



Missouri  
Department of  
Natural Resources

**BIG BOTTOM CREEK  
WBID 1746**

**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):	Big Bottom
Missouri Water Body Identification (WBID) Number:	1746
8-digit HUC:	07140101
County:	Ste. Genevieve
Upstream Legal Description (from Table H):	Lake Anne
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated	3
List all sites numbers, listed consequently upstream to downstream:	Sites - 1, 2, 3

**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):	Lake Forest Estates Subdivision
Discharger Permit Number(s):	MO 0035742

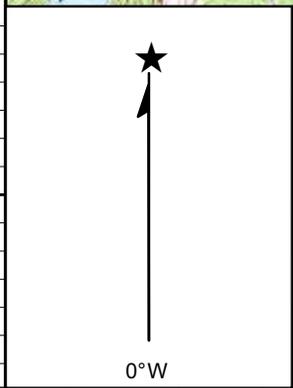
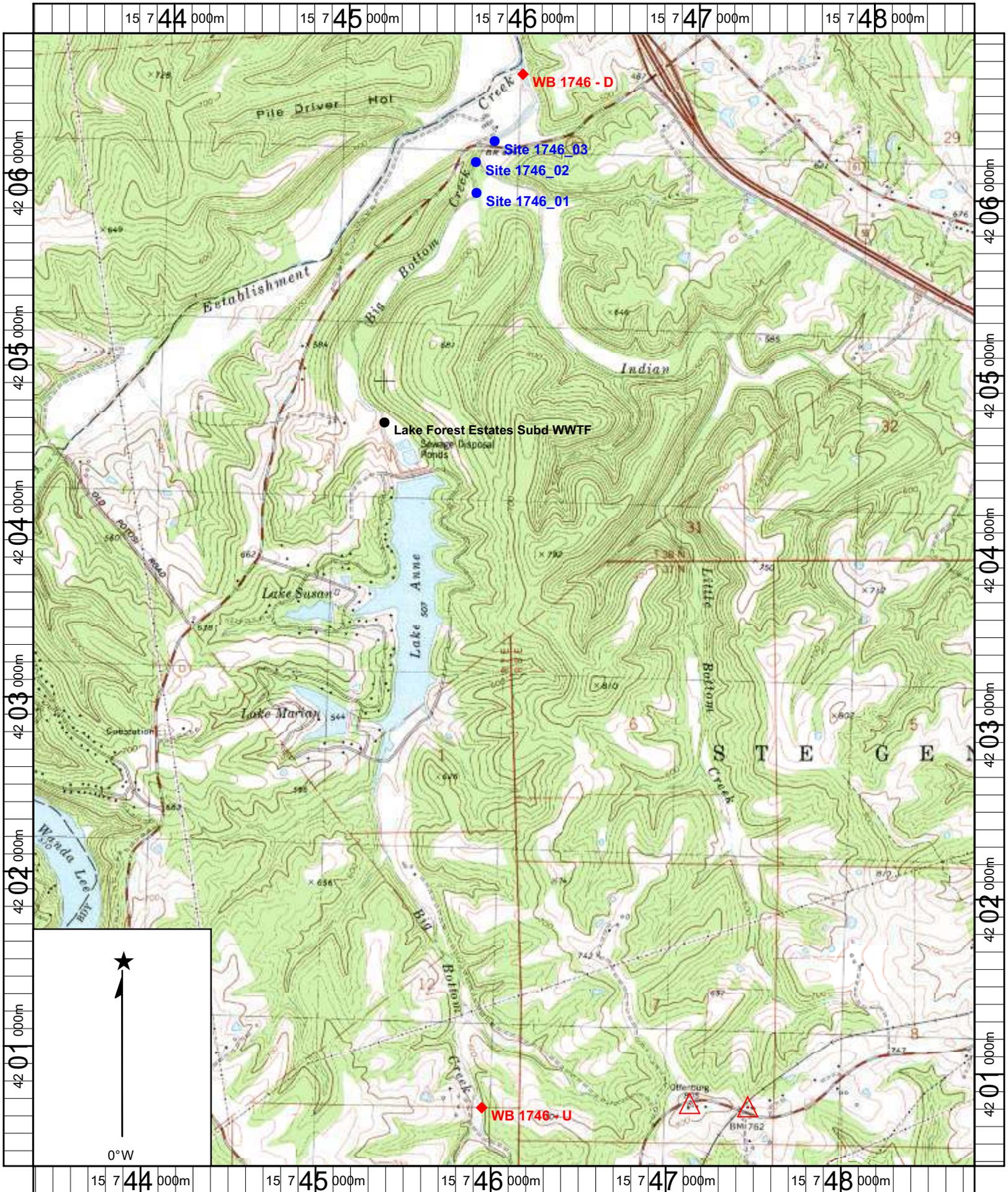
**IV. UAA Surveyor** (please print legibly)

