



Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 0034 Birkhead Branch

Submitted by

Pickett Ray and Silver

To

Missouri Department of Natural Resources  
Water Protection Program

Date Received: June 5, 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):	Birkhead Branch
Missouri Waterbody Identification (WBID) Number:	0034
8-digit HUC:	Lincoln
County:	Lincoln
Upstream Legal Description (from Table H):	16,49N,2E
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated	3
List all sites numbers, listed consequently upstream to downstream:	1 - N. Lindsay Rd. 2 - Between N. Lindsay Rd and Birkhead Rd. 3 - Birkhead Rd.

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

**II. Subsegmentation** (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other	
EPE	± _____ Feet or ± _____ Meters	_____	
PDOP		± _____ Feet or ± _____ Meters	

**III. Discharger Facility Information** (list all permitted dischargers on the stream)

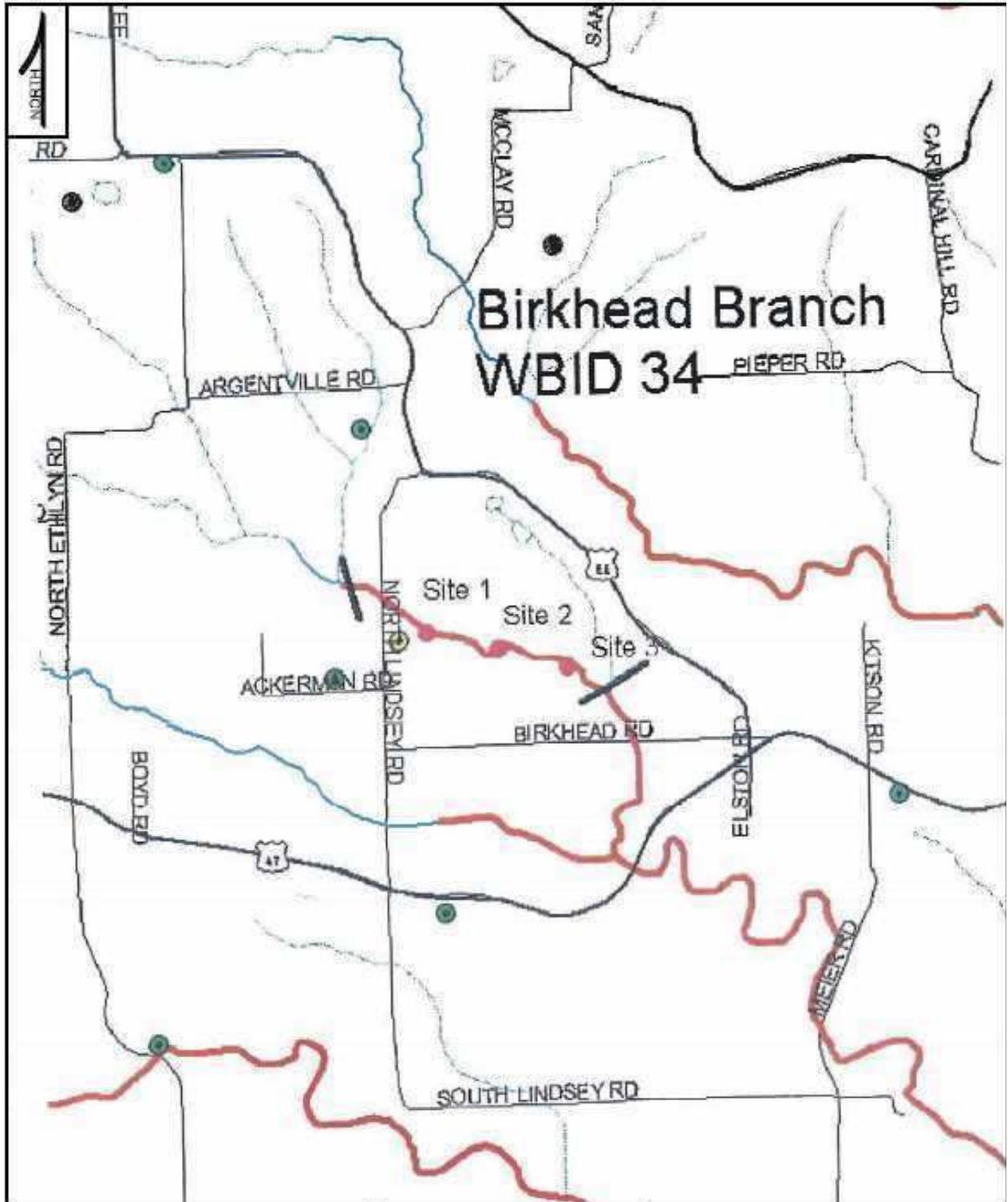
Discharger Facility Name(s):	Boley Mobile Estates, New Salem Baptist Church, Timberline MHP
Discharger Permit Number(s):	Mo 0112801, MO 0115363, MO 0115263

