



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0321 Grove Creek

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): Grove Creek
Missouri Water Body Identification (WBID) Number: 321
8-digit HUC: 10240012
County(ies), Listed Upstream to Downstream: Platte
Upstream Legal Description (from Table H): 54N 33W Sec9
Downstream Legal Description (from Table H): 54N 34W Sec13
Number of sites evaluated: 3
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 3
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): Timber Springs Est. WWTF MO 0123099

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:** 04.18.08

321 Grove Cr.

STATE HWY 116

Buchanan Co.

Clinton Co.

Platte Co.

Trimble

Clay Co.
Smithville

Ridgely

Edgerton

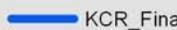
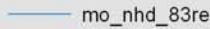
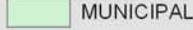
321 Grove Cr.

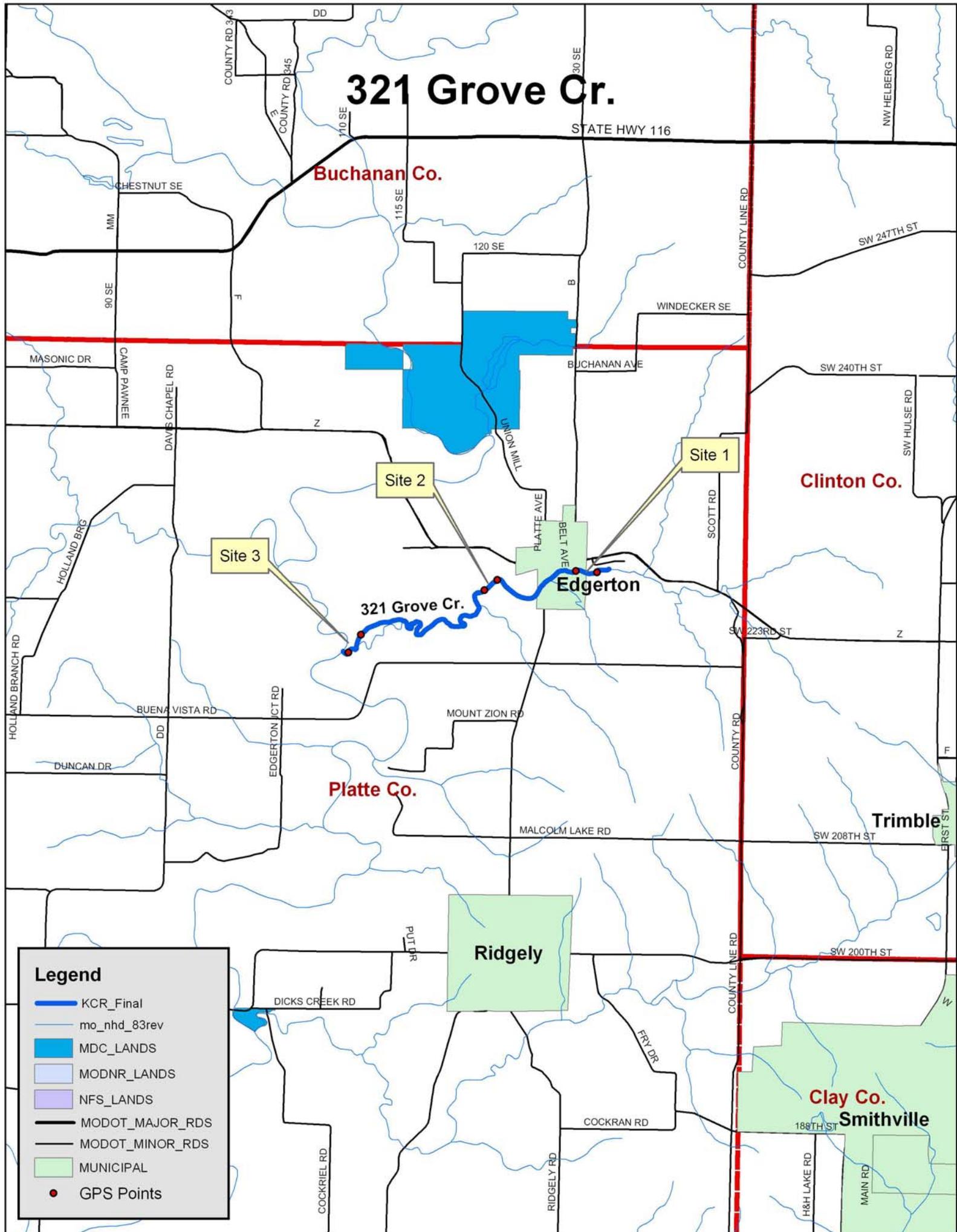
Site 1

Site 2

Site 3

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: 4.14.08 12:54	Location Description (e.g., road crossing): along Ball Park Road
Stream Name: Grove Creek	
Current Weather Conditions: clear	Facility Name(s): Timber Springs Est. WWTF
Weather Conditions for Past 10 days: 1.36 inches	Permit Number(s): MO0123099
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): 0360275	Northing (UTM Y): 4373930	Horizontal Accuracy: (EPE / FOM / PDOP) 4 Meters
Site 11	Easting (UTM X): 0359980	Northing (UTM Y): 4373957	Horizontal Accuracy: (EPE / FOM / PDOP) 10 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
7	downstream, T1	8	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 # 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 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 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: trash			

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

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

none in water

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: brown
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.)

