

Use Attainability Analysis

for

WBID 1782 Bois Brule Ditch

Submitted by

ERC

to

Missouri Department of Natural Resources  
Water Protection Program

Date received: October 22, 2007

**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):                              | Bois Brule Ditch |         |       |
| Missouri Water Body Identification (WBID) Number:                   | 1782             |         |       |
| 8-digit HUC:  | 07140105         | County: | Perry |
| Upstream Legal Description (from Table H):                          | 16, 36N, 11E     |         |       |
| Downstream Legal Description (from Table H):                        | Mouth            |         |       |
| Number of sites evaluated:  | 3                |         |       |
| List all sites numbers, listed consequently upstream to downstream: | 1, 2, 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)

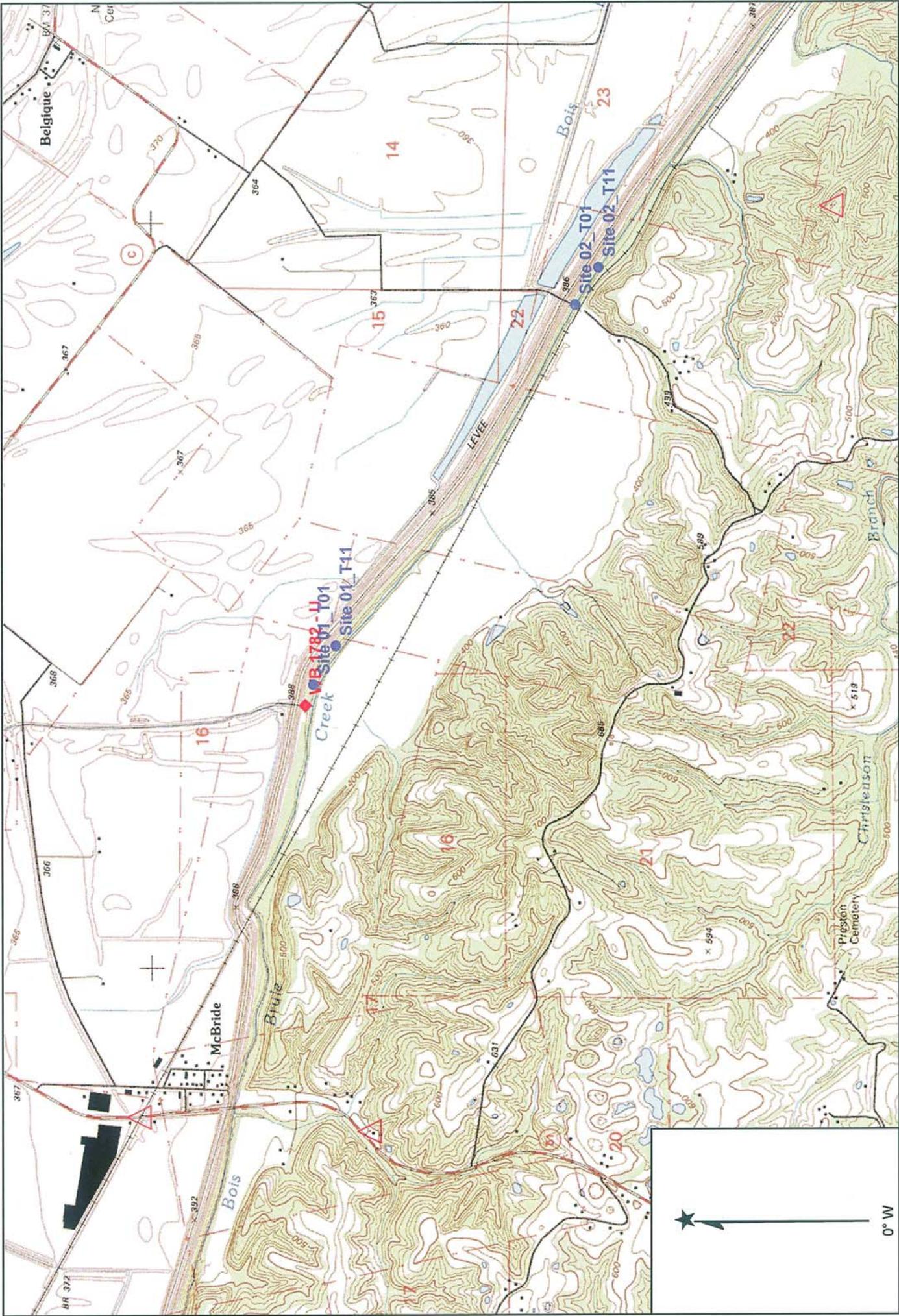
|  |
|--|
| Facility Name(s) and Permit Number(s): |
| Perryville Airport WWTF 100098957      |

