



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0959 Straight Fork

Submitted by
SES, Inc.

To
Missouri Department of Natural Resources
Water Protection Program

On
May 28, 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): Straight Fork
Missouri Water Body Identification (WBID) Number: 959
8-digit HUC: 10300102
County(ies), Listed Upstream to Downstream: Morgan
Upstream Legal Description (from Table H): 43N 18W section36
Downstream Legal Description (from Table H): 43N 17W section6
Number of sites evaluated: 4
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3, 4
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): Three German DBA Lehman MO0124818

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

Name of Surveyor: Aaron Ball	Telephone Number: 913.307.0046 Ext.14
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: Aaron Ball **Date:** 5.09.08

959 Straight Fk.

Moniteau Co.

Morgan Co.

Versailles

Site 4

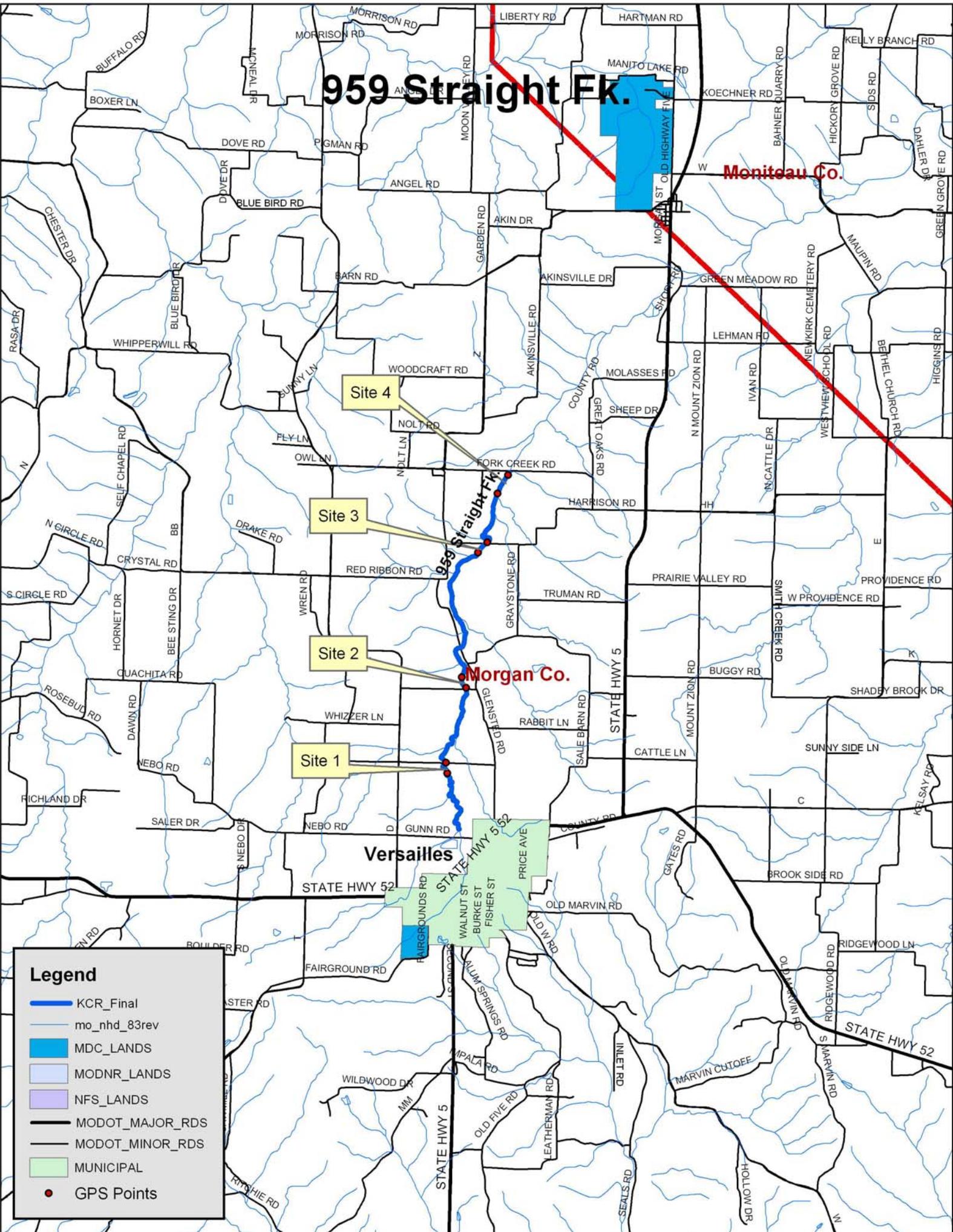
Site 3

Site 2

Site 1

Legend

- KCR_Final
- mo_nhd_83rev
- MDC_LANDS
- MODNR_LANDS
- NFS_LANDS
- MODOT_MAJOR_RDS
- MODOT_MINOR_RDS
- MUNICIPAL
- GPS Points



Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5.01.08 8:30	Location Description (e.g., road crossing):
Stream Name: Straight Fork	Willow Creek Road
Current Weather Conditions: clear	Facility Name(s): Three German’s DBA Lehman
Weather Conditions for Past 10 days: 4.01 inches	Permit Number(s): MO0124818
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): 0512787	Northing (UTM Y): 4256383	Horizontal Accuracy: (EPE / FOM / PDOP) 7 Meters
Site 11	Easting (UTM X): 0512758	Northing (UTM Y): 4256610	Horizontal Accuracy: (EPE / FOM / PDOP) 4 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
74	upstream, T11	75	hauling of gravel; tire tracks @ access	76	downstream, T1
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 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: tire tracks from hauling of gravel. pits along creek bank from hauling of gravel			

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

