



Missouri
Department of
Natural Resources

**MUDDY CREEK
WBID 898**

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
P O Box 176
Jefferson City, MO 65102

PREPARED BY:
MEC WATER RESOURCES, INC.
1123 Wilkes Blvd., Ste. 400
Columbia, MO 65201

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):	Muddy Cr.
Missouri Water Body Identification (WBID) Number:	898
8-digit HUC:	10280101
County:	Saline
Upstream Legal Description (from Table H):	22, 52N, 21W
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated	4
List all sites numbers, listed consequently upstream to downstream:	1, 2, 3, 4

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):	Miami Township R-1 School
Discharger Permit Number(s):	MO 0094561

IV. UAA Surveyor (please print legibly)

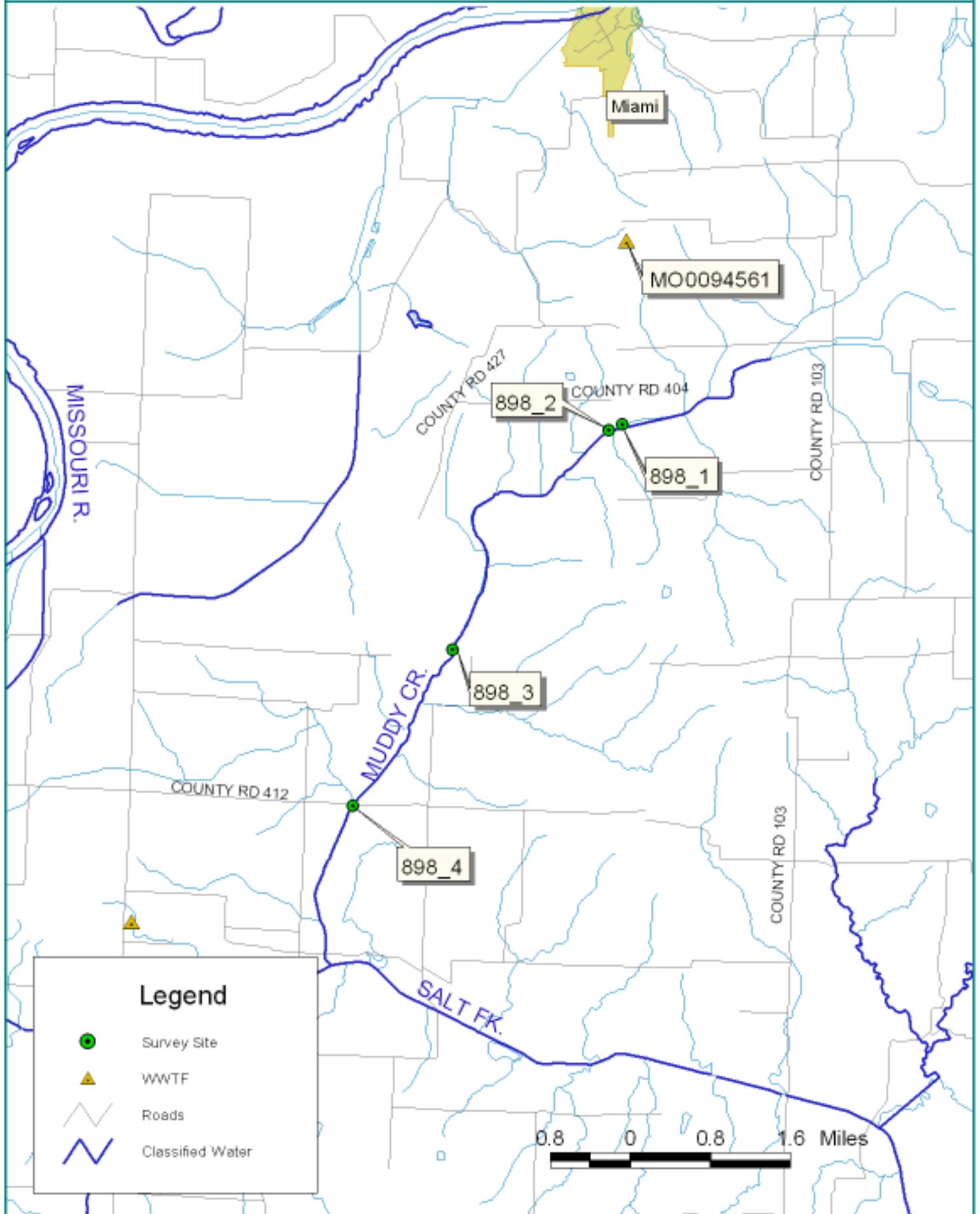
Name of Surveyor	Cassidy Luebbering	Telephone Number:	(573) 443-9100
Organization/Employer:	MFC Water Resources		
Position:	W&S II / Field Team Lead		