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

|                        |                 |                   |                |
|------------------------|-----------------|-------------------|----------------|
| Name of Surveyor       | Robert R. Bacon | Telephone Number: | (573) 634-7078 |
| Organization/Employer: | ERC             |                   |                |

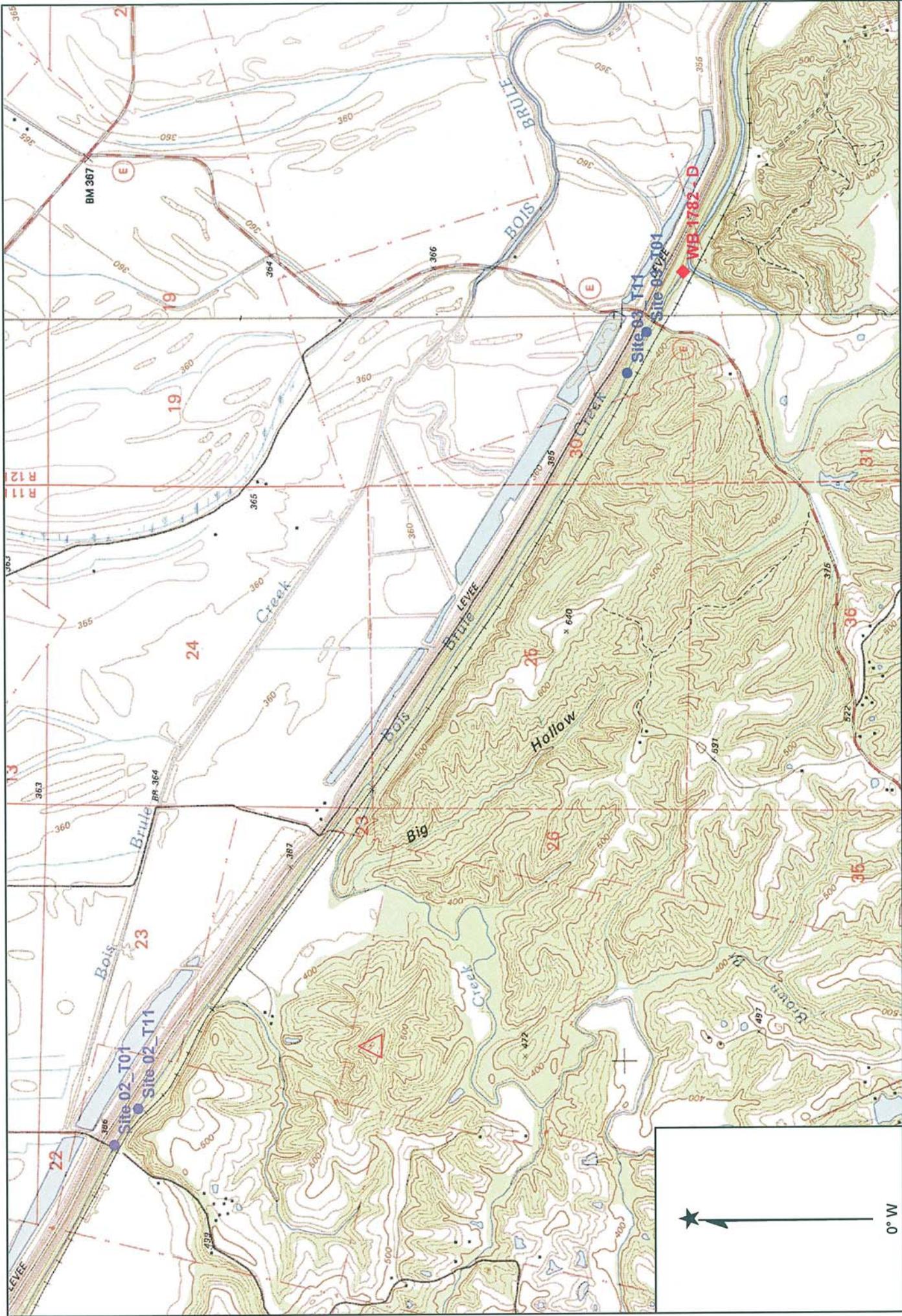
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Signed: Robert R. Bacon Date: 9-21-2007



