



Use Attainability Analysis

for

WBID 0376 Crooked River

Submitted by
SES, Inc.

To
Missouri Department of Natural Resources
Water Protection Program

On

October 14, 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): Crooked River
Missouri Water Body Identification (WBID) Number: 376
8-digit HUC: 10300101
County(ies), Listed Upstream to Downstream: Clinton, Caldwell
Upstream Legal Description (from Table H): T55N R30W Sec 25
Downstream Legal Description (from Table H): T55N R29W Sec 34
Number of sites evaluated: 5
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3, 4, 5
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): Trex Mart #3 MO0123731
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III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Gilisa Gould	Telephone Number: 913-307-0046
Organization/Employer: SES, Inc.	

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

Signed: Gilisa Gould **Date:** 9-02-08

376 Crooked R.

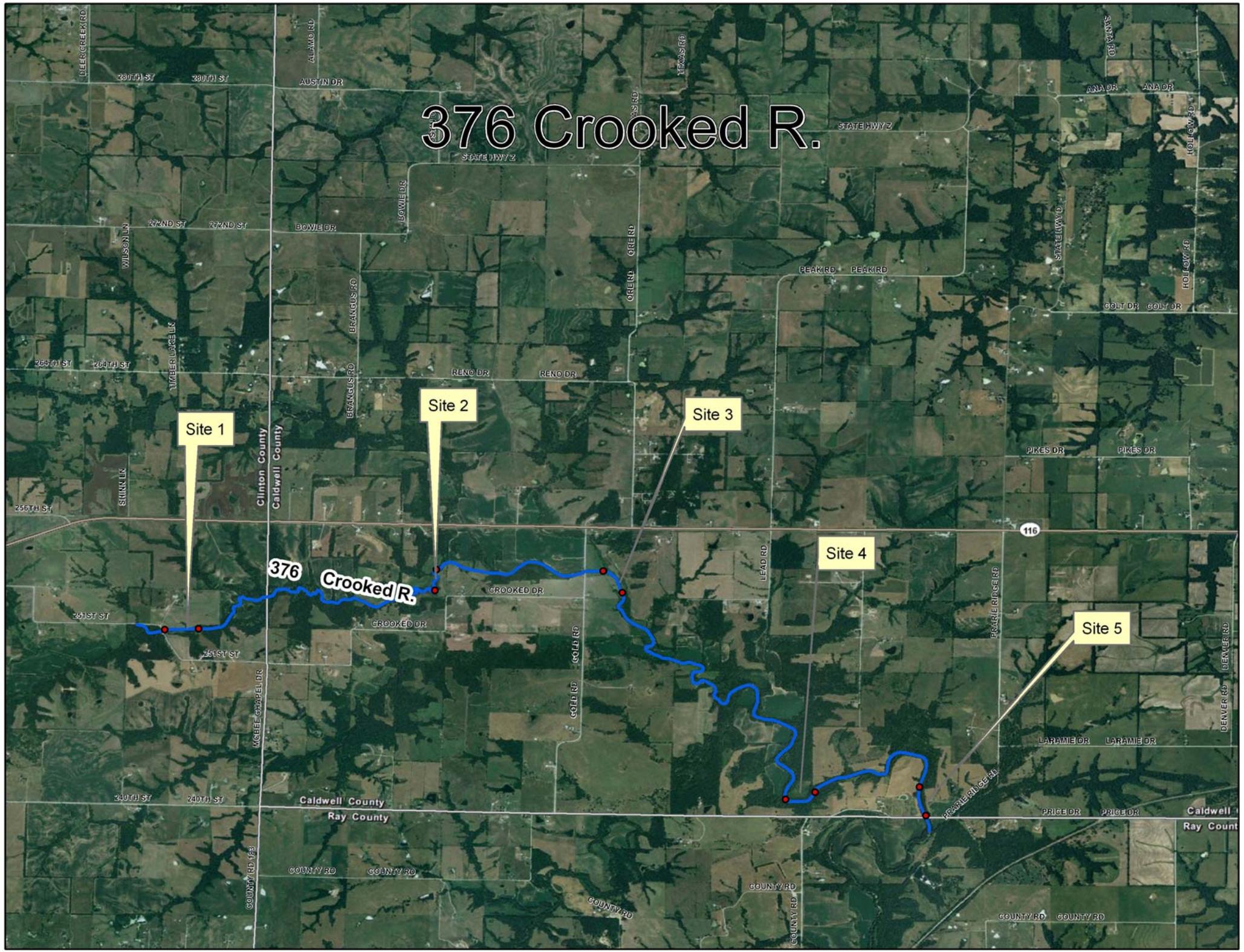
Site 1

Site 2

Site 3

Site 4

Site 5



WBID # 376

Site # 1

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: 8-19-08 12:30	Location Description (e.g., road crossing): 251 st St.
Stream Name: Crooked R.	
Current Weather Conditions: Clear	Facility Name(s): Trex Mart #3
Weather Conditions for Past 10 days: 0 cm	Permit Number(s): MO0123731
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): 0395344	Northing (UTM Y): 4377966	Horizontal Accuracy: (EPE / FOM / PDOP) 2 Meters
Site 11	Easting (UTM X): 0395644	Northing (UTM Y): 4377968	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
31	Downstream	32	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

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%.)

10% Cobble	10% Gravel	80% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on 10% of substrate; banks are vegetated.

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 checked="" 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 type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 8-19-08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Crooked R.</u> Waterbody ID: <u>376</u> Site #: <u>1</u> Estimated Channel Incision: <u>3</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>0395344</u> UTM Y: <u>4377966</u> +/- <u>2</u> (meters) 11 UTM X: <u>0395644</u> UTM Y: <u>4377968</u> +/- <u>6</u> (meters) Average Stream Width: <u>5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	Dissolved Oxygen Date: <u>8/19/2008</u> Time: <u>12:30</u> Dissolved Oxygen: <u>8.2</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>20.2</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.40	0.20	0.60	0.25	0.30	0.10	0.70	0.20	0.60	0.25	0.70	0.20	0.70	0.15	0.50	0.20	0.60	0.30	0.50	0.10	0.40	0.25
