



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0698 Middle Fork Little Chariton

Submitted by

MEC Water Resources

To

Missouri Department of Natural Resources

Water Protection Program

On

October 17, 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):	M. Fk. L. Chariton
Missouri Water Body Identification (WBID) Number:	0698
8-digit HUC:	10280203
County(ies), Listed Upstream to Downstream:	MACON
Upstream Legal Description (from Table H):	3, 58N, 15W
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated:	11
List all site numbers, consecutively upstream to downstream:	Site 07: Old Hwy 36 crossing Site 08: Harvest Rd crossing Site 09: 250m upitream of Greyhound Rd crossing Site 10: 50m downstream of Greyhound Rd crossing Site 11: Angus Rd crossing
Site 01: Hiawatha st. crossing	Site 04: 150 m upstream of Rt.00
Site 02: 50 m downstream Site 01	Site 05: Horseshoe Ave crossing
Site 03: 350 m upstream of Rt 00	Site 06: Hickory Ave 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)

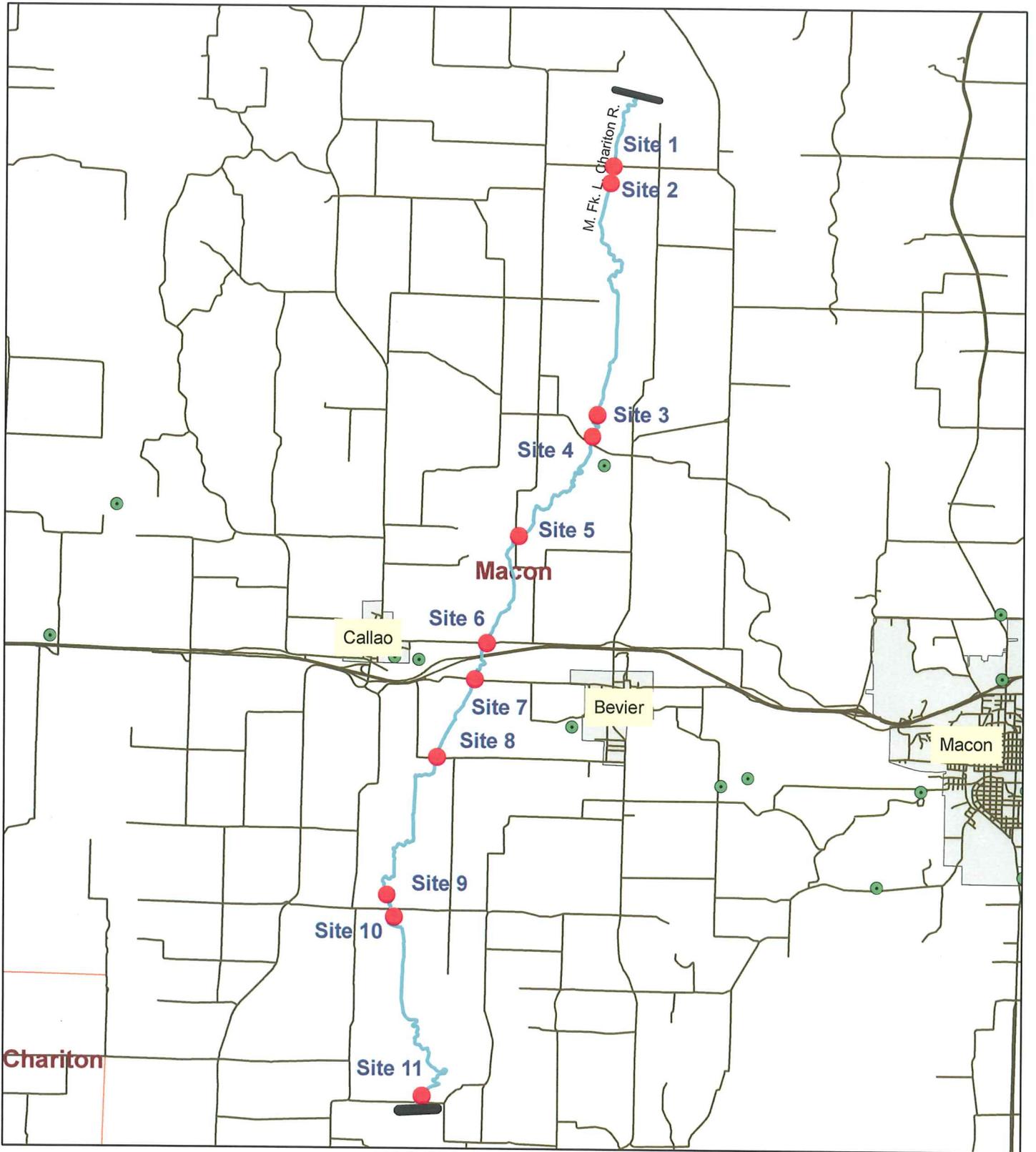
Facility Name(s) and Permit Number(s): Onyx Maple Hill Landfill MO 8117471
--

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 requirments listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: Renee Martin Date: 10/14/08
Rue 10-14-08



M. Fk. Chariton River
WBID 0698
Macon County



WBID # 0698
 Site # 01

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: <u>10/2/08 1500</u>	Location Description (e.g., road crossing): <u>Hiawatha St. Crossing</u>
Stream Name: <u>m. FK. L. Chanton R.</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Current Weather Conditions: <u>Sunny + Clear</u>	Permit Number(s): <u>MO 0117471</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	
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): <u>0537232</u>	Northing (UTM Y): <u>4411394</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>28</u> ^{ft} Meters
Site 11	Easting (UTM X): <u>0537213</u>	Northing (UTM Y): <u>4411257</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>18</u> ^{ft} Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>084</u>	<u>upstream + fence</u>	<u>085</u>	<u>dnstream</u>	<u>086</u>	<u>cattle watering</u>
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # M. Fk. L. Chautau #0698

Date of Survey 10/2/08

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 - pasture

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 ^①
<input type="checkbox"/> None of the above	Comments / Other: <u>① Through entire site</u>			

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

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>30</u> % Sand	<u>30</u> % Silt	<u>40</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	------------------	------------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

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 type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>Brown</u>
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.

06/04

Stream Name & WBID # M. Fk^L Chariton # 0698

Date of Survey 10/2/08

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)
		NA			

Comments: (Please record any additional comments here.)