Name: BELGIQUE  
Date: 10/12/2007  
Scale: 1 inch equals 2000 feet

Location: 16 0252128 E 4189579 N



Location: 16 0256193 E 4187152 N

Name: BELGIQUE  
Date: 10/12/2007  
Scale: 1 inch equals 2000 feet

WBID # 1782

Site # 01

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization**

(must be completed for each site)

|  |   |
|--|---|
| Date & Time: <u>9-21-2007 14:10</u>  | Site Location Description (e.g., road crossing):<br><u>downstream of drainage canal - West of Lame road</u> |
| Personnel (Data Collectors): <u>Bob Bacon, Matt Nelson</u>   |   |
| Current Weather Conditions: <u>ptly. cloudy ~ 80s</u>  | Facility Name: <u>Berryville Airport WWTP</u>   |
| Weather Conditions for Past 10 days: <u>see sheet</u>  | Permit Number: <u>MO 0098997</u>  |
| 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): <u>165 0252024</u> | Northing (UTM Y): <u>4190258</u> | Horizontal Accuracy: (EPE) / FOM / PDOP <u>13</u> Meters |
| Site 11  | Easting (UTM X): <u>165 0252216</u> | Northing (UTM Y): <u>4190144</u> | Horizontal Accuracy: (EPE) / FOM / PDOP <u>10</u> Meters |

**Photos:**

| Photo ID#     | Photo Purpose          | Photo ID#     | Photo Purpose        | Photo ID# | Photo Purpose |
|---------------|------------------------|---------------|----------------------|-----------|---------------|
| <u>T01_53</u> | <u>downstream view</u> | <u>T11_54</u> | <u>upstream view</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 # 1782

Site # 01

### Field Data Sheets for Recreational Use Stream Surveys

#### 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: <i>Very brush and regrowth growth - used michelette<br/>- farm fields on other side of levee</i> |                                      |   |  |  |

**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: <i>None -</i>          |  |  |   |   |

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

|          |          |                  |                  |                      |           |
|----------|----------|------------------|------------------|----------------------|-----------|
| % Cobble | % Gravel | <i>20</i> % Sand | <i>60</i> % Silt | <i>20</i> % Mud/Clay | % Bedrock |
|----------|----------|------------------|------------------|----------------------|-----------|

**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

|                                   |
|-----------------------------------|
| <i>&lt; 5% aquatic vegetation</i> |
|-----------------------------------|

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

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

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

WBID # 1782

Site # 01

**Field Data Sheets for Recreational Use Stream Surveys**

**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.)

- stream very difficult to access through brush  
- water level varies wildly by changes in Miss River level.

