



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0651 Little Shoal Creek

Submitted by

Pickett Ray & Silver Inc.

to

Missouri Department of Natural Resources
Water Protection Program

Date received: October 31, 2007



Missouri Department of Natural Resources
 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): <i>Little Shoal Creek</i>	
Missouri Water Body Identification (WBID) Number: <i>651</i>	
8-digit HUC: <i>10280201</i>	County: <i>Putnam</i>
Upstream Legal Description (from Table H): <i>14.66N, 16W</i>	
Downstream Legal Description (from Table H): <i>Mouth</i>	
Number of sites evaluated: <i>5</i>	
List all sites numbers, listed consequentially upstream to downstream: <i>651-1, 652-2, 653-3, 651-4, 651-5,</i>	

Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Facility Information (list all permitted discharges to the water body segment)

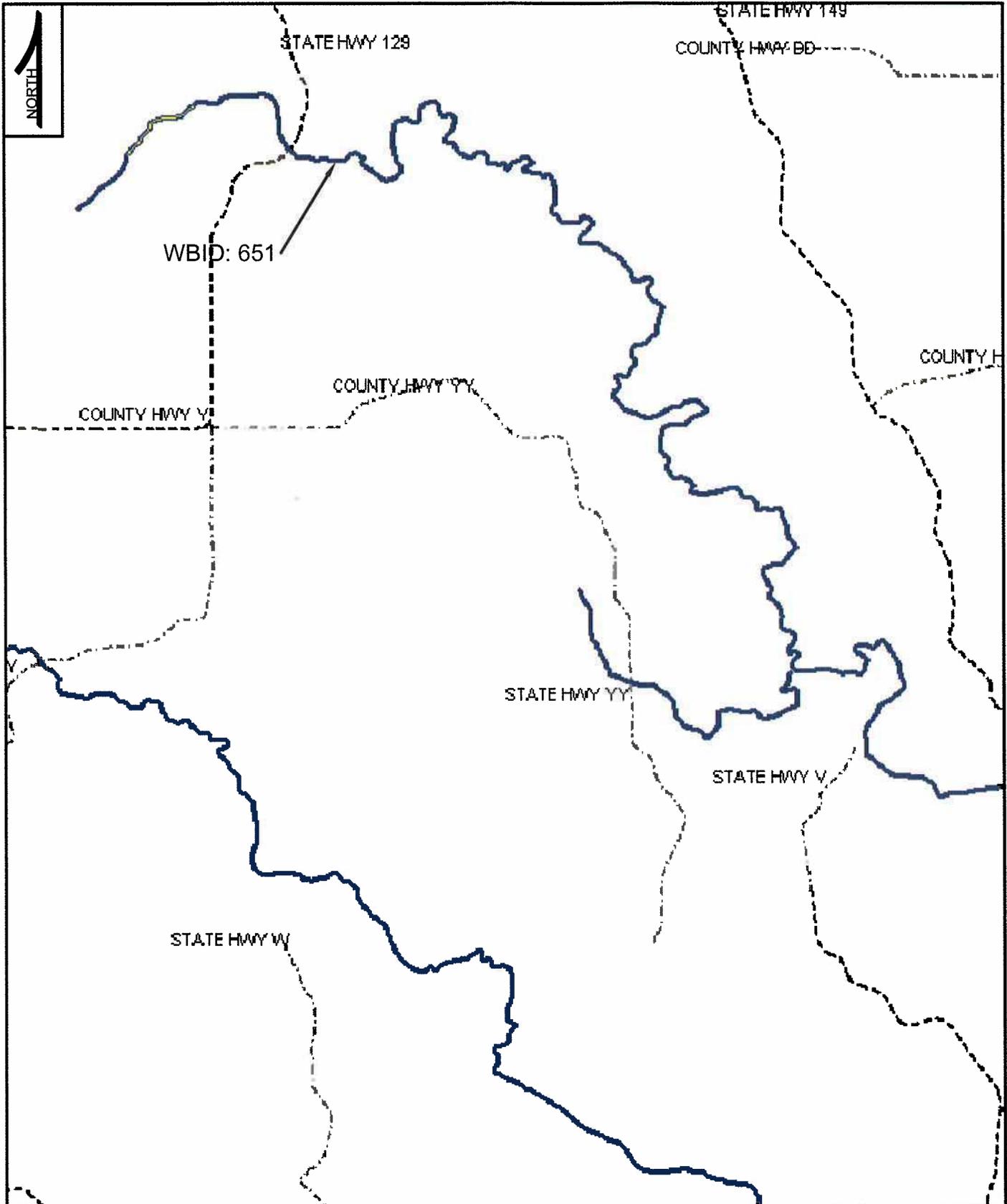
Facility Name(s) and Permit Number(s): <i>PSF Whitetail Finishing MO 0117421</i>