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

Name of Surveyor	R. Martin	Telephone Number:	R. Martin
Organization/Employer:	AE Solutions		
Position:	Env. Specialist		

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

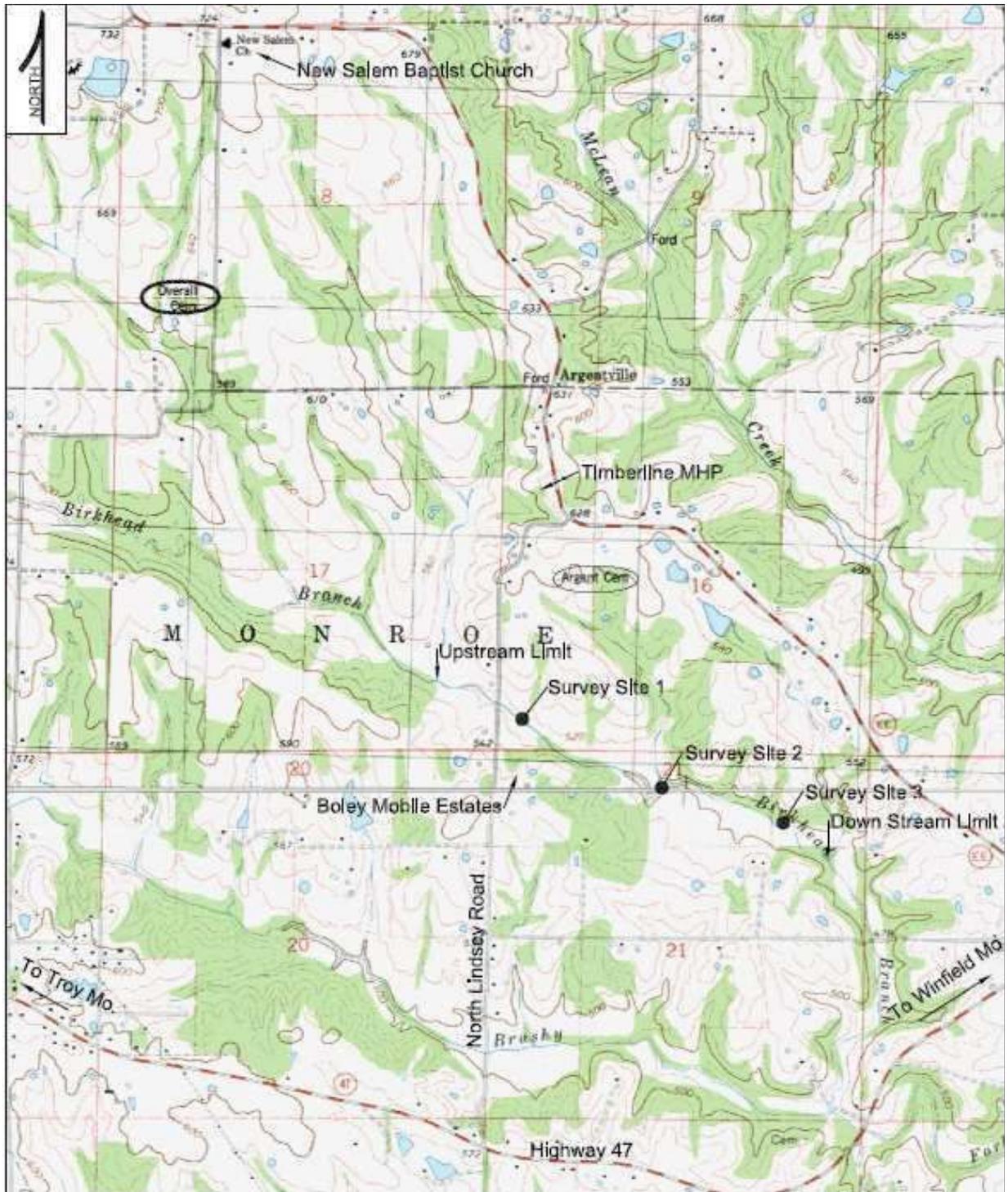
Signed: Renee MartinDate: 5-7-07



**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 #: 0034  
 Name: Birkhead Branch  
 GIS MAP

0 0 0 0  
 NOT TO SCALE  
 PRS Job Number: 07031.MODN.00E  
 Drawn By: M.C. Date: 05-21-07  
 Checked By: J.V. Date: 05-21-07



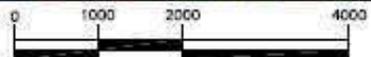
**PICKETT RAY & SILVER**

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Website: www.prs3.com

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WBID #: 0034  
Name: Blrhead Branch  
County: Lincoln  
USGS Location Map



GRAPHIC SCALE  
1 Inch = 2000ft.

PRS Job Number: 07031.MODN.00E  
Drawn By: M.C. Date: 02-08-05  
Checked By: J.V. Date: 02-05-05

WBID# 0034  
 Site# 1

**Field Data Sheets for Recreational Use Stream Surveys**  
**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <b>5/7/07 - 1515</b>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <b>R. Martin and Jenny Hrabik</b>	<b>Site 1 - North Lindsey Rd.</b>
Current Weather Conditions: <b>Clear</b>	Facility Name: <b>Boley Mobile Estates</b>
Weather Conditions for Past 10 days: <b>N/A</b>	Permit Number: <b>MO 0112801</b>
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <b>15S0690652</b>		Y: <b>4319032</b>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	x	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	Real Time Differential Correction with
Real Time Differential Processing		Post Processing	
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____ ± _____ Feet or ± _____ Meters	
EPE	± <u>20</u> Feet or ± _____ Meters		
PDOP			

**Photos:**

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<b>See Attached Photos</b>		0034-1-11 0034-1-12 0034-1-13	Upstream Site #1, Transect #1 Downstream Site #1 - Transect #1 Outfall at Transect #1, Site #1		

**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.)				

**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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

**Indications of Human Use\*:** (attach photos)

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

**Stream Morphology:**

Upstream View's Physical Dimensions: Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

Select one of the following **channel features**:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN	25	10	50	0.15	0.2
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

Select one of the following **channel features**:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

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

100% algae cover on substrate

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

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input 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:

**Comments:** Please attach any additional comments () to this form.

\*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.

