

**SPRING BRANCH
WBID 1870**

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
301 West High Street
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):	Spring Branch
Missouri Water Body Identification (WBID) Number:	1870
8-digit HUC:	7140102
County:	Dent
Upstream Legal Description (from Table H):	HWY 32
Downstream Legal Description (from Table H):	02, 34, 60 th mouth
Number of sites evaluated	6
List all sites numbers, listed cnsquently upstream to downstream:	Site 2, Site 1, Site 3, Site 4, Site 5, Site 6

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):	① Salem WWT, ② Adams Subd Assoc, ③ Seville Care Center
Discharger Permit Number(s):	① MO 0021768, ② MO 0083984, ③ MO 0087076, ④ MO 0089974

IV. UAA Surveyor (please print legibly)

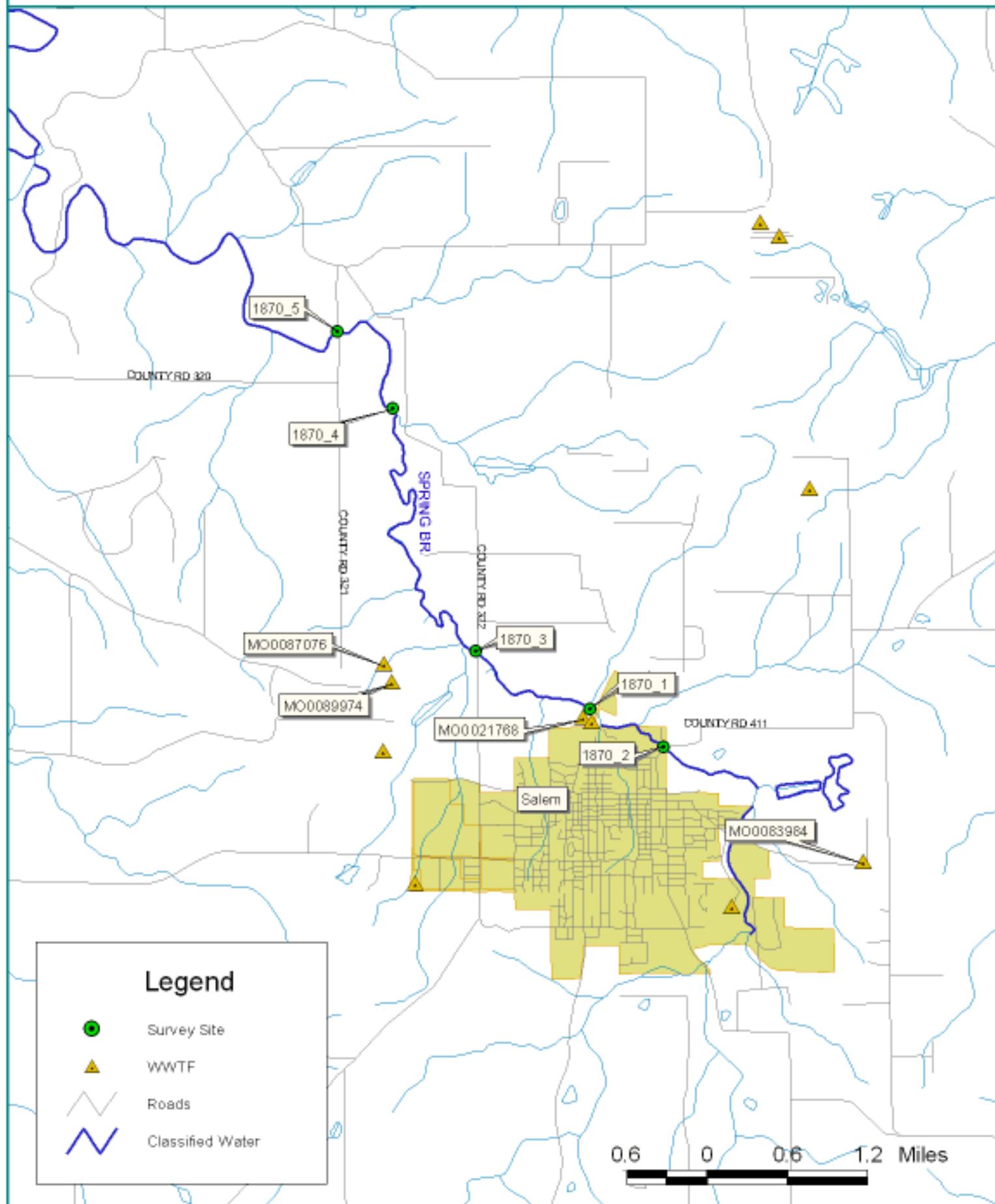
Name of Surveyor	Nick Muenks	Telephone Number:	573-443-4100
Organization/Employer:	MEC Water Resources		
Position:	Water Quality Scientist		