III. UAA Surveyor (please print legibly)

Name of Surveyor <i>Matt Cosby</i>	Telephone Number: <i>636 3971211</i>
Organization/Employer: <i>PRS</i>	

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

Signed: *[Signature]* Date: *9/12/07*



PICKETT RAY & SILVER

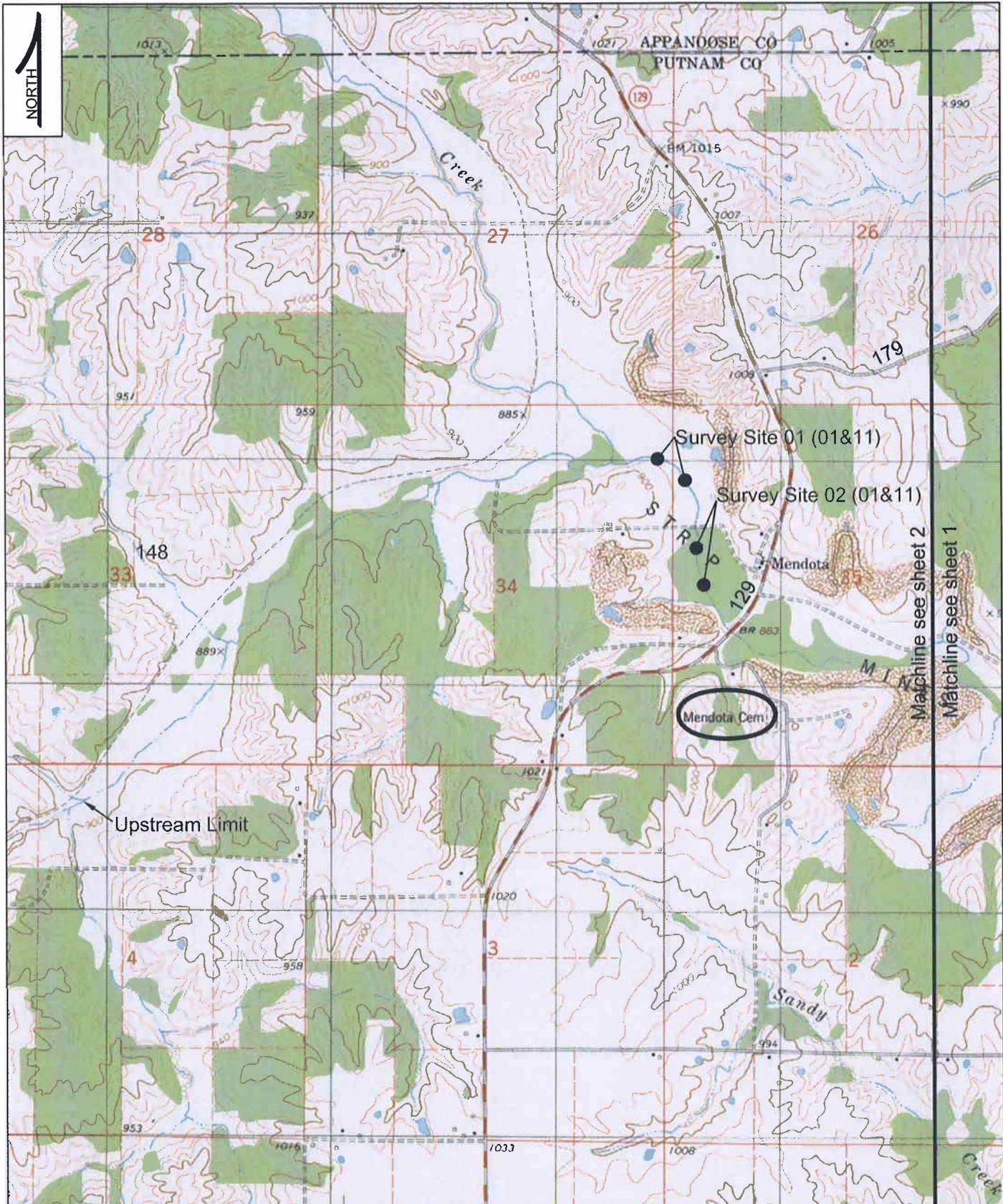
Civil Engineers Land Surveyors Natural Resources
 Address: Phone: (636)397-1211
 333 Mid Rivers Mall Drive Fax: (636)397-1104
 St. Peters, Missouri 63376 Website: www.prs3.com

