contents

Project Name:	Project number:	Date:	Contact:	
wincan_storm				

OCWRC
1 Public Works
Waterford, MI
Tel: (248) 858-1127
Fax:
Email:

/ Main sections / Inspection: 1

Project name	Project # :	Responsible :	Date :
wincan_storm			

No.	Start MH	End MH	Date	Street	Tape No.	Material	m	(m)
1							0.00	0.00

Pipe size: = 0 ft (0 ft)

No.	Start MH	End MH	Date	Street	Tape No.	Material	m	(m)
2	BLT033108	BLT033107	12/11/2013	302 Vailwood Ct.		Reinforced Plastic Pipe (Truss Pipe)	154.00	**151.70**
3	BLT033107	BLT033104	12/11/2013	302 Vailwood Ct.		Reinforced Plastic Pipe (Truss Pipe)	123.00	**117.80**
4	BLT033109	BLT033108	12/11/2013	302 Vailwood Ct.		Reinforced Plastic Pipe (Truss Pipe)	224.00	**209.30**

Pipe size: CIRCULAR 8 = 501 ft (478.8 ft)

All sections = 501 ft (478.8 ft)

OCWRC
1 Public Works
Waterford, MI
Tel.: (248) 858-1127
Fax:
Email

Inspection summary / Inspection: 1

Project Name:	Project number:	Date:	Contact:	
wincan_storm				

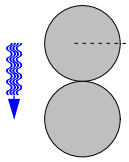
Please find per enclosure the inspection report

Total Length of sewer network	**501.00 ft**
Inspected Length of sewer network	**478.80 ft**
Not inspected Length of sewer network	**22.20 ft**
Total Length of house connections (satellite)	**0.00 ft**
Inspected Length of house connections (satellite)	**0.00 ft**
Not inspected Length of house connections (satellite)	**0.00 ft**
Number of Sections	**4**
Number of house connections	**0**
Number of Photos	**0**

Inspection Summary / Inspection: 1

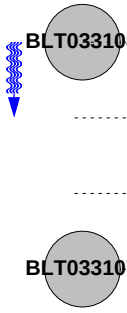
Date:	Responsible:			

Sewer Reference:		Section length:	0.00 ft
Section Numer:	1	Pipe length:	
Start node:		Material	
End node:		Shape:	



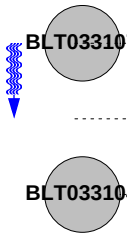
0.00	0	

Sewer Reference:	22807	Section length:	154.00 ft
Section Numer:	2	Pipe length:	
Start node:	BLT033108	Material	Reinforced Plastic Pipe (Truss Pipe)
End node:	BLT033107	Shape:	Circular



BLT033108	**0.00**	AMH	Upstream Manhole, Survey Begins	
	0.00	MWL	Water Level, 0 % of cross sectional area	M 2
	124.70	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inches of joint: YES	
BLT033107	**151.70**	AMH	Downstream Manhole, Survey Ends	

Sewer Reference:	22806	Section length:	123.00 ft
Section Numer:	3	Pipe length:	
Start node:	BLT033107	Material	Reinforced Plastic Pipe (Truss Pipe)
End node:	BLT033104	Shape:	Circular



BLT033107	**0.00**	AMH	Upstream Manhole, Survey Begins	
	0.00	MWL	Water Level, 5 % of cross sectional area	M 2
BLT033104	**117.80**	AMH	Downstream Manhole, Survey Ends	

Inspection Summary / Inspection: 1

Date:	Responsible:			

Sewer Reference:	22808	Section length:	224.00 ft
Section Numer:	4	Pipe length:	
Start node:	BLT033109	Material	Reinforced Plastic Pipe (Truss Pipe)
End node:	BLT033108	Shape:	Circular

BLT033108	0.00	AMH	Downstream Manhole, Survey Begins	
	0.00	MWL	Water Level, 5 % of cross sectional area	M 2
	32.70	TFA	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES	
	142.80	AMH	Upstream Manhole, Survey Ends	
	157.30	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inches of joint: YES	
	164.30	TFA	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES	
BLT033109	209.30	TFA	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES	

