



December 28, 2020

Mr. Mark Carpenter, P.E.  
District Environmental Coordinator  
Ohio Department of Transportation, District 12  
5500 Transportation Boulevard  
Garfield Heights, Ohio 44125-5396

**Subject: CUY-271-0.00 (PID 80418) Water Sampling and Testing**

Dear Mr. Carpenter:

On December 14, 2020, Mr. John Korth of Lawhon & Associates, Inc. (L&A) conducted water sampling and testing for the CUY-271-0.00 project. The December 14, 2020 water sampling event consisted of seven (7) sample locations OF-2, OF-2-3, OF-2-4, OF-3, OF-3-2, OF-4, and OF-4-2; sample locations are presented in Appendix A. Sample location OF-3-2 (50-feet downstream of OF-3), OF-4 (Outfall TC010070), and OF-4-2 (downstream 3-time the width of stream) were sampled at the request of ODOT District 12. Sampling location OF-2-2 was removed from sampling efforts, while sampling location OF-2-4 was relocated slightly to match the sampling plan; downstream, 3-times the stream width from the confluence point of OF-2 and Bear Creek.

Water samples taken from these locations were analyzed for total dissolved solids (TDS) and sulfates. Analytical results for the water samples are attached in tabular form (Table 1, 2, 3, 4 and 5) and complete laboratory reports are presented in Appendix B. In the field, pH and dissolved oxygen were measured at each sample location using an Oakton pH/CON 10 and a YSI Xylem Pro ODO Sensor, results are included in the attached table (Tables 1, 4, and 5) and the certificate of calibration and operation check is presented in Appendix C.

Sample locations OF-2, OF-2-3, OF-2-4, OF-3, OF-3-2, OF-4, and OF-4-2 were sampled using a Teflon lined polypropylene dipper. Water samples were collected into new laboratory supplied sample containers and placed into a cooler with ice. Samples were submitted under Chain of Custody via laboratory courier to ALS Environmental (ALS), a certified analytical laboratory.

It should be noted that the outfall volume at the time of this sampling was lower than sampling efforts in November. No tint or odors were observed at the time of sampling.

Photographs were taken upstream and downstream at each sample location, a photo log is presented in Appendix D. The Monthly Outfall Water Sampling form is presented in Appendix E.

If you have any questions, please contact Trevor Berger at 614.361.6721.

A handwritten signature in blue ink, appearing to read 'T. Berger', with a stylized, cursive style.

Trevor Berger  
Northeast Ohio Regional Manager

A handwritten signature in blue ink, appearing to read 'John Korth', with a stylized, cursive style.

John Korth  
Environmental Scientist

## ***Tables***

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- Table 1: December 14 Water Analytical Results Summary
- Table 2: Sulfate Analytical Results Summary
- Table 3: TDS - Analytical Results Summary
- Table 4: pH - Field Measurement Summary
- Table 5: Dissolved Oxygen - Field Measurement Summary

