



Use Attainability Analysis

for

WBID 0095 Spencer Creek

Submitted by

MEC Water Resources

To

Missouri Department of Natural Resources

Water Protection Program

On

May 29, 2008

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A – Water Body Identification

I. Water Body Information (for water body being surveyed)

Water Body Name (from USGS 7.5' quad): Spencer Cr.
Missouri Water Body Identification (WBID) Number: 0095
8-digit HUC: 07110007
County(ies), Listed Upstream to Downstream: Ralls
Upstream Legal Description (from Table H): 23, 53N, 6W
Downstream Legal Description (from Table H): Sur 3177 (31), 55N, 4W
Number of sites evaluated: 11
List all site numbers, <u>consecutively upstream to downstream</u> : Site 1: 150 m upstream of Hwy 154 crossing Site 5: 300 m upstream of Vermont Lane crossing Site 2: Rt. P crossing Site 6: Rt. P crossing Site 9: Rt. F crossing Site 3: Spencer Church Lane crossing Site 7: Madisonville Rd. crossing Site 10: Seeley Lane crossing Site 4: 50 m from Georgia Rd. Site 8: Swallow Rd. crossing Site 11: Badger Rd. crossing
Include a Site Location Map(s). The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).

II. Facility Information (list all permitted discharges to this water body segment)

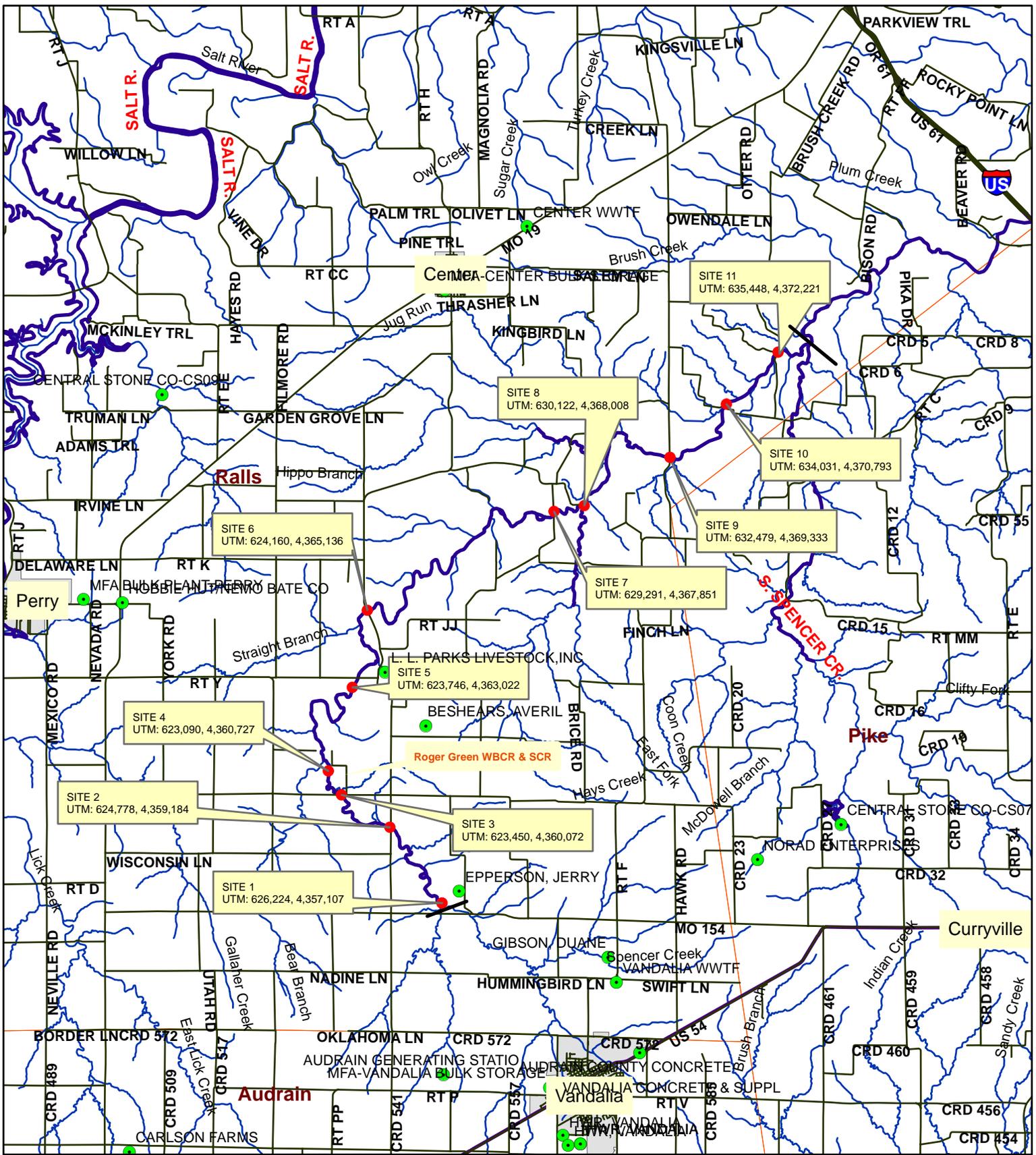
Facility Name(s) and Permit Number(s): Vandalia WWTF MO 0026361

III. UAA Surveyor (please **PRINT** legibly)

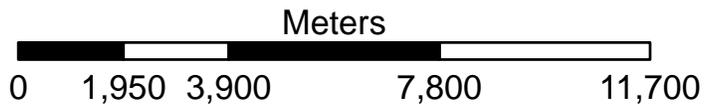
Name of Surveyor: Renee Martin	Telephone Number: 573-875-7844
Organization/Employer: AE Solutions	

Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: _____ Date: _____



**Spencer Creek
WBID 0095
Ralls County**



Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 18:14	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	150 m upstream of Hwy. 154 crossing
Current Weather Conditions: partly cloudy	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0626224	Northing (UTM Y): 4357107	Horizontal Accuracy: (EPE / FOM / PDOP) 17 feet
Site 11	Easting (UTM X): 0626089	Northing (UTM Y): 4357143	Horizontal Accuracy: (EPE / FOM / PDOP) 23 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3052	upstream	3053	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 01

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property-fields				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

-% Cobble	20% Gravel	80% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Grasses Sparse benthic algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 01

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095_01</u> Estimated Channel Incision: <u>0.10</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>626224</u> UTM Y: <u>4357107</u> +/- <u>17</u> (feet) 11 UTM X: <u>626089</u> UTM Y: <u>4357143</u> +/- <u>23</u> (feet) Average Stream Width: <u>8.0</u> (meters) Length of Survey Segment: <u>160</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>18:14</u> Dissolved Oxygen: <u>8.64</u> (mg/L) Dissolved Oxygen: <u>90.6</u> (% sat) Specific Cond: <u>770.0</u> (µS/cm) Water Temperature: <u>17.8</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.40	0.27	0.80	0.42	0.80	0.43	0.90	0.40	0.75	0.16	0.70	0.24	0.80	0.35	0.60	0.28	0.86	0.42	0.85	0.60	0.60	0.37
2	0.80	0.79	1.60	0.75	1.60	0.60	1.80	0.49	1.50	0.27	1.40	0.34	1.60	0.58	1.20	0.58	1.72	0.54	1.70	0.79	1.20	0.52
3	1.20	0.82	2.40	>1.00	2.40	0.86	2.70	0.59	2.25	0.36	2.10	0.40	2.40	0.72	1.80	0.85	2.58	0.74	2.55	0.98	1.80	0.59
4	1.60	0.89	3.20	>1.00	3.20	>1.00	3.60	0.62	3.00	0.47	2.80	0.48	3.20	0.90	2.40	0.85	3.44	0.85	3.40	>1.00	2.40	0.71
5	2.00	0.67	4.00	0.94	4.00	>1.00	4.50	0.65	3.75	0.53	3.50	0.42	4.00	0.98	3.00	0.81	4.30	0.81	4.25	>1.00	3.00	0.75
6	2.40	0.59	4.80	0.90	4.80	>1.00	5.40	0.67	4.50	0.51	4.20	0.27	4.80	0.94	3.60	0.60	5.16	0.90	5.10	>1.00	3.60	0.71
7	2.80	0.39	5.60	0.77	5.60	>1.00	6.30	0.66	5.25	0.49	4.90	0.27	5.60	0.83	4.20	0.43	6.02	0.83	5.95	>1.00	4.20	0.64
8	3.20	0.32	6.40	0.52	6.40	>1.00	7.20	0.65	6.00	0.44	5.60	0.18	6.40	0.70	4.80	0.41	6.88	0.73	6.80	0.82	4.80	0.58
9	3.60	0.13	7.20	0.52	7.20	0.71	8.10	0.34	6.75	0.32	6.30	0.01	7.20	0.51	5.40	0.06	7.74	0.64	7.65	0.51	5.40	0.50
Right Bank	4.00	0.00	8.00	0.00	8.00	0.00	9.00	0.00	7.50	0.00	7.00	0.00	8.00	0.00	6.00	0.00	8.60	0.00	8.50	0.00	6.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	Pool	Pool																				

TWC

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 5/6/08 17:05	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Rt. P crossing
Current Weather Conditions: partly cloudy	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0624778	Northing (UTM Y): 4359184	Horizontal Accuracy: (EPE / FOM / PDOP) 47 feet
Site 11	Easting (UTM X): 0624477	Northing (UTM Y): 4359293	Horizontal Accuracy: (EPE / FOM / PDOP) 20 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3050	upstream	3051	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 02

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property-fields				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			
Farm roads				

Substrate*: (These values should add up to 100%.)