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

Signed: Nick Muenks Date: 5/17/07

DWC 5-23-07
AKS 5/24/07

**Spring Branch (1870), Length = 10.0 mi., Permit # MO0021768,
MO0083984, MO0087076, MO0089974**



WBID# 1870
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/16/07 1315</u>	Site Location Description (e.g., road crossing): <u>Reach began just downstream from Salem WWTP outfall 1</u>
Personnel (Data Collectors): <u>Nick M, Jerrad R.</u>	Facility Name:
Current Weather Conditions: <u>Clear</u>	Permit Number:
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>0628877</u>		Y: <u>4168629</u>	
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 Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>30</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>1870-1-713</u>	<u>upstream from T1 - Salem WWTP outfall</u>		
<u>1870-1-714</u>	<u>downstream from T1</u>		
<u>1870-1-715</u>	<u>downstream from T11</u>		
<u>1870-1-716</u>	<u>upstream from T11</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# 1870
 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 checked="" type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>Stream segment below Salem WWTP outfalls 1+2</u>					

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>40</u>			
RUN			<u>25</u>			
POOL			<u>60</u>			
			<u>100 15' anc</u>			

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%.)

<u>0</u> % Cobble	<u>75</u> % Gravel	<u>10</u> % Sand	<u>5</u> % Silt	<u>10</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

algae on most substrate with substrate, some aquatic plants present

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>cloudy/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 checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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: Nick Moentes Date of Survey: 5/16/07

Organization: MEC Water Resources Position: Water Quality Scientist

By WC 5-23-07
AKC 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>1870</u>	Site #: <u>1</u> <small>(WBID_Site#)</small>	Dissolved Oxygen
Estimated Channel Incision: <u>0.25</u> (m) (height between low bank width and water)		Date: <u>5/16/07</u> Time: <u>1315</u>
GPS Location (taken at transect 1):		Dissolved Oxygen: <u>6.6</u> (mg/L)
UTM X: <u>6628877</u> UTM Y: <u>4168629</u>		Dissolved Oxygen: <u>72.6</u> (% sat)
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 36.0</u> (feet)		Specific Cond: <u>440.0</u> (µS/cm)
Average Stream Width: <u>6</u> (meters)	Length of Survey Segment: <u>150</u> (meters) <small>(20x average stream width)</small>	Water Temperature: <u>19.8</u> (°C)
Field Staff: <u>Nick Muenks</u>	<u>Terroed Roberts</u>	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0.60	0.10	0.30	0.10	0.10	0.10	0.00	0.11	0.10	0.10	0.12	0.12	0.70	0.10	1.00	0.12	0.30	0.11					
2	1.20	0.10	0.14	0.25	0.30	0.30	0.70	0.43	1.15	0.33	0.45	1.20	0.13	1.45	0.16	1.06	0.29						
3	1.80	0.15	0.16	0.24	0.24	0.31	1.20	0.31	1.04	0.26	1.40	0.65	1.74	0.38	1.70	0.14	1.82	0.30					
4	2.40	0.20	0.15	0.27	0.27	0.30	1.65	0.30	1.51	0.28	2.10	0.68	2.56	0.15	2.20	0.13	2.35	0.22					
5	3.00	0.25	0.16	0.32	0.32	0.32	2.10	0.32	1.98	0.32	2.80	0.70	3.38	0.00	2.70	0.18	2.80	0.22					
6	3.60	0.29	0.16	0.35	0.35	0.31	2.55	0.31	2.45	0.33	3.50	0.70	4.15	0.10	3.20	0.16	3.25	0.26					
7	4.20	0.32	0.14	0.38	0.35	0.32	3.00	0.32	2.92	0.31	4.20	0.71	4.90	0.10	3.70	0.12	3.70	0.30					
8	4.80	0.40	0.12	5.01	0.34	0.30	3.45	0.30	3.39	0.28	4.90	0.64	5.65	0.10	4.20	0.10	4.15	0.32					
9	5.40	0.44	0.12	5.64	0.32	0.29	3.90	0.29	3.86	0.23	5.60	0.45	6.40	0.10	4.70	0.10	4.60	0.34					
10	6.00	0.39	0.11	6.27	0.22	0.26	4.35	0.26	4.33	0.17	6.30	0.41	7.15	0.24	5.20	0.11	5.05	0.30					
11	6.60	0.11	0.11	6.90	0.10	0.10	4.80	0.10	4.80	0.11	7.00	0.25	7.90	0.10	5.70	0.10	5.50	0.16					
12	4.30	0					5.20	0			8.60	0	5.90	0					8.66	0.0			
Feature Type <small>(riffle, run, or pool)</small>	run	rifle	run/pool	run	pool	pool	pool	pool	rifle/pool	pool/run	rifle	rifle	rifle	run	run	run	run	run	run	run	run	run	run