log jam between transects 3 & 4,
heavily eroded banks

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 Arabik + Tiffanie Hamilton

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/2/08

Organization: AE Solutions Position: Field Technician

AHC 10-14-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_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>537232</u> UTM Y: <u>4411394</u> +/- <u>28</u> (feet) 11 UTM X: <u>537213</u> UTM Y: <u>4411257</u> +/- <u>18</u> (feet) Average Stream Width: <u>3.9</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/2/2008</u> Time: <u>15:00</u> Dissolved Oxygen: <u>9.60</u> (mg/L) Dissolved Oxygen: <u>101.2</u> (% sat) Specific Cond: <u>365</u> (µS/cm) Water Temperature: <u>18.0</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	
	1	0.21	0.01	0.61	0.40	0.50	0.50	0.51	0.35	0.45	0.09	0.44	0.28	0.26	0.16	0.29	0.10	0.31	0.13	0.41	0.12	0.29	0.14
	2	0.42	0.02	1.22	0.39	1.00	0.55	1.02	0.39	0.90	0.22	0.88	0.37	0.52	0.15	0.58	0.15	0.62	0.11	0.82	0.12	0.58	0.24
	3	0.63	0.04	1.83	0.41	1.50	0.70	1.53	0.79	1.35	0.43	1.32	0.60	0.78	0.10	0.87	0.22	0.93	0.01	1.23	0.22	0.87	0.30
	4	0.84	0.04	2.44	0.46	2.00	0.82	2.04	0.84	1.80	0.47	1.76	0.75	1.04	0.05	1.16	0.37	1.24	0.12	1.64	0.23	1.16	0.41
	5	1.05	0.06	3.05	0.57	2.50	0.99	2.55	0.85	2.25	0.55	2.20	0.67	1.30	0.17	1.45	0.40	1.55	0.16	2.05	0.25	1.45	0.54
	6	1.26	0.07	3.66	0.58	3.00	0.97	3.06	0.77	2.70	0.64	2.64	0.62	1.56	0.15	1.74	0.37	1.86	0.21	2.46	0.30	1.74	0.49
	7	1.47	0.17	4.27	0.49	3.50	0.60	3.57	0.77	3.15	0.58	3.08	0.65	1.82	0.10	2.03	0.34	2.17	0.26	2.87	0.27	2.03	0.50
	8	1.68	0.12	4.88	0.45	4.00	0.51	4.08	0.50	3.60	0.35	3.52	0.45	2.08	0.04	2.32	0.33	2.48	0.21	3.28	0.24	2.32	0.38
	9	1.89	0.01	5.49	0.26	4.50	0.33	4.59	0.34	4.05	0.12	3.96	0.30	2.34	0.12	2.61	0.21	2.79	0.20	3.69	0.25	2.61	0.24
Right Bank		2.10	0.00	6.10	0.00	5.00	0.00	5.10	0.00	4.50	0.00	4.40	0.00	2.60	0.00	2.90	0.00	3.10	0.00	4.10	0.00	2.90	0.00
Feature Type <small>(riffle, run, or pool)</small>		Run		Pool		Riffle		Run		Run		Run		Run	Pool								

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: 10/2/2008

WBID # 0698
 Site # 02

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: <u>10/2/08</u> <u>1535</u>	Location Description (e.g., road crossing): <u>50m dnstream of site 1</u>
Stream Name: <u>M. Fl. L. Chariton</u>	
Current Weather Conditions: <u>Sunny + clear</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	Permit Number(s): <u>MO-8117471</u>
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): <u>0537190</u>	Northing (UTM Y): <u>4411157</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>17</u> ^{ft} Meters <u>ft</u>
Site 11	Easting (UTM X): <u>0537163</u>	Northing (UTM Y): <u>4410998</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>20</u> ^{ft} Meters <u>ft</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>087</u>	<u>upstream + cattle crossing</u>	<u>088</u>	<u>dnstream</u>		

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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

WCH

Stream Name & WBID # M. Fk. L. Chariton # 0698

Date of Survey 10/2/08

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 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: <u>private property - pasture</u>				

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 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 ^①
<input type="checkbox"/> None of the above	Comments / Other: <u>① throughout entire site</u>			

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

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>30</u> % Sand	<u>30</u> % Silt	<u>40</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	------------------	------------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>Sparse filamentous algae</u>

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 type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>Brown</u>
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.

DBH

Stream Name & WBID # M. Fk. L. Chariton

0698

Date of Survey 10/2/08

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)

NA

Comments: (Please record any additional comments here.)

Heavily eroded banks

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/2/08

Organization: AE Solutions Position: Field Technician

ANC 10-14-08

7/2/08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_02</u> Estimated Channel Incision: <u>0.30</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>537190</u> UTM Y: <u>4411157</u> +/- <u>17</u> (feet) 11 UTM X: <u>537163</u> UTM Y: <u>4410998</u> +/- <u>20</u> (feet) Average Stream Width: <u>3.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/2/2008</u> Time: <u>15:35</u> Dissolved Oxygen: <u>8.95</u> (mg/L) Dissolved Oxygen: <u>89.8</u> (% sat) Specific Cond: <u>374</u> (µS/cm) Water Temperature: <u>15.5</u> (°C)
---	---

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	0.09	0.14	0.49	0.49	0.45	0.48	0.28	0.01	0.21	0.05	0.38	0.17	0.42	0.14	0.35	0.15	0.34	0.23	0.18	0.04	0.16	0.05
	2	0.18	0.22	0.98	0.74	0.90	0.35	0.56	0.03	0.42	0.05	0.76	0.29	0.84	0.18	0.70	0.18	0.68	0.34	0.36	0.01	0.32	0.06
	3	0.27	0.20	1.47	0.72	1.35	0.46	0.84	0.06	0.63	0.07	1.14	0.38	1.26	0.13	1.05	0.21	1.02	0.35	0.54	0.02	0.48	0.09
	4	0.36	0.17	1.96	0.74	1.80	0.45	1.12	0.10	0.84	0.12	1.52	0.45	1.68	0.17	1.40	0.25	1.36	0.35	0.72	0.03	0.64	0.07
	5	0.45	0.15	2.45	0.75	2.25	0.46	1.40	0.11	1.05	0.13	1.90	0.38	2.10	0.22	1.75	0.34	1.70	0.34	0.90	0.07	0.80	0.06
	6	0.54	0.10	2.94	0.73	2.70	0.30	1.68	0.09	1.26	0.21	2.28	0.22	2.52	0.25	2.10	0.40	2.04	0.44	1.08	0.09	0.96	0.06
	7	0.63	0.05	3.43	0.41	3.15	0.40	1.96	0.03	1.47	0.14	2.66	0.20	2.94	0.25	2.45	0.47	2.38	0.35	1.26	0.02	1.12	0.06
	8	0.72	0.05	3.92	0.24	3.60	0.24	2.24	0.01	1.68	0.10	3.04	0.15	3.36	0.33	2.80	0.28	2.72	0.32	1.44	0.06	1.28	0.06
	9	0.81	0.02	4.41	0.21	4.05	0.22	2.52	0.01	1.89	0.08	3.42	0.13	3.78	0.29	3.15	0.26	3.06	0.30	1.62	0.04	1.44	0.02
Right Bank		0.90	0.00	4.90	0.00	4.50	0.00	2.80	0.00	2.10	0.00	3.80	0.00	4.20	0.00	3.50	0.00	3.40	0.00	1.80	0.00	1.60	0.00
Feature Type		Run		Pool		Pool		Run															

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: 10/2/2008

WBID # 0698

Site # 03

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: <u>10/2/08</u> <u>17:00</u>	Location Description (e.g., road crossing): <u>300-30</u> <u>300-00 m upstream of Rt 00</u> <u>350</u>
Stream Name: <u>M. Fk. L. Chariton</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Current Weather Conditions: <u>Sunny + Clear</u>	Permit Number(s): <u>MO 0117471</u>
Weather Conditions for Past 10 days: <u>0.60" rain</u>	
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): <u>0530934</u>	Northing (UTM Y): <u>44059165</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>20</u> Meters <u>74 FT</u>
Site 11	Easting (UTM X): <u>0536956</u>	Northing (UTM Y): <u>4405793</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>16</u> Meters <u>54 FT</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>092</u>	<u>upstream</u>	<u>093</u>	<u>downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # M. Fl L Chariton # 0698

Date of Survey 10/2/08

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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <u>private property - fields</u>				

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 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 checked="" type="checkbox"/> None of the above	Comments / Other:			

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

<u>—</u> % Cobble	<u>20</u> % Gravel	<u>20</u> % Sand	<u>—</u> % Silt	<u>60</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	--------------------	------------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Willows
butytic algae } abundant Sparse filamentous algae
(Trans 1+2 only)

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.

3/24

Stream Name & WBID # M. Fr. L. Chanton #0698

Date of Survey 10/2/08

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)
			RNC		
		NA			

Comments: (Please record any additional comments here.)

