



www.archenvgroup.com
healthAIR - Industrial Hygiene Services
cleanWATER - Consulting & Testing Services
safeEARTH - Hazardous Waste & Recycling Services

June 12, 2018

Mr. Kyle Scriptor
Supervisor of Maintenance
Waverly Community Schools
3809 West Saint Joseph
Lansing, Michigan 48917
kscripter@waverlyk12.net

RE: **Project # AE180001 WavCS**
Total Maximum Daily Load (TMDL) Sampling Report
East Intermediate School

Dear Mr. Scriptor:

Arch Environmental Group, Inc. recently conducted a round of TMDL Wet Weather Sampling at discharge points WEL-01.MH.DP, and WEL-07.MH.DP at East Intermediate School on May 3, 2018, 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

Jessica Perfetti
Certified Industrial Site Stormwater Operator, I-14671

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 *E. coli* at discharge locations WEL-01.MH.DP and WEL-07.MH.DP at East Intermediate School on May 3, 2018, 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.¹ 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 Waverly Community Schools is the Grand River. The Grand River has been designated with a TMDL of *E. coli*. Further details on the TMDL listed can be found in the document “Total Maximum Daily Load for *E. coli* for the Grand River Kent County.” Some examples of potential sources of *E. coli* in waterways include fecal material from livestock, humans, wildlife, waterfowl such as geese, and sanitary systems.

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 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 3, 2018 and the last significant rain event was on April 15, 2018. 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 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 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 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 *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

¹ Storm Water Sampling Guidance for Total Phosphorus & *E. coli*. November 24, 2009. DEQ

of May 1st -October 31st 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.²

Structure ID: WEL-01.MH.DP	Structure Type: Manhole	Location: Northeast of main entrance in the grass next to sidewalk.
-----------------------------------	--------------------------------	--

At the time of the sampling, clear water flow was noted, and WEL-01.MH.DP was free of odors, and abnormal vegetative growth. AEG collected a grab sample from WEL-01.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:
pH	8.2	6.5 - 9	pH Units
Temperature	19.9	N/A	Celsius
E. coli	0.0	300	CFU per 100mL

The sample results for WEL-01.MH.DP did not identify elevated levels of pH or E. coli above the TMDL Benchmark Standards. The reported levels for E. coli (0.0 CFU) are below the Michigan Public Health Department standards for Total Body Contact (E. coli >300 CFU).

Structure ID: WEL-07.MH.DP	Structure Type: Manhole	Location: East of east entry drive in the grass southeast of sidewalk.
-----------------------------------	--------------------------------	---

At the time of the sampling, clear water flow was noted, and WEL-07.MH.DP was free of odors, and abnormal vegetative growth. AEG collected a grab sample from WEL-07.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:
pH	7.7	6.5 - 9	pH Units
Temperature	18.3	N/A	Celsius
E. coli	298.7	300	CFU per 100mL

The sample results for WEL-07.MH.DP did not identify elevated levels of pH or E. coli above the TMDL Benchmark Standards. The reported levels for E. coli (298.7 CFU) are below the Michigan Public Health Department standards for Total Body Contact (E. coli >300 CFU).

4.0 / Conclusion

AEG did not identify elevated levels of pH or E. coli above the TMDL Benchmark Standards for discharge locations WEL-01.MH.DP and WEL-07.MH.DP sampled at East Intermediate School on May 3, 2018.

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 East Intermediate School. A list of those BMPs is provided below in

² "Michigan's E. Coli Water Quality Standard Guidance" May, 2016. MDEQ

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 Waverly Community Schools 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 <http://www.waverlycommunityschools.net/our-district/storm-water-management/>. 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 for NPS faculty and staff.**

The following is a list of prioritized TMDL best management practices from the districts SWMP that Waverly Community Schools should continue to implement in order to improve water quality impairments associated with the E. coli TMDL of the Grand River. Prioritization of BMPs is based on WCS targeted TMDL pollutants. Priority is given to BMPs that reduce E. coli loads.