60% Cobble	-% Gravel	-% Sand	-% Silt	40% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae Duckweed

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 02

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095_02</u> Estimated Channel Incision: <u>0.80</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>624778</u> UTM Y: <u>4359184</u> +/- <u>47</u> (feet) 11 UTM X: <u>624477</u> UTM Y: <u>4359293</u> +/- <u>20</u> (feet) Average Stream Width: <u>14.0</u> (meters) Length of Survey Segment: <u>280</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	Dissolved Oxygen Date: <u>5/6/2008</u> Time: <u>17:05</u> Dissolved Oxygen: <u>7.01</u> (mg/L) Dissolved Oxygen: <u>73.2</u> (% sat) Specific Cond: <u>684.0</u> (µS/cm) Water Temperature: <u>17.6</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	1.40	0.81	1.40	0.45	1.35	>1.00	1.40	0.42	1.38	0.64	1.39	0.48	1.40	0.79	1.41	0.82	1.40	0.50	1.37	0.32	1.35	0.40
	2	2.80	>1.00	2.80	0.61	2.70	>1.00	2.80	0.89	2.76	0.75	2.78	0.85	2.80	>1.00	2.82	>1.00	2.80	0.75	2.74	0.39	2.70	0.45
	3	4.20	>1.00	4.20	0.90	4.05	>1.00	4.20	>1.00	4.14	0.80	4.17	>1.00	4.20	>1.00	4.23	>1.00	4.20	0.61	4.11	0.72	4.05	0.55
	4	5.60	0.91	5.60	0.93	5.40	>1.00	5.60	>1.00	5.52	0.96	5.56	>1.00	5.60	>1.00	5.64	>1.00	5.60	0.60	5.48	0.75	5.40	0.85
	5	7.00	1.00	7.00	>1.00	6.75	>1.00	7.00	>1.00	6.90	0.89	6.95	>1.00	7.00	>1.00	7.05	>1.00	7.00	0.65	6.85	0.79	6.75	>1.00
	6	8.40	0.96	8.40	>1.00	8.10	>1.00	8.40	>1.00	8.28	0.90	8.34	>1.00	8.40	>1.00	8.46	>1.00	8.40	0.65	8.22	0.59	8.10	>1.00
	7	9.80	0.79	9.80	>1.00	9.45	>1.00	9.80	>1.00	9.66	0.89	9.73	>1.00	9.80	>1.00	9.87	>1.00	9.80	0.65	9.59	0.58	9.45	0.73
	8	11.20	0.70	11.20	>1.00	10.80	>1.00	11.20	0.90	11.04	0.91	11.12	0.89	11.20	>1.00	11.28	>1.00	11.20	0.60	10.96	0.44	10.80	0.46
	9	12.60	0.68	12.60	>1.00	12.15	>1.00	12.60	0.48	12.42	0.81	12.51	0.43	12.60	0.62	12.69	0.89	12.60	0.52	12.33	0.21	12.15	0.19
Right Bank		14.00	0.00	14.00	0.00	13.50	0.00	14.00	0.00	13.80	0.00	13.90	0.00	14.00	0.00	14.10	0.00	14.00	0.00	13.70	0.00	13.50	0.00
Feature Type		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 5/6/08 16:15	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Spencer Church Lane Rd. crossing
Current Weather Conditions: partly cloudy	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0623450	Northing (UTM Y): 4360072	Horizontal Accuracy: (EPE / FOM / PDOP) 35 feet
Site 11	Easting (UTM X): 0623291	Northing (UTM Y): 4360207	Horizontal Accuracy: (EPE / FOM / PDOP) 36 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3048	downstream	3049	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 03

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

Evidence of Human Use*: (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

60% Cobble	40% Gravel	-% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae Coontail Sparse grasses Sparse filamentous algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 03

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095 03</u> Estimated Channel Incision: <u>0.20</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>623450</u> UTM Y: <u>4360072</u> +/- <u>35</u> (feet) 11 UTM X: <u>623291</u> UTM Y: <u>4360207</u> +/- <u>36</u> (feet) Average Stream Width: <u>9.5</u> (meters) Length of Survey Segment: <u>190</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<p align="center">Dissolved Oxygen</p> Date: <u>5/6/2008</u> Time: <u>16:15</u> Dissolved Oxygen: <u>8.22</u> (mg/L) Dissolved Oxygen: <u>87.4</u> (% sat) Specific Cond: <u>585.0</u> (µS/cm) Water Temperature: <u>18.2</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	1.64	0.31	1.20	0.33	1.30	0.17	1.50	0.28	0.88	0.01	0.68	0.19	0.80	0.15	0.75	0.12	0.51	0.18	0.55	0.10	0.44	0.13
	2	3.28	0.45	2.40	0.45	2.60	0.18	3.00	0.43	1.76	0.04	1.36	0.32	1.60	0.21	1.50	0.19	1.02	0.26	1.10	0.15	0.88	0.15
	3	4.92	0.43	3.60	0.54	3.90	0.24	4.50	0.38	2.64	0.06	2.04	0.46	2.40	0.27	2.25	0.37	1.53	0.51	1.65	0.09	1.32	0.15
	4	6.56	0.68	4.80	0.48	5.20	0.27	6.00	0.37	3.52	0.12	2.72	0.55	3.20	0.36	3.00	0.59	2.04	0.58	2.20	0.19	1.76	0.15
	5	8.20	0.47	6.00	0.48	6.50	0.24	7.50	0.44	4.40	0.18	3.40	0.56	4.00	0.44	3.75	0.71	2.55	0.61	2.75	0.06	2.20	0.18
	6	9.84	0.54	7.20	0.53	7.80	0.33	9.00	0.51	5.28	0.23	4.08	0.52	4.80	0.47	4.50	0.71	3.06	0.61	3.30	0.08	2.64	0.17
	7	11.48	0.52	8.40	0.48	9.10	0.33	10.50	0.54	6.16	0.24	4.76	0.51	5.60	0.53	5.25	0.67	3.57	0.66	3.85	0.06	3.08	0.25
	8	13.12	0.47	9.60	0.27	10.40	0.27	12.00	0.46	7.04	0.16	5.44	0.46	6.40	0.31	6.00	0.50	4.08	0.50	4.40	0.01	3.52	0.34
9	14.76	0.30	10.80	0.26	11.70	0.17	13.50	0.29	7.92	0.18	6.12	0.34	7.20	0.19	6.75	0.38	4.59	0.06	4.95	0.09	3.96	0.32	
Right Bank		16.40	0.00	12.00	0.00	13.00	0.00	15.00	0.00	8.80	0.00	6.80	0.00	8.00	0.00	7.50	0.00	5.10	0.00	5.50	0.00	4.40	0.00
	Feature Type <small>(riffle, run, or pool)</small>	Pool	Pool	Pool	Pool	Pool	Pool	Run	Run	Riffle	Riffle	Riffle	Riffle	Run	Run								

TWC

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 5/6/08 15:30	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Georgia Rd.- walked in 50 m
Current Weather Conditions: partly cloudy	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0623090	Northing (UTM Y): 4360727	Horizontal Accuracy: (EPE / FOM / PDOP) 26 feet
Site 11	Easting (UTM X): 0623093	Northing (UTM Y): 4360909	Horizontal Accuracy: (EPE / FOM / PDOP) 21 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3046	upstream	3047	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 04

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

Evidence of Human Use*: (Attach photos and reference in “Photos” section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