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

Surveyor's Signature: Renee Martin Date of Survey: 5/7/07

Organization: AE Solutions Position: Env. Specialist

### Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0034</u> Site #: <u>0034-1</u> Estimated Channel Incision: <u>&lt;1.0</u> (m) (height between low bank width and water) GPS Location: <u>15S0690652</u> UTM X: <u>15S0690652</u> UTM Y: <u>4319032</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 20</u> (feet)      PDOP: _____ Average Stream Width: <u>4</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (20x average stream width) Field Staff: <u>Renee Martin and Jenny Hrabik</u>	<b style="text-align: center;">Dissolved Oxygen</b> Dissolved Oxygen: <u>9.63</u> (mg/L) Dissolved Oxygen: <u>119.4</u> (% sat) Specific Cond: <u>446.5</u> (µS/cm) Water Temperature: <u>23.9</u> (°C)
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#### Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	2.5	0.1	0.3	0.1	0.0	<0.1	1.7	0.1	0.4	0.1	4.4	0.1	1.1	0.1	0.85	0.1	0.5	0.1	1.3	0.1	0.0	0.1
2	2.57	0.1	0.7	0.2	0.6	<0.1	1.93	0.1	0.96	0.2	4.47	0.1	1.25	<0.1	1.1	0.1	0.58	0.1	2.2	0.1	0.55	0.1
3	2.64	0.1	1.1	0.2	1.2	<0.1	2.16	0.1	1.52	0.1	4.54	0.1	1.4	<0.1	1.35	0.1	0.66	0.1	3.1	0.2	1.10	0.1
4	2.71	0.1	1.5	0.2	1.8	<0.1	2.39	0.1	2.08	0.1	4.61	0.1	1.55	<0.1	1.6	0.1	0.74	0.1	4.0	0.2	1.65	0.2
5	2.78	0.1	1.9	0.2	2.4	<0.1	2.62	0.1	2.64	0.1	4.68	0.1	1.7	<0.1	1.85	<0.1	0.82	<0.1	4.9	0.2	2.2	0.1
6	2.85	0.1	2.3	0.1	3.0	<0.1	2.85	0.1	3.2	0.1	4.75	0.1	1.85	<0.1	2.1	<0.1	0.9	<0.1	5.8	0.2	2.75	0.1
7	2.92	0.1	2.7	0.1	3.6	<0.1	3.08	0.1	3.76	<0.1	4.82	0.1	2.0	<0.1	2.35	0.1	0.98	<0.1	6.7	0.2	3.3	0.1
8	2.99	0.1	3.1	0.1	4.2	<0.1	3.31	0.1	4.32	<0.1	4.89	0.1	2.15	0.1	2.6	<0.1	1.06	<0.1	7.6	0.0	3.85	0.1
9	3.06	0.1	3.5	0.1	4.8	<0.1	3.54	0.1	4.88	<0.1	4.96	<0.1	2.3	<0.1	2.85	<0.1	1.14	<0.1	8.5	0.0	4.4	0.1
10	3.13	0.1	3.9	0.1	5.4	<0.1	3.77	0.1	5.44	<0.1	5.03	<0.1	2.45	<0.1	3.1	<0.1	1.22	<0.1	9.4	0.2	4.95	0.1
11	3.2	0.1	4.3	0.1	6.0	<0.1	4.0	<0.1	6.0	<0.1	5.1	<0.1	2.6	<0.1	3.35	<0.1	1.3	<0.1	10.3	0.1	5.5	0.1
12	4.0	0.0	4.4	0.0	6.0	0.0	4.0	0.0	6.0	0.0	6.0	0.0	2.6	0.0	4.0	0.0	1.35	0.0	10.4	0.0	5.6	0.0
Feature Type (riffle, run, or pool)	Riffle		Run		Riffle		Run		Riffle		Run		Run									

**Notes:** Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as < 0.1; and greater than 1m as > 1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renee Martin      Date: 5-7-07

WBID# 0034  
 Site# 2

**Field Data Sheets for Recreational Use Stream Surveys**  
**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: 5/7/07 - 1400	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): R. Martin and Jenny Hraik	Site 2 - Between N. Lindsey Rd. & Birkhead Rd.
Current Weather Conditions: Clear	Facility Name: Boley Mobile Estates
Weather Conditions for Past 10 days: N/A	Permit Number: MO 0112801
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: 0690808		Y: 4318999	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	Real Time Differential Correction with
Real Time Differential Processing		Post Processing	
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____ ± _____ Feet or ± _____ Meters	
EPE	± 21 _____ Feet or ± _____ Meters		
PDOP			

**Photos:**

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<b>See Attached Photos</b>		0034-2-14	Upstream Site 2, Transect 1		
		0034-2-15	Downstream Site 2, Transect 1		

**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.)				

**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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

**Indications of Human Use\*:** (attach photos)

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

**Stream Morphology:**

Upstream View's Physical Dimensions: Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL	75	9.0	20	0.3	0.4

Downstream View's Physical Dimensions: Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

-	% Cobble	5	% Gravel	5	% Sand	-	% Silt	-	% Mud/Clay	90	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

100% algae covered
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**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:

**Comments:** Please attach any additional comments () to this form.

\*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.