Name of Surveyor	Abley Welschmayer	Telephone Number:	(573) 634-7078
Organization/Employer:	ERC		
Position:	Field Manager		

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

Signed: Robert Bacon Date: 5-24-2007

BUE 5-30-07



Name: WEINGARTEN  
 Date: 5/28/2007  
 Scale: 1 inch equals 2222 feet

Location: 15 0745978 E 4203637 N

WBID# 1746  
 Site# 1

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

**Data Sheet B - Site Characterization**

(must be completed for each site)

Date & Time: <u>05/24/07 07:22</u>	Site Location Description (e.g., road crossing): <u>upstream from Hwy 0 bridge</u>
Personnel (Data Collectors): <u>Abley + Anna</u>	
Current Weather Conditions: <u>hazy ~ 65°F</u>	Facility Name: <u>Lake Forest Estates Subdivision</u>
	Permit Number: <u>MO 0135742</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>15 50745758</u>		Y: <u>42 05906</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>C61</u>	<u>Downstream T1</u>	<u>C62</u>	<u>Upstream 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 *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 type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: wooded

WBID# 1746  
 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: <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						
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%.)

<u>30</u> % Cobble	<u>70</u> % Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

heavy mats of algae cover bottom + rocks - 90% cover  
some filamentous algae

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

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" 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: Wynne W. D. Meyer Date of Survey: 05/24/07  
 Organization: ERC Position: Field Manager  
RUC 5-30-07

# MEC Recreational Use Attainability Analysis Field Survey Sheet

THICK algae on rocks  
FORM 1  
CDC  
Pic 61 - Downstream (01-01)  
Pic 62 - Upstream (01-01)

Waterbody ID: 1746 Site #: 1  
(WBD Site#)

Estimated Channel Incision: 0.2 (m) (height between low bank width and water)  
GPS Location (taken at transect 1):  
UTM X: 15 8 0745758 UTM Y: 4205906  
Horizontal Accuracy Estimate (GPS Data Quality): ± 19 (feet)

Average Stream Width: 2 (meters) Length of Survey Segment: 150 (meters)  
(20x average stream width)

Field Staff: Ashley Varma

**Dissolved Oxygen**  
Dissolved Oxygen: 1.32 (mg/L)  
Dissolved Oxygen: 76.6 (% sat)  
Specific Cond: 469 (µS/cm)  
Water Temperature: 17.51 (°C)  
Time: 07:27

