



December 17, 2019

Reference No. 017302

Mr. Rob Marshall
Indiana Department of Environmental Management
Office of Land Quality, Permits Branch
100 North Senate Avenue Room IGCN 1154
Indianapolis, IN 46204

Dear Mr. Marshall:

**Re: Evaluation of Pond Surface Water Analytical Data
Meadowbrook Golf Course,
3429 Madison Avenue, Anderson, Indiana**

1. Introduction

On behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, GHD Services Inc. (GHD) has prepared the following evaluation of the Meadowbrook Golf Course Pond surface water analytical data. The Meadowbrook Golf Course is located south of RACER Trust's former Anderson Guide facility located at 2915 Dr. Martin Luther King Junior Blvd., Anderson, Indiana (Site). A site plan with sample locations is provided on Figure 1.

The objective of this evaluation is to assess the Meadowbrook Golf Course Pond surface water analytical data and to evaluate the current and future use of the pond water for irrigation or other non-potable purposes.

2. Assessment Criteria

Surface water in the golf course pond (surface water detention basin) could be used for irrigation and also occasionally be contacted by workers and members during other activities at the golf course. In addition, certain animal species may be present at the pond. Therefore, this evaluation considered ambient water quality criteria (AWQC) that are protective of potential human (contact and drinking) and ecological exposures. For this assessment, the Indiana Water Quality Standards are used for potential contact with surface water and drinking water (where it is extracted from surface water) and U.S. Environmental Protection Agency (EPA) screening levels were used to evaluate ecological exposures, as Indiana does not have ecological criteria for the chemicals of interest. The human health criteria are intended to be applied to the average concentration measured over 30 days. However, they can also be applied to single-point measurements within the surface water. The AWQC designed to be protective of drinking water intakes/uses used of the surface water, should also be protective of all other uses of the water from the detention basin, which would have lower exposure than as a drinking water source. Note, the AWQC for volatile organic compounds (VOCs) are generally high or do not exist due to their volatility.



3. Surface Water Analytical Results Summary

The 2018 and 2019 pond surface water VOC analytical data was reviewed as part of this evaluation. Two additional samples were collected in October 2019, in addition to the sampling requirements as part of the ongoing Resource Conservation and Recovery Act (RCRA) Corrective Action for the former Anderson Guide facility. The two additional Meadowbrook Golf Course samples collected in October 2019 were collected from; the Pond Irrigation Intake (Deep) and a hose near the Club House to further assess the surface water quality of the pond.

The results of the 2018 and 2019 surface water monitoring events are summarized in Table 1 along with EPA's ecological screening levels and Indiana's human health water quality standards for comparative reference. Note, only VOC parameters with detections are provided in Table 1.

Surface water analytical results indicate that analyzed parameters, where detected, were present below the applicable AWQC's, with the exception of vinyl chloride. Vinyl chloride marginally exceeded Indiana's point of water intake level at the Pond North location in July 2018. However, the samples collected from this location in April 2018, October 2018, April 2019, and October 2019 did not exceed this criterion. Vinyl chloride was detected below Indiana's point of water intake level at the Pond Intake location in 2018 and 2019.

4. Conclusion

The purpose of this evaluation was to assess the Meadowbrook Golf Course Pond surface water analytical data and to evaluate the current and future use of the pond water for irrigation or other non-potable purposes. The results of the evaluation indicate that there is not a current risk to ecological or human health by using the pond water for irrigation or other non-potable purposes.

Should you have questions regarding the above, please do not hesitate to contact the undersigned.

Sincerely,

GHD

A handwritten signature in blue ink that reads "Robert Catallo".

Robert Catallo, B.Sc.