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

Surveyor's Signature: Renee Martin Date of Survey: 5/7/07

Organization: AE Solutions Position: Env. Specialist

### Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0034</u> Site #: <u>0034-2</u> Estimated Channel Incision: <u>&lt;1</u> (m) (height between low bank width and water) GPS Location: <u>0690808</u> UTM Y: <u>4318999</u> UTM X: <u>0690808</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 21</u> (feet)      PDOP: _____ Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (20x average stream width) Field Staff: <u>Renee Martin &amp; Jenny Hrabik</u>	<b style="text-align: center;">Dissolved Oxygen</b> Dissolved Oxygen: <u>14.25</u> (mg/L) Dissolved Oxygen: <u>180.9</u> (% sat) Specific Cond: <u>465.7</u> (µS/cm) Water Temperature: <u>23.6</u> (°C)
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#### Transect Cross-Section

Measurement		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
1		0.3	0.1	0.0	0.1	0.0	0.1	0.4	0.1	0.95	0.1	3.0	0.1	1.6	0.1	0.2	0.1	1.3	0.1	0.7	0.1	0.0	<0.1
2		0.7	0.2	0.6	0.3	0.8	0.1	1.15	0.1	1.95	0.0	3.1	0.1	1.9	0.2	0.9	0.0	1.95	0.2	0.92	0.1	0.16	<0.1
3		1.1	0.3	1.2	0.4	1.6	<0.1	1.9	0.2	2.95	0.0	3.2	<0.1	2.2	0.2	1.6	<0.1	2.6	0.2	1.14	0.2	0.32	<0.1
4		1.5	0.3	1.8	0.4	2.4	0.1	2.65	0.2	3.95	<0.1	3.3	0.1	2.5	0.2	2.3	0.1	3.25	0.2	1.36	0.2	0.48	<0.1
5		1.9	0.3	2.4	0.4	3.6	0.4	3.4	0.2	4.95	0.0	3.4	<0.1	2.8	0.1	3.0	0.2	3.9	0.2	1.58	0.2	0.64	<0.1
6		2.3	0.3	3.0	0.4	4.4	0.4	4.15	<0.1	5.95	0.0	3.5	<0.1	3.1	0.1	3.7	0.2	4.55	0.2	1.8	0.2	0.8	<0.1
7		2.7	0.3	3.6	0.3	5.2	0.4	4.9	0.2	6.95	0.0	3.6	0.1	3.4	0.2	4.4	0.1	5.2	0.1	2.02	0.2	0.96	<0.1
8		3.1	0.3	4.2	0.3	6.0	0.4	5.65	0.1	7.95	0.0	3.7	<0.1	3.7	0.1	5.1	0.1	5.85	0.1	2.24	0.2	1.12	<0.1
9		3.5	0.2	4.8	0.3	6.8	0.3	6.4	0.1	8.95	0.0	3.8	0.1	4.0	0.1	5.8	<0.1	6.5	0.1	2.46	0.2	1.28	<0.1
10		3.9	0.2	5.4	0.2	7.6	0.2	7.15	<0.1	9.95	0.0	3.9	0.1	4.3	0.1	6.5	0.1	7.15	<0.1	2.68	0.2	1.44	<0.1
11		4.3	0.1	6.0	0.1	8.4	0.1	7.9	0.1	10.95	0.1	4.0	0.1	4.6	0.1	7.2	0.1	7.8	0.1	2.9	0.2	1.6	<0.1
12		5.0	0.0	6.5	0.0	8.6	0.0	8.2	0.0	11.3	0.0	5.0	0.0	5.0	0.0	7.3	0.0	8.0	0.0	3.7	0.0	1.6	0.0
Feature Type (riffle, run, or pool)		Run		Run		Pool		Run		Run		Run		Run		Riffle		Run		Run		Riffle	

**Notes:** Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as < 0.1; and greater than 1m as > 1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renee Martin      Date: 5/7/07