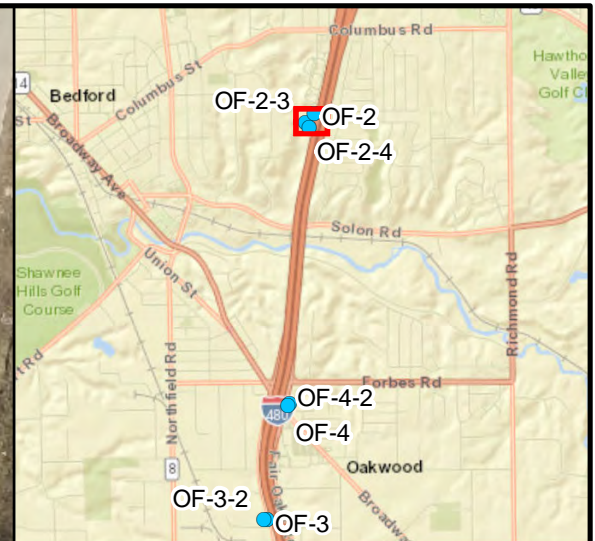
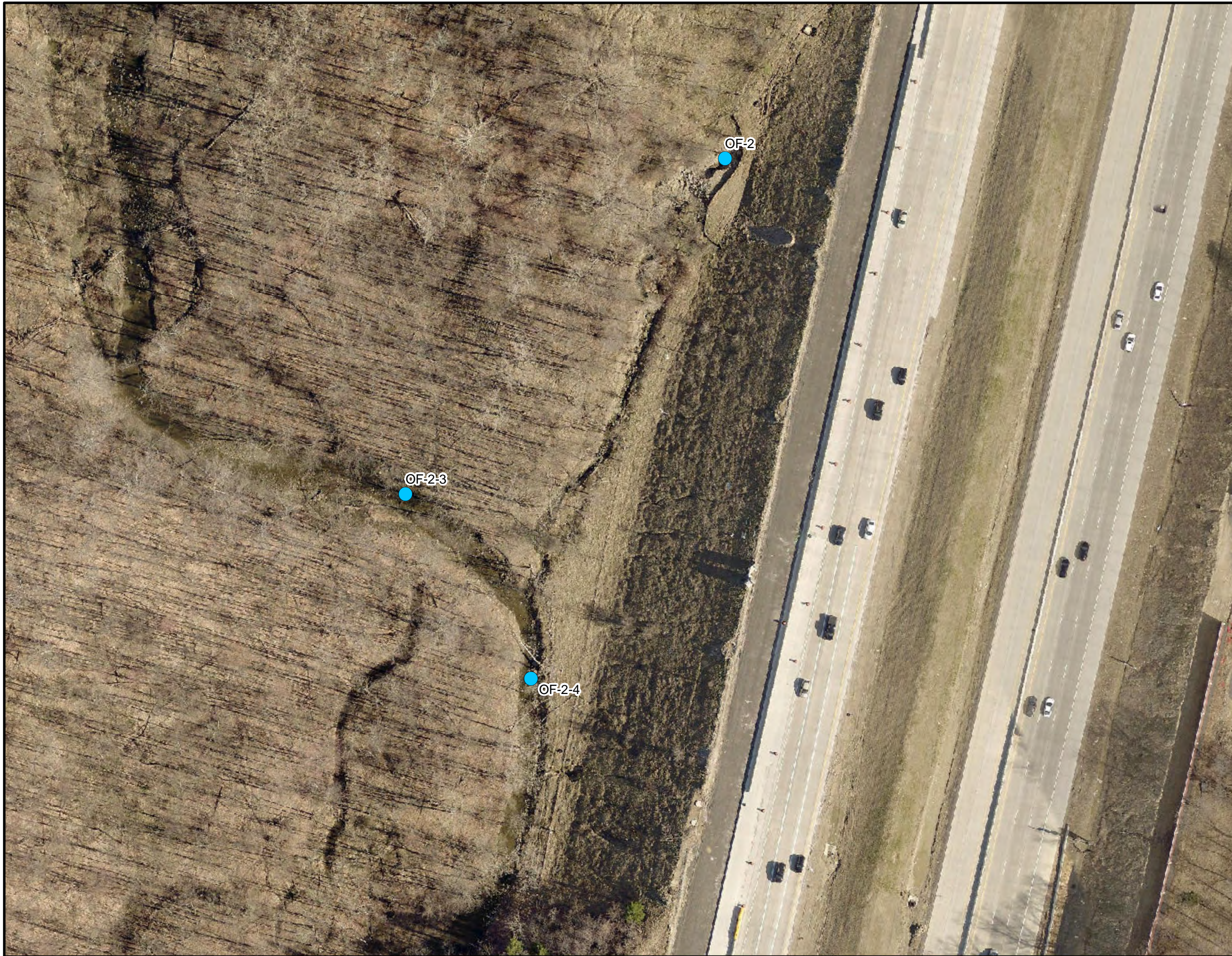


***Appendix A***

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Water Sampling Location Figure

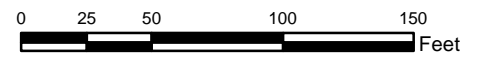




Extent Indicator Map


**Legend**

- Water Sample Location



CUY-271-0.00 (PID 80418)