2	0.80	0.25	1.20	0.25	0.60	0.05	1.40	0.35	1.20	0.40	1.40	0.25	1.40	0.01	1.00	0.20	1.20	0.35	1.00	0.10	0.80	0.40
3	1.20	0.25	1.80	0.25	0.90	0.10	2.10	0.30	1.80	0.50	2.10	0.30	2.10	0.10	1.50	0.20	1.80	0.30	1.50	0.10	1.20	0.40
4	1.60	0.40	2.40	0.10	1.20	0.20	2.80	0.20	2.40	0.55	2.80	0.35	2.80	0.10	2.00	0.15	2.40	0.30	2.00	0.10	1.60	0.35
5	2.00	0.40	3.00	0.10	1.50	0.20	3.50	0.25	3.00	0.50	3.50	0.35	3.50	0.20	2.50	0.10	3.00	0.30	2.50	0.10	2.00	0.35
6	2.40	0.40	3.60	0.10	1.80	0.20	4.20	0.45	3.60	0.40	4.20	0.30	4.20	0.25	3.00	0.05	3.60	0.30	3.00	0.15	2.40	0.35
7	2.80	0.30	4.20	0.10	2.10	0.15	4.90	0.30	4.20	0.35	4.90	0.25	4.90	0.25	3.50	0.05	4.20	0.30	3.50	0.15	2.80	0.30
8	3.20	0.20	4.80	0.10	2.40	0.10	5.60	0.30	4.80	0.30	5.60	0.25	5.60	0.20	4.00	0.10	4.80	0.30	4.00	0.15	3.20	0.25
9	3.60	0.10	5.40	0.10	2.70	0.05	6.30	0.20	5.40	0.20	6.30	0.15	6.30	0.20	4.50	0.15	5.40	0.30	4.50	0.15	3.60	0.25
Right Bank	4.00	0.00	6.00	0.00	3.00	0.00	7.00	0.00	6.00	0.00	7.00	0.00	7.00	0.00	5.00	0.00	6.00	0.00	5.00	0.00	4.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	pool		run		run		pool		pool		pool		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: Gilisa Gould

Date: 9/2/2008



WBID # 376

Site # 2

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: 8-19-08 13:20	Location Description (e.g., road crossing): Crooked St.
Stream Name: Crooked R.	
Current Weather Conditions: Clear	Facility Name(s): Trex Mart #3
Weather Conditions for Past 10 days: 0 cm	Permit Number(s): MO0123731
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): 0397690	Northing (UTM Y): 4378373	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0397705	Northing (UTM Y): 4378603	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
33	Downstream	34	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

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%.)

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

None in water; banks are vegetated.

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 checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" 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.