WBID# 0034  
 Site# 3

**Field Data Sheets for Recreational Use Stream Surveys**  
**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <b>5/7/07 - 1340</b>	Site Location Description (e.g., road crossing): <b>WBID #34 Site 3 - Birkhead Rd.</b>
Personnel (Data Collectors): <b>R. Martin and Jenny Hraik</b>	
Current Weather Conditions: <b>Clear</b>	Facility Name: <b>Boley Mobile Estates</b>
Weather Conditions for Past 10 days: <b>N/A</b>	Permit Number: <b>MO 0112801</b>
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <b>0691532</b>		Y: <b>4318683</b>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other Real Time Differential Correction with	
Real Time Differential Processing		Post Processing	
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>29</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<b>See Attached Photos</b>		0034-3-16	Upstream Site 3, Transect 1		
		0034-3-17	Downstream Site 3, Transect 1		

**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.)				

**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"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <b>Agriculture Fields, Fence</b>				

**Indications of Human Use\*:** (attach photos)

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

**Stream Morphology:**

Upstream View's Physical Dimensions: Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE	100	4	10	<0.1	0.1
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

-	% Cobble	2	% Gravel	3	% Sand	-	% Silt	-	% Mud/Clay	95	% Bedrock
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Aquatic Vegetation\*: (Note amount of vegetation or algal growth at the assessment site)

Algae or substrate
--------------------

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

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input 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:

Comments: Please attach any additional comments () to this form.

\*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.

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

Surveyor's Signature: Renee Martin Date of Survey: 5/7/07  
 Organization: AE Solutions Position: Env. Specialist

### Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0034</u> Site #: <u>0034-3</u> Estimated Channel Incision: <u>&lt;1.0</u> (m) (height between low bank width and water) GPS Location: <u>0691532</u> UTM Y: <u>4318683</u> UTM X: <u>0691532</u> UTM Y: <u>4318683</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 29</u> (feet)      PDOP: _____ Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (20x average stream width) Field Staff: <u>Renee Martin &amp; Jenny Hrabik</u>	<b style="text-align: center;">Dissolved Oxygen</b> Dissolved Oxygen: <u>14.85</u> (mg/L) Dissolved Oxygen: <u>193.2</u> (% sat) Specific Cond: <u>460.8</u> (µS/cm) Water Temperature: <u>26.9</u> (°C)
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#### Transect Cross-Section

Measurement		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
1		0.2	0.1	0.3	0.1	0.1	0.1	0.3	0.1	0.9	0.1	0.6	0.1	1.0	0.1	0.0	0.1	0.0	0.1	0.6	0.1	0.0	0.2
2		0.4	0.1	0.7	0.2	0.3	0.2	0.5	0.1	1.2	0.1	1.0	0.2	1.6	0.1	0.5	0.3	0.65	0.2	1.15	0.3	0.6	0.25
3		0.6	0.1	1.1	0.1	0.5	0.2	0.7	0.1	1.5	0.1	1.4	0.3	2.2	0.1	1.0	0.4	1.3	0.4	1.7	0.3	1.2	0.2
4		0.8	0.2	1.5	0.1	0.7	0.1	0.9	0.1	1.8	0.1	1.8	0.3	2.8	0.1	1.5	0.5	1.95	0.5	2.25	0.3	1.8	0.3
5		1.0	0.2	1.9	<0.1	.9	<0.1	1.1	0.1	2.1	0.1	2.2	0.3	3.4	0.1	2.0	0.6	2.6	0.5	2.8	0.3	2.4	0.3
6		1.2	0.2	2.3	0.0	1.1	0.1	1.3	0.1	2.4	0.1	2.6	0.3	4.0	0.2	2.5	0.4	3.25	0.3	3.35	0.35	3.0	0.4
7		1.4	0.1	2.7	0.0	1.3	0.1	1.5	0.1	2.7	0.1	3.0	0.3	4.6	0.2	3.0	0.3	3.9	0.3	3.9	0.4	3.6	0.35
8		1.6	0.1	3.1	0.0	1.5	<0.1	1.7	0.1	3.0	0.1	3.4	0.1	5.2	0.3	3.5	0.3	4.55	0.3	4.45	0.4	4.2	0.3
9		1.8	0.1	3.5	<0.1	1.7	<0.1	1.9	<0.1	3.3	0.1	3.8	0.1	5.8	0.3	4.0	0.2	5.2	0.4	5.0	0.3	4.8	0.2
10		2.0	0.1	3.9	0.1	1.9	<0.1	2.1	0.1	3.6	0.1	4.2	0.1	6.4	0.2	4.5	0.1	5.85	0.35	5.55	0.3	5.4	0.3
11		2.2	0.1	4.3	0.1	2.1	0.1	2.3	0.1	3.9	0.1	4.6	0.1	7.0	0.1	5.0	0.1	6.5	0.2	6.1	0.2	6.0	0.2
12		3.0	0.0	5.4	0.0	2.5	0.0	3.2	0.0	4.3	0.0	4.8	0.0	7.0	0.0	7.0	0.0	6.6	0.0	6.2	0.0	7.0	0.0
Feature Type (riffle, run, or pool)		Run		Run		Riffle		Riffle		Run		Run		Run		Pool		Pool		Pool		Run	

