



Use Attainability Analysis

for

WBID 0029 Sandy Creek

Submitted by
SES, Inc.

To
Missouri Department of Natural Resources
Water Protection Program

On
November 4, 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): Sandy Creek
Missouri Water Body Identification (WBID) Number: 29
8-digit HUC: 7110004
County(ies), Listed Upstream to Downstream: Lincoln
Upstream Legal Description (from Table H): T50N, R1E, Sec. 25
Downstream Legal Description (from Table H): T50, R2E, Section not defined
Number of sites evaluated: 8
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3, 4, 5, 6, 7, 8
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): Crestview Mobile Court MO0130575

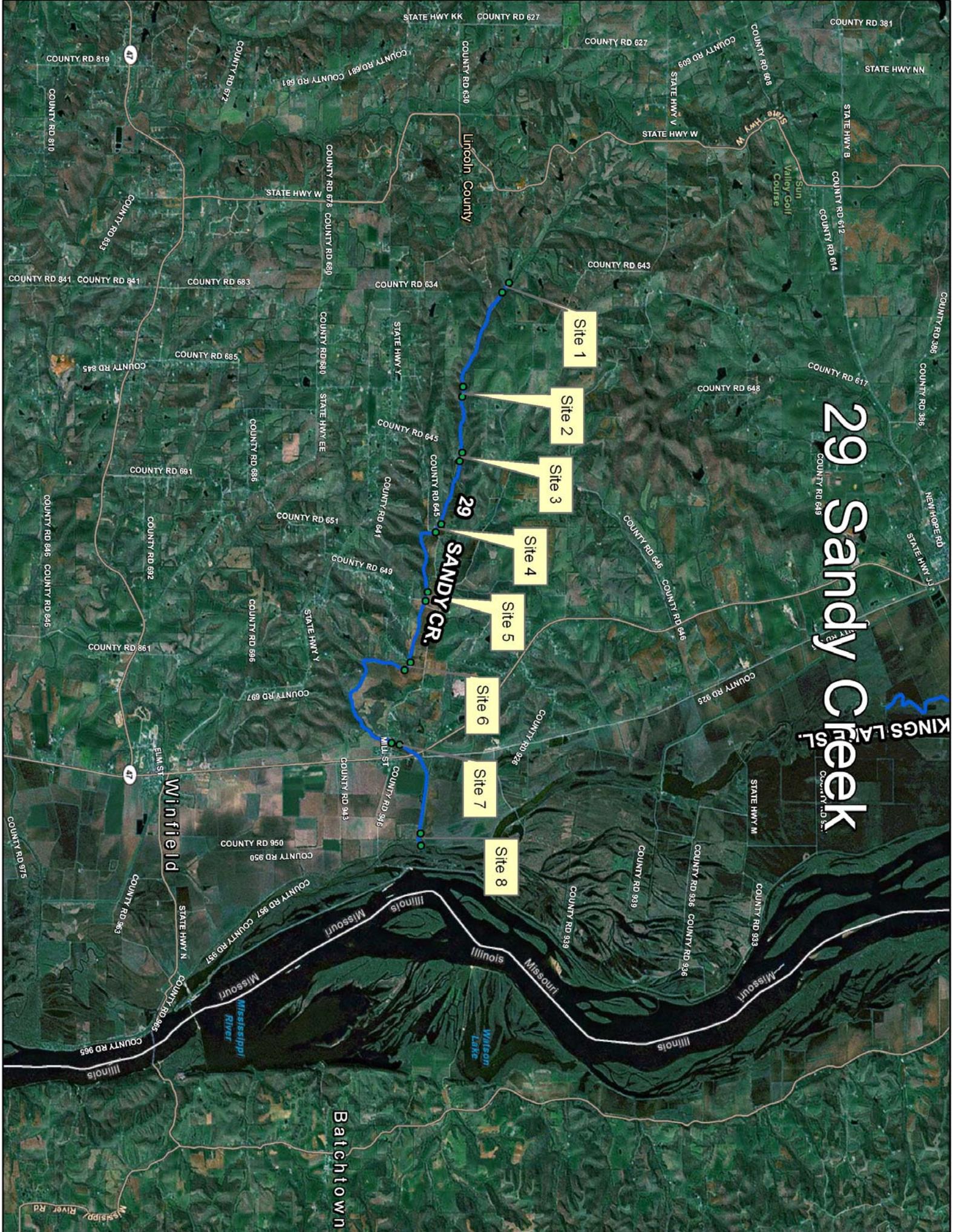
III. UAA Surveyor (please **PRINT** legibly)