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WBID #: 0651
 Name: Little Shoal Creek
 County: Putnam
 GIS Location Map

SHEET 1 OF 1

PRS Job Number: 07031.MODN.01E
 Drawn By: BLS Date: 10-11-07
 Checked By: JCV Date: 10-11-07



PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources
 Address: 333 Mid Rivers Mall Drive St. Peters, Missouri 63376
 Phone: (636)397-1211 Fax: (636)397-1104
 Website: www.prs3.com

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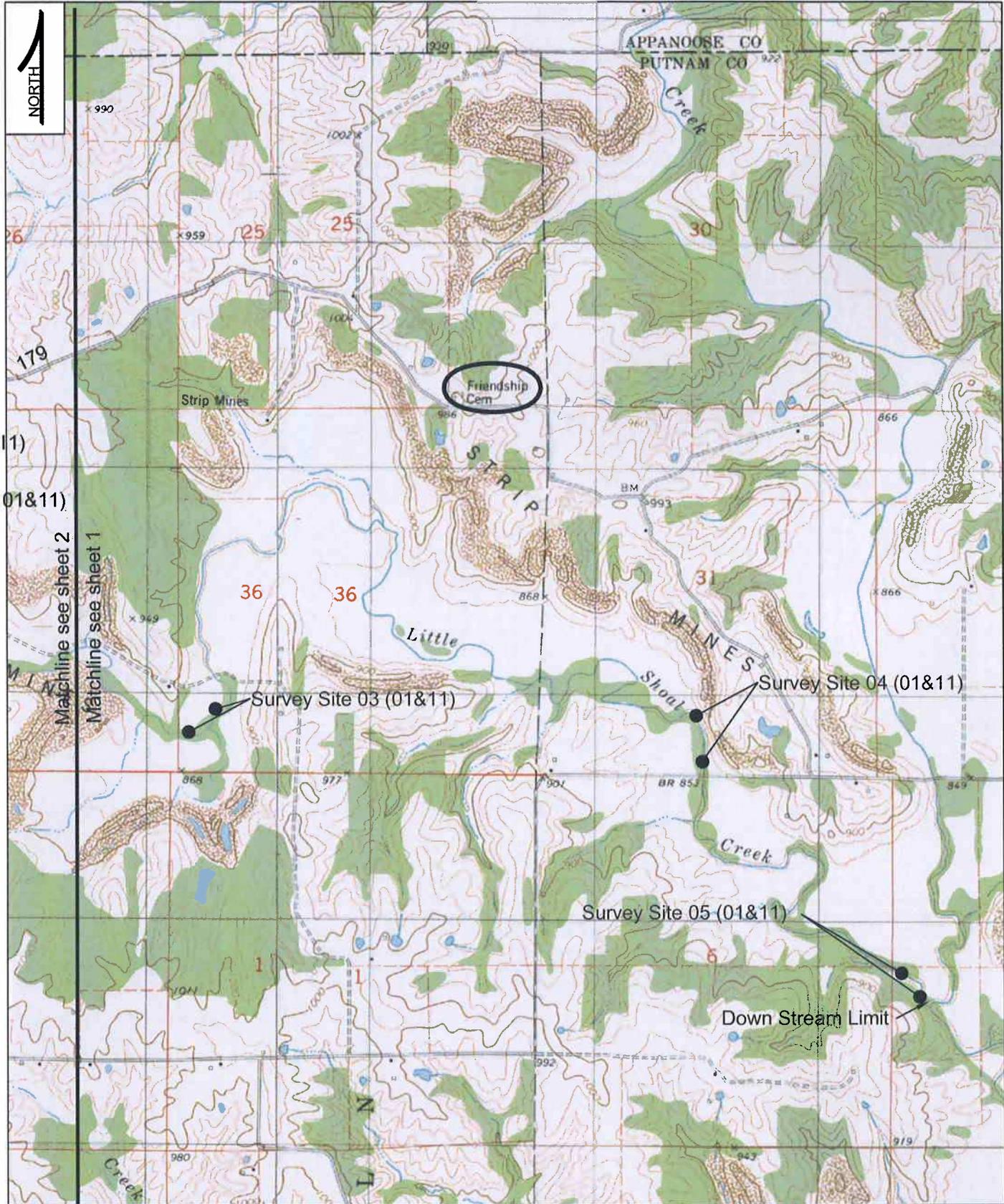
WBID #: 0651
 Name: Little Shoal Creek
 County: Putnam
 USGS Location Map