Notes: Transacts will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transacts ordered in upstream to downstream order.
 Transacts 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 vetted width distance and depth = 0m.

Signed: Nick Muenks Date: 5/16/07
Ac 5/24/07 RWC 5-23-07

WBID# 1870
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/17/07 700</u>	Site Location Description (e.g., road crossing): <u>Dents Ford Rd (10th St)</u>
Personnel (Data Collectors): <u>Alize M. Jerrod R.</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name:
	Permit Number:
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>0629760</u>		Y: <u>4168169</u>	
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 Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>37-8</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>1870-2-720</u>	<u>Downstream view transect 1</u>	<u>1870-2-723</u>	<u>Upstream view transect 8</u>
<u>1870-2-721</u>	<u>Upstream view transect 1</u>	<u>1870-2-724</u>	<u>Downstream view transect 8</u>
<u>1870-2-722</u>	<u>Fence along stream</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 checked="" 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 checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>* near the edge of Salem city limits</u>				

WBID# 1870
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: <u>None</u>					

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>1/2 of site</u>			
RUN			<u>20</u>			
POOL			<u>15</u>			

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%.)

<u>5</u> % Cobble	<u>0</u> % Gravel	<u>10</u> % Sand	<u>35</u> % Silt	<u>50</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

benthic alge present in approximate 50% of 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 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:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input checked="" 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.

*Scum present in pool at transect 8

*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: Nick Mrent Date of Survey: 5/17/07