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:** 10.16.08

29 Sandy Creek



Site 1

Site 2

Site 3

Site 4

Site 5

Site 6

Site 7

Site 8

29 SANDY CR.

STATE HWY KK COUNTY RD 627

COUNTY RD 627

COUNTY RD 381

COUNTY RD 819

COUNTY RD 672

COUNTY RD 681

COUNTY RD 681

COUNTY RD 630

COUNTY RD 627

COUNTY RD 609

COUNTY RD 608

STATE HWY NN

STATE HWY B

COUNTY RD 612

COUNTY RD 614

STATE HWY W

COUNTY RD 678

COUNTY RD 690

STATE HWY W

STATE HWY W

COUNTY RD 643

COUNTY RD 683

COUNTY RD 634

COUNTY RD 617

COUNTY RD 648

COUNTY RD 386

COUNTY RD 386

NEW HOPE RD

STATE HWY J

COUNTY RD 685

COUNTY RD 845

COUNTY RD 686

COUNTY RD 691

COUNTY RD 845

COUNTY RD 692

COUNTY RD 845

COUNTY RD 861

COUNTY RD 696

COUNTY RD 651

COUNTY RD 641

COUNTY RD 645

COUNTY RD 645

COUNTY RD 646

COUNTY RD 649

COUNTY RD 649

COUNTY RD 641

COUNTY RD 649

COUNTY RD 697

COUNTY RD 826

COUNTY RD 925

STATE HWY M

COUNTY RD 933

COUNTY RD 933

COUNTY RD 936

COUNTY RD 936

COUNTY RD 939

COUNTY RD 936

COUNTY RD 936

COUNTY RD 936

Winfield

ELK ST

47

STATE HWY N

COUNTY RD 951

COUNTY RD 951

COUNTY RD 957

COUNTY RD 957

COUNTY RD 965

COUNTY RD 965

Batchtown

Watson Lake

Mississippi River

Missouri

Illinois

Illinois

Missouri

Illinois

Missouri

Illinois

Missouri

Illinois

KINGS LAKE SL

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: 10.13.08 17:50	Location Description (e.g., road crossing): Blue Bird Hill Rd.
Stream Name: Sandy Creek	
Current Weather Conditions: rain	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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): 0686590	Northing (UTM Y): 4326939	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters
Site 11	Easting (UTM X): 0686768	Northing (UTM Y): 4326785	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
9	Downstream	10	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 1

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: Crop Fields
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	5% Gravel	10% Sand	% Silt	% Mud/Clay	75% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on 5% of substrate.

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.

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: Gilisa Gould and Bryan Deimeke

Surveyor’s Signature: Gilisa Gould Date of Survey: 10.13.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Cr.</u> Waterbody ID: <u>29</u> Site #: <u>1</u> Estimated Channel Incision: <u>6</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>0686590</u> UTM Y: <u>4326939</u> +/- <u>6</u> (meters) 11 UTM X: <u>0686768</u> UTM Y: <u>4326785</u> +/- <u>6</u> (meters) Average Stream Width: <u>8</u> (meters) Length of Survey Segment: <u>160</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Gilisa Gould and Bryan Deimeke</u>	Dissolved Oxygen Date: <u>10.13.08</u> Time: <u>17:50</u> Dissolved Oxygen: <u>5.5</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>19.4</u> (°C)
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Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Station		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Left Bank																							
	1	0.40	0.01	0.70	0.05	0.10	0.05	0.20	0.01	0.20	0.01	0.40	0.01	0.50	0.01	0.40	0.01	0.50	0.01	0.80	0.01	0.80	0.05
	2	0.80	0.01	1.40	0.10	0.20	0.05	0.40	0.01	0.40	0.01	0.80	0.01	1.00	0.01	0.80	0.05	1.00	0.01	1.60	0.01	1.60	0.00
	3	1.20	0.05	2.10	0.10	0.30	0.05	0.60	0.05	0.60	0.01	1.20	0.01	1.50	0.01	1.20	0.01	1.50	0.05	2.40	0.05	2.40	0.05
	4	1.60	0.05	2.80	0.20	0.40	0.05	0.80	0.05	0.80	0.01	1.60	0.05	2.00	0.01	1.60	0.01	2.00	0.05	3.20	0.05	3.20	0.01
	5	2.00	0.05	3.50	0.20	0.50	0.05	1.00	0.05	1.00	0.05	2.00	0.01	2.50	0.05	2.00	0.05	2.50	0.05	4.00	0.10	4.00	0.01
	6	2.40	0.01	4.20	0.25	0.60	0.05	1.20	0.05	1.20	0.01	2.40	0.05	3.00	0.05	2.40	0.01	3.00	0.05	4.80	0.10	4.80	0.01
	7	2.80	0.01	4.90	0.30	0.70	0.05	1.40	0.05	1.40	0.10	2.80	0.01	3.50	0.10	2.80	0.05	3.50	0.10	5.60	0.10	5.60	0.01
	8	3.20	0.01	5.60	0.30	0.80	0.01	1.60	0.05	1.60	0.10	3.20	0.01	4.00	0.05	3.20	0.05	4.00	0.10	6.40	0.05	6.40	0.01
	9	3.60	0.01	6.30	0.20	0.90	0.01	1.80	0.01	1.80	0.01	3.60	0.01	4.50	0.01	3.60	0.05	4.50	0.01	7.20	0.05	7.20	0.01
Right Bank		4.00	0.00	7.00	0.00	1.00	0.00	2.00	0.00	2.00	0.00	4.00	0.00	5.00	0.00	4.00	0.00	5.00	0.00	8.00	0.00	8.00	0.00
Feature Type		riffle		pool		run		run		run		riffle		pool		riffle		pool		riffle		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.

