

Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 0834 Cedar Creek

Submitted by

Pickett Ray and Silver

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): Cedar Creek	
Missouri Water Body Identification (WBID) Number: 834	
8-digit HUC: 10300102	County: Osage
Upstream Legal Description (from Table H): 3, 43N, 8W	
Downstream Legal Description (from Table H): Highway 100	
Number of sites evaluated: 3	
List all sites numbers, listed consequently upstream to downstream: 834-1, 834-2, 834-3	

**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)

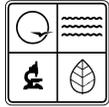
Facility Name(s) and Permit Number(s): Fairground Apartments; MO 0128953
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**III. UAA Surveyor** (please print legibly)

Name of Surveyor	Matt Cosby	Telephone Number:	636-397-1211
Organization/Employer: Pickett, Ray and Silver			

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

**Signed:** \_\_\_\_\_ **Date:** \_\_\_\_\_



**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: 9/20/07 12:00 pm	Site Location Description (e.g., road crossing): Downstream of Road Crossing (CR-306)
Personnel (Data Collectors): Lauren Strange Matt Cosby	
Current Weather Conditions: Sunny 85°	Facility Name: Fairground Apartments
Weather Conditions for Past 10 days: 0.03 in. of rain	Permit Number: MO 128953
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input checked="" type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

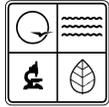
LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 604555m	Northing (UTM Y): 4263439m	Horizontal Accuracy: (PDOP) 4.8
Site 11	Easting (UTM X): 604401m	Northing (UTM Y): 4263541m	Horizontal Accuracy: (PDOP) 5.1

**Photos: See attached photos and 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.)				



**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 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 checked="" type="checkbox"/> Livestock Watering
Comments / Other:				

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

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

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**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 checked="" type="checkbox"/> Other: cow feces
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input checked="" type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

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



**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: 9-20-07

Organization: Pickett Ray and Silver Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

 <p> <b>Missouri</b>                  Department of                  Natural Resources             </p> <p>                 Waterbody ID: <u>834</u>      Site #: <u>1</u>                  Estimated Channel Section: _____ (width between low bank width and water)             </p> <p>                 GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)             </p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"><b>01</b></td> <td style="width: 20%;">UTM X: <u>604555m</u></td> <td style="width: 20%;">UTM Y: <u>4263439m</u></td> <td style="width: 50%;">PDOP <u>4.8</u></td> </tr> <tr> <td><b>11</b></td> <td>UTM X: <u>604401m</u></td> <td>UTM Y: <u>4263541m</u></td> <td>PDOP <u>5.1</u></td> </tr> </table> <p>                 Average Stream Width: <u>7</u> (meters)      Length of Survey Segment: <u>150</u> (meters)                  (To determine Length of Reach)      (20x average stream width)             </p> <p>Field Staff: <u>Lauren Strange &amp; Matt C Cosby</u></p>	<b>01</b>	UTM X: <u>604555m</u>	UTM Y: <u>4263439m</u>	PDOP <u>4.8</u>	<b>11</b>	UTM X: <u>604401m</u>	UTM Y: <u>4263541m</u>	PDOP <u>5.1</u>	<p><b>Dissolved Oxygen</b></p> <p>Date: <u>9/20/2007</u>      Time: <u>12:00 PM</u></p> <p>Dissolved Oxygen: <u>18.35</u> (mg/L)</p> <p>Dissolved Oxygen: _____ (% sat)</p> <p>Specific Cond: _____ (µS/cm)</p> <p>Water Temperature: <u>30.4</u> (°C)</p>
<b>01</b>	UTM X: <u>604555m</u>	UTM Y: <u>4263439m</u>	PDOP <u>4.8</u>						
<b>11</b>	UTM X: <u>604401m</u>	UTM Y: <u>4263541m</u>	PDOP <u>5.1</u>						

#### Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	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)		
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.29	0.02	0	0	0.74	0.05	1.07	0.01	0.77	0.05	1.28	0.02	0.95	0.10	0.32	0.05	0	0	0	0	0	0
2	0.60	0.05			1.5	0.05	2.0	0.03	1.5	0.05	2.6	0.11	2.0	0.21	0.60	0.06						
3	0.90	0.05			2.2	0.01	3.0	0	2.3	0.1	3.8	0.19	3.0	0.15	0.90	0.10						
4	1.2	0.03			3.0	0.03	4.0	0	3.1	0.09	5.1	0.17	4.0	0.11	1.2	0.09						
5	1.5	0.04			3.7	0.10	5.0	0	4	0.06	6.4	0.13	5.0	0.12	1.5	0.05						
6	1.8	0.03			4.5	0.04	6.0	0	4.6	0.09	7.7	0.05	6.0	0.10	1.8	0.06						
7	2.1	0.01			5.2	0.05	7.0	0.05	5.4	0.05	9.0	0.05	7.0	0.15	2.1	0.06						
8	2.4	0.02			6	0.01	8.0	0.05	6.2	0.02	10.2	0.06	7.5	0.11	2.4	0.07						
9	2.7	0.01			6.8	0.02	9.0	0.02	7	0.09	11.5	0.11	8.5	0.17	2.7	0.03						
<b>Right Bank</b>	2.9	0	0	0	7.4	0	10.7	0	7.7	0	12.8	0	9.5	0	3.2	0	0	0	0	0	0	0
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	Pool		Losing Portion		Run		Losing Portion		Losing Portion		Losing Portion											

**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: \_\_\_\_\_



**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: 9/20/07 1:00 pm	Site Location Description (e.g., road crossing): Downstream of Road Crossing (CR-310)
Personnel (Data Collectors): Lauren Strange Matt Cosby	
Current Weather Conditions: Sunny 90°	Facility Name: Fairground Apartments
Weather Conditions for Past 10 days: 0.03 in. of rain	Permit Number: MO 0128953
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input checked="" 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): 601599m	Northing (UTM Y): 4265721m	Horizontal Accuracy: (PDOP) 2.9
Site 11	Easting (UTM X): 601537m	Northing (UTM Y): 4265862m	Horizontal Accuracy: (PDOP) 3.7

**Photos:** See attached Photos & description

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.)				



**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 checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other:				

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

90% Cobble	10% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

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**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 checked="" type="checkbox"/> Other: very strong sulfur odor
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

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



**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.)

- Concrete structures present at many locations throughout site (see pictures).
- Evidence of gravel removal from banks (see pictures).

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

Surveyor's Signature: \_\_\_\_\_ Date of Survey: 9-20-07

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

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

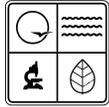
<p> <b>Missouri</b>                  Department of                  Natural Resources             </p> <p>                 Waterbody ID: <u>834</u>      Site #: <u>2</u>                  Estimated Channel Section: _____ (width) (height between low bank width and water)             </p> <p>                 GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)  <b>01</b> UTM X: <u>601599m</u>      UTM Y: <u>4265721m</u>      PDOP <u>2.9</u>  <b>11</b> UTM X: <u>601537m</u>      UTM Y: <u>4265862m</u>      PDOP <u>3.7</u> </p> <p>                 Average Stream Width: <u>5</u> (meters)      Length of Survey Segment: <u>180</u> (meters)                  (To determine Length of Reach)      (20x average stream width)             </p> <p>                 Field Staff: <u>Lauren Strange &amp; Matt C Cosby</u> </p>	<p><b>Dissolved Oxygen</b></p> <p>Date: <u>9/20/2007</u>      Time: <u>1:00 PM</u></p> <p>Dissolved Oxygen: <u>8.66</u> (mg/L)</p> <p>Dissolved Oxygen: _____ (% sat)</p> <p>Specific Cond: _____ (µS/cm)</p> <p>Water Temperature: <u>28.0</u> (°C)</p>
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11		
Station	Distance (m)	Depth (m)																						
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	0.45	0.02	0.80	0.01	0.33	0.41	0.81	0.43	0.81	0.33	>1	>1	>1	>1	0.41	0.02	0.44	0.02	0.51	0.02				
2	0.90	0.02	1.6	0.01	0.66	0.40	1.60	0.50	1.6	0.30					0.80	0.05	0.88	0.02	1.0	0.01				
3	1.4	0.05	2.4	0.01	1.0	0.43	2.4	0.45	2.4	0.45					1.2	0.05	1.3	0.02	1.5	0.02				
4	1.8	0.03	3.2	0	1.3	0.45	3.2	0.39	3.2	0.35					1.6	0.05	1.8	0.02	2.0	0.02				
5	2.3	0.02	4.5	0.03	1.7	0.43	4.5	0.26	4.5	0.21					2.0	0.05	2.2	0.02	2.5	0.04				
6	2.7	0.01	4.8	0.01	2.0	0.35	4.8	0.21	4.8	0.21					2.4	0.04	2.6	0.02	3.0	0.04				
7	3.2	0.02	5.6	0.01	2.3	0.25	5.6	0.13	5.6	0.20					2.8	0.02	3.1	0.02	3.5	0.02				
8	3.6	0.01	6.4	0.05	2.6	0.19	6.4	0.11	6.4	0.18					3.2	0.01	3.5	0.02	4.0	0.03				
9	4.1	0.01	7.2	0.05	3.0	0.10	7.2	0.09	7.2	0.10					3.6	0.01	4.0	0.02	4.5	0.02				
<b>Right Bank</b>	4.5	0	8.0	0	3.3	0	8.1	0	8.1	0	8	0	8	0	6	0	4.1	0	4.4	0	5.1	0		
Feature Type	Run		Run		Pool		Pool		Run		Pool		Pool		Pool		Riffle		Riffle		Run			