none

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: _____ 04.14.08 _____

Organization: ___ SES, Inc _____ Position: ___ Field Team Leader _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Grove Creek</u> Waterbody ID: <u>321</u> Site #: <u>1</u> Estimated Channel Incision: <u>3</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0360275</u> UTM Y: <u>4373930</u> +/- <u>4</u> (meters) 11 UTM X: <u>0359980</u> UTM Y: <u>4373957</u> +/- <u>10</u> (meters) Average Stream Width: <u>4</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>4.19.08</u> Time: <u>12:54</u>
	Dissolved Oxygen: <u>8.9</u> (mg/L)
	Dissolved Oxygen: _____ (% sat)
	Specific Cond: _____ (µS/cm)
	Water Temperature: <u>9.8</u> (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.20	0.10	0.40	0.20	0.40	0.05	0.60	0.15	0.50	0.10	0.30	0.05	0.50	0.20	0.60	0.15	0.50	0.15	0.30	0.10	0.60	0.15
2	0.40	0.15	0.80	0.20	0.80	0.10	1.20	0.10	1.00	0.20	0.60	0.20	1.00	0.30	1.20	0.30	1.00	0.20	0.60	0.15	1.20	0.01
3	0.60	0.15	1.20	0.25	1.20	0.15	1.80	0.10	1.50	0.25	0.90	0.20	1.50	0.40	1.80	0.35	1.50	0.20	0.90	0.30	1.80	0.10
4	0.80	0.20	1.60	0.25	1.60	0.10	2.40	0.05	2.00	0.25	1.20	0.15	2.00	0.40	2.40	0.40	2.00	0.15	1.20	0.40	2.40	0.10
5	1.00	0.20	2.00	0.25	2.00	0.15	3.00	0.05	2.50	0.25	1.50	0.15	2.50	0.55	3.00	0.40	2.50	0.10	1.50	0.55	3.00	0.10
6	1.20	0.20	2.40	0.30	2.40	0.20	3.60	0.10	3.00	0.20	1.80	0.15	3.00	0.55	3.60	0.40	3.00	0.10	1.80	0.55	3.60	0.20
7	1.40	0.25	2.80	0.30	2.80	0.20	4.20	0.20	3.50	0.20	2.10	0.10	3.50	0.60	4.20	0.35	3.50	0.10	2.10	0.50	4.20	0.35
8	1.60	0.20	3.20	0.25	3.20	0.10	4.80	0.20	4.00	0.20	2.40	0.10	4.00	0.65	4.80	0.30	4.00	0.20	2.40	0.40	4.80	0.45
9	1.80	0.15	3.60	0.35	3.60	0.05	5.40	0.20	4.50	0.20	2.70	0.10	4.50	0.45	5.40	0.30	4.50	0.25	2.70	0.30	5.40	0.50
Right Bank	2.00	0.20	4.00	0.35	4.00	0.01	6.00	0.10	5.00	0.25	3.00	0.10	5.00	0.20	6.00	0.20	5.00	0.30	3.00	0.30	6.00	0.45
Feature Type <small>(riffle, run, or pool)</small>	riffle		run		riffle		run		run		riffle		pool		run		riffle		run		riffle	