MAXIMUM 0.30

 MEDIAN 0.05

Surveyor's Signature: Gilisa Gould Date: 10.16.08

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: 10.14.08 10:40	Location Description (e.g., road crossing): South from Robin Road
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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): 0688524	Northing (UTM Y): 4325910	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters
Site 11	Easting (UTM X): 0688716	Northing (UTM Y): 4325895	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
21	Tree stand	22	Upstream	23	Vehicle tracks
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
24	downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 2

Field Data Sheets for Recreational Use Stream Surveys

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

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

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

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other: Tree stand is 25 meters from creek.			

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

60% Cobble	30% Gravel	10% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

On 5% of substrate is algae.

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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 #: 2

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: Gilisa Gould and Bryan Deimeke

Surveyor's Signature: Gilisa Gould Date of Survey: 10.14.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>2</u> Estimated Channel Incision: <u>2</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>0688524</u> UTM Y: <u>4325910</u> +/- <u>5</u> (meters) 11 UTM X: <u>0688716</u> UTM Y: <u>4325895</u> +/- <u>5</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>Gilisa Gould and Bryan Deimeke</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10.14.08</u> Time: <u>10:40</u> Dissolved Oxygen: <u>5.7</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>16.9</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	0.30	0.05	0.40	0.01	0.50	0.01	0.60	0.01	0.40	0.30	0.70	0.35	0.30	0.01	0.80	0.20	0.90	0.40	0.50	0.30	0.70	0.05
	2	0.60	0.05	0.80	0.10	1.00	0.10	1.20	0.01	0.80	0.35	1.40	0.50	0.60	0.10	1.60	0.10	1.80	0.40	1.00	0.25	1.40	0.05
	3	0.90	0.05	1.20	0.15	1.50	0.25	1.80	0.00	1.20	0.35	2.10	0.75	0.90	0.20	2.40	0.00	2.70	0.00	1.50	0.20	2.10	0.00
	4	1.20	0.10	1.60	0.20	2.00	0.20	2.40	0.01	1.60	0.40	2.80	0.60	1.20	0.25	3.20	0.00	3.60	0.00	2.00	0.10	2.80	0.01
	5	1.50	0.15	2.00	0.40	2.50	0.40	3.00	0.00	2.00	0.40	3.50	0.50	1.50	0.25	4.00	0.00	4.50	0.00	2.50	0.00	3.50	0.01
	6	1.80	0.20	2.40	0.45	3.00	0.40	3.60	0.00	2.40	0.40	4.20	0.40	1.80	0.25	4.80	0.00	5.40	0.00	3.00	0.00	4.20	0.01
	7	2.10	0.10	2.80	0.45	3.50	0.40	4.20	0.01	2.80	0.40	4.90	0.20	2.10	0.25	5.60	0.10	6.30	0.05	3.50	0.05	4.90	0.01
	8	2.40	0.10	3.20	0.45	4.00	0.35	4.80	0.15	3.20	0.30	5.60	0.01	2.40	0.20	6.40	0.10	7.20	0.05	4.00	0.10	5.60	0.05
	9	2.70	0.15	3.60	0.25	4.50	0.35	5.40	0.15	3.60	0.10	6.30	0.01	2.70	0.20	7.20	0.05	8.10	0.05	4.50	0.05	6.30	0.01
Right Bank		3.00	0.00	4.00	0.00	5.00	0.00	6.00	0.00	4.00	0.00	7.00	0.00	3.00	0.00	8.00	0.00	9.00	0.00	5.00	0.00	7.00	0.00
Feature Type <small>(riffle, run, or pool)</small>		run		run		run		riffle		pool		pool		run		run		run		riffle		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.

MAXIMUM 0.75

 MEDIAN 0.10

Surveyor's Signature: Gilisa Gould Date: 10.16.08

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: 10.14.08	Location Description (e.g., road crossing): Hidden Valley Road
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76	Permit Number(s): MO0130575
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): 0689742	Northing (UTM Y): 4325924	Horizontal Accuracy: (EPE / FOM / PDOP) 3 Meters
Site 11	Easting (UTM X): 0689892	Northing (UTM Y): 4325859	Horizontal Accuracy: (EPE / FOM / PDOP) 3 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
19	Upstream	20	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 3

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%.)