SHEET 1 OF 2



GRAPHIC SCALE
 1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
 Drawn By: BLS Date: 9-25-07
 Checked By: JCV Date: 9-25-07



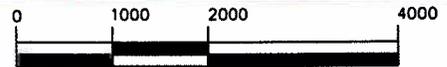
PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources
 Address: 333 Mid Rivers Mall Drive St. Peters, Missouri 63376
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 Website: www.prs3.com

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WBID #: 0651
 Name: Little Shoal Creek
 County: Putnam
 USGS Location Map

SHEET 2 OF 2



GRAPHIC SCALE
 1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
 Drawn By: BLS Date: 9-25-07
 Checked By: JCV Date: 9-25-07

WBID # 151

Site # 1



Missouri Field Data Sheets for Recreational Use Stream Surveys

Department of Natural Resources

Data Sheet B – Site Characterization

(must be completed for each site)

Date & Time: <u>9/12/07 11:00 am</u>	Site Location Description (e.g., road crossing): <u>Upstream of road crossing at Maple Trail</u>
Personnel (Data Collectors): <u>CS + MC</u>	Facility Name: <u>PSF Whitetail Finishing</u>
Current Weather Conditions: <u>Sunny 60°F</u>	Permit Number: <u>MO 01174-21</u>
Weather Conditions for Past 10 days: <u>1.08 in rain</u>	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>508428m</u>	Northing (UTM Y): <u>4491217m</u>	Horizontal Accuracy: <u>±3</u> Meters <u>(0.3m)</u>
Site 11	Easting (UTM X): <u>508557m</u>	Northing (UTM Y): <u>4491132m</u>	Horizontal Accuracy: <u>±0.3</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>See attached photos & descriptions.</u>					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

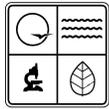
Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

WBID # 651

Site # 1



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
 Data Sheet B – Site Characterization (continued)

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

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

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
Comments / Other: <u>N/A</u>				

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

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

<u>N/A</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input 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 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 effect another use.

WBID # 451

Site # 1



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization (continued)

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.)

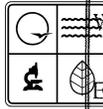
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: 9/12/07

Organization: Pickett, Ray, + Silver Inc Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



State: Missouri Site #: 4
 Department of Natural Resources
 Elevation (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: 508428m UTM Y: 4491277m +/- 3 (meters)
 11 UTM X: 508557m UTM Y: 4491132m +/- 0.3 (meters)

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach) (20x average stream width)

Field Staff: LS & MC

Dissolved Oxygen

Date: 9/12/07 Time: 11:00 A
 Dissolved Oxygen: 8.73 (mg/L)
 Dissolved Oxygen: _____ (% sat)
 Specific Cond: _____ (µS/cm)
 Water Temperature: 14.1 (°C)

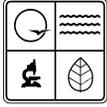
Transect Cross-Section

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	.61	.65	.54	.19	.42	.13	.91	.01	.93	.17	.56	.30	.39	.11	.46	.20	.67	.10	.17	.10	.33	.05
	2	1.2	.51	1.1	.21	.84	.14	1.8	0	1.9	.05	1.1	.40	.78	.20	.92	.26	1.3	0	.34	.11	.66	.06
	3	1.8	.20	1.6	.03	1.3	.30	2.7	0	2.8	0	1.7	.52	1.2	.18	1.4	.24	2.0	0	.51	.11	1.0	.06
	4	2.4	.15	2.2	.09	1.7	.29	3.6	0	3.7	0	2.2	.45	1.6	.20	1.8	.25	2.7	0	.68	.10	1.3	.10
	5	3.1	.26	2.7	.14	2.1	.29	4.6	0	4.7	0	2.8	.38	1.9	.24	2.3	.26	3.4	.65	.85	.08	1.7	.10
	6	3.7	.20	3.2	.15	2.5	.29	5.5	0	5.6	.13	3.4	.30	2.3	.26	2.8	.28	4.0	.68	1.0	.05	2.0	.09
	7	4.3	.13	3.8	.19	2.9	.30	6.4	0	6.5	.12	3.9	.23	2.7	.15	3.2	.26	4.7	.10	1.2	.02	2.3	.06
	8	4.9	.10	4.3	.15	3.4	.13	7.3	.09	7.4	.06	4.5	.16	3.1	.14	3.7	.18	5.4	.04	1.4	.05	2.6	.05
9	5.5	.04	4.9	.09	3.8	.06	8.2	.06	8.4	.05	5.0	.10	3.5	.09	4.1	.10	6.0	.03	1.5	.01	3.0	.05	
Right Bank	6.1	0	5.4	0	4.2	0	9.1	0	9.3	0	5.6	0	3.9	0	4.6	0	6.7	0	1.7	0	3.3	0	
Feature Type	Pool		Run		Run		Riffle		Run		Pool		Run		Run		Riffle		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 0.01 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

