# West Bloomfield School District TMDL Sample Locations

Facility	Outfall/ Point of Discharge	Receiving Waters	Watershed	Parameter
Abbott Middle School	None	N/A	N/A	N/A
	AMS-08.OP.OF	Hayes Creek	Huron River	Phosphorous
Administration Building	AMS-02.MH (Sampling representative basin upstream of AMS-09.0P.OF)	Hayes Creek	Huron River	Phosphorous
	DOH-07.OP.OF	Franklin Branch of the Rouge River	Rouge River	E. coli & Biota
Doherty Elementary School	DOH-08.OP.OF	Franklin Branch of the Rouge River	Rouge River	E. coli & Biota
,	DOH-09.CB.DP	Franklin Branch of the Rouge River	Rouge River	E. coli & Biota
Ealy Elementary School - SOLD	N/A	N/A	N/A	N/A
Facilities & Operations Building	N/A	N/A	N/A	N/A
Gretchko Elementary School	N/A	N/A	N/A	N/A
Orchard Lake Middle School	OLK-02.MH.DP	Franklin Branch of the Rouge River	Rouge River	E. coli & Biota
Roosevelt Elementary School	N/A	N/A	N/A	N/A
Scotch Elementary School	SCH-10.CB.DP	Hayes Creek	Huron River	Phosphorous
Scotch Elementary School	SCH-12.MH.DP	Hayes Creek	Huron River	Phosphorous
Sheiko Elementary School - formerly Green Elementary School	GRN-08.MH.DP	Franklin Branch of the Rouge River	Rouge River	E. coli & Biota
Most Disconfield High Calaasi	WTB-53.OP.OF	Simpson Lake	Rough River	E. coli & Biota
West Bloomfield High School	WTB-54.OP.OF	Simpson Lake	Rouge River	E. coli & Biota





healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

June 12, 2019

Mr. Ted Stinson
Supervisor of Facility Operations, Maintenance, and Sustainability
West Bloomfield School District
3340 Orchard Lake Road
Bloomfield Hills, Michigan 48324
Theodore.stinson@wbsd.org

RE: Project # AE190001 WeBSD

Total Maximum Daily Load (TMDL) Sampling Report Administration Building

Dear Mr. Stinson:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge point/outfalls AMS-02.MH (Representative location upstream of AMS-09.OP.OF) and AMS-08.OP.OF at the Administration Building on May 22, 2019, in accordance with the applicable NPDES Permit requirements. TMDL sampling is used to determine the level of specific pollutants in the stormwater system by collecting samples from 50% of the district's stormwater outfalls/discharge points during a representative wet weather event. The sampling results are then evaluated to determine if a particular point source needs to be addressed to reduce the pollutant load of the receiving waters. A report regarding the findings of this round of TMDL Sampling is attached.

If you have questions regarding this report, please feel free to contact please feel free to contact the cleanWATER team at (248) 426-0165.

Sincerely,

Arch Environmental Group, Inc. Environmental Services

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Kellie Das

#### **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 TMDL Sampling Procedures
- 3.0 TMDL Sampling Results
- 4.0 Conclusion
- 5.0 Best Management Practices to Reduce TMDL Pollutant Loads

#### Attachments:

TMDL Screening Inspection Logs Storm Sewer System Site Map Analytical Results & Chain of Custody



#### 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) recently conducted a round of Total Maximum Daily Load (TMDL) Sampling for phosphorus at discharge locations AMS-02.MH(Representative location upstream of AMS-09.OP.OF) and AMS-08.OP.OF at Administration Building on May 22, 2019, in accordance with the applicable National Pollutant Discharge Elimination System (NPDES) Permit requirements.

A TMDL describes the process used to determine how much of a pollutant a lake or stream can assimilate and sets pollutant reduction targets for that water body. NPDES Municipal Separate Storm Sewer System (MS4) permits require regulated public entities located within urbanized areas that discharge storm water to an MS4 which leads to a water body designated with a TMDL, to demonstrate progress toward meeting Water Quality Standards (WQS). If the TMDL was written for E. coli or Total Phosphorus (TP), the MS4 permits further require permittees to collect representative samples of storm water discharges from their points of discharge to MS4s which lead to the impacted water bodies. Based on a review of the sampling results, Stormwater Best Management Practices (BMP) implementation will be reviewed and BMPs may be updated to ensure progress toward achieving TMDL pollutant load reductions.

The receiving water body of Administration Building is the Hayes Creek of the Huron River. he Hayes Creek is upstream of Strawberry Lake which has been designated with a TMDL of Phosphorus. Further details on the TMDL(s) listed can be found in the document "Total Maximum Daily Load (TMDL) for Phosphorus in Strawberry Lake" Some examples of potential sources of phosphorus in waterways include the use of phosphorus containing fertilizers, manure, decomposition, and organic wastes.

#### 2.0 / TMDL Sampling Procedures

Applicable TMDL sampling was conducted with guidance from the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Sampling was conducted at designated outfalls/discharge points after a dry period of approximately 48-72 hours and during a rain event of approximately .25 inches or more. Please see the attached TMDL Screening Inspection Logs for specific rainfall amounts. Sampling was conducted on May 22, 2019 and the last significant rain event was on May 19, 2019. The weather history for the rain event is available upon request.

When a dip-cup or similar sampling device was needed to collect the sample, a blank sample was collected to ensure no contamination was coming from the sampling device. The blank collected during this round of TMDL sampling came back at "Not Detected" for phosphorus indicating that the sampling device used was not contaminated. The lab results of the blank sample are attached. Furthermore, all sampling devices were decontaminated with distilled water between each sampling location according to the protocol laid out in the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Each location sampled was analyzed for pH and temperature while on-site and the sampled outfall/discharge point (OF/DP) was inspected for color, odor, and abnormal vegetative growth. The collected samples were delivered to an external laboratory for analysis.

#### 3.0 / TMDL Sampling Results

#### TMDL Benchmark Standards for Phosphorus:

Phosphorus: The WQS for phosphorus is the maximum amount of total phosphorus that is allowable in a
designated waterway. Each receiving water has its own designated maximum. This means that the daily



<sup>1</sup> Storm Water Sampling Guidance for Total Phosphorus & E. coli. November 24, 2009. DEQ

maximum for one waterbody may be different from that of another waterbody Hayes Creek is upstream of Strawberry Lake which has the designated phosphorous TMDL of 25 ug/L. <sup>2</sup>

Structure ID: AMS-02.MH	Structure Type: Manhole	Location: West of the school, in the sidewalk by the
		playground

At the time of the sampling, clear water flow was noted, and AMS-02.MH was free of odors, and abnormal vegetative growth. The outfall AMS-09.OP.OF was completely submerged, so the first upstream structure AMS-02.MH out pipe was sampled to represent the outfall's phosphorus levels. AEG collected a grab sample from AMS-02.MH and the sample was screened for temperature and pH in the field. A phosphorus grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.27	6.5 - 9	pH Units
Temperature	12.8	N/A	Celsius
Total Phosphorus	54	25	ug/L

The sample results for AMS-02.MH did not identify elevated levels of pH above the TMDL Benchmark Standards. However, highlighted values in the tables above indicate that for outfall location AMS-02.MH, the reported levels the reported levels for total phosphorus (54 ug/L) are above Michigan Department of Environmental Quality daily maximum of 25 ug/L for Hayes Creek.

Structure ID: AMS-08.OP.OF	Structure Type: Open Pipe	Location: Southwest of parking lot in the woods	
Structure ID: AIVIS-08.0P.OF	Structure Type: Open Pipe	Location: Southwest of parking lot in the woods	

At the time of the sampling, clear water flow was noted, and AMS-08.OP.OF was free of odors, and abnormal vegetative growth. AEG collected a grab sample from AMS-08.OP.OF and the sample was screened for temperature and pH in the field. A phosphorus grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.67	6.5 - 9	pH Units
Temperature	14.7	N/A	Celsius
Total Phosphorus	190	25	ug/L

The sample results for AMS-08.OP.OF did not identify elevated levels of pH above the TMDL Benchmark Standards. However, highlighted values in the tables above indicate that for outfall location AMS-08.OP.OF, the reported levels the reported levels for total phosphorus (190 ug/L) are above Michigan Department of Environmental Quality daily maximum of 25 ug/L for Hayes Creek.



<sup>&</sup>lt;sup>2</sup> "Total Maximum Daily Load for Phosphorus in Strawberry Lake" May 2000. MDEQ

#### 4.0 / Conclusion

AEG did not identify any elevated levels of pH above the TMDL Benchmark Standards for discharge locations AMS-02.MH and AMS-08.OP.OF sampled at the Administration Building on May 22, 2019. However, AEG did identify elevated levels of phosphorus above the TMDL Benchmark Standards for discharge locations AMS-02.MH and AMS-08.OP.OF.

Arch Environmental Group, Inc. recommends that the elevated locations AMS-02.MH and AMS-08.OP.OF be reassessed each permit cycle to ascertain whether greater or reduced potential for phosphorus TMDL contribution has occurred. Additionally, these sites will be monitored annually during regularly scheduled Routine Storm sewer Structural Inspections for changes in conditions or site activities.

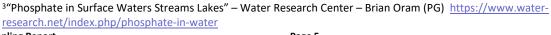
Some potential sources of phosphorus in waterways are phosphorus containing fertilizers, manure, decomposing matter (such as wildlife feces), erosion, and organic wastes.<sup>3</sup> Elevated levels of phosphorus typically occur at sites which have large populations of wild or domesticated animals, and/or that use phosphorus containing fertilizers. Phosphorus originating from the breakdown of other organic materials may be present in stormwater runoff as well. In an effort to determine the cause of the benchmark exceedance of phosphorus, Arch Environmental Group reviewed the layout of the school storm water system and surrounding area land use. The most recent Dry Weather Screening inspection conducted on September 11, 2017 at the Admin Building did not identify any signs of an illicit connection at this facility. The Dry Weather Screening report is available upon request. The surrounding land is used for residential use, as well as a close by golf course. The potential sources of phosphorus near the school are fertilizers, decomposing matter (such as wildlife feces), erosion, and organic wastes.

#### 5.0 / Best Management Practices to Reduce TMDL Pollutant Loads

The West Bloomfield School District Stormwater Management Plan (SWMP) identifies and defines the districts BMPs to comply with the Six Minimum Measures that are the front line in the nationwide effort to reducing polluted stormwater discharges to our lake, rivers and streams. The Michigan Department of Environmental Quality (MDEQ) recognizes that having a Stormwater Management Plan in place built around the Six Minimum Measures specified in the NPDES General Jurisdictional Permit have the potential to significantly contribute to the reduction of TMDL Pollutants in the surface waters of the state. A link to the districts current SWMP can be found on the district's website at <a href="https://www.wbsd.org/Page/3784">https://www.wbsd.org/Page/3784</a>. The Six Minimum Measures are listed below:

- Public Education and Outreach Program (PEP)
- Public Involvement and Participation Program (PIP)
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Stormwater Management Program
- Construction Site Stormwater Runoff Control Program
- Pollution Prevention/Good Housekeeping Program.

The following is a list of prioritized TMDL best management practices from the districts SWMP that West Bloomfield School District should continue to implement in order to improve water quality impairments associated with the Phosphorus TMDL of the Hayes Creek. Prioritization of BMPs is based on West Bloomfield School District targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli and phosphorus loads and address water quality for biota and dissolved oxygen.





#### **PHOSPHOROUS**

- 1. The use of Phosphorous containing fertilizers is restricted for use at all WEBSD facilities (unless soil testing indicates the necessity of adding phosphorous). In addition, all fertilizer use is restricted to athletic fields and/or areas designated as "curb appeal".
- 2. WEBSD will continue to use its website to provide the public information regarding pesticide use, pollution prevention, soil testing, stream buffers, and lawn fertilizers.
- 3. WEBSD will continue to use its website to provide the public with information on "school" carwashes.
- 4. WEBSD will continue to use its website to provide the public with information regarding pet waste. Additionally, SEMCOG pet waste posters are placed at various school buildings.
- 5. WEBSD has established programs for soil erosion and sediment control from new or redevelopment construction. Such developments require permits and inspections for practices to keep exposed soils on site or controlled from runoff. WEBSD conducts routine visual inspections of stormwater structural controls. WEBSD will remove excessive sediments from structural sediment removal systems to maintain the maximum designed performance. Sediments will be disposed of offsite in accordance with Parts 115 or 121.

#### **ALL TMDLs**

- 1. WEBSD will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E. coli, and biota TMDL Best Management Practice).
- 2. WEBSD will continue to educate staff, faculty, and students using various venues including the **"Seven Simple Steps to Clean Water"** program educational materials developed by the various watershed groups specifically related to these issues on the stormwater management webpage.
- 3. The district passed a post-construction stormwater board resolution to require implementation of the stormwater standards for construction.
- 4. Adequately maintains vegetation around stormwater facilities, ditches, and ponds.
- 5. Provide training to applicable staff and confirm training from contractors including restrictions on the use of phosphorous containing fertilizers, soaps, cleaners and other chemicals that could impact the separate storm drain system.

WeBSD strives to be good stewards of the land within their jurisdiction and to use appropriate Best Management Practices (BMPs) to contribute to the improvement of water quality. WeBSD is committed to practicing sound stormwater management practices; including observance and adherence to all local, state, and federal stormwater statutes, rules, and regulations.

Attachments: TMDL Screening Inspection Logs

Storm Sewer System Site Map

Analytical Results & Chain of Custody

cc: AE190001 project file

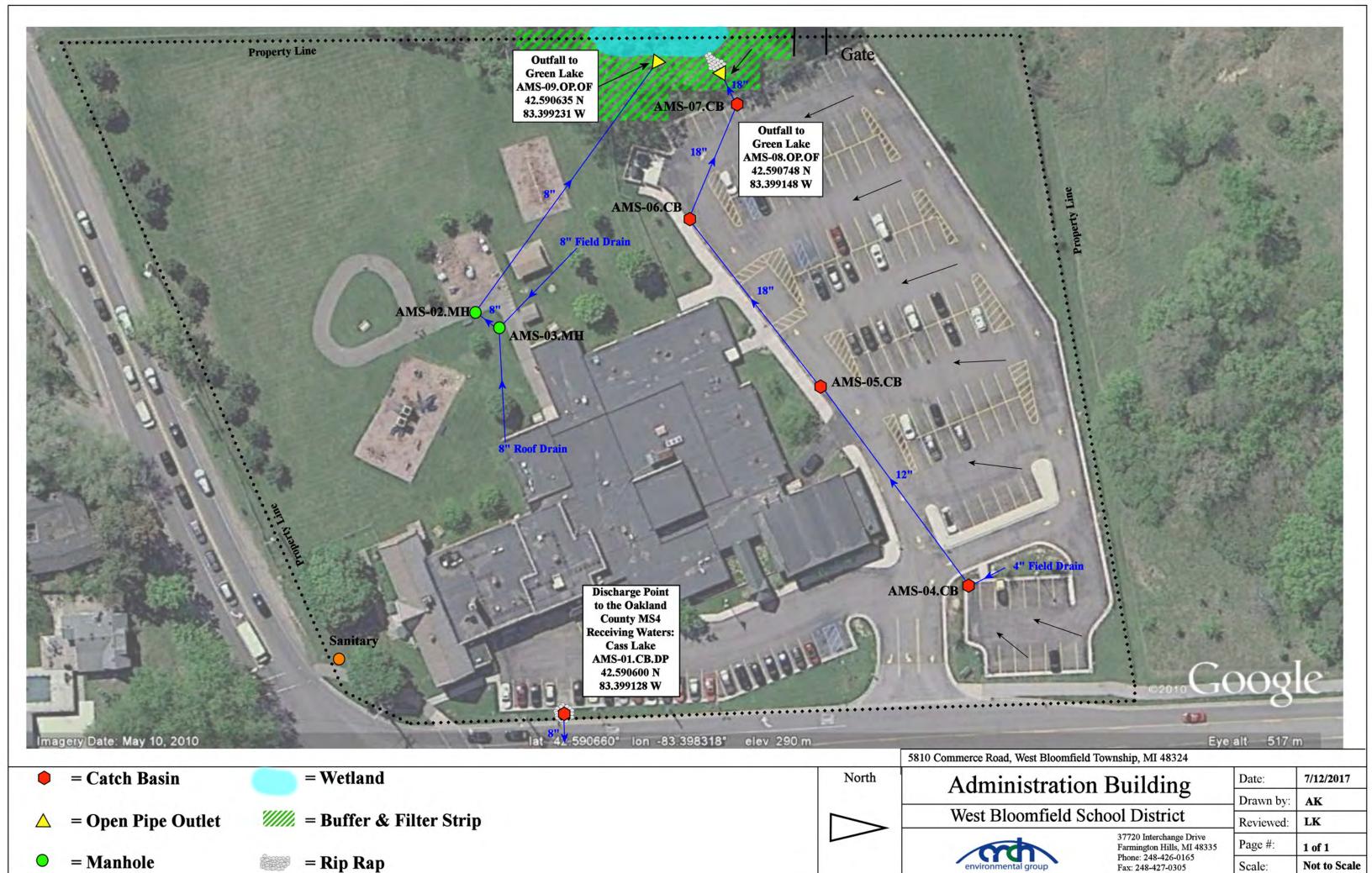


Building:	Administr	ation Building			Client	: W	est Bloomfield So	chool District
Inspectors:	Kellie Das	Steven	Ripley		Date		5/22/20:	19
					Inspection Type:	:	TMDL Sam	pling
Structure Information:								
ID Number:	AMS-02.MH	Structure Type	Manhole			ι	at:	Long:
Туре:		Location:	West of the school	, in the side	ewalk by the playgr	ound		
Outfall Dimensions	8"							
Observations:								
Standing Water Character	<u>istics</u>	<u>Flow</u>	Characteristics			_		
Standing Wat	er: Yes	FI	ow Observed: Yes,	Trickle				
Col	or: Clear	Sc	ource of Flow: Upst	ream struc	tures and rainfall			
Od	or: No	Ve	locity of Flow: Trick	le				
Su	ds: No		Color of Flow: Clear					
Staini	ng: No		Flow Odor No					
Oil Shee	en: No					_		
Sewa	ge: No	Addi	tional Comments:					
Bacterial She	en: No	The o	outfall AMS-09.OP.0	F was sub	merged in the rece	iving waters, so the	e representative ups	tream manhole AMS-02.MH
Alg	ae: No	was s	sampled to represe	nt the outfa	all's phosphorus lev	els. Elevated phos	phorus levels are like	ely due to decaying organic
Slim	es: No	matt	er and potentially for	ertilizer.				
Abnormal Growt	:h: No	1						
Sample ID And Informatio	n		Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:	
Sample	ID: AMS-02.MH TMD	)L	pH:	8.27	6.5 - 9	pH units		
Time Collecte	ed: 11:11		Temperature:	12.8	N/A	Celsius		
Last Rain Eve	nt: >72 Hours		E. coli:	N/A	300	CFU per 100mL	1	
Current Weath	er: Rain		Total Phosphorus:	54	25	ug/L		
Sample Location Ty	pe: Manhole		Other:					
Total Rainfall (Inch	es) 0.28"		Other:					
			Other:					
Outfall Characterizatio	n: Unlikely							
Sample sent to L	ab: Yes						278	



Building:	Administra	tion Building				Client:	Wes	t Bloomfield Sc	hool Distri	ct
Samplers:	Kellie Das		even Ripley Date		5/22/2019					
			1 1		Inspection	ո Type։		TMDL Samp		
		•		ı				·		
Structure Information:										
ID Number:	AMS-08.OP.OF	Structure Type	Open Pipe Ou	ıtlet			Lat	: 42.590748	Long:	83.399148
Type:	Outfall	Location	: Southwest of	parking lot in	the woods			•	<u>.</u> L	
Outfall Dimensions	18"									
Observations:										
Standing Water Characteris	<u>tics</u>	<u>Flov</u>	/ Characteristic	<u>cs</u>						
Standing Wate	r: Yes	F	low Observed:	Yes, Continou	S					
Colo	r: Clear	S	ource of Flow:	Upstream str	uctures					
Odo	r: No	Ve	locity of Flow:	Substantial						
Sud	s: No		Color of Flow:	Clear						
Staining	g: No		Flow Odor	No						
Oil Sheen	: No		•				•			
Sewage	e: No	<u>Add</u>	itional Comme	ents:						
Bacterial Sheer	n: No	Elev	ated phosphor	us levels are li	kely due to dec	caying o	organic matter.			
Algae	e: No	]								
Slime	s: No	]								
Abnormal Growth	: No	1 1								
Sample ID And Information			Lab Analysis:	Result	s: TMDL Thre	shold:	Units:	Photo ID:		
Sample II	O: AMS-08.OP.OF TM	DL	pH:	8.	6.5 - 9	9	pH units	STATE OF STATE		
Time Collected	d: 11:00		Temperature	: 14	7 N/A		Celsius			
Last Rain Even	t: >72 Hours		E. coli:	N	/A 300		CFU per 100mL			
Current Weathe	r: Rain		Total Phospho	orus: 1	90 25		ug/L	N. L.		
Screening Location Type	e: Open Pipe Outlet		Other:							
Total Rainfall (Inches	): 0.28"		Other:							TEN ST
			Other:							
Outfall Characterization	Unlikely									
								<b>三十八百</b> 百		
Sample sent to Lab	o: Yes							THE RESERVE		







2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

May 30, 2019

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

Subject: Administration Building TMDL

AE190001 WeBSD

Dear Ms. Sendra:

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/22/2019 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 58648 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.









2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/22/2019 Submit Date: 05/22/2019

Report Date: 05/30/2019

CK02174

To:

Arch Environmental Group 37720 Interchange Dr.

Farmington Hills, MI 48335

BA Report Number: 58648

**Parameters** 

Project Name:

Units

**Administration Building TMDL** 

Project Number:

AE190001 WeBSD

Sample ID: **Dip Cup Blank TMDL** 

DL Method Reference Analyst Date

Inorganic Analysis

BA Sample ID:

Phosphorus (total) Not detected ug/L

10 SM4500 PE

MB

05/30/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Result

Released by

Date

5/30/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/22/2019 Submit Date: 05/22/2019

05/30/2019

To:

Arch Environmental Group 37720 Interchange Dr.