45% Cobble	30 % Gravel	25% Sand	% Silt	% Mud/Clay	% Bedrock
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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 type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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 #: 3

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: Gilisa Gould and Bryan Deimeke

Surveyor's Signature: Gilisa Gould Date of Survey: 10.14.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>3</u> Estimated Channel Incision: <u>1</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>0689742</u> UTM Y: <u>4325924</u> +/- <u>3</u> (meters) 11 UTM X: <u>0689892</u> UTM Y: <u>4325859</u> +/- <u>3</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>Gilisa Gould and Bryan Deimeke</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10.14.08</u> Time: <u>10:00</u> Dissolved Oxygen: <u>6.3</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>16.7</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.50	0.01	0.50	0.01	0.60	0.10	0.30	0.01	0.60	0.40	0.40	0.10	0.60	0.60	0.10	0.01	0.10	0.01	0.10	0.01	0.50	0.00
	2	1.00	0.05	1.00	0.01	1.20	0.00	0.60	0.05	1.20	0.30	0.80	0.20	1.20	0.70	0.20	0.05	0.20	0.01	0.20	0.01	1.00	0.00
	3	1.50	0.10	1.50	0.05	1.80	0.00	0.90	0.05	1.80	0.25	1.20	0.35	1.80	0.85	0.30	0.10	0.30	0.05	0.30	0.01	1.50	0.00
	4	2.00	0.20	2.00	0.10	2.40	0.00	1.20	0.15	2.40	0.25	1.60	0.50	2.40	1.00	0.40	0.10	0.40	0.01	0.40	0.01	2.00	0.00
	5	2.50	0.20	2.50	0.10	3.00	0.00	1.50	0.10	3.00	0.30	2.00	0.45	3.00	1.00	0.50	0.10	0.50	0.01	0.50	0.01	2.50	0.00
	6	3.00	0.20	3.00	0.10	3.60	0.00	1.80	0.15	3.60	0.30	2.40	0.30	3.60	1.00	0.60	0.05	0.60	0.01	0.60	0.00	3.00	0.00
	7	3.50	0.20	3.50	0.05	4.20	0.00	2.10	0.10	4.20	0.30	2.80	0.45	4.20	0.60	0.70	0.05	0.70	0.01	0.70	0.00	3.50	0.00
	8	4.00	0.15	4.00	0.01	4.80	0.00	2.40	0.05	4.80	0.20	3.20	0.25	4.80	0.40	0.80	0.01	0.80	0.01	0.80	0.01	4.00	0.00
	9	4.50	0.10	4.50	0.01	5.40	0.00	2.70	0.01	5.40	0.10	3.60	0.10	5.40	0.40	0.90	0.01	0.90	0.01	0.90	0.01	4.50	0.00
Right Bank		5.00	0.00	5.00	0.00	6.00	0.00	3.00	0.00	6.00	0.00	4.00	0.00	6.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	5.00	0.00
Feature Type		run		run		run		run		run		pool		pool		rifle		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.

MAXIMUM 1.00

 MEDIAN 0.05

Surveyor's Signature: Gilisa Gould Date: 10.16.08

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: 10.14.08 9:30	Location Description (e.g., road crossing): CR 647
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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): 0691079	Northing (UTM Y): 4325461	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters
Site 11	Easting (UTM X): 0691226	Northing (UTM Y): 4325236	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
16	Upstream	17	ATV trail	18	downstream
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 4

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 checked="" 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%.)

30% Cobble	60% Gravel	10% Sand	% Silt	% Mud/Clay	% Bedrock
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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 type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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 #: 4

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: Gilisa Gould and Bryan Deimeke

Surveyor’s Signature: Gilisa Gould Date of Survey: 10.14.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>4</u> Estimated Channel Incision: <u>2</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>0691079</u> UTM Y: <u>4325461</u> +/- <u>6</u> (meters) 11 UTM X: <u>0691226</u> UTM Y: <u>4325236</u> +/- <u>6</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>Gilisa Gould and Bryan Deimeke</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10.14.08</u> Time: <u>9:30</u> Dissolved Oxygen: <u>6.6</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>16.1</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.20	0.10	0.50	0.20	0.50	0.05	0.30	0.05	0.10	0.01	0.80	0.05	0.20	0.01	0.40	0.30	0.20	0.01	0.60	0.45	0.50	0.10
	2	0.40	0.10	1.00	0.40	1.00	0.10	0.60	0.20	0.20	0.05	1.60	0.05	0.40	0.05	0.80	0.10	0.40	0.01	1.20	0.50	1.00	0.25
	3	0.60	0.10	1.50	0.65	1.50	0.10	0.90	0.35	0.30	0.05	2.40	0.15	0.60	0.05	1.20	0.05	0.60	0.05	1.80	0.40	1.50	0.40
	4	0.80	0.10	2.00	0.90	2.00	0.15	1.20	0.40	0.40	0.10	3.20	0.10	0.80	0.05	1.60	0.01	0.80	0.05	2.40	0.10	2.00	0.40
	5	1.00	0.10	2.50	1.00	2.50	0.15	1.50	0.40	0.50	0.15	4.00	0.20	1.00	0.01	2.00	0.05	1.00	0.05	3.00	0.15	2.50	0.40
	6	1.20	0.05	3.00	1.00	3.00	0.15	1.80	0.45	0.60	0.10	4.80	0.00	1.20	0.05	2.40	0.05	1.20	0.05	3.60	0.15	3.00	0.30
	7	1.40	0.05	3.50	0.75	3.50	0.10	2.10	0.35	0.70	0.10	5.60	0.00	1.40	0.05	2.80	0.01	1.40	0.00	4.20	0.20	3.50	0.20
	8	1.60	0.01	4.00	0.50	4.00	0.10	2.40	0.30	0.80	0.05	6.40	0.01	1.60	0.05	3.20	0.05	1.60	0.01	4.80	0.30	4.00	0.10
	9	1.80	0.01	4.50	0.25	4.50	0.05	2.70	0.10	0.90	0.05	7.20	0.05	1.80	0.01	3.60	0.01	1.80	0.01	5.40	0.15	4.50	0.05
Right Bank		2.00	0.00	5.00	0.00	5.00	0.00	3.00	0.00	1.00	0.00	8.00	0.00	2.00	0.00	4.00	0.00	2.00	0.00	6.00	0.00	5.00	0.00
Feature Type <small>(riffle, run, or pool)</small>		riffle		pool		run		pool		run		run		riffle		riffle		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.