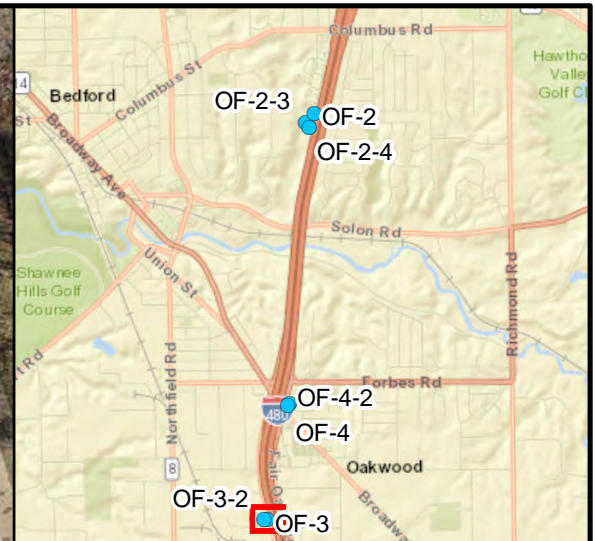
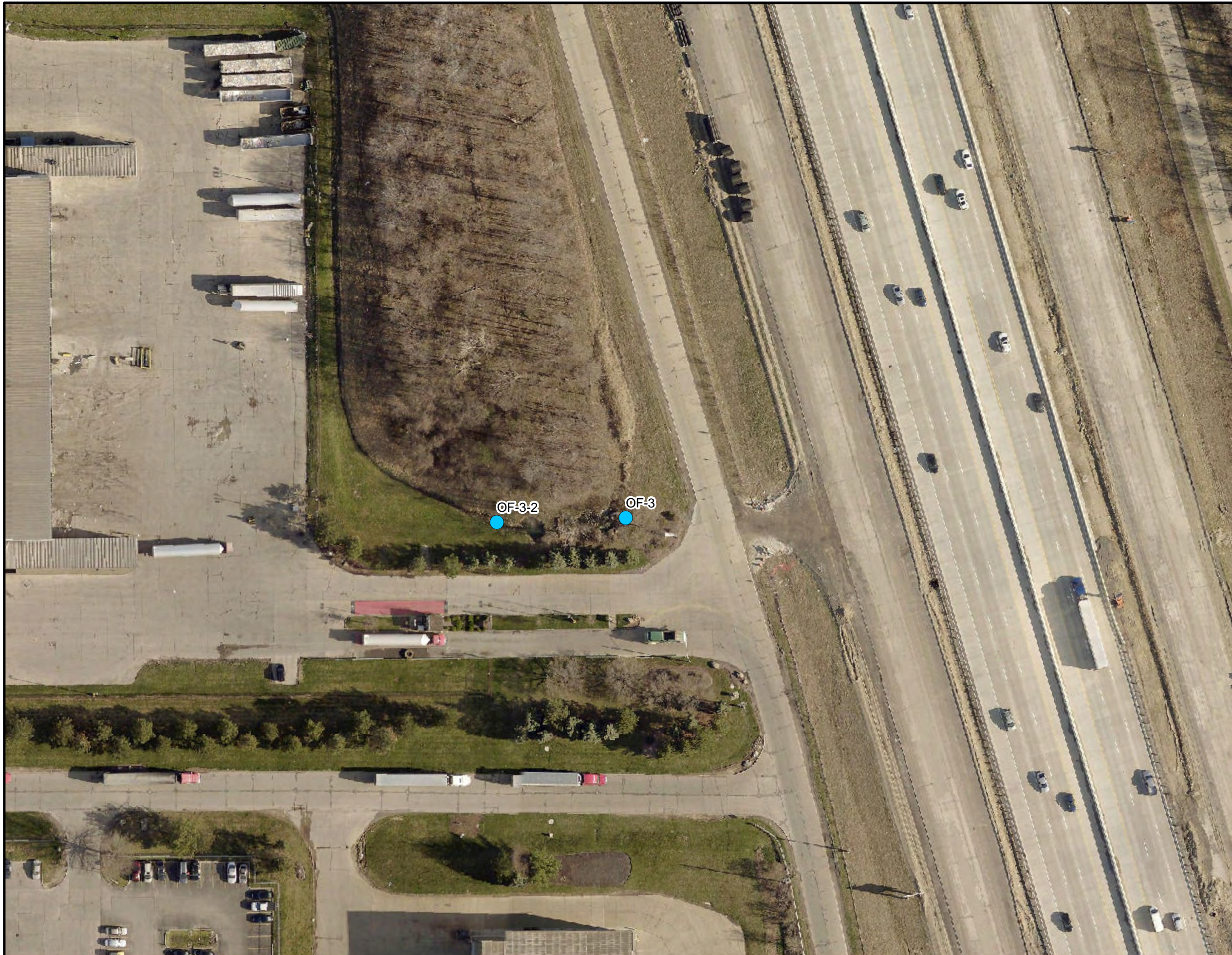
Water Sampling Location Map



Lawhon & Associates, Inc.