30% Cobble	40% Gravel	30% 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 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: Gilisa Gould and Aaron Ball

Surveyor’s Signature: Aaron Ball Date of Survey: 5.01.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Straight Fork</u> Waterbody ID: <u>959</u> Site #: <u>1</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>0512787</u> UTM Y: <u>4256383</u> +/- <u>7</u> (meters) 11 UTM X: <u>0512758</u> UTM Y: <u>4256610</u> +/- <u>4</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 Aaron Ball</u>	Dissolved Oxygen
	Date: <u>5.01.08</u> Time: <u>8:30</u>
	Dissolved Oxygen: <u>5.9</u> (mg/L)
	Dissolved Oxygen: _____ (% sat)
	Specific Cond: _____ (µS/cm)
	Water Temperature: <u>15.9</u> (°C)

Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	0.40	0.10	0.30	0.45	0.70	0.15	0.50	0.05	0.70	0.05	0.30	0.15	0.70	0.15	0.30	0.20	0.70	0.25	0.20	0.15	0.60	0.10
	2	0.80	0.10	0.60	0.40	1.40	0.10	1.00	0.10	1.40	0.10	0.60	0.20	1.40	0.20	0.60	0.20	1.40	0.35	0.40	0.20	1.20	0.40
	3	1.20	0.15	0.90	0.45	2.10	0.10	1.50	0.15	2.10	0.10	0.90	0.45	2.10	0.20	0.90	0.30	2.10	0.45	0.60	0.20	1.80	0.60
	4	1.60	0.10	1.20	0.45	2.80	0.00	2.00	0.10	2.80	0.15	1.20	0.45	2.80	0.30	1.20	0.40	2.80	0.60	0.80	0.20	2.40	0.60
	5	2.00	0.15	1.50	0.40	3.50	0.00	2.50	0.15	3.50	0.20	1.50	0.25	3.50	0.30	1.50	0.40	3.50	0.65	1.00	0.15	3.00	0.70
	6	2.40	0.20	1.80	0.30	4.20	0.01	3.00	0.20	4.20	0.30	1.80	0.20	4.20	0.40	1.80	0.30	4.20	0.60	1.20	0.15	3.60	0.95
	7	2.80	0.15	2.10	0.20	4.90	0.15	3.50	0.20	4.90	0.35	2.10	0.30	4.90	0.50	2.10	0.25	4.90	0.50	1.40	0.20	4.20	1.00
	8	3.20	0.15	2.40	0.20	5.60	0.10	4.00	0.15	5.60	0.25	2.40	0.25	5.60	0.55	2.40	0.20	5.60	0.10	1.60	0.10	4.80	0.75
	9	3.60	0.10	2.70	0.10	6.30	0.10	4.50	0.10	6.30	0.10	2.70	0.10	6.30	0.50	2.70	0.10	6.30	0.15	1.80	0.05	5.40	0.50
Right Bank		4.00	0.00	3.00	0.00	7.00	0.00	5.00	0.00	7.00	0.00	3.00	0.00	7.00	0.00	3.00	0.00	7.00	0.00	2.00	0.00	6.00	0.00
Feature Type		run		pool		run		pool		run		run		run		run		pool		riffle		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: Aaron Ball Date: 5.09.08