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



**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: 9/20/07 3:00 pm	Site Location Description (e.g., road crossing): Downstream of Road Crossing (HWY 100)
Personnel (Data Collectors): Lauren Strange Matt Cosby	
Current Weather Conditions: Sunny 90°	Facility Name: Fairground Apartments
Weather Conditions for Past 10 days: 0.03 in. of rain	Permit Number: MO 128953
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input checked="" type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

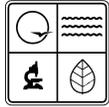
LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 601501m	Northing (UTM Y): 4268127m	Horizontal Accuracy: (PDOP) 5.1
Site 11	Easting (UTM X): 601341m	Northing (UTM Y): 4268126m	Horizontal Accuracy: (PDOP) 4.8

**Photos:** See attached Photos & description

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.)				



**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 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:				

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

20% Cobble	60% Gravel	% Sand	% Silt	% Mud/Clay	20 % Bedrock
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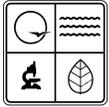
**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

Aquatic vine
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**Water Characteristics\*:** (Mark all that apply.)

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

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



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: 9-20-07

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

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

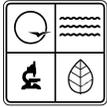
<p> <b>Missouri</b>                  Department of                  Natural Resources             </p> <p>                 Waterbody ID: <u>834</u>      Site #: <u>3</u>                  Estimated Channel Section: _____ (m) (height between low bank width and water)             </p> <p>                 GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)  <b>01</b> UTM X: _____ UTM Y: _____ +/- _____ (meters)  <b>11</b> UTM X: _____ UTM Y: _____ +/- _____ (meters)             </p> <p>                 Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters)                  (To determine Length of Reach)      (20x average stream width)             </p> <p>                 Field Staff: <u>Lauren Strange &amp; Matt C Cosby</u> </p>	<p><b>Dissolved Oxygen</b></p> <p>Date: <u>9/20/2007</u>      Time: <u>3:00 PM</u></p> <p>Dissolved Oxygen: <u>12.51</u> (mg/L)</p> <p>Dissolved Oxygen: _____ (% sat)</p> <p>Specific Cond: _____ (µS/cm)</p> <p>Water Temperature: <u>27.7</u> (°C)</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

#### Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
<b>Left Bank</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1		0.45	0.01	0.66	0.01	0.78	0.08	0.44	0.01	0.55	0.03	0.72	0.08	0.48	0.05	0.54	0.10	0.83	0.15	1.2	0.30	1.3	0.25
2		1.0	0.06	1.3	0.01	1.6	0.10	0.88	0.09	1.1	0.09	1.4	0.13	1.0	0.08	1.10	0.11	1.70	0.11	2.4	0.23	2.6	0.26
3		1.4	0.12	2.0	0	2.3	0.13	1.3	0.13	1.7	0.14	2.1	0.20	1.4	0.11	1.60	0.13	2.5	0.13	3.6	0.30	4.0	0.26
4		1.8	0.10	2.6	0.02	3.1	0.14	1.8	0.15	2.2	0.21	2.8	0.27	2.0	0.09	2.2	0.19	3.3	0.15	4.8	0.28	5.2	0.25
5		2.3	0.10	3.3	0.1	4.0	0.18	2.2	0.18	2.8	0.20	3.5	0.32	2.4	0.10	2.7	0.21	4.2	0.14	6.0	0.25	6.5	0.25
6		2.7	0.11	4.0	0.13	4.7	0.20	2.6	0.20	3.3	0.24	4.2	0.41	3.0	0.10	3.2	0.19	5	0.14	7.2	0.22	7.8	0.25
7		3.2	0.10	4.6	0.13	5.5	0.18	3.1	0.19	4.0	0.22	4.9	0.34	3.4	0.08	3.8	0.15	5.8	0.13	8.4	0.22	9.1	0.30
8		3.6	0.10	5.3	0.10	6.2	0.13	3.5	0.13	4.4	0.15	5.6	0.30	3.8	0.09	4.3	0.05	6.6	0.10	9.6	0.2	10.4	0.1
9		4.1	0.05	6.0	0.02	7.0	0.10	4.0	0.05	5.0	0.05	6.3	0.25	4.3	0.05	5.0	0.04	7.5	0.10	10.8	0.09	11.7	0.1
<b>Right Bank</b>		4.5	0	6.6	0	7.8	0	4.4	0	5.5	0	7.2	0	4.8	0	5.4	0	8.3	0	12.3	0	12.5	0
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		Run		Run		Run		Run		Run		Run		Run		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.

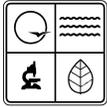
Signed: \_\_\_\_\_ Date: \_\_\_\_\_



WBID 834, Site 1, Transect 1, Downstream. Note: error made on board.



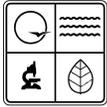
WBID 834, Site 1, Transect 1, Upstream. Note: error made on board.



WBID 834, Site 1, Transect 11, Downstream. Note: error made on board.



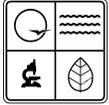
WBID 834, Site 1, Transect 111, Upstream. Note: error made on board.



WBID 834, Site 2, Transect 1, Downstream. Note: error made on board.



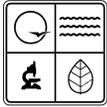
WBID 834, Site 2, Transect 1, Upstream. Note: error made on board.



WBID 834, Site 2, Transect 11, Downstream. Note: error made on board.



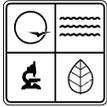
WBID 834, Site 2, Transect 11, Modification. Note: error made on board.



WBID 834, Site 2, Transect 11, Upstream. Note: error made on board.



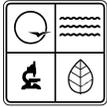
WBID 834, Site 2, Transect 11, Use.



WBID 834, Site 2, Transect 11, Use.



WBID 834, Site 3, Transect 1, Downstream.



WBID 834, Site 3, Transect 1, Upstream.