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

Surveyor's Signature: Robert R. Bean Date of Survey: 9-21-2007

Organization: ERC Position: Field Manager

01-T01 SB down  
01-T11 54 upstem

### Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

|   |   |
|---|---|
| Waterbody ID: <u>1782</u>   | Site #: <u>01</u>                             |
| Estimated Channel Incision: <u>.20</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>1610252024</u>   | UTM Y: <u>4150258</u> (meters) <u>015</u>     |
| 11 UTM X: <u>1650252216</u>   | UTM Y: <u>4190144</u> (meters) <u>10</u>      |
| Average Stream Width: <u>4.0</u> (meters)   | Length of Survey Segment: <u>150</u> (meters) |
| (To determine Length of Reach) (20x average stream width)   |   |
| Field Staff: <u>Bob Brown, Matt Nelson</u>  |   |

| Dissolved Oxygen                |                    |
|---------------------------------|--------------------|
| Date: <u>9-21-2007</u>          | Time: <u>14:10</u> |
| Dissolved Oxygen: <u>6.55</u>   | (mg/L)             |
| Dissolved Oxygen: <u>72.8</u>   | (% sat)            |
| Specific Cond: <u>642</u>       | ( $\mu$ S/cm)      |
| Water Temperature: <u>20.21</u> | ( $^{\circ}$ C)    |

|         |                                      | Transect Cross-Section |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |
|---------|--------------------------------------|------------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Station | Right Bank<br>(riffle, run, or pool) | 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) | Distance (m) | Depth (m) |
| 1       |                                      | .40                    | .12       | .33          | .10       | .43          | .12       | .26          | .30       | .50          | .26       | .33          | .10       | .37          | .10       | .39          | .14       | .59          | .26       | .52          | .14       | .48          | .16       |
| 2       |                                      | .80                    | .26       | .66          | .14       | .86          | .18       | .72          | .38       | 1.00         | .30       | .66          | .26       | .74          | .20       | .78          | .32       | 1.18         | .42       | 1.04         | .22       | .96          | .26       |
| 3       |                                      | 1.20                   | .22       | .99          | .32       | 1.29         | .20       | 1.08         | .38       | 1.50         | .36       | .99          | .30       | 1.11         | .30       | 1.17         | .36       | 1.77         | .50       | 1.56         | .26       | 1.44         | .28       |
| 4       |                                      | 1.60                   | .24       | 1.32         | .30       | 1.72         | .22       | 1.44         | .40       | 2.00         | .40       | 1.22         | .30       | 1.48         | .36       | 1.56         | .38       | 2.36         | .62       | 2.08         | .28       | 1.92         | .24       |
| 5       |                                      | 2.00                   | .28       | 1.65         | .34       | 2.15         | .24       | 1.80         | .36       | 2.50         | .42       | 1.65         | .32       | 1.85         | .28       | 1.95         | .32       | 2.95         | .54       | 2.60         | .30       | 2.40         | .28       |
| 6       |                                      | 2.40                   | .28       | 1.98         | .32       | 2.58         | .26       | 2.16         | .32       | 3.00         | .42       | 1.98         | .34       | 2.22         | .22       | 2.34         | .36       | 3.54         | .52       | 3.12         | .28       | 2.88         | .26       |
| 7       |                                      | 2.80                   | .30       | 2.31         | .26       | 3.01         | .22       | 2.52         | .26       | 3.50         | .42       | 2.31         | .36       | 2.59         | .16       | 2.73         | .30       | 4.13         | .46       | 3.64         | .22       | 3.36         | .22       |
| 8       |                                      | 3.20                   | .18       | 2.64         | .18       | 3.44         | .22       | 2.88         | .22       | 4.00         | .56       | 2.64         | .36       | 2.94         | .16       | 3.12         | .26       | 4.72         | .36       | 4.16         | .10       | 3.84         | .20       |
| 9       |                                      | 3.60                   | .12       | 2.97         | .10       | 3.87         | .16       | 3.24         | .14       | 4.50         | .30       | 2.97         | .12       | 3.33         | .12       | 3.51         | .16       | 5.31         | .20       | 4.68         | .08       | 4.32         | .12       |
| 10      |                                      | 4.00                   | 0         | 3.30         | 0         | 4.30         | 0         | 3.60         | 0         | 5.00         | 0         | 3.30         | 0         | 3.70         | 0         | 3.90         | 0         | 5.90         | 0         | 5.20         | 0         | 4.80         | 0         |
| 11      |                                      | run                    | run       | run          | run       | run          | run       | run          | run       | run          | run       | run          | 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: Bob Brown Date: 9-21-07