MAXIMUM 1.00

MEDIAN 0.10

Surveyor's Signature: Gilisa Gould Date: 10.16.08

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: 10.14.08 9:00	Location Description (e.g., road crossing): CR 649
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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): 0692324	Northing (UTM Y): 4325183	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0692496	Northing (UTM Y): 4325122	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
14	Upstream	15	Downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 5

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: crop fields
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	10% Gravel	60% Sand	% Silt	% Mud/Clay	30% Bedrock
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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 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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam	<input 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 #: 5

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: Gilisa Gould and Bryan Deimeke

Surveyor’s Signature: Gilisa Gould Date of Survey: 10.14.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>5</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>0692324</u> UTM Y: <u>4325183</u> +/- <u>7</u> (meters) 11 UTM X: <u>0692496</u> UTM Y: <u>4325122</u> +/- <u>6</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>Gilisa Gould and Bryan Deimeke</u>	Dissolved Oxygen Date: <u>10.14.08</u> Time: <u>9:00</u> Dissolved Oxygen: <u>8.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>16.3</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		0.40	0.65	0.20	0.01	0.20	0.05	0.90	0.20	1.00	0.20	0.80	0.15	0.30	0.05	0.60	0.25	0.70	0.50	0.80	0.30	0.50	0.15
2		0.80	0.70	0.40	0.01	0.40	0.15	1.80	0.40	2.00	0.30	1.60	0.30	0.60	0.20	1.20	0.50	1.40	0.60	1.60	0.20	1.00	0.40
3		1.20	0.80	0.60	0.01	0.60	0.30	2.70	0.50	3.00	0.50	2.40	0.20	0.90	0.20	1.80	0.70	2.10	0.60	2.40	0.35	1.50	0.40
4		1.60	1.00	0.80	0.05	0.80	0.25	3.60	0.50	4.00	0.50	3.20	0.25	1.20	0.25	2.40	0.55	2.80	0.55	3.20	0.40	2.00	0.40
5		2.00	1.00	1.00	0.10	1.00	0.20	4.50	0.45	5.00	0.50	4.00	0.20	1.50	0.25	3.00	0.45	3.50	0.50	4.00	0.45	2.50	0.35
6		2.40	1.00	1.20	0.10	1.20	0.20	5.40	0.35	6.00	0.60	4.80	0.15	1.80	0.25	3.60	0.35	4.20	0.50	4.80	0.45	3.00	0.35
7		2.80	0.70	1.40	0.10	1.40	0.15	6.30	0.40	7.00	0.95	5.60	0.15	2.10	0.25	4.20	0.35	4.90	0.50	5.60	0.35	3.50	0.30
8		3.20	0.30	1.60	0.05	1.60	0.05	7.20	0.40	8.00	1.00	6.40	0.20	2.40	0.15	4.80	0.30	5.60	0.40	6.40	0.30	4.00	0.15
9		3.60	0.10	1.80	0.05	1.80	0.01	8.10	0.50	9.00	0.80	7.20	0.20	2.70	0.15	5.40	0.40	6.30	0.15	7.20	0.20	4.50	0.10
	Right Bank	4.00	0.00	2.00	0.00	2.00	0.00	9.00	0.00	10.00	0.00	8.00	0.00	3.00	0.00	6.00	0.00	7.00	0.00	8.00	0.00	5.00	0.00
	Feature Type <small>(riffle, run, or pool)</small>	pool		riffle		run		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.

MAXIMUM 1.00

MEDIAN 0.30

Surveyor's Signature: Gilisa Gould Date: 10.16.08

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: 10.14.08 8:00	Location Description (e.g., road crossing): South of McIntosh Road/CR 645
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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): 0693632	Northing (UTM Y): 4324793	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters
Site 11	Easting (UTM X): 0693776	Northing (UTM Y): 4324656	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
11	Downstream	12	Road	13	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: crop fields
Comments:				

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

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

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

% Cobble	10% Gravel	90% Sand	% Silt	% Mud/Clay	% Bedrock
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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 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 #: 6

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.)