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: 5.01.08 9:00	Location Description (e.g., road crossing):
Stream Name: Straight Fork	Sims Road
Current Weather Conditions: clear	Facility Name(s): Three German’s DBA Lehman
Weather Conditions for Past 10 days: 4.01 inches	Permit Number(s): MO0124818
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): 0513204	Northing (UTM Y): 4258259	Horizontal Accuracy: (EPE / FOM / PDOP) 2 Meters
Site 11	Easting (UTM X): 0513109	Northing (UTM Y): 4258486	Horizontal Accuracy: (EPE / FOM / PDOP) 4 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
77	downstream, T1	78	cattle tracks	79	upstream, T11
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 #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 checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: pasture, fowl farm electric fence crosses at access (bridge)				

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

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

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

50% Cobble	30% Gravel	10% Sand	% Silt	% Mud/Clay	10% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none in water, banks 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 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 #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 Aaron Ball

Surveyor’s Signature: Aaron Ball Date of Survey: 05.01.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Straight Fork</u> Waterbody ID: <u>959</u> Site #: <u>2</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>0513204</u> UTM Y: <u>4258259</u> +/- <u>2</u> (meters) 11 UTM X: <u>0513109</u> UTM Y: <u>4258486</u> +/- <u>4</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 Aaron Ball</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5.01.08</u> Time: <u>9:00</u> Dissolved Oxygen: <u>8.5</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>15.2</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	0.05	0.30	0.10	0.80	0.25	0.60	0.20	0.60	0.40	0.40	0.05	0.50	0.30	0.60	0.30	0.70	0.20	0.70	0.05	0.50	0.05	
2	0.80	0.10	0.60	0.10	1.60	0.30	1.20	0.50	1.20	0.40	0.80	0.10	1.00	0.45	1.20	0.20	1.40	0.30	1.40	0.10	1.00	0.10	
3	1.20	0.15	0.90	0.05	2.40	0.20	1.80	0.40	1.80	0.40	1.20	0.10	1.50	0.46	1.80	0.20	2.10	0.25	2.10	0.10	1.50	0.20	
4	1.60	0.20	1.20	0.05	3.20	0.25	2.40	0.30	2.40	0.35	1.60	0.10	2.00	0.50	2.40	0.20	2.80	0.10	2.80	0.10	2.00	0.25	
5	2.00	0.20	1.50	0.05	4.00	0.20	3.00	0.15	3.00	0.25	2.00	0.10	2.50	0.40	3.00	0.30	3.50	0.05	3.50	0.05	2.50	0.25	
6	2.40	0.20	1.80	0.10	4.80	0.25	3.60	0.10	3.60	0.20	2.40	0.15	3.00	0.40	3.60	0.40	4.20	0.00	4.20	0.10	3.00	0.30	
7	2.80	0.15	2.10	0.05	5.60	0.15	4.20	0.10	4.20	0.10	2.80	0.10	3.50	0.20	4.20	0.40	4.90	0.10	4.90	0.15	3.50	0.35	
8	3.20	0.05	2.40	0.05	6.40	0.40	4.80	0.10	4.80	0.10	3.20	0.05	4.00	0.10	4.80	0.30	5.60	0.05	5.60	0.10	4.00	0.30	
9	3.60	0.05	2.70	0.10	7.20	0.40	5.40	0.05	5.40	0.10	3.60	0.05	4.50	0.10	5.40	0.15	6.30	0.10	6.30	0.10	4.50	0.20	
Right Bank	4.00	0.00	3.00	0.00	8.00	0.00	6.00	0.00	6.00	0.00	4.00	0.00	5.00	0.00	6.00	0.00	7.00	0.00	7.00	0.00	5.00	0.00	
Feature Type <small>(riffle, run, or pool)</small>	run		riffle		pool		pool		pool		run		run		pool		riffle		riffle		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: Aaron Ball Date: 5.09.08