Pools caused by beaver dams → heavy beaver activity in area.

Heavily eroded banks.

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/2/08

Organization: AE Solutions Position: Field Technician

RNC 10-15-08

JRH

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_03</u> Estimated Channel Incision: <u>0.30</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>536934</u> UTM Y: <u>4405965</u> +/- <u>20</u> (feet) 11 UTM X: <u>536956</u> UTM Y: <u>4405793</u> +/- <u>16</u> (feet) Average Stream Width: <u>4.9</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JRH, TAH</u>	Dissolved Oxygen Date: <u>10/2/2008</u> Time: <u>17:00</u> Dissolved Oxygen: <u>10.56</u> (mg/L) Dissolved Oxygen: <u>109.6</u> (% sat) Specific Cond: <u>380</u> (µS/cm) Water Temperature: <u>17.4</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	0.20	0.06	0.33	0.15	0.34	0.16	0.52	0.24	0.54	0.06	0.64	0.29	0.44	0.02	0.42	0.28	0.54	0.12	0.68	0.32	0.73	0.21
	2	0.40	0.11	0.66	0.25	0.68	0.20	1.04	0.22	1.08	0.07	1.28	0.28	0.88	0.10	0.84	0.30	1.08	0.29	1.36	0.70	1.46	0.24
	3	0.60	0.16	0.99	0.30	1.02	0.27	1.56	0.21	1.62	0.25	1.92	0.28	1.32	0.14	1.26	0.36	1.62	0.66	2.04	0.79	2.19	0.54
	4	0.80	0.18	1.32	0.32	1.36	0.33	2.08	0.22	2.16	0.27	2.56	0.32	1.76	0.23	1.68	0.44	2.16	0.53	2.72	0.69	2.92	0.57
	5	1.00	0.19	1.65	0.22	1.70	0.40	2.60	0.24	2.70	0.25	3.20	0.30	2.20	0.39	2.10	0.55	2.70	0.49	3.40	0.40	3.65	0.57
	6	1.20	0.20	1.98	0.17	2.04	0.34	3.12	0.22	3.24	0.24	3.84	0.32	2.64	0.39	2.52	0.56	3.24	0.50	4.08	0.33	4.38	0.56
	7	1.40	0.15	2.31	0.11	2.38	0.25	3.64	0.22	3.78	0.25	4.48	0.26	3.08	0.37	2.94	0.52	3.78	0.43	4.76	0.29	5.11	0.55
	8	1.60	0.10	2.64	0.13	2.72	0.02	4.16	0.22	4.32	0.29	5.12	0.25	3.52	0.36	3.36	0.54	4.32	0.29	5.44	0.24	5.84	0.52
	9	1.80	0.07	2.97	0.10	3.06	0.23	4.68	0.25	4.86	0.26	5.76	0.34	3.96	0.34	3.78	0.55	4.86	0.23	6.12	0.15	6.57	0.59
Right Bank		2.00	0.00	3.30	0.00	3.40	0.00	5.20	0.00	5.40	0.00	6.40	0.00	4.40	0.00	4.20	0.34	5.40	0.00	6.80	0.00	7.30	0.00
Feature Type <small>(riffle, run, or pool)</small>		Run		Pool																			

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: 10/2/2008

WBID # 0698
 Site # 04

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: <u>10/2/08</u> <u>1615</u>	Location Description (e.g., road crossing):
Stream Name: <u>M. Fk. L. Chautau.</u>	<u>150m upstream of Rt 00</u>
Current Weather Conditions: <u>Sunny + clear</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Weather Conditions for Past 10 days: <u>0.63" rain</u>	Permit Number(s): <u>MO 0117471</u>
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): <u>0536913</u>	Northing (UTM Y): <u>4405691</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>16</u> ^{<u>2724</u>} <u>Meters</u> <u>ft</u>
Site 11	Easting (UTM X): <u>0536830</u>	Northing (UTM Y): <u>4405567</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>27</u> ^{<u>2724</u>} <u>Meters</u> <u>ft</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>089</u>	<u>drainage tube</u>	<u>090</u>	<u>upstream</u>	<u>091</u>	<u>dnstream</u>
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

2724

Stream Name & WBID # MFR L. Chavitan# 0698Date of Survey 10/2/08Site # 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 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: <u>private property - fields</u>				

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%.)

<u>—</u> % Cobble	<u>15</u> % Gravel	<u>25</u> % Sand	<u>—</u> % Silt	<u>60</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	--------------------	------------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>Benthic Algae - abundant</u>

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.

Stream Name & WBID # M Fl L Chariton #0698

Date of Survey 10/2/08

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)

ANC
NA

Comments: (Please record any additional comments here.)

Beaver dam between transects 9 & 10 causing pools at transects ~~8~~¹-9.
Heavily eroded banks.
A lot of woody debris in stream.

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Jennifer Hrabik

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/2/08

Organization: AE Solutions Position: Field Technician

ANC 10-15-08

JRH

WBID # 0698

Site # 05

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: <u>10/3/08</u> <u>09:33</u>	Location Description (e.g., road crossing):
Stream Name: <u>M R N Chariton R.</u>	<u>Horseshoe Ave Crossing</u>
Current Weather Conditions: <u>clear, sunny, cool</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	Permit Number(s): <u>MO 0117471</u>
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): <u>0535222</u>	Northing (UTM Y): <u>4403560</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>18</u> ^{Meters} <u>FT</u>
Site 11	Easting (UTM X): <u>0535135</u>	Northing (UTM Y): <u>4403415</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>19</u> ^{Meters} <u>FT</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>94</u>	<u>up stream</u>	<u>95</u>	<u>down stream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

rlh

Stream Name & WBID # M. Fl. L. Chariton0698Date of Survey 10/3/08Site # 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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <u>Private Property, Agricultural.</u>				

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%.)

<u>—</u> % Cobble	<u>5</u> % Gravel	<u>95</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	------------------	-----------------	---------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>Benthic algae - sparse</u>

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.

Stream Name & WBID # MFL Chariton 0698

Date of Survey 10/3/08

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)

NA RUC

Comments: (Please record any additional comments here.)

NA RUC

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Renee Martin

Surveyor's Signature: Tiffanie Hamilton Date of Survey: 10/3/08

Organization: AE Solutions Position: Field Technician

RUC 10-15-08

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

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_05</u> Estimated Channel Incision: <u>4.00</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>535222</u> UTM Y: <u>4403560</u> +/- <u>18</u> (feet) 11 UTM X: <u>535135</u> UTM Y: <u>4403415</u> +/- <u>19</u> (feet) Average Stream Width: <u>5.1</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>TAH, RM</u>	Dissolved Oxygen Date: <u>10/3/2008</u> Time: <u>9:33</u> Dissolved Oxygen: <u>8.49</u> (mg/L) Dissolved Oxygen: <u>79.6</u> (% sat) Specific Cond: <u>299</u> (µS/cm) Water Temperature: <u>12.5</u> (°C)
--	--