Farmington Hills, MI 48335

**Method Reference** 

BA Report Number:

Report Date:

58648

Project Name:

**Administration Building TMDL** 

BA Sample ID: **CK02175** 

**Parameters** 

Project Number: **AE190001 WeBSD** 

Sample ID: **AMS-08 OP OF TMDL** 

Analysis Analyst Date

Inorganic Analysis

Phosphorus (total)

190

Result

ug/L

Units

10

DL

SM4500 PE

MB

05/30/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/30/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/22/2019 Submit Date: 05/22/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

Report Date:

58648

05/30/2019

Project Name:

**Administration Building TMDL** 

BA Sample ID: CK02176 Project Number:

ug/L

AE190001 WeBSD

Sample ID:

**AMS-02 MH TMDL** 

Analysis **Parameters** Result Units DL **Method Reference** Analyst Date

**Inorganic Analysis** 

Phosphorus (total)

10

SM4500 PE

MB

05/30/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

54

Released by

Date

5/30/2019

Sample Matrix  (F) in the served:  (F) in the		Brighton Ana	Intical I I CTM	BA PROJECT #:	A	Analysis Pomiostod/Mothod	PAGE: OF
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PHONE 810-229-775 Fax 610-229-8550  The control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Control of the Chair of Custody completely and review, incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incomplete information will result in a "the Incorrect of incompletely and review, incorrect of incomplete information will result in a "the Incorrect of incompletely and review, incorrect of incomplete information will result in a "the Incorrect of incompletely and review, incorrect of incompletely		2105 PI	less Drive	ABBREVIATIONS FOR			
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The state of the s	PROJECT NAME:		J 1. Lin. + +		(		
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The container of the co	P.O. NUMBE	R: West Rlown Field	School	M = Misc GW=Groundwat			
Temporal and the Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete information will result in a "hold" on all analyses.  **Relative Chair of Custody completely and review. Incomplete Chair of Custody completely and review. Incompletely and review. Inco	ample collected	LILE DOS	If RUSH approved by:	ype &			EMAIL: Labs @ archenyayong.ce
The Court of	REQUESTED TUR	NAROUND:(X BOX WITH TAT NEEDED)	ΛED ()	SO,	rved frix		Sample received within holding time? yes, no Temperature of samples "QL >
The supervised by the supervis	Default TAT	₩ F9	лиРRES	H2SO4 H2SO4 GELASS SESERVA	ab Prese		pH verified in login? yes ☑ no ☐ Headspace/bubbles in VOA'S? yes ☐ no ☐ n/a ☑
Sample Description Time Date   Signature	-	TSCO X = 1 5 X CO ST	2'AO'	но ы ноье ноье ноье ноье ноо	oldr (L) yo		Sample containers and COC match? yes 740
Pip Cup Black TMM 10:34572119 X			Date AC	HDPE IMELT  A A A A A A A A A A A A A A A A A A	blai(7)		BILLING ADDRESS (IF REQUIRED)
Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.    Comment of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.	45120	CUD	365/22/19	×	×		
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Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.  RELINQUISHED BY: RECEIVED BY: RECEIV	ecial Instructio	X :sı					Client Notified (date/time/initials):
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# BRIGHTON ANALYTICAL, LLC

# QUALITY ASSURANCE/QUALITY CONTROL

## REPRESENTATIVE BATCH QUALITY CONTROL

### Accuracy & Precision

Analyst:	MB	Parameter:	PHOS
Analysis Date:	5/30/2019	Method Reference:	SM4500PE

The second secon	SPIKE - ACCURACY					
Laboratory Identification	Spike Conc. (µg/L)	Background (µg/L)	Percent Recoveries	Acceptable Range (%)	Method Blank Concentration	
CK2172	500	41	100/98	90-110	<10	
	$\mathbf{S}$	PIKE - PRECI	SION ·	Marian Printer		
Laboratory Identification	Observed A (µg/L)	Observed B (µg/L)	RPD	Acceptable Range		
CK2172	538	529	1.69	≤20%		
MISCELLANEOUS						
	Standard ID#	%Recovery				
Independent Secondary Reference Material:	WP 270	99%				
Method Standard (Laboratory Control Spike):						

<b>COMMENTS:</b>	





healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

May 24, 2019

Mr. Ted Stinson
Supervisor of Operations and Maintenance
West Bloomfield School District
3340 Orchard Lake Road
Bloomfield Hills, Michigan 48324
Theodore.stinson@wbsd.org

RE: Project # AE190001 WeBSD

Total Maximum Daily Load (TMDL) Sampling Report Doherty Elementary

Dear Mr. Stinson:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge point/outfalls DOH-07.OP.OF, DOH-08.OP.OF, and DOH-09.CB.DP at Doherty Elementary on May 7, 2019 in accordance with the applicable NPDES Permit requirements. TMDL sampling is used to determine the level of specific pollutants in the stormwater system by collecting samples from 50% of the district's stormwater outfalls/discharge points during a representative wet weather event. The sampling results are then evaluated to determine if a particular point source needs to be addressed to reduce the pollutant load of the receiving waters. A report regarding the findings of this round of TMDL Sampling is attached.

If you have questions regarding this report, please feel free to contact please feel free to contact the cleanWATER team at (248) 426-0165.

Sincerely,

Arch Environmental Group, Inc. Environmental Services

Jumy Damles

Carly Doulos Technician II

#### **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 TMDL Sampling Procedures
- 3.0 TMDL Sampling Results
- 4.0 Conclusion
- 5.0 Best Management Practices to Reduce TMDL Pollutant Loads

#### Attachments:

TMDL Screening Inspection Log Storm Sewer System Site Map Analytical Results & Chain of Custody Dry Weather Screening Report



#### 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) recently conducted a round of Total Maximum Daily Load (TMDL) Sampling for E. coli at discharge locations DOH-07.OP.OF, DOH-08.OP.OF, and DOH-09.CB.DP at Doherty Elementary on May 7, 2019, in accordance with the applicable National Pollutant Discharge Elimination System (NPDES) Permit requirements.

A TMDL describes the process used to determine how much of a pollutant a lake or stream can assimilate and sets pollutant reduction targets for that water body. NPDES Municipal Separate Storm Sewer System (MS4) permits require regulated public entities located within urbanized areas that discharge storm water to an MS4 which leads to a water body designated with a TMDL, to demonstrate progress toward meeting Water Quality Standards (WQS). If the TMDL was written for E. coli or Total Phosphorus (TP), the MS4 permits further require permittees to collect representative samples of storm water discharges from their points of discharge to MS4s which lead to the impacted water bodies. Based on a review of the sampling results, Stormwater Best Management Practices (BMP) implementation will be reviewed and BMPs may be updated to ensure progress toward achieving TMDL pollutant load reductions.

Monitoring is not required for Biota/Sediment TMDLs under the MS4 permits.<sup>2</sup>

The receiving water body of Doherty Elementary is the Franklin Branch of the Rouge River. The Rouge River has been designated with the TMDL's of E. coli and Biota/Sediment. Further details on the TMDL's listed can be found in the documents "Total Maximum Daily Load for Biota for the River Rouge Watershed" and "Total Maximum Daily Load for E. Coli for the Rouge River". Some examples of potential sources of E. coli in waterways include fecal material from livestock, humans, wildlife, waterfowl such as geese, and sanitary systems. Some examples of potential sources of sediment include erosion and construction activities.

#### 2.0 / TMDL Sampling Procedures

Applicable TMDL sampling was conducted with guidance from the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Sampling was conducted at designated outfalls/discharge points during a rain event of approximately .25 inches or more. Please see the attached TMDL Screening Inspection Log for specific rainfall amounts. Sampling was conducted on May 7, 2019 and the last significant rain event above .25 inches was on May 1, 2019. The weather history for the rain event is available upon request.

When a dip-cup or similar sampling device was needed to collect the sample, a blank sample was collected to ensure no contamination was coming from the sampling device. The blank collected during this round of TMDL sampling came back at zero (0) CFU for E. coli indicating that the sampling device used was not contaminated. The lab results of the blank sample are attached. Furthermore, all sampling devices were decontaminated with bleach water distilled water between each sampling location according to the protocol laid out in the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Each location sampled was analyzed for pH and temperature while on-site and the sampled outfall/discharge point (OF/DP) was inspected for color, odor, and abnormal vegetative growth. The collected samples were delivered to an external laboratory for analysis.



<sup>&</sup>lt;sup>1</sup> Storm Water Sampling Guidance for Total Phosphorus & E. coli. November 24, 2009. DEQ

<sup>&</sup>lt;sup>2</sup> Addressing Biota TMDLs in Municipal Separate Storm Sewer System Permits" April 5, 2010. DNRE

#### 3.0 / TMDL Sampling Results

#### TMDL Benchmark Standards for E. coli:

E. coli: The WQS for E. coli is the maximum amount of E. coli that is allowable in surface waters of the state. These standards are known as total body contact and partial body contact standards. Total body contact is a more conservative standard used during the summer to protect swimmers during total body contact and has the daily maximum of 300 CFU per 100 milliliters (mL). This applies to the warmer months of May 1<sup>st</sup> -October 31<sup>st</sup> and is the standard being used in this report. Partial body contact is the daily maximum of 1,000 CFU per 100 mL and applies to the waterways year-round.<sup>3</sup>

Structure ID: DOH-07.OP.OF	Structure Type: Open Pipe	Location: East of the building, southwest of the basketball court, in the woods
Structure ID: DOH-08.OP.OF	Structure Type: Open Pipe	Location: South of the building, southwest of 15, inside fence
Structure ID: DOH-09.CB.DP	Structure Type: Catch Basin	Location: Northwest corner of building, in grass near door

At the time of the sampling, clear water flow was noted, and DOH-07.OP.OF, DOH-08.OP.OF and DOH-09.CB.DP were free of odors, and abnormal vegetative growth. AEG collected a grab sample from DOH-07.OP.OF, DOH-08.OP.OF and DOH-09.CB.DP and the samples were screened for temperature and pH in the field. An E. coli grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

#### DOH-07.OP.OF

Parameter:	Results:	TMDL Benchmark Standard:	Units:
pH	8.25	6.5 - 9	pH Units
Temperature	11.5	N/A	Celsius
E. coli	478.6	300	CFU per 100mL

#### DOH-08.OP.OF

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.25	6.5 - 9	pH Units
Temperature	9.4	N/A	Celsius
E. coli	456.9	300	CFU per 100mL

#### DOH-09.CB.DP

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.1	6.5 - 9	pH Units
Temperature	8.8	N/A	Celsius
E. coli	422.5	300	CFU per 100mL

<sup>&</sup>lt;sup>3</sup> "Michigan's E. Coli Water Quality Standard Guidance" May, 2016. MDEQ



#### 4.0 / Conclusion

AEG did not identify any elevated levels of pH above the TMDL Benchmark Standards for discharge locations DOH-07.OP.OF, DOH-08.OP.OF and DOH-09.CB.DP sampled at Doherty Elementary on May 7, 2019. However, AEG did identify elevated levels of E. coli above the total body contact TMDL Benchmark Standards (E. coli >300 CFU) for discharge locations DOH-07.OP.OF, DOH-08.OP.OF and DOH-09.CB.DP.

Arch Environmental Group, Inc. recommends that the elevated locations DOH-07.OP.OF, DOH-08.OP.OF and DOH-09.CB.DP be re-assessed each permit cycle to ascertain whether greater or reduced potential for E. coli TMDL contribution has occurred. Additionally, these sites will be monitored annually during regularly scheduled BMP structural inspections for changes in conditions or site activities.

Geese, gulls and ducks are speculated to be a major bacterial source in urban areas, particularly where large populations congregate. E. coli (*Escherichia Coli*) is a sub-group of the fecal coliform group and can be used as an indicator of fecal contamination. E. coli bacteria exist in animal and human fecal matter. Elevated levels of E. coli typically occur at sites which have leaking sanitary sewer systems, failed septic systems, or populations of wild or domesticated animals. E. coli originating from birds, raccoons and other wildlife may be present in large numbers in stormwater runoff. In an effort to determine the cause of the benchmark exceedance of E. coli, Arch Environmental Group reviewed the layout of the school storm water system. Based on this investigation, sanitary sewer contamination from Doherty Elementary is not suspected. Also, the most recent Dry Weather Screening inspection conducted on September 11, 2017 at Doherty Elementary did not identify any signs of an illicit connection at this facility. The Dry Weather Screening report is attached. The source is likely natural sources, such as the presence of wild animals from the grassed area surrounding the upstream stormwater system.

#### 5.0 / Best Management Practices to Reduce TMDL Pollutant Loads

The West Bloomfield School District Stormwater Management Plan (SWMP) identifies and defines the districts BMPs to comply with the Six Minimum Measures that are the front line in the nationwide effort to reducing polluted stormwater discharges to our lake, rivers and streams. The Michigan Department of Environmental Quality (MDEQ) recognizes that having a Stormwater Management Plan in place built around the Six Minimum Measures specified in the NPDES General Jurisdictional Permit have the potential to significantly contribute to the reduction of TMDL Pollutants in the surface waters of the state. A link to the districts current SWMP can be found on the district's website at <a href="https://www.wbsd.org/Page/3784">https://www.wbsd.org/Page/3784</a>. The Six Minimum Measures are listed below:

- Public Education and Outreach Program (PEP)
- Public Involvement and Participation Program (PIP)
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Stormwater Management Program
- Construction Site Stormwater Runoff Control Program
- Pollution Prevention/Good Housekeeping Program.

The following is a list of prioritized TMDL best management practices from the districts SWMP that West Bloomfield School District should continue to implement in order to improve water quality impairments associated with the E. coli and Biota/Sediment TMDL of the Franklin Branch of the Rouge River. Prioritization of BMPs is based

<sup>&</sup>lt;sup>4</sup> Sources of E. coli In Surface Water" - Great Lakes Water Institute, University of Wisconsin, Milwaukee <a href="http://www.glwi.uwm.edu/research/genomics/ecoli/sources">http://www.glwi.uwm.edu/research/genomics/ecoli/sources</a> of ecoli in water.php



on West Bloomfield School District targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli loads and address water quality for biota and dissolved oxygen.

#### E. COLI/BIOTA

- 1. WEBSD will use its website to provide the public with information regarding pet waste (SEMCOG links). Additionally, SEMCOG pet waste posters are placed at various school buildings.
- 2. WEBSD will prohibit illicit discharges, inspect and monitor suspected illicit discharges, and enforce elimination of the illicit discharges and connections.
- 3. WEBSD has reviewed all facilities for cross-connections between the sanitary and storm sewer systems.
- 4. WEBSD will conduct bimonthly inspections of parking lot and curb areas and hand clean as needed.
- 5. WEBSD has established programs for soil erosion and sediment control from new or redevelopment construction. Such developments require permits and inspections for practices to keep exposed soils on site or controlled from runoff.
- 6. WEBSD has implemented routine visual inspections of stormwater structural controls.
- 7. WEBSD will remove excessive sediments from structural sediment removal systems to maintain the maximum designed performance. Sediments will be disposed of offsite in accordance with Parts 115 or 121.

#### **ALL TMDLs**

- 1. WEBSD will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E. coli, and biota TMDL Best Management Practice).
- 2. WEBSD will continue to educate staff, faculty, and students using various venues including the "Seven Simple Steps to Clean Water" program educational materials developed by the various watershed groups specifically related to these issues on the stormwater management webpage.
- 3. The district passed a post-construction stormwater board resolution to require implementation of the stormwater standards for construction.
- 4. Adequately maintains vegetation around stormwater facilities, ditches, and ponds.
- 5. Provide training to applicable staff and confirm training from contractors including restrictions on the use of phosphorous containing fertilizers, soaps, cleaners and other chemicals that could impact the separate storm drain system.

WeBSD strives to be good stewards of the land within their jurisdiction and to use appropriate Best Management Practices (BMPs) to contribute to the improvement of water quality. WeBSD is committed to practicing sound stormwater management practices; including observance and adherence to all local, state, and federal stormwater statutes, rules, and regulations.

Attachments: TMDL Screening Inspection Log

Storm Sewer System Site Map Analytical Results & Chain of Custody Dry Weather Screening Report

cc: AE190001 project file



Building:	Doherty Elem				Client	: We	est Bloomfield So		ict
Samplers:	Carly Doulos	Kellie N	Лiller		Date	<u> </u>	5/7/201		
				Inspe	ction Type	:	TMDL Sam	pling	
Structure Information:						_		_	
ID Number:	DOH-07.OP.OF	Structure Type	Open Pipe Outlet			La	t: 42.55578	Long:	83.353171
Туре:	Outfall	Location:	East of the buildin	g, southwest	of the bask	etball court, in the	woods		
Outfall Dimensions	12 "								
Observations:									
Standing Water Characteris	<u>tics</u>	Flow	Characteristics						
Standing Wate	r: Yes	FI	ow Observed: Yes,	Continous		]			
Colo	r: Clear	So	ource of Flow: DOF	H-16.CB and ra	infall	1			
Odo	r: No	Ve	locity of Flow: Slow	v		1			
Sud	s: No		Color of Flow: Clea	ır		1			
Stainin	g: No		Flow Odor No			1			
Oil Sheer	: No					-			
Sewag	e: No	Addi	tional Comments:						
Bacterial Shee	n: No								
Alga	e: No								
Slime	s: No								
Abnormal Growth	: No								
Sample ID And Information			Lab Analysis:	Results:	TMDL Thre	units:	Photo ID:		
Sample II	D: DOH-07.OP.OF.TMDL		pH:	8.25	6.5 - 9	pH units		127	
Time Collected	d: 9:50		Temperature:	11.5	N/A	Celsius	The second second		
Last Rain Even	t: < 48 Hours		E. coli:	478.60	300	CFU per 100mL		學可以	
Current Weathe	r: Rain		Total Phosphorus:	: N/A					1
Screening Location Type	e: Open Pipe Outlet		Other:						
Total Rainfall (Inches	0.9"		Other:				The state of the s		
			Other:						
Outfall Characterization	Unlikely			•					
Sample sent to La	o: Yes								

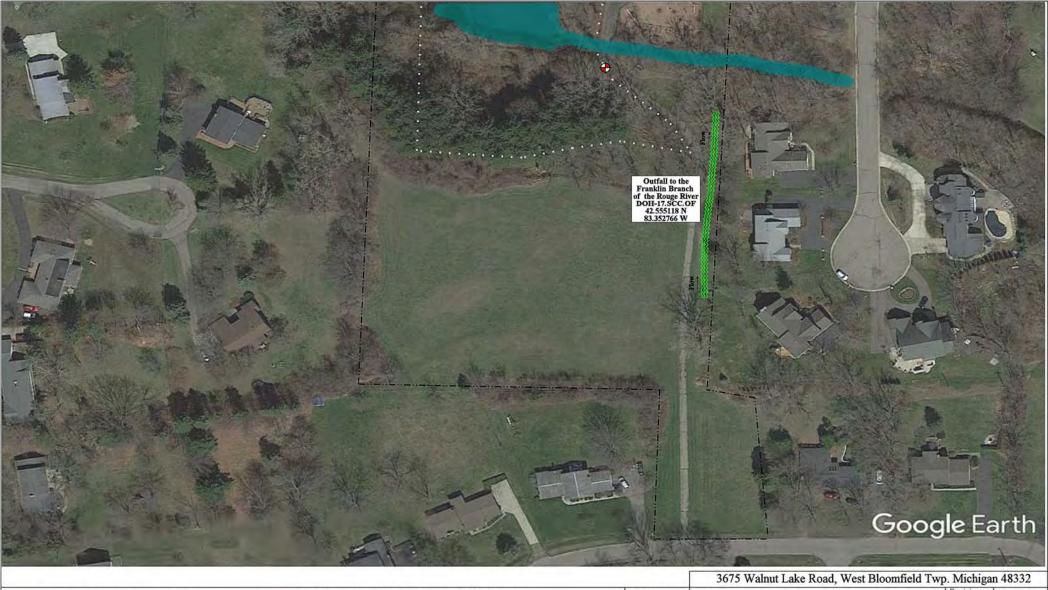


Doherty Eleme	ntary School			Client:	W	est Bloomfield So	chool Distr	ict
	Kellie Miller			Date		5/7/201	.9	
•			Inspe	ction Type:				
DOH-08.OP.OF		•				at: 42.555469	Long:	83.345035
Outfall	Location: South	of building, sou	uthwest of	15, inside f	ence			
10"								
<u>cs</u>	Flow Chara	<u>cteristics</u>			_			
Yes	Flow Ob	served: Yes, Co	ntinous					
Clear	Source o	of Flow: DOH-15	5.CB and ra	infall				
No	Velocity o	of Flow: Slow						
No	Color o	of Flow: Clear						
No	Flov	w Odor No						
No					_			
No	<u>Additional</u>	Comments:						
No								
No								
No								
No								
	Lab A	nalysis:	Results:	TMDL Thre	: Units:	Photo ID:		
DOH-08.OP.OF TMDL	pH:		8.25	6.5 - 9	pH units			
10:05	Temp	erature:	9.4	N/A	Celsius			
< 48 Hours	E. coli	i:	456.9	300	CFU per 100mL	134		图 34%
Rain	Total	Phosphorus:	N/A					
Open Pipe Outlet	Other	·:						
0.9"	Other	:					¥-	
	Other	:				lefter to		<b>《</b> 图》
Unlikely								
Yes								
	Carly Doulos  DOH-08.OP.OF Outfall 10"  SS Yes Clear No	DOH-08.OP.OF Outfall 10"  Structure Type   South South South South Source of Velocity of Color of Flow No   Temp   E. coli   Graph Pipe Outlet   Other   Other	Carly Doulos   Kellie Miller	Carly Doulos   Kellie Miller	Carly Doulos   Kellie Miller   Date Inspection Type:	Carly Doulos   Kellie Miller   Inspection Type:	DOH-08.0P.OF	Doh-08.0P.0F



Building:	Doherty Eleme	ntary School			Client	: w	est Bloomfield S	School Distr	ict
Inspectors:	Carly Doulos	, Kellie N	∕liller		Date	9	5/7/20	19	
-	<u> </u>			Insp	ection Type	:	TMDL San		
		- I		·		L		1 0	
Structure Information:									
ID Number:	DOH-09.CB.DP	Structure Type	Catch Basin			L	at: 42.556612	Long:	83.354487
Туре:	Discharge Point	Location:	Northwest cor	ner of building, i	n grass nea	r door			
Outfall Dimensions	10"	1							
Observations:									
Standing Water Characteris	<u>tics</u>	Flow	Characteristics	<u>s</u>					
Standing Wate	r: Yes	FI	ow Observed: \	Yes, Continous					
Colo	r: Clear	So	ource of Flow: [	DOH-11.CB, roof	drain, trend	ch			
Odo	r: No	Ve	locity of Flow: 5	Slow		1			
Sud	s: No		Color of Flow: (	Clear		1			
Staining	g: No	7	Flow Odor	No		1			
Oil Sheen	: No	1	<u> </u>			_			
Sewage	e: No	Addi	tional Commer	nts:					
Bacterial Sheer	n: No	On a	slope, near a h	eavily wooded a	rea				
Algae	e: No	1							
Slime	s: No	1							
Abnormal Growth	: No	1							
Sample ID And Information			Lab Analysis:	Results:	TMDL Thre	e: Units:	Photo ID:		
Sample II	D: DOH-09.CB.DP TMDL		pH:	8.1	6.5 - 9	pH units			
Time Collected	d: 10:25		Temperature:	8.8	N/A	Celsius		100	
Last Rain Even	t: < 48 Hours		E. coli:	422.5	300	CFU per 100mL			
Current Weathe	r: Rain		Total Phospho	rus: N/A					
Sample Location Type	e: Catch Basin		Other:						N- P- 1
Total Rainfall (Inches	): 0.9"		Other:					-	1
			Other:						N. T.
Outfall Characterization	Unlikely			-			s. J		
Sample sent to Lal	o: Yes								





= Property Boundary

= Stormwater Conveyance Channel

= Fence Line

= Access Point

North

# Doherty Elementary School West Bloomfield Twp. Michigan 48332 Revision Date: 4/16/2018 Drawn by: SB West Bloomfield School District

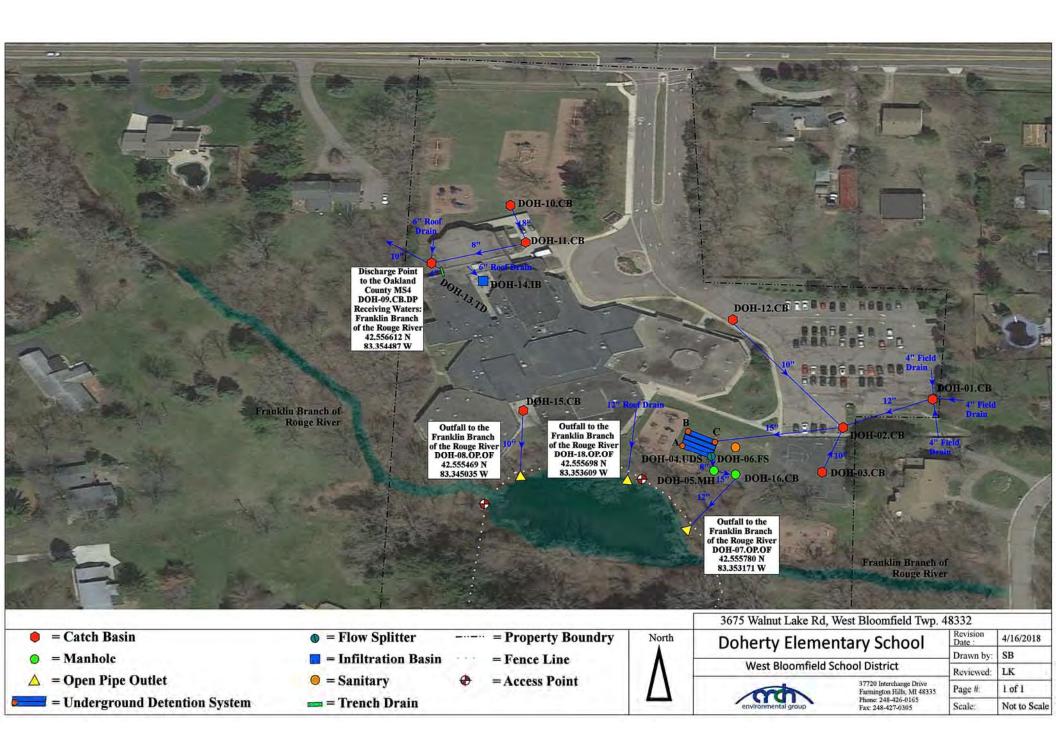


37720 Interchange Drive Farmington Hills, MI 48335 Phone: 248-426-0165 Fax: 248-427-0305 
 Drawn by:
 SB

 Reviewed:
 LK

 Page #:
 1 of 1

 Scale:
 Not to Scale





2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

May 08, 2019

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

Subject: Doherty Elementary School TMDL

AE190001-WeBSD

Dear Ms. Sendra:

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/07/2019 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 57826 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.