OCWRC
1 Public Works
Waterford, MI
Tel: (248) 858-1127
Fax:
E-mail:

Inspection Report / Inspection: 1

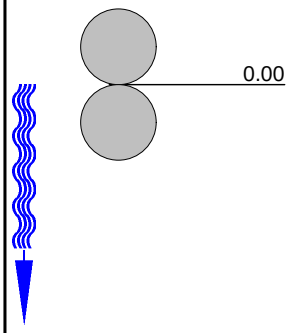
Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
					1
Certificate No.	Survey Customer	System Owner	Preset :	Pre-Cleaning	Sewer Category

Street	Use of Sewer	Upstream MH
City	Drainage Area	Dowstream MH
Loc. details	Flow Control	Dir. of Survey
Location Code	Length surveyed **0.00 ft**	Section Length **0.00 ft**

Purpose of Survey	Joint Length
Year Laid	Dia./Height
Year Rehabilitated	Material
Tape / Media No.	Lining Method

Add. Information :

1:50 **Position** **Observation**



0.00 0

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI

OCWRC
1 Public Works
Waterford, MI
Tel: (248) 858-1127
Fax:
E-mail:

Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
12/11/2013	**295649**	**Snow**	**Steward**		**2**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-111-11972				**No Pre-Cleaning**	

Street	**302 Vailwood Ct.**	Use of Sewer	**Stormwater**	Upstream MH	**BLT033108**
City	**Bloomfield Twp.**	Drainage Area		Dowstream MH	**BLT033107**
Loc. details		Flow Control		Dir. of Survey	**Downstream**
Location Code		Length surveyed	**151.70 ft**	Section Length	**154.00 ft**

Purpose of Survey	**Maintenance Related**	Joint Length	
Year Laid		Dia./Height	**8 inch**
Year Rehabilitated		Material	**Reinforced Plastic Pipe (Truss Pipe)**
Tape / Media No.		Lining Method	

Add. Information :

1:375	Position	Observation
		BLT033108
	0.00	Upstream Manhole, Survey Begins
	0.00	Water Level, 0 % of cross sectional area
	124.70	Tap Factory Made Active, at 03 o'clock, 6", within 8 inches of joint: YES
	151.70	Downstream Manhole, Survey Ends
		BLT033107

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**2100**	**0**	**2**	**2**	**0**	**2**	**2**

OCWRC
1 Public Works
Waterford, MI
Tel: (248) 858-1127
Fax:
E-mail:

Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
12/11/2013	**295648**	**Snow**	**Steward**		**3**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-111-11972				**No Pre-Cleaning**	

Street	**302 Vailwood Ct.**	Use of Sewer	**Stormwater**	Upstream MH	**BLT033107**
City	**Bloomfield Twp.**	Drainage Area		Dowstream MH	**BLT033104**
Loc. details		Flow Control		Dir. of Survey	**Downstream**
Location Code		Length surveyed	**117.80 ft**	Section Length	**123.00 ft**

Purpose of Survey	**Maintenance Related**	Joint Length	
Year Laid		Dia./Height	**8 inch**
Year Rehabilitated		Material	**Reinforced Plastic Pipe (Truss Pipe)**
Tape / Media No.		Lining Method	

Add. Information :

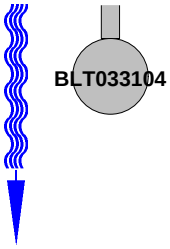
1:285	Position	Observation
BLT033107	0.00	Upstream Manhole, Survey Begins
	0.00	Water Level, 5 % of cross sectional area
	117.80	Downstream Manhole, Survey Ends

OCWRC
1 Public Works
City : Waterford, MI
Tel: (248) 858-1127
Fax:
Email:

Inspection Report / Inspection: 1

Date :	Job number :	Weather : **Snow**	Operator : **Steward**	Counter : **3**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **No Pre-Cleaning**	Rate :

1:285 **Position** **Observation**



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**2100**	**0**	**2**	**2**	**0**	**2**	**2**