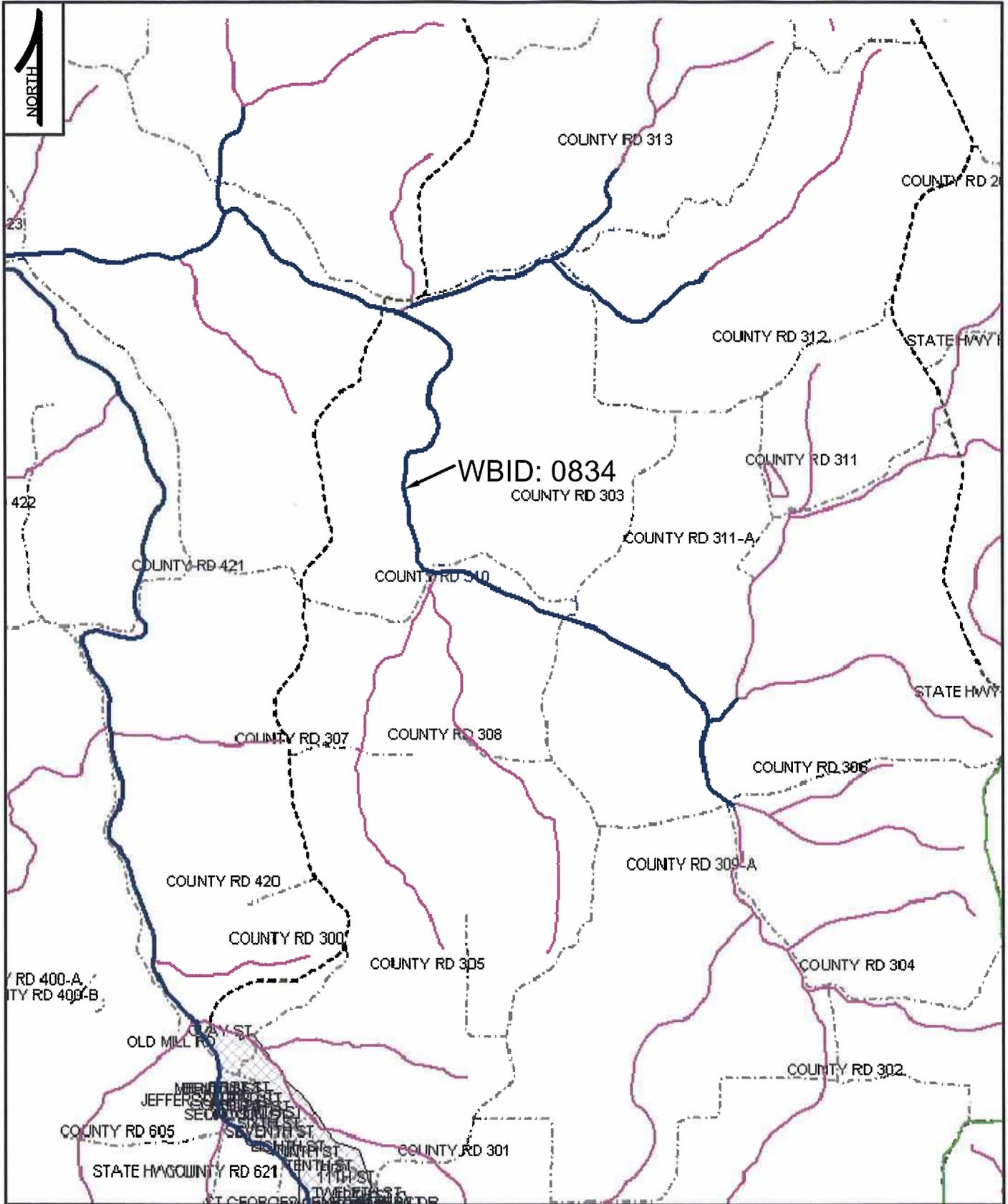


WBID 834, Site 3, Transect 11, Downstream.



WBID 834, Site 3, Transect 11, Upstream.

\\3serverprps\Projects\07031\dwg\07031\_MODN\_01E\0834 Cedar Creek.dwg, 10/26/2007 2:12:33 PM, 1:2000, MATT COSBY