2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019

Report Date: 05/08/2019

CK01090

To:

Arch Environmental Group 37720 Interchange Dr.

Farmington Hills, MI 48335

BA Report Number: 57826

**Parameters** 

Project Name:

**Doherty Elementary School TMDL** 

Project Number:

AE190001-WeBSD

DL

Sample ID:

Units

DOH-07.OP.OF TMDL

Analysis Analyst Date

Microbiological Analysis

E. coli (MF)

BA Sample ID:

478.6

Result

CFU/100 ml

1

SM9222B

**Method Reference** 

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date: 05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

BA Sample ID:

57826

CK01091

Project Name:
Project Number:

**Doherty Elementary School TMDL** 

Result

AE190001-WeBSD

DL

Sample ID:

DOH-08.OP.OF TMDL

Analysis Analyst Date

Microbiological Analysis

**Parameters** 

E. coli (MF)

456.9

CFU/100 ml

Units

1

SM9222B

**Method Reference** 

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019

05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr.

Farmington Hills, MI 48335

BA Report Number: 5

Report Date:

57826 Project Name:

**Doherty Elementary School TMDL** 

BA Sample ID: **CK01092** 

Project Number: **AE190001-WeBSD** 

Sample ID: **DOH-09.CB.DP TMDL** 

Parameters Result Units DL Method Reference Analyst Date

Microbiological Analysis

E. coli (MF) 422.5 CFU/100 ml 1 SM9222B WT 05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date 5/8/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date:

05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

57826

Project Name:

**Doherty Elementary School TMDL** 

BA Sample ID: CK01093 Project Number: AE190001-WeBSD

Sample ID: **Blank-TMDL** 

Analysis **Parameters** Result Units DL **Method Reference** Analyst Date

Microbiological Analysis

E. coli (MF)

CFU/100 ml

1

SM9222B

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019

	Brighton Analytical 1 1 GTM	nalytical I	CTM		BA PROJEC	BA PROJECT #:		Analysis Requested/Method	Tuested/Met	hod	PAGE: OF	
	220	The Division of the Country of the C	i		7	2					REPORT RESULTS TO.	TO TO.
	Z10	Righton MI 48114			SAMPI	SAMPLE MATRIX				<	ייבו כונו ויבסר	
	Phone: 810-229-7575	-7575 Fax: 810-229-8650	29-8650		S = Solid L = Liquid					4	STATE OF THE PARTY	CINVINDAMMENTAL
PROJECT NAME:	Deborter Flangent mgr C. Land	April C.L.		Than	DW = Drinking H,0 WW = Wastewater O = Oil	g H,0 vater						
PROJECT		March Sch		J	P = Wipe A = Air (Tedlar Bag)	r Bad)				4	Aftn:	
NUMBER:	AE 140001				F = Filter T = Tube					T.	PHONE:	
P.O. NUMBER:	West Bloomfre	ald Public	2	2	M = Misc GW=Groundwater SW = Surface Water	-Groundwate Water	<u></u>	n:		-	FAX:	
Sample collected by:	KLUNE 505	If RUSH approved by:	Cor	tainer T	Container Type & Quantity	antity	,	t)		E	EMAIL: Tobs &	Lobs (0) Sych Enhanzle (18
REQUESTED TURNAR	REQUESTED TURNAROUND; X BOX WITH TAT NEEDED)  Default TAT Standard: 5 - 10 Business days		(s:			<b>BVITA</b>	pana			Sample	Sample received within holding time yes the Damberature of samples "C."	timed yes that
RUSH: 1 Bus RUSH RUSH	RUSH: 1 Business day (verify with lab) RUSH: 2 Business days RUSH: 3 Business days		8 (РRES ЗЯЧИО) НЭВЭЯЧІ	O.	HOAN :	LASS H2	sM 9	110		pH verifi Headspac	pH verified in login? yes ☐ no ☐ Headspace/bubbles in VOA'S? yes ☐ no ☐ n/a ☑	I no D n/a 🗹
RUSH 1 DAY=3X COST 2 DAY	RUSH SURCHARGE	Sampling	S'AC	HNC	НОРЕ	d ON	or (L	).		Sample	Sample containers and COC match? yes. ∠Tro □	Itch? yes. Tho
Brighton ID #	Sample Description	Time Date	٥٨	HDPE		SSAJÐ	blei(7)	9		BILLING	BILLING ADDRESS (IF REQUIRED)	RED)
MISTO DOH	H-07.00.0F [MIDL	950 51119			7		d	*				
2) P( DOH	-08.0P.OF	TMDL 10:05 57/19			×			×				
3) 92 2	DH-09. CB. DP THUE	TMC10:25517/19			×			1				
4 93 86	なべんしれらし	940 57-19			X		V	×				
5)												
(9)												
(7												
8)											Drinking Water:	Vater:
(6										Fax to LC Chlorinate	Fax to LCHD? yes ☐ no ☐ Chlorinated Water Supply? yes ☐ no ☐	0
										MCL Failu	MCL Failure yes 🔲 no	
Special Instructions:	×									Client Not	Client Notified (date/time/initials):	
	Please fill out th	Please fill out the Chain of Custody completely and	dy complet		review. In	correct or	incomp	lete information	will result in	review. Incorrect or incomplete information will result in a "hold" on all analyses.	rafyses.	
Trans.	RELINQUISHED BY:	RECEIVED BY:	ÿ.		DATE:	TIME:	Trans.	RELINQUISHED BY:	HED BY:	RECEIVED BY:	: DATE:	TIME:
-	APINIOPPE (	de la	V	74	5	Sici	м					
23	9						4					
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healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

June 18, 2018

Mr. Theodore Stinson
Supervisor of Facility Operations, Maintenance, and Sustainability
West Bloomfield School District
3340 Orchard Lake Road
Bloomfield Hills, Michigan 48324
Theodore.stinson@wbsd.org

RE: AEG Project # AE180001 WeBSD

Dry Weather Field Screening Doherty Elementary School

Dear Mr. Stinson:

Arch Environmental Group, Inc. conducted a subsequent round of dry weather screening at discharge points/outfalls DOH-07.OP.OF, DOH-08.OP.OF, DOH-09.CB.DP, DOH-17.SCC.OF, and ODH-18.OP.OF at Doherty Elementary School on June 8, 2018, in accordance with the applicable NPDES General Permit requirements. Dry weather screening is used to detect illicit discharges into the stormwater system by inspecting the stormwater outfalls/discharge points at least 48 hours after a precipitation event. A report regarding the findings of this round of dry weather screening is attached.

If you have questions regarding this report, please feel free to contact Jenna Sendra [Office - (248) 426-0165 ext. "314"; Mobile - (734) 239-1424] or Christine Caddick [Office – (248) 426-0165 ext. "316"; Mobile - (248) 792-1775].

Sincerely,

Arch Environmental Group, Inc.

**Environmental Services** 

Lindsey Eveleth Technician II

Attachments: Dry Weather Screening Inspection Report

cc: AE180001 project file



# DRY WEATHER FIELD SCREENING REPORT ILLICIT DISCHARGE ELIMINATION PROGRAM

#### **Doherty Elementary School**

3575 Walnut Lake Road West Bloomfield Township, MI 48322

Prepared For:

#### **West Bloomfield School District**

3340 Orchard Lake Road Bloomfield Hills, Michigan 48324

Prepared By:

#### Arch Environmental Group, Inc.

37720 Interchange Drive Farmington Hills, Michigan 48335

Project #: Project Date(s): Report Date: AE180001-WeBSd June 8, 2018 June 18, 2018

# **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 Dry Weather Screening Inspection
- 3.0 Summary of Dry Weather Screening Inspection
- 4.0 Conclusion

# **Appendices**

- A Dry Weather Screening Inspection Logs-Outfall/Discharge Point Locations
- B Storm Sewer System Site Map



# 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) conducted a subsequent round of dry weather screening at discharge locations DOH-07.OP.OF, DOH-08.OP.OF, DOH-09.CB.DP, DOH-17.SCC.OF, and DOH-18.OP.OF at Doherty Elementary School on June 8, 2018, in accordance with the applicable NPDES Permit requirements. Dry weather screening is used to detect illicit discharges into the stormwater system by inspecting the stormwater outfall/discharge point (OF/DP) at least 48 hours after a precipitation event. Typically, no water flow would be present at an OF/DP after this period of time following a precipitation event. Water flow in dry weather may indicate that a substance other than stormwater is present in the stormwater system. In addition to inspecting water flow, OF/DPs are visually inspected for damage and sediment. If standing or flowing water is present, it is inspected for color, odor, and abnormal growth.

If dry weather flow is observed at the time of the inspection and the source is not obvious, the inspector who identified the discharge shall continue and conduct an upstream source investigation to determine the origin of the flow. The initial investigation includes visual and olfactory observations upstream from the OF/DP. If necessary, relevant indicator field screening or dye tracing will be conducted.

If the origin of the flow is not identified during the visual upstream investigation, a grab sample is collected from the discharge for indicator field screening analysis. Indicator monitoring/field screening is the secondary tool utilized for dry weather flow without obvious indicators such as very high turbidity, strong odors or visible discharge. Screening may include some or all of the indicator parameters:

- Temperature
- pH
- Detergents (i.e., surfactants)
- Chlorine
- Ammonia (NH₃-N)
- Turbidity
- Conductivity

Indicator parameters used to assess the dry weather flow shall be determined by the visual and olfactory observations and upstream source investigation. Additional grab samples may be collected and delivered for external laboratory analysis, only if additional test parameters are required for the source investigation.

#### 2.0 / Dry Weather Screening Inspection

Structure ID: DOH-07.OP.OF	Structure Type: Open Pipe Outlet	Location: East of the building, southwest of the basketball					
		court, in the woods.					

# **Inspection Observations at DOH-07.OP.OF:**

No flow or signs of an illicit discharge were observed at this location.

Structure ID: DOH-08.OP.OF	Structure Type: Open Pipe Outlet	Location:	South	of	building,	southwest	of	-15,	inside
		fence.							

#### **Inspection Observations at DOH-08.OP.OF:**

No flow or signs of an illicit discharge were observed at this location.



Structure ID: DOH-09.CB.DP	Structure Type: Catch Basin	Location: Northwest corner of building, in grass near door				
		8.				

# **Inspection Observations at DOH-09.CB.DP:**

No flow or signs of an illicit discharge were observed at this location.

Structure ID: DOH-17.SCC.OF	Structure Type: Stormwater		Stormwater	Location: South of stream along east property bounda					
	Conveyance	e Channel		line.					

#### **Inspection Observations at DOH-17.SCC.OF:**

No flow or signs of an illicit discharge were observed at this location.

Structure ID: DOH-18.OP.OF	Structure Type: Open Pipe Outlet	Location: Southeast of building, south of playground, in					
		woods.					

# **Inspection Observations at DOH-18.OP.OF:**

No flow or signs of an illicit discharge were observed at this location.

# 3.0/ Summary of Dry Weather Screening Inspection

AEG did not identify flow of any kind entering or leaving DOH-07.OP.OF, DOH-08.OP.OF, DOH-09.CB.DP, DOH-17.SCC.OF, and DOH-18.OP.OF during the dry weather field screening investigation at Doherty Elementary School. Additionally, the visual inspection did not identify any odors, colors, or other characteristics indicative of an illicit discharge or connection.

#### 3.0 / Conclusion

It is the opinion of Arch Environmental Group, Inc. that the dry weather screening investigation does not indicate an unidentified illicit discharge or illicit connection at Doherty Elementary School. No further screening or inspection is suggested for this round of dry weather screening. Dry weather screening will be conducted once every five years to continue to monitor for illicit discharges in accordance with the NPDES Permit Illicit Discharge Elimination requirements.



# **APPENDIX A**

Dry Weather Screening Inspections Logs



Building:		Doherty Elem	entary School			Client:		West Bloomfie	eld School [	District		
Inspectors:	Lin	dsey Eveleth	Alec St	aber		Date		6/8	3/2018			
					Inspec	tion Type:		Dry Weatl	ner Screeni	ng		
_												
Structure Information	ı <b>:</b>											
ID Number:		DOH-07.OPO.OF	Structure Type	Open Pipe Οι	ıtlet		Lat:	42.55578	Long:	83.353171		
Туре:		Outfall	Location:	East of the bu	ıilding, southw	est of the	basketball c	Ill court, in the woods				
Outfall Dimensions		12"										
Observations:												
Standing Water Chara	cteristic	<u>cs</u>	<u>Flow</u>	Characteristic	<u>es</u>			<u>Maintenance</u>				
Standing	Water:	Yes	FI	ow Observed:	No			Cleaning	No			
	Color:	Clear	Sc	ource of Flow:	N/A		1	Blockages No				
	Odor:	No	Vel	locity of Flow:	N/A			Structural Issues Significant				
	Suds:	No	,	Color of Flow:	N/A		1	Structural Trend	Stable			
S	taining:	No		Flow Odor	N/A		1	Stenciling	N/A			
Oil	Sheen:	No					•					
s	Sewage:	No	<u>Addi</u>	tional Comme	nts:							
Bacterial	Sheen:	No										
	Algae:	No										
	Slimes:	No										
Abnormal G	rowth:	No										
Sample ID And Inform	ation			Field Analysis	: Results:	Units:	Initials:	Photo ID:				
Sample Col	llected?	No		pH:	N/A	pH units	LE/AS					
	Round:	3rd Round		Temperature	: N/A	Celsius	LE/AS	The Land		2		
Last Rair	n Event:	>72 Hours		Surfactants:	N/A	mg/L	LE/AS	<b>原墨</b>				
Current W	eather:	Sun		Ammonia:	N/A	mg/L	LE/AS					
Sample Locatio	n Type:	Open Pipe Outlet		Chlorine:	N/A	mg/L	LE/AS					
Other Screening A	ctivities	No		Turbidity:	N/A	NTU	LE/AS					
Con	ducted:			Conductivity:	N/A	uohm/cm	LE/AS					
Outfall Characteria	zation:					•						
				Equipment Calibration:					1	1		
Sample sent	to Lab:			Date:	Cal. By:			V 1. 3.	E Was			

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370



Building:		Doherty Elem	entary School			Client:		West Bloomfi	eld School D	istrict		
Inspectors:	Lin	dsey Eveleth	Alec St	aber		Date		6/	8/2018			
[					Inspec	tion Type:		Dry Weat	her Screenin	g		
_												
Structure Information	n:											
ID Number:		DOH-08.OPO.OF	Structure Type	Open Pipe Ou	ıtlet		La	at: 42.555469	Long:	83.345035		
Туре:		Outfall	Location:	South of build	ding, southwes	t of 15, ins	side fence					
Outfall Dimensions		10"										
Observations:												
Standing Water Char	acteristic	<u>cs</u>	<u>Flow</u>	Characteristic	<u>:s</u>			<u>Maintenance</u>				
Standin	g Water:	No	FI	ow Observed:	No			Cleaning	: No			
	Color:	N/A	So	ource of Flow:	N/A			Blockage	s No			
	Odor:	No	Ve	Velocity of Flow: N/A				Structural Issues No				
	Suds:	No		Color of Flow:	N/A			Structural Trend	Stable			
!	Staining:	No		Flow Odor	N/A			Stenciling	: N/A			
Oil	l Sheen:	No		•			<b>-</b>		-			
	Sewage:	No	<u>Addi</u>	tional Comme	nts:							
Bacteria	al Sheen:	No										
	Algae:	No										
	Slimes:	No										
Abnormal (	Growth:	No										
Sample ID And Inform	mation			Field Analysis	: Results:	Units:	Initials:	Photo ID:				
Sample Co	ollected?	No		рН:	N/A	pH units	LE/AS					
	Round:	3rd Round		Temperature	: N/A	Celsius	LE/AS					
Last Rai	in Event:	>72 Hours		Surfactants:	N/A	mg/L	LE/AS					
Current V	Veather:	Sun		Ammonia:	N/A	mg/L	LE/AS					
Sample Location	on Type:	Open Pipe Outlet		Chlorine:	N/A	mg/L	LE/AS					
Other Screening A	Activities	No		Turbidity:	N/A	NTU	LE/AS	5/3	- 1//			
Cor	nducted:			Conductivity:	N/A	uohm/cm	LE/AS					
Outfall Character	rization				-	•		10 /2/				
				<b>Equipment Ca</b>	alibration:		6					
Sample sen	t to Lab:			Date:	Cal. By:							

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370



Building:		Doherty Elementary School				Client:		West Bloomfie	eld School D	istrict		
Inspectors:	Lin	dsey Eveleth	Alec St	aber		Date		6/8	3/2018			
					Inspec	tion Type:		Dry Weatl	her Screenir	າg		
_			•									
Structure Information	n:											
ID Number:		DOH-09.CB.DP	Structure Type	Catch Basin			Lat	: 42.556612	Long:	83.354487		
Туре:		Discharge Point	Location:	Northwest co	rner of buildin	g, in grass	near door 8	loor 8				
Outfall Dimensions		10"										
Observations:			•									
Standing Water Chara	acteristic	<u>cs</u>	<u>Flow</u>	Characteristic	<u>:s</u>			<u>Maintenance</u>				
Standing	g Water:	Yes	FI	ow Observed:	No			Cleaning	Moderate			
	Color:	Clear	Sc	ource of Flow:	N/A			Blockages	No			
	Odor:	No	Vel	ocity of Flow:	N/A			Structural Issues No				
	Suds:	No	] ,	Color of Flow:	N/A			Structural Trend	Stable			
9	Staining:	No	1	Flow Odor	N/A			Stenciling	N/A			
Oil	l Sheen:	No	]				<b>-</b>					
:	Sewage:	No	<u>Addi</u>	tional Comme	nts:							
Bacteria	l Sheen:	No	1									
	Algae:	No	1									
	Slimes:	No	1									
Abnormal (	Growth:	No	]									
Sample ID And Inforn	nation			Field Analysis	Results:	Units:	Initials:	Photo ID:				
Sample Co	llected?	No		pH:	N/A	pH units	LE/AS	N GIA		1		
	Round:	3rd Round		Temperature	: N/A	Celsius	LE/AS	ALU A		1		
Last Rai	n Event:	>72 Hours		Surfactants:	N/A	mg/L	LE/AS	final and		1		
Current W	Veather:	Sun		Ammonia:	N/A	mg/L	LE/AS					
Screening Location	on Type:	Catch Basin		Chlorine:	N/A	mg/L	LE/AS					
Other Screening A		No		Turbidity:	N/A	NTU	LE/AS		1			
Cor	nducted:			Conductivity:	N/A	uohm/cm	LE/AS					
Outfall Character	ization:	Unlikely			'							
				<b>Equipment Ca</b>	alibration:			The Francisco		NT,		
Sample sen	t to Lab:			Date:	Cal. By:				001	1		

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370



Building:		Doherty Elem	nentary Schoo		Client:		West Bloom	field School [	 District	
Inspectors:	Lin	ndsey Eveleth	Alec S	Staber	1	Date		6,	/8/2018	
					Inspe	ction Type:		Dry Weather Screening		
_					_					
Structure Information	n:						_			
ID Number:		DOH-17.SCC.OF	Structure Type	Stormwater (	Conveyance C	hannel	La	t: 42.555118	Long:	83.352766
Type:		Outfall	Location	n: South of stre	am along east	property b	oundary lii	ne		
Outfall Dimensions		Sheet flow								
Observations:										
Standing Water Char	acteristi	<u>cs</u>	Flor	w Characteristi	<u>cs</u>			<u>Maintenance</u>		
Standing	g Water:	No	] '	Flow Observed:	No			Cleanin	g: No	
	Color:	N/A	] :	Source of Flow:	N/A			Blockag	es No	
	Odor:	No	V	elocity of Flow:	N/A			Structural Issu	es No	
	Suds:	No		Color of Flow:	N/A			Structural Trend Stable		
9	Staining:	No		Flow Odor	N/A			Stencilin	g: N/A	
Oil	l Sheen:	No					_			
	Sewage:	No	Add	Additional Comments:						
Bacteria	al Sheen:	No								
	Algae:	No								
	Slimes:	No								
Abnormal (	Growth:	No								
Sample ID And Inforn	nation			Field Analysi	s: Results	: Units:	Initials:	Photo ID:		
Sample Co	ollected?	No		pH:	N/A	pH units	LE/AS			
	Round:	3rd Round		Temperature	:: N/A	Celsius	LE/AS	CONTRACTOR OF THE PARTY OF THE		
Last Rai	in Event:	>72 Hours		Surfactants:	N/A	mg/L	LE/AS			
Current V	Veather:	Sun		Ammonia:	N/A	mg/L	LE/AS			
Sample Location	on Type:	Stormwater Convey	ance	Chlorine:	N/A	mg/L	LE/AS			
Other Screening A				Turbidity:	N/A	NTU	LE/AS			The Arms
Cor	nducted:			Conductivity:	: N/A	uohm/cm	LE/AS			的人人有一个
Outfall Character	ization:	Unlikely								
				<b>Equipment C</b>	Calibration:					
Sample sen	t to Lab:			Date:	Cal. By:					NO THE PARTY OF TH