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

Surveyor's Signature: Aaron Ball Date: 4.18.08

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: 4.14.08 13:30	Location Description (e.g., road crossing): south off of Highway Z, west side of Edgerton, MO
Stream Name: Grove Creek	
Current Weather Conditions: clear	Facility Name(s): Timber Springs Est. WWTF
Weather Conditions for Past 10 days: 1.36 inches	Permit Number(s): MO0123099
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): 0358895	Northing (UTM Y): 4373836	Horizontal Accuracy: (EPE / FOM / PDOP) 5.0 Meters
Site 11	Easting (UTM X): 0358717	Northing (UTM Y): 4373686	Horizontal Accuracy: (EPE / FOM / PDOP) 3.0 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
9	downstream, T1	10	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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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

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

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

% Cobble	40% Gravel	40% Sand	% Silt	20% 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 checked="" 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.)

none

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: __ 4.14.08 _____

Organization: __ SES, Inc _____ Position: _____ Field Team Leader _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Grove Creek</u> Waterbody ID: <u>321</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>0358895</u> UTM Y: <u>4373836</u> +/- <u>5</u> (meters) 11 UTM X: <u>0358717</u> UTM Y: <u>4373686</u> +/- <u>3</u> (meters) Average Stream Width: <u>4</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>4.14.08</u> Time: <u>13:30</u> Dissolved Oxygen: <u>10.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>10.9</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	0.20	0.15	0.50	0.10	0.50	0.10	0.30	0.15	0.40	0.10	0.80	0.15	0.40	0.10	0.70	0.15	0.60	0.10	0.50	0.25	0.70	0.10
	2	0.40	0.15	1.00	0.10	1.00	0.05	0.60	0.10	0.80	0.20	1.60	0.20	0.80	0.20	1.40	0.20	1.20	0.15	1.00	0.30	1.40	0.10
	3	0.60	0.25	1.50	0.05	1.50	0.15	0.90	0.15	1.20	0.20	2.40	0.30	1.20	0.25	2.10	0.20	1.80	0.20	1.50	0.20	2.10	0.15
	4	0.80	0.25	2.00	0.05	2.00	0.25	1.20	0.20	1.60	0.30	3.20	0.20	1.60	0.30	2.80	0.20	2.40	0.15	2.00	0.20	2.80	0.15
	5	1.00	0.30	2.50	0.10	2.50	0.35	1.50	0.30	2.00	0.30	4.00	0.15	2.00	0.40	3.50	0.10	3.00	0.10	2.50	0.20	3.50	0.20
	6	1.20	0.30	3.00	0.10	3.00	0.50	1.80	0.40	2.40	0.25	4.80	0.10	2.40	0.50	4.20	0.10	3.60	0.20	3.00	0.20	4.20	0.20
	7	1.40	0.30	3.50	0.20	3.50	0.40	2.10	0.40	2.80	0.25	5.60	0.10	2.80	0.60	4.90	0.05	4.20	0.20	3.50	0.20	4.90	0.15
	8	1.60	0.30	4.00	0.30	4.00	0.20	2.40	0.40	3.20	0.20	6.40	0.10	3.20	0.60	5.60	0.01	4.80	0.20	4.00	0.20	5.60	0.15
	9	1.80	0.25	4.50	0.30	4.50	0.30	2.70	0.30	3.60	0.10	7.20	0.10	3.60	0.55	6.30	0.01	5.40	0.20	4.50	0.20	6.30	0.15
Right Bank		2.00	0.20	5.00	0.35	5.00	0.20	3.00	0.20	4.00	0.05	8.00	0.05	4.00	0.45	7.00	0.01	6.00	0.15	5.00	0.15	7.00	0.20
Feature Type <small>(riffle, run, or pool)</small>		run		run		run		run		run		riffle		pool		riffle		run		run		run	