**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

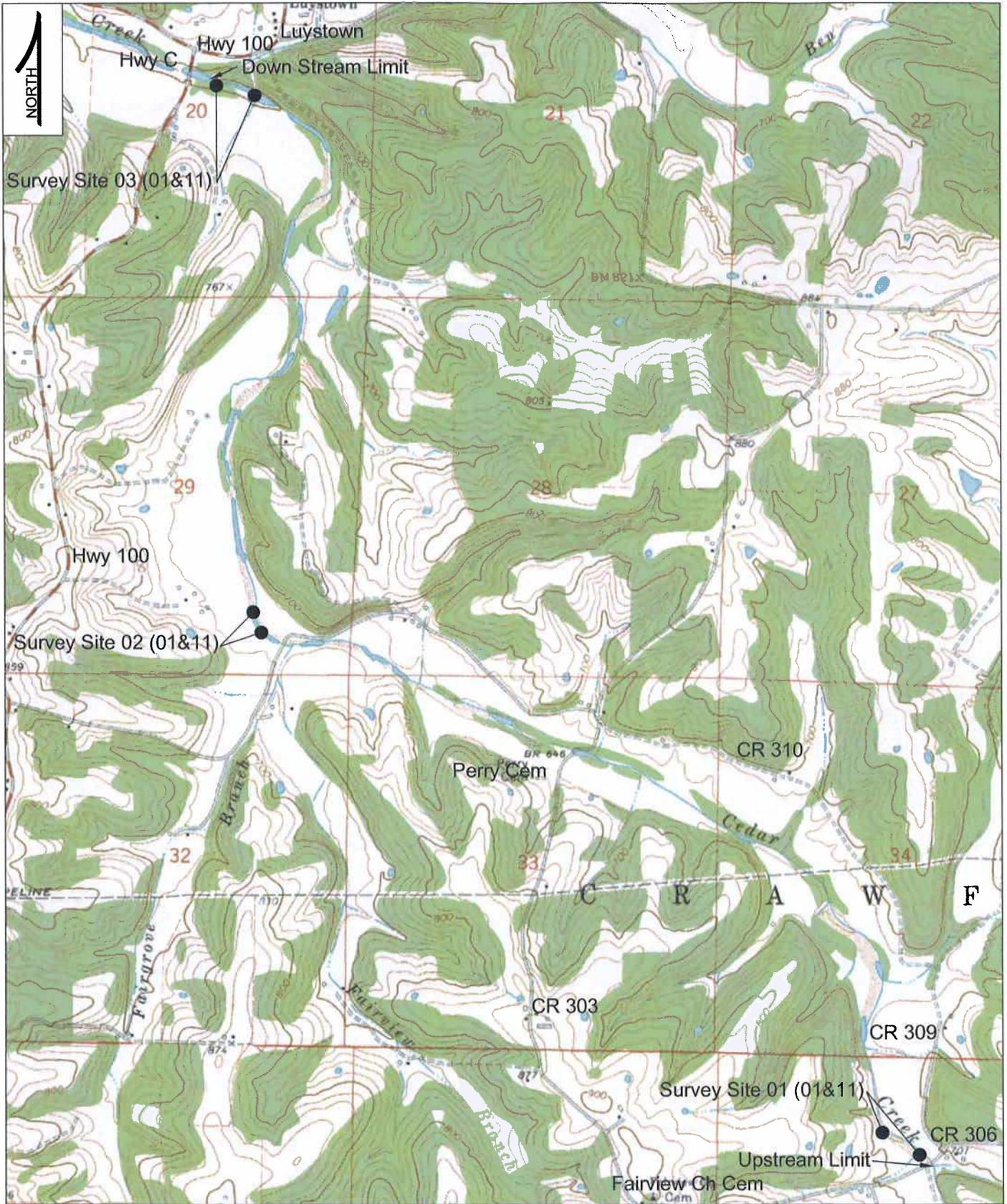
WBID #: 0834  
 Name: Cedar Creek  
 County: Osage  
 GIS Location Map

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

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SHEET 1 OF 1

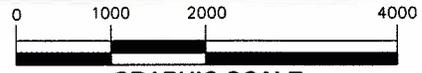
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Civil Engineers Land Surveyors Natural Resources  
 Address: 333 Mid Rivers Mall Drive St. Peters, Missouri 63376  
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 Website: www.prs3.com

WBID #: 0834  
 Name: Cedar Creek  
 County: Osage  
 USGS Location Map



**GRAPHIC SCALE**  
 1 inch = 2000ft.

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Sheet 1 of 1

PRS Job Number: 07031.MODN.01E  
 Drawn By: BLS Date: 09-27-07  
 Checked By: JCV Date: 09-27-07



Missouri **0834** **Depth Measurement Summary**  
Department of  
Natural Resources

	<b>Site 1</b>	<b>Site 2</b>	<b>Site 3</b>
<b>Maximum</b>	0.21	1.00	0.41
<b>Median</b>	0.02	0.13	0.13