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370



Building:		Doherty Elem	nentary School			Client:	:	West Bloomfie	eld School D	istrict	
Inspectors:	Lin	ndsey Eveleth	Alec Sta	aber		Date	:	6/7	//2014		
Γ					Inspec	tion Type:	:	Dry Weath	ner Screenin	ng	
-											
Structure Information	1:										
ID Number:		DOH-18.OPO.OF	Structure Type	Open Pipe Oι	ıtlet		Lat:	42.555698	Long:	83.353609	
Туре:		Outfall	Location:	Southeast of I	building, south	of playgro	ound. In woo	woods.			
Outfall Dimensions		12"	'				<u></u>				
Observations:											
Standing Water Chara	acteristic	<u>cs</u>	Flow	Characteristic	<u>:s</u>			<u>Maintenance</u>			
Standing	g Water:	No	FI/	ow Observed:	No		]	Cleaning:	No		
	Color:	N/A	Sc	ource of Flow:	N/A		1	Blockages	No		
	Odor:	No	Vel	locity of Flow:	N/A		1	Structural Issues No			
	Suds:	No	1	Color of Flow:	N/A		1	Structural Trend	Stable		
S	Staining:	No		Flow Odor N/A				Stenciling:	N/A		
Oil	Sheen:	No		•			-		Į.		
5	Sewage:	No	<u>Addi</u>	Additional Comments:							
Bacteria	l Sheen:	No									
	Algae:	No									
	Slimes:	No									
Abnormal G	3rowth:	No									
Sample ID And Inform	nation			Field Analysis	s: Results:	Units:	Initials:	Photo ID:			
Sample Co	llected?	No		pH:	N/A	pH units	LE/AS		2		
	Round:	3rd Round		Temperature:	: N/A	Celsius	LE/AS				
Last Rair	n Event:	>72 Hours		Surfactants:	N/A	mg/L	LE/AS		1		
Current W	/eather:	Sun		Ammonia:	N/A	mg/L	LE/AS			la l	
Sample Locatio	on Type:	Open Pipe Outlet		Chlorine:	N/A	mg/L	LE/AS	5 7 7 7 12			
Other Screening A	activities	No		Turbidity:	N/A	NTU	LE/AS		The same		
Con	nducted:			Conductivity:	N/A	uohm/cm	LE/AS				
Outfall Characteri	ization:				<u> </u>	4		THE STATE OF THE S			
				Equipment Calibration:					33		
Sample sent	t to Lab:			Date:	Cal. By:			5	12		

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370







healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

June 5, 2019

Mr. Ted Stinson Supervisor of Operations & Maintenance West Bloomfield School District 3340 Orchard Lake Rd West Bloomfield, Michigan 48324 theodore.stinson@wbsd.org

RE: Project # AE190001 WeBSD

Total Maximum Daily Load (TMDL) Sampling Report

Orchard Lake Middle School

Dear Mr. Stinson:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge point/outfall OLK-02.MH.DP at Orchard Lake Middle School on May 7, 2019 in accordance with the applicable NPDES Permit requirements. TMDL sampling is used to determine the level of specific pollutants in the stormwater system by collecting samples from 50% of the district's stormwater outfalls/discharge points during a representative wet weather event. The sampling results are then evaluated to determine if a particular point source needs to be addressed to reduce the pollutant load of the receiving waters. A report regarding the findings of this round of TMDL Sampling is attached.

If you have questions regarding this report, please feel free to contact please feel free to contact the cleanWATER team at (248) 426-0165.

Sincerely,

Arch Environmental Group, Inc.
Environmental Services

Jumy Demles

Carly Doulos
Technician II

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- 1.0 Project Summary
- 2.0 TMDL Sampling Procedures
- 3.0 TMDL Sampling Results
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- 5.0 Best Management Practices to Reduce TMDL Pollutant Loads

# Attachments:

TMDL Screening Inspection Log Storm Sewer System Site Map Analytical Results & Chain of Custody Dry Weather Screening Report



# 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) recently conducted a round of Total Maximum Daily Load (TMDL) Sampling for E. coli at discharge location OLK-02.MH.DP at Orchard Lake Middle School on May 7, 2019, in accordance with the applicable National Pollutant Discharge Elimination System (NPDES) Permit requirements.

A TMDL describes the process used to determine how much of a pollutant a lake or stream can assimilate and sets pollutant reduction targets for that water body. NPDES Municipal Separate Storm Sewer System (MS4) permits require regulated public entities located within urbanized areas that discharge storm water to an MS4 which leads to a water body designated with a TMDL, to demonstrate progress toward meeting Water Quality Standards (WQS). If the TMDL was written for E. coli or Total Phosphorus (TP), the MS4 permits further require permittees to collect representative samples of storm water discharges from their points of discharge to MS4s which lead to the impacted water bodies. Based on a review of the sampling results, Stormwater Best Management Practices (BMP) implementation will be reviewed and BMPs may be updated to ensure progress toward achieving TMDL pollutant load reductions.

Monitoring is not required for Biota/Sediment TMDLs under the MS4 permits.<sup>2</sup>

The receiving water body of Orchard Lake Middle School is the Franklin Branch of the Rouge River. The Rouge River has been designated with the TMDL's of E. coli and Biota/Sediment. Further details on the TMDL's listed can be found in the documents "Total Maximum Daily Load for Biota for the River Rouge Watershed" and "Total Maximum Daily Load for E. Coli for the Rouge River". Some examples of potential sources of E. coli in waterways include fecal material from livestock, humans, wildlife, waterfowl such as geese, and sanitary systems. Some examples of potential sources of sediment include erosion and construction activities.

## 2.0 / TMDL Sampling Procedures

Applicable TMDL sampling was conducted with guidance from the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Sampling was conducted at designated outfalls/discharge points during a rain event of approximately .25 inches or more. Please see the attached TMDL Screening Inspection Log for specific rainfall amounts. Sampling was conducted on May 7, 2019 and the last significant rain event above .25 inches was on May 1, 2019. The weather history for the rain event is available upon request.

When a dip-cup or similar sampling device was needed to collect the sample, a blank sample was collected to ensure no contamination was coming from the sampling device. The blank collected during this round of TMDL sampling came back at zero (0) CFU for E. coli that the sampling device used was not contaminated. The lab results of the blank sample are attached. Furthermore, all sampling devices were decontaminated with bleach water and distilled water between each sampling location according to the protocol laid out in the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Each location sampled was analyzed for pH and temperature while onsite and the sampled outfall/discharge point (OF/DP) was inspected for color, odor, and abnormal vegetative growth. The collected samples were delivered to an external laboratory for analysis.



<sup>&</sup>lt;sup>1</sup> Storm Water Sampling Guidance for Total Phosphorus & E. coli. November 24, 2009. DEQ

<sup>&</sup>lt;sup>2</sup> Addressing Biota TMDLs in Municipal Separate Storm Sewer System Permits" April 5, 2010. DNRE

#### 3.0 / TMDL Sampling Results

## TMDL Benchmark Standards for E. coli:

• E. coli: The WQS for E. coli is the maximum amount of E. coli that is allowable in surface waters of the state. These standards are known as total body contact and partial body contact standards. Total body contact is a more conservative standard used during the summer to protect swimmers during total body contact and has the daily maximum of 300 CFU per 100 milliliters (mL). This applies to the warmer months of May 1<sup>st</sup> -October 31<sup>st</sup> and is the standard being used in this report. Partial body contact is the daily maximum of 1,000 CFU per 100 mL and applies to the waterways year-round. <sup>3</sup>

Structure ID: OLK-02.MH.DP	Structure Type: Manhole	Location: East of the building, NE of OLK-01.SCC,
		close to the sidewalk

At the time of the sampling, clear water flow was noted, and OLK-02.MH.DP was free of odors, and abnormal vegetative growth. AEG collected a grab sample from OLK-02.MH.DP and the sample was screened for temperature and pH in the field. An E. coli grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8	6.5-9	pH Units
Temperature	10.8	N/A	Celsius
E. coli	1,299.7	300	CFU per 100mL

The sample results for OLK-02.MH.DP did not identify elevated levels of pH above the TMDL Benchmark Standards. However, highlighted values in the tables above indicate that for discharge location OLK-02.MH.DP the reported levels for E. coli (1,299.7 CFU) are above the Michigan Public Health Department standards for Total Body Contact (E. coli >300 CFU).

## 4.0 / Conclusion

AEG did not identify any elevated levels of pH above the TMDL Benchmark Standards for discharge location OLK-02.MH.DP sampled at Orchard Lake Middle School on May 7,2019. However, AEG did identify elevated levels of E. coli above the TMDL Benchmark Standards for discharge location OLK-02.MH.DP.

Arch Environmental Group, Inc. recommends that the elevated location OLK-02.MH.DP be re-assessed each permit cycle to ascertain whether greater or reduced potential for E. coli TMDL contribution has occurred. Additionally, these sites will be monitored annually during regularly scheduled BMP structural inspections for changes in conditions or site activities.

Geese, gulls and ducks are speculated to be a major bacterial source in urban areas, particularly where large populations congregate. E. coli (*Escherichia Coli*) is a sub-group of the fecal coliform group and can be used as an indicator of fecal contamination. E. coli bacteria exist in animal and human fecal matter.<sup>4</sup> Elevated levels of E. coli

<sup>&</sup>lt;sup>4</sup> Sources of E. coli In Surface Water" - Great Lakes Water Institute, University of Wisconsin, Milwaukee <a href="http://www.glwi.uwm.edu/research/genomics/ecoli/sources">http://www.glwi.uwm.edu/research/genomics/ecoli/sources</a> of ecoli in water.php



<sup>&</sup>lt;sup>3</sup> "Michigan's E. Coli Water Quality Standard Guidance" May, 2016. MDEQ

typically occur at sites which have leaking sanitary sewer systems, failed septic systems, or populations of wild or domesticated animals. E. coli originating from birds, raccoons and other wildlife may be present in large numbers in stormwater runoff. In an effort to determine the cause of the benchmark exceedance of E. coli, Arch Environmental Group reviewed the layout of the school storm water system as well as past tracer dye studies. Based on this investigation, sanitary sewer contamination from Orchard Lake Middle School is not suspected. Also, the most recent Dry Weather Screening inspection conducted on September 11, 2017 at Orchard Lake Middle School did not identify any signs of an illicit connection at this facility. The Dry Weather Screening report is attached. The source is likely natural sources, such as the presence of wild animals and their feces from the nearby stormwater conveyance channel.

## 5.0 / Best Management Practices to Reduce TMDL Pollutant Loads

The WeBSD Stormwater Management Plan (SWMP) identifies and defines the districts BMPs to comply with the Six Minimum Measures that are the front line in the nationwide effort to reducing polluted stormwater discharges to our lake, rivers and streams. The Michigan Department of Environmental Quality (MDEQ) recognizes that having a Stormwater Management Plan in place built around the Six Minimum Measures specified in the NPDES General Jurisdictional Permit have the potential to significantly contribute to the reduction of TMDL Pollutants in the surface waters of the state. A link to the districts current SWMP can be found on the district's website at <a href="https://www.wbsd.org/Page/3784">https://www.wbsd.org/Page/3784</a>. The Six Minimum Measures are listed below:

- Public Education and Outreach Program (PEP)
- Public Involvement and Participation Program (PIP)
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Stormwater Management Program
- Construction Site Stormwater Runoff Control Program
- Pollution Prevention/Good Housekeeping Program.

The following is a list of prioritized TMDL best management practices from the districts SWMP that West Bloomfield School District should continue to implement in order to improve water quality impairments associated with the E. coli, and Biota/Sediment TMDL of the Franklin Branch of the Rouge River. Prioritization of BMPs is based on West Bloomfield School District targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli and phosphorus loads and address water quality for biota.

### **E.COLI/BIOTA**

- 1. WEBSD will use its website to provide the public with information regarding pet waste (SEMCOG links). Additionally, SEMCOG pet waste posters are placed at various school buildings.
- 2. WEBSD will prohibit illicit discharges, inspect and monitor suspected illicit discharges, and enforce elimination of the illicit discharges and connections.
- 3. WEBSD has reviewed all facilities for cross-connections between the sanitary and storm sewer systems.
- 4. WEBSD will conduct bimonthly inspections of parking lot and curb areas and hand clean as needed.
- 5. WEBSD has established programs for soil erosion and sediment control from new or redevelopment construction. Such developments require permits and inspections for practices to keep exposed soils on site or controlled from runoff.
- 6. WEBSD has implemented routine visual inspections of stormwater structural controls.



7. WEBSD will remove excessive sediments from structural sediment removal systems to maintain the maximum designed performance. Sediments will be disposed of offsite in accordance with Parts 115 or 121.

#### **ALL TMDLs**

- 1. WEBSD will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E.coli, and biota TMDL Best Management Practice).
- 2. WEBSD will continue to educate staff, faculty, and students using various venues including the "Seven Simple Steps to Clean Water" program educational materials developed by the various watershed groups specifically related to these issues on the stormwater management webpage.
- 3. The district passed a post-construction stormwater board resolution to require implementation of the stormwater standards for construction.
- 4. Adequately maintains vegetation around stormwater facilities, ditches, and ponds.
- 5. Provide training to applicable staff and confirm training from contractors including restrictions on the use of phosphorous containing fertilizers, soaps, cleaners and other chemicals that could impact the separate storm drain system.

WeBSD strives to be good stewards of the land within their jurisdiction and to use appropriate Best Management Practices (BMPs) to contribute to the improvement of water quality. WeBSD is committed to practicing sound stormwater management practices; including observance and adherence to all local, state, and federal stormwater statutes, rules, and regulations.

Attachments: TMDL Screening Inspection Log

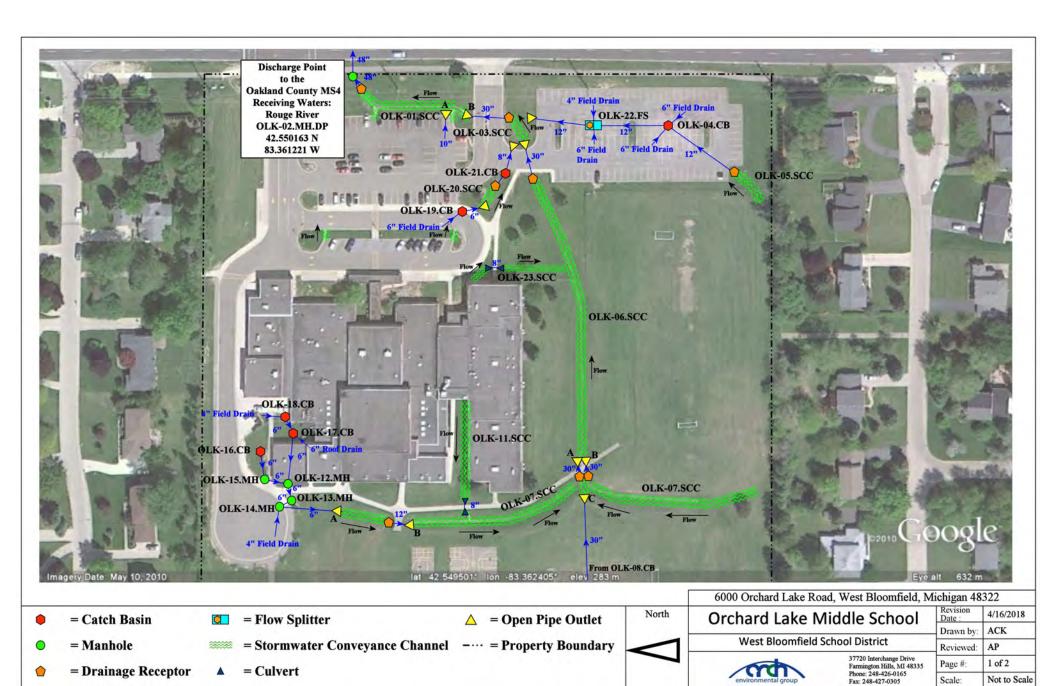
Storm Sewer System Site Map Analytical Results & Chain of Custody Dry Weather Screening Report

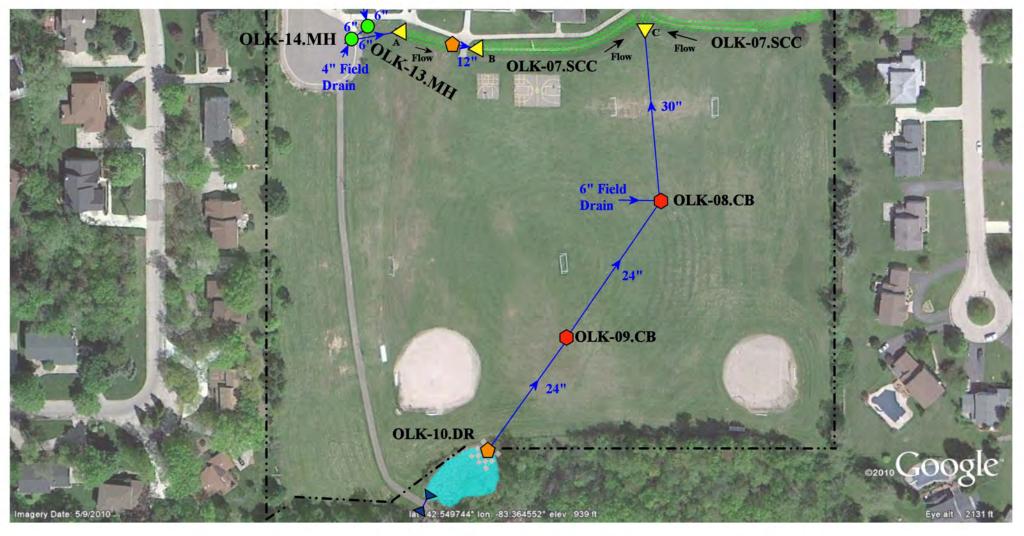
cc: AE190001 project file

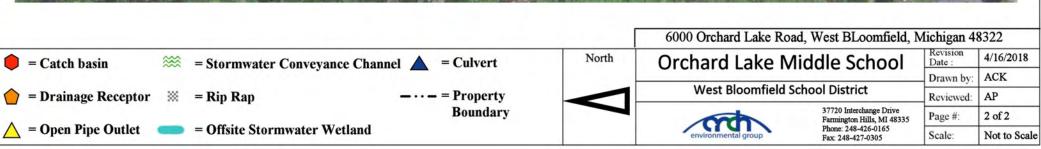


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				Insp	ection Type	:	TMDL Sam	pling		
Structure Information:						_		<u>,                                     </u>		
ID Number:	OLK-02.MH.DP.TMD	Structure Type	Manhole			La	nt: 42.550163	Long:	83.361221	
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Outfall Dimensions	48"									
Observations:										
Standing Water Characteristi		-	Characteristics			<b>-</b>				
Standing Water:	Yes	4	ow Observed: Y							
Color:	Clear	Sc	ource of Flow: C	DLK-01.SCC						
Odor:	No	Ve	locity of Flow: S	ubstantial						
Suds:	No		Color of Flow: C	lear						
Staining:	No		Flow Odor N	lo						
Oil Sheen:	No		- <u>-</u>			_				
Sewage:	No	<u>Addi</u>	tional Commen	<u>ts:</u>						
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Sample ID:	OLK-02.MH.DP.TMDL		pH:	8	6.5 - 9	pH units				
Time Collected:	1:00		Temperature:	10.8	N/A	Celsius				
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Total Rainfall (Inches):	.9"		Other:							
			Other:							
Outfall Characterization:	Unlikely							y		
Sample sent to Lab:	Yes						1000		100	











2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

May 08, 2019

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

Subject: Orchard Lake Middle School

AE190001-WeBSD

Dear Ms. Sendra:

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/07/2019 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 57825 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.









# **Brighton Analytical LLC**

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019

05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number: 57825

Report Date:

Project Name:

Orchard Lake Middle School

BA Sample ID: **CK01089** 

Project Number: **AE190001-WeBSD** 

Sample ID: **OLK-02.MH.DP TMDL** 

Parameters Result Units DL Method Reference Analyst Date

Microbiological Analysis

E. coli (MF) 1299.7 CFU/100 ml 1 SM9222B WT 05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date 5/8/2019



# **Brighton Analytical LLC**

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date: 05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

57826

Project Name:

**Doherty Elementary School TMDL** 

BA Sample ID: **CK01093** 

Project Number: **AE190001-WeBSD** 

Sample ID: Blank-TMDL

Parameters Result Units DL Method Reference Analyst Date

Microbiological Analysis

E. coli (MF)

0

CFU/100 ml

1

SM9222B

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019

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healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

September 25, 2017

Mr. Ted Stinson Supervisor of Facility Operations, Energy, Maintenance, and Sustainability West Bloomfield School District 3340 Orchard Lake Road West Bloomfield, Michigan 48324

RE: AEG Project # AE170001 WeBSD

Dry Weather Field Screening Orchard Lake Middle School

Dear Mr. Stinson

Arch Environmental Group, Inc. conducted a subsequent round of dry weather screening at discharge point OLK-02.MH.DP on September 11, 2017 at the Orchard Lake Middle School in accordance with the applicable NPDES General Permit requirements. Dry weather screening is used to detect illicit discharges into the stormwater system by inspecting the stormwater outfalls/discharge points at least 48 hours after a precipitation event. A report regarding the findings of this round of dry weather screening is attached.

If you have questions regarding this report, please feel free to contact Jenna Sendra [Office - (248) 426-0165 ext. "314"; Mobile - (734) 239-1424] or Christine Caddick [Office – (248) 426-0165 ext. "316"; Mobile - (248) 792-1775].