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

Surveyor's Signature: Aaron Ball Date: 4.18.08

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: 4.14.08 14:35	Location Description (e.g., road crossing): off of Buena Vista Road
Stream Name: Grove Creek	
Current Weather Conditions: clear	Facility Name(s): Timber Springs Est. WWTF
Weather Conditions for Past 10 days: 1.36 inches	Permit Number(s): MO0123099
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): 0357002	Northing (UTM Y): 4373068	Horizontal Accuracy: (EPE / FOM / PDOP) 7.0 Meters
Site 11	Easting (UTM X): 0356821	Northing (UTM Y): 4372814	Horizontal Accuracy: (EPE / FOM / PDOP) 4.0 Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
11	upstream, T11	12	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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: pheasant and duck hunting grounds, privately owned				

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	% Sand	30% Silt	70% 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 bare, probably from previous high water levels.

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: brown, silty
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 # 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.)

none

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: _____ 4.14.08 _____

Organization: _____ SES, Inc. _____ Position: _____ Field Team Leader _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Grove Creek</u> Waterbody ID: <u>321</u> Site #: <u>3</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>0357002</u> UTM Y: <u>4373068</u> +/- <u>7</u> (meters) 11 UTM X: <u>0356821</u> UTM Y: <u>4372814</u> +/- <u>4</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 Aaron Ball</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>4.14.08</u> Time: <u>14:35</u> Dissolved Oxygen: <u>15.8</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>10.2</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	
	1	0.70	0.60	0.70	0.70	0.90	0.90	0.80	1.00	0.90	0.80	0.70	0.70	0.70	0.80	0.50	0.65	0.70	0.70	0.70	0.90	0.70	0.70
	2	1.40	0.60	1.40	0.70	1.80	1.00	1.60	0.90	1.80	0.95	1.40	0.85	1.40	0.80	1.00	0.60	1.40	0.75	1.40	0.90	1.40	0.75
	3	2.10	0.65	2.10	0.75	2.70	1.00	2.40	0.85	2.70	0.95	2.10	1.00	2.10	0.85	1.50	0.65	2.10	0.80	2.10	1.00	2.10	0.90
	4	2.80	0.80	2.80	1.00	3.60	1.00	3.20	0.80	3.60	1.00	2.80	1.00	2.80	0.85	2.00	0.70	2.80	0.80	2.80	1.00	2.80	0.95
	5	3.50	1.00	3.50	1.00	4.50	0.95	4.00	0.90	4.50	1.00	3.50	1.00	3.50	1.00	2.50	1.00	3.50	0.95	3.50	1.00	3.50	1.00
	6	4.20	1.00	4.20	1.00	5.40	0.70	4.80	1.00	5.40	1.00	4.20	1.00	4.20	1.00	3.00	1.00	4.20	1.00	4.20	0.95	4.20	1.00
	7	4.90	0.75	4.90	0.90	6.30	0.45	5.60	1.00	6.30	1.00	4.90	1.00	4.90	1.00	3.50	1.00	4.90	1.00	4.90	0.95	4.90	1.00
	8	5.60	0.50	5.60	0.90	7.20	0.35	6.40	1.00	7.20	1.00	5.60	0.90	5.60	1.00	4.00	1.00	5.60	1.00	5.60	0.80	5.60	0.95
	9	6.30	0.30	6.30	0.75	8.10	0.35	7.20	1.00	8.10	0.90	6.30	0.75	6.30	0.75	4.50	0.75	6.30	0.90	6.30	0.75	6.30	0.70
Right Bank		7.00	0.30	7.00	0.70	9.00	0.25	8.00	0.85	9.00	0.85	7.00	0.60	7.00	0.40	5.00	0.45	7.00	0.85	7.00	0.60	7.00	0.65
Feature Type		pool		pool		pool		pool		pool		run											

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Aaron Ball Date: 4.18.08

WBID# 0321 Grove Creek



Site# 1 Photo ID# 7 Downstream, T01



Site# 1 Photo ID# 8, Upstream, T11



Site#2 Photo ID# 10, Upstream, T11



Site# 2 Photo ID# 9 Downstream, T01

WBID# 0321 Grove Creek



Site# 3 Photo ID# 11, Upstream, T11



Site# 3 Photo ID# 12, Downstream, T01