Organization: MEL Water Resources Position: Water Quality Scientist

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>1870</u> Site #: <u>2</u> (WBID_Site#) Estimated Channel Incision: <u>0.10</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0629760</u> UTM Y: <u>41168169</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 37.8</u> (feet)	Dissolved Oxygen Date: <u>5/17/07</u> Time: <u>7:00</u> Dissolved Oxygen: <u>5.06</u> (mg/L) Dissolved Oxygen: <u>52.8</u> (% sat) Specific Cond: <u>230.0</u> (µS/cm) Water Temperature: <u>15.9</u> (°C)
Average Stream Width: <u>5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width) Field Staff: <u>Nick Muenks Terrod Roberts</u>	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	1.00	0.15	1.10	0.10	0.00	0.12	0.70	0.10	0.20	0.11	0.50	0.10	0.70	0.10	0.50	0.10	0.10	0.11	0.50	0.10	0.30	0.10	
2	1.40	0.26	1.25	0.12	0.73	0.45	0.80	0.10	0.64	0.17	0.80	<0.10	0.97	0.10	0.80	0.12	0.50	0.16	0.88	0.24	0.41	0.11	
3	1.80	0.27	1.40	0.17	1.46	0.64	0.90	0.10	1.08	0.13	1.10	0.10	1.24	0.11	1.10	0.36	0.90	0.22	1.26	0.30	0.52	0.14	
4	2.20	0.42	1.55	0.24	2.19	0.71	1.00	0.10	1.52	0.11	1.40	0.10	1.51	0.13	1.40	0.42	1.30	0.27	1.64	0.37	0.63	0.16	
5	2.60	0.40	1.70	0.20	2.92	0.72	1.10	0.11	1.96	0.14	1.70	0.19	1.78	0.14	1.70	0.42	1.70	0.30	2.02	0.51	0.74	0.17	
6	3.00	0.39	1.85	0.20	3.65	0.72	1.20	0.13	2.40	0.13	2.00	0.22	2.05	0.14	2.00	0.40	2.10	0.36	2.40	0.52	0.85	0.16	
7	3.40	0.38	2.00	0.24	4.38	0.62	1.30	0.13	2.84	0.15	2.30	0.22	2.32	0.19	2.30	0.38	2.50	0.42	2.78	0.49	0.96	0.12	
8	3.80	0.36	2.15	0.15	5.11	0.52	1.40	0.10	3.28	0.16	2.60	0.18	2.59	0.15	2.60	0.24	2.90	0.60	3.16	0.37	1.07	0.12	
9	4.20	0.31	2.30	0.13	5.84	0.50	1.50	0.12	3.72	0.30	2.90	0.16	2.86	0.20	2.90	0.27	3.30	0.78	3.54	0.30	1.18	0.14	
10	4.60	0.19	2.45	0.10	6.57	0.37	1.60	0.11	4.16	0.25	3.20	0.13	3.13	0.19	3.20	0.22	3.70	0.82	3.92	0.14	1.29	0.12	
11	5.00	0.14	2.60	0.10	7.30	0.10	1.70	0.10	4.60	0.12	3.50	0.10	3.40	0.10	3.50	0.10	4.10	0.73	4.30	0.11	1.40	0.10	
12	5.50	0	2.80	0	7.50	0	2.30	0	3.70	0	3.70	0	3.90	0	3.80	0	4.70	0	4.70	0	2.30	0	
Feature Type (riffle, run, or pool)	pool	run	run	run	pool	pool	riffle	riffle	pool	pool	pool	riffle	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: Nick Muenks Date: 5/17/07

CRK-5/24/07 AWC 5-23-07

WBID# 1870
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/17/07 855</u>	Site Location Description (e.g., road crossing): <u>Cnty Rd 3dd (old Golf Course Rd)</u>
Personnel (Data Collectors): <u>Nick M. Serrod R.</u>	Facility Name:
Current Weather Conditions: <u>Clear</u>	Permit Number:
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>0627509</u>		Y: <u>4169317</u>	
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 Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>29.0</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>1870-3-725</u>	<u>Downstream from transect 5</u>	<u>1870-3-728</u>	<u>Upstream view transect 5</u>
<u>1870-3-726</u>	<u>Downstream view transect 5</u>	<u>1870-3-729</u>	<u>Downstream view transect 11</u>
<u>1870-3-727</u>	<u>Upstream view transect 5</u>	<u>1870-3-730</u>	<u>Upstream view transect 11</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 checked="" type="checkbox"/> Fence *	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>* water gap across stream at road crossing</u>				

WBID# 1870
 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: <u>None</u>					

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>20 side</u>			
RUN			<u>10</u>			
POOL			<u>35</u>			
			<u>55</u>			

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%.)

<u>28</u> % Cobble	<u>10</u> % Gravel	<u>1</u> % Sand	<u>12</u> % Silt	<u>75</u> % Mud/Clay	<u>6</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Transects 1-9 have aquatic plants in 70%, some algae where solid substrate present

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input 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: Nick Plumb Date of Survey: 5/17/07