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

Signed: Cassidy Luebbering Date: 5/21/07

gwc 5-24-07
 ORK 5/26/07

Muddy Creek (0898), Length = 9.0 mi., Permit # MO0094561



WBID# 898
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/21/07 8:15</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>CL, SB</u>	<u>US of Hwy 91 bridge</u>
Current Weather Conditions: <u>Clear, 65°F</u>	Facility Name: <u>Miami Township R-1 School</u>
	Permit Number: <u>MO 0094561</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>480726</u>		Y: <u>4346369</u>	
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	± <u>19</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>898.1-1</u>	<u>Site 1 US view</u>		
<u>898.1-2</u>	<u>Site 1 DS view</u>		

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.)

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 checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

WBID# 898
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

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:					

Stream Morphology:

Upstream View's Physical Descriptions: 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	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
<u>100</u> RUN	<u>1</u>	<u>0</u>	<u>3.3</u>	<u>15</u>	<u>.4</u>	<u>.5</u>
POOL						

Downstream View's Physical Descriptions: 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	% Gravel	% Sand	% Silt	<u>100</u> % Mud/Clay	% Bedrock
----------	----------	--------	--------	-----------------------	-----------

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

<u>—</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 checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>brown</u>
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<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 affect another use.

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

Surveyor's Signature: Cassidy Smith Date of Survey: 5/21/07

Organization: MFC Water Position: WQST/Field Team Lead

ANC 5-24-07 AK 5/25/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Date: 5/21/07 Time: 8:30

Dissolved Oxygen: 9.08 (mg/L)

Dissolved Oxygen: 90.4 (% sat)

Specific Cond: 292.6 (µS/cm)

Water Temperature: 15.0 (°C)

Waterbody ID: 898 Site #: 1 (WBID_Site#)

Estimated Channel Incision: 2 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 480726 UTM Y: 4346369

Horizontal Accuracy Estimate (GPS Data Quality): +/- 19 (feet)

Average Stream Width: 4 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: CL, SB

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0
2	33.4	34	34	4	27	5	23	5	27	5	24	3	35	4	36	3	24	3	3	4	3	4
3	66.4	68	4	4	54	5	46	5	54	5	6	5	7	5	72	3	18	4	6	4	6	4
4	99.5	102	4	4	81	6	64	5	81	5	9	5	105	5	108	4	12	3	9	5	9	4
5	132.5	136	5	5	108	5	92	6	108	5	12	5	124	4	128	4	11.6	4	12.2	4	12.2	5
6	165.5	17	5	5	135	5	115	5	135	5	15	5	175	4	178	5	20	4	15	4	15	5
7	198.5	204	5	5	162	4	138	5	162	5	18	5	21	5	214	5	24	4	18	5	18	4
8	231.4	238	4	4	189	5	161	4	189	4	21	4	245	4	252	5	28	4	21	4	21	5
9	264.3	272	4	4	216	3	184	4	216	4	24	3	28	4	288	3	32	4	24	5	24	3
10	297.2	206	3	3	243	3	207	3	243	2	27	2	315	3	324	3	36	3	27	4	27	3
11	33.1	34	1	1	27	1	23	1	27	1	3	1	35	1	36	1	40	1	3	1	3	1
12	33.0	34	0	0	27	0	23	0	27	0	3	0	35	0	36	0	40	0	3	0	3	0
	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 12 distance = entire wetted width, distance and depth = 0m

Signed: [Signature]

Date: 5/21/07

CL 5-24-07

WBID# 898
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/21/07 8:50</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>EL, JB</u>	<u>DS of Hwy 41 Bridge</u>
Current Weather Conditions: <u>Clear, 70°F</u>	Facility Name: <u>Miami Township R-1 School</u>
	Permit Number: <u>MO 0094561</u>
Weather Conditions for Past 10 days:	
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 type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>480 506</u>		Y: <u>4346276</u>	
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	± <u>19</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>898.2.3</u>	<u>site 2 US view</u>		
<u>898.2.4</u>	<u>site 2 DS view</u>		

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.)

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 checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

WBID# 898
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

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:					

Stream Morphology:

Upstream View's Physical Descriptions: 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	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
100 RUN	1	0	7	15	.4	.6
POOL						

Downstream View's Physical Descriptions: 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%)

5 % Cobble	% Gravel	% Sand	% Silt	95 % Mud/Clay	% Bedrock
------------	----------	--------	--------	---------------	-----------

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

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 checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>Brown</u>
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<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 affect another use.