Active beavers and dams, says landowner

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

Printed Names of Personnel Collecting Data: Gilisa Gould and Bryan DeimekeSurveyor's Signature: Gilisa Gould Date of Survey: 10.14.08Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>6</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>0693632</u> UTM Y: <u>4324793</u> +/- <u>5</u> (meters) 11 UTM X: <u>0693776</u> UTM Y: <u>4324656</u> +/- <u>5</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>Gilisa Gould and Bryan Deimeke</u>	Dissolved Oxygen Date: <u>10.14.08</u> Time: <u>8:00</u> Dissolved Oxygen: <u>6.0</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>17.0</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		0.50	0.20	0.60	0.40	0.80	0.80	0.50	0.50	0.70	0.25	0.70	0.75	0.80	0.35	0.60	0.60	0.60	0.60	0.60	0.80	0.50	0.35
2		1.00	0.30	1.20	0.75	1.60	0.80	1.00	0.90	1.40	0.40	1.40	1.00	1.60	0.40	1.20	0.80	1.20	1.00	1.20	0.95	1.00	0.75
3		1.50	0.40	1.80	0.95	2.40	0.65	1.50	0.85	2.10	0.65	2.10	1.00	2.40	1.00	1.80	0.95	1.80	1.00	1.80	1.00	1.50	0.90
4		2.00	0.40	2.40	1.00	3.20	0.75	2.00	1.00	2.80	0.90	2.80	1.00	3.20	1.00	2.40	1.00	2.40	1.00	2.40	1.00	2.00	0.90
5		2.50	0.30	3.00	1.00	4.00	0.80	2.50	1.00	3.50	0.95	3.50	1.00	4.00	1.00	3.00	1.00	3.00	1.00	3.00	1.00	2.50	0.85
6		3.00	0.20	3.60	1.00	4.80	0.60	3.00	1.00	4.20	0.85	4.20	1.00	4.80	1.00	3.60	1.00	3.60	1.00	3.60	1.00	3.00	0.80
7		3.50	0.10	4.20	1.00	5.60	0.25	3.50	1.00	4.90	0.85	4.90	1.00	5.60	0.95	4.20	1.00	4.20	0.65	4.20	1.00	3.50	0.75
8		4.00	0.15	4.80	1.00	6.40	0.30	4.00	0.80	5.60	0.80	5.60	0.95	6.40	0.80	4.80	0.75	4.80	0.70	4.80	0.80	4.00	0.70
9		4.50	0.05	5.40	0.40	7.20	0.10	4.50	0.60	6.30	0.35	6.30	0.90	7.20	0.45	5.40	0.40	5.40	0.60	5.40	0.60	4.50	0.70
	Right Bank	5.00	0.00	6.00	0.00	8.00	0.00	5.00	0.00	7.00	0.00	7.00	0.00	8.00	0.00	6.00	0.00	6.00	0.00	6.00	0.00	5.00	0.00
	Feature Type <small>(riffle, run, or pool)</small>	pool		pool		pool		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.

MAXIMUM 1.00

MEDIAN 0.80

Surveyor's Signature: Gilisa Gould

Date: 10.16.08

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: 10.14.08 11:30	Location Description (e.g., road crossing): CR 946
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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): 0695116	Northing (UTM Y): 4374394	Horizontal Accuracy: (EPE / FOM / PDOP) 6 Meters
Site 11	Easting (UTM X): 0695147	Northing (UTM Y): 4374577	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
25	Downstream	26	Footprint	27	Upstream
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 7

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 checked="" 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:				

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

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

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

10% Cobble	30% Gravel	50% Sand	% Silt	% Mud/Clay	10% Bedrock
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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 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 checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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 #: 7

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: Gilisa Gould and Bryan Deimeke

Surveyor's Signature: Gilisa Gould Date of Survey: 10.14.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>7</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>0695116</u> UTM Y: <u>4324394</u> +/- <u>6</u> (meters) 11 UTM X: <u>0695147</u> UTM Y: <u>4324577</u> +/- <u>7</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>Gilisa Gould and Bryan Deimeke</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10.14.08</u> Time: <u>11:30</u> Dissolved Oxygen: <u>8.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>18.6</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.80	0.20	0.30	0.01	0.50	0.10	0.60	0.10	0.40	0.20	0.80	0.10	0.90	0.20	0.50	0.30	0.90	0.50	0.20	0.01	0.40	0.05
	2	1.60	0.30	0.60	0.05	1.00	0.35	1.20	0.10	0.80	0.30	1.60	0.40	1.80	0.45	1.00	0.75	1.80	0.95	0.40	0.05	0.80	0.01
	3	2.40	0.40	0.90	0.10	1.50	0.65	1.80	0.25	1.20	0.50	2.40	0.60	2.70	0.85	1.50	1.00	2.70	1.00	0.60	0.05	1.20	0.05
	4	3.20	0.50	1.20	0.05	2.00	0.70	2.40	0.40	1.60	0.60	3.20	0.75	3.60	0.95	2.00	1.00	3.60	1.00	0.80	0.01	1.60	0.00
	5	4.00	0.45	1.50	0.05	2.50	0.80	3.00	0.40	2.00	0.75	4.00	0.90	4.50	1.00	2.50	1.00	4.50	1.00	1.00	0.20	2.00	0.00
	6	4.80	0.50	1.80	0.10	3.00	0.60	3.60	0.50	2.40	0.70	4.80	1.00	5.40	1.00	3.00	1.00	5.40	1.00	1.20	0.25	2.40	0.01
	7	5.60	0.60	2.10	0.20	3.50	0.50	4.20	0.45	2.80	0.65	5.60	1.00	6.30	1.00	3.50	0.95	6.30	1.00	1.40	0.20	2.80	0.01
	8	6.40	0.30	2.40	0.25	4.00	0.25	4.80	0.40	3.20	0.50	6.40	0.80	7.20	0.80	4.00	0.60	7.20	0.90	1.60	0.10	3.20	0.15
	9	7.20	0.25	2.70	0.15	4.50	0.10	5.40	0.20	3.60	0.20	7.20	0.60	8.10	0.35	4.50	0.35	8.10	0.40	1.80	0.05	3.60	0.10
Right Bank		8.00	0.00	3.00	0.00	5.00	0.00	6.00	0.00	4.00	0.00	8.00	0.00	9.00	0.00	5.00	0.00	9.00	0.00	2.00	0.00	4.00	0.00
Feature Type <small>(riffle, run, or pool)</small>		pool		riffle		pool		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.