30% Cobble	50% Gravel	-% Sand	-% Silt	-% Mud/Clay	20% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae and filamentous algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 04

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Green Farms-interviewed landowner
 Landowner gave us permission to access from property

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095_04</u> Estimated Channel Incision: <u>0.20</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>623090</u> UTM Y: <u>4360727</u> +/- <u>26</u> (feet) 11 UTM X: <u>623093</u> UTM Y: <u>4360909</u> +/- <u>21</u> (feet) Average Stream Width: <u>9.0</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>15:30</u> Dissolved Oxygen: <u>10.36</u> (mg/L) Dissolved Oxygen: <u>109.5</u> (% sat) Specific Cond: <u>564.0</u> (µS/cm) Water Temperature: <u>17.7</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	1.32	0.08	1.39	0.47	1.30	0.53	0.35	0.07	0.70	0.50	1.46	0.36	0.88	0.07	0.35	0.06	0.46	0.04	0.90	0.20	0.60	0.12
	2	2.64	0.25	2.78	0.45	2.60	0.48	0.70	0.07	1.40	0.58	2.92	0.34	1.76	0.08	0.70	0.04	0.92	0.10	1.80	0.28	1.20	0.15
	3	3.96	0.47	4.17	0.52	3.90	0.50	1.05	0.12	2.10	0.53	4.38	0.25	2.64	0.08	1.05	0.08	1.38	0.09	2.70	0.24	1.80	0.16
	4	5.28	0.56	5.56	0.52	5.20	0.53	1.40	0.08	2.80	0.48	5.84	0.27	3.52	0.12	1.40	0.08	1.84	0.08	3.60	0.18	2.40	0.20
	5	6.60	0.61	6.95	0.50	6.50	0.55	1.75	0.08	3.50	0.58	7.30	0.26	4.40	0.20	1.75	0.07	2.30	0.12	4.50	0.24	3.00	0.26
	6	7.92	0.55	8.34	0.53	7.80	0.55	2.10	0.08	4.20	0.42	8.76	0.39	5.28	0.23	2.10	0.06	2.76	0.17	5.40	0.26	3.60	0.28
	7	9.24	0.27	9.73	0.53	9.10	0.55	2.45	0.05	4.90	0.36	10.22	0.32	6.16	0.31	2.45	0.06	3.22	0.10	6.30	0.25	4.20	0.31
	8	10.56	0.29	11.12	0.53	10.40	0.48	2.80	0.04	5.60	0.26	11.68	0.32	7.04	0.26	2.80	0.04	3.68	0.09	7.20	0.17	4.80	0.39
	9	11.88	0.27	12.51	0.42	11.70	0.46	3.15	0.01	6.30	0.05	13.14	0.44	7.92	0.25	3.15	0.01	4.14	0.02	8.10	0.30	5.40	0.28
Right Bank		13.20	0.00	13.90	0.00	13.00	0.00	3.50	0.00	7.00	0.00	14.60	0.00	8.80	0.00	3.50	0.00	4.60	0.00	9.00	0.00	6.00	0.00
Feature Type		Pool		Pool		Pool		Riffle		Run		Run		Run		Riffle		Riffle		Run		Run	

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 13:45	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Vermont Ln. crossing- 300 m upstream
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0623746	Northing (UTM Y): 4363022	Horizontal Accuracy: (EPE / FOM / PDOP) 38 feet
Site 11	Easting (UTM X): 0623862	Northing (UTM Y): 4363260	Horizontal Accuracy: (EPE / FOM / PDOP) 35 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3044	downstream	3045	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 05

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

Evidence of Human Use*: (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

-% Cobble	80% Gravel	20% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 05

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095_05</u> Estimated Channel Incision: <u>0.40</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>623746</u> UTM Y: <u>4366022</u> +/- <u>38</u> (feet) 11 UTM X: <u>623862</u> UTM Y: <u>4363260</u> +/- <u>35</u> (feet) Average Stream Width: <u>12.0</u> (meters) Length of Survey Segment: <u>240</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>13:45</u> Dissolved Oxygen: <u>6.43</u> (mg/L) Dissolved Oxygen: <u>66.8</u> (% sat) Specific Cond: <u>624.0</u> (µS/cm) Water Temperature: <u>17.0</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.66	0.31	0.85	0.09	0.73	0.50	0.96	0.26	1.21	0.31	0.52	0.26	1.96	0.71	1.41	0.47	1.21	0.40	1.57	0.17	1.69	0.69
2	1.32	0.27	1.70	0.18	1.46	0.58	1.92	0.54	2.42	0.50	1.04	0.32	3.92	>1.00	2.82	0.52	2.42	0.53	3.14	0.32	3.38	0.71
3	1.98	0.25	2.55	0.25	2.19	0.60	2.88	0.79	3.63	0.60	1.56	0.38	5.88	0.94	4.23	0.66	3.63	0.56	4.71	0.51	5.07	0.81
4	2.64	0.21	3.40	0.33	2.92	0.60	3.84	0.90	4.84	0.70	2.08	0.40	7.84	0.86	5.64	0.81	4.84	0.47	6.28	0.66	6.76	0.91
5	3.30	0.25	4.25	0.43	3.65	0.53	4.80	0.91	6.05	0.73	2.60	0.37	9.80	0.73	7.05	0.65	6.05	0.27	7.85	0.68	8.45	1.00
6	3.96	0.20	5.10	0.44	4.38	0.53	5.76	0.82	7.26	0.86	3.12	0.41	11.76	0.54	8.46	0.45	7.26	0.36	9.42	0.78	10.14	0.93
7	4.62	0.18	5.95	0.33	5.11	0.45	6.72	0.71	8.47	0.96	3.64	0.39	13.72	0.66	9.87	0.36	8.47	0.36	10.99	0.86	11.83	0.59
8	5.28	0.18	6.80	0.20	5.84	0.32	7.68	0.51	9.68	0.23	4.16	0.26	15.68	0.54	11.28	0.36	9.68	0.33	12.56	0.76	13.52	0.59
9	5.94	0.13	7.65	0.24	6.57	0.25	8.64	0.25	10.89	0.16	4.68	0.20	17.64	0.36	12.69	0.28	10.89	0.37	14.13	0.53	15.21	0.42
Right Bank	6.60	0.00	8.50	0.00	7.30	0.00	9.60	0.00	12.10	0.00	5.20	0.00	19.60	0.00	14.10	0.00	12.10	0.00	15.70	0.00	16.90	0.00
Feature Type <small>(riffle, run, or pool)</small>	Riffle		Riffle		Run		Pool		Pool		Run		Pool									

TWC

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 12:45	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Rt. P crossing
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0624160	Northing (UTM Y): 4365136	Horizontal Accuracy: (EPE / FOM / PDOP) 20 feet
Site 11	Easting (UTM X): 0624362	Northing (UTM Y): 4365262	Horizontal Accuracy: (EPE / FOM / PDOP) 28 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3040	downstream	3041	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 06

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

Evidence of Human Use*: (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

20% Cobble	10% Gravel	-% Sand	-% Silt	-% Mud/Clay	70% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae
Grasses