WBID # 651

Site # 32



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources

Data Sheet B – Site Characterization

(must be completed for each site)

Date & Time: <u>9/12/07 12:00 pm</u>	Site Location Description (e.g., road crossing): <u>Upstream</u> <u>Downstream of road crossing @ Hwy 129</u>
Personnel (Data Collectors): <u>LS + MC</u>	Facility Name: <u>PSF whitetail Finishing</u>
Current Weather Conditions: <u>Sunny, 65°F</u>	Permit Number: <u>MO 0117421</u>
Weather Conditions for Past 10 days: <u>1.08 in Rain</u>	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>508628m</u>	Northing (UTM Y): <u>4490852m</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>1.6</u> Meters
Site 11	Easting (UTM X): <u>508638m</u>	Northing (UTM Y): <u>4490700m</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>0.3</u> Meters

Photos:

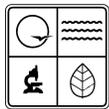
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>See attached photos and descriptions</u>					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at 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.)				

WBID # 651

Site # 2



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
 Data Sheet B – Site Characterization (continued)

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

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

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
Comments / Other: <u>N/A</u>				

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

% Cobble	<u>15</u>	% Gravel	<u>70</u>	% Sand	<u>15</u>	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

<u>N/A</u>

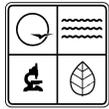
Water Characteristics*: (Mark all that apply.)

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

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

WBID # 651

Site # 2



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization (continued)

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.)

Numerous log jams / fallen trees throughout transect

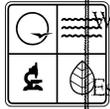
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Missouri 651 Site #: 2
 Department of Natural Resources
 Estimated Channel Elevation: 1.2 (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: 508629 m UTM Y: 4490852 m +/- 1.6 (meters)
 11 UTM X: 508638 m UTM Y: 4490700 m +/- 0.3 (meters)

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach) (20x average stream width)

Field Staff: LS + MC

Dissolved Oxygen	
Date: <u>9/12/07</u>	Time: <u>12:00</u>
Dissolved Oxygen: <u>6.81</u> (mg/L)	
Dissolved Oxygen: _____ (% sat)	
Specific Cond: _____ (µS/cm)	
Water Temperature: <u>14</u> (°C)	

Transect Cross-Section

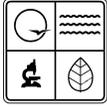
		01		02		03		04		05		06		07		08		09		10		11		
Station		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (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		.51	.13	.39	.02	>1		.37	.03	.16	.01	.41	.10	.30	.11	.37	.11	.20	.05		>1	
2				1.0	.10	.78	.05			.74	.06	.32	.05	.82	.02	.60	.09	.74	.13	.40	.08			
3				1.5	.14	1.2	.05			1.1	.11	.48	.10	1.2	.06	.90	.07	1.1	.08	.60	.10			
4				2.0	.12	1.6	.10			1.5	.13	.64	.13	1.6	.10	1.2	.04	1.5	.11	.80	.10			
5				2.6	.08	2.0	0			1.9	.15	.80	.14	2.1	.09	1.5	0	1.9	.10	1.0	.10			
6				3.1	0	2.3	.02			2.2	.16	.96	.15	2.5	.05	1.8	.02	2.2	.10	1.2	.13			
7				3.6	.03	2.7	.04			2.6	.16	1.1	.19	2.9	.01	2.1	.10	2.4	.09	1.4	.14			
8				4.1	.05	3.1	.02			3.0	.05	1.3	.18	3.3	0	2.4	.11	3.0	.03	1.6	.10			
9				4.6	.02	3.5	.01			3.3	.05	1.4	.10	3.7	.08	2.7	.05	3.3	.05	1.8	.08			
Right Bank		~8	0	5.1	0	3.9	0	~9	0	3.7	0	1.6	0	4.1	0	3	0	3.7	0	2.0	0	~6	0	
Feature Type		Pool		Run		Riffle		Pool		Run		Pool												
		(riffle, run, or 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 0.01 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Signed: _____