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		0.50	0.30	0.21	0.02	0.77	0.20	0.23	0.05	0.38	0.01	0.38	0.13	0.42	0.16	0.63	0.02	0.73	0.04	0.70	0.01	0.68	0.20
2		1.00	0.42	0.42	0.03	1.54	0.32	0.46	0.10	0.76	0.01	0.76	0.15	0.84	0.08	1.26	0.02	1.46	0.05	1.40	0.01	1.36	0.22
3		1.50	0.40	0.63	0.10	2.31	0.33	0.69	0.15	1.14	0.01	1.14	0.13	1.26	0.02	1.89	0.05	2.19	0.01	2.10	0.05	2.04	0.25
4		2.00	0.35	0.84	0.12	3.08	0.35	0.92	0.18	1.52	0.10	1.52	0.13	1.68	0.02	2.52	0.02	2.92	0.00	2.80	0.08	2.72	0.30
5		2.50	0.29	1.05	0.15	3.85	0.33	1.15	0.20	1.90	0.12	1.90	0.12	2.10	0.02	3.15	0.01	3.65	0.00	3.50	0.01	3.40	0.32
6		3.00	0.19	1.26	0.21	4.62	0.33	1.38	0.18	2.28	0.13	2.28	0.08	2.52	0.08	3.78	0.00	4.38	0.00	4.20	0.01	4.08	0.31
7		3.50	0.15	1.47	0.21	5.39	0.33	1.61	0.10	2.66	0.15	2.66	0.02	2.94	0.10	4.41	0.00	5.11	0.01	4.90	0.10	4.76	0.27
8		4.00	0.15	1.68	0.18	6.16	0.33	1.84	0.17	3.04	0.10	3.04	0.01	3.36	0.05	5.04	0.01	5.84	0.01	5.60	0.13	5.44	0.22
9		4.50	0.02	1.89	0.11	6.93	0.30	2.07	0.08	3.42	0.01	3.42	0.01	3.78	0.02	5.67	0.05	6.57	0.01	6.30	0.20	6.12	0.12
Right Bank		5.00	0.00	2.10	0.00	7.70	0.00	2.30	0.00	3.80	0.00	3.80	0.00	4.20	0.00	6.30	0.00	7.30	0.00	7.00	0.00	6.80	0.00
Feature Type		Pool		Run		Pool		Run		Run		Run		Riffle		Run		Riffle		Run		Pool	

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: 10/3/2008

WBID # 0698
 Site # 06

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: <u>10/3/08</u> <u>10:28</u>	Location Description (e.g., road crossing):
Stream Name: <u>M. Fk. Chariton</u>	<u>Hickory Ave crossing</u>
Current Weather Conditions: <u>clear, sunny, cool.</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	Permit Number(s): <u>MO 0117471</u>
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): <u>0534530</u>	Northing (UTM Y): <u>4401357</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>15</u> ²⁷⁴ Meters <u>FT</u>
Site 11	Easting (UTM X): <u>0534520</u>	Northing (UTM Y): <u>4401163</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>18</u> ²⁷⁴ Meters <u>FT</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>96</u>	<u>upstream</u>	<u>97</u>	<u>downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Handwritten mark

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 checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <u>Private property - Agricultural</u>				

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%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>30</u> % Sand	<u>—</u> % Silt	<u>70</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	------------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>Benthic algae - sparse</u>

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.

Stream Name & WBID # M. Fl L. Chariton 0698

Date of Survey 10/3/08

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.)

6" pipe underwater/buried between Transects 10 + 11 - photo not taken.

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Renee Martin

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/3/08

Organization: AE Solutions Position: Field Technician

RUC 10-15-08

Handwritten initials

WBID # 0698
 Site # 07

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: <u>10/3/08</u> <u>11:14</u>	Location Description (e.g., road crossing):
Stream Name: <u>M. Fk. L. Chariton</u>	<u>Old Hwy 36 Crossing</u>
Current Weather Conditions: <u>clear, sunny</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	Permit Number(s): <u>MO 0117471</u>
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): <u>0534344</u>	Northing (UTM Y): <u>4400585</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>19</u> Meters ⁷⁴ <u>FA</u>
Site 11	Easting (UTM X): <u>0534305</u>	Northing (UTM Y): <u>4400394</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>15</u> Meters ⁷⁴ <u>FA</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>98</u>	<u>upstream</u>	<u>99</u>	<u>downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # M. Pl. L. Chariton 0698
 Site # 07

Date of Survey 10/3/08

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 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 checked="" 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%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>70</u> % Sand	<u>—</u> % Silt	<u>30</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	------------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae - moderate

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.

Stream Name & WBID # M. FK L. Chariton 0698

Date of Survey 10/31/08

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)

NA RUC

Comments: (Please record any additional comments here.)

NA RUC

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

Printed Names of Personnel Collecting Data: Tiffani Hamilton, Renee Martin

Surveyor's Signature: Tiffani A. Hamilton Date of Survey: 10/31/08

Organization: AE Solutions Position: Field Technician

RUC 10-15-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_07</u> Estimated Channel Incision: <u>3.50</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>534344</u> UTM Y: <u>4400585</u> +/- <u>19</u> (feet) 11 UTM X: <u>534305</u> UTM Y: <u>4400394</u> +/- <u>15</u> (feet) Average Stream Width: <u>7.6</u> (meters) Length of Survey Segment: <u>152</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>TAH, RM</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/3/2008</u> Time: <u>11:14</u> Dissolved Oxygen: <u>10.96</u> (mg/L) Dissolved Oxygen: <u>104.6</u> (% sat) Specific Cond: <u>329</u> (µS/cm) Water Temperature: <u>13.9</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	
	1	0.70	0.05	0.37	0.10	0.73	0.10	0.83	0.30	0.74	0.18	0.83	0.22	0.94	0.05	0.41	0.02	0.93	0.05	0.87	0.30	1.01	0.30
	2	1.40	0.11	0.74	0.10	1.46	0.12	1.66	0.38	1.48	0.15	1.66	0.25	1.88	0.10	0.82	0.12	1.86	0.08	1.74	0.25	2.02	0.30
	3	2.10	0.15	1.11	0.10	2.19	0.00	2.49	0.28	2.22	0.15	2.49	0.20	2.82	0.18	1.23	0.12	2.79	0.10	2.61	0.20	3.03	0.30
	4	2.80	0.15	1.48	0.10	2.92	0.01	3.32	0.18	2.96	0.18	3.32	0.20	3.76	0.11	1.64	0.12	3.72	0.10	3.48	0.20	4.04	0.15
	5	3.50	0.13	1.85	0.10	3.65	0.03	4.15	0.15	3.70	0.25	4.15	0.25	4.70	0.12	2.05	0.15	4.65	0.05	4.35	0.30	5.05	0.00
	6	4.20	0.10	2.22	0.10	4.38	0.05	4.98	0.25	4.44	0.31	4.98	0.30	5.64	0.15	2.46	0.15	5.58	0.10	5.22	0.35	6.06	0.00
	7	4.90	0.10	2.59	0.05	5.11	0.10	5.81	0.25	5.18	0.40	5.81	0.30	6.58	0.15	2.87	0.15	6.51	0.10	6.09	0.38	7.07	0.22
	8	5.60	0.02	2.96	0.05	5.84	0.10	6.64	0.25	5.92	0.32	6.64	0.25	7.52	0.10	3.28	0.12	7.44	0.01	6.96	0.42	8.08	0.30
	9	6.30	0.01	3.33	0.01	6.57	0.02	7.47	0.20	6.66	0.18	7.47	0.22	8.46	0.12	3.69	0.10	8.37	0.01	7.83	0.44	9.09	0.01
Right Bank		7.00	0.00	3.70	0.00	7.30	0.00	8.30	0.00	7.40	0.00	8.30	0.00	9.40	0.00	4.10	0.00	9.30	0.00	8.70	0.00	10.10	0.00
Feature Type <small>(riffle, run, or pool)</small>		Run	Run	Riffle	Run	Run	Run	Riffle	Run	Run	Run	Run											

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: 10/3/2008

WBID # 0698
 Site # 08

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: <u>10/3/08</u> <u>11:47</u>	Location Description (e.g., road crossing): <u>Harvest Rd Crossing</u>
Stream Name: <u>M. Pl. C. Chariton</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Current Weather Conditions: <u>Sunny, clear</u>	Permit Number(s): <u>MD 0117471</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	
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): <u>0533573</u>	Northing (UTM Y): <u>4398940</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>218 13⁷⁴ Meters-FT</u>
Site 11	Easting (UTM X): <u>0533569</u>	Northing (UTM Y): <u>4398726</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>212 18⁷⁴ Meters-FT</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>100</u>	<u>upstream</u>	<u>101</u>	<u>downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

724

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 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%.)