MAXIMUM 1.00

 MEDIAN 0.40

Surveyor's Signature: Gilisa Gould Date: 10.16.08

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: 10.14.08 12:10	Location Description (e.g., road crossing): CR 950
Stream Name: Sandy Creek	
Current Weather Conditions: cloudy	Facility Name(s): Crestview Mobile Court
Weather Conditions for Past 10 days: 1.76 cm	Permit Number(s): MO0130575
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):0696776	Northing (UTM Y):4325111	Horizontal Accuracy: (EPE / FOM / PDOP) 9 Meters
Site 11	Easting (UTM X): 0697003	Northing (UTM Y): 4325127	Horizontal Accuracy: (EPE / FOM / PDOP) 5 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
28	Downstream	29	Upstream	30	Tree stand
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

Site #: 8

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: Flood Plain, Crop Fields All residents have been flooded, and are vacant/abandoned				

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

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input checked="" 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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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 #: 8

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: Gilisa Gould and Bryan Deimeke

Surveyor's Signature: Gilisa Gould Date of Survey: 10.14.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Sandy Creek</u> Waterbody ID: <u>29</u> Site #: <u>8</u> Estimated Channel Incision: <u>5</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>0696776</u> UTM Y: <u>4325111</u> +/- <u>9</u> (meters) 11 UTM X: <u>0697003</u> UTM Y: <u>4325127</u> +/- <u>5</u> (meters) Average Stream Width: <u>10</u> (meters) Length of Survey Segment: <u>200</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Gilisa Gould and Bryan Deimeke</u>	Dissolved Oxygen Date: <u>10.14.08</u> Time: <u>12:10</u> Dissolved Oxygen: <u>5.9</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>18.3</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		1.20	0.20	1.10	0.45	0.90	0.35	0.70	0.40	0.90	0.45	0.90	0.80	1.00	0.45	1.20	0.30	0.80	0.35	1.00	0.50	0.80	0.15
2		2.40	0.10	2.20	0.60	1.80	0.55	1.40	0.40	1.80	0.50	1.80	1.00	2.00	0.40	2.40	0.70	1.60	0.40	2.00	0.85	1.60	0.40
3		3.60	0.20	3.30	0.85	2.70	0.80	2.10	0.35	2.70	0.65	2.70	1.00	3.00	0.45	3.60	1.00	2.40	0.80	3.00	1.00	2.40	0.45
4		4.80	0.15	4.40	1.00	3.60	1.00	2.80	0.35	3.60	1.00	3.60	1.00	4.00	0.60	4.80	1.00	3.20	1.00	4.00	1.00	3.20	0.70
5		6.00	0.05	5.50	1.00	4.50	1.00	3.50	0.20	4.50	1.00	4.50	0.95	5.00	0.70	6.00	1.00	4.00	1.00	5.00	1.00	4.00	0.85
6		7.20	0.01	6.60	0.90	5.40	0.95	4.20	0.20	5.40	0.70	5.40	0.70	6.00	1.00	7.20	0.95	4.80	1.00	6.00	1.00	4.80	0.70
7		8.40	0.00	7.70	0.60	6.30	0.90	4.90	0.30	6.30	0.50	6.30	0.50	7.00	0.80	8.40	0.70	5.60	0.95	7.00	1.00	5.60	0.75
8		9.60	0.01	8.80	0.30	7.20	0.70	5.60	0.25	7.20	0.35	7.20	0.15	8.00	0.40	9.60	0.60	6.40	0.75	8.00	0.75	6.40	0.65
9		10.80	0.30	9.90	0.25	8.10	0.35	6.30	0.15	8.10	0.20	8.10	0.05	9.00	0.40	10.80	0.60	7.20	0.75	9.00	0.40	7.20	0.20
	Right Bank	12.00	0.00	11.00	0.00	9.00	0.00	7.00	0.00	9.00	0.00	9.00	0.00	10.00	0.00	12.00	0.00	8.00	0.00	10.00	0.00	8.00	0.00
	Feature Type	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.