Organization: MEL Water Resources Position: Water Quality Scientist

242 5-23-07
AK 5/24/07

WBID# 1870
 Site# 4

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/17/07 1015</u>	Site Location Description (e.g., road crossing): <u>West of Cnty Rd 322 through a gate on James Wright's property (1st gate when road runs north/south)</u>
Personnel (Data Collectors): <u>Nick M. Serrod R.</u>	Facility Name:
Current Weather Conditions: <u>Clear</u>	Permit Number:
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>0626528</u>	Y: <u>4172218</u>
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)	
Global Positioning System (GPS)	
Static Mode	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	
Precise Positioning Service	
Signal Averaging	
Real Time Differential Processing	
HORIZONTAL ACCURACY ESTIMATE	
GPS Data Quality	
FOM	± _____ Meters
EPE	± <u>60.0</u> Feet or ± _____ Meters
PDOP	
Interpolation	
Topographic Map or DRG	
Aerial Photograph or DOQQ	
Satellite Imagery	
Interpolation Other	
Interpolation Data Quality	
Source Map Scale: 1:24,000 1:100,000 Other _____	
± _____ Feet or ± _____ Meters	

Photos:

Photo ID# (WBID_Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>1870-4-731</u>	<u>Downstream view from transect 2</u>	<u>1870-4-734</u>	<u>Upstream view from transect 11</u>
<u>1870-4-732</u>	<u>Upstream view from transect 2</u>	<u>1870-4-735</u>	<u>Downstream view from transect 11</u>
<u>1870-4-733</u>	<u>Upstream view from transect 2</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 checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>This site was located within private property. No access from public roads.</u>				

WBID# 1870
 Site# 4

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 checked="" 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: <i>* indications of livestock water present. No livestock actually observed.</i>					

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) <i>% of site</i>	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<i>20</i>			
RUN			<i>25</i>			
POOL			<i>55</i>			

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%.)

<i>50</i> % Cobble	<i>30</i> % Gravel	<i>15</i> % Sand	<i>0</i> % Silt	<i>5</i> % Mud/Clay	<i>0</i> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic algae present on substrate in riffles & runs, aquatic plants in approximately 25% of site.

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear <i>run riffle</i>	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <i>poorly cloudy</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:
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: Nick Muenks Date of Survey: 5/17/07
 Organization: MIL Water Resources Position: Water Quality Scientist

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>1870</u> Site #: <u>4</u> (WBID_Site#) Estimated Channel Incision: <u>0.20</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0626528</u> UTM Y: <u>4172218</u> Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>60.0</u> (feet)	Dissolved Oxygen Time: <u>10:15</u> Dissolved Oxygen: <u>7.22</u> (mg/L) Dissolved Oxygen: <u>73.7</u> (% sat) Specific Cond: <u>295.4</u> (µS/cm) Water Temperature: <u>16.4</u> (°C)
Average Stream Width: <u>10</u> (meters) Length of Survey Segment: <u>200</u> (meters) (20x average stream width) Field Staff: <u>Nick Muenks Terrod Roberts</u>	