Date: August 2020	Approved by: TB	L&A No. 17-0529	Figure 1
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Extent Indicator Map

**Legend**

- Water Sample Location



CUY-271-0.00 (PID 80418)

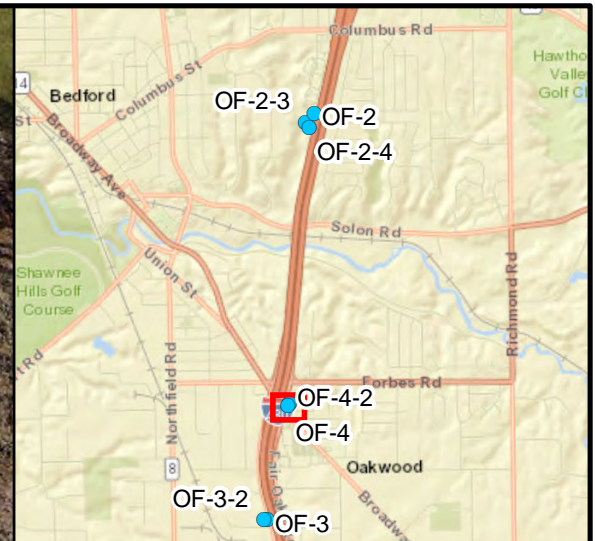
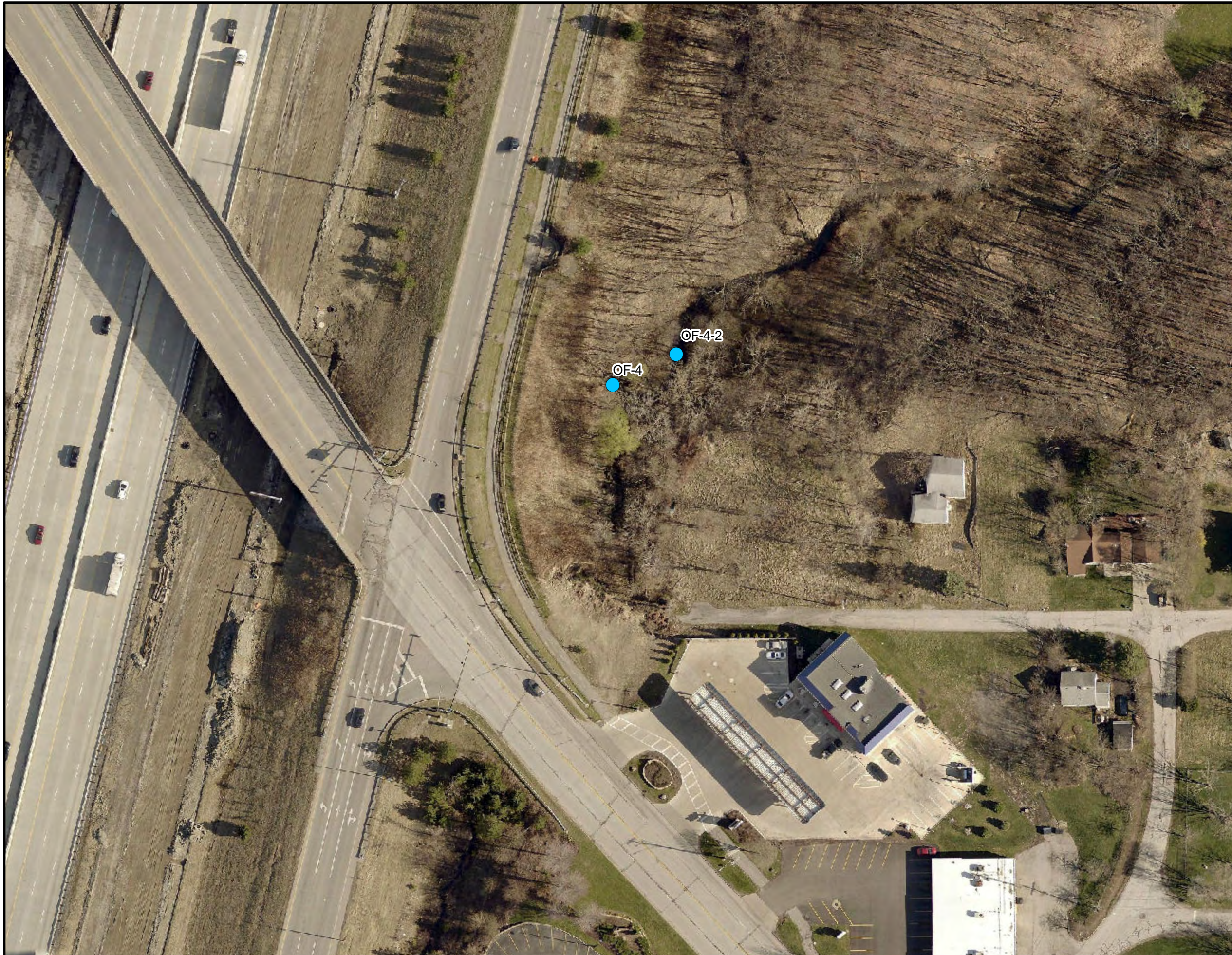
Water Sampling Location Map



Lawhon & Associates, Inc.