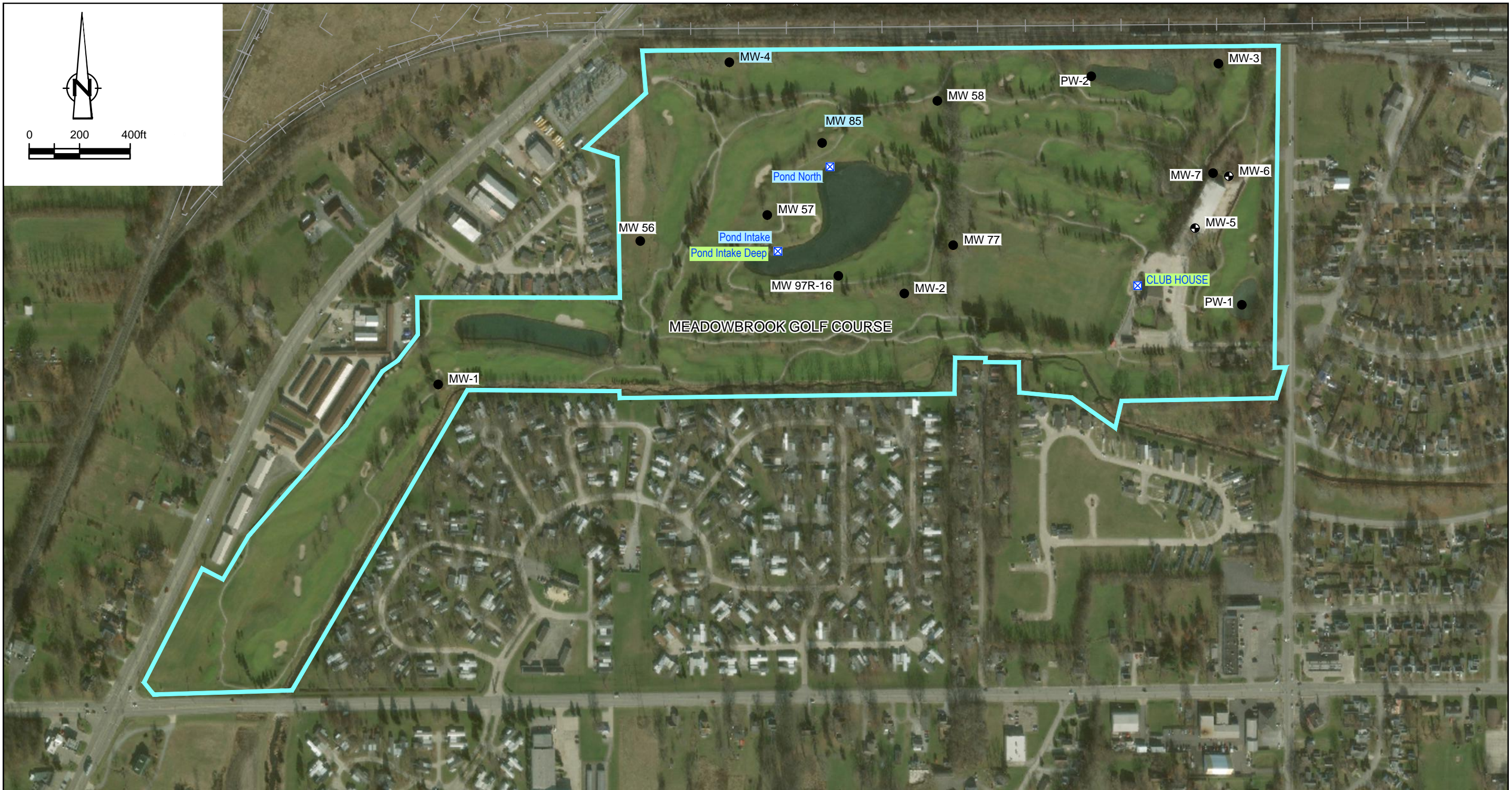
A handwritten signature in blue ink that reads "Francis C. Ramacciotti".

Francis C. Ramacciotti

RC/mma/60

Encl.

cc: Robert Hare (RACER Trust)



SOURCE: AECOM, PROJECT NO. 60163563, DATE 2012-05-15
 IMAGE: Microsoft Product Screen Shot(s) Reprinted with permission from Microsoft Corporation, Accessed: 2019