OCWRC
1 Public Works
Waterford, MI
Tel: (248) 858-1127
Fax:
E-mail:

Inspection Report / Inspection: 1

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
12/11/2013	**na**	**Snow**	**Steward**		**4**
Certificate No.	Survey Customer	System Owner	Date Cleaned	Pre-Cleaning	Sewer Category
U-111-11972				**No Pre-Cleaning**	

Street	**302 Vailwood Ct.**	Use of Sewer	**Stormwater**	Upstream MH	**BLT033109**
City	**Bloomfield Twp.**	Drainage Area		Dowstream MH	**BLT033108**
Loc. details		Flow Control		Dir. of Survey	**Upstream**
Location Code		Length surveyed	**209.30 ft**	Section Length	**224.00 ft**

Purpose of Survey	**Maintenance Related**	Joint Length	
Year Laid		Dia./Height	**8 inch**
Year Rehabilitated		Material	**Reinforced Plastic Pipe (Truss Pipe)**
Tape / Media No.		Lining Method	

Add. Information :

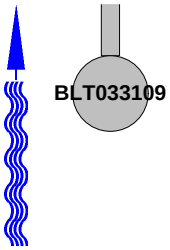
1:510	Position	Observation
BLT033108	0.00	Downstream Manhole, Survey Begins
	0.00	Water Level, 5 % of cross sectional area
	32.70	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES
	142.80	Upstream Manhole, Survey Ends
	157.30	Tap Factory Made Active, at 03 o'clock, 6", within 8 inches of joint: YES
	164.30	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES
	209.30	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES

OCWRC
1 Public Works
City : Waterford, MI
Tel: (248) 858-1127
Fax:
Email:

Inspection Report / Inspection: 1

Date :	Job number :	Weather : **Snow**	Operator : **Steward**	Counter : **4**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **No Pre-Cleaning**	Rate :

1:510 **Position** **Observation**



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**2100**	**0**	**2**	**2**	**0**	**2**	**2**

APPENDIX D: DYE TESTING REQUEST LETTERS FOR THE LAW DRAIN

Bloomfield Township

Leo C. Savoie, Supervisor • Janet Roncelli, Clerk • Dan Devine, Treasurer
David Buckley, Trustee • Neal J. Barnett, Trustee • Brian E. Kepes, Trustee • Corinne Khederian, Trustee

January 6, 2013

Ms. Lisa L Najor
318 Vailwood Ct
Bloomfield Hills, MI 48302

Re: Dye Testing of Sewer Leads

Dear Ms. Najor,

A preliminary investigation, performed by the Oakland County Water Resource Commissioner's Office (WRC), of the storm drainage system in your neighborhood has shown that the sanitary sewer leads from some of the homes in your area may be connected to the storm drain instead of the sanitary sewer. Connection of the sanitary service leads to the storm drains is a direct source of pollution to Heather Lake, located in your subdivision. The storm drains convey rainfall water to Heather Lake without treatment. Sanitary sewers collect waste water from the sinks, toilets, bathtubs and showers from homes and convey it to a treatment facility. Untreated wastewater discharging through the storm drains to lakes and streams can cause excessive algae and weed growth, limit oxygen in the water available to aquatic wildlife, and cause increased bacterial levels exposure to people and animals.

To determine if this is the case with your residence, a dyed water test of your sanitary sewer leads must be performed. This testing will require entry into your house and will take approximately one hour to complete. During this test, Township staff will flush water and environmentally safe tracing dye through a representative number of plumbing fixtures in your home. The sanitary sewer and storm drain pipes in the roadway will be monitored for the presence of the dye. The results will be verification of your plumbing system connection.

Please contact Charles Markus at 248-594-2800 between the hours of 7:00 a.m.-5:30 p.m. to schedule an appointment for dye testing by January 21, 2014.

Should your home be found to have the sanitary services connected to the storm drain, it will need to be corrected as soon as possible. The correction of the exterior sanitary leads and storm drain pipes to the proper public utility will be performed by the Township and its contractor at no expense to the homeowner.

Your cooperation in this matter is greatly appreciated.