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

Surveyor's Signature: Cassidy J. Luby Date of Survey: 5/21/07
 Organization: MFC Water Position: WASIT/Field Team Lead

ANC 5-24-07 ANC 5/25/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Date: 5/21/07 Time: 8:50

Dissolved Oxygen: 9.38 (mg/L)

Dissolved Oxygen: 99.4 (% sat)

Specific Cond: 301.9 (µS/cm)

Water Temperature: 15.2 (°C)

Waterbody ID: 898 Site #: 2 (WBID_Site#)

Estimated Channel Incision: 1 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 480506 UTM Y: 4346276
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 19 (feet)

Average Stream Width: 4 (meters) Length of Survey Segment: 150 (meters)
 (20x average stream width)

Field Staff: OL, SB

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
2	.79	3	.5	4	.4	2	.4	4	.5	3	.5	4	.4	3	.5	4	.4	3	.5	4	.4	3
3	1.48	4	1	4	1.8	6	.98	5	1.08	5	1.08	5	.72	4	1.8	4	1.8	5	1.4	1.1	1.86	4
4	2.17	4	1.5	4	1.2	7	1.47	7	1.62	6	1.62	6	1.08	5	1.2	4	1.2	5	1.4	1.1	1.29	3
5	2.86	6	2	4	1.6	7	1.96	7	2.16	6	2.16	6	1.44	5	1.6	5	1.6	5	1.92	1	1.72	4
6	3.55	5	2.5	4	2.0	7	2.45	7	2.7	5	2.7	6	1.8	5	2.0	5	2.0	5	2.4	2	2.15	4
7	4.24	5	3	4	2.4	7	2.94	7	3.24	7	3.24	7	2.16	4	2.4	5	2.4	5	2.88	2	2.58	3
8	4.93	5	3.5	4	2.8	7	3.43	8	3.78	7	3.78	7	2.52	5	2.8	4	2.8	4	3.36	3	3.01	3
9	5.62	4	4	4	3.2	5	3.92	6	4.32	7	4.32	6	2.88	5	3.2	3	3.2	4	3.84	3	3.44	3
10	6.31	3	4.5	4	3.6	5	4.41	4	4.86	5	4.86	5	3.24	5	3.6	3	3.6	5	4.32	3	3.87	3
11	7	1	5.0	1	4.0	1	4.9	1	5.4	1	5.4	1	3.6	1	4.0	1	4.0	1	4.8	1	4.3	1
12	7	0	5.2	0	4.0	0	4.9	0	5.4	0	5.4	0	3.6	0	4.0	0	4.0	0	4.8	0	4.3	0

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:

Caroly Jankley

Date:

5/21/07

ANC 5-24-07

WBID# 898
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/21/07 9:45</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>CL, SB</u>	<u>US of Hwy 122 Bridge</u>
Current Weather Conditions: <u>Clear 72°F</u>	Facility Name: <u>Miami Township R-1 School</u>
Weather Conditions for Past 10 days:	Permit Number: <u>MO 0094561</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>478012</u>		Y: <u>4342768</u>	
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	± <u>18</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>898-3-5</u>	<u>Site 3 US view</u>		
<u>898-3-6</u>	<u>Site 3 DS view</u>		

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.)

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 checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

WBID# 898
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

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:					

Stream Morphology:

Upstream View's Physical Descriptions: 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	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
100 RUN	1	0	3.3	150	.5	.8
POOL						

Downstream View's Physical Descriptions: 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	% Gravel	% Sand	% Silt	<u>100</u> % Mud/Clay	% Bedrock
----------	----------	--------	--------	-----------------------	-----------

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

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 checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<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 affect another use.

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

Surveyor's Signature: *Cassidy Luby* Date of Survey: 5/21/07

Organization: MEC Water Position: WRSII/Field Team Lead

ORWC *5-2407* *AK 5/25/07*

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Date: 5/21/07 Time: 9:50

Dissolved Oxygen: 9.25 (mg/L)

Dissolved Oxygen: 94.7 (% sat)

Specific Cond: 324.3 (µS/cm)

Water Temperature: 16.4 (°C)

Waterbody ID: 898 Site #: 3 (W/BID_Site#)

Estimated Channel Incision: 05 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 478012 UTM Y: 4342268

Horizontal Accuracy Estimate (GPS Data Quality): +/- 18 (feet)

Average Stream Width: 4 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: CL, JRB