Transect Cross-Section

Measurement	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)																
1	0.00	0.17	0.20	0.11	0.10	0.12	0.00	0.23	0.40	0.11	0.20	0.11	0.10	0.11	0.10	0.30	0.10	0.10	0.20	0.14	0.30	0.10	0.10	
2	0.98	0.64	0.70	0.16	1.25	0.50	1.05	0.65	1.45	0.35	0.92	0.10	0.74	0.24	0.83	0.35	1.08	0.20	1.31	0.16	1.22	0.11	0.11	
3	1.96	0.96	1.20	0.10	2.40	0.33	2.10	0.92	2.50	0.32	1.84	0.10	1.38	0.37	1.66	0.31	2.06	0.18	2.42	0.18	2.14	0.12	0.12	
4	2.94	0.78	1.70	0.16	3.55	0.23	3.15	0.92	3.55	0.58	2.76	0.12	2.02	0.43	2.49	0.26	3.04	0.19	3.53	0.27	3.06	0.18	0.18	
5	3.92	0.62	2.20	0.28	4.70	0.38	4.20	0.85	4.60	0.90	3.68	0.13	2.66	0.33	3.32	0.20	4.02	0.19	4.64	0.28	3.98	0.19	0.19	
6	4.90	0.55	2.70	0.24	5.85	0.55	5.25	0.88	5.65	1.00	4.60	0.16	3.30	0.32	4.15	0.31	5.00	0.17	5.75	0.20	4.90	0.20	0.20	
7	5.88	0.51	3.20	0.28	7.00	0.50	6.30	0.99	6.70	1.00	5.52	0.18	3.94	0.26	4.98	0.26	5.98	0.16	6.86	0.10	5.82	0.18	0.18	
8	6.86	0.48	3.70	0.28	8.15	0.53	7.35	0.96	7.75	1.00	6.44	0.15	4.58	0.25	5.81	0.15	6.96	0.16	7.97	0.10	6.74	0.14	0.14	
9	7.84	0.42	4.20	0.20	9.30	0.38	8.40	0.85	8.80	1.00	7.36	0.19	5.22	0.16	6.64	0.10	7.94	0.10	9.08	0.10	7.66	0.11	0.11	
10	8.82	0.33	4.70	0.15	10.75	0.29	9.45	0.72	9.85	1.00	8.28	0.22	5.86	0.14	7.47	0.10	8.92	0.10	10.19	0.10	8.58	0.11	0.11	
11	9.80	0.12	5.20	0.10	11.60	0.15	10.50	0.13	10.90	0.60	9.20	0.14	6.50	0.10	8.30	0.10	9.90	0.10	11.30	0.11	9.50	0.10	0.10	
12	10.10	0	5.70	0	11.80	0	10.70	0	9.30	0	7.20	0	7.20	0	8.20	0	10.30	0	11.60	0	11.00	0	0	
Feature Type (riffle, run, or pool)	30 pool	50 run	50 run	50 run	20 pool	pool	20 pool	pool	10 run	run	70 run	run	pool	pool	40 riffle	30 riffle	150 run/riffle	run/riffle	run/riffle	run/riffle	run/riffle	run/riffle	run/riffle	run/riffle

Notes: Transsects will be measured beginning on left descending bank and finishing on right descending bank.
 GPS location corresponds to Transect 01. Transsects ordered in upstream to downstream order.

Transsects 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: Nick Muenks Date: 5/17/07
RWC 5-23-07

WBID# 1870
 Site# 5

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/17/07 1145</u>	Site Location Description (e.g., road crossing): <u>Downstream of Cnty Rd 321</u>
Personnel (Data Collectors): <u>Nick M., Jerrod R.</u>	Facility Name:
Current Weather Conditions: <u>Clear</u>	Permit Number:
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>0625869</u>	Y: <u>4173134</u>
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)	
Global Positioning System (GPS)	
Static Mode	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>
Signal Averaging	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>
HORIZONTAL ACCURACY ESTIMATE	
GPS Data Quality	
FOM	± _____ Meters
EPE	± <u>19.8</u> Feet or ± _____ Meters
PDOP	
Interpolation	
Topographic Map or DRG	<input type="checkbox"/>
Aerial Photograph or DOQQ	<input type="checkbox"/>
Satellite Imagery	<input type="checkbox"/>
Interpolation Other	<input type="checkbox"/>
Interpolation Data Quality	
Source Map Scale: 1:24,000 1:100,000 Other _____	
± _____ Feet or ± _____ Meters	

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>1870-5-718</u>	<u>Upstream of Cnty Rd 321</u>	<u>1870-5-738</u>	<u>Downstream from transect 3</u>
<u>1870-5-719</u>	<u>Downstream of Cnty Rd 321</u>	<u>1870-5-739</u>	<u>Downstream from transect 3</u>
<u>1870-5-736</u>	<u>Upstream view of transect 3</u>	<u>1870-5-740</u>	<u>Farm road crossing at transect 3</u>
<u>1870-5-737</u>	<u>Macrophytes at transect 3</u>	<u>1870-5-741</u>	<u>Fishing lure in tree</u>
		<u>1870-5-742</u>	<u>Fishing lure in tree</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 checked="" type="checkbox"/> Fence*	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>No fence or water gap at downstream from road crossing - fences along north side of stream and along road on south side of stream</u>				

WBID# 1970
 Site# 5

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 checked="" type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" 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 checked="" type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: * Evidence present but not actually observed					

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			1/2 of site			
RUN			33			
POOL			65 <i>and</i>			

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%.)

<u>65</u> % Cobble	<u>30</u> % Gravel	<u>5</u> % Sand	<u>0</u> % Silt	<u>0</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae present in 90% of site, macrophytes present at 50% of site

Water Characteristics*: (Mark all that apply.)