Sincerely,

Olivia Olsztyn-Budry, PE

CC: Oakland County: Ronald Fadoir
Bloomfield Township: Wayne Domine, PE; Tom Trice

Bloomfield Township

Leo C. Savoie, Supervisor • Janet Roncelli, Clerk • Dan Devine, Treasurer
David Buckley, Trustee • Neal J. Barnett, Trustee • Brian E. Kepes, Trustee • Corinne Khederian, Trustee

January 6, 2013

Mr. Rainer & Ms. Heidi Jueckstock
322 Vailwood Ct
Bloomfield Hills, MI 48302

Re: Dye Testing of Sewer Leads

Dear Mr. Rainer & Ms. Heidi Jueckstock,

A preliminary investigation, performed by the Oakland County Water Resource Commissioner's Office (WRC), of the storm drainage system in your neighborhood has shown that the sanitary sewer leads from some of the homes in your area may be connected to the storm drain instead of the sanitary sewer. Connection of the sanitary service leads to the storm drains is a direct source of pollution to Heather Lake, located in your subdivision. The storm drains convey rainfall water to Heather Lake without treatment. Sanitary sewers collect waste water from the sinks, toilets, bathtubs and showers from homes and convey it to a treatment facility. Untreated wastewater discharging through the storm drains to lakes and streams can cause excessive algae and weed growth, limit oxygen in the water available to aquatic wildlife, and cause increased bacterial levels exposure to people and animals.

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Should your home be found to have the sanitary services connected to the storm drain, it will need to be corrected as soon as possible. The correction of the exterior sanitary leads and storm drain pipes to the proper public utility will be performed by the Township and its contractor at no expense to the homeowner.

Your cooperation in this matter is greatly appreciated.

Sincerely,

Olivia Olsztyn-Budry, PE

CC: Oakland County: Ronald Fadoir
Bloomfield Township: Wayne Domine, PE; Tom Trice

Bloomfield Township

Leo C. Savoie, Supervisor • Janet Roncelli, Clerk • Dan Devine, Treasurer
David Buckley, Trustee • Neal J. Barnett, Trustee • Brian E. Kepes, Trustee • Corinne Khederian, Trustee

January 6, 2013

Ms. Jaycee Demarie
326 Vailwood Ct
Bloomfield Hills, MI 48302

Re: Dye Testing of Sewer Leads

Dear Ms. Demarie,

A preliminary investigation, performed by the Oakland County Water Resource Commissioner's Office (WRC), of the storm drainage system in your neighborhood has shown that the sanitary sewer leads from some of the homes in your area may be connected to the storm drain instead of the sanitary sewer. Connection of the sanitary service leads to the storm drains is a direct source of pollution to Heather Lake, located in your subdivision. The storm drains convey rainfall water to Heather Lake without treatment. Sanitary sewers collect waste water from the sinks, toilets, bathtubs and showers from homes and convey it to a treatment facility. Untreated wastewater discharging through the storm drains to lakes and streams can cause excessive algae and weed growth, limit oxygen in the water available to aquatic wildlife, and cause increased bacterial levels exposure to people and animals.

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Please contact Charles Markus at 248-594-2800 between the hours of 7:00 a.m.-5:30 p.m. to schedule an appointment for dye testing by January 21, 2014.

Should your home be found to have the sanitary services connected to the storm drain, it will need to be corrected as soon as possible. The correction of the exterior sanitary leads and storm drain pipes to the proper public utility will be performed by the Township and its contractor at no expense to the homeowner.

Your cooperation in this matter is greatly appreciated.