LEGEND

RAILROAD

FENCE LINE

POND BOUNDARY

MONITORING WELL LOCATION

MONITORING WELL NOT CURRENTLY ACCESSIBLE

SURFACE WATER SAMPLE LOCATION

APPROXIMATE MEADOWBROOK PROPERTY BOUNDARY

ANNUAL MONITORING PROGRAM

ADDITIONAL POND SAMPLE COLLECTED IN OCTOBER 2019

figure 1

SITE PLAN

EVALUATION OF POND SURFACE WATER ANALYTICAL DATA

MEADOWBROOK GOLF COURSE

3429 MADISON AVENUE, ANDERSON, INDIANA

Revitalizing Auto Communities Environmental Response Trust

Table 1

**Evaluation of Pond Surface Water Analytical Data
Meadowbrook Golf Course
3429 Madison Avenue, Anderson, Indiana**

Sample Location:				Club House ⁽¹⁾	POND INTAKE - Deep ⁽²⁾	Pond Intake	Pond Intake
Sample ID:				SW-100819-BE-005	SW-100819-BE-003	SW-040918-BE-001	SW-070518-BE-002
Sample Date:				10/8/2019	10/8/2019	4/9/2018	7/5/2018
Parameters	Units	EPA	Indiana				
		Ecological	Water Quality Standards				
			Point of Intake	Outside Mixing Zone			
		a	b	c			
Volatile Organic Compounds							
1,1-Dichloroethane	mg/L	0.047	NC	NC	0.0031 J	0.0028 J	0.0057
cis-1,2-Dichloroethene	mg/L	NC	NC	NC	0.062	0.058	0.12
trans-1,2-Dichloroethene	mg/L	0.97	NC	NC	0.0033 U	0.00064 J	0.0046 J
Trichloroethene	mg/L	0.047	0.027	0.807	0.0033 U	0.0033 U	0.005 U
Vinyl chloride	mg/L	0.930	0.02	5.246	0.0033 U	0.0026 J	0.013
							0.0076

Notes:

mg/L - milligram per litre

J - Estimated concentration

NC - No Criteria

U - Not detected at the associated reporting limit

(1) Additional Pond sample collected from hose near the Meadowbrook Golf Course Club House.

(2) Additional Pond sample collected at the Pond Intake at the bottom of the Pond, in addition to the typical Pond Intake surface location.

0.023 J^b

Detected concentration exceeds noted criteria

Table 1

**Evaluation of Pond Surface Water Analytical Data
Meadowbrook Golf Course
3429 Madison Avenue, Anderson, Indiana**

Sample Location:**Sample ID:****Sample Date:****Parameters****Units****EPA
Ecological**

**Indiana
Water Quality Standards**

Point of Intake Outside Mixing Zone

b c

**Pond North
SW-040918-BE-002
4/9/2018**

**Pond North
SW-040918-BE-003
4/9/2018
(Duplicate)**

**Pond North
SW-070518-BE-001
7/5/2018**

**Pond North
SW-100918-BE-002
10/9/2018**

**Pond North
SW-100918-BE-003
10/9/2018
(Duplicate)**

Volatile Organic Compounds

1,1-Dichloroethane	mg/L	0.047	NC	NC	0.0085 J	0.0091 J	0.013	0.0062 J	0.0066 J
cis-1,2-Dichloroethene	mg/L	NC	NC	NC	0.21	0.22	0.16	0.13	0.13
trans-1,2-Dichloroethene	mg/L	0.97	NC	NC	0.0071 J	0.0087 J	0.0095	0.0033 J	0.0037 J
Trichloroethene	mg/L	0.047	0.027	0.807	0.011 U	0.01 U	0.0063 U	0.0067 U	0.0067 U
Vinyl chloride	mg/L	0.930	0.02	5.246	0.014	0.018	0.023 J^b	0.0059 J	0.0064 J

Notes:

mg/L - milligram per litre

J - Estimated concentration

NC - No Criteria

U - Not detected at the associated reporting limit

(1) Additional Pond sample collected from hose near the Meadowbrook Golf Course Club House.

(2) Additional Pond sample collected at the Pond Intake at the bottom of the Pond, in addition to the typical Pond Intake surface location.

0.023 J^b

Detected concentration exceeds noted criteria

Table 1

**Evaluation of Pond Surface Water Analytical Data
Meadowbrook Golf Course
3429 Madison Avenue, Anderson, Indiana**

Sample Location:

Sample ID:

Sample Date:

Pond North
SW-042419-AF-003
4/24/2019

Pond North
SW-100819-BE-001
10/8/2019

Pond North
SW-100819-BE-002
10/8/2019
(Duplicate)

Sample Date:		EPA	Indiana	
Parameters	Units	Ecological	Water Quality Standards	
			Point of Intake	Outside Mixing Zone
		a	b	c
Volatile Organic Compounds				
1,1-Dichloroethane	mg/L	0.047	NC	NC
cis-1,2-Dichloroethene	mg/L	NC	NC	NC
trans-1,2-Dichloroethene	mg/L	0.97	NC	NC
Trichloroethene	mg/L	0.047	0.027	0.807
Vinyl chloride	mg/L	0.930	0.02	5.246

Notes:

mg/L - milligram per litre

J - Estimated concentration

NC - No Criteria

U - Not detected at the associated reporting limit

(1) Additional Pond sample collected from hose near the Meadowbrook Golf Course Club House.

(2) Additional Pond sample collected at the Pond Intake at the bottom of the Pond, in addition to the typical Pond Intake surface location.

0.023 J ^b	Detected concentration exceeds noted criteria
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