**Notes:** Transects will be measured beginning on left descending bank and finishing on right descending bank.

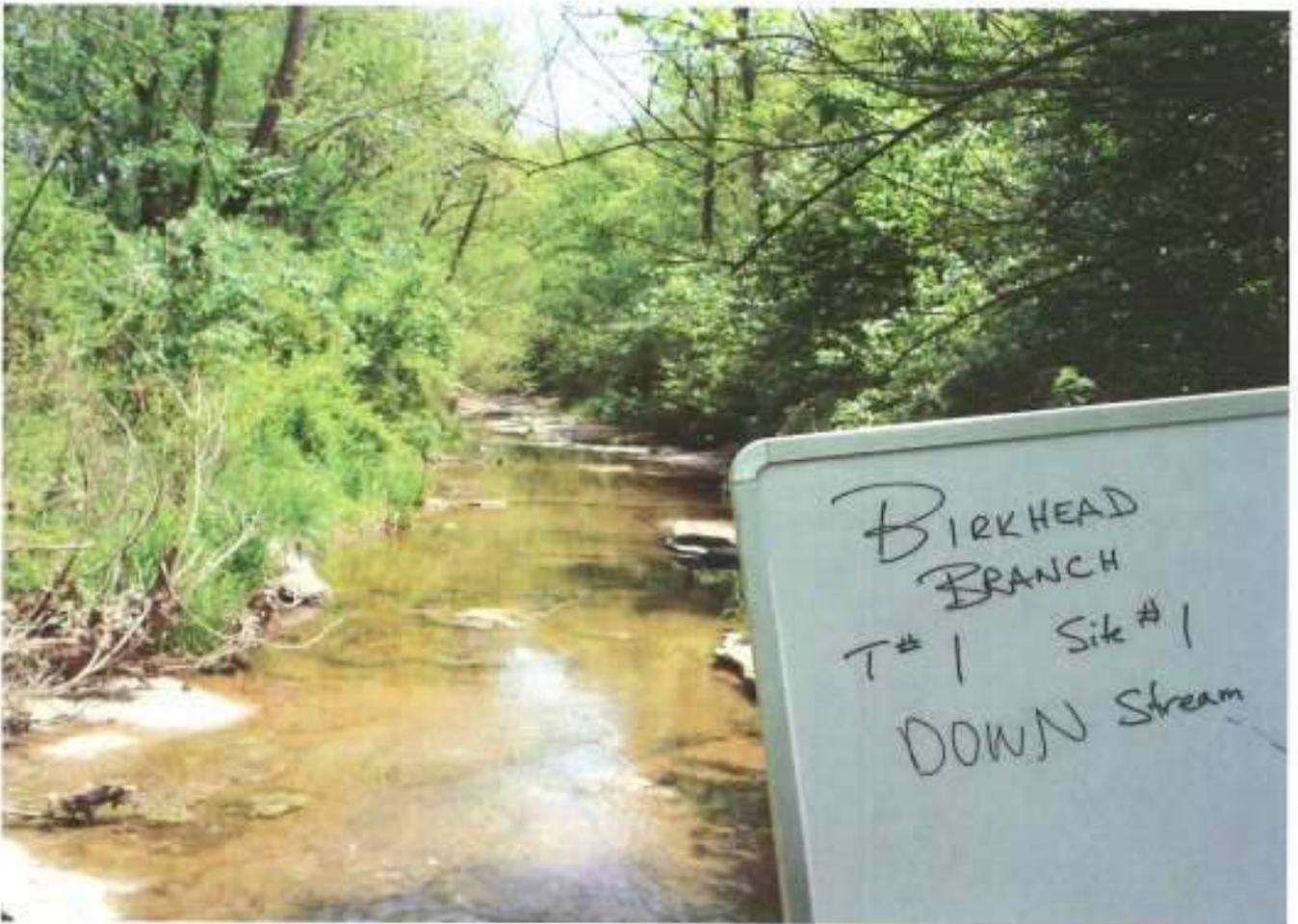
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as < 0.1; and greater than 1m as > 1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renee Martin      Date: 5/7/07