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 8-19-08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Crooked R.</u> Waterbody ID: <u>376</u> Site #: <u>2</u> Estimated Channel Incision: <u>4</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>0397690</u> UTM Y: <u>4378373</u> +/- <u>7</u> (meters) 11 UTM X: <u>0397705</u> UTM Y: <u>4378603</u> +/- <u>6</u> (meters) Average Stream Width: <u>6</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/19/2008</u> Time: <u>13:20</u> Dissolved Oxygen: <u>7.5</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.7</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.60	0.20	0.50	0.15	0.60	0.15	0.50	0.50	0.40	0.40	0.60	0.45	0.80	0.20	0.70	0.30	0.60	0.30	0.50	0.65	0.50	0.30
2	1.20	0.30	1.00	0.10	1.20	0.20	1.00	0.55	0.80	0.50	1.20	0.50	1.60	0.40	1.40	0.40	1.20	0.20	1.00	0.90	1.00	0.20
3	1.80	0.25	1.50	0.10	1.80	0.05	1.50	0.45	1.20	0.40	1.80	0.55	2.40	0.40	2.10	0.40	1.80	0.30	1.50	0.80	1.50	0.35
4	2.40	0.25	2.00	0.20	2.40	0.10	2.00	0.40	1.60	0.30	2.40	0.40	3.20	0.65	2.80	0.40	2.40	0.30	2.00	0.90	2.00	0.30
5	3.00	0.30	2.50	0.25	3.00	0.10	2.50	0.30	2.00	0.30	3.00	0.25	4.00	1.00	3.50	0.40	3.00	0.25	2.50	0.90	2.50	0.30
6	3.60	0.40	3.00	0.35	3.60	0.15	3.00	0.25	2.40	0.20	3.60	0.20	4.80	1.00	4.20	0.65	3.60	0.30	3.00	0.90	3.00	0.25
7	4.20	0.50	3.50	0.50	4.20	0.20	3.50	0.35	2.80	0.15	4.20	0.20	5.60	1.00	4.90	0.40	4.20	0.50	3.50	0.60	3.50	0.25
8	4.80	0.40	4.00	0.40	4.80	0.25	4.00	0.30	3.20	0.05	4.80	0.25	6.40	0.80	5.60	0.20	4.80	0.40	4.00	0.65	4.00	0.20
9	5.40	0.20	4.50	0.25	5.40	0.30	4.50	0.25	3.60	0.01	5.40	0.20	7.20	0.40	6.30	0.10	5.40	0.30	4.50	0.50	4.50	0.15
Right Bank	6.00	0.00	5.00	0.00	6.00	0.00	5.00	0.00	4.00	0.00	6.00	0.00	8.00	0.00	7.00	0.00	6.00	0.00	5.00	0.00	5.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	pool		pool		run		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: Gilisa Gould Date: 9/2/2008



WBID # 376

Site # 3

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: 8-19-08 14:04	Location Description (e.g., road crossing): Gold Road
Stream Name: Crooked R.	
Current Weather Conditions: Partly Cloudy	Facility Name(s): Trex Mart #3
Weather Conditions for Past 10 days: 0 cm	Permit Number(s): MO0123731
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): 0399148	Northing (UTM Y): 4378568	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters		
Site 11	Easting (UTM X): 0399305	Northing (UTM Y): 4378325	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters		

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
35	Downstream	36	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

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%.)

% Cobble	10% Gravel	80% Sand	% Silt	% Mud/Clay	10% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on 10% of substrate; banks are vegetated

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 checked="" 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 type="checkbox"/> Fine sediments	<input checked="" 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.