WBID # 1780

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization**

(must be completed for each site)

|   |   |
|---|---|
| Date & Time: <u>9-21-2007</u> <u>16:02</u>  | Site Location Description (e.g., road crossing):<br><u>downstream of county road crossing</u> |
| Personnel (Data Collectors): <u>Rob Bacon Matt Nelson</u>   |   |
| Current Weather Conditions: <u>ptly cloudy 60's</u>   | Facility Name: <u>Kerryville Airport WWTF</u>   |
| Weather Conditions for Past 10 days: <u>see table</u>   | Permit Number: <u>MO0098957</u>   |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input checked="" type="checkbox"/> ; Phase II <input checked="" 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>1650253858</u> | Northing (UTM Y): <u>4188906</u> | Horizontal Accuracy: <u>8</u> Meters<br>(EPE) / FOM / PDOP |
| Site 11  | Easting (UTM X): <u>1650254634</u> | Northing (UTM Y): <u>4188783</u> | Horizontal Accuracy: <u>8</u> Meters<br>(EPE) / FOM / PDOP |

**Photos:**

| Photo ID#     | Photo Purpose          | Photo ID#     | Photo Purpose        | Photo ID# | Photo Purpose |
|---------------|------------------------|---------------|----------------------|-----------|---------------|
| <u>T01-55</u> | <u>downstream view</u> | <u>T11-56</u> | <u>upstream view</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 # 1782

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**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: <i>forest, levee, rail road tracks</i> |                                      |   |  |  |

**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: <i>None</i>            |  |  |   |   |

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

|          |          |                 |                  |                      |           |
|----------|----------|-----------------|------------------|----------------------|-----------|
| % Cobble | % Gravel | <i>5</i> % Sand | <i>85</i> % Silt | <i>10</i> % Mud/Clay | % Bedrock |
|----------|----------|-----------------|------------------|----------------------|-----------|

**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

|   |
|---|
| <i>&lt; 5% aquatic vegetation cover</i> |
|---|

**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: <i>Turbid</i> |
| 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 # 1782

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**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: 9-21-2007

Organization: ERC Position: Field Manager

02 T01 SS down  
02 T11 SC up

# Field Data Sheets for Recreational Use Stream Surveys

## Data Sheet C - Field Survey Results

Waterbody ID: 1782 Site #: 02

Estimated Channel Incision: .30 (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: 16 S 0253858 UTM Y: 4188906 +/- 8 (meters) 017  
 11 UTM X: 16 S 0254034 UTM Y: 4188782 +/- 8 (meters) 018

Average Stream Width: 6.0 (meters) Length of Survey Segment: 150 (meters)  
 (To determine Length of Reach) (20x average stream width)

Field Staff: Bob Brown & Matt Nelson

**Dissolved Oxygen**

Date: 9-21-2007 Time: 16:02

Dissolved Oxygen: 6.59 (mg/L)

Dissolved Oxygen: 74.7 (% sat)

Specific Cond: 656 ( $\mu$ S/cm)

Water Temperature: 21.4 ( $^{\circ}$ C)

