LONG BRANCH CREEK
WBID 696

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):	Long Branch Creek
Missouri Water Body Identification (WBID) Number:	696
8-digit HUC: 10280203	County: Macon
Upstream Legal Description (from Table H):	19, 60N, 14W
Downstream Legal Description(from Table H):	5, 58N, 14W
Number of sites evaluated	5 + 1 where no transect were taken
List all sites numbers, listed consequantly upstream to downstream:	3-Upstream of Route J 1-Downstream of Hayfield Rd. (as measured/trespassing) 4-Mikoo Rd. (Cattle US, conditions similar to Impala) → NO Transect 2-US of Impala Rd. (Downstream measured/barbed wire) 5-Kennedy Rd. Downstream 6-Kennedy Rd. Upstream

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

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates: UTM X Y		Downstream 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		
PDOP		± _____ Feet or ± _____ Meters	

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

Discharger Facility Name(s):	Millard WWTF
Discharger Permit Number(s):	MO 0106291

IV. UAA Surveyor (please print legibly)

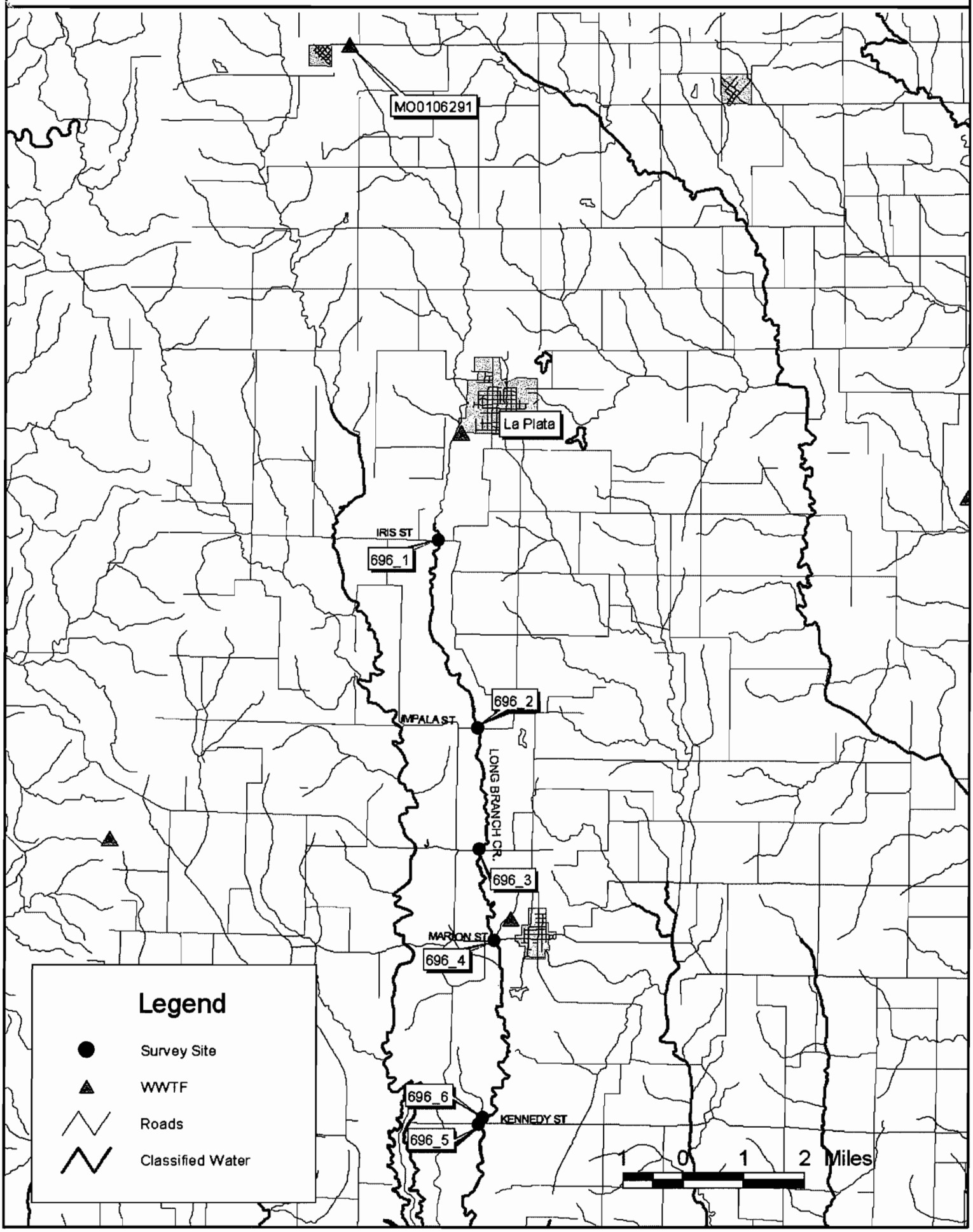