<u>—</u> % Cobble	<u>15</u> % Gravel	<u>80</u> % Sand	<u>—</u> % Silt	<u>5</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	--------------------	------------------	-----------------	---------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

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 checked="" type="checkbox"/> Other: <u>HA</u>
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 checked="" type="checkbox"/> Other: <u>Ferrous oxide</u>
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.

Stream Name & WBID # M. Fl. L. Chariton 0698

Date of Survey 10/3/08

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.)

NA

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Renee Martin

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/3/08

Organization: AE Solutions Position: Field Technician

RNC 10-15-08

TH

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_08</u> Estimated Channel Incision: <u>3.50</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>533573</u> UTM Y: <u>4398940</u> +/- <u>13</u> (feet) 11 UTM X: <u>533569</u> UTM Y: <u>4398726</u> +/- <u>18</u> (feet) Average Stream Width: <u>7.6</u> (meters) Length of Survey Segment: <u>152</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>TAH, RM</u>	Dissolved Oxygen
	Date: <u>10/3/2008</u> Time: <u>11:47</u>
	Dissolved Oxygen: <u>8.04</u> (mg/L)
	Dissolved Oxygen: <u>78.0</u> (% sat)
	Specific Cond: <u>415</u> (µS/cm)
	Water Temperature: <u>13.0</u> (°C)

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		1.02	0.41	1.09	0.22	0.48	0.01	0.77	0.40	0.47	0.22	0.36	0.25	0.75	0.32	0.90	0.38	1.10	0.32	0.96	0.37	0.48	0.16
2		2.04	0.33	2.18	0.20	0.96	0.10	1.54	0.35	0.94	0.20	0.72	0.20	1.50	0.20	1.80	0.45	2.20	0.25	1.92	0.42	0.96	0.12
3		3.06	0.30	3.27	0.21	1.44	0.08	2.31	0.33	1.41	0.11	1.08	0.18	2.25	0.20	2.70	0.45	3.30	0.32	2.88	0.40	1.44	0.01
4		4.08	0.42	4.36	0.30	1.92	0.13	3.08	0.32	1.88	0.01	1.44	0.18	3.00	0.10	3.60	0.45	4.40	0.40	3.84	0.40	1.92	0.01
5		5.10	0.30	5.45	0.36	2.40	0.10	3.85	0.25	2.35	0.01	1.80	0.18	3.75	0.01	4.50	0.40	5.50	0.42	4.80	0.45	2.40	0.01
6		6.12	0.35	6.54	0.40	2.88	0.10	4.62	0.25	2.82	0.08	2.16	0.15	4.50	0.15	5.40	0.30	6.60	0.45	5.76	0.45	2.88	0.05
7		7.14	0.35	7.63	0.44	3.36	0.15	5.39	0.20	3.29	0.02	2.52	0.05	5.25	0.20	6.30	0.30	7.70	0.45	6.72	0.46	3.36	0.10
8		8.16	0.40	8.72	0.40	3.84	0.17	6.16	0.05	3.76	0.01	2.88	0.02	6.00	0.16	7.20	0.32	8.80	0.49	7.68	0.41	3.84	0.01
9		9.18	0.35	9.81	0.40	4.32	0.15	6.93	0.02	4.23	0.01	3.24	0.01	6.75	0.25	8.10	0.30	9.90	0.45	8.64	0.30	4.32	0.05
Right Bank		10.20	0.00	10.90	0.00	4.80	0.00	7.70	0.00	4.70	0.00	3.60	0.00	7.50	0.00	9.00	0.00	11.00	0.00	9.60	0.00	4.80	0.00
Feature Type		Run	Run	Riffle	Run	Riffle	Run	Riffle	Run	Run	Riffle	Run	Riffle										

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: 10/3/2008

WBID # 0698

Site # 09

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: <u>10/13/08</u> <u>12:58</u>	Location Description (e.g., road crossing): <u>250 m upstream of Greyhound Rd crossing</u>
Stream Name: <u>M. Fk. L. Chauiron</u>	Facility Name(s): <u>Dix Maple Hill Landfill</u>
Current Weather Conditions: <u>clear sunny</u>	Permit Number(s): <u>MO 0117471</u>
Weather Conditions for Past 10 days: <u>0.62" of rain</u>	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): <u>0532⁸²³₇₄</u>	Northing (UTM Y): <u>4395⁷⁴¹₄₈₂</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>15⁷⁴₇₄ Meters FT</u>
Site 11	Easting (UTM X): <u>0532²³₈₃₄</u>	Northing (UTM Y): <u>4395⁹³⁸₄₈₂</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>22⁷⁴₇₄ Meters FT</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>105</u>	<u>downstream</u>	<u>106</u>	<u>upstream</u>		

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 Data Sheet D- Recreational Use Interview when conducting interviews.)

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 checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:

Comments:
Private Property - Agricultural

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 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 checked="" type="checkbox"/> None of the above	Comments / Other:			

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

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>30</u> % Sand	<u>—</u> % Silt	<u>70</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	------------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

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.

Stream Name & WBID # M Fk. L. Chariton 0698 Date of Survey 10/3/08
 Site # 24 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.)

NA

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

Printed Names of Personnel Collecting Data: Tiffany Hamilton, Renee Martin

Surveyor's Signature: Tiffany A. Hamilton Date of Survey: 10/3/08

Organization: AE Solutions Position: Field Technician

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_09</u> Estimated Channel Incision: <u>4.00</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>532823</u> UTM Y: <u>4395741</u> +/- <u>15</u> (feet) 11 UTM X: <u>532823</u> UTM Y: <u>4395938</u> +/- <u>22</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>TAH, RM</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/3/2008</u> Time: <u>12:58</u> Dissolved Oxygen: <u>6.43</u> (mg/L) Dissolved Oxygen: <u>63.7</u> (% sat) Specific Cond: <u>452</u> (µS/cm) Water Temperature: <u>14.9</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	
	1	1.22	>1.00	1.21	>1.00	1.21	>1.00	1.18	>1.00	1.19	>1.00	1.20	>1.00	1.20	>1.00	1.19	>1.00	1.22	>1.00	1.21	>1.00	1.18	>1.00
	2	2.44	>1.00	2.42	>1.00	2.42	>1.00	2.36	>1.00	2.38	>1.00	2.40	>1.00	2.40	>1.00	2.38	>1.00	2.44	>1.00	2.42	>1.00	2.36	>1.00
	3	3.66	>1.00	3.63	>1.00	3.63	>1.00	3.54	>1.00	3.57	>1.00	3.60	>1.00	3.60	>1.00	3.57	>1.00	3.66	>1.00	3.63	>1.00	3.54	>1.00
	4	4.88	>1.00	4.84	>1.00	4.84	>1.00	4.72	>1.00	4.76	>1.00	4.80	>1.00	4.80	>1.00	4.76	>1.00	4.88	>1.00	4.84	>1.00	4.72	>1.00
	5	6.10	>1.00	6.05	>1.00	6.05	>1.00	5.90	>1.00	5.95	>1.00	6.00	>1.00	6.00	>1.00	5.95	>1.00	6.10	>1.00	6.05	>1.00	5.90	>1.00
	6	7.32	>1.00	7.26	>1.00	7.26	>1.00	7.08	>1.00	7.14	>1.00	7.20	>1.00	7.20	>1.00	7.14	>1.00	7.32	>1.00	7.26	>1.00	7.08	>1.00
	7	8.54	>1.00	8.47	>1.00	8.47	>1.00	8.26	>1.00	8.33	>1.00	8.40	>1.00	8.40	>1.00	8.33	>1.00	8.54	>1.00	8.47	>1.00	8.26	>1.00
	8	9.76	>1.00	9.68	>1.00	9.68	>1.00	9.44	>1.00	9.52	>1.00	9.60	>1.00	9.60	>1.00	9.52	>1.00	9.76	>1.00	9.68	>1.00	9.44	>1.00
	9	10.98	>1.00	10.89	>1.00	10.89	>1.00	10.62	>1.00	10.71	>1.00	10.80	>1.00	10.80	>1.00	10.71	>1.00	10.98	>1.00	10.89	>1.00	10.62	>1.00
Right Bank		12.20	0.00	12.10	0.00	12.10	0.00	11.80	0.00	11.90	0.00	12.00	0.00	12.00	0.00	11.90	0.00	12.20	0.00	12.10	0.00	11.80	0.00
Feature Type		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