Sincerely,

Arch Environmental Group, Inc. Environmental Services

Andrew Kelly

Certified Industrial Site Stormwater Operator, I-14787

Attachments: Dry Weather Screening Inspection Report

cc: AE170001 project file



# DRY WEATHER FIELD SCREENING REPORT ILLICIT DISCHARGE ELIMINATION PROGRAM

# **Orchard Lake Middle School**

6000 Orchard Lake Road West Bloomfield, Michigan 48322

Prepared For:

# **West Bloomfield School District**

3340 Orchard Lake Road West Bloomfield, Michigan 48324

Prepared By:

# Arch Environmental Group, Inc.

37720 Interchange Drive Farmington Hills, Michigan 48335

Project #: AE170001 WeBSD
Project Date(s): September 11, 2017
Report Date: September 25, 2017

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- 1.0 Project Summary
- 2.0 Dry Weather Screening Inspection
- 3.0 Summary of Dry Weather Screening Inspection
- 4.0 Conclusion

# **Appendices**

- A Dry Weather Screening Inspection Log(s) Outfall/Discharge Point Locations
- B Storm Sewer System Site Map



# 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) conducted a subsequent round of dry weather screening at discharge location OLK-02.MH.DP at Orchard Lake Middle School on September 19, 2017 in accordance with the applicable NPDES Permit requirements. Dry weather screening is used to detect illicit discharges into the stormwater system by inspecting the stormwater outfall/discharge point (OF/DP) at least 48 hours after a precipitation event. Typically, no water flow would be present at an OF/DP after this period of time following a precipitation event. Water flow in dry weather may indicate that a substance other than stormwater is present in the stormwater system. In addition to inspecting water flow, OF/DPs are visually inspected for damage and sediment. If standing or flowing water is present, it is inspected for color, odor, and abnormal growth.

If dry weather flow is observed at the time of the inspection and the source is not obvious, the inspector who identified the discharge shall continue and conduct an upstream source investigation to determine the origin of the flow. The initial investigation includes visual and olfactory observations upstream from the OF/DP. If necessary, relevant indicator field screening or dye tracing will be conducted.

If the origin of the flow is not identified during the visual upstream investigation, a grab sample is collected from the discharge for indicator field screening analysis. Indicator monitoring/field screening is the secondary tool utilized for dry weather flow without obvious indicators such as very high turbidity, strong odors or visible discharge. Screening may include some or all of the indicator parameters:

- Temperature
- pH
- Detergents (i.e., surfactants)
- Chlorine
- Ammonia (NH3-N)
- Turbidity
- Conductivity

Indicator parameters used to assess the dry weather flow shall be determined by the visual and olfactory observations and upstream source investigation. Additional grab samples may be collected and delivered for external laboratory analysis, only if additional test parameters are required for the source investigation.

# 2.0 / Dry Weather Screening Inspection

Structure ID:	Structure Type:	Location: East of the building, just south of the main
OLK-02.MH.DP	Manhole	entrance drive in the lawn.

## Inspection Observations at OLK-02.MH.DP

No flow or signs of an illicit discharge were observed at this location.

# 3.0 / Summary of Dry Weather Screening Inspection

AEG did not identify flow of any kind entering or leaving OLK-02.MH.DP during the dry weather field screening investigation at Orchard Lake Middle School. Additionally, the visual inspection did not identify any odors, colors, or other characteristics indicative of an illicit discharge or connection.

# 4.0 / Conclusion

It is the opinion of Arch Environmental Group, Inc. that the dry weather screening investigation does not indicate an unidentified illicit discharge or illicit connection at Orchard Lake Middle School. No further screening or



inspection is suggested for this round of dry weather screening. Dry weather screening will be conducted once every five years to continue to monitor for illicit discharges in accordance with the NPDES Permit Illicit Discharge Elimination requirements.



# **APPENDIX A**

**Dry Weather Screening Inspections Logs** 



Building:	Orchard Lake	Middle Schoo	I		Client	nfield School	District		
Inspectors:	Andrew Kelly	Benjamir	n Mark		Date		(	9/11/2017	
				Inspec	tion Type:		Dry We	eather Screer	ning
		-		•					
Structure Information:						_			
ID Number:	OLK-02.MH.DP	Structure Type	Manhole			Lat	: 42.55016	B Long:	83.361221
Type:	Discharge Point	Location:	East of the bu	ıilding, just sou	ith of the	main entrar	ice drive in the	lawn.	
Outfall Dimensions	48"								
Observations:									
Standing Water Characte	<u>eristics</u>	<u>Flow</u>	Characteristic	<u>es</u>			Maintenance	<u>!</u>	
Standing W	ater: No	Flo	ow Observed:	No			Clean	ing: No	
С	Color: N/A	Sc	ource of Flow:	N/A			Blocka	iges No	
C	Odor: No	Vel	ocity of Flow:	N/A			Structural Iss	ues None	
	Suds: No	] (	Color of Flow:	N/A			Structural Tre	nd Stable	
Stai	ning: No		Flow Odor	N/A			Stenci	ing: N/A	
Oil Sh	een: No		•			_		-	
Sew	vage: No	<u>Addi</u>	tional Comme	nts:					
Bacterial Sh	neen: No								
А	lgae: No								
Sli	imes: No								
Abnormal Gro	wth: No								
Sample ID And Informati	ion		Field Analysis		Units:	Initials:	Photo ID:		
Sample Collec	cted? No		pH:	N/A	pH units	N/A			
Ro	ound: 1st Round		Temperature	: N/A	Celsius	N/A		1	
Last Rain E	vent: >72 Hours		Surfactants:	N/A	mg/L	N/A	16	1	Test.
Current Wea	ther: Sun		Ammonia:	N/A	mg/L	N/A			
Screening Location 1	Гуре: Manhole		Chlorine:	N/A	mg/L	N/A		1	
Other Screening Activ			Turbidity:	N/A	NTU	N/A		/	
Condu	cted:		Conductivity:	N/A	uohm/cm	N/A	11/6	4	
Outfall Characterizat	tion: Unlikely					· ———		A Marie Control	
			<b>Equipment Ca</b>	alibration:			4 -		
Sample sent to	Lab: N/A		Date: N/	'A Cal. By:	N	/A	1.0		1

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370







healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

June 12, 2019

Mr. Ted Stinson
Supervisor of Facility Operations, Maintenance, and Sustainability
West Bloomfield School District
3340 Orchard Lake Road
Bloomfield Hills, Michigan 48324
Theodore.stinson@wbsd.org

RE: Project # AE190001 WeBSD

Total Maximum Daily Load (TMDL) Sampling Report Scotch Elementary School

Dear Mr. Stinson:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge point/outfalls SCH-10.CB.DP and SCH-12.MH.DP at Scotch Elementary School on May 22, 2019, in accordance with the applicable NPDES Permit requirements. TMDL sampling is used to determine the level of specific pollutants in the stormwater system by collecting samples from 50% of the district's stormwater outfalls/discharge points during a representative wet weather event. The sampling results are then evaluated to determine if a particular point source needs to be addressed to reduce the pollutant load of the receiving waters. A report regarding the findings of this round of TMDL Sampling is attached.

If you have questions regarding this report, please feel free to contact please feel free to contact the cleanWATER team at (248) 426-0165.

Sincerely,

Arch Environmental Group, Inc. Environmental Services

ellin Das

Kellie Das Technician II

# **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 TMDL Sampling Procedures
- 3.0 TMDL Sampling Results
- 4.0 Conclusion
- 5.0 Best Management Practices to Reduce TMDL Pollutant Loads

# Attachments:

TMDL Screening Inspection Logs Storm Sewer System Site Map Analytical Results & Chain of Custody



## 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) recently conducted a round of Total Maximum Daily Load (TMDL) Sampling for phosphorus at discharge locations SCH-10.CB.DP and SCH-12.MH.DP at Scotch Elementary School on May 22, 2019, in accordance with the applicable National Pollutant Discharge Elimination System (NPDES) Permit requirements.

A TMDL describes the process used to determine how much of a pollutant a lake or stream can assimilate and sets pollutant reduction targets for that water body. NPDES Municipal Separate Storm Sewer System (MS4) permits require regulated public entities located within urbanized areas that discharge storm water to an MS4 which leads to a water body designated with a TMDL, to demonstrate progress toward meeting Water Quality Standards (WQS). If the TMDL was written for E. coli or Total Phosphorus (TP), the MS4 permits further require permittees to collect representative samples of storm water discharges from their points of discharge to MS4s which lead to the impacted water bodies. Based on a review of the sampling results, Stormwater Best Management Practices (BMP) implementation will be reviewed and BMPs may be updated to ensure progress toward achieving TMDL pollutant load reductions.

The receiving water body of Scotch Elementary School is the Hayes Creek of the Huron River. The Hayes Creek is upstream of Strawberry Lake which has been designated with a TMDL of Phosphorus. Further details on the TMDL(s) listed can be found in the document "Total Maximum Daily Load (TMDL) for Phosphorus in Strawberry Lake" Some examples of potential sources of phosphorus in waterways include the use of phosphorus containing fertilizers, manure, decomposition, and organic wastes.

# 2.0 / TMDL Sampling Procedures

Applicable TMDL sampling was conducted with guidance from the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Sampling was conducted at designated outfalls/discharge points after a dry period of approximately 48-72 hours and during a rain event of approximately .25 inches or more. Please see the attached TMDL Screening Inspection Logs for specific rainfall amounts. Sampling was conducted on May 22, 2019 and the last significant rain event was on May 19, 2019. The weather history for the rain event is available upon request.

When a dip-cup or similar sampling device was needed to collect the sample, a blank sample was collected to ensure no contamination was coming from the sampling device. The blank collected during this round of TMDL sampling came back at "Not Detected" for phosphorus indicating that the sampling device used was not contaminated. The lab results of the blank sample are attached. Furthermore, all sampling devices were decontaminated with distilled water between each sampling location according to the protocol laid out in the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Each location sampled was analyzed for pH and temperature while on-site and the sampled outfall/discharge point (OF/DP) was inspected for color, odor, and abnormal vegetative growth. The collected samples were delivered to an external laboratory for analysis.

# 3.0 / TMDL Sampling Results

#### TMDL Benchmark Standards for Phosphorus:

Phosphorus: The WQS for phosphorus is the maximum amount of total phosphorus that is allowable in a
designated waterway. Each receiving water has its own designated maximum. This means that the daily



<sup>1</sup> Storm Water Sampling Guidance for Total Phosphorus & E. coli. November 24, 2009. DEQ

maximum for one waterbody may be different from that of another waterbody. Hayes Creek is upstream of Strawberry Lake which has the designated phosphorous TMDL of 25 ug/L. <sup>2</sup>

Structure ID: SCH-10.CB.DP Structure Type: Catch Basin	Location: East end of SCC by bus loop
--	---------------------------------------

At the time of the sampling, clear water flow was noted, and SCH-10.CB.DP was free of odors, and abnormal vegetative growth. AEG collected a grab sample from SCH-10.CB.DP and the sample was screened for temperature and pH in the field. A phosphorus grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.23	6.5 - 9	pH Units
Temperature	12.3	N/A	Celsius
Total Phosphorus	41	25	ug/L

The sample results for SCH-10.CB.DP did not identify elevated levels of pH above the TMDL Benchmark Standards. However, highlighted values in the tables above indicate that for outfall location SCH-10.CB.DP, the reported levels for total phosphorus (41 ug/L) are just above Michigan Department of Environmental Quality daily maximum of 25 ug/L for Strawberry Lake.

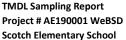
Structure ID: SCH-12.MH.DP	Structure Type: Manhole	Location: West of bus loop on top of hill
----------------------------	-------------------------	---

At the time of the sampling, clear water flow was noted, and SCH-12.MH.DP was free of odors, and abnormal vegetative growth. AEG collected a grab sample from SCH-12.MH.DP and the sample was screened for temperature and pH in the field. A phosphorus grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.06	6.5 - 9	pH Units
Temperature	12.3	N/A	Celsius
Total Phosphorus	Not Detected	25	ug/L

The sample results for SCH-12.MH.DP did not identify elevated levels of pH or phosphorus above the TMDL Benchmark Standards. The reported levels for total phosphorus are below the Michigan Department of Environmental Quality daily maximum of 25 ug/L for Strawberry Lake.

<sup>&</sup>lt;sup>2</sup> "Total Maximum Daily Load for Phosphorus in Strawberry Lake" May 2000. MDEQ Page 4







## 4.0 / Conclusion

AEG did not identify any elevated levels of pH above the TMDL Benchmark Standards for discharge locations SCH-10.CB.DP and SCH-12.MH.DP sampled at Scotch Elementary School on May 22, 2019. However, AEG did identify elevated levels of phosphorus above the TMDL Benchmark Standards for discharge location SCH-10.CB.DP. AEG did not identify any elevated levels of phosphorus above the TMDL Benchmark Standards for discharge location SCH-12.MH.DP

Arch Environmental Group, Inc. recommends that the elevated location SCH-10.CB.DP be re-assessed each permit cycle to ascertain whether greater or reduced potential for phosphorus TMDL contribution has occurred. Additionally, these sites will be monitored annually during regularly scheduled Routine Storm sewer Structural Inspections for changes in conditions or site activities.

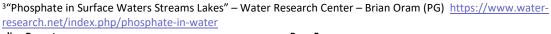
Some potential sources of phosphorus in waterways are phosphorus containing fertilizers, manure, decomposing matter (such as wildlife feces), erosion, and organic wastes.<sup>3</sup> Elevated levels of phosphorus typically occur at sites which have large populations of wild or domesticated animals, and/or that use phosphorus containing fertilizers. Phosphorus originating from the breakdown of other organic materials may be present in stormwater runoff as well. In an effort to determine the cause of the benchmark exceedance of phosphorus, Arch Environmental Group reviewed the layout of the school storm water system and surrounding area land use. The most recent Dry Weather Screening inspection conducted on September 11, 2017 at Scotch Elementary did not identify any signs of an illicit connection at this facility. The Dry Weather Screening report is available upon request. The surrounding land is used for residential use, as well as a close by golf course. The potential sources of phosphorus near the school are fertilizers, decomposing matter (such as wildlife feces), erosion, and organic wastes.

#### 5.0 / Best Management Practices to Reduce TMDL Pollutant Loads

The West Bloomfield School District Stormwater Management Plan (SWMP) identifies and defines the districts BMPs to comply with the Six Minimum Measures that are the front line in the nationwide effort to reducing polluted stormwater discharges to our lake, rivers and streams. The Michigan Department of Environmental Quality (MDEQ) recognizes that having a Stormwater Management Plan in place built around the Six Minimum Measures specified in the NPDES General Jurisdictional Permit have the potential to significantly contribute to the reduction of TMDL Pollutants in the surface waters of the state. A link to the districts current SWMP can be found on the district's website at https://www.wbsd.org/Page/3784. The Six Minimum Measures are listed below:

- Public Education and Outreach Program (PEP)
- Public Involvement and Participation Program (PIP)
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Stormwater Management Program
- Construction Site Stormwater Runoff Control Program
- Pollution Prevention/Good Housekeeping Program.

The following is a list of prioritized TMDL best management practices from the districts SWMP that West Bloomfield School District should continue to implement in order to improve water quality impairments associated with the Phosphorus TMDL of the Hayes Creek. Prioritization of BMPs is based on West Bloomfield School District targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli and phosphorus loads and address water quality for biota and dissolved oxygen.





#### **PHOSPHOROUS**

- 1. The use of Phosphorous containing fertilizers is restricted for use at all WEBSD facilities (unless soil testing indicates the necessity of adding phosphorous). In addition, all fertilizer use is restricted to athletic fields and/or areas designated as "curb appeal".
- 2. WEBSD will continue to use its website to provide the public information regarding pesticide use, pollution prevention, soil testing, stream buffers, and lawn fertilizers.
- 3. WEBSD will continue to use its website to provide the public with information on "school" carwashes.
- 4. WEBSD will continue to use its website to provide the public with information regarding pet waste. Additionally, SEMCOG pet waste posters are placed at various school buildings.
- 5. WEBSD has established programs for soil erosion and sediment control from new or redevelopment construction. Such developments require permits and inspections for practices to keep exposed soils on site or controlled from runoff. WEBSD conducts routine visual inspections of stormwater structural controls. WEBSD will remove excessive sediments from structural sediment removal systems to maintain the maximum designed performance. Sediments will be disposed of offsite in accordance with Parts 115 or 121.

## **ALL TMDLs**

- 1. WEBSD will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E. coli, and biota TMDL Best Management Practice).
- 2. WEBSD will continue to educate staff, faculty, and students using various venues including the **"Seven Simple Steps to Clean Water"** program educational materials developed by the various watershed groups specifically related to these issues on the stormwater management webpage.
- 3. The district passed a post-construction stormwater board resolution to require implementation of the stormwater standards for construction.
- 4. Adequately maintains vegetation around stormwater facilities, ditches, and ponds.
- 5. Provide training to applicable staff and confirm training from contractors including restrictions on the use of phosphorous containing fertilizers, soaps, cleaners and other chemicals that could impact the separate storm drain system.

WeBSD strives to be good stewards of the land within their jurisdiction and to use appropriate Best Management Practices (BMPs) to contribute to the improvement of water quality. WeBSD is committed to practicing sound stormwater management practices; including observance and adherence to all local, state, and federal stormwater statutes, rules, and regulations.

Attachments: TMDL Screening Inspection Logs

Storm Sewer System Site Map

Analytical Results & Chain of Custody

cc: AE190001 project file



# TMDL Screening Inspection Log

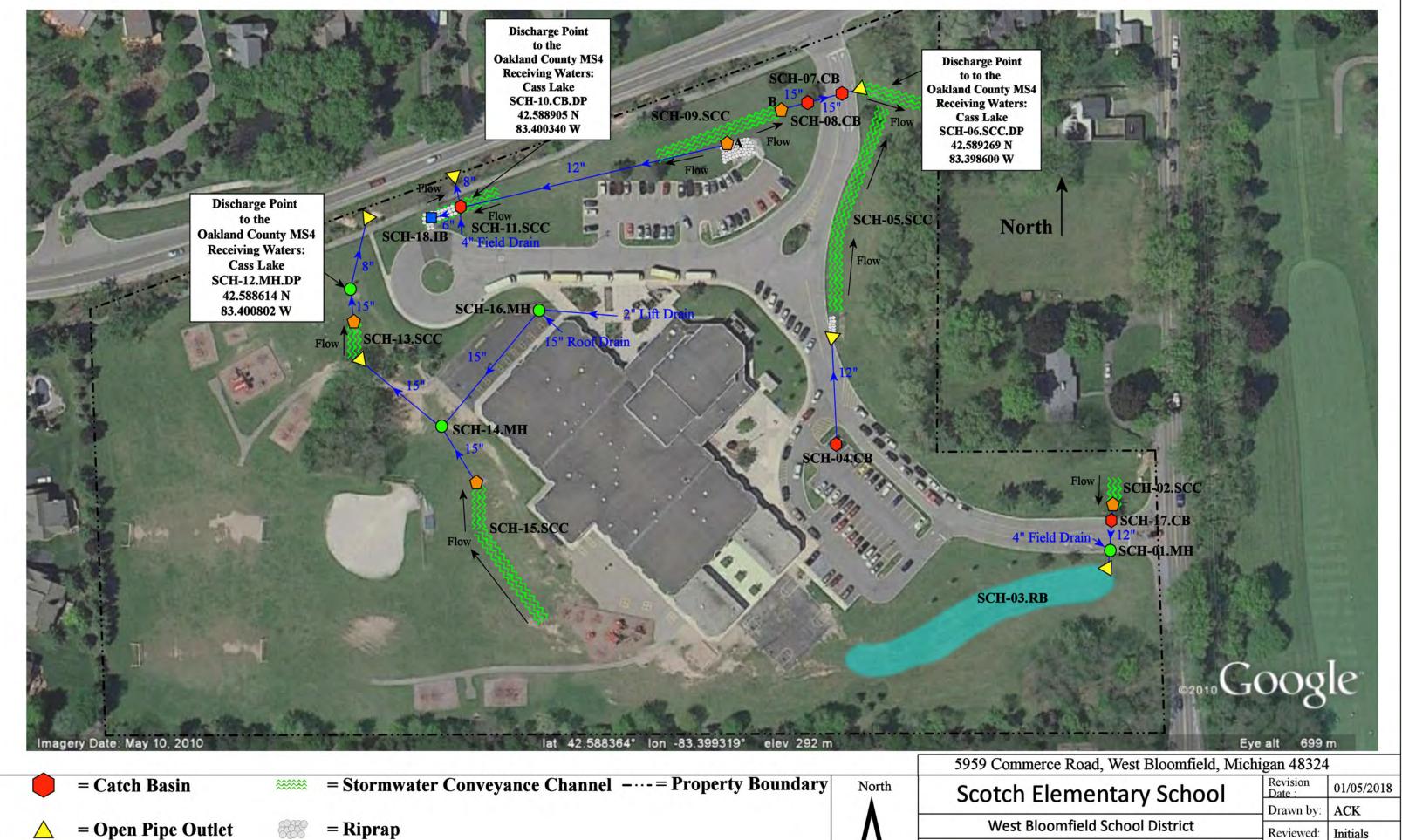
Building:	Scotch Elen	nentary Schoo	) <u> </u>		Client	: Wes	Bloomfield Scl	hool Distri	<del></del> ct
Samplers:	Kellie Das	Steven	Ripley		Date		5/22/201	9	
					Inspection Type:	:	TMDL Samp	ling	
Structure Information:		_				_		_	
ID Number:	SCH-10.CB.DP	Structure Type	Catch Basin			Lat:	42.588905	Long:	83.40034
Type:	Discharge Point	Location	East end of So	CC by bus loop		•			
Outfall Dimensions	8"								
Observations:									
Standing Water Characterist			w Characteristic			<u>-</u>			
Standing Water		_		Yes, Continous					
Color	: Clear	9	Source of Flow:	Upstream struc	ctures				
Odor	: No	V	elocity of Flow:	Slow					
Suds	: No		Color of Flow:	Clear					
Staining	: No		Flow Odor	No					
Oil Sheen:	No					_			
Sewage	: No	Add	<u>litional Comme</u>	ents:					
Bacterial Sheen	: No	Pho	sphorus above	TMDL threshold	d likely from decayir	ng organic matter and	potentially fertiliz	er.	
Algae	: No								
Slimes	: No								
Abnormal Growth:	No								
Sample ID And Information			Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:		
Sample ID	: SCH-10.CB.DP TMI	DL	pH:	8.23	6.5 - 9	pH units			
Time Collected	: 11:25		Temperature	: 12.3	N/A	Celsius			
Last Rain Event	: >72 Hours		E. coli:	N/A	300	CFU per 100mL		la Veril	
Current Weather	: Rain		Total Phosph	orus: 41	1 25	ug/L			
Screening Location Type	: Catch Basin		Other:					110	
Total Rainfall (Inches)	: 0.28"		Other:					A	
			Other:						Estate 1
Outfall Characterization:	Unlikely								
Sample sent to Lab	: Yes								



# TMDL Screening Inspection Log

Building:	Scotch Elem	entary Scho	ool		Client	: We	st Bloomfield Sch	ool Distric	ct
	Kellie Das		n Ripley		Date		5/22/2019	9	
					Inspection Type	:	TMDL Sampl	ling	
Structure Information:									
ID Number:	SCH-12.MH.DP	Structure Typ	oe Manhole			Lá	nt: 42.588614	Long:	83.400802
Type:	Discharge Point	Locatio	on: West of bus lo	oop on top of hi	II				
Outfall Dimensions	8"								
Observations:									
Standing Water Characterist	<u>ics</u>	Flo	ow Characteristic	<u>s</u>					
Standing Water	: Yes		Flow Observed:	Yes, Continous					
Color	: Clear		Source of Flow:	Upstream struc	ctures				
Odor	: No	,	Velocity of Flow:	Slow					
Suds	: No		Color of Flow:	Clear					
Staining	: No		Flow Odor	No		1			
Oil Sheen:	No		_			_			
Sewage	: No	Ac	dditional Comme	nts:					
Bacterial Sheen	: No								
Algae	: No								
Slimes	: No								
Abnormal Growth:	No								
Sample ID And Information	,		Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:		
Sample ID	SCH-12.MH.DP TMI	DL	pH:	8.06	6.5 - 9	pH units	11/1/2		X
Time Collected	: 11:30		Temperature:	12.3	N/A	Celsius	17/1/26		
Last Rain Event	: >72 Hours		E. coli:	N/A	300	CFU per 100mL	4/		
Current Weather	: Rain		Total Phospho	orus: NE	25 ug/L	ug/L	Million .		
Sample Location Type	: Manhole		Other:				Mark the State of		1. F. A
Total Rainfall (Inches	0.28"		Other:				1	A state of	
			Other:				1		ig .
Outfall Characterization:	Unlikely								
Sample sent to Lab	Yes							1	





= Drainage Receptor

= Retention Basin



37720 Interchange Drive Farmington Hills, MI 48335 Phone: 248-426-0165 Fax: 248-427-0305

Reviewed: **Initials** Page #: 1 of 1

Not to Scale

Scale:



2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

May 30, 2019

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

Subject: Scotch Elementary - TMDL

AE190001 WeBSD

Dear Ms. Sendra:

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/22/2019 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 58647 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.