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	0.02	0	0.02	0	0.01	0	0.02	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0	0
2	0.315	0.02	0.045	0.01	0.181	0.13	1.20	0.09	0.28	0.13	0.325	0.05	0.17	0.05	0.205	0.03	0.295	0.01	0.23	0.01	0.23	0.01	0
3	0.63	0.10	0.49	0.03	0.374	0.02	0.40	0.14	0.56	0.18	0.65	0.05	0.34	0.06	0.41	0.03	0.59	0.04	0.46	0.02	0.46	0.02	0
4	0.945	0.12	0.35	0.05	0.561	0.03	0.60	0.15	0.84	0.18	0.975	0.05	0.51	0.02	0.65	0.03	0.885	0.05	0.69	0.02	0.69	0.02	0
5	1.26	0.15	0.94	0.07	0.748	0.02	0.80	0.16	1.12	0.20	1.3	0.06	0.68	0.10	0.82	0.03	1.18	0.07	0.82	0.03	0.82	0.03	0
6	1.575	0.11	1.205	0.06	0.935	0.04	1.0	0.17	1.4	0.15	1.625	0.01	0.85	0.09	1.025	0.06	1.475	0.10	1.05	0.04	1.05	0.04	0
7	1.89	0.10	1.47	0.07	1.122	0.05	1.2	0.16	1.68	0.08	1.95	0.01	1.02	0.08	1.23	0.06	1.77	0.11	1.28	0.02	1.28	0.02	0
8	2.205	0.06	1.715	0.06	1.209	0.05	1.4	0.07	1.96	0.10	2.275	0.04	1.19	0.07	1.435	0.07	2.065	0.08	1.51	0.01	1.51	0.01	0
9	2.52	0.05	1.96	0.05	1.496	0.04	1.6	0.04	2.24	0.04	2.8	0.05	1.36	0.06	1.64	0.06	2.36	0.02	1.74	0.01	1.74	0.01	0
10	2.835	0.04	2.205	0.03	1.683	0.02	1.8	0.04	2.52	0.03	3.125	0.03	1.53	0.02	1.845	0.07	2.465	0.06	1.97	0.01	1.97	0.01	0
11	3.15	0.01	2.45	0.01	1.81	0.01	2.0	0.01	2.8	0.02	3.35	0.02	1.7	0.02	2.05	0.01	2.95	0.01	2.3	0.01	2.3	0.01	0
12	3.25	0	2.5	0	1.95	0	2.03	0	2.81	0	3.33	0	1.2	0	2.3	0	3.1	0	2.8	0	2.8	0	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: Ashley Varma Date: 5-24-07  
AWC-30-07

WBID# 1746  
 Site# 2

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

**Data Sheet B - Site Characterization**

(must be completed for each site)

Date & Time: <u>05/24/07 07:48</u>	Site Location Description (e.g., road crossing): <u>upstream of Hwy 711 @ bridge</u>
Personnel (Data Collectors): <u>Abby + Anna</u>	
Current Weather Conditions: <u>sunny ~68°F</u>	Facility Name: <u>Lake Forest Estates Subdivision</u>
Weather Conditions for Past 10 days:	Permit Number: <u>MO 0035742</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>155 0745740</u>		Y: <u>4206138</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>27</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>C63</u>	<u>Downstream T1</u>	<u>C64</u>	<u>Upstream 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 *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 checked="" type="checkbox"/> Other:

Comments: Bluff, wooded, hay field

WBID# 1746  
 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						
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%.)**

<u>20</u> % Cobble	<u>70</u> % Gravel	% Sand	% Silt	% Mud/Clay	<u>10</u> % Bedrock
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**Aquatic Vegetation\*: (Note amount of vegetation or algal growth at the assessment site.)**

algae growth on rocks 20% cover

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

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
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: Morgan Wilhelmsen Date of Survey: 05/24/07

Organization: ERC Position: Field Manager

BUC 5-30-07

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Pic 64 - Upstream (02-11)  
under bridge

Waterbody ID: 1746 Site #: 2 (WBIID\_Site#)  
Wypet 87

Estimated Channel Incision: 0.2 (m) (height between low bank width and water)  
GPS Location (taken at transect 1):  
UTM X: 1250745140 UTM Y: 4206138

Horizontal Accuracy Estimate (GPS Data Quality): +/- 27 (feet)

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)  
(20x average stream width)

Field Staff: Abby Arma

**Dissolved Oxygen**  
Dissolved Oxygen: 2.89 (mg/L)  
Dissolved Oxygen: 80.3 (% sat)  
Specific Cond: 0.474 (µS/cm)  
Water Temperature: 17.58 (°C)  
Time: 07:48

## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
1	0	.02	0	.01	0	.02	0	.04	0	.05	0	.02	0	.09	0	.01	0	.06	0	.03	0	.03
2	1.34	.07	0.1716	.03	.28	.04	.28	.17	.31	.08	.51	.27	.558	.26	.612	.16	.536	.37	.425	.26	.93	.36
3	1.68	.05	1.352	.04	.56	.04	.56	.19	.62	.17	1.02	.57	1.116	.38	1.224	.138	1.072	.13	1.25	.23	1.86	.40
4	1.02	.03	.522	.05	.84	.03	.84	.12	.93	.16	1.53	.60	1.674	.60	1.836	.34	1.608	.16	1.875	.28	2.79	.41
5	1.36	.03	.704	.05	1.12	.05	1.12	.11	1.24	.20	2.04	.39	2.232	.55	2.448	.30	2.144	.13	2.6	.26	3.72	.36
6	1.7	.11	.88	.06	1.4	.04	1.4	.09	1.55	.26	2.55	.24	2.79	.43	3.06	.25	2.68	.11	3.125	.20	4.65	.36
7	2.04	.11	1.056	.07	1.48	.04	1.48	.04	1.86	.32	3.06	.23	3.348	.47	3.672	.20	3.216	.01	3.75	.19	5.58	.34
8	2.38	.08	1.232	.05	1.96	.04	1.96	.03	2.17	.31	3.57	.20	3.906	.45	4.284	.15	3.752	.01	4.375	.18	6.51	.27
9	2.72	.05	1.408	.04	2.24	.05	2.24	.01	2.48	.17	4.08	.15	4.464	.32	4.896	.12	4.288	.08	5.0	.13	7.44	.18
10	3.06	.02	1.584	.01	2.52	.04	2.52	.04	2.79	.14	4.51	.02	5.022	.31	5.508	.04	4.824	.11	5.625	.21	8.37	.23
11	3.4	.01	1.76	.01	2.8	.02	2.8	.01	3.1	.01	5.1	.01	5.58	.04	6.12	.02	5.16	.02	6.25	.04	9.3	.04
12	3.5	0	1.94	0	2.9	0	2.95	0	3.4	0	5.18	0	6.16	0	6.34	0	5.36	0	—	0	9.33	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: Anna E. H. [Signature] Date: 5-24-07

ANC 3-30-07

WBID# 1746  
 Site# 3

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

**Data Sheet B - Site Characterization**

(must be completed for each site)

Date & Time: <u>03/24/07 08:20</u>	Site Location Description (e.g., road crossing): <u>Downstream Hwy 0 bridge</u>
Personnel (Data Collectors): <u>Abby &amp; Anne</u>	Facility Name: <u>Lake Forest Estates Subdivision</u>
Current Weather Conditions: <u>Sunny ~ 76°F</u>	Permit Number: <u>MO 0035742</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>15 S 0745851</u>		Y: <u>4206260</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>27</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>C65</u>	<u>Downstream T1</u>		
<u>C66</u>	<u>upstream T11</u>		
<u>C67</u>	<u>moved path to 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 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: Wooded, hay field, moved path to stream from 1 residence

WBID# 1746  
 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>possibly C67 - path to stream</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						
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%.)

<u>5</u> % Cobble	<u>55</u> % Gravel	<u>40</u> % Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

light algal growth on rocks - <10% cover

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

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
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: [Signature] Date of Survey: 05/24/07

Organization: ARC Position: Field Manager

ARC 5-30-07

Pic 65 - Downstream 03-01  
 Pic 66 - upstream 03-11  
 Pic 67 - mowed path to strva

### MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 1746 Site #: 3 (WBID, Site#)  
 Estimated Channel Incision: 0.1 (m) (height between low bank width and water)  
 GPS Location (taken at transect 1):  
 UTM X: 15S 07H 881 UTM Y: 42 062 60  
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 27 (feet)  
 Average Stream Width: 8.0 (meters) Length of Survey Segment: 160 (meters)  
 (20x average stream width)  
 Field Staff: Abbey Anne