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: 10/3/2008

WBID # 0698

Site # 10

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: <u>10/3/08</u> <u>12:30</u>	Location Description (e.g., road crossing): <u>500 m downstream of Greyhound Rd crossing</u>
Stream Name: <u>M Flk L. Chariton</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Current Weather Conditions: <u>sunny, clear</u>	Permit Number(s): <u>MD 0117471</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	
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): <u>0532823⁵⁵</u>	Northing (UTM Y): <u>4395744⁴⁸²</u>	Horizontal Accuracy: <u>16</u> Meters <u>24</u> Ft	(EPE / FOM / PDOP)	
Site 11	Easting (UTM X): <u>0532829</u>	Northing (UTM Y): <u>4395732⁶⁸²</u>	Horizontal Accuracy: <u>17</u> Meters <u>24</u> Ft	(EPE / FOM / PDOP)	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>102</u>	<u>downstream</u>	<u>103</u>	<u>upstream</u>	<u>104</u>	<u>Private wetland</u>
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

JCH

Stream Name & WBID # M Fr L Chariton 0698

Date of Survey 10/3/08

Site # 09 10
7H

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 checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: ①

Comments:

① Private wetland on both banks ^{down} ~~up~~ stream
Private Property / Agricultural / Hunting land

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 <u>Other</u> hunting area			

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

— % Cobble	— % Gravel	30 % Sand	— % Silt	70 % Mud/Clay	— % Bedrock
------------	------------	-----------	----------	---------------	-------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

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.

7H

Stream Name & WBID # M. Fk^L Chariton

0698

Date of Survey 10/3/08

Site # 09 10
na

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)

NA

Comments: (Please record any additional comments here.)

NA

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Renee Martin

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/3/08

Organization: AE Solutions Position: Field Technician

ARC: 10-15-08

REN

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698_10</u> Estimated Channel Incision: <u>4.00</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>532855</u> UTM Y: <u>4395482</u> +/- <u>16</u> (feet) 11 UTM X: <u>532829</u> UTM Y: <u>4395682</u> +/- <u>17</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>TAH, RM</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/3/2008</u> Time: <u>12:30</u> Dissolved Oxygen: <u>6.76</u> (mg/L) Dissolved Oxygen: <u>67.4</u> (% sat) Specific Cond: <u>453</u> (µS/cm) Water Temperature: <u>14.6</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	
	1	1.21	>1.00	1.20	>1.00	1.17	>1.00	1.16	>1.00	1.19	>1.00	1.21	>1.00	1.22	>1.00	1.23	>1.00	1.24	>1.00	1.20	>1.00	1.21	>1.00
	2	2.42	>1.00	2.40	>1.00	2.34	>1.00	2.32	>1.00	2.38	>1.00	2.42	>1.00	2.44	>1.00	2.46	>1.00	2.48	>1.00	2.40	>1.00	2.42	>1.00
	3	3.63	>1.00	3.60	>1.00	3.51	>1.00	3.48	>1.00	3.57	>1.00	3.63	>1.00	3.66	>1.00	3.69	>1.00	3.72	>1.00	3.60	>1.00	3.63	>1.00
	4	4.84	>1.00	4.80	>1.00	4.68	>1.00	4.64	>1.00	4.76	>1.00	4.84	>1.00	4.88	>1.00	4.92	>1.00	4.96	>1.00	4.80	>1.00	4.84	>1.00
	5	6.05	>1.00	6.00	>1.00	5.85	>1.00	5.80	>1.00	5.95	>1.00	6.05	>1.00	6.10	>1.00	6.15	>1.00	6.20	>1.00	6.00	>1.00	6.05	>1.00
	6	7.26	>1.00	7.20	>1.00	7.02	>1.00	6.96	>1.00	7.14	>1.00	7.26	>1.00	7.32	>1.00	7.38	>1.00	7.44	>1.00	7.20	>1.00	7.26	>1.00
	7	8.47	>1.00	8.40	>1.00	8.19	>1.00	8.12	>1.00	8.33	>1.00	8.47	>1.00	8.54	>1.00	8.61	>1.00	8.68	>1.00	8.40	>1.00	8.47	>1.00
	8	9.68	>1.00	9.60	>1.00	9.36	>1.00	9.28	>1.00	9.52	>1.00	9.68	>1.00	9.76	>1.00	9.84	>1.00	9.92	>1.00	9.60	>1.00	9.68	>1.00
	9	10.89	>1.00	10.80	>1.00	10.53	>1.00	10.44	>1.00	10.71	>1.00	10.89	>1.00	10.98	>1.00	11.07	>1.00	11.16	>1.00	10.80	>1.00	10.89	>1.00
Right Bank		12.10	0.00	12.00	0.00	11.70	0.00	11.60	0.00	11.90	0.00	12.10	0.00	12.20	0.00	12.30	0.00	12.40	0.00	12.00	0.00	12.10	0.00
Feature Type <small>(riffle, run, or pool)</small>		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

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: 10/3/2008

WBID # 0698

Site # 11

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: <u>10/3/08</u> <u>1332</u>	Location Description (e.g., road crossing):
Stream Name: <u>M. Pt. L. Chariton</u>	<u>Granger Rd crossing</u>
Current Weather Conditions: <u>sunny, clear</u>	Facility Name(s): <u>Onyx Maple Hill Landfill</u>
Weather Conditions for Past 10 days: <u>0.62" rain</u>	Permit Number(s): <u>MO 0117471</u>
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): <u>0533206</u>	Northing (UTM Y): <u>4391679</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>18</u> Meters ²⁴ <u>FF</u>
Site 11	Easting (UTM X): <u>0533301</u>	Northing (UTM Y): <u>4391503</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>20</u> Meters ²⁴ <u>FF</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>107</u>	<u>upstream</u>	<u>108</u>	<u>downstream</u>		

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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

JRW

Stream Name & WBID # M. Pk. L. Chariton0698Date of Survey 10/3/08Site # 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 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 checked="" type="checkbox"/> Other: ①
Comments: <u>Leased MDC land from MA U.S. COE – Thomas Hill Reservoir</u>				

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%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>5</u> % Sand	<u>—</u> % Silt	<u>95</u> % Mud/Clay	<u>—</u> % Bedrock
-------------------	-------------------	-----------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>none</u>

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.

Stream Name & WBID # M. Fl. L. Chariton 0698

Date of Survey 10/3/08

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)

NA

Comments: (Please record any additional comments here.)