E. COLI

1. WCS will use its website to provide the public with information regarding pet waste (SEMCOG links/ GLRC). Additionally, GLRC posters are placed at various school buildings.
2. WCS will prohibit illicit discharges, inspect and monitor suspected illicit discharges, and enforce elimination of the illicit discharges and connections.
3. WCS has reviewed all facilities for cross-connections between the sanitary and storm sewer systems.
4. WCS will conduct hand sweeping in the parking lots/roadways monthly.
5. WCS 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. WCS has implemented routine visual inspections of stormwater structural controls.
7. WCS 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. WCS will continue to use its website to provide the public information regarding local TMDL issues (phosphorous, E. coli, biota and dissolved oxygen TMDL Best Management Practice).
2. WCS will continue to educate staff, faculty, and students using various venues including 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.

WavCS 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. WavCS 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: AE180001 project file

TMDL Screening Inspection Log

Building:	East Intermediate School		Client:	Waverly Community Schools	
Samplers:	Amanda Peterson	Alec Staber	Date:	5/3/2018	
			Inspection Type:	TMDL Sampling	

Structure Information:					
ID Number:	WEL-01.MH.DP	Structure Type:	Manhole	Lat:	42.733012 N
Type:	Discharge Point	Location:	Northeast of main entrance in the grass next to sidewalk.		
Outfall Dimensions	24"			Long:	84.591310 W

Observations:					
Standing Water Characteristics			Flow Characteristics		
Standing Water:	Yes	Flow Observed:	Yes, Continous		
Color:	Clear	Source of Flow:	Inlet pipe		
Odor:	No	Velocity of Flow:	Substantial		
Suds:	No	Color of Flow:	Clear		
Staining:	No	Flow Odor:	No		
Oil Sheen:	No				
Sewage:	No				
Bacterial Sheen:	No	Additional Comments:	N/A		
Algae:	No				
Slimes:	No				
Abnormal Growth:	No				


Sample ID And Information	Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:
Sample ID:	pH:	8.2	6.5 - 9	pH units	
Time Collected:	Temperature:	19.9	N/A	Celsius	
Last Rain Event:	E. coli:	0	300	CFU per 100mL	
Current Weather:	Total Phosphorus:	N/A	N/A	ug/L	
Screening Location Type:	Other:				
Total Rainfall (Inches):	Other:				
	Other:				
Outfall Characterization:	Unlikely				
Sample sent to Lab:	Yes				