Date: _____

WBID # 651
 Site # 3



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources

Data Sheet B – Site Characterization
 (must be completed for each site)

Date & Time: <u>9/13/07 9:00A</u>	Site Location Description (e.g., road crossing): <u>Maple trail</u>
Personnel (Data Collectors): <u>LS + MC</u>	<u>Downstream of Roadcrossing (Bridgeout)</u>
Current Weather Conditions: <u>Sunny, 50°F</u>	Facility Name: <u>PSF Whitetail Finishing</u>
Weather Conditions for Past 10 days: <u>1.08 in. rain</u>	Permit Number: <u>MO 0117421</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>510171m</u>	Northing (UTM Y): <u>4490018m</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>5.6</u> Meters
Site 11	Easting (UTM X): <u>510271m</u>	Northing (UTM Y): <u>4490128m</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>4.3</u> Meters

Photos:

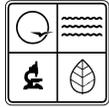
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>See Attached photos and descriptions.</u>					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

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

WBID # 651

Site # 3



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
 Data Sheet B – Site Characterization (continued)

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

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

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
Comments / Other: N/A				

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

% Cobble	<u>45</u> % Gravel	<u>45</u> % Sand	<u>10</u> % Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

N/A

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 checked="" 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 effect another use.

WBID # 651

Site # 3



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization (continued)

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.)

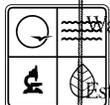
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: 9/13/07

Organization: Pickett, Ray, & Silver Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Missouri
Department of
Natural Resources

Site #: 3

(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: 51071m UTM Y: 4490018m +/- 5.6 (meters)

11 UTM X: 510271m UTM Y: 4490128m +/- 4.3 (meters)

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)

(To determine Length of Reach) (20x average stream width)

Field Staff: LS + MC

Dissolved Oxygen

Date: 9/13/07 Time: 9:00A

Dissolved Oxygen: 8.74 (mg/L)

Dissolved Oxygen: _____ (% sat)

Specific Cond: _____ (µS/cm)

Water Temperature: 14.0 (°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	.32	.01	.60	.43	.6	.31	.61	.01	.35	.05	>1	>1	>1	.38	.05	.36	.13	.55	.07			
2	.64	.01	1.2	.55	1.2	.62	1.2	0	.7	.10				.76	.04	.72	.21	1.1	.02			
3	.96	.02	1.8	.46	1.8	.74	1.8	.05	1.1	.09				1.1	.05	1.1	.25	1.7	0			
4	1.3	.03	2.4	.53	2.4	.41	2.4	0	1.4	.06				1.5	.06	1.4	.15	2.2	.03			
5	1.6	.05	3.0	.46	3.0	.40	3.0	0	1.8	.05				1.9	.09	1.8	.10	2.8	.05			
6	1.9	.06	3.6	.49	3.6	.20	3.6	0	2.1	.04				2.3	.04	2.2	.11	3.3	.10			
7	2.2	.09	4.2	.39	4.2	.09	4.2	.04	2.5	.18				2.7	.05	2.5	.10	3.9	.06			
8	2.6	.09	4.8	.2	4.8	.10	4.8	.06	2.8	.21				3.0	.02	2.9	.10	4.4	.05			
9	2.9	.06	5.4	.05	5.4	.02	5.4	.05	3.2	.14				3.4	.02	3.2	.05	5.0	.05			
Right Bank	3.2	0	6.0	0	6.0	0	6.1	0	3.5	0	~7	0	~12	0	~10	0	3.8	0	3.6	0	5.5	0
Feature Type	Riffle		Pool		Pool		Run		Run		Pool		Pool		Pool		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 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

WBID # 651
 Site # 4



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization
 (must be completed for each site)

Date & Time: <u>9/12/07 6:00 pm</u>	Site Location Description (e.g., road crossing): <u>Upstream of Road crossing @ 127th St</u>
Personnel (Data Collectors): <u>LS & MC</u>	Facility Name: <u>PSF White tail Finishing</u>
Current Weather Conditions: <u>Sunny, 65°</u>	Permit Number: <u>MO 01174-21</u>
Weather Conditions for Past 10 days: <u>1.08 in rain</u>	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>512444 m</u>	Northing (UTM Y): <u>4490077 m</u>	Horizontal Accuracy: <u>±1</u> Meters (EPE / FOM / PDOP)
Site 11	Easting (UTM X): <u>512474 m</u>	Northing (UTM Y): <u>4489902 m</u>	Horizontal Accuracy: <u>±0.6</u> Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>See attached photos and descriptions.</u>					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

WBID # 651

Site # 4



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization (continued)

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

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

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

% Cobble	<u>40</u> % Gravel	<u>40</u> % Sand	% Silt	<u>20</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

N/A

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 type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input checked="" type="checkbox"/> Sludge	<input checked="" 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 effect another use.