Date: August 2020	Approved by: TB	L&A No. 17-0529	Figure 3
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Extent Indicator Map

**Legend**

- Water Sample Location



CUY-271-0.00 (PID 80418)

Water Sampling Location Map



Lawhon & Associates, Inc.

Date: August 2020	Approved by: TB	L&A No. 17-0529	Figure 2
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***Appendix B***

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Laboratory Analytical Results and Chain-of-Custody





23-Dec-2020

John Korth  
Lawhon & Associates  
1441 King Avenue  
Grandview Heights, OH 43212

Re: **ODOT Bear Creek; 17-0529**

Work Order: **20120660**

Dear John,

ALS Environmental received 7 samples on 16-Dec-2020 09:17 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Joe Ribar

Shawn Smythe  
Project Manager

## Report of Laboratory Analysis

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Work Order:** 20120660

**Work Order Sample Summary**

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
20120660-01	OF-2	Water		12/14/2020 12:48	12/16/2020	<input type="checkbox"/>
20120660-02	OF-2-3	Water		12/14/2020 12:55	12/16/2020	<input type="checkbox"/>
20120660-03	OF-2-4	Water		12/14/2020 13:01	12/16/2020	<input type="checkbox"/>
20120660-04	OF-3	Water		12/14/2020 13:18	12/16/2020	<input type="checkbox"/>
20120660-05	OF-3-2	Water		12/14/2020 13:21	12/16/2020	<input type="checkbox"/>
20120660-06	OF-4	Water		12/14/2020 12:21	12/16/2020	<input type="checkbox"/>
20120660-07	OF-4-2	Water		12/14/2020 12:26	12/16/2020	<input type="checkbox"/>



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**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Work Order:** 20120660

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**Case Narrative**

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

ALS is an EPA recognized NLLAP laboratory for lead paint, soil, and dust wipe analyses under its AIHA-LAP accreditation.



**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-2  
**Collection Date:** 12/14/2020 12:48 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-01  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	2,100		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	420		2.0	mg/L	1	12/18/2020 05:51 PM

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**Note:**



**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-2-3  
**Collection Date:** 12/14/2020 12:55 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-02  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	650		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	60		2.0	mg/L	1	12/18/2020 06:24 PM

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**Note:**



**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-2-4  
**Collection Date:** 12/14/2020 01:01 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-03  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	730		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	72		2.0	mg/L	1	12/18/2020 06:35 PM

Note:



**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-3  
**Collection Date:** 12/14/2020 01:18 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-04  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	1,700		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	380		2.0	mg/L	1	12/18/2020 06:46 PM

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**Note:**



**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-3-2  
**Collection Date:** 12/14/2020 01:21 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-05  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	1,300		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	240		2.0	mg/L	1	12/18/2020 06:57 PM

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**Note:**

**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-4  
**Collection Date:** 12/14/2020 12:21 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-06  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	2,200		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	500		2.0	mg/L	1	12/18/2020 07:29 PM

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**Note:**



**ALS Environmental**

Date: 23-Dec-20

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**Sample ID:** OF-4-2  
**Collection Date:** 12/14/2020 12:26 PM

**Work Order:** 20120660  
**Lab ID:** 20120660-07  
**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>			Analyst: <b>AZ</b>
Total dissolved solids	1,800		10	mg/L	1	12/21/2020
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300.0</b>		Prep: E300.0 12/21/20 10:05	Analyst: <b>SBD</b>
Sulfate	290		2.0	mg/L	1	12/18/2020 07:40 PM

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**Note:**

**Client:** Lawhon & Associates  
**Project:** ODOT Bear Creek; 17-0529  
**WorkOrder:** 20120660

**QUALIFIERS,  
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
E	EPA Method
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SDL	Sample Detection Limit
SW	SW-846 Method

<u>Units Reported</u>	<u>Description</u>
mg/L	



**Client:** Lawhon & Associates  
**Work Order:** 20120660  
**Project:** ODOT Bear Creek; 17-0529

**QC BATCH REPORT**

Batch ID: **R186484** Instrument ID **BAL2** Method: **SM2540C**

MBLK		Sample ID: <b>MBLK-R186484</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/21/2020</b>		
Client ID:		Run ID: <b>BAL2_201223D</b>				SeqNo: <b>2374001</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total dissolved solids ND 10