|         |  | Transect Cross-Section |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |
|---------|--|------------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Station | Feature Type<br>(riffle, run, or pool) | 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) | Distance (m) | Depth (m) |
| 1       | run                                    | 0                      | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         | 0            | 0         |
| 2       | run                                    | 0.68                   | .18       | 1.40         | .24       | 1.28         | .38       | 1.36         | .16       | 1.28         | .22       | 1.00         | .20       | 1.10         | .02       | 1.16         | .16       | 1.16         | .16       | 1.16         | .40       | 1.14         | .34       |
| 3       | run                                    | 2.04                   | .20       | 2.10         | .26       | 1.92         | .42       | 2.04         | .22       | 1.92         | .26       | 1.50         | .24       | 1.24         | .20       | 1.65         | .24       | 1.74         | .24       | 1.74         | .42       | 1.71         | .50       |
| 4       | run                                    | 2.72                   | .20       | 2.80         | .24       | 2.56         | .42       | 2.72         | .24       | 2.56         | .24       | 2.00         | .26       | 1.72         | .22       | 2.20         | .24       | 2.32         | .30       | 2.32         | .66       | 2.28         | .52       |
| 5       | run                                    | 3.40                   | .22       | 3.50         | .34       | 3.20         | .42       | 3.40         | .24       | 3.20         | .26       | 2.50         | .24       | 2.15         | .22       | 2.75         | .26       | 2.90         | .28       | 2.90         | .64       | 2.85         | .50       |
| 6       | run                                    | 4.08                   | .24       | 4.20         | .40       | 3.84         | .42       | 4.08         | .24       | 3.84         | .24       | 3.00         | .24       | 2.58         | .22       | 3.30         | .26       | 3.48         | .28       | 3.48         | .51       | 3.42         | .48       |
| 7       | run                                    | 4.76                   | .22       | 4.90         | .38       | 4.48         | .38       | 4.76         | .22       | 4.48         | .24       | 3.50         | .26       | 3.01         | .20       | 3.85         | .08       | 4.06         | .28       | 4.06         | .40       | 3.99         | .44       |
| 8       | run                                    | 5.44                   | .26       | 5.60         | .38       | 5.12         | .40       | 5.44         | .22       | 5.12         | .18       | 4.00         | .20       | 3.44         | .20       | 4.40         | .20       | 4.64         | .20       | 4.64         | .38       | 4.56         | .35       |
| 9       | run                                    | 6.12                   | .10       | 6.20         | .20       | 5.76         | .30       | 6.12         | .16       | 5.76         | .10       | 4.50         | .18       | 3.87         | .14       | 4.95         | .20       | 5.22         | .13       | 5.22         | .28       | 5.13         | .20       |
| 10      | run                                    | 6.80                   | 0         | 7.00         | 0         | 6.40         | 0         | 6.80         | 0         | 6.40         | 0         | 5.00         | 0         | 4.20         | 0         | 5.50         | 0         | 5.80         | 0         | 5.80         | 0         | 5.70         | 0         |
| 11      | run                                    | run                    | run       | run          | run       | run          | run       | run          | run       | run          | run       | run          | 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: Bob Brown Date: 9-21-07

WBID # 1782

Site # 03

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization**

(must be completed for each site)

|  |  |
|--|--|
| Date & Time: <u>9-21-2007 18:18</u>  | Site Location Description (e.g., road crossing):<br><u>upstream of highway E</u> |
| Personnel (Data Collectors): <u>Bob Bacon, Matt Nelson</u>   |  |
| Current Weather Conditions: <u>ptly cloudy, ~mid 80s</u>   | Facility Name: <u>Perryville Airport WWTF</u>                                    |
| Weather Conditions for Past 10 days: <u>see table</u>  | Permit Number: <u>MD 0098957</u>   |
| 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): <u>1650257774</u> | Northing (UTM Y): <u>4186138</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>12</u> Meters |
| Site 11  | Easting (UTM X): <u>1650257578</u> | Northing (UTM Y): <u>4186238</u> | Horizontal Accuracy: (EPE / FOM / PDOP) <u>15</u> Meters |

**Photos:**

| Photo ID#      | Photo Purpose          | Photo ID#      | Photo Purpose        | Photo ID# | Photo Purpose |
|----------------|------------------------|----------------|----------------------|-----------|---------------|
| <u>T01-158</u> | <u>downstream view</u> | <u>T11-157</u> | <u>upstream view</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 # 1782

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**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: <u>levee, forest, Highway E</u>  |                                      |   |  |  |

**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>None</u>            |  |  |   |   |

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

|          |          |        |                   |            |           |
|----------|----------|--------|-------------------|------------|-----------|
| % Cobble | % Gravel | % Sand | <u>100</u> % Silt | % Mud/Clay | % Bedrock |
|----------|----------|--------|-------------------|------------|-----------|

**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

|  |
|--|
| <u>0% due to previous Mill River beeches</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 type="checkbox"/> Clear  | <input type="checkbox"/> Green  | <input type="checkbox"/> Gray                      | <input type="checkbox"/> Milky           | <input checked="" type="checkbox"/> Other: <u>Turbid</u> |
| 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 # 1782