WBID # 1051

Site # 4



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of
Natural Resources
Data Sheet B – Site Characterization (continued)

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.)

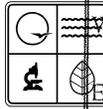
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: 9/12/07

Organization: Pickett, Ray, & Silver Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Missouri
Department of
Natural Resources

Waterbody ID: 051 Site #: 4

Stream Elevation (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: 512444m UTM Y: 4490077m +/- 1 (meters)
11 UTM X: 512474m UTM Y: 4489902m +/- 0.6 (meters)

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)
(To determine Length of Reach) (20x average stream width)

Field Staff: LS JMC

Dissolved Oxygen

Date: 9/12/07 Time: 6:00 pm

Dissolved Oxygen: 8.26 (mg/L)

Dissolved Oxygen: _____ (% sat)

Specific Cond: _____ (µS/cm)

Water Temperature: 17.6 (°C)

Transect Cross-Section

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		
1		>1	.44	.02	.40	.05	.40	.03	.41	.23	.61	.04	.32	.03	.76	.20	.35	.01	.88	.14	.48	.10	
2			.88	.02	.80	.03	.80	.02	.82	.15	1.2	.21	.64	.10	1.5	.30	.70	.05	1.8	.19	.96	.15	
3			1.3	.01	1.2	.05	1.2	.03	1.2	.20	1.8	.23	.96	.12	2.3	.34	1.05	.10	2.6	.20	1.4	.24	
4			1.8	.04	1.6	.09	1.6	.05	1.6	.24	2.4	.28	1.3	.11	3.0	.41	1.4	.10	3.5	.20	1.9	.27	
5			2.2	.09	2.0	.14	2.0	.09	2.1	.45	3.1	.32	1.6	.13	3.8	.40	1.8	.15	4.4	.19	2.4	.33	
6			2.6	.08	2.4	.10	2.4	.10	2.5	.62	3.7	.25	1.9	.14	4.6	.40	2.1	.33	5.3	.20	2.9	.35	
7			3.1	.11	2.8	.08	2.8	.10	2.9	.60	4.3	.22	2.2	.14	5.3	.43	2.5	.55	6.2	.45	3.4	.40	
8			3.5	.13	3.2	.05	3.2	.11	3.3	.50	4.9	.14	2.5	.13	6.1	.45	2.8	.64	7.0	.44	3.8	.40	
9			4.0	.10	3.6	.02	3.6	.05	3.7	.30	5.5	.03	2.9	.10	6.8	.35	3.2	.50	7.9	.45	4.3	.30	
Right Bank		~5	0	4.4	0	4	0	4	0	4.1	0	6.1	0	3.2	0	7.6	0	3.5	0	8.8	0	4.8	0
Feature Type		Pool		Run		Run		Run		Pool		Run		Run									
(riffle, run, or 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 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

WBID # 651
 Site # 5



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization
 (must be completed for each site)

Date & Time: <u>9/12/07 4:00 pm</u>	Site Location Description (e.g., road crossing): <u>Upstream of confluence w/650</u>
Personnel (Data Collectors): <u>LS & MC</u>	Facility Name: <u>PSF Whitetail Finishing</u>
Current Weather Conditions: <u>Sunny, 65°F</u>	Permit Number: <u>MO 0117421</u>
Weather Conditions for Past 10 days: <u>1.08 in Rain</u>	
Drought Conditions?: No drought <input checked="" type="checkbox"/> Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>513388 m</u>	Northing (UTM Y): <u>4488967 m</u>	Horizontal Accuracy: <u>9.6</u> Meters (EPE / FOM / PDOP)		
Site 11	Easting (UTM X): <u>513464 m</u>	Northing (UTM Y): <u>4488848</u>	Horizontal Accuracy: <u>0.9</u> Meters (EPE / FOM / PDOP)		

Photos: See attached photos & descriptions

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

WBID # 651
 Site # 5



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Resources B – Site Characterization (continued)

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

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

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
Comments / Other: <u>N/A</u>				

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

% Cobble	% Gravel	<u>20</u> % Sand	<u>40</u> % Silt	<u>40</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

N/A

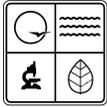
Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input checked="" type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input checked="" 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 effect another use.