LCS		Sample ID: <b>LCS-R186484</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/21/2020</b>		
Client ID:		Run ID: <b>BAL2_201223D</b>				SeqNo: <b>2374000</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total dissolved solids 980 10 1000 0 98 80-120 0

DUP		Sample ID: <b>20120660-01B DUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/21/2020</b>		
Client ID: <b>OF-2</b>		Run ID: <b>BAL2_201223D</b>				SeqNo: <b>2373991</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total dissolved solids 2053 10 0 0 0 2110 2.74 20

DUP		Sample ID: <b>20120758-01A DUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/21/2020</b>		
Client ID:		Run ID: <b>BAL2_201223D</b>				SeqNo: <b>2373999</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total dissolved solids 29870 10 0 0 0 28780 3.71 20

**The following samples were analyzed in this batch:**

20120660-01B	20120660-02B	20120660-03B
20120660-04B	20120660-05B	20120660-06B
20120660-07B		

Client: Lawhon & Associates  
 Work Order: 20120660  
 Project: ODOT Bear Creek; 17-0529

# QC BATCH REPORT

Batch ID: 71812 Instrument ID IC2 Method: E300.0

MBLK		Sample ID: MBLK-71812-71812				Units: mg/L		Analysis Date: 12/18/2020 05:18 PM			
Client ID:		Run ID: IC2_201218A				SeqNo: 2371758		Prep Date: 12/21/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Sulfate	0.201	2.0								J	

LCS		Sample ID: LCS-71812-71812				Units: mg/L		Analysis Date: 12/18/2020 05:29 PM			
Client ID:		Run ID: IC2_201218A				SeqNo: 2371759		Prep Date: 12/21/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Sulfate	10.07	2.0	10	0	101	80.1-125	0				

LCSD		Sample ID: LCSD-71812-71812				Units: mg/L		Analysis Date: 12/18/2020 05:40 PM			
Client ID:		Run ID: IC2_201218A				SeqNo: 2371760		Prep Date: 12/21/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Sulfate	10.4	2.0	10	0	104	80.1-125	10.07	3.23	20		

MS		Sample ID: 20120660-01A MS				Units: mg/L		Analysis Date: 12/18/2020 06:02 PM			
Client ID: OF-2		Run ID: IC2_201218A				SeqNo: 2371762		Prep Date: 12/21/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Sulfate	412.3	2.0	10	418.5	-61.9	63.3-137	0			SO	

MSD		Sample ID: 20120660-01A MSD				Units: mg/L		Analysis Date: 12/18/2020 06:13 PM			
Client ID: OF-2		Run ID: IC2_201218A				SeqNo: 2371763		Prep Date: 12/21/2020		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Sulfate	409.5	2.0	10	418.5	-89.9	63.3-137	412.3	0.681	20	SO	

The following samples were analyzed in this batch:

20120660-01A	20120660-02A	20120660-03A
20120660-04A	20120660-05A	20120660-06A
20120660-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Sample Receipt Checklist

Client Name: LAWHON-COLUMBUS

Date/Time Received: 16-Dec-20 09:17

Work Order: 20120660

Received by: JNW

Checklist completed by Danielle Strasinger 16-Dec-20  
eSignature Date

Reviewed by: Shawn Smythe 16-Dec-20  
eSignature Date

Matrices:

Carrier name: Courier

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Container/Temp Blank temperature in compliance? Yes  No

Sample(s) received on ice? Yes  No

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted

Water - pH acceptable upon receipt? Yes  No  N/A

pH adjusted? Yes  No  N/A

pH adjusted by:

Login Notes:

-----

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:



Ship To: **ALS Environmental**  
 4388 Glendale Milford Rd.  
 Cincinnati, Ohio 45242  
 Phone: (513) 733-5336  
 Fax: (513) 733-5347

# Field Chain-of-Custody Record

Page 1 of 1

39305

20120660

Date: 11/14 Purchase Order No.: Lambon MGA

Company Name: Lambon & Assoc. Project No.: 17-0529

Address: 1441 Kings Ave Sampling Site: ODOT Bear Creek

City: Columbus State: OH Zip: 43212

Person to Contact: John Korh Billing Address (if different):

Email Address: jkorh@lambon-assoc.com

Telephone (614): 481-8600

Alternate Contact: thberger@lambon-assoc.com

REGULAR Status  RUSH Status  RESULTS REQUIRED BY: (Date)  BUSTR:  YES  NO  YES  NO