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 06

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095_06</u> Estimated Channel Incision: <u>0.20</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>624160</u> UTM Y: <u>4365136</u> +/- <u>20</u> (feet) 11 UTM X: <u>624362</u> UTM Y: <u>4365262</u> +/- <u>28</u> (feet) Average Stream Width: <u>16.0</u> (meters) Length of Survey Segment: <u>300</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>12:45</u> Dissolved Oxygen: <u>8.03</u> (mg/L) Dissolved Oxygen: <u>82.8</u> (% sat) Specific Cond: <u>640.0</u> (µS/cm) Water Temperature: <u>16.7</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1		2.05	0.16	2.15	0.51	2.03	0.59	0.90	0.07	1.97	0.10	1.95	0.17	1.06	0.06	1.16	0.27	1.47	0.26	1.30	0.26	1.60	0.26
2		4.10	0.36	4.30	0.51	4.06	0.65	1.80	0.31	3.94	0.15	3.90	0.25	2.12	0.04	2.32	0.40	2.94	0.31	2.60	0.31	3.20	0.40
3		6.15	0.54	6.45	0.50	6.09	0.55	2.70	0.27	5.91	0.00	5.85	0.00	3.18	0.01	3.48	0.61	4.41	0.41	3.90	0.36	4.80	0.70
4		8.20	0.78	8.60	0.54	8.12	0.62	3.60	0.20	7.88	0.00	7.80	0.00	4.24	0.01	4.64	0.59	5.88	0.53	5.20	0.53	6.40	0.98
5		10.25	0.86	10.75	0.48	10.15	0.75	4.50	0.08	9.85	0.00	9.75	0.00	5.30	0.12	5.80	0.60	7.35	0.54	6.50	0.65	8.00	>1.00
6		12.30	0.68	12.90	0.45	12.18	0.60	5.40	0.16	11.82	0.00	11.70	0.00	6.36	0.13	6.96	0.36	8.82	0.50	7.80	0.62	9.60	>1.00
7		14.35	0.68	15.05	0.34	14.21	0.62	6.30	0.09	13.79	0.15	13.65	0.00	7.42	0.07	8.12	0.31	10.29	0.50	9.10	0.58	11.20	>1.00
8		16.40	0.59	17.20	0.37	16.24	0.50	7.20	0.12	15.76	0.06	15.60	0.00	8.48	0.06	9.28	0.19	11.76	0.41	10.40	0.62	12.80	0.80
9		18.45	0.40	19.35	0.27	18.27	0.37	8.10	0.15	17.73	0.19	17.55	0.15	9.54	0.07	10.44	0.01	13.23	0.47	11.70	0.60	14.40	0.43
Right Bank		20.50	0.00	21.50	0.00	20.30	0.00	9.00	0.00	19.70	0.00	19.50	0.00	10.60	0.00	11.60	0.00	14.70	0.00	13.00	0.00	16.00	0.00
Feature Type		Pool		Pool		Run		Riffle		Run		Riffle		Riffle		Run		Run		Run		Pool	

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 11:50	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Madisonville Rd. crossing
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0629291	Northing (UTM Y): 4367851	Horizontal Accuracy: (EPE / FOM / PDOP) 14 feet
Site 11	Easting (UTM X): 0629446	Northing (UTM Y): 4367927	Horizontal Accuracy: (EPE / FOM / PDOP) 14 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3038	upstream	3039	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 07

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property-fields				

Evidence of Human Use*: (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

-% Cobble	100% Gravel	-% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae Sparse grasses

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 07

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095_07</u> Estimated Channel Incision: <u>0.10</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>629291</u> UTM Y: <u>4367851</u> +/- <u>14</u> (feet) 11 UTM X: <u>629446</u> UTM Y: <u>4367927</u> +/- <u>14</u> (feet) Average Stream Width: <u>8.5</u> (meters) Length of Survey Segment: <u>170</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>11:50</u> Dissolved Oxygen: <u>10.96</u> (mg/L) Dissolved Oxygen: <u>112.7</u> (% sat) Specific Cond: <u>575.0</u> (µS/cm) Water Temperature: <u>16.7</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Station	Distance (m)	Depth (m)																			
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.55	0.19	0.64	0.06	0.44	0.08	0.63	0.20	0.53	0.02	0.90	0.24	1.29	0.17	1.03	0.12	1.20	0.29	0.90	0.09	1.04	0.13
2	1.10	0.19	1.28	0.12	0.88	0.13	1.26	0.37	1.06	0.09	1.80	0.36	2.58	0.15	2.06	0.07	2.40	0.38	1.80	0.17	2.08	0.19
3	1.65	0.27	1.92	0.17	1.32	0.20	1.89	0.39	1.59	0.17	2.70	0.41	3.87	0.16	3.09	0.05	3.60	0.36	2.70	0.16	3.12	0.16
4	2.20	0.37	2.56	0.19	1.76	0.24	2.52	0.40	2.12	0.27	3.60	0.45	5.16	0.15	4.12	0.02	4.80	0.33	3.60	0.16	4.16	0.17
5	2.75	0.32	3.20	0.23	2.20	0.16	3.15	0.34	2.65	0.23	4.50	0.45	6.45	0.10	5.15	0.05	6.00	0.33	4.50	0.13	5.20	0.05
6	3.30	0.36	3.84	0.23	2.64	0.12	3.78	0.32	3.18	0.26	5.40	0.40	7.74	0.09	6.18	0.09	7.20	0.31	5.40	0.10	6.24	0.08
7	3.85	0.31	4.48	0.25	3.08	0.13	4.41	0.27	3.71	0.17	6.30	0.26	9.03	0.04	7.21	0.15	8.40	0.28	6.30	0.10	7.28	0.07
8	4.40	0.27	5.12	0.31	3.52	0.13	5.04	0.21	4.24	0.10	7.20	0.19	10.32	0.07	8.24	0.25	9.60	0.27	7.20	0.06	8.32	0.16
9	4.95	0.15	5.76	0.23	3.96	0.03	5.67	0.15	4.77	0.04	8.10	0.06	11.61	0.17	9.27	0.34	10.80	0.21	8.10	0.01	9.36	0.18
Right Bank	5.50	0.00	6.40	0.00	4.40	0.00	6.30	0.00	5.30	0.00	9.00	0.00	12.90	0.00	10.30	0.00	12.00	0.00	9.00	0.00	10.40	0.00
Feature Type <small>(riffle, run, or pool)</small>	run		riffle		riffle		riffle		run		riffle		riffle									

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 11:00	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Swallow Rd. crossing
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0630122	Northing (UTM Y): 4368008	Horizontal Accuracy: (EPE / FOM / PDOP) 27 feet
Site 11	Easting (UTM X): 0630300	Northing (UTM Y): 4368235	Horizontal Accuracy: (EPE / FOM / PDOP) 20 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3034	downstream	3035	upstream	3036	Farm road at Transect 1
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3037	Footprints at Transect 11				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property-field				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input checked="" type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			
Farm utility road at Transect 1 Footprints at Transect 11				

Substrate*: (These values should add up to 100%.)

-% Cobble	15% Gravel	60% Sand	-% Silt	25% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Swallow Rd. becomes private farm road.

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095 08</u> Estimated Channel Incision: <u>0.20</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>630122</u> UTM Y: <u>4368008</u> +/- <u>27</u> (feet) 11 UTM X: <u>630300</u> UTM Y: <u>4368235</u> +/- <u>20</u> (feet) Average Stream Width: <u>12.0</u> (meters) Length of Survey Segment: <u>240</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>11:00</u> Dissolved Oxygen: <u>8.47</u> (mg/L) Dissolved Oxygen: <u>86.5</u> (% sat) Specific Cond: <u>558.0</u> (µS/cm) Water Temperature: <u>16.3</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	1.10	0.19	1.82	0.19	1.20	0.19	1.32	0.16	1.81	0.42	1.43	0.54	1.40	0.18	0.92	0.06	0.67	0.18	0.80	0.18	0.82	0.08
	2	2.20	0.40	3.64	0.27	2.40	0.38	2.64	0.27	3.62	0.45	2.86	0.72	2.80	0.75	1.84	0.10	1.34	0.27	1.60	0.26	1.64	0.23
	3	3.30	0.47	5.46	0.33	3.60	0.56	3.96	0.44	5.43	0.54	4.29	0.74	4.20	0.79	2.76	0.12	2.01	0.41	2.40	0.40	2.46	0.33
	4	4.40	0.45	7.28	0.33	4.80	0.85	5.28	0.59	7.24	0.59	5.72	0.71	5.60	0.72	3.68	0.08	2.68	0.50	3.20	0.50	3.28	0.42
	5	5.50	0.27	9.10	0.36	6.00	>1.00	6.60	0.64	9.05	0.74	7.15	0.70	7.00	0.60	4.60	0.05	3.35	0.59	4.00	0.59	4.10	0.55
	6	6.60	0.33	10.92	0.44	7.20	>1.00	7.92	0.69	10.86	0.72	8.58	0.58	8.40	0.66	5.52	0.01	4.02	0.63	4.80	0.68	4.92	0.65
	7	7.70	0.27	12.74	0.42	8.40	>1.00	9.24	0.70	12.67	0.65	10.01	0.40	9.80	0.46	6.44	0.27	4.69	0.63	5.60	0.69	5.74	0.62
	8	8.80	0.21	14.56	0.36	9.60	>1.00	10.56	0.67	14.48	0.53	11.44	0.36	11.20	0.33	7.36	0.30	5.36	0.59	6.40	0.77	6.56	0.55
	9	9.90	0.06	16.38	0.43	10.80	0.56	11.88	0.67	16.29	0.44	12.87	0.23	12.60	0.17	8.28	0.20	6.03	0.34	7.20	0.46	7.38	0.41
Right Bank		11.00	0.00	18.20	0.00	12.00	0.00	13.20	0.00	18.10	0.00	14.30	0.00	14.00	0.00	9.20	0.00	6.70	0.00	8.00	0.00	8.20	0.00
Feature Type		Run		Run		Pool		Pool		Pool		Pool		Run		Riffle		Run		Run		Pool	

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 09:30	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Rt. F crossing
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0632479	Northing (UTM Y): 4369333	Horizontal Accuracy: (EPE / FOM / PDOP) 20 feet
Site 11	Easting (UTM X): 0632785	Northing (UTM Y): 4369315	Horizontal Accuracy: (EPE / FOM / PDOP) 20 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3032	upstream	3033	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 09

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property-fields Fence along right descending bank Rural residential at Transect 3 Power line over Transect 7				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

Substrate*: (These values should add up to 100%.)