MAXIMUM 1.00

 MEDIAN 0.60

Surveyor's Signature: Gilisa Gould Date: 10.16.08

WBID# 0029 Sandy Creek



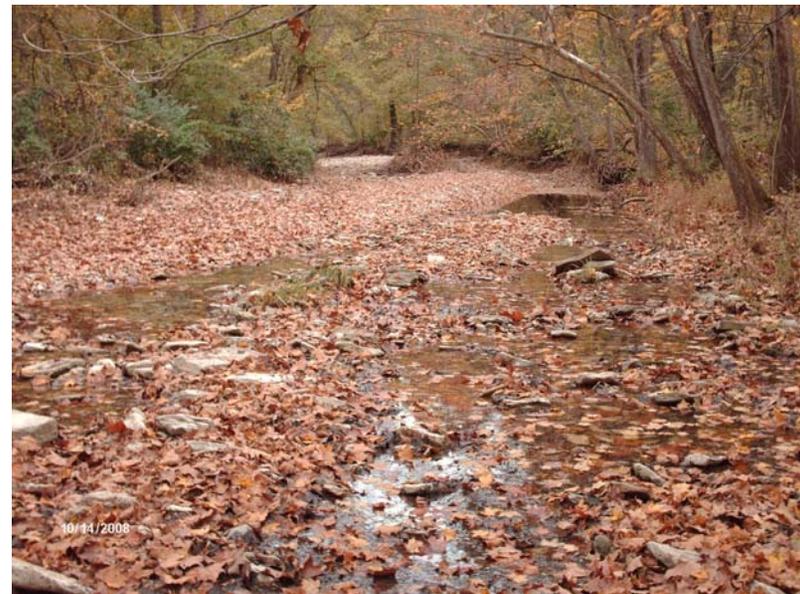
Site# 1 Photo ID# 9, Downstream



Site# 1 Photo ID# 10, Upstream



Site# 2 Photo ID# 24, Downstream



Site# 2 Photo ID# 22 Upstream

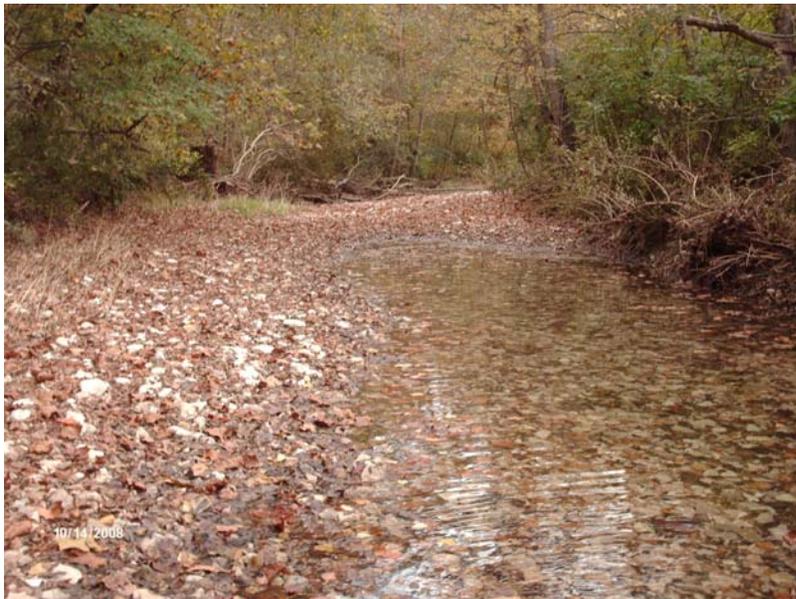
WBID# 0029 Sandy Creek



Site# 2 Photo ID# 21, “Tree Stand”



Site# 2 Photo ID# 23, “Vehicle Tracks”



Site# 3 Photo ID# 20, Downstream



Site# 3 Photo ID# 19 Upstream

WBID# 0029 Sandy Creek



Site# 4 Photo ID# 16, Upstream



Site# 4 Photo ID# 18, Downstream



Site# 4 Photo ID# 17, "ATV Tracks"



Site# 5 Photo ID# 15, Downstream

WBID# 0029 Sandy Creek



Site# 5 Photo ID# 14, Upstream



Site# 6 Photo ID# 11, Downstream



Site# 6 Photo ID# 12, "road"



Site# 6 Photo ID# 13, Upstream

WBID# 0029 Sandy Creek



Site# 7 Photo ID# 25, Downstream



Site# 7 Photo ID# 27, Upstream



Site# 7 Photo ID# 26, "footprints"



Site# 8 Photo ID# 28, Downstream

WBID# 0029 Sandy Creek



Site# 8 Photo ID# 29, Upstream



Site# 8 Photo ID# 30, "Tree Stand"