Sincerely,

Olivia Olsztyn-Budry, PE

CC: Oakland County: Ronald Fadoir
Bloomfield Township: Wayne Domine, PE; Tom Trice

4200 Telegraph Road P.O. Box 489 Bloomfield Township, MI 48303-0489
Phone: 248-433-7700 Fax: 248-433-7714 www.bloomfieldtwp.org

Bloomfield Township

Leo C. Savoie, Supervisor • Janet Roncelli, Clerk • Dan Devine, Treasurer
David Buckley, Trustee • Neal J. Barnett, Trustee • Brian E. Kepes, Trustee • Corinne Khederian, Trustee

January 6, 2013

Mr. Sparschu & Ms. Iacobelli
328 Vailwood Ct
Bloomfield Hills, MI 48302

Re: Dye Testing of Sewer Leads

Dear Mr. Sparschu and Ms. Iacobelli,

A preliminary investigation, performed by the Oakland County Water Resource Commissioner's Office (WRC), of the storm drainage system in your neighborhood has shown that the sanitary sewer leads from some of the homes in your area may be connected to the storm drain instead of the sanitary sewer. Connection of the sanitary service leads to the storm drains is a direct source of pollution to Heather Lake, located in your subdivision. The storm drains convey rainfall water to Heather Lake without treatment. Sanitary sewers collect waste water from the sinks, toilets, bathtubs and showers from homes and convey it to a treatment facility. Untreated wastewater discharging through the storm drains to lakes and streams can cause excessive algae and weed growth, limit oxygen in the water available to aquatic wildlife, and cause increased bacterial levels exposure to people and animals.

To determine if this is the case with your residence, a dyed water test of your sanitary sewer leads must be performed. This testing will require entry into your house and will take approximately one hour to complete. During this test, Township staff will flush water and environmentally safe tracing dye through a representative number of plumbing fixtures in your home. The sanitary sewer and storm drain pipes in the roadway will be monitored for the presence of the dye. The results will be verification of your plumbing system connection.

Please contact Charles Markus at 248-594-2800 between the hours of 7:00 a.m.-5:30 p.m. to schedule an appointment for dye testing by January 21, 2014.

Should your home be found to have the sanitary services connected to the storm drain, it will need to be corrected as soon as possible. The correction of the exterior sanitary leads and storm drain pipes to the proper public utility will be performed by the Township and its contractor at no expense to the homeowner.

Your cooperation in this matter is greatly appreciated.

Sincerely,

Olivia Olsztyn-Budry, PE

CC: Oakland County: Ronald Fadoir
Bloomfield Township: Wayne Domine, PE; Tom Trice

Bloomfield Township

Leo C. Savoie, Supervisor • Janet Roncelli, Clerk • Dan Devine, Treasurer
David Buckley, Trustee • Neal J. Barnett, Trustee • Brian E. Kepes, Trustee • Corinne Khederian, Trustee

January 6, 2013

Mr. Victor Jordan
Jordan Family Revocable Trust
314 Vailwood Ct
Bloomfield Hills, MI 48302

Re: Dye Testing of Sewer Leads

Dear Mr. Jordan,

A preliminary investigation, performed by the Oakland County Water Resource Commissioner's Office (WRC), of the storm drainage system in your neighborhood has shown that the sanitary sewer leads from some of the homes in your area may be connected to the storm drain instead of the sanitary sewer. Connection of the sanitary service leads to the storm drains is a direct source of pollution to Heather Lake, located in your subdivision. The storm drains convey rainfall water to Heather Lake without treatment. Sanitary sewers collect waste water from the sinks, toilets, bathtubs and showers from homes and convey it to a treatment facility. Untreated wastewater discharging through the storm drains to lakes and streams can cause excessive algae and weed growth, limit oxygen in the water available to aquatic wildlife, and cause increased bacterial levels exposure to people and animals.

To determine if this is the case with your residence, a dyed water test of your sanitary sewer leads must be performed. This testing will require entry into your house and will take approximately one hour to complete. During this test, Township staff will flush water and environmentally safe tracing dye through a representative number of plumbing fixtures in your home. The sanitary sewer and storm drain pipes in the roadway will be monitored for the presence of the dye. The results will be verification of your plumbing system connection.

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Your cooperation in this matter is greatly appreciated.

Sincerely,

Olivia Olsztyn-Budry, PE

CC: Oakland County: Ronald Fadoir

4200 Telegraph Road P.O. Box 489 Bloomfield Township, MI 48303-0489
Phone: 248-433-7700 Fax: 248-433-7714 www.bloomfieldtwp.org