"Cindy DiStefano "  
<Cindy.DiStefano@mdc.mo.gov>

03/26/2008 11:34 AM

To "Michael Kruse" <michael.kruse@dnr.mo.gov>  
cc  
bcc  
Subject Fwd: DNR Request - Sarah, Marv, Jen, Kenda

>>> Lynn Schrader 03/18/08 10:10 AM >>>  
Gang,

With this note, I'll confirm that the latter observations were after 1975....especially since a couple of you reporting may not of even been born yet.

Would you guys confirm to Cindy the request for Stater, Brushy, and Bigelow creeks, please.

I know, I know.....the Clean Water Act says streams are suppose to be swimmable whether we actually saw someone or not. Cindy is doing her best for these.

Thanks,

Lynn

>>> Cindy DiStefano 3/14/2008 1:43 PM >>>  
Lynn,

The following is a request received from DNR that I have edited to pertain to your region. I have included only the streams in your region and added page numbers that correspond to the page numbers on the map file. Hopefully, this information will be easy to obtain. If possible, I would like the information by March 26th, so I can meet DNR's deadline.

Email from Mike Kruse, DNR:

I am following up on conversations you previously had with Donna Menown regarding the letter of comments provided to us from John Hoskins and the MDC on 8/24/2005. The letter pertains to observations of whole-body contact recreation in streams we completed Use Attainability Analyses for in 2005. After reviewing the 2005 UAAs additional questions arose that we hope you may be able to answer. We greatly appreciate all your help on this matter.

After reviewing the UAAs available on-line, it became apparent that some of the surveys were completed in locations other than the streams in question. Since the comments in the letter from the MDC did not provide WBID numbers and the maps provided in the 2005 UAAs may not be entirely accurate, we cannot be certain those observations came from the correct streams. Would you be able to tell us if the following observations were indeed made on the correct stream segments and equally important if the observations occurred after 11/28/1975? I have attached maps and locations of the streams in question.

Stater Cr. (WBID 1850): public swimming observed - Crawford Co. - Page 6

Brushy Fk. (WBID 33): children playing and splashing observed - Lincoln Co. - Page 8

Bigelow's Cr. (WBID 1608): children playing and splashing observed -  
St. Charles Co - Page 10

Additionally, the following list of streams is of those the MDC  
observed WBCR, however we need confirmation the actions occurred after  
11/28/1975.

Whittenburg Cr. (WBID 1899): public swimming observed - Crawford Co.  
Birkhead Br. (WBID 34): children playing and splashing observed -  
Lincoln Co.  
Paris Br. (WBID 176): children playing and splashing observed -  
Lincoln Co.  
Turkey Cr. (WBID 199): public swimming observed - Lincoln Co.  
Mill Cr. (WBID 2124): public swimming observed - Washington Co.  
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I will be at a meeting next week, so if you have questions please  
contact Mike at:

Mike Kruse  
Div. of Env. Quality/Water Protection Program  
MO Dept. of Natural Resources, Jeff. City  
(573) 522-4901; FAX [522-9920]  
e-mail: michael.kruse@dnr.mo.gov

Thanks!  
Cindy



Maps\_UAA Kruse.doc