ODOR:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input 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: Nick Pluents Date of Survey: 5/17/07
 Organization: MEL Water Resources Position: Water Quality Scientist

MEL 5-23-07
APK 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 1870 Site #: 5 (WBID_Site#)

Estimated Channel Incision: 0.25 (m) (height between low bank width and water)

GPS Location (taken at transect 1): UTM X: 0625864 UTM Y: 4173134

Horizontal Accuracy Estimate (GPS Data Quality): +/- 19.8 (feet)

Average Stream Width: 11 (meters) Length of Survey Segment: 220 (meters)

Field Staff: Nick Muenks, Jarrod Roberts (20x average stream width)

Dissolved Oxygen

Date: 5/17/07 Time: 1145

Dissolved Oxygen: 6.80 (mg/L)

Dissolved Oxygen: 70.6 (% sat)

Specific Cond: 300.0 (µS/cm)

Water Temperature: 16.7 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11			
	Distance (m)	Depth (m)																						
1	0.00	0.26	1.10	0.12	0.80	0.12	0.00	0.10	0.20	0.11	0.30	0.11	0.00	0.27	0.30	0.12	0.50	0.11	0.00	0.20	0.00	0.30	0.30	
2	1.72	0.26	1.63	0.35	1.90	0.26	1.04	0.23	1.15	0.22	1.50	0.24	1.22	0.50	1.37	0.32	1.70	0.23	0.94	0.33	1.15	0.48	0.48	
3	3.44	0.10	3.36	0.43	3.00	0.36	2.08	0.36	2.10	0.26	2.70	0.24	2.44	0.57	2.44	0.44	2.90	0.23	1.88	0.35	2.30	0.46	0.46	
4	5.16	0.24	4.99	0.62	4.10	0.39	3.12	0.47	3.05	0.27	3.90	0.29	3.66	0.50	3.51	0.54	4.10	0.21	2.82	0.32	3.45	0.51	0.51	
5	6.88	0.31	6.62	0.90	5.20	0.37	4.16	0.53	4.00	0.30	5.10	0.27	4.88	0.50	4.58	0.61	5.30	0.27	3.76	0.40	4.60	0.60	0.60	
6	8.60	0.33	8.25	0.92	6.30	0.43	5.20	0.60	4.95	0.24	6.30	0.31	6.10	0.57	5.65	0.70	6.50	0.27	4.70	0.43	5.75	0.60	0.60	
7	10.32	0.40	9.88	0.95	7.40	0.40	6.24	0.60	5.90	0.26	7.50	0.29	7.32	0.52	6.72	0.66	7.70	0.27	5.64	0.31	6.90	0.27	0.27	
8	12.04	0.24	11.51	0.81	8.50	0.38	7.38	0.60	6.85	0.24	8.70	0.36	8.54	0.55	7.79	0.60	8.90	0.28	6.58	0.31	8.05	0.48	0.48	
9	13.76	0.10	13.14	0.68	9.60	0.40	8.32	0.57	7.80	0.20	9.90	0.37	9.76	0.56	8.86	0.53	10.10	0.29	7.52	0.20	9.20	0.41	0.41	
10	15.48	0.00	14.77	0.61	10.70	0.38	9.36	0.54	8.75	0.17	11.10	0.40	10.98	0.47	9.93	0.42	11.30	0.25	8.46	0.15	10.35	0.37	0.37	
11	17.20	0.12	16.40	0.42	11.80	0.12	10.40	0.29	9.70	0.11	12.30	0.10	12.20	0.24	11.00	0.19	12.50	0.13	9.40	0.12	11.50	0.26	0.26	
12	18.10	0															12.70	0	9.90	0	7.25			
Feature Type (riffle, run, or pool)	riffle/pool		pool		run		pool		run		pool		pool		pool		run		run		pool		pool	

Notes: Transsects will be measured beginning on left descending bank and finishing on right descending bank. GPS location corresponds to Transect 01. Transsects ordered in upstream to downstream order. Transsects 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: Nick Muenks Date: 5/17/07