OH VAP:  YES  NO

CONTACT ALS ENVIRONMENTAL PRIOR TO SENDING SAMPLES

## ANALYSIS REQUESTED

ALS Lab ID	Sample ID / Description	Date	Time	Preservation Key #	Sample Type / Matrix Key Abbr.	# of Sample Containers	Analysis Requested
1	DF-2	12/14/20	12:48	4	~	2	
2	DF-2-3		12:55	4	~	2	
3	DF-2-4		13:01	4	~	2	
4	DF-3		13:18	4	~	2	
5	DF-3-2		13:21	4	~	2	
6	DF-4		12:21	4	~	2	
7	DF-4-2		12:26	4	~	2	

Notes:

Preservation Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub> 6-NaHSO<sub>4</sub> 7-NaOH/ZnAcetate 8-Other 9-4°C

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

Relinquished By: [Signature] Time / Date: 11/15/2020

Received By: [Signature] Time / Date: 12/15/2020

Relinquished By: [Signature] Time / Date: 09/12/2016

Received By: [Signature] Time / Date: 09/17

ALS LAB USE ONLY

COOLER TEMP: 2.1 °C

COOLING METHOD: NONE

DELIVERY METHOD: STD MAIL

CUSTOMER SEAL: NONE

EQUIP. RETURNED: NONE

PH ADJUSTMENT: 119259

CLIENT: ALS

DRY ICE: NONE

FEDEX: NONE

UPS: NONE



***Appendix C***

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Certification of Calibration and Operation Check



7410 Worthington-Galena Rd  
Worthington, Ohio 43085  
Phone: (614) 436-4933

Industrial Environmental Monitoring Instruments, Inc.

Website: [www.ierents.com](http://www.ierents.com)

### Certificate of Calibration and Operation Check

Instrument: YSI PRO ODO  
Serial #: 11L100343 , 11M101139

Date: 12/14/2020  
Technician: Ryan Taylor

	<u>Dissolved O2</u>
1st Point	9.12 mg/l
2nd Point	.00 mg/l

**Calibration Performed In 100% Humidity At 900 Ft. Elevation  
Zero Checked With A Sodium Sulfite Solution**

**The calibration standards used are NIST traceable.  
Instrument must be calibrated and operated according to manufacturers specifications.**



### Certificate of Calibration and Operation Check

Instrument: Oakton PC 10  
Serial #: 500302

Date: 12/14/2020  
Technician: Ryan Taylor

	<u>pH</u>	<u>Conductivity</u>
1st Point	7.00 pH	1.413 mS/cm
2nd Point	4.00 pH	n/a
3rd Point	10.00 pH	n/a

	Lot#	Expires:
Calibration Solution: 4 pH	20100071	4/1/2021
Calibration Solution: 7 pH	19410193	10/11/2021
Calibration Solution: 10 pH	20140190	4/5/2022
Calibration Solution: 1.413 mS/cm	20060116	2/11/2021

**The calibration standards used are NIST traceable.  
Instrument must be calibrated and operated according to manufacturers specifications.**



***Appendix D***

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Photo Log



**Photograph 1: View of sample location OF-2, facing north.**



**Photograph 2: View of peat dam, facing southwest.**

**Lawhon & Associates, Inc.**

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**CUY-271-0.00 (PID 80418)**

**Cleveland, Ohio**

**Photographs taken on December 14, 2020**





**Photograph 3: View of upstream from sample location OF-2-3, facing west.**



**Photograph 4: View of downstream from sample location OF-2-3, facing east.**

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**CUY-271-0.00 (PID 80418)**  
**Cleveland, Ohio**

**Photographs taken on December 14, 2020**





**Photograph 5: View of downstream from confluence with Bear Creek, facing south.**



**Photograph 6: View of outlet confluence intersection with Bear Creek, facing west.**

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**CUY-271-0.00 (PID 80418)  
Cleveland, Ohio**

**Photographs taken on December 14, 2020**





**Photograph 7: View of downstream from sample location OF-2-4, facing south.**



**Photograph 8: View of upstream from sample location OF-2-4, facing northwest.**

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**CUY-271-0.00 (PID 80418)  
Cleveland, Ohio**

**Photographs taken on December 14, 2020**





**Photograph 9: View of sample location OF-3, facing east.**



**Photograph 10: View of downstream from sample location OF-3, facing west.**

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**CUY-271-0.00 (PID 80418)**

**Cleveland, Ohio**

**Photographs taken on December 14, 2020**





**Photograph 11: View of sample location OF-3-2, facing west.**



**Photograph 12: View of sample location OF-3, facing east.**

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**CUY-271-0.00 (PID 80418)  
Cleveland, Ohio**