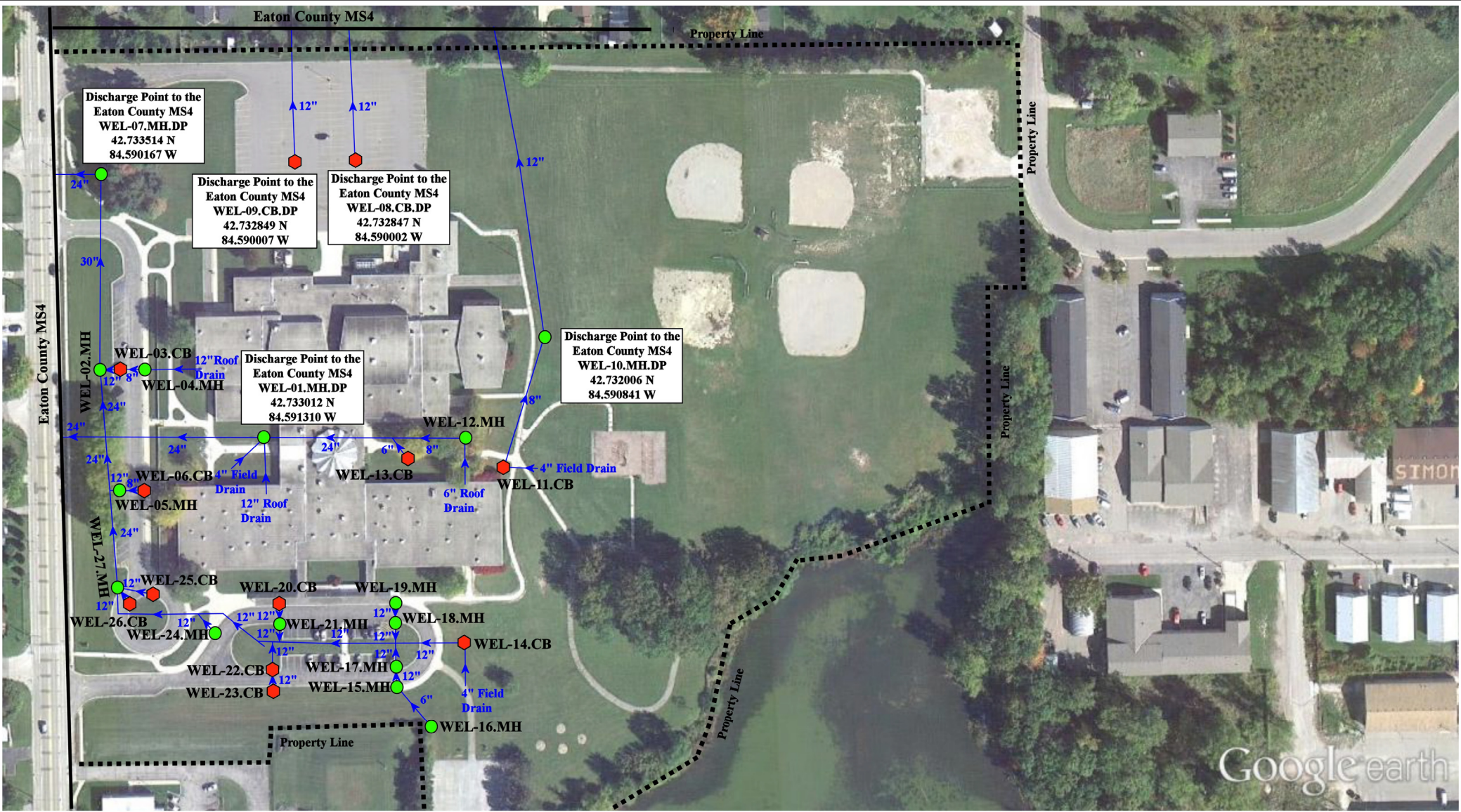
TMDL Screening Inspection Log

Building:	East Intermediate School		Client:	Waverly Community Schools	
Inspectors:	Amanda Peterson	Alec Staber	Date:	5/3/2018	
			Inspection Type:	TMDL Sampling	

Structure Information:					
ID Number:	WEL-07.MH.DP	Structure Type	Manhole	Lat:	42.733514 N
Type:	Discharge Point	Location:	East of east entry drive in the grass southeast of sidewalk.		
Outfall Dimensions	24"				

Observations:					
Standing Water Characteristics			Flow Characteristics		
Standing Water:	Yes	Flow Observed:	Yes, Continous		
Color:	Clear	Source of Flow:	Inlet pipe		
Odor:	No	Velocity of Flow:	Moderate		
Suds:	No	Color of Flow:	Clear		
Staining:	No	Flow Odor:	No		
Oil Sheen:	No	Additional Comments: N/A			
Sewage:	No				
Bacterial Sheen:	No				
Algae:	No				
Slimes:	No				
Abnormal Growth:	No				

Sample ID And Information		Lab Analysis:	Results:	TMDL Threshold:	Units:	Photo ID:
Sample ID:	WEL-07.MH.DP.TMDL	pH:	7.7	6.5 - 9	pH units	
Time Collected:	1:15 PM	Temperature:	18.3	N/A	Celsius	
Last Rain Event:	> 72 Hours	E. coli:	298.7	300	CFU per 100mL	
Current Weather:	Overcast	Total Phosphorus:	N/A	N/A	ug/L	
Sample Location Type:	Manhole	Other:				
Total Rainfall (Inches):	.57	Other:				
Other:						
Outfall Characterization:	Unlikely					
Sample sent to Lab:	Yes					



- ◆ = Catch Basin
- = Manhole
- = Eaton County MS4

North



East Intermediate School

Waverly Community Schools



Date:	04/18/2013
Drawn by:	JOF
Reviewed:	CMC
Page #:	1 of 1
Scale:	Not to Scale

May 04, 2018

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

Subject: East Intermediate School TMDL Sampling
AE180001 Wav CS

Dear Ms. Koloski :