Waterbody ID: 1746 Site #: 3 (WBID, Site#)  
 Estimated Channel Incision: 0.1 (m) (height between low bank width and water)  
 GPS Location (taken at transect 1):  
 UTM X: 15S 07H 881 UTM Y: 42 062 60  
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 27 (feet)  
 Average Stream Width: 8.0 (meters) Length of Survey Segment: 160 (meters)  
 (20x average stream width)  
 Field Staff: Abbey Anne

Dissolved Oxygen: 6.56 (mg/L)  
 Dissolved Oxygen: 69.3 (% sat)  
 Specific Cond: 487 (µS/cm)  
 Water Temperature: 17.95 (°C)  
 Time: 08:20

#### Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0	0.07	0	0.06	0	0.10	0	0.05	0	0.08	0	0.03	0	0.04	0	0.10	0	0.04	0	0.01	0	0.02	0
2	9.18	0.43	1.03	0.40	1.08	0.39	1.21	0.40	1.14	0.46	1.365	0.27	1.40	0.20	1.40	0.18	1.43	0.10	1.43	0.04	1.43	0.04	1.43
3	1.836	0.43	2.06	0.30	2.16	0.50	2.42	0.37	2.28	0.40	2.73	0.34	2.80	0.21	2.80	0.19	2.82	0.07	2.82	0.03	2.82	0.03	2.82
4	2.124	0.44	3.09	0.27	3.24	0.47	3.63	0.41	3.42	0.42	4.05	0.34	4.2	0.24	4.2	0.15	4.2	0.13	4.2	0.09	4.2	0.09	4.2
5	3.672	0.46	4.12	0.25	4.32	0.41	4.84	0.45	4.56	0.42	5.46	0.37	5.6	0.22	5.6	0.14	5.6	0.11	5.6	0.07	5.6	0.07	5.6
6	4.59	0.38	5.15	0.20	5.40	0.30	6.05	0.49	5.70	0.51	6.25	0.42	7.0	0.22	7.0	0.16	7.0	0.05	7.0	0.01	7.0	0.01	7.0
7	5.508	0.34	6.18	0.22	6.48	0.33	7.26	0.57	6.84	0.54	8.19	0.41	8.4	0.20	8.4	0.14	8.4	0.06	8.4	0.01	8.4	0.01	8.4
8	6.426	0.26	7.21	0.25	7.56	0.31	8.47	0.60	7.98	0.57	9.55	0.37	9.8	0.21	9.8	0.10	9.8	0.01	9.8	0.01	9.8	0.01	9.8
9	7.344	0.20	8.24	0.22	8.64	0.30	9.68	0.64	9.12	0.37	10.92	0.25	11.2	0.18	11.2	0.14	11.2	0.01	11.2	0.01	11.2	0.01	11.2
10	8.262	0.10	9.27	0.29	9.72	0.29	10.89	0.56	10.26	0.36	12.25	0.27	12.6	0.16	12.6	0.11	12.6	0.01	12.6	0.01	12.6	0.01	12.6
11	9.18	0.01	10.3	0.22	10.8	0.15	12.1	0.06	11.9	0.10	13.62	0.12	14.0	0.03	14.0	0.04	14.0	0.01	14.0	0.01	14.0	0.01	14.0
12	9.18	0	10.41	0	11.0	0	12.1	0	12.75	0	13.75	0	14.3	0	14.3	0	14.3	0	14.3	0	14.3	0	14.3
Feature Type (mud, run, or pool)	run	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: Abbey Anne Date: 5-24-07  
0746 5-30-07

**WBID# 100053**



**Site# 1 Photo ID# C61, Downstream T-1**



**Site# 1 Photo ID# C62, Upstream T-11**



**Site# 2 Photo ID# C63, Downstream T-1**



**Site# 2 Photo ID# C64, Upstream T-11**

**WBID# 100053**



**Site# 3 Photo ID# C65, Downstream T-1**



**Site# 3 Photo ID# C66, Upstream T-11**



**Site# 3 Photo ID# C67, Mowed path to stream**