**Photographs taken on December 14, 2020**





**Photograph 13: View of sample location OF-4, facing west.**



**Photograph 14: View of downstream from sample location OF-4, facing east.**

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**CUY-271-0.00 (PID 80418)  
Cleveland, Ohio**

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**Photograph 15: View of upstream from sample location OF-4-2, facing south.**



**Photograph 16: View of downstream from sample location OF-4-2, facing north.**

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**CUY-271-0.00 (PID 80418)**  
**Cleveland, Ohio**

**Photographs taken on December 14, 2020**



***Appendix E***

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Monthly Outfall Water Sampling Form

**CUY-271-0.00 (PID 80418)**  
**Monthly Outfall Water Sampling**

				May-20			June-20			July-20			August-20			
				Date:		Inspector:	Date:		Inspector:	Date:		Inspector:	Date: 8/17/2020		Inspector: John Korth	
				Conditions:			Conditions:			Conditions:			Conditions: 76F, clear,			
ID #	Station #	Latitude	Longitude	Water Color	Water Odor	Sample # - Notes	Water Color	Water Odor	Sample # - Notes	Water Color	Water Odor	Sample # - Notes	Water Color	Water Odor	Sample # - Notes	
OF-2	414+55	41.395224	-81.510535										Clear	None	OF-2, 20080597-01	
OF-2-3	411+65	41.394497	-81.511049										Clear	None	OF-2-3, 20080597-02	
OF-2-4	409+85	41.394003	-81.511122										Clear	None	OF-2-4, 20080597-03	
OF-3	289+92	41.361213	-81.516493										Clear	None	OF-3, 20080597-04	
OF-3-2	289+92	41.361187	-81.516678										Clear	None	OF-3-2, 20080597-05	
OF-4	325+78	41.370799	-81.513502										Clear	None	OF-4, 20080597-06	
OF-4-2	328+08	41.221592	-81.513618										Clear	None	OF-4-2, 20080597-07	

				September-20			October-20			November-20			December-20			
				Date: 9/13/2020		Inspector: John Korth	Date: 10/13/2020		Inspector: John Korth	Date: 11/11/2020		Inspector: John Korth	Date: 12/14/2020		Inspector: John Korth	
				Conditions: 72F, raining			Conditions: 55F, Cloudy			Conditions: 53F, slight rain			Conditions: 30F, light snow			
ID #	Station #	Latitude	Longitude	Water Color	Water Odor	Sample # - Notes	Water Color	Water Odor	Sample # - Notes	Water Color	Water Odor	Sample # - Notes	Water Color	Water Odor	Sample # - Notes	
OF-2	414+55	41.395224	-81.510535	Clear	None	OF-2, 20090518-01	Clear	None	OF-2, 20100477-01	Clear	None	OF-2, 20110378-01	Clear	None	OF-2, 20120660-01	
OF-2-3	411+65	41.394497	-81.511049	Clear	None	OF-2-3, 20090518-02	Clear	None	OF-2-3, 20100477-02	Clear	None	OF-2-3, 20110378-02	Clear	None	OF-2-3, 20120660-02	
OF-2-4	409+85	41.394003	-81.511122	Clear	None	OF-2-4, 20090518-03	Clear	None	OF-2-4, 20100477-03	Clear	None	OF-2-4, 20110378-03	Clear	None	OF-2-4, 20120660-03	
OF-3	289+92	41.361213	-81.516493	Brown	None	OF-3, 20090518-04	Slight White Tint	None	OF-3, 20100477-04	Slight White Tint	None	OF-3, 20110378-04	Clear	None	OF-3, 20120660-04	
OF-3-2	289+92	41.361187	-81.516678	Brown	None	OF-3-2, 20090518-05	Clear	None	OF-3-2, 20100477-05	Clear	None	OF-3-2, 20110378-05	Clear	None	OF-3-2, 20120660-05	
OF-4	325+78	41.370799	-81.513502	Slight White Tint	Slight Odor	OF-4, 20090518-06	Clear	Slight Odor	OF-4, 20100477-06	Clear	None	OF-4, 20110378-06	Clear	None	OF-4, 20120660-06	
OF-4-2	328+08	41.221592	-81.513618	Slight White Tint	Slight Odor	OF-4-2, 20090518-07	Clear	None	OF-4-2, 20100477-07	Clear	None	OF-4-2, 20110378-07	Clear	None	OF-4-2, 20120660-07	