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 05/03/2018 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 50438 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: 5/3/2018
Submit Date: 5/3/2018
Report Date: 5/4/2018

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

BA Report Number: **50438**

Project Name: **East Intermediate School TMDL Sampling**

BA Sample ID: **CH04656**

Project Number: **AE180001 Wav CS**

Sample ID: **WEL-01.MH.DP.TMDL**

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

Microbiological Analysis

E. coli	0	CFU/100 ml	1	SM9223B M Well	WT	05/03/2018
---------	---	------------	---	----------------	----	------------

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

5/4/2018



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: 5/3/2018
Submit Date: 5/3/2018
Report Date: 5/4/2018

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

BA Report Number: **50438**

Project Name: **East Intermediate School TMDL Sampling**

BA Sample ID: **CH04657**

Project Number: **AE180001 Wav CS**

Sample ID: **WEL-07.MH.DP.TMDL**

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

Microbiological Analysis

E. coli	298.7	CFU/100 ml	1	SM9223B M Well	WT	05/03/2018
---------	--------------	------------	---	----------------	----	------------

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

5/4/2018

BA Brighton Analytical, L.L.C. Email: bai-brighton@sbgglobal.net 2105 Pless Drive Brighton, MI 48114 Phone: 810-229-7575 Fax: 810-229-8650		BA PROJECT #: 55438		Analysis Requested/Method		PAGE <u>1</u> OF <u>1</u>	
PROJECT NAME: East Intermediate School TMDL Sampling		ABBREVIATIONS FOR MATRIX S = Solid L = Liquid DW = Drinking H ₂ O O = Oil P = Wipe A = Air (Tedlar Bag) F = Filter T = Tube M = Misc.		COMPANY/MAILING ADDRESS: Arch Environmental Group		ATTN: Laura Koleski	
PROJECT #: AE180001 Wavcs		CONTAINER TYPE & QUANTITY		PHONE: (248) 426-0165		FAX: OR EMAIL: 9203@archenvgroup.com	
PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS) Waverly Community Schools		Sample collected by: A.S. and A.P.		Samples received within hold time? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>		Temperature of samples °C: ONICE	
REQUESTED TURNAROUND: (circle one) Rush: 1-3 business days (verify with lab & specify date needed) 1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost Standard 5 business days		IF RUSH, approved by: _____ Sample Coll. Date Time 4/3/18 1:06 4/6/18 1:15		pHs verified in login? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>		Headspace/bubbles in VOA's? yes <input type="checkbox"/> no <input type="checkbox"/> n/a <input checked="" type="checkbox"/>	
Sample Description WEL-01. M.H. D.P. TMDL WEL-07. M.H. D.P. TMDL		VOA'S (PRES) Y N N/A HDPE UNPRESERVED HDPE HNO ₃ HDPE H ₂ SO ₄ HDPE NaOH AMBER PRESERVED? GLASS, NO PRESERVATIVE STERILIZED BACTERIA MEOH Preserved Y N		Sample Matrix C. Col CFU		Sample containers and COC match? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	
BILLING ADDRESS (IF REQUIRED):							
Drinking H ₂ O: Fax to LCHD? yes <input type="checkbox"/> no <input type="checkbox"/> Chlorinated Water Supply? yes <input type="checkbox"/> no <input type="checkbox"/> AMT.: _____							
MCL Failure: yes <input type="checkbox"/> no <input type="checkbox"/> Client Notified (date/time/initials): _____							

Special Instructions:

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	<i>alb</i>	<i>Quercus</i>	<i>5/3/18</i>	<i>3:45</i>	3				
2					4				



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: 5/3/2018
Submit Date: 5/3/2018
Report Date: 5/4/2018

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

BA Report Number: **50440**

Project Name: **Waverly High School TMDL Sampling**

BA Sample ID: **CH04660**

Project Number: **AE180001 Wav CS**

Sample ID: **Blank-TMDL**

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

Microbiological Analysis

E. coli	0	CFU/100 ml	1	SM9223B M Well	WT	05/03/2018
---------	---	------------	---	----------------	----	------------

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

5/4/2018