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 8-19-08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Crooked R.</u> Waterbody ID: <u>376</u> Site #: <u>3</u> Estimated Channel Incision: <u>3</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>0399148</u> UTM Y: <u>4378568</u> +/- <u>6</u> (meters) 11 UTM X: <u>0399305</u> UTM Y: <u>4378325</u> +/- <u>7</u> (meters) Average Stream Width: <u>6</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/19/2008</u> Time: <u>14:04</u> Dissolved Oxygen: <u>9.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>25.0</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Station	Distance (m)	Depth (m)																			
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.70	0.30	0.70	0.75	0.70	0.55	0.60	0.15	0.60	0.10	0.50	0.45	0.70	0.40	0.50	0.30	0.60	0.20	0.60	0.45	0.50	0.05
2	1.40	0.30	1.40	0.85	1.40	0.45	1.20	0.15	1.20	0.10	1.00	0.30	1.40	0.30	1.00	0.30	1.20	0.30	1.20	0.40	1.00	0.20
3	2.10	0.25	2.10	0.85	2.10	0.30	1.80	0.15	1.80	0.20	1.50	0.20	2.10	0.20	1.50	0.20	1.80	0.40	1.80	0.30	1.50	0.25
4	2.80	0.20	2.80	0.85	2.80	0.10	2.40	0.20	2.40	0.30	2.00	0.25	2.80	0.10	2.00	0.20	2.40	0.40	2.40	0.25	2.00	0.35
5	3.50	0.20	3.50	0.70	3.50	0.20	3.00	0.30	3.00	0.30	2.50	0.40	3.50	0.10	2.50	0.10	3.00	0.55	3.00	0.20	2.50	0.40
6	4.20	0.20	4.20	0.65	4.20	0.10	3.60	0.20	3.60	0.35	3.00	0.30	4.20	0.15	3.00	0.10	3.60	0.50	3.60	0.15	3.00	0.55
7	4.90	0.25	4.90	0.35	4.90	0.20	4.20	0.20	4.20	0.35	3.50	0.20	4.90	0.10	3.50	0.00	4.20	0.50	4.20	0.15	3.50	0.65
8	5.60	0.30	5.60	0.45	5.60	0.25	4.80	0.15	4.80	0.30	4.00	0.15	5.60	0.05	4.00	0.20	4.80	0.55	4.80	0.25	4.00	0.50
9	6.30	0.25	6.30	0.20	6.30	0.20	5.40	0.10	5.40	0.30	4.50	0.15	6.30	0.05	4.50	0.15	5.40	0.35	5.40	0.20	4.50	0.30
Right Bank	7.00	0.00	7.00	0.00	7.00	0.00	6.00	0.00	6.00	0.00	5.00	0.00	7.00	0.00	5.00	0.00	6.00	0.00	6.00	0.00	5.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	pool		pool		run		run		run		pool		run		run		pool		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: Gilisa Gould Date: 9/2/2008



WBID # 376

Site # 4

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: 8-19-08 15:14	Location Description (e.g., road crossing): North of Price Road
Stream Name: Crooked R.	
Current Weather Conditions: Partly Cloudy	Facility Name(s): Trex Mart #3
Weather Conditions for Past 10 days: 0 cm	Permit Number(s): MO0123731
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): 0400693	Northing (UTM Y): 4375997	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters
Site 11	Easting (UTM X): 0400949	Northing (UTM Y): 4376076	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
37	Downstream	38	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

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:				

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%.)

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

None in water

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 checked="" 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 type="checkbox"/> Fine sediments	<input checked="" 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.

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 8-19-08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Crooked R.</u> Waterbody ID: <u>376</u> Site #: <u>4</u> Estimated Channel Incision: <u>4</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>0400693</u> UTM Y: <u>4375997</u> +/- <u>6</u> (meters) 11 UTM X: <u>0400949</u> UTM Y: <u>4376076</u> +/- <u>7</u> (meters) Average Stream Width: <u>7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	Dissolved Oxygen
	Date: <u>8/19/2008</u> Time: <u>15:14</u> Dissolved Oxygen: <u>8.6</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>24.4</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	
	1	0.60	0.10	0.60	0.10	0.50	0.15	0.30	0.30	0.40	0.10	0.80	0.10	0.60	0.10	0.50	0.10	0.60	0.05	0.50	0.10	0.40	0.10
	2	1.20	0.30	1.20	0.40	1.00	0.35	0.60	0.20	0.80	0.10	1.60	0.10	1.20	0.20	1.00	0.25	1.20	0.05	1.00	0.05	0.80	0.20
	3	1.80	0.30	1.80	0.70	1.50	0.35	0.90	0.15	1.20	0.15	2.40	0.30	1.80	0.20	1.50	0.35	1.80	0.10	1.50	0.05	1.20	0.40
	4	2.40	0.35	2.40	1.00	2.00	0.35	1.20	0.15	1.60	0.10	3.20	0.45	2.40	0.20	2.00	0.50	2.40	0.05	2.00	0.05	1.60	0.30
	5	3.00	0.35	3.00	1.00	2.50	0.40	1.50	0.15	2.00	0.10	4.00	0.35	3.00	0.30	2.50	0.70	3.00	0.10	2.50	0.40	2.00	0.30
	6	3.60	0.45	3.60	1.00	3.00	0.35	1.80	0.10	2.40	0.10	4.80	0.25	3.60	0.35	3.00	0.75	3.60	0.10	3.00	0.35	2.40	0.35
	7	4.20	0.35	4.20	1.00	3.50	0.40	2.10	0.05	2.80	0.05	5.60	0.30	4.20	0.45	3.50	0.60	4.20	0.20	3.50	0.30	2.80	0.50
	8	4.80	0.10	4.80	0.70	4.00	0.10	2.40	0.05	3.20	0.05	6.40	0.45	4.80	0.40	4.00	0.40	4.80	0.20	4.00	0.30	3.20	0.65
	9	5.40	0.10	5.40	0.40	4.50	0.15	2.70	0.01	3.60	0.01	7.20	0.60	5.40	0.20	4.50	0.10	5.40	0.10	4.50	0.20	3.60	0.65
Right Bank		6.00	0.00	6.00	0.00	5.00	0.00	3.00	0.00	4.00	0.00	8.00	0.00	6.00	0.00	5.00	0.00	6.00	0.00	5.00	0.00	4.00	0.00
Feature Type <small>(riffle, run, or pool)</small>		pool		pool		pool		run		run		pool		run		pool		run		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: Gilisa Gould Date: 9/2/2008