WBID # 651

Site # 5



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization (continued)

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.)

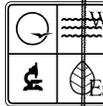
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: 9/12/07

Organization: Pickett, Ray, & Silverz, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Missouri 051 Site #: 5
Department of
Natural Resources (m) (height between low bank width and water)
 Estimation Channel Division

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)
 01 UTM X: 513388m UTM Y: 4488967m +/- 4.6 (meters)
 11 UTM X: 513464m UTM Y: 4488848m +/- 0.9 (meters)

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach) (20x average stream width)

Field Staff: LS & Mc

Dissolved Oxygen

Date: 9/12/07 Time: 4:00p

Dissolved Oxygen: 8.39 (mg/L)

Dissolved Oxygen: _____ (% sat)

Specific Cond: _____ (µS/cm)

Water Temperature: 17.0 (°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	0
	1	.72	.13	.45	.02	.45	.05	.50	.11	.32	.08	.43	.10	.32	.04	.36	.05	.49	.05	.43	.05	.30	.12
	2	1.4	.25	.90	.05	1.0	.04	1.0	.10	.64	.05	.80	.13	.64	.05	.72	.12	1.0	0	1.0	.05	.60	.2
	3	2.2	.23	1.4	.09	1.4	0	1.5	.05	.96	.04	1.3	.10	.96	.06	1.1	.10	1.5	0	1.4	.03	.90	.13
	4	2.9	.20	1.8	.10	1.8	0	2.0	.09	1.3	.05	1.7	.10	1.3	.05	1.4	.03	2.0	.02	1.9	.02	1.2	.10
	5	3.6	.23	2.3	.09	2.3	.10	2.5	.09	1.6	.10	2.2	.10	1.6	.10	1.8	.04	2.5	.05	2.4	.07	1.5	.06
	6	4.3	.2	2.7	.05	2.7	.26	3.0	.12	1.9	.09	2.6	.10	1.9	.10	2.2	.03	3.0	.06	2.9	.11	1.8	.05
	7	5.0	.23	3.2	.04	3.2	.2	3.5	.05	2.2	.07	3.0	.10	2.2	.10	2.5	.07	3.5	.13	3.4	.13	2.1	.09
	8	5.8	.22	3.6	.03	3.6	.24	4.0	.05	2.6	.06	3.4	.05	2.6	.10	2.9	.12	4.0	.15	3.8	.19	2.4	.09
9	6.5	.3	4.1	.01	4.1	.1	4.5	.1	2.9	.02	3.9	.07	2.9	.10	3.2	.05	4.5	.20	4.3	.15	2.7	.05	
Right Bank	7.2	0	4.5	0	4.5	0	5	0	3.2	0	4.3	0	3.2	0	3.6	0	4.9	0	4.8	0	3.3	0	
Feature Type (riffle, run, or pool)	Run		Rffle		Run		Run		Run		Run		Riffle		Run		Run		Run		Run		

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

* Large log jam, transect done on other side

WBID# 0651



Site# 1 Photo ID# Downstream T-1



Site# 1 Photo ID# Upstream T-1



Site# 1 Photo ID# Downstream T-11



Site# 1 Photo ID# Upstream T-11

WBID# 0651



Site# 2 Photo ID# Downstream T-1



Site# 2 Photo ID# Upstream T-1



Site# 2 Photo ID# Downstream T-11



Site# 2 Photo ID# Upstream T-11

WBID# 0651



Site# 3 Photo ID# Downstream T-1



Site# 3 Photo ID# Upstream T-1



Site# 3 Photo ID# Downstream T-11



Site# 3 Photo ID# Upstream T-11

WBID# 0651



Site# 4 Photo ID# Downstream T-1



Site# 4 Photo ID# Upstream T-1



Site# 4 Photo ID# Downstream T-11



Site# 4 Photo ID# Upstream T-11

WBID# 0651



Site# 5 Photo ID# Downstream T-1



Site# 5 Photo ID# Upstream T-1



Site# 5 Photo ID# Downstream T-11



Site# 5 Photo ID# Upstream T-11