2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/22/2019 Submit Date: 05/22/2019

05/22/2019 05/30/2019 To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

**Parameters** 

Report Date:

58647

CK02172

Project Name:

**Scotch Elementary - TMDL** 

Project Number:

AE190001 WeBSD

DL

Sample ID:

**SCH-10 CB DP-TMDL** 

Analysis Analyst Date

Inorganic Analysis

BA Sample ID:

Phosphorus (total)

41

Result

ug/L

Units

10

SM4500 PE

**Method Reference** 

MB

05/30/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/30/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/22/2019 Submit Date: 05/22/2019

05/30/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number: 58647 Project Name: Scotch Elementary - TMDL

BA Sample ID: CK02173 Project Number: AE190001 WeBSD

Sample ID: SCH-12 MH DP TMDL

Parameters Result Units DL Method Reference Analyst Date

**Inorganic Analysis** 

Report Date:

Phosphorus (total) Not detected ug/L 10 SM4500 PE MB 05/30/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date 5/30/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/22/2019 Submit Date: 05/22/2019

Report Date: 05/30/2019

CK02174

To:

Arch Environmental Group 37720 Interchange Dr.

Farmington Hills, MI 48335

BA Report Number: 58648

**Parameters** 

Project Name:

Units

**Administration Building TMDL** 

Project Number:

AE190001 WeBSD

Sample ID: **Dip Cup Blank TMDL** 

DL Method Reference Analyst Date

Inorganic Analysis

BA Sample ID:

Phosphorus (total) Not detected ug/L

10 SM4500 PE

MB

05/30/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Result

Released by

Date

5/30/2019

	Brighton	Brighton Analytical, L.L.CTM	L.L.CTM	BA PRO	BA PROJECT #:		Analysis Requested/Method	ed/Method	PAGE:	T or	
		2105 Pless Drive		Q Z	SBREVIATIONS FOR			F	REPORT	REPORT RESULTS TO:	
	Phone: 810-229-7575	-	Fax: 810-229-8650	S = Solid					185 B2	Enchenment.	Cash
PROJECT NAME:	Scotch Elemonter	1	TMDI	DW = Drinking H,0	H,0						
PROJECT NUMBER:	4	8		P = Wipe A = Air (Tedlar Bag) F = Filter	Bag)				Attn:		
P.O. NUMBER:		Shod	District	T = Tube M = Misc GW=Groundwater SW = Surface Water	Sroundwater Vater	>	C		FAX:		
Sample collected by:	0	If RUSH approved by:	Container	r Type & Quantity	ntity		2 19\1		EMAIL:	Los Cardeng	nengra
Default TAT: RUSH: FUSH:	usine with la	> 0 0 0	'S (PRES) NUNPRES) NOS, FILTERED		GLASS H2SO <sub>4</sub> PRESERVATIVE Preserved: L)ab Preserved	le Matrix	Soud 1		Sample received within holding time? yes \( \text{ino} \)  Temperature of samples °C: \( \text{ino} \)  pH verified in login? yes \( \text{Ino} \)  Headspace/bubbles in VOA'S? yes \( \text{ino} \)  Sample containers and COC matrix.	ceived within holding time? y Temperature of samples °C: 1 in login? yes ☑no □ bubbles in VOA'S? yes □ no □ n	C: 43
S	2 DAY = 2X COST 3 DAY = 15X COST Sample Description	Sampli	VOA'S	нов НОР	WEOH	dui	\-\_\0		odilipio collalies		) ou D
#		Time	ан на		егуз	-			BILLING ADDRESS (IF REQUIRED)	(IF REQUIRED	
	1	1	1	×;		× :					
0	SCH-IL, MH, JI IMUL	10/ 11:30A 11				× -					
4)											
5)											
(9)						-					
7)											
8)									Dr	Drinking Water:	er:
(6									Fax to LCHD? yes □ no □ C⊓lorinated Water Supply? yes □ no □	o C	
10)											
Special Instructions:	ons: X								Client Notified (date/time/initials):	e/initials):	
	Please fill o	out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses	ody completely ar	nd review. Inc	orrect or inc	comple	te information will n	ssult in a "hold"	" on all analyses.		
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# BRIGHTON ANALYTICAL, LLC

# QUALITY ASSURANCE/QUALITY CONTROL

# REPRESENTATIVE BATCH QUALITY CONTROL

# **Accuracy & Precision**

Analyst:	MB	Parameter:	PHOS
Analysis Date:	5/30/2019	Method Reference:	SM4500PE

	SJ	PIKE - ACCUI	RACY		Section 1999 1. Section 1999 Section 1999
Laboratory Identification	Spike Conc. (µg/L)	Background (µg/L)	Percent Recoveries	Acceptable Range (%)	Method Blank Concentration
CK2172	500	41	100/98	90-110	<10
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Laboratory Identification	Observed A (µg/L)	Observed B (µg/L)	RPD	Acceptable Range	
CK2172	538	529	1.69	≤ 20%	
	All regions of the second of t	MISCELLANE	ous		
	Standard ID #	%Recovery			
Independent Secondary Reference Material:	WP 270	99%			
Method Standard (Laboratory Control Spike):					

<b>COMMENTS:</b>	





healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

June 10, 2019

Mr. Ted Stinson
Supervisor of Operations and Maintenance
West Bloomfield School District
3340 Orchard Lake Road
Bloomfield Hills, Michigan 48324
Theodore.stinson@wbsd.org

RE: Project # AE190001 WeBSD

Total Maximum Daily Load (TMDL) Sampling Report Sheiko Elementary

Dear Mr. Stinson:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge point/outfall GRN-08.MH.DP at Sheiko Elementary on May 7, 2019 in accordance with the applicable NPDES Permit requirements. TMDL sampling is used to determine the level of specific pollutants in the stormwater system by collecting samples from 50% of the district's stormwater outfalls/discharge points during a representative wet weather event. The sampling results are then evaluated to determine if a particular point source needs to be addressed to reduce the pollutant load of the receiving waters. A report regarding the findings of this round of TMDL Sampling is attached.

If you have questions regarding this report, please feel free to contact please feel free to contact the cleanWATER team at (248) 426-0165.

Sincerely,

Arch Environmental Group, Inc. Environmental Services

Jumy Dunles

Carly Doulos Technician II

#### **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 TMDL Sampling Procedures
- 3.0 TMDL Sampling Results
- 4.0 Conclusion
- 5.0 Best Management Practices to Reduce TMDL Pollutant Loads

#### Attachments:

TMDL Screening Inspection Log Storm Sewer System Site Map Analytical Results & Chain of Custody Dry Weather Screening Report



#### 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) recently conducted a round of Total Maximum Daily Load (TMDL) Sampling for E. coli at discharge location GRN-08.MH.DP at Sheiko Elementary on May 7, 2019, in accordance with the applicable National Pollutant Discharge Elimination System (NPDES) Permit requirements.

A TMDL describes the process used to determine how much of a pollutant a lake or stream can assimilate and sets pollutant reduction targets for that water body. NPDES Municipal Separate Storm Sewer System (MS4) permits require regulated public entities located within urbanized areas that discharge storm water to an MS4 which leads to a water body designated with a TMDL, to demonstrate progress toward meeting Water Quality Standards (WQS). If the TMDL was written for E. coli or Total Phosphorus (TP), the MS4 permits further require permittees to collect representative samples of storm water discharges from their points of discharge to MS4s which lead to the impacted water bodies. Based on a review of the sampling results, Stormwater Best Management Practices (BMP) implementation will be reviewed and BMPs may be updated to ensure progress toward achieving TMDL pollutant load reductions.

Monitoring is not required for Biota/Sediment TMDLs under the MS4 permits.<sup>2</sup>

The receiving water body of Sheiko Elementary is the Franklin Branch of the Rouge River. The Franklin Branch of the Rouge River has been designated with TMDL's of E. coli and Biota/Sediment. Further details on the TMDL's listed can be found in the documents "Total Maximum Daily Load for Biota for the River Rouge Watershed" and "Total Maximum Daily Load for E. Coli for the Rouge River". Some examples of potential sources of E. coli in waterways include fecal material from livestock, humans, wildlife, waterfowl such as geese, and sanitary systems. Some examples of potential sources of sediment include erosion and construction activities.

#### 2.0 / TMDL Sampling Procedures

Applicable TMDL sampling was conducted with guidance from the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Sampling was conducted at designated outfalls/discharge points during a rain event of approximately .25 inches or more. Please see the attached TMDL Screening Inspection Log for specific rainfall amounts. Sampling was conducted on May 7, 2019 and the last significant rain event above .25 inches was on May 1, 2019. The weather history for the rain event is available upon request.

When a dip-cup or similar sampling device was needed to collect the sample, a blank sample was collected to ensure no contamination was coming from the sampling device. The blank collected during this round of TMDL sampling came back at zero (0) CFU for E. coli indicating that the sampling device used was not contaminated. The lab results of the blank sample are attached. Furthermore, all sampling devices were decontaminated with bleach water distilled water between each sampling location according to the protocol laid out in the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Each location sampled was analyzed for pH and temperature while on-site and the sampled outfall/discharge point (OF/DP) was inspected for color, odor, and abnormal vegetative growth. The collected samples were delivered to an external laboratory for analysis.



<sup>&</sup>lt;sup>1</sup> Storm Water Sampling Guidance for Total Phosphorus & E. coli. November 24, 2009. DEQ

<sup>&</sup>lt;sup>2</sup> Addressing Biota TMDLs in Municipal Separate Storm Sewer System Permits" April 5, 2010. DNRE

#### 3.0 / TMDL Sampling Results

#### TMDL Benchmark Standards for E. coli:

E. coli: The WQS for E. coli is the maximum amount of E. coli that is allowable in surface waters of the state. These standards are known as total body contact and partial body contact standards. Total body contact is a more conservative standard used during the summer to protect swimmers during total body contact and has the daily maximum of 300 CFU per 100 milliliters (mL). This applies to the warmer months of May 1st -October 31stand is the standard being used in this report. Partial body contact is the daily maximum of 1,000 CFU per 100 mL and applies to the waterways year-round.<sup>3</sup>

Structure ID: GRN-08.MH.DP	Structure Type: Manhole	Location: Southwest of the building at the
		southwest corner of the property just east of the
		main southwest entrance drive

At the time of the sampling, clear water flow was noted, and GRN-08.MH.DP was free of odors, and abnormal vegetative growth. AEG collected a grab sample from GRN-08.MH.DP and the sample was screened for temperature and pH in the field. An E. coli grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	7.77	6.5 - 9	pH Units
Temperature	10.7	N/A	Celsius
E. coli	1,299.7	300	CFU per 100mL

The sample results for GRN-08.MH.DP did not identify elevated levels of pH above the TMDL Benchmark Standards. However, highlighted values in the table above indicates that for outfall location GRN-08.MH.DP, the reported levels for E. coli (1,299.7 CFU) are above the Michigan Public Health Department standards for Total Body Contact (E. coli >300 CFU).

#### 4.0 / Conclusion

**Sheiko Elementary** 

AEG did not identify any elevated levels of pH above the TMDL Benchmark Standards for discharge location GRN-08.MH.DP sampled at Sheiko Elementary on May 7, 2019. However, AEG did identify elevated levels of E. coli above the TMDL Benchmark Standards for discharge location GRN-08.MH.DP.

Arch Environmental Group, Inc. recommends that the elevated location GRN-08.MH.DP be re-assessed each permit cycle to ascertain whether greater or reduced potential for E. coli TMDL contribution has occurred. Additionally, these sites will be monitored annually during regularly scheduled BMP structural inspections for changes in conditions or site activities.

Geese, gulls and ducks are speculated to be a major bacterial source in urban areas, particularly where large populations congregate. E. coli (Escherichia Coli) is a sub-group of the fecal coliform group and can be used as an

Page 4



<sup>3</sup> "Michigan's E. Coli Water Quality Standard Guidance" May, 2016. MDEQ

indicator of fecal contamination. E. coli bacteria exist in animal and human fecal matter. Elevated levels of E. coli typically occur at sites which have leaking sanitary sewer systems, failed septic systems, or populations of wild or domesticated animals. E. coli originating from birds, raccoons and other wildlife may be present in large numbers in stormwater runoff. In an effort to determine the cause of the benchmark exceedance of E. coli, Arch Environmental Group reviewed the layout of the school storm water system. Based on field observations of the flow, sanitary sewer contamination from Sheiko Elementary is not suspected. The most recent Dry Weather Screening inspection conducted on September 11, 2017 at Sheiko Elementary did not identify any signs of an illicit connection at this facility. The Dry Weather Screening report is attached. The source of E. coli is likely natural sources, such as the presence of wild animals from the grassed area surrounding the manhole, and/or E. coli contamination from the 12" line coming from off-site.

#### 5.0 / Best Management Practices to Reduce TMDL Pollutant Loads

The West Bloomfield School District Stormwater Management Plan (SWMP) identifies and defines the districts BMPs to comply with the Six Minimum Measures that are the front line in the nationwide effort to reducing polluted stormwater discharges to our lake, rivers and streams. The Michigan Department of Environmental Quality (MDEQ) recognizes that having a Stormwater Management Plan in place built around the Six Minimum Measures specified in the NPDES General Jurisdictional Permit have the potential to significantly contribute to the reduction of TMDL Pollutants in the surface waters of the state. A link to the districts current SWMP can be found on the district's website at https://www.wbsd.org/Page/3784. The Six Minimum Measures are listed below:

- Public Education and Outreach Program (PEP)
- Public Involvement and Participation Program (PIP)
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Stormwater Management Program
- Construction Site Stormwater Runoff Control Program
- Pollution Prevention/Good Housekeeping Program.

The following is a list of prioritized TMDL best management practices from the districts SWMP that West Bloomfield School District should continue to implement in order to improve water quality impairments associated with the E. coli and Biota/Sediment TMDL of the Franklin Branch of the Rouge River. Prioritization of BMPs is based on West Bloomfield School District targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli loads and address water quality for biota and dissolved oxygen.

#### E. COLI/BIOTA

- 1. WEBSD will use its website to provide the public with information regarding pet waste (SEMCOG links). Additionally, SEMCOG pet waste posters are placed at various school buildings.
- 2. WEBSD will prohibit illicit discharges, inspect and monitor suspected illicit discharges, and enforce elimination of the illicit discharges and connections.
- 3. WEBSD has reviewed all facilities for cross-connections between the sanitary and storm sewer systems.
- 4. WEBSD will conduct bimonthly inspections of parking lot and curb areas and hand clean as needed.

<sup>&</sup>lt;sup>4</sup> Sources of E. coli In Surface Water" - Great Lakes Water Institute, University of Wisconsin, Milwaukee <a href="http://www.glwi.uwm.edu/research/genomics/ecoli/sources">http://www.glwi.uwm.edu/research/genomics/ecoli/sources</a> of ecoli in water.php



- 5. WEBSD has established programs for soil erosion and sediment control from new or redevelopment construction. Such developments require permits and inspections for practices to keep exposed soils on site or controlled from runoff.
- 6. WEBSD has implemented routine visual inspections of stormwater structural controls.
- 7. WEBSD will remove excessive sediments from structural sediment removal systems to maintain the maximum designed performance. Sediments will be disposed of offsite in accordance with Parts 115 or 121.

#### **ALL TMDLs**

- 1. WEBSD will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E.coli, and biota TMDL Best Management Practice).
- 2. WEBSD will continue to educate staff, faculty, and students using various venues including the "Seven Simple Steps to Clean Water" program educational materials developed by the various watershed groups specifically related to these issues on the stormwater management webpage.
- 3. The district passed a post-construction stormwater board resolution to require implementation of the stormwater standards for construction.
- 4. Adequately maintains vegetation around stormwater facilities, ditches, and ponds.
- 5. Provide training to applicable staff and confirm training from contractors including restrictions on the use of phosphorous containing fertilizers, soaps, cleaners and other chemicals that could impact the separate storm drain system.

WeBSD strives to be good stewards of the land within their jurisdiction and to use appropriate Best Management Practices (BMPs) to contribute to the improvement of water quality. WeBSD is committed to practicing sound stormwater management practices; including observance and adherence to all local, state, and federal stormwater statutes, rules, and regulations.

Attachments: TMDL Screening Inspection Log

Storm Sewer System Site Map Analytical Results & Chain of Custody Dry Weather Screening Report

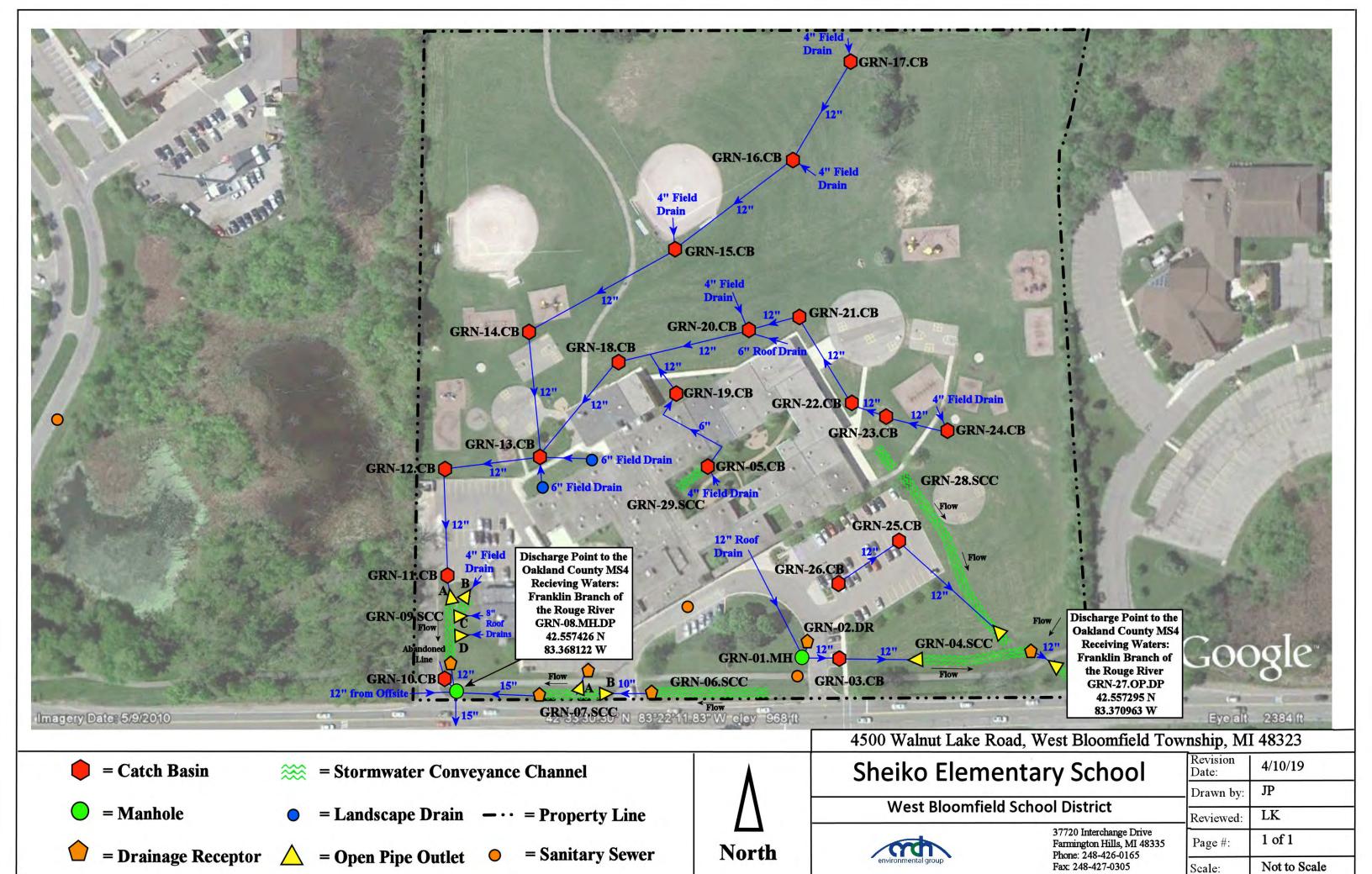
cc: AE190001 project file



# TMDL Screening Inspection Log

Building:	Sheiko Eleme	entary School			Client:	l w	est Bloomfield Sc	hool Distric	ct
Samplers:	Carly Doulos	Kellie M	1iller		Date		5/7/201	9	
	·				Inspection Type:		TMDL Samp	oling	
Structure Information:								_	
ID Number:	GRN-08.MH.DP	Structure Type	Manhole				Lat: 42.557426	Long:	83.368122
Type:	Discharge Point	Location:	Southwest of the	building at th	e southwest corne	r of the property	just east of the main	southwest en	trance drive.
Outfall Dimensions	15"								
Observations:									
Standing Water Charact			<u>Characteristics</u>			_			
Standing V	Water: Yes		ow Observed: Yes			]			
1	Color: Clear	So	ource of Flow: 12"	line from Off	-site	]			
	Odor: No	Velo	ocity of Flow: Mo	derate		]			
	Suds: No	C	Color of Flow: Clea	ar		]			
Sta	aining: No		Flow Odor No			]			
Oil Si	Sheen: No		<del>-</del>			_			
Se	ewage: No	<u>Addit</u>	tional Comments:						
Bacterial S	Sheen: No						eas. The rainwater is	_	
	Algae: No		nwater system and	d a 12" line th	at originates from	off-site. The 12" li	ine from off-site is als	o a potential	source of E.
S	Slimes: No	coli.							
Abnormal Gro	owth: No								
Sample ID And Informa	ation		Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:		
Samp	ple ID: GRN-08.MH.DP.TMI	DL	pH:	7.77	6.5 - 9	pH units			And I have
Time Colle	lected: 12:30		Temperature:	10.7	N/A	Celsius			A CONTRACTOR
Last Rain F	Event: < 48 Hours		E. coli:	1,299.70	300	CFU per 100mL			
Current We	eather: Rain		Total Phosphorus	s: N/A	N/A	ug/L	100		
Screening Location	1 Type: Manhole		Other:					The state of	
Total Rainfall (In	nches): 0.9"		Other:						
			Other:					the state of	10 / 10 /
Outfall Characteriza	ation: Unlikely							CONTRACTOR OF THE PARTY OF THE	
									The same
Sample sent to	to Lab:								A MARKET







2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

May 08, 2019

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

Subject: Sheiko Elementary School-TMDL Sampling

AE190001-WeBSD

Dear Ms. Sendra:

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/07/2019 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 57824 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.