Site # 02

**Field Data Sheets for Recreational Use Stream Surveys**

**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.)

6" to 20" deep sediment in channel

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

Surveyor's Signature: Robert R. Rem Date of Survey: 9-21-2007

Organization: ERC Position: Field Manager

03 T01 58 down  
03 T11 57 up

## Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

| Dissolved Oxygen  |   |
|---|---|
| Waterbody ID: <u>1782</u>   | Site #: <u>03</u>                       |
| Estimated Channel Incision: <u>1.2</u> (m) (height between low bank width and water)              | Date: <u>9.21-07</u> Time: <u>18:18</u> |
| GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) |   |
| <b>01</b> UTM X: <u>1650257774</u> UTM Y: <u>4186138</u> +/- <u>12</u> (meters) <u>019</u>        | Dissolved Oxygen: <u>11.70</u> (mg/L)   |
| <b>11</b> UTM X: <u>1650257578</u> UTM Y: <u>4186258</u> +/- <u>15</u> (meters) <u>010</u>        | Dissolved Oxygen: <u>137.3</u> (% sat)  |
| Average Stream Width: <u>4.0</u> (meters)   | Specific Cond: <u>658</u> (µS/cm)       |
| (To determine Length of Reach)  | Water Temperature: <u>23.20</u> (°C)    |
| Field Staff: <u>Bob Brown &amp; Matt Nelson</u>   |   |

|         |  | Transect Cross-Section |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |              |           |     |
|---------|--|------------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|-----|
| Station | Feature Type<br>(riffle, run, or pool) | 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) | Distance (m) | Depth (m) |     |
| 1       | Left Bank                              | .31                    | .02       | .51          | .06       | .36          | .04       | .67          | .14       | .67          | .30       | .04          | .43       | .12          | .21       | .13          | .35       | .04          | .40       | .07          | .37       | .05          |           |     |
| 2       |  | .62                    | .06       | 1.02         | .06       | .72          | .06       | 1.34         | .26       | 1.24         | .42       | .28          | .86       | .14          | .62       | .13          | .70       | .06          | .80       | .09          | .74       | .10          |           |     |
| 3       |  | .93                    | .10       | 1.53         | .10       | 1.08         | .04       | 2.01         | .32       | 2.01         | .46       | .92          | 1.29      | .16          | .93       | .12          | 1.05      | .09          | 1.20      | .10          | 1.11      | .12          |           |     |
| 4       |  | 1.24                   | .10       | 2.04         | .08       | 1.44         | .06       | 2.68         | .54       | 2.68         | .50       | .56          | 1.72      | .17          | 1.24      | .13          | 1.40      | .09          | 1.60      | .10          | 1.48      | .14          |           |     |
| 5       |  | 1.55                   | .10       | 2.55         | .09       | 1.80         | .04       | 3.35         | .36       | 3.35         | .50       | .07          | 2.15      | .18          | 1.55      | .10          | 1.75      | .10          | 2.00      | .10          | 1.85      | .13          |           |     |
| 6       |  | 1.86                   | .10       | 3.06         | .08       | 2.16         | .10       | 4.02         | .52       | 4.02         | .50       | .08          | 2.58      | .16          | 1.96      | .09          | 2.10      | .09          | 2.40      | .10          | 2.22      | .13          |           |     |
| 7       |  | 2.17                   | .08       | 3.57         | .08       | 2.52         | .10       | 4.69         | .30       | 4.69         | .46       | .10          | 3.01      | .14          | 2.17      | .05          | 2.45      | .08          | 2.60      | .09          | 2.59      | .19          |           |     |
| 8       |  | 2.48                   | .08       | 4.08         | .08       | 2.88         | .06       | 5.36         | .30       | 5.26         | .43       | .01          | 3.44      | .11          | 2.48      | .04          | 2.80      | .07          | 3.20      | .10          | 2.96      | .13          |           |     |
| 9       |  | 2.79                   | .07       | 4.59         | .01       | 3.24         | .01       | 6.03         | .24       | 6.02         | .14       | .05          | 3.87      | .05          | 2.79      | .02          | 3.15      | .05          | 3.60      | .05          | 3.37      | .10          |           |     |
| 10      | Right Bank                             | 3.10                   | 0         | 5.10         | 0         | 3.60         | 0         | 6.70         | 0         | 6.70         | 0         | 6.40         | 0         | 4.70         | 0         | 3.10         | 0         | 3.50         | 0         | 4.00         | 0         | 3.70         | 0         |     |
|         | Feature Type                           | riffle                 | riffle    | riffle       | riffle    | riffle       | riffle    | run          | run       | riffle       | riffle    | riffle       | run       | run          | riffle    | riffle       | 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: Bob Brown Date: 9.21-07