Ginger Rd closed due to flooding.
Surrounding area flooded with standing water.

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

Printed Names of Personnel Collecting Data: Tiffanie Hamilton, Renee Martin

Surveyor's Signature: Tiffanie A. Hamilton Date of Survey: 10/3/08

Organization: AE Solutions Position: Field Technician

BYUC 10-15-08

OK

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>M. Fk. L. Chariton</u> Waterbody ID: <u>0698</u> Site #: <u>0698 11</u> Estimated Channel Incision: <u>1.50</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>533206</u> UTM Y: <u>4391679</u> +/- <u>18</u> (feet) 11 UTM X: <u>533301</u> UTM Y: <u>4391503</u> +/- <u>20</u> (feet) Average Stream Width: <u>12.8</u> (meters) Length of Survey Segment: <u>255</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>TAH, RM</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/3/2008</u> Time: <u>13:32</u> Dissolved Oxygen: <u>6.28</u> (mg/L) Dissolved Oxygen: <u>64.1</u> (% sat) Specific Cond: <u>356</u> (µS/cm) Water Temperature: <u>16.3</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	
	1	1.27	0.60	1.24	0.57	1.21	0.30	1.20	0.50	1.30	0.38	1.54	0.48	1.41	0.37	1.21	0.61	1.23	0.54	1.20	0.38	1.22	0.55
	2	2.54	>1.00	2.48	0.98	2.42	0.55	2.40	0.75	2.60	0.75	3.08	>1.00	2.82	0.72	2.42	0.89	2.46	0.87	2.40	0.69	2.44	0.79
	3	3.81	>1.00	3.72	>1.00	3.63	0.90	3.60	0.50	3.90	0.90	4.62	>1.00	4.23	>1.00	3.63	>1.00	3.69	0.99	3.60	0.93	3.66	>1.00
	4	5.08	>1.00	4.96	>1.00	4.84	>1.00	4.80	0.90	5.20	>1.00	6.16	>1.00	5.64	>1.00	4.84	>1.00	4.92	>1.00	4.80	>1.00	4.88	>1.00
	5	6.35	>1.00	6.20	>1.00	6.05	>1.00	6.00	>1.00	6.50	>1.00	7.70	>1.00	7.05	>1.00	6.05	>1.00	6.15	>1.00	6.00	>1.00	6.10	>1.00
	6	7.62	>1.00	7.44	>1.00	7.26	>1.00	7.20	>1.00	7.80	>1.00	9.24	>1.00	8.46	>1.00	7.26	>1.00	7.38	>1.00	7.20	>1.00	7.32	>1.00
	7	8.89	>1.00	8.68	>1.00	8.47	0.98	8.40	>1.00	9.10	>1.00	10.78	>1.00	9.87	>1.00	8.47	>1.00	8.61	>1.00	8.40	>1.00	8.54	>1.00
	8	10.16	>1.00	9.92	>1.00	9.68	0.70	9.60	0.85	10.40	0.77	12.32	0.72	11.28	0.88	9.68	>1.00	9.84	0.92	9.60	0.88	9.76	0.93
	9	11.43	0.60	11.16	0.79	10.89	0.45	10.80	0.62	11.70	0.51	13.86	0.36	12.69	0.59	10.89	0.72	11.07	0.71	10.80	0.61	10.98	0.77
Right Bank		12.70	0.00	12.40	0.00	12.10	0.00	12.00	0.00	13.00	0.00	15.40	0.00	14.10	0.00	12.10	0.00	12.30	0.00	12.00	0.00	12.20	0.00
Feature Type <small>(riffle, run, or pool)</small>		Run	Run	Run	Run	Run	Run	Run	Run	Run	Pool	Pool	Run	Run									