2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date: 05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

**Method Reference** 

BA Report Number:

BA Sample ID:

57824

CK01088

Project Name:

Sheiko Elementary School-TMDL Sampling

Project Number:

AE190001-WeBSD

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Sample ID:

Units

**GRN-08-MH-DP TMDL** 

Analysis Analyst Date

Microbiological Analysis

**Parameters** 

E. coli (MF)

1299.7

Result

CFU/100 ml

1

SM9222B

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date:

05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

57826

Project Name:

**Doherty Elementary School TMDL** 

BA Sample ID: CK01093 Project Number: AE190001-WeBSD

Sample ID: **Blank-TMDL** 

Analysis **Parameters** Result Units DL **Method Reference** Analyst Date

Microbiological Analysis

E. coli (MF)

CFU/100 ml

1

SM9222B

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019

	Brighton Analytical 1 1 CTM	BA PROJECT #:	Analysis Requested/Method	PAGE: OF
	Digition Alianytical, L.L.O	2000		REPORT RESULTS TO:
	Z105 Pless Drive Brighton, MI 48114	ABBREVIATIONS FOR SAMPLE MATRIX		Aven + Murrowneatel
	Phone: 810-229-7575 Fax: 810-229-8650	S = Solid L = Liauid		cul
PROJECT NAME: (48 SPACES MAXILIMUN)	Shelke Elevrenteny School - Tirun Samming	DW = Drinking H,0 WW = Wastewater O = Oil		
PROJECT NUMBER:	30 (	P = Wipe A = Air (Tedlar Bag) F = Filter	ζ)	PHONE: 748_47/6-0/16
ii.	West Blowfield Salpoi Ditrict	M = Misc GW=Groundwater SW = Surface Water	73	See
Sample collected by:	10)	Type & Quantity	J)	EMAIL:
REQUESTED TURNAR	KED (s)	SO4		Sample received within holding time? yesຝັກວ ⊐ Temperature of samples °C:ປັກ ເວ
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RUSH 1 DAY=3X COST 2 DAY	S'AO	HDPE HDPE HOP HOP HOP HOP HOP HOP HOP HOP HOP HOP	) ·	Sample containers and COC match? yes
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4)				
5)				
(9)				
7)				
8)				Drinking Water:
(6				Fax to LCH0? yes ☐ no ☐ Chlonnated Water Supply? yes ☐ no ☐
10)				MCL Failure yes 🔲 no 🗀
Special Instructions:	×			Client Notified (date/time/initials):
	Please fill out the Chain of Custody completely and		review. Incorrect or incomplete information will result in a "hold" on all analyses.	on all analyses.
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7			4	

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	Pri Bri	Righton MI 48114			SAMPI	SAMPLE MATRIX				<	ייבו כונו ויבסס	
	Phone: 810-229-7575	-7575 Fax: 810-229-8650	29-8650		S = Solid L = Liquid					4	STATE OF THE PARTY	CINY YOUNG NO BY
PROJECT NAME:	Daloutes Elongent and C. Land	Ann C.L.		TAMPI	DW = Drinking H,0 WW = Wastewater O = Oil	g H,0 vater						
PROJECT	Service Comments	שמים אמונים		J	P = Wipe	200					Attn:	
NUMBER:	AE190001				F = Filter T = Tube	L Dag)				P P	PHONE:	
P.O. NUMBER:	West Bloomfre	eld Public	25	5	M = Misc GW=Groundwater SW = Surface Water	=Groundwate Water	<b>b</b>	n=			FAX:	
Sample collected by: LUM	KLINIE 7005	If RUSH approved by:	Cor	tainer T	Container Type & Quantity	antity	;	<del>1</del> 0			EMAIL: Tobs &	Lobs (C) Sych Chamara 16.18
REQUESTED TURNAR	REQUESTED TURNAROUND;(X BOX WITH TAT NEEDED) Default TAT Standard: 5 - 10 Business days		(s:			3VITA	pana			Sample	Sample received within holding time yes Dano	timed yes 12-46
RUSH: 1 Busi RUSH. RUSH:	RUSH: 1 Business day (verify with lab) RUSH: 2 Business days RUSH: 3 Business days		8389) ( 38400) 338389	O.	HOAN :	LASS H2	serves SIM 9	نام:		pH verifi Headspa	pH verified in login? yes ☐ no ☐ Headspace/bubbles in VOA'S? yes ☐ no ☐ n/a ☑	D no D n/a 🗹
RUSH 1 DAY=3X COST 2 DAY	RUSH SURCHARGE	Sampling	S'AC	HNC	НОРЕ	d ON	or (L	).		Sample	Sample containers and COC match? yes. 2 To	atch? yes. Tho
Brighton ID #	Sample Description	Time Date	٥٨	HDPE		SSAJÐ	blei(7)	9		BILLING	BILLING ADDRESS (IF REQUIRED)	RED)
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2) P ( DOH	-08.0P.OF	TMDL 10:05 57/19			×			×				
3) 92 2)	DH-CA. C.B. DP TIME	TMC10:25517/19			×			1				
4) 92 Bla	なんとしていっし	940 57-19			X			X				
5)												
(9)												
(2												
8)											Drinking Water:	Water:
(6										Fax to LC Chlorinate	Fax to LCHD? yes ☐ no ☐ Chlorinated Water Supply? yes ☐ no ☐	0.0
										MCL Failu	MCL Failure yes 🔲 no	
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	Please fill out th	Please fill out the Chain of Custody completely and	ty complet		eview. In	correct or	incomp	lete information	will result in	review. Incorrect or incomplete information will result in a "hold" on all analyses.	nelyses.	
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healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

September 27, 2017

Mr. Ted Stinson Supervisor of Facility Operations West Bloomfield School District 3340 Orchard Lake Road West Bloomfield, Michigan 48324 Theodore.stinson@wbsd.org

RE: AEG Project # AE170001 WeBSD

Dry Weather Field Screening Sheiko Elementary School

Dear Mr. Stinson:

Arch Environmental Group, Inc. conducted a subsequent round of dry weather screening at discharge point/outfalls GRN-08.MH.DP and GRN-27.OP.DP at Sheiko Elementary School on September 11, 2017, in accordance with the applicable NPDES General Permit requirements. Dry weather screening is used to detect illicit discharges into the stormwater system by inspecting the stormwater outfalls/discharge points at least 48 hours after a precipitation event. A report regarding the findings of this round of dry weather screening is attached.

If you have questions regarding this report, please feel free to contact Jenna Sendra [Office - (248) 426-0165 ext. "314"; Mobile - (734) 239-1424] or Christine Caddick [Office – (248) 426-0165 ext. "316"; Mobile - (248) 792-1775].

Sincerely,

Arch Environmental Group, Inc.

**Environmental Services** 

Andrew Kelly

Certified Industrial Site Stormwater Operator, I-14787

Attachments: Dry Weather Screening Inspection Report

cc: AE170001 project file



# DRY WEATHER FIELD SCREENING REPORT ILLICIT DISCHARGE ELIMINATION PROGRAM

### **Sheiko Elementary School**

4500 Walnut Lake Road West Bloomfield Township, Michigan 48323

Prepared For:

#### **West Bloomfield School District**

3340 Orchard Lake Road West Bloomfield, Michigan 48324

Prepared By:

#### Arch Environmental Group, Inc.

37720 Interchange Drive Farmington Hills, Michigan 48335

Project #: AE170001 WeBSD
Project Date(s): September 11, 2017
Report Date: September 27, 2017

#### **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 Dry Weather Screening Inspection
- 3.0 Summary of Dry Weather Screening Inspection
- 4.0 Conclusion

#### **Appendices**

- A Dry Weather Screening Inspection Log(s) Outfall/Discharge Point Locations
- B Storm Sewer System Site Map



#### 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) conducted a subsequent round of dry weather screening at discharge locations GRN-08.MH.DP and GRN-27.OP.DP at Sheiko Elementary School on September 11, 2017, in accordance with the applicable NPDES Permit requirements. Dry weather screening is used to detect illicit discharges into the stormwater system by inspecting the stormwater outfall/discharge point (OF/DP) at least 48 hours after a precipitation event. Typically, no water flow would be present at an OF/DP after this period of time following a precipitation event. Water flow in dry weather may indicate that a substance other than stormwater is present in the stormwater system. In addition to inspecting water flow, OF/DPs are visually inspected for damage and sediment. If standing or flowing water is present, it is inspected for color, odor, and abnormal growth.

If dry weather flow is observed at the time of the inspection and the source is not obvious, the inspector who identified the discharge shall continue and conduct an upstream source investigation to determine the origin of the flow. The initial investigation includes visual and olfactory observations upstream from the OF/DP. If necessary, relevant indicator field screening or dye tracing will be conducted.

If the origin of the flow is not identified during the visual upstream investigation, a grab sample is collected from the discharge for indicator field screening analysis. Indicator monitoring/field screening is the secondary tool utilized for dry weather flow without obvious indicators such as very high turbidity, strong odors or visible discharge. Screening may include some or all of the indicator parameters:

- Temperature
- pH
- Detergents (i.e., surfactants)
- Chlorine
- Ammonia (NH3-N)
- Turbidity
- Conductivity

Indicator parameters used to assess the dry weather flow shall be determined by the visual and olfactory observations and upstream source investigation. Additional grab samples may be collected and delivered for external laboratory analysis, only if additional test parameters are required for the source investigation.

#### 2.0 / Dry Weather Screening Inspection

Structure ID:	Structure Type:	Location: Southwest of the building at the
GRN-08.MH.DP	Manhole	southwest corner of the property just east of the
		main southwest entrance drive.

#### **Inspection Observations at GRN-27.OP.DP**

At the time of the inspection, clear water flow was observed at GRN-08.MH.DP, entering from the 12" concrete pipe from the west from offsite. The discharge point (DP) discharges from a 15" metal pipe to the Oakland County MS4. Clear standing water was noted during the inspection, and the DP was free of odors and blockages. The structure of the DP was observed in good condition. A grab sample was not collected at the time of the inspection as the source of the flow is offsite and not indicative of an illicit discharge or an illicit connection originating from onsite.



Structure ID:	Structure Type:	Location: Southeast of the building at the southeast
GRN-27.OP.DP	Open Pipe Outlet	end of the property just east of the sidewalk.

#### Inspection Observations at GRN-27.OP.DP

No flow or signs of an illicit discharge were observed at this location.

#### 3.0 / Summary of Dry Weather Screening Inspection

AEG did not identify flow of any kind entering or leaving GRN-27.OP.DP during the dry weather field screening investigation at Sheiko Elementary School. AEG did identify flow entering and leaving GRN-08.MH.DP, however, the source of the flow was a 12" concrete pipe from offsite. Additionally, the visual inspection did not identify any odors, colors, or other characteristics indicative of an illicit discharge or connection.

#### 4.0 / Conclusion

It is the opinion of Arch Environmental Group, Inc. that the dry weather screening investigation and upstream investigation do not indicate an unidentified illicit discharge or illicit connection at Sheiko Elementary School. No further screening or inspection is suggested for this round of dry weather screening. Dry weather screening will be conducted once every five years to continue to monitor for illicit discharges in accordance with the NPDES Permit Illicit Discharge Elimination requirements.



#### **APPENDIX A**

Dry Weather Screening Inspections Logs



# Screening Inspection Log

Building:		Sheiko Elementary School			Client: West Bloomfield School District			District			
Inspectors:	Aı	Andrew Kelly		n Mark	Date			9/11/2017			
				Inspec	tion Type:				ng		
Structure Information	n:						_		_		
ID Number:		GRN-08.MH.DP	Structure Type	Manhole			Lat	: 42.557426	Long:	83.368122	
Туре:		Discharge Point	Location:	Southwest of	the building a	t the south	nwest corne	est corner of the property just east of the main southwest			
Outfall Dimensions		15"		entrance driv	e.						
Observations:											
Standing Water Chara	cteristi	<u>cs</u>	<u>Flow</u>	Characteristic	<u>es</u>			<u>Maintenance</u>			
Standing	Water:	No	Flo	ow Observed:	Yes, Continou	S		Cleaning	: No		
	Color:	N/A	Sc	ource of Flow:	Offsite 12"			Blockages No			
	Odor:	No	Vel	ocity of Flow:	Trickle			Structural Issues None			
	Suds:	No	(	Color of Flow: Clear			Structural Trend Stable				
S	Staining:	No	Flow Odor No				Stenciling: Update				
Oil	Sheen:	No		•			<b>=</b> '				
9	Sewage:	No	Additional Comments:								
Bacteria	l Sheen:	No	Flow observed entering the manhole from offsite and discharging from the discharge pipe - no sign of								
	Algae:	No	illicit	illicit discharge or connection originating from the Sheiko Elementary School property.							
	Slimes:	No									
Abnormal G	Frowth:	No									
Sample ID And Inform	nation			Field Analysis	: Results:	Units:	Initials:	Photo ID:			
Sample Co	llected?	No		pH:	N/A	pH units	N/A				
	Round:	1st Round		Temperature	: N/A	Celsius	N/A				
Last Rair	n Event:	>72 Hours	Surfactants:		N/A	mg/L	N/A				
Current W	/eather:	Sun	Ammonia:		N/A	mg/L	N/A				
Screening Location	on Type:	Manhole	Chlorine:		N/A	mg/L	N/A				
Other Screening A			Turbidity:		N/A	NTU	N/A				
Con	ducted:			Conductivity:	N/A	uohm/cm	N/A				
Outfall Characteri	zation:	Unlikely				<del>.</del>	<del>-</del>				
				<b>Equipment Ca</b>	alibration:				73		
Sample sent	t to Lab:	No		Date: N/	'A Cal. By:	N	/A		6		

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370



Phone: (248) 426-0135 Fax: (248) 426-0136 www.archenvgroup.com

# Screening Inspection Log

Building:	Sheiko Elementary School			Client:		West Bloomfield School District				
Inspectors: A	ndrew Kelly	Benjamir	Benjamin Mark		Date		9/11/2017			
			Inspection Type:			Dry Weather Screening				
			·							
Structure Information:						_				
ID Number:	GRN-27.OP.DP	Structure Type	Open Pipe Ou	itlet		Lat	: 42.557295	Long:	83.37	70963
Туре:	Discharge Point	Location:	Southeast of	the building at	the south	east end of	the property just e	ast of the si	dewalk.	
Outfall Dimensions	12"									
Observations:										
Standing Water Characterist	<u>ics</u>	<u>Flow</u>	Characteristic	<u>:s</u>			<u>Maintenance</u>			
Standing Water	: No	Flo	ow Observed:	No			Cleaning:	Significant		
Color	: N/A	Sc	ource of Flow:	N/A			Blockages	No		
Odor	: No	Vel	ocity of Flow:	N/A			Structural Issues None			
Suds	: No		Color of Flow: N/A			Structural Trend	Stable		1	
Staining	: No		Flow Odor	N/A			Stenciling:	N/A		]
Oil Sheen:	No		•			-				-
Sewage	: No	<u>Addi</u>	tional Comme	nts:						
Bacterial Sheen	: No									
Algae	: No									
Slimes	: No									
Abnormal Growth:	No									
Sample ID And Information			Field Analysis	: Results:	Units:	Initials:	Photo ID:			
Sample Collected	? No		pH:	N/A	pH units	N/A	1. 1975 T. 1			
Round	: 1st Round		Temperature:	N/A	Celsius	N/A				
Last Rain Event	: >72 Hours		Surfactants:	N/A	mg/L	N/A			1946	
Current Weather	: Sun		Ammonia:	N/A	mg/L	N/A				the State of the S
Sample Location Type	: Open Pipe Outlet		Chlorine:	N/A	mg/L	N/A				
Other Screening Activitie	s No		Turbidity:	N/A	NTU	N/A				
Conducted	:		Conductivity:	N/A	uohm/cm	N/A				
Outfall Characterization:	Unlikely			-					5.	
			<b>Equipment Ca</b>	alibration:					才行动	
Sample sent to Lab	: No		Date: N/	'A Cal. By:	N,	/A			果市	

Arch Environmental Group 37720 Interchange Drive, Farmington Hills MI 48370







healthAIR - Industrial Hygiene Services cleanWATER - Consulting & Testing Services safeEARTH - Hazardous Waste & Recycling Services

June 10, 2019

Mr. Ted Stinson
Supervisor of Operations and Maintenance
West Bloomfield School District
3340 Orchard Lake Road
Bloomfield Hills, Michigan 48324
Theodore.stinson@wbsd.org

RE: Project # AE190001 WeBSD

Total Maximum Daily Load (TMDL) Sampling Report West Bloomfield High School

Dear Mr. Stinson:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge point/outfall WTB-53.OP.OF and WTB-54.OP.OF at West Bloomfield High School on May 7, 2019 in accordance with the applicable NPDES Permit requirements. TMDL sampling is used to determine the level of specific pollutants in the stormwater system by collecting samples from 50% of the district's stormwater outfalls/discharge points during a representative wet weather event. The sampling results are then evaluated to determine if a particular point source needs to be addressed to reduce the pollutant load of the receiving waters. A report regarding the findings of this round of TMDL Sampling is attached.

If you have questions regarding this report, please feel free to contact please feel free to contact the cleanWATER team at (248) 426-0165.

Sincerely,

Arch Environmental Group, Inc. Environmental Services

Jumy Dunles

Carly Doulos Technician II

#### **TABLE OF CONTENTS**

- 1.0 Project Summary
- 2.0 TMDL Sampling Procedures
- 3.0 TMDL Sampling Results
- 4.0 Conclusion
- 5.0 Best Management Practices to Reduce TMDL Pollutant Loads

#### Attachments:

TMDL Screening Inspection Log Storm Sewer System Site Map Analytical Results & Chain of Custody



#### 1.0 / Project Summary

Arch Environmental Group, Inc. (AEG) recently conducted a round of Total Maximum Daily Load (TMDL) Sampling for E. coli at discharge location WTB-53.OP.OF and WTB-54.OP at West Bloomfield High School on May 7, 2019, in accordance with the applicable National Pollutant Discharge Elimination System (NPDES) Permit requirements.

A TMDL describes the process used to determine how much of a pollutant a lake or stream can assimilate and sets pollutant reduction targets for that water body. NPDES Municipal Separate Storm Sewer System (MS4) permits require regulated public entities located within urbanized areas that discharge storm water to an MS4 which leads to a water body designated with a TMDL, to demonstrate progress toward meeting Water Quality Standards (WQS). If the TMDL was written for E. coli or Total Phosphorus (TP), the MS4 permits further require permittees to collect representative samples of storm water discharges from their points of discharge to MS4s which lead to the impacted water bodies. Based on a review of the sampling results, Stormwater Best Management Practices (BMP) implementation will be reviewed and BMPs may be updated to ensure progress toward achieving TMDL pollutant load reductions.

Monitoring is not required for Biota/Sediment TMDLs under the MS4 permits.<sup>2</sup>

The receiving water body of West Bloomfield High School is the Franklin Branch of the Rouge River. The Franklin Branch of the Rouge River has been designated with TMDL's of E. coli and Biota/Sediment. Further details on the TMDL's listed can be found in the documents "Total Maximum Daily Load for Biota for the River Rouge Watershed" and "Total Maximum Daily Load for E. Coli for the Rouge River". Some examples of potential sources of E. coli in waterways include fecal material from livestock, humans, wildlife, waterfowl such as geese, and sanitary systems. Some examples of potential sources of sediment include erosion and construction activities.

#### 2.0 / TMDL Sampling Procedures

Applicable TMDL sampling was conducted with guidance from the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Sampling was conducted at designated outfalls/discharge points during a rain event of approximately .25 inches or more. Please see the attached TMDL Screening Inspection Log for specific rainfall amounts. Sampling was conducted on May 7, 2019 and the last significant rain event above .25 inches was on May 1, 2019. The weather history for the rain event is available upon request.

When a dip-cup or similar sampling device was needed to collect the sample, a blank sample was collected to ensure no contamination was coming from the sampling device. The blank collected during this round of TMDL sampling came back at zero (0) CFU for E. coli indicating that the sampling device used was not contaminated. The lab results of the blank sample are attached. Furthermore, all sampling devices were decontaminated with bleach water distilled water between each sampling location according to the protocol laid out in the "Storm Water Sampling Guidance for Total Phosphorus & E. coli." Each location sampled was analyzed for pH and temperature while on-site and the sampled outfall/discharge point (OF/DP) was inspected for color, odor, and abnormal vegetative growth. The collected samples were delivered to an external laboratory for analysis.



<sup>&</sup>lt;sup>1</sup> Storm Water Sampling Guidance for Total Phosphorus & E. coli. November 24, 2009. DEQ

<sup>&</sup>lt;sup>2</sup> Addressing Biota TMDLs in Municipal Separate Storm Sewer System Permits" April 5, 2010. DNRE

#### 3.0 / TMDL Sampling Results

#### TMDL Benchmark Standards for E. coli:

• E. coli: The WQS for E. coli is the maximum amount of E. coli that is allowable in surface waters of the state. These standards are known as total body contact and partial body contact standards. Total body contact is a more conservative standard used during the summer to protect swimmers during total body contact and has the daily maximum of 300 CFU per 100 milliliters (mL). This applies to the warmer months of May 1<sup>st</sup> -October 31<sup>st</sup> and is the standard being used in this report. Partial body contact is the daily maximum of 1,000 CFU per 100 mL and applies to the waterways year-round. <sup>3</sup>

Structure ID: WTB-53.OP.OF	Structure Type: Open Pipe	Location: East of the building, east of the baseball field, off of the nature trail		
Structure ID: WTB-54.OP.OF	Structure Type: Open Pipe	Location: East of the building, east of the baseball field, off of the nature trail		

At the time of the sampling, clear water flow was noted, and WTB-53.OP.OF and WTB-54.OP were free of odors, and abnormal vegetative growth. AEG collected grab samples WTB-53.OP.OF and WTB-54.OP and the sample was screened for temperature and pH in the field. An E. coli grab sample was delivered to an external laboratory for analysis. Results from the sampling are summarized below. A more detailed TMDL Screening Inspection Log is also attached at the end of the report.