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: 5.01.08 9:40	Location Description (e.g., road crossing): Harrison Road
Stream Name: Straight Fork	
Current Weather Conditions: cloudy	Facility Name(s): Three German’s DBA Lehman
Weather Conditions for Past 10 days: 4.01 inches	Permit Number(s): MO0124818
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): 0513463	Northing (UTM Y): 4261229	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters
Site 11	Easting (UTM X): 0513662	Northing (UTM Y): 4261452	Horizontal Accuracy: (EPE / FOM / PDOP)	4 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
80	upstream, T11	81	downstream, T1		
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 checked="" type="checkbox"/> Fence	<input checked="" 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%.)

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

Algae covers 70% of the 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 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 #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 Aaron Ball

Surveyor’s Signature: Aaron Ball Date of Survey: 5.01.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Straight Fork</u> Waterbody ID: <u>959</u> Site #: <u>3</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>0513463</u> UTM Y: <u>4261229</u> +/- <u>5</u> (meters) 11 UTM X: <u>0513662</u> UTM Y: <u>4261452</u> +/- <u>4</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 Aaron Ball</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>5.01.08</u> Time: <u>9:40</u> Dissolved Oxygen: <u>10.3</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>15.9</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	0.40	0.05	0.90	0.20	1.10	0.30	1.00	0.25	1.00	0.25	1.00	0.01	0.80	0.05	0.60	0.30	0.50	0.10	0.60	0.15	0.60	0.05
2	0.80	0.05	1.80	0.40	2.20	0.40	2.00	0.35	2.00	0.30	2.00	0.05	1.60	0.05	1.20	0.35	1.00	0.15	1.20	0.10	1.20	0.05
3	1.20	0.01	2.70	0.30	3.30	0.40	3.00	0.30	3.00	0.25	3.00	0.20	2.40	0.15	1.80	0.40	1.50	0.25	1.80	0.15	1.80	0.01
4	1.60	0.01	3.60	0.20	4.40	0.45	4.00	0.25	4.00	0.20	4.00	0.10	3.20	0.10	2.40	0.10	2.00	0.50	2.40	0.15	2.40	0.01
5	2.00	0.05	4.50	0.25	5.50	0.50	5.00	0.20	5.00	0.20	5.00	0.20	4.00	0.15	3.00	0.05	2.50	0.65	3.00	0.30	3.00	0.05
6	2.40	0.10	5.40	0.25	6.60	0.40	6.00	0.20	6.00	0.20	6.00	0.25	4.80	0.20	3.60	0.05	3.00	0.40	3.60	0.30	3.60	0.10
7	2.80	0.15	6.30	0.30	7.70	0.50	7.00	0.20	7.00	0.20	7.00	0.20	5.60	0.20	4.20	0.05	3.50	0.70	4.20	0.20	4.20	0.15
8	3.20	0.20	7.20	0.20	8.80	0.40	8.00	0.20	8.00	0.20	8.00	0.20	6.40	0.20	4.80	0.05	4.00	0.40	4.80	0.10	4.80	0.20
9	3.60	0.10	8.10	0.30	9.90	0.30	9.00	0.15	9.00	0.10	9.00	0.20	7.20	0.25	5.40	0.05	4.50	0.40	5.40	0.05	5.40	0.10
Right Bank	4.00	0.00	9.00	0.00	11.00	0.00	10.00	0.00	10.00	0.00	10.00	0.00	8.00	0.00	6.00	0.00	5.00	0.00	6.00	0.00	6.00	0.00
Feature Type <small>(riffle, run, or pool)</small>	riffle		run		pool		pool		run		run		run		riffle		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: Aaron Ball Date: 5.09.08

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: 5.01.08 10:15	Location Description (e.g., road crossing):
Stream Name: Straight Fork	Four Creek Road
Current Weather Conditions: cloudy	Facility Name(s): Three German’s DBA Lehman
Weather Conditions for Past 10 days: 4.01 inches	Permit Number(s): MO0124818
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): 0513887	Northing (UTM Y): 4262524	Horizontal Accuracy: (EPE / FOM / PDOP) 4 Meters
Site 11	Easting (UTM X): 0514120	Northing (UTM Y): 4262931	Horizontal Accuracy: (EPE / FOM / PDOP) 4 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
84	upstream, T11	85	downstream, T1		
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 checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: pasture				

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%.)