50% Cobble	20% Gravel	-% Sand	-% Silt	-% Mud/Clay	30% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 09

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095 09</u> Estimated Channel Incision: <u>0.20</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>632479</u> UTM Y: <u>4369333</u> +/- <u>20</u> (feet) 11 UTM X: <u>632785</u> UTM Y: <u>4369315</u> +/- <u>20</u> (feet) Average Stream Width: <u>20.0</u> (meters) Length of Survey Segment: <u>300</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>9:30</u> Dissolved Oxygen: <u>7.78</u> (mg/L) Dissolved Oxygen: <u>79.8</u> (% sat) Specific Cond: <u>469.0</u> (µS/cm) Water Temperature: <u>16.6</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	2.00	0.86	2.35	0.03	2.51	0.54	1.88	0.43	1.92	0.26	2.28	0.40	2.02	0.28	1.85	0.05	2.10	0.50	1.66	0.41	1.58	0.31
	2	4.00	>1.00	4.70	0.34	5.02	0.66	3.76	0.66	3.84	0.31	4.56	0.22	4.04	0.28	3.70	0.10	4.20	0.75	3.32	0.37	3.16	0.40
	3	6.00	>1.00	7.05	0.60	7.53	0.40	5.64	0.75	5.76	0.38	6.84	0.51	6.06	0.25	5.55	0.27	6.30	0.66	4.98	0.37	4.74	0.50
	4	8.00	>1.00	9.40	>1.00	10.04	0.39	7.52	0.80	7.68	0.61	9.12	0.00	8.08	0.18	7.40	0.36	8.40	0.44	6.64	0.33	6.32	0.47
	5	10.00	>1.00	11.75	>1.00	12.55	0.38	9.40	0.92	9.60	0.56	11.40	0.00	10.10	0.15	9.25	0.32	10.50	0.43	8.30	0.34	7.90	0.45
	6	12.00	>1.00	14.10	0.92	15.06	0.62	11.28	0.50	11.52	0.53	13.68	0.00	12.12	0.05	11.10	0.21	12.60	0.36	9.96	0.42	9.48	0.61
	7	14.00	>1.00	16.45	0.77	17.57	0.60	13.16	0.40	13.44	0.48	15.96	0.04	14.14	0.05	12.95	0.40	14.70	0.50	11.62	0.33	11.06	0.68
	8	16.00	>1.00	18.80	0.58	20.08	0.50	15.04	0.22	15.36	0.41	18.24	0.27	16.16	0.05	14.80	0.34	16.80	0.36	13.28	0.39	12.64	0.50
	9	18.00	0.82	21.15	0.62	22.59	0.53	16.92	0.20	17.28	0.40	20.52	0.34	18.18	0.24	16.65	0.47	18.90	0.39	14.94	0.32	14.22	0.25
Right Bank		20.00	0.00	23.50	0.00	25.10	0.00	18.80	0.00	19.20	0.00	22.80	0.00	20.20	0.00	18.50	0.00	21.00	0.00	16.60	0.00	15.80	0.00
Feature Type		Pool		Run		Riffle		Riffle		Run		Run		Run									

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 5/6/08 08:30	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Seeley Ln. crossing
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0634031	Northing (UTM Y): 4370793	Horizontal Accuracy: (EPE / FOM / PDOP) 16 feet
Site 11	Easting (UTM X): 0634295	Northing (UTM Y): 4370911	Horizontal Accuracy: (EPE / FOM / PDOP) 17 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3029	downstream	3030	upstream	3031	Low water crossing at Transect 2
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			
Low water crossing at Transect 2				

Substrate*: (These values should add up to 100%.)

-% Cobble	80% Gravel	20% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Abundant benthic algae Sparse grasses
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Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095 10</u> Estimated Channel Incision: <u>0.10</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>634031</u> UTM Y: <u>4370793</u> +/- <u>16</u> (feet) 11 UTM X: <u>634295</u> UTM Y: <u>4370911</u> +/- <u>17</u> (feet) Average Stream Width: <u>16.5</u> (meters) Length of Survey Segment: <u>300</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>8:30</u> Dissolved Oxygen: <u>7.93</u> (mg/L) Dissolved Oxygen: <u>80.5</u> (% sat) Specific Cond: <u>481.0</u> (µS/cm) Water Temperature: <u>16.4</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	1.60	0.04	0.90	0.10	1.72	0.10	1.33	0.34	1.00	0.08	1.47	0.10	1.70	0.46	2.00	0.21	2.20	0.31	2.00	0.40	2.20	0.50
	2	3.20	0.19	1.80	0.12	3.44	0.16	2.66	0.46	2.00	0.10	2.94	0.27	3.40	0.39	4.00	0.52	4.40	0.50	4.00	0.61	4.40	0.69
	3	4.80	0.23	2.70	0.08	5.16	0.15	3.99	0.42	3.00	0.24	4.41	0.27	5.10	0.39	6.00	0.86	6.60	0.69	6.00	0.63	6.60	0.72
	4	6.40	0.34	3.60	0.13	6.88	0.00	5.32	0.42	4.00	0.29	5.88	0.26	6.80	0.20	8.00	>1.00	8.80	0.76	8.00	0.72	8.80	0.89
	5	8.00	0.45	4.50	0.18	8.60	0.00	6.65	0.41	5.00	0.29	7.35	0.20	8.50	0.24	10.00	>1.00	11.00	0.82	10.00	0.78	11.00	>1.00
	6	9.60	0.40	5.40	0.20	10.32	0.00	7.98	0.40	6.00	0.27	8.82	0.15	10.20	0.25	12.00	>1.00	13.20	>1.00	12.00	0.81	13.20	>1.00
	7	11.20	0.26	6.30	0.13	12.04	0.20	9.31	0.28	7.00	0.16	10.29	0.13	11.90	0.20	14.00	0.90	15.40	>1.00	14.00	0.92	15.40	>1.00
	8	12.80	0.20	7.20	0.08	13.76	0.17	10.64	0.13	8.00	0.21	11.76	0.01	13.60	0.15	16.00	0.61	17.60	0.89	16.00	0.90	17.60	>1.00
	9	14.40	0.08	8.10	0.02	15.48	0.08	11.97	0.16	9.00	0.12	13.23	0.01	15.30	0.03	18.00	0.26	19.80	0.79	18.00	0.66	19.80	0.72
Right Bank		16.00	0.00	9.00	0.00	17.20	0.00	13.30	0.00	10.00	0.00	14.70	0.00	17.00	0.00	20.00	0.00	22.00	0.00	20.00	0.00	22.00	0.00
Feature Type <small>(riffle, run, or pool)</small>		Run		Riffle		Riffle		Run		Run		Riffle		Run		Run		Pool		Pool		Pool	

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 5/6/08 07:15	Location Description (e.g., road crossing):
Stream Name: Spencer Creek	Badger Rd. crossing
Current Weather Conditions: overcast	Facility Name(s): Vandalia WWTF
Weather Conditions for Past 10 days: 0.68 in. precipitation	Permit Number(s): MO 0026361
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 0635448	Northing (UTM Y): 4372221	Horizontal Accuracy: (EPE / FOM / PDOP) 29 feet
Site 11	Easting (UTM X): 0635744	Northing (UTM Y): 4372194	Horizontal Accuracy: (EPE / FOM / PDOP) 27 feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3025	upstream	3026	downstream	3028	Tractor low water crossing
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 11

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: Private property				

Evidence of Human Use*: (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			
Bridge and low water crossing at Transect 1				

Substrate*: (These values should add up to 100%.)

-% Cobble	80% Gravel	20% Sand	-% Silt	-% Mud/Clay	-% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Sparse grasses and algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 11

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
Pool	130 m	20.00	25.00	>1.00	>1.00

Comments: (Please record any additional comments here.)