## Weather Conditions

Weather conditions ten days previous to stream assessment are listed in the tables below. The date(s) that the stream was assessed are shaded.

Data from the Midwest Regional Climate Center  
Farmington, Missouri - Station ID: 232890

| <b>Date</b> | <b>Precipitation<br/>(Inches)</b> | <b>Min. Temp (°F)</b> | <b>Max. Temp (°F)</b> | <b>Avg. Temp (°F)</b> |
|-------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
| 9/11/2007   | 0.03                              | 58                    | 77                    | 68                    |
| 9/12/2007   | 0.00                              | 51                    | 78                    | 65                    |
| 9/13/2007   | 0.00                              | 50                    | 84                    | 67                    |
| 9/14/2007   | 0.00                              | 52                    | 75                    | 64                    |
| 9/15/2007   | 0.00                              | 45                    | 66                    | 56                    |
| 9/16/2007   | 0.00                              | 45                    | 71                    | 58                    |
| 9/17/2007   | 0.00                              | 55                    | 86                    | 71                    |
| 9/18/2007   | 0.00                              | 60                    | 87                    | 74                    |
| 9/19/2007   | 0.00                              | 63                    | 87                    | 75                    |
| 9/20/2007   | 0.00                              | 62                    | 88                    | 75                    |
| 9/21/2007   | 0.00                              | 58                    | 88                    | 73                    |

**WBID# 1782**



**Site# 1 Photo ID# T01-I53, Downstream**



**Site# 1 Photo ID# T01-I54, Upstream**



**Site# 2 Photo ID# T01-I55, Downstream**

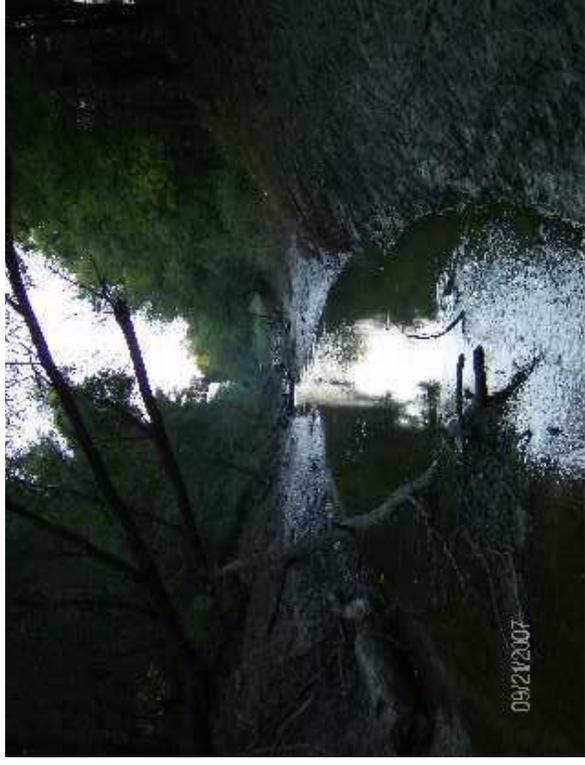


**Site# 2 Photo ID# T11-I56, Upstream**

**WBID# 1782**



**Site# 3 Photo ID# T01-I58, Downstream**



**Site#3 Photo ID# T11-I57, Upstream**