AR 5/24/07 Date: 5-23-07

WBID# 1870
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: <u>5/17/07 1300</u>	Site Location Description (e.g., road crossing): <u>City Rd 318 → Access denied by land owner</u>
Personnel (Data Collectors): <u>Nick M. Terrod R</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name:
	Permit Number:
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:		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	± _____ 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)

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

WBID# 1870
 Site# 6

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						
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	% Mud/Clay	% Bedrock
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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 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 type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input 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 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: Nick Muent Date of Survey: 5/17/07
 Organization: MEL Water Resources Position: Water Quality Scientist

MEL 5-23-07
AK 5/24/07

WBID# 1870



Site# 1 Photo ID# 1870-1-713, Upstream T1



Site# 1 Photo ID# 1870-1-714, Downstream T1



Site# 1 Photo ID# 1870-1-715, Downstream T11



Site# 1 Photo ID# 1870-1-716, Upstream T11

WBID# 1870



Site# 2 Photo ID# 1870-2-720, Downstream T1



Site# 2 Photo ID# 1870-2-721, Upstream T1



Site# 2 Photo ID# 1870-2-722, Fence



Site# 2 Photo ID# 1870-2-723, Upstream T8

WBID# 1870



Site# 2 Photo ID# 1870-2-724, Downstream T8



Site# 3 Photo ID# 1870-3-725, Downstream T5



Site# 3 Photo ID# 1870-3-726, Downstream T5

WBID# 1870



Site# 3 Photo ID# 1870-3-727, Upstream T5



Site# 3 Photo ID# 1870-3-728, Upstream T5



Site# 3 Photo ID# 1870-3-729, Downstream T11



Site# 3 Photo ID# 1870-3-730, Upstream T11

WBID# 1870



Site# 4 Photo ID# 1870-4-731, Downstream T2



Site# 4 Photo ID# 1870-4-732, Upstream T2



Site# 4 Photo ID# 1870-4-733, Upstream T2



Site# 4 Photo ID# 1870-4-734, Upstream T11

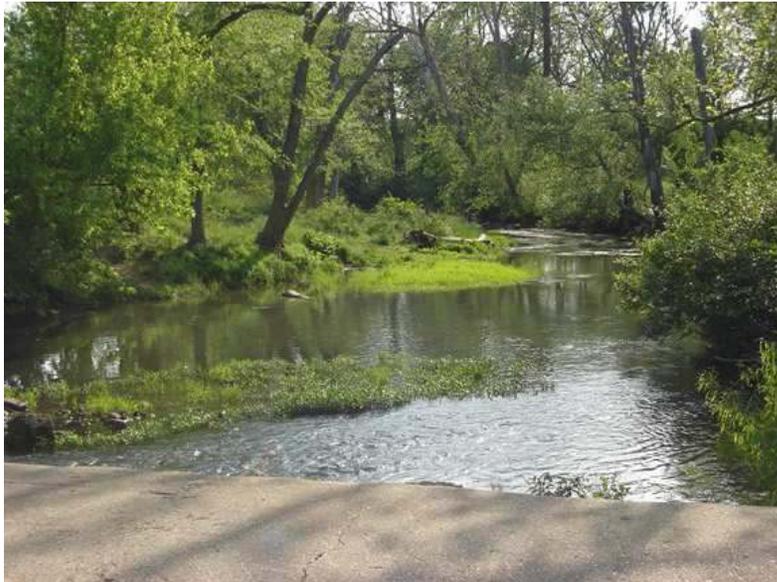
WBID# 1870



Site# 4 Photo ID# 1870-4-735, Downstream T11



Site# 5 Photo ID# 1870-5-718, Upstream



Site# 5 Photo ID# 1870-5-719, Downstream



Site# 5 Photo ID# 1870-5-736, Upstream T3

WBID# 1870



Site# 5 Photo ID# 1870-5-737, Macrophytes T3



Site# 5 Photo ID# 1870-5-738, Downstream T3



Site# 5 Photo ID# 1870-5-739, Downstream T3



Site# 5 Photo ID# 1870-5-740, Farm road T3

WBID# 1870



Site# 5 Photo ID# 1870-5-741, Fishing line



Site# 5 Photo ID# 1870-5-742, Fishing line