Log jam at Transects 4-6

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Jennifer Hrabik and Renee Martin

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Spencer Creek</u> Waterbody ID: <u>0095</u> Site #: <u>0095 11</u> Estimated Channel Incision: <u>0.10</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>635448</u> UTM Y: <u>4372221</u> +/- <u>29</u> (feet) 11 UTM X: <u>635744</u> UTM Y: <u>4372194</u> +/- <u>27</u> (feet) Average Stream Width: <u>17.0</u> (meters) Length of Survey Segment: <u>300</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik and R. Martin</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5/6/2008</u> Time: <u>7:15</u> Dissolved Oxygen: <u>7.69</u> (mg/L) Dissolved Oxygen: <u>79.4</u> (% sat) Specific Cond: <u>466.0</u> (µS/cm) Water Temperature: <u>17.3</u> (°C)
--	---

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.85	0.41	1.75	0.50	1.00	0.20	1.80	0.44	2.00	0.64	2.00	0.19	1.25	0.39	2.65	0.60	1.15	0.01	1.30	0.27	1.90	0.47
2	3.70	0.52	3.50	0.67	2.00	0.16	3.60	0.88	4.00	>1.00	4.00	0.31	2.50	0.47	5.30	0.50	2.30	0.01	2.60	0.16	3.80	0.58
3	5.55	0.46	5.25	0.56	3.00	0.16	5.40	>1.00	6.00	>1.00	6.00	0.47	3.75	0.50	7.95	0.33	3.45	0.01	3.90	0.30	5.70	0.60
4	7.40	0.45	7.00	0.40	4.00	0.08	7.20	>1.00	8.00	>1.00	8.00	0.70	5.00	0.39	10.60	0.40	4.60	0.19	5.20	0.42	7.60	0.65
5	9.25	0.48	8.75	0.33	5.00	0.18	9.00	>1.00	10.00	>1.00	10.00	0.90	6.25	0.27	13.25	0.32	5.75	0.26	6.50	0.41	9.50	0.58
6	11.10	0.60	10.50	0.27	6.00	0.36	10.80	>1.00	12.00	>1.00	12.00	>1.00	7.50	0.19	15.90	0.01	6.90	0.64	7.80	0.44	11.40	0.59
7	12.95	0.66	12.25	0.20	7.00	0.26	12.60	>1.00	14.00	>1.00	14.00	>1.00	8.75	0.16	18.55	0.00	8.05	0.71	9.10	0.56	13.30	0.45
8	14.80	0.45	14.00	0.16	8.00	0.15	14.40	>1.00	16.00	>1.00	16.00	>1.00	10.00	0.12	21.20	0.00	9.20	0.79	10.40	0.67	15.20	0.36
9	16.65	0.36	15.75	0.06	9.00	0.04	16.20	0.42	18.00	0.51	18.00	0.79	11.25	0.10	23.85	0.33	10.35	0.76	11.70	0.46	17.10	0.25
Right Bank	18.50	0.00	17.50	0.00	10.00	0.00	18.00	0.00	20.00	0.00	20.00	0.00	12.50	0.00	26.50	0.00	11.50	0.00	13.00	0.00	19.00	0.00
Feature Type	Pool		Run		Riffle		Pool		Pool		Pool		Run		Riffle		Run		Run		Run	

rwc

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet D – Recreational Use Interview

(must be completed for each interview)

I. Introduction

Stream Name and WBID: Spencer Creek #0095

Date & Time (include AM or PM): 5/6/08 15:00

Interviewed: In person By phone By mail

(NOTE: If you are an Interviewee filling out this form to mail back to DNR, proceed to Question #1.)

Interviewee selected because (e.g., house next to stream; standing by stream, etc.) House next to stream.

Interviewer introduction to Interviewee: “My name is _____, I work for _____ (name of your employer), and I am collecting information on how people use _____ (name of the stream).”

ASK:

1.) Are you willing to respond to a survey about this stream? (It will just take a few minutes.)

Yes No If yes, list contact information for the interviewee below:

Legal name: Roger Green

Current mailing address: -

Daytime phone number: () -

E-mail address (optional): -

2.a.) Do you live in this area? Yes No

If yes, how many years? _____

2.b.) If you don't live in this area, are you still familiar with this stream? Yes No

If yes, how many years? _____

If no, thank the individual for taking the time to talk to you and conclude the interview.

3.) Are you familiar with this particular stretch of the stream? (show them the map, pointing out local landmarks such as roads, bridges, property lines) Yes No

If yes, proceed to “II. Personal Use?”.

If no, proceed to Section V.

II. Personal Use?

1.) Have you or your family personally used the stream for recreation since November 28, 1975? Yes No

If yes, proceed to #3.

If no, proceed to, and complete #2.

2.a.) If no, list reasons stream not used. _____

b.) From here proceed to “III. Witnessed Use?”.

3.) How do you use the stream? Early 80's used to fish and swim the creek near his home.

Whole Body Contact Recreation (WBCR)			
<input checked="" type="checkbox"/> Swimming	<input type="checkbox"/> Tubing	<input type="checkbox"/> Snorkeling/Skin Diving	<input type="checkbox"/> Water Skiing

If Interviewee (or family) used the stream for WBCR since Nov. 28, 1975, ask:

4.a.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? _____
Early 1980's, water was higher in stream than what it has been. Couple of times/year.

4.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). Along sites 4, 3, and 2- his property line.

Secondary Contact Recreation (SCR)				
<input checked="" type="checkbox"/> fishing	<input type="checkbox"/> Wading	<input checked="" type="checkbox"/> Boating	<input type="checkbox"/> Trapping	<input type="checkbox"/> Other:

If Interviewee (or family) used the stream for SCR since Nov. 28, 1975, ask:

4.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? _____
Early 1980's, catfishing several times throughout the year.

4.d.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). Along sites 2, 3, and 4- now his property line.

4.e.) Which of these times and places (if any) did children wade or play? Both

III. Witnessed Use?

1.) Have you observed others using this stream for recreation since Nov. 28, 1975?

Yes No

If yes, proceed to #2.

If no, proceed to, "IV. Anecdotal Use?".

2.) What kinds of uses have you witnessed?

Whole Body Contact Recreation (WBCR)			
<input checked="" type="checkbox"/> Swimming	<input type="checkbox"/> Tubing	<input type="checkbox"/> Snorkeling/Skin Diving	<input type="checkbox"/> Water Skiing

If Interviewee witnessed WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? _____
Early 1980's, water level used to be higher and cleaner, summertime.

2.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). At bridge crossings at sites 2 and 3.

Route P and Spencer Church Lane bridge crossings

Secondary Contact Recreation (SCR)

Fishing Wading Boating Trapping Other:

If Interviewee witnessed SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? Fishing at bridge crossings- site 2 and 3 of UAA. Couple of times a year in the early 1980's.

2.d.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). Bridge crossings at Route P and Spencer Church Lane crossing. (sites 2 and 3 of UAA).

2.e.) Which of these times and places (if any) did you specifically witness children wading or playing? N/A

IV. Anecdotal Use?

1.) Have you heard about anyone using this stream since Nov. 28, 1975 for recreation – not seen or done yourself, but just heard about it? Yes No

If yes, proceed to #2.

If no, thank the individual for taking the time to talk to you and conclude the interview.

2.) What kind of uses have you heard about?

Whole Body Contact Recreation (WBCR)

Swimming Tubing Snorkeling/Skin Diving Water Skiing

If Interviewee heard of WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? Summertime early 1980's- few times.

2.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). Route P and Spencer Church Lane bridge crossings.

Secondary Contact Recreation (SCR)				
<input checked="" type="checkbox"/> Fishing	<input type="checkbox"/> Wading	<input type="checkbox"/> Boating	<input type="checkbox"/> Trapping	<input type="checkbox"/> Other:

If Interviewee heard of SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?
Spring season early 1980's- few times.

2.d.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol).
Route P and Spencer Church Lane road crossings.

2.e.) Which of these times and places (if any) did you hear specifically of children wading or playing?
N/A

V. Others to Contact?

Can you recommend someone else we could contact that knows the stream? Yes No

If yes, that person's contact info (name, address, phone, directions?)

If no, thank the individual for taking the time to talk to you and conclude the interview.

VI. Additional Comments

From the Interviewee: _____

From the Interviewer: _____

VII. Information on Interviewer

Has interviewer been trained by Missouri DNR to conduct UAA Interviews?