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: 10/3/2008

WBID: 0098

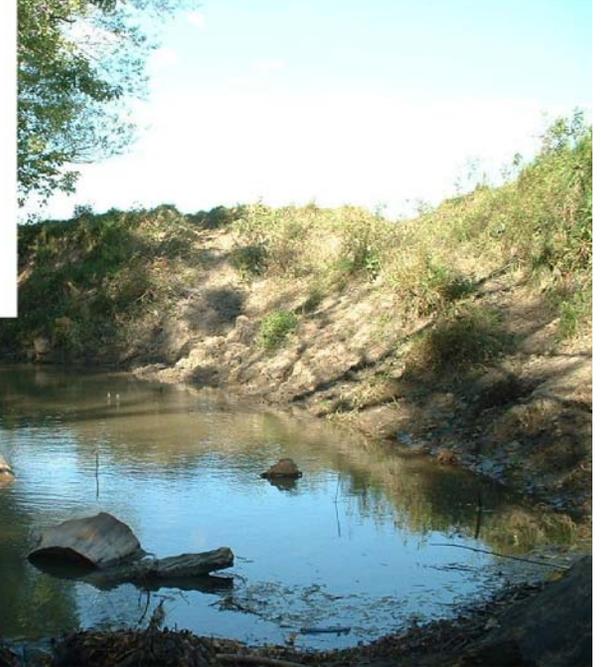


SITE: 01

Downstream



WBID: 0098



SITE: 02

Upstream; cattle watering



WBID: 0098



SITE: 01

Upstream; fence



WBID: 0098



SITE: 01

Cattle watering



WBID: 0098



SITE: 03

Upstream



WBID: 0098



SITE: 04

Drainage tube



WBID: 0098

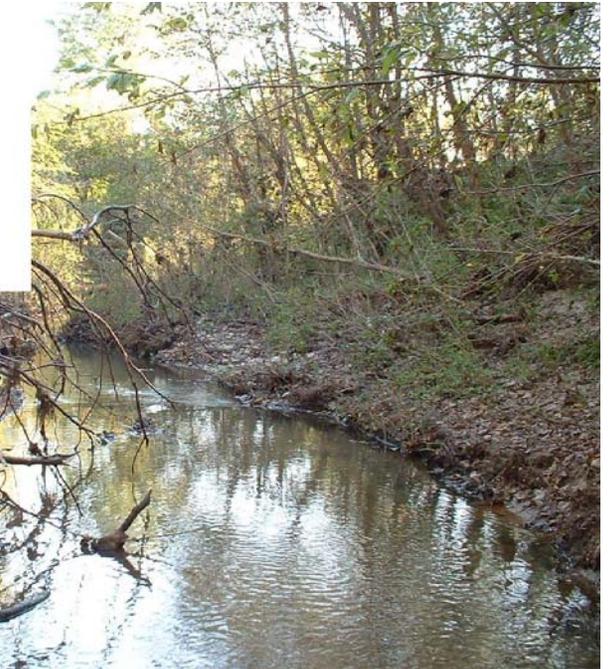


SITE: 02

Downstream



WBID: 0098



SITE: 03

Downstream



WBID: 0698

SITE: 04

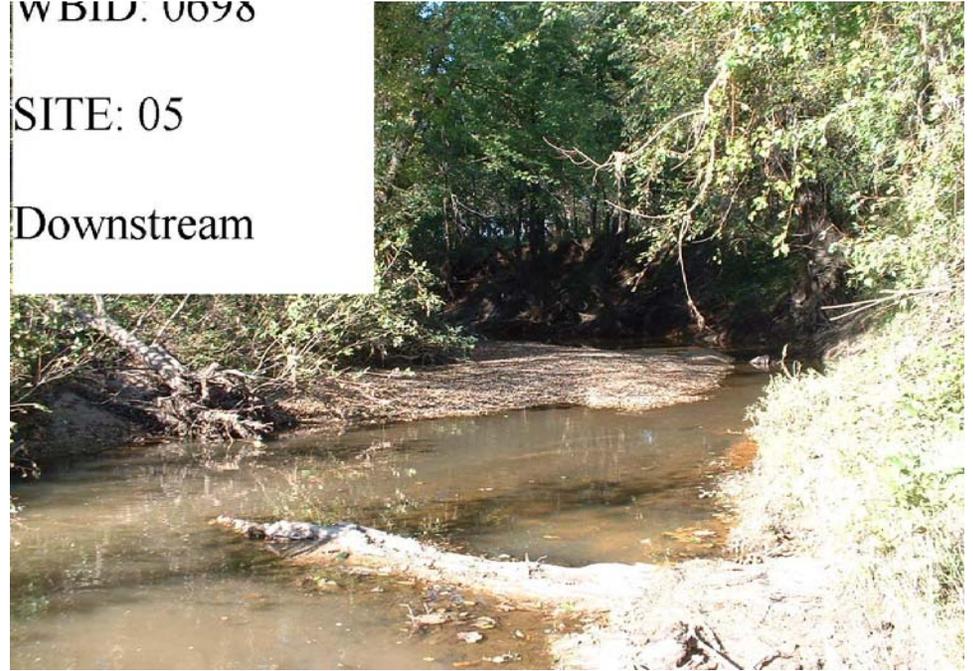
Downstream



WBID: 0698

SITE: 05

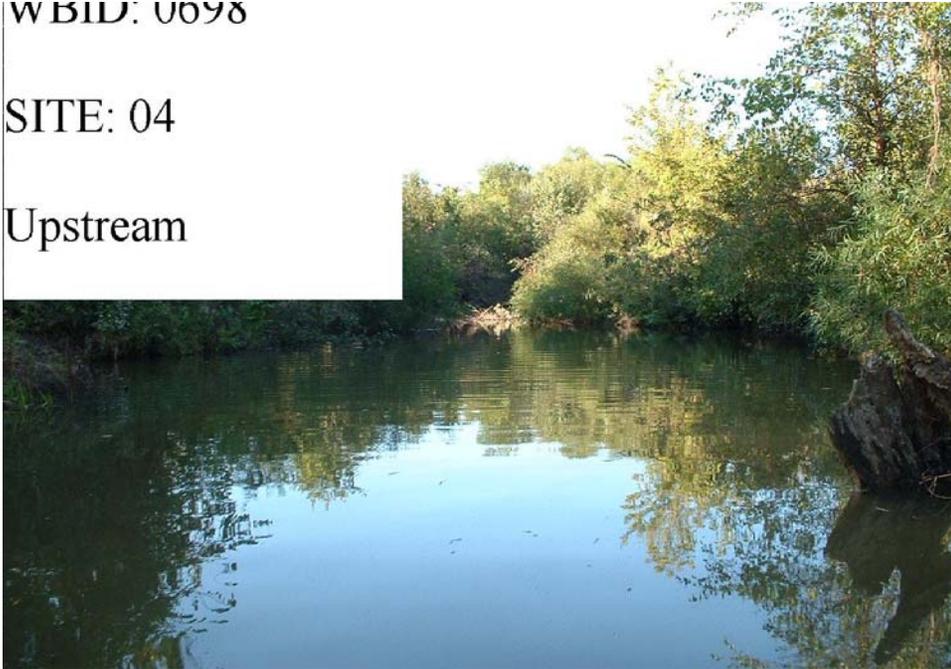
Downstream



WBID: 0698

SITE: 04

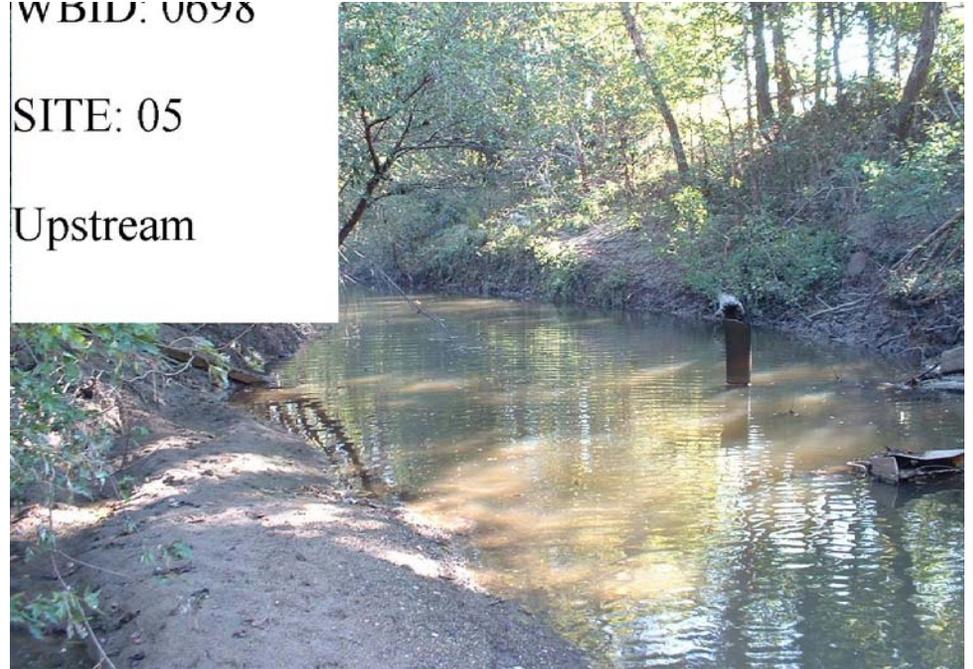
Upstream



WBID: 0698

SITE: 05

Upstream



WBID: 0098



SITE: 06

Downstream



WBID: 0098



SITE: 07

Downstream



WBID: 0098



SITE: 06

Upstream



WBID: 0098



SITE: 07

Upstream



WBID: 0098



SITE: 08

Downstream



WBID: 0098



SITE: 09

Upstream



WBID: 0098



SITE: 08

Upstream



WBID: 0098



SITE: 09

Downstream



WBID: 0098

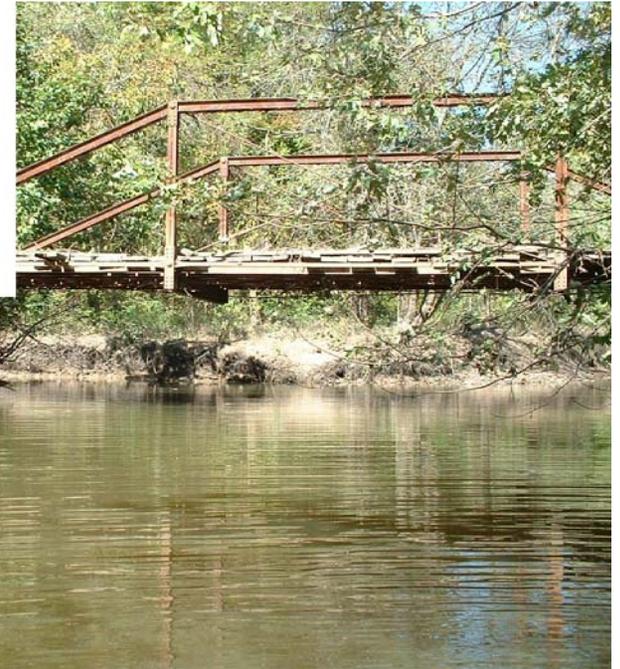


SITE: 10

Upstream



WBID: 0098



SITE: 11

Upstream



WBID: 0098



SITE: 10

Downstream



WBID: 0098



SITE: 10

Private Wetland



WBID: 0698

SITE: 11

Downstream