WBID # 376

Site # 5

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: 8-19-08 16:00	Location Description (e.g., road crossing): Price Dr.
Stream Name: Crooked R.	
Current Weather Conditions: Cloudy	Facility Name(s): Trex Mart #3
Weather Conditions for Past 10 days: 0 cm	Permit Number(s): MO0123731
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): 0401850	Northing (UTM Y): 4376122	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters
Site 11	Easting (UTM X): 0401901	Northing (UTM Y): 4375803	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
39	Upstream	40	Downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

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:				

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%.)

% Cobble	15% Gravel	80% Sand	% Silt	% Mud/Clay	5% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae blooms in 5% of site's water

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 type="checkbox"/> Fine sediments	<input checked="" 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.

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Bryan Deimeke and Gilisa Gould

Surveyor’s Signature: Gilisa Gould Date of Survey: 8-19-08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Crooked R.</u> Waterbody ID: <u>376</u> Site #: <u>5</u> Estimated Channel Incision: <u>3</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>0401850</u> UTM Y: <u>4376122</u> +/- <u>6</u> (meters) 11 UTM X: <u>0401901</u> UTM Y: <u>4375803</u> +/- <u>7</u> (meters) Average Stream Width: <u>9</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/19/2008</u> Time: <u>16:00</u> Dissolved Oxygen: <u>9.2</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>25.6</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Station	Distance (m)	Depth (m)																			
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.00	0.05	0.60	0.01	0.60	0.10	0.90	0.35	0.80	0.40	1.00	0.55	1.00	0.40	0.90	0.25	0.80	0.20	1.00	0.20	1.10	0.15
2	2.00	0.15	1.20	0.20	1.20	0.20	1.80	0.30	1.60	0.40	2.00	0.50	2.00	0.30	1.80	0.25	1.60	0.20	2.00	0.20	2.20	0.10
3	3.00	0.20	1.80	0.30	1.80	0.25	2.70	0.20	2.40	0.30	3.00	0.55	3.00	0.20	2.70	0.15	2.40	0.25	3.00	0.20	3.30	0.15
4	4.00	0.20	2.40	0.40	2.40	0.40	3.60	0.10	3.20	0.15	4.00	0.55	4.00	0.20	3.60	0.15	3.20	0.20	4.00	0.15	4.40	0.10
5	5.00	0.15	3.00	0.55	3.00	0.50	4.50	0.00	4.00	0.20	5.00	0.45	5.00	0.20	4.50	0.30	4.00	0.20	5.00	0.20	5.50	0.10
6	6.00	0.10	3.60	0.55	3.60	0.60	5.40	0.05	4.80	0.45	6.00	0.40	6.00	0.10	5.40	0.45	4.80	0.20	6.00	0.20	6.60	0.10
7	7.00	0.20	4.20	0.60	4.20	0.65	6.30	0.10	5.60	0.45	7.00	0.40	7.00	0.35	6.30	0.45	5.60	0.20	7.00	0.25	7.70	0.10
8	8.00	0.30	4.80	0.55	4.80	0.55	7.20	0.15	6.40	0.60	8.00	0.30	8.00	0.55	7.20	0.45	6.40	0.20	8.00	0.25	8.80	0.10
9	9.00	0.30	5.40	0.40	5.40	0.30	8.10	0.30	7.20	0.65	9.00	0.20	9.00	0.45	8.10	0.45	7.20	0.20	9.00	0.20	9.90	0.10
Right Bank	10.00	0.00	6.00	0.00	6.00	0.00	9.00	0.00	8.00	0.00	10.00	0.00	10.00	0.00	9.00	0.00	8.00	0.00	10.00	0.00	11.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	run		pool		pool		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: Gilisa Gould Date: 9/2/2008