Yes No

If yes, how? (check all that apply):

Pre-Assessment Meeting Workshop On-line training seminar

Other. If "Other," list: _____

Interviewer's Signature: _____

Interviewer's Name, Printed: Renee Martin

Employer (where applicable): Applied Environmental Solutions

Interviewer's Phone No.: 573-875-7844 E-mail: rmartin@aesolutionsmo.com



WBID #0095
Site #1
Upstream



WBID #0095
Site #1
Downstream



WBID #0095
Site #2
Upstream



WBID #0095
Site #2
Downstream



AES

WBID# 0095

Site # 3

Dnstream



AES

WBID# 0095

Site # 3

Upstream



AES

WBID # 0095

Site # 4

Upstream



AES

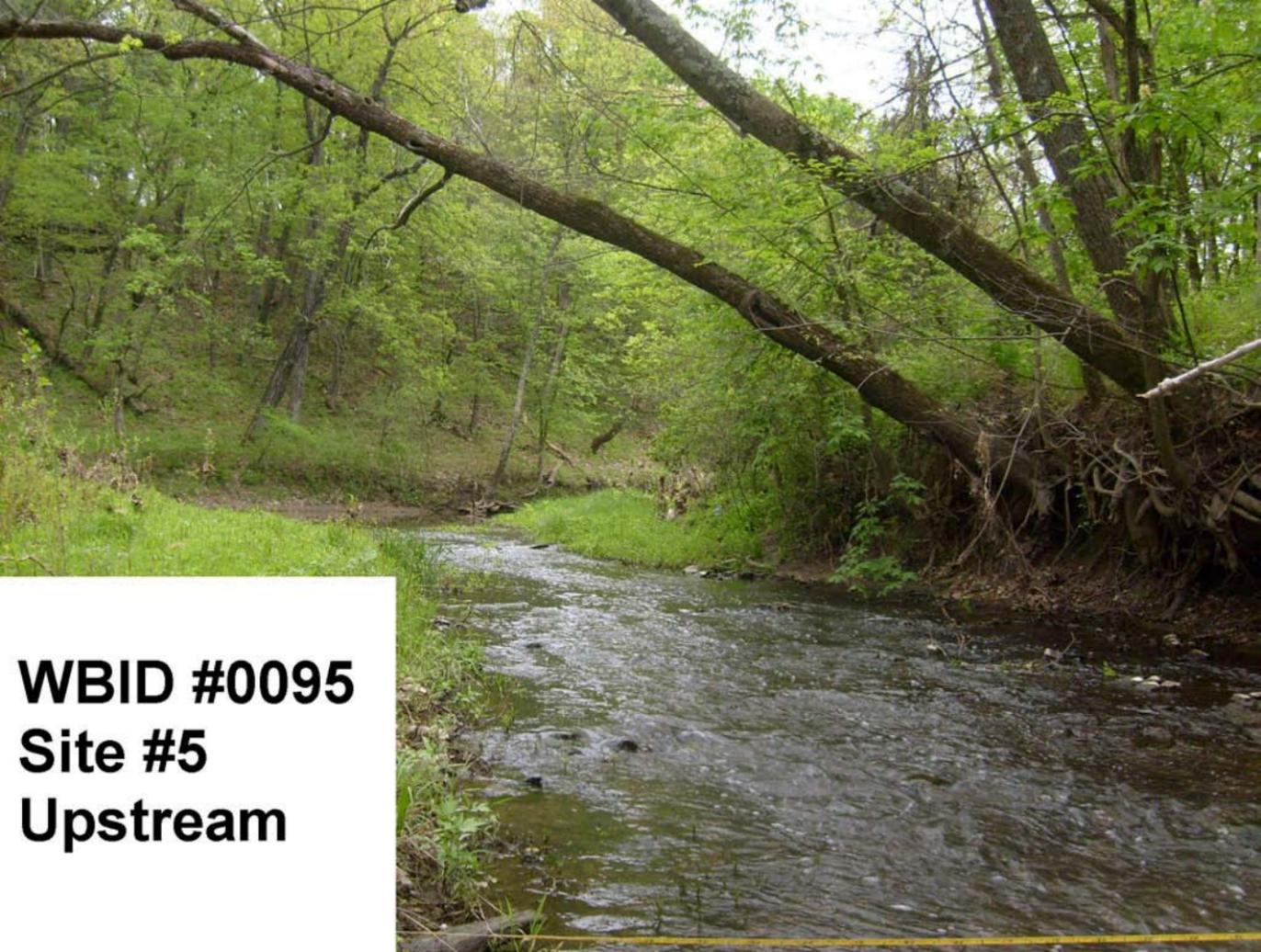
WBID # 0095

Site # 4

Dnstream



**WBID #0095
Site #5
Downstream**



WBID #0095
Site #5
Upstream

AES

WBID # 0095

Site # 6