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11					
	Distance (m)	Depth (m)																								
1	0	1	0	1	0	1	0	1	0	1	3	1	3	1	3	1	3	1	0	1	0	1				
2	33	4	45	2	42	3	31	40	35	5	66	2	66	2	66	2	66	2	85	3	54	5	32	3		
3	66	4	99	2	84	5	62	7	6	102	2	102	2	102	2	102	2	102	2	102	2	102	2	102	2	
4	99	5	132	3	126	6	93	10	105	7	138	3	138	3	138	3	138	3	138	3	138	3	138	3	138	3
5	132	5	165	3	168	7	124	6	14	7	174	5	174	5	174	5	174	5	174	5	174	5	174	5	174	5
6	165	7	225	5	21	18	155	6	175	8	21	10	285	7	305	10	27	8	16	27	8	16	27	8	16	27
7	198	7	27	6	252	7	186	4	21	8	246	7	246	7	246	7	246	7	246	7	246	7	246	7	246	7
8	231	8	315	6	294	6	217	4	245	8	282	4	282	4	282	4	282	4	282	4	282	4	282	4	282	4
9	264	7	36	5	336	5	248	3	28	8	318	5	318	5	318	5	318	5	318	5	318	5	318	5	318	5
10	297	6	405	4	378	4	279	2	215	4	354	4	354	4	354	4	354	4	354	4	354	4	354	4	354	4
11	33	1	45	1	42	1	31	1	35	1	39	1	39	1	39	1	39	1	39	1	39	1	39	1	39	1
12	33	0	45	0	42	0	31	0	35	0	39	0	39	0	39	0	39	0	39	0	39	0	39	0	39	0
Feature Type (riffle run, or pool)	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: [Signature] Date: 5/21/07

One 58-24-07 ARC 5/23/07

WBID# 898
 Site# site 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>CC, JB</u>	<u>Bridge on CR 412</u>
Current Weather Conditions: <u>Clear 72°F</u>	Facility Name: <u>Miami Township R-1 School</u>
Weather Conditions for Past 10 days:	Permit Number: <u>MO 0094561</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>476414</u>		Y: <u>4340256</u>	
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	± <u>16</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>898-4-7</u>	<u>site 4 US view</u>		
<u>898-4-8</u>	<u>site 4 DS view</u>		

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 checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 898
 Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

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:					

Stream Morphology:

Upstream View's Physical Descriptions: 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	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN	1	0	5	15	2.1	2.1
POOL						

Downstream View's Physical Descriptions: 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	% Gravel	% Sand	% Silt	<u>100</u>	% Mud/Clay	% Bedrock
----------	----------	--------	--------	------------	------------	-----------

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

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 checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>brown</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:
WATER SURFACE DEPOSITION:	<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 affect another use.

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

Surveyor's Signature: Cassidy Dunphy Date of Survey: 5/21/07

Organization: MEC Water Position: WRST / Field Team Lead

BAC 5-24-07

AK 5/25/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 898

Site #: 4
(WBID_Site#)

Estimated Channel Incision: 0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 4776414 UTM Y: 4340256
Horizontal Accuracy Estimate (GPS Data Quality): +/- 16 (feet)

Average Stream Width: 4 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: CL, TB

Dissolved Oxygen

Date: 5/21/07 Time: 10:45

Dissolved Oxygen: 8.46 (mg/L)

Dissolved Oxygen: 8.69 (% sat)

Specific Cond: 341.4 (µS/cm)

Water Temperature: 16.8 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1	0	1.1
2	1.5	1.4	1.4	1.35	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4	1.7	1.4
3	1	1.8	1.8	1.7	1.7	1.8	1.8	1.7	1.8	1.8	1.7	1.8	1.8	1.7	1.8	1.8	1.7	1.8	1.8	1.7	1.8	1.8
4	1.5	1.2	1.2	1.05	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
5	2	1.6	1.6	1.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
6	1.5	2.0	2.0	1.75	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
7	3	2.4	2.4	2.1	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
8	3.5	2.8	2.8	2.45	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
9	4	3.2	3.2	2.8	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
10	4.5	3.6	3.6	3.15	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
11	5	4	4	3.5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
12	5	4	4	3.5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

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:

Carroll Dunham

Date:

5/21/07

034C 5-24-07

AMS 5/29/07

WBID# 898



Site# 1 Photo ID# 898-1-1, Upstream



Site# 1 Photo ID# 898-1-2, Downstream



Site# 2 Photo ID# 898-2-3, Upstream



Site# 2 Photo ID# 898-2-4, Downstream

WBID# 898



Site# 3 Photo ID# 898-3-5, Upstream



Site# 3 Photo ID# 898-3-6, Downstream



Site# 4 Photo ID# 898-4-7, Upstream



Site# 4 Photo ID# 898-4-8, Downstream