40% Cobble	% Gravel	30% Sand	% Silt	% Mud/Clay	30% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

20% of water’s edge have duckweed; algae covers 80% of the 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 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 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 #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.)

Further upstream Transect 1 seems to stay shallow with the pools and riffles going up on an incline, at least for as far as we can see. Our site just happened to be a deeper run at level ground.

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 Aaron Ball

Surveyor’s Signature: Aaron Ball Date of Survey: 5.01.08

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Straight Fork</u> Waterbody ID: <u>959</u> Site #: <u>4</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>0513887</u> UTM Y: <u>4262524</u> +/- <u>4</u> (meters) 11 UTM X: <u>0514120</u> UTM Y: <u>4262931</u> +/- <u>4</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 Aaron Ball</u>	Dissolved Oxygen Date: <u>5.01.08</u> Time: <u>10:15</u> Dissolved Oxygen: <u>8.4</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>16.2</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	0.20	1.00	0.50	0.80	0.40	0.90	0.40	0.80	0.35	0.90	0.30	1.00	0.35	1.00	0.90	1.10	0.80	1.40	0.75	1.20	0.35
	2	1.40	0.25	2.00	0.60	1.60	0.40	1.80	0.50	1.60	0.40	1.80	0.50	2.00	0.55	2.00	0.20	2.20	0.90	2.80	0.80	2.40	0.40
	3	2.10	0.20	3.00	0.60	2.40	0.50	2.70	0.50	2.40	0.40	2.70	0.60	3.00	0.80	3.00	0.20	3.30	0.80	4.20	0.85	3.60	0.55
	4	2.80	0.05	4.00	0.60	3.20	0.60	3.60	0.50	3.20	0.40	3.60	0.65	4.00	0.95	4.00	0.70	4.40	0.80	5.60	0.80	4.80	0.65
	5	3.50	0.05	5.00	0.50	4.00	0.70	4.50	0.70	4.00	0.40	4.50	0.85	5.00	0.90	5.00	1.00	5.50	1.00	7.00	0.75	6.00	0.80
	6	4.20	0.15	6.00	0.40	4.80	0.60	5.40	0.60	4.80	0.45	5.40	0.80	6.00	0.55	6.00	1.00	6.60	0.80	8.40	0.65	7.20	0.95
	7	4.90	0.15	7.00	0.30	5.60	0.50	6.30	0.60	5.60	0.50	6.30	0.50	7.00	0.40	7.00	0.85	7.70	0.60	9.80	0.60	8.40	1.00
	8	5.60	0.20	8.00	0.30	6.40	0.50	7.20	0.50	6.40	0.50	7.20	0.50	8.00	0.20	8.00	0.70	8.80	0.60	11.20	0.60	9.60	1.00
	9	6.30	0.45	9.00	0.20	7.20	0.20	8.10	0.45	7.20	0.50	8.10	0.50	9.00	0.10	9.00	0.45	9.90	0.55	12.60	0.45	10.80	0.75
Right Bank		7.00	0.00	10.00	0.00	8.00	0.00	9.00	0.00	8.00	0.00	9.00	0.00	10.00	0.00	10.00	0.00	11.00	0.00	14.00	0.00	12.00	0.00
Feature Type		rifle		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: Aaron Ball Date: 5.09.08

WBID# 0959 Straight Fork



Site# 1 Photo ID# 76, Downstream, T01



Site# 1 Photo ID# 74, Upstream, T11



Site# 1 Photo ID# 75, "Tire Tracks"



Site# 2 Photo ID# 77 Downstream, T01

WBID# 0959 Straight Fork



Site# 2 Photo ID# 78 “Cattle Tracks”



Site# 2 Photo ID# 79, Upstream T11



Site# 3 Photo ID# 80 Upstream, T11



Site# 3 Photo ID# 81 Downstream, T01

WBID# 0959 Straight Fork



Site# 4 Photo ID# 84 Upstream, T11



Site# 4 Photo ID# 85 Downstream, T01