DN Stream



AES

WBID # 0095

Site # 6

Up Stream



AES

WBID# 0095
Site #7
Upstream



AES

WBID# 0095

Site #7

DnStream

AES

WBID# 0095
Site # 8
Dnstream



AES

WBID# 0095

Site #8

Upstream



WBID #0095

Site #8

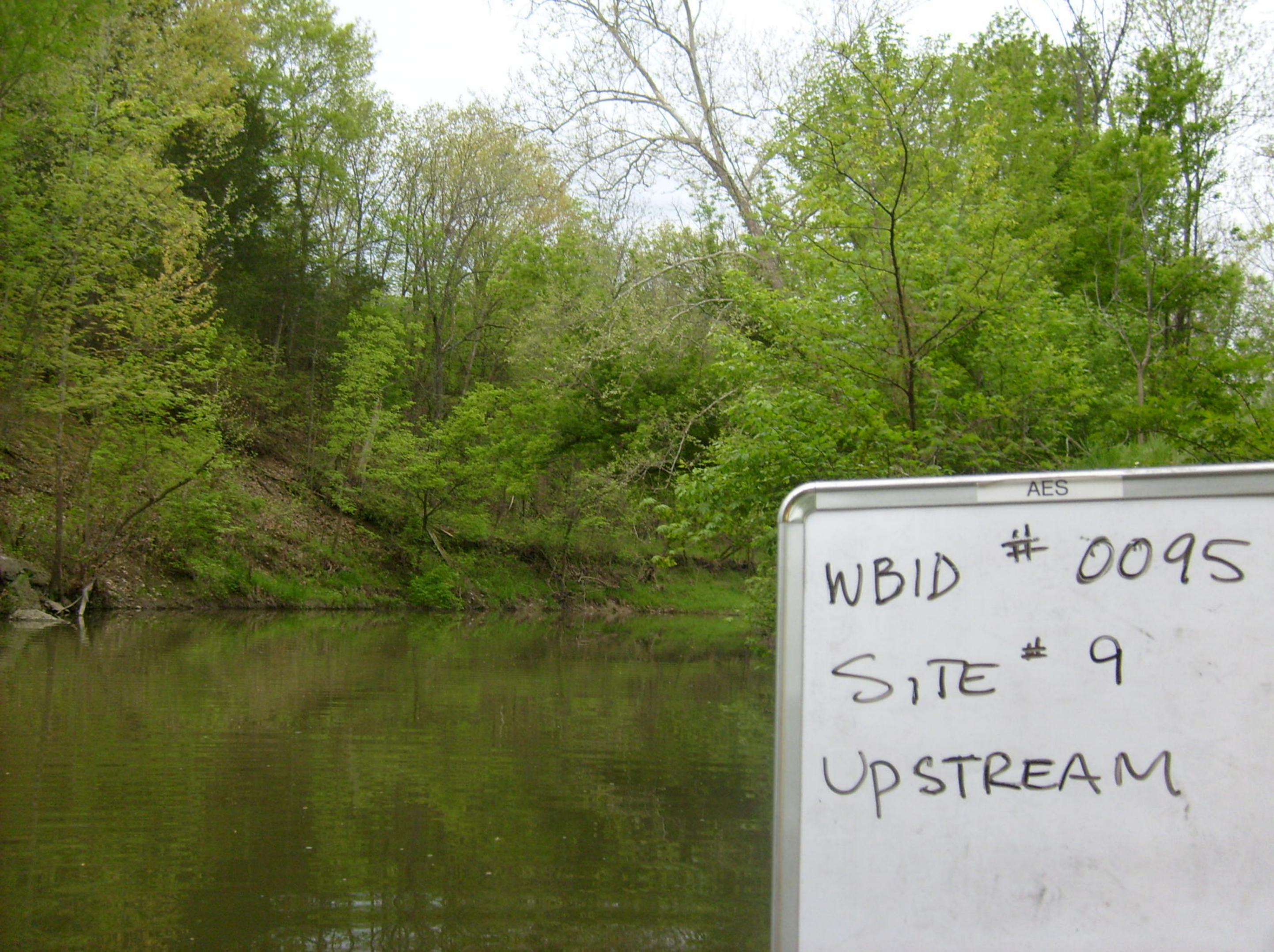
Transect #1

Farm road

WBID #0095
Site #8
Transect #11

Footprints





AES

WBID # 0095

SITE # 9

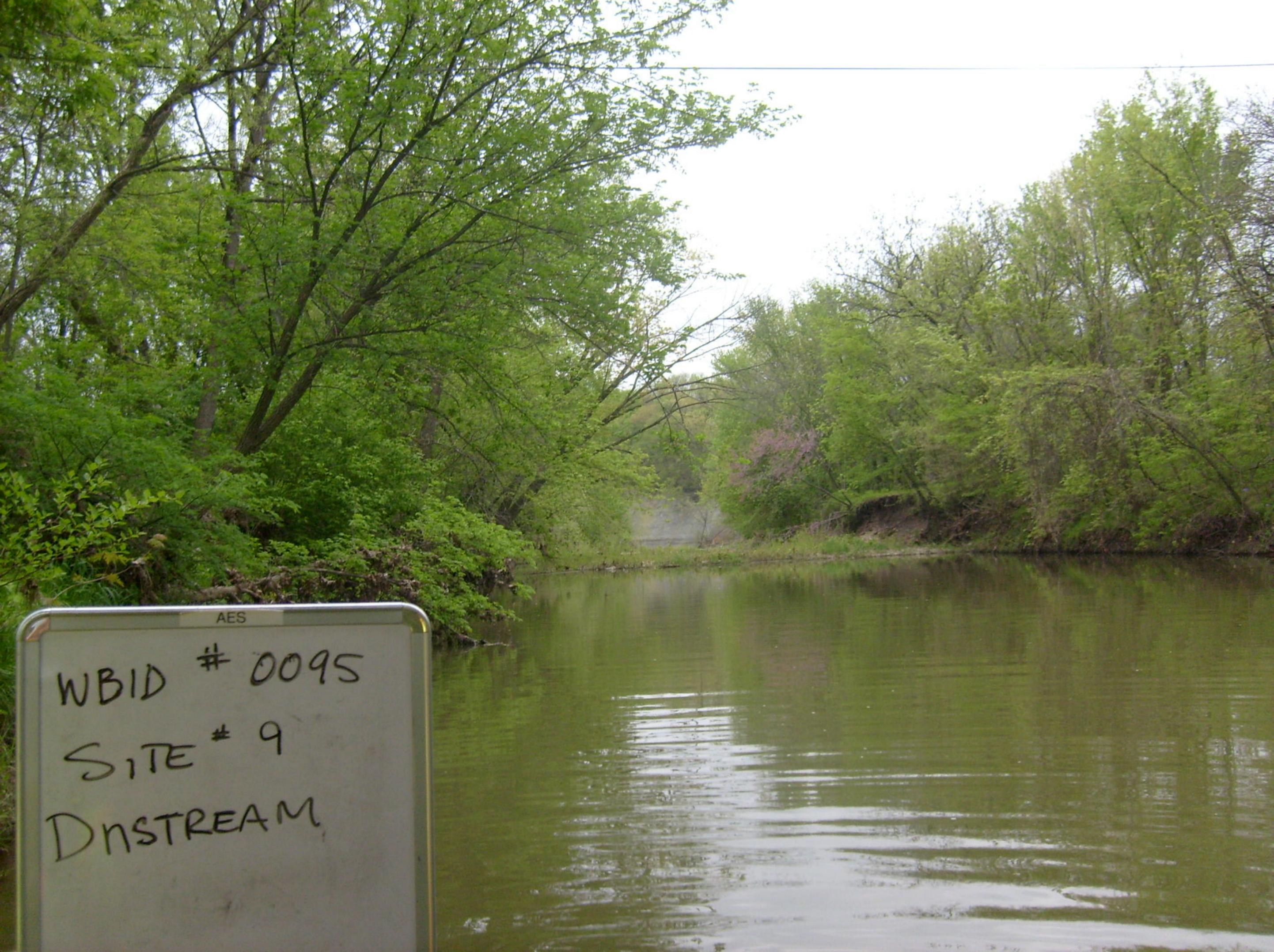
UPSTREAM

AES

WBID # 0095

SITE # 9

DNSTREAM





AES

WBID # 0095

SITE # 10

DNSTREAM

AES

WBID # 0095

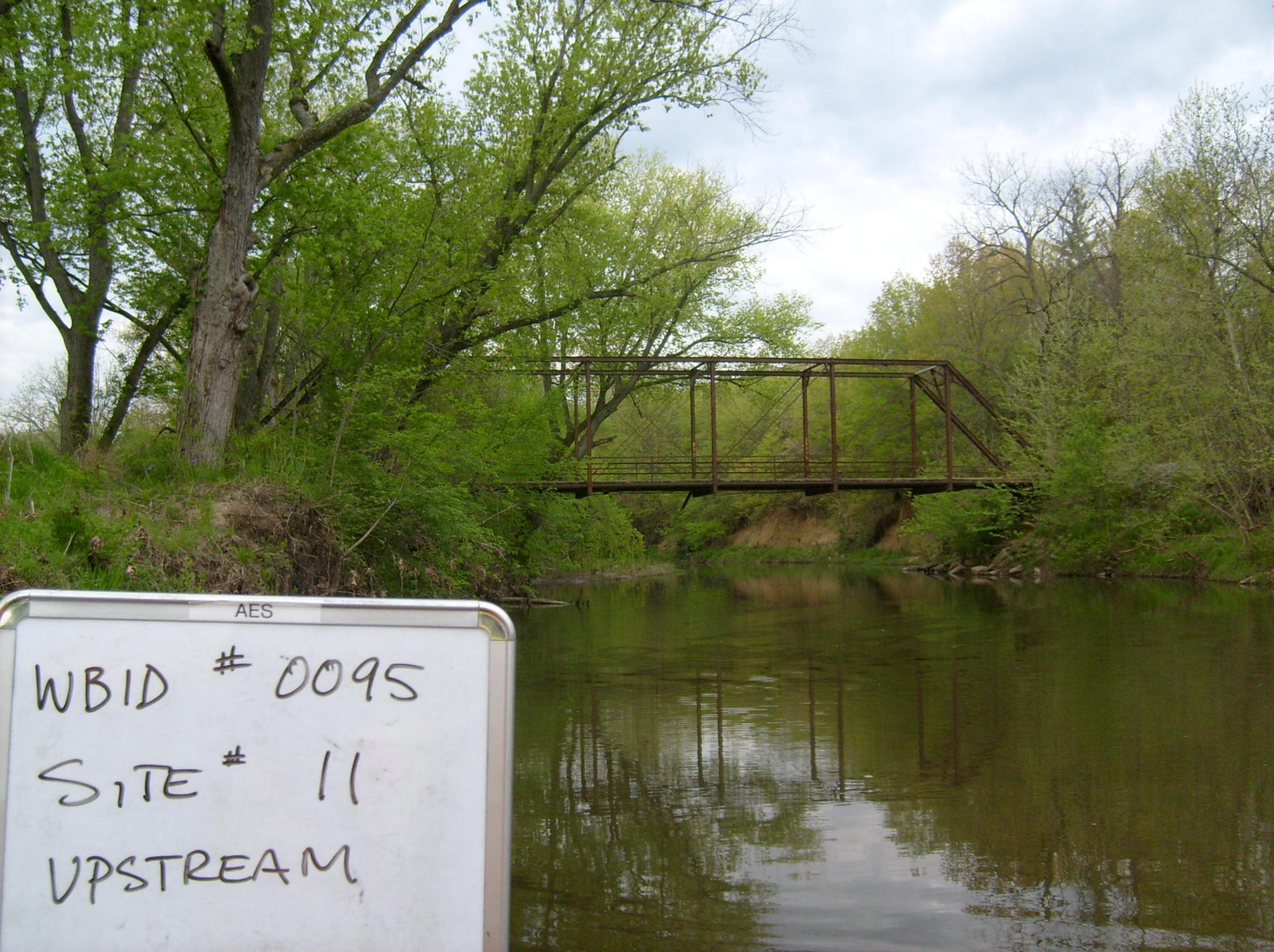
SITE # 10

UPSTREAM





WBID #0095
Site #10
Transect #2
Low Water
Crossing



AES

WBID # 0095

SITE # 11

UPSTREAM



AES

WBID # 0095

SITE # 11

DNSTREAM



AES

WBID # 0095

SITE # 11

DnSTREAM

tractor low H₂O
crossing