#### WTB-53.OP.OF

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	7.81	6.5 - 9	pH Units
Temperature	10	N/A	Celsius
E. coli	0	300	CFU per 100mL

#### WTB-54.OP.OF

Parameter:	Results:	TMDL Benchmark Standard:	Units:
рН	8.5	6.5 - 9	pH Units
Temperature	10.5	N/A	Celsius
E. coli	218.7	300	CFU per 100mL

The sample results for WTB-53.OP.OF and WTB-54.OP did not identify elevated levels of pH or E. coli above the TMDL Benchmark Standards. The reported levels for E. coli (0 and 218.7 CFU) are below the Michigan Public Health Department standards for Total Body Contact (E. coli >300 CFU).

#### 4.0 / Conclusion

AEG did not identify any elevated levels of pH or E. coli above the TMDL Benchmark Standards for discharge locations WTB-53.OP.OF and WTB-54.OP sampled at West Bloomfield High School on May 7, 2019.

<sup>3</sup> "Michigan's E. Coli Water Quality Standard Guidance" May, 2016. MDEQ

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It is the opinion of Arch Environmental Group, Inc. that the TMDL sampling results indicate good use of BMPs in maintaining TMDL pollutant load reductions at West Bloomfield High School. A list of those BMPs is provided below in section 5.0. TMDL sampling will be conducted twice per permit cycle to continue to monitor for TMDL pollutant load levels in accordance with the NPDES Permit requirements.

#### 5.0 / Best Management Practices to Reduce TMDL Pollutant Loads

The West Bloomfield School District Stormwater Management Plan (SWMP) identifies and defines the districts BMPs to comply with the Six Minimum Measures that are the front line in the nationwide effort to reducing polluted stormwater discharges to our lake, rivers and streams. The Michigan Department of Environmental Quality (MDEQ) recognizes that having a Stormwater Management Plan in place built around the Six Minimum Measures specified in the NPDES General Jurisdictional Permit have the potential to significantly contribute to the reduction of TMDL Pollutants in the surface waters of the state. A link to the districts current SWMP can be found on the districts website at https://www.wbsd.org/Page/3784. The Six Minimum Measures are listed below:

- Public Education and Outreach Program (PEP)
- Public Involvement and Participation Program (PIP)
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Stormwater Management Program
- Construction Site Stormwater Runoff Control Program
- Pollution Prevention/Good Housekeeping Program.

The following is a list of prioritized TMDL best management practices from the districts SWMP that West Bloomfield School District should continue to implement in order to improve water quality impairments associated with the E. coli and Biota/Sediment TMDL of the Franklin Branch of the Rouge River. Prioritization of BMPs is based on West Bloomfield School District targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli loads and address water quality for biota and dissolved oxygen.

#### E. COLI/BIOTA

- 1. WEBSD will use its website to provide the public with information regarding pet waste (SEMCOG links). Additionally, SEMCOG pet waste posters are placed at various school buildings.
- 2. WEBSD will prohibit illicit discharges, inspect and monitor suspected illicit discharges, and enforce elimination of the illicit discharges and connections.
- 3. WEBSD has reviewed all facilities for cross-connections between the sanitary and storm sewer systems.
- 4. WEBSD will conduct bimonthly inspections of parking lot and curb areas and hand clean as needed.
- 5. WEBSD has established programs for soil erosion and sediment control from new or redevelopment construction. Such developments require permits and inspections for practices to keep exposed soils on site or controlled from runoff.
- 6. WEBSD has implemented routine visual inspections of stormwater structural controls.
- 7. WEBSD will remove excessive sediments from structural sediment removal systems to maintain the maximum designed performance. Sediments will be disposed of offsite in accordance with Parts 115 or 121.

### **ALL TMDLs**

1. WEBSD will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E.coli, and biota TMDL Best Management Practice).



- 2. WEBSD will continue to educate staff, faculty, and students using various venues including the "Seven Simple Steps to Clean Water" program educational materials developed by the various watershed groups specifically related to these issues on the stormwater management webpage.
- 3. The district passed a post-construction stormwater board resolution to require implementation of the stormwater standards for construction.
- 4. Adequately maintains vegetation around stormwater facilities, ditches, and ponds.
- 5. Provide training to applicable staff and confirm training from contractors including restrictions on the use of phosphorous containing fertilizers, soaps, cleaners and other chemicals that could impact the separate storm drain system.

WeBSD strives to be good stewards of the land within their jurisdiction and to use appropriate Best Management Practices (BMPs) to contribute to the improvement of water quality. WeBSD is committed to practicing sound stormwater management practices; including observance and adherence to all local, state, and federal stormwater statutes, rules, and regulations.

Attachments: TMDL Screening Inspection Log

Storm Sewer System Site Map

Analytical Results & Chain of Custody

cc: AE190001 project file



# TMDL Screening Inspection Log

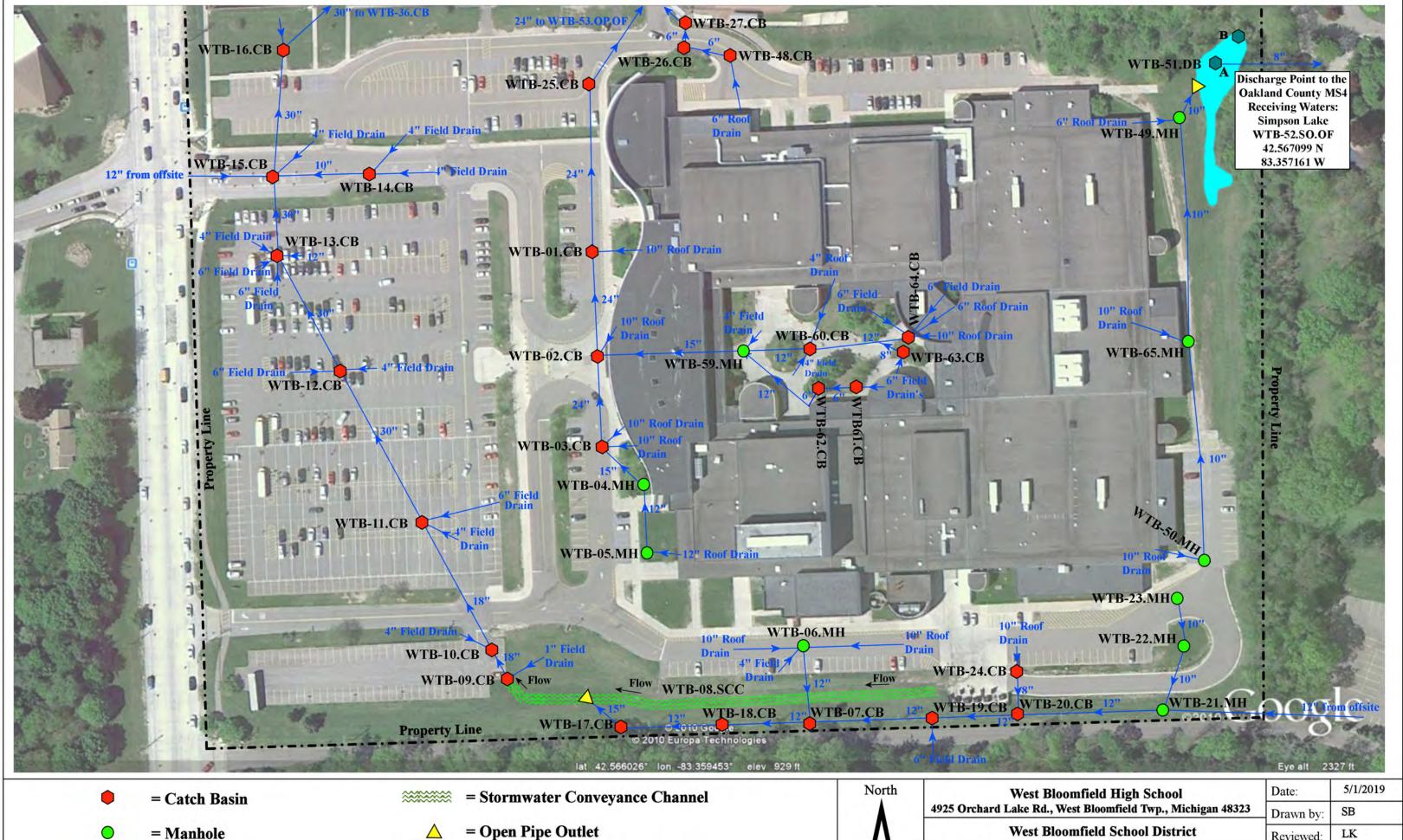
Building:	West Bloomf	ield High Schoo	ol		Client	: We	est Bloomfield Sc	hool Distri	ct
Samplers:	Carly Doulos	Kellie N	/liller		Date	е	5/7/2019	9	
					Inspection Type	:	TMDL Samp	ling	
Structure Information:								_	
ID Number:	WTB-53.OP.OF	Structure Type	Open Pipe Out	tlet		La	at: 42.568199	Long:	83.358095
Туре:	Outfall	Location:	East of the bui	ilding, east of th	ne baseball field, off	of the nature trail	•	•	
Outfall Dimensions	24"	]							
Observations:									
Standing Water Charact	<u>teristics</u>	-	Characteristics	<del>_</del>		_			
Standing V	Nater: Yes	Flo	ow Observed:	Yes, Continous					
	Color: Clear	Sc	ource of Flow: \	WTB-25.CB, rai	nfall				
	Odor: No	Vel	ocity of Flow:	Moderate					
	Suds: No	] (	Color of Flow:	Clear		7			
Sta	aining: No	]	Flow Odor	No		7			
Oil Sh	heen: No	1	_			_			
Se	wage: No	<u>Addi</u>	tional Commer	nts:					
Bacterial S	Sheen: No	] [							
	Algae: No	]							
SI	ilimes: No	]							
Abnormal Gro	owth: No	1							
Sample ID And Information	tion		Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:		
Samp	ple ID: WTB-53.OP.OF.TM	IDL	pH:	7.8	1 6.5 - 9	pH units		SX	
Time Colle	ected: 11:25		Temperature:	1	0 N/A	Celsius			
Last Rain F	Event: < 48 Hours		E. coli:		300	CFU per 100mL			
Current Wea	ather: Rain		Total Phospho	rus: N/	Α				
Screening Location	Type: Open Pipe Outlet		Other:						THE RESERVE OF THE PARTY OF THE
Total Rainfall (In	iches): 0.9"		Other:						
			Other:						
Outfall Characteriza	ation: Unlikely								
Sample sent to	o Lab: Yes								

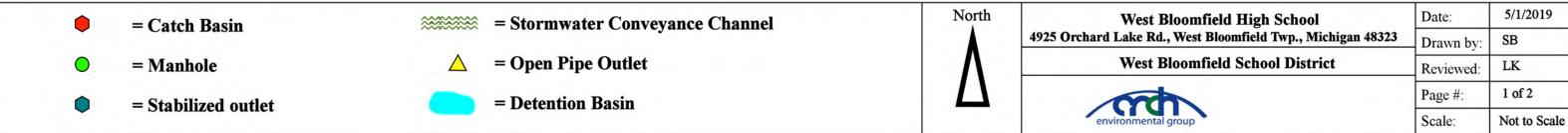


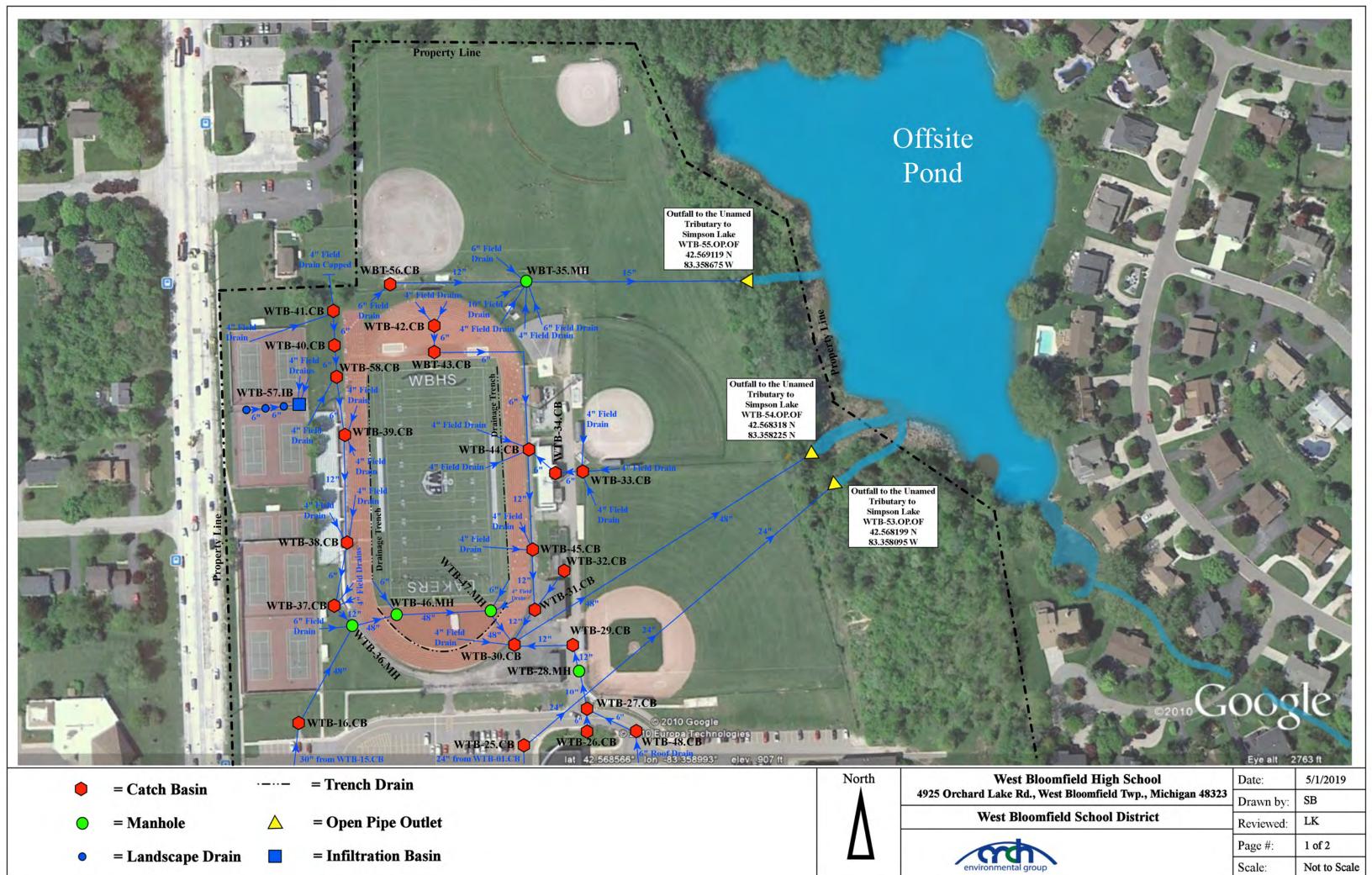
# TMDL Screening Inspection Log

Building:	West Bloomf	ield High Schoo	ol		Client:	·	est Bloomfield Sc	hool Distric	t
Inspectors:	Carly Doulos	Kellie N	∕liller		Date		5/7/201	9	
					Inspection Type:		TMDL Samp	ling	
Structure Information:									
ID Number:	WTB-54.OP.OF	Structure Type	Open Pipe Outlet				Lat: 42.568318	Long:	83.358225
Туре:	Outfall	Location:	East of the buildir	ng, east of the	e baseball field, off	of the nature trail			
Outfall Dimensions	48"								
Observations:									
Standing Water Characteris	<u>tics</u>	<u>Flow</u>	<u>Characteristics</u>			_			
Standing Wate	r: Yes	FI	ow Observed: Yes	, Continous					
Colo	r: Clear	Sc	ource of Flow: WT	B-30.CB					
Odo	r: No	Ve	locity of Flow: Sub	stantial					
Sud	s: No		Color of Flow: Clea	ar					
Stainin	g: No		Flow Odor No						
Oil Sheer	: No					_			
Sewag	e: No	<u>Addi</u>	tional Comments:	i					
Bacterial Shee	n: No	Near	baseball field, bird	ds present.					
Alga	e: No	]							
Slime	s: No	]							
Abnormal Growth	: No	]							
Sample ID And Information			Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:		
Sample II	D: WTB-54.OP.OF.TM	IDL	pH:	8.5	6.5 - 9	pH units	<b>人工程</b>		
Time Collected	d: 11:30		Temperature:	10.5	N/A	Celsius			
Last Rain Even	t: < 48 Hours		E. coli:	218.7	300	CFU per 100mL			
Current Weathe	r: Rain		<b>Total Phosphorus</b>	: N/A					
Sample Location Type	e: Open Pipe Outlet		Other:						
Total Rainfall (Inche	s) 0.9"		Other:					13/2/20	N. C.
			Other:						1
Outfall Characterization	Unlikely								
Sample sent to La	o: Yes								











2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

May 08, 2019

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

Subject: West Bloomfield HS TMDL Sampling

AE190001-WeBSD

Dear Ms. Sendra:

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/07/2019 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 57823 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.









## **Brighton Analytical LLC**

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date: 05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

57823

Project Name:

West Bloomfield HS TMDL Sampling

BA Sample ID: **CK01086** 

**Parameters** 

Project Number: **AE190001-WeBSD** 

Sample ID: WTB-S3-OP-OF TMDL

DL Method Reference Analyst Date

Microbiological Analysis

E. coli (MF)

0

Result

CFU/100 ml

Units

1

SM9222B

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019



## **Brighton Analytical LLC**

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date: 05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:
BA Sample ID:

57823

CK01087

Project Name:

**West Bloomfield HS TMDL Sampling** 

Result

Project Number: **AE190001-WeBSD** 

Units

Sample ID:

WTB-S4-OP-OF TMDL

DL

Analysis Date

Microbiological Analysis

**Parameters** 

E. coli (MF)

218.7

CFU/100 ml

1

SM9222B

**Method Reference** 

WT

Analyst

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019



## **Brighton Analytical LLC**

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net MDNRE Certified #9404 NELAC Accredited #176507

Sample Date: 05/07/2019 Submit Date: 05/07/2019 Report Date:

05/08/2019

To:

Arch Environmental Group 37720 Interchange Dr. Farmington Hills, MI 48335

BA Report Number:

57826

Project Name:

**Doherty Elementary School TMDL** 

BA Sample ID: CK01093 Project Number: AE190001-WeBSD

Sample ID: **Blank-TMDL** 

Analysis **Parameters** Result Units DL **Method Reference** Analyst Date

Microbiological Analysis

E. coli (MF)

CFU/100 ml

1

SM9222B

WT

05/07/2019

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by

Date

5/8/2019

	Brighton Analytical, L. I. CTM	nalvt	ical		C	Σ		in the	BA PROJECT #:	CT#:		A	Analysis Requested/Method	ested/Met/	hod	PAGE:	90	
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(25 SPACES MAXIMUM)	KULLOO NAC	10						F = Filter				(				PHONE	24-742	26-016
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Sample collected by:	Pare Mentes	lf B	If RUSH > approved by:			ont	Container T	ype & Quantity	Mant	ity		177				EMAIL:		
REQUESTED TURNAR Default TAT Stand	ITH TAT NEEDED)			(9	(s:					<b>BVITA</b>	рәмә	-				Sample received within holding time? yes Dho Temperature of samples "CON CO	ceived within holding time? yes Dho Temperature of samples "CON"	Con Co
RUSH: 1 Bus RUSH RUSH	RUSH: 1 Business day (verify with lab) RUSH: 2 Business days RUSH: 3 Business days			S (PRES	зичии)	NPRESER NO. FILT	U:	E NAOH	SEA GLASS	ькегекл	Preserve L)ab Pres IQ M8	1100				pH verified in login? yes □ no □ verified in login? yes □ no □ n/a □ Peadspace/bubbles in VOAS? yes □ no □ n/a □ Someter services.	yes □ no ◘ ✓	D n/a O
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1) (38b W	TK-53.00.0FTM	Thoull-25	2-3									X						
2) 87 W	TB-54, OP.OF-TWD 11:36	11:36	2.5					V			-	>						
3)																		
4)																		
5)									-									
(9)																		
(2									-									
8)																D	Drinking Water:	ter:
(6																Fax to LCHD? yes □ no □ Chlorinated Water Supply? yes □ no □	o Cl	
10)																		
Special Instructions:	×															Client Notified (date/time/initials):	e/initials):	
	Please fill out the Chain of Custody completely and	e Chain	of Custo	ody c	omp	letel		eview.	Incor	rect o	r incor	nplete	information w	ill result in a	"hold"	review. Incorrect or incomplete information will result in a "hold" on all analyses.		
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	Pri Bri	Righton MI 48114			SAMP	SAMPLE MATRIX					A Cal-	יירססרוס	5
	Phone: 810-229-7575	-7575 Fax: 810-229-8650	29-8650		S = Solid L = Liquid							Travivammenta A 10	N N
PROJECT NAME:	Deborter Flangent mgr C. Land	Ann C.L.		Than	DW = Drinking H,0 WW = Wastewater O = Oil	ng H,0 water							
PROJECT	Carry Common	ממי לישוני		J	P = Wipe	0					Attn:		
NUMBER:	4E190001				F = Filter T = Tube	ar bag)					PHONE:		
P.O. NUMBER:	West Bloomfre	eld Public	25	50	M = Misc GW=Groun SW = Surface Water	M = Misc GW=Groundwater SW = Surface Water	ar.	n=			FAX:		
Sample collected by: LUM	KLUNE TOS	If RUSH approved by:	Col	ntainer T	Container Type & Quantity	antity	7	to			EMAIL:	Lobs @ Crich Chumitale	Bull Com
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RUSH: 1 Bus RUSH RUSH	RUSH: 1 Business day (verify with lab) RUSH: 2 Business days RUSH: 3 Business days		8389) 8 38900) 38999999999999999999999999999999999999	O.	Hoson R GLASS	гүзэ нх	sereseres gap Pres SIM 9	أأم			pH verified in login? yes ☐ no ☐ Headspace/bubbles in VOA'S? yes ☐ no ☐ n/a ☑	yes □ no ਖ਼ VOA'S? yes □ no □	Va 🗹
RUSI 1 DAY=3X COST 2 DAY	RUSH SURCHARGE	Sampling	S'AC	HNC	НОРЕ	HO P	or (L	).			Sample containers and COC match? yes. a no	and COC match? y	□ ou Pres
Brighton ID #	Sample Description	Time Date	٥٨	HDPE		aMA ¦ssAJĐ	blei(7)	9			BILLING ADDRESS (IF REQUIRED)	(IF REQUIRED)	T
MISE DOH	H-07.00.0F [MIDL	936 95119			4		d	X					Ī
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4) 93 860	なんとしていっし	940 57-19			×		V	X					
5)													
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10)											MCL Failure yes 🔲 no	0	
Special Instructions:	×										Client Notified (date/time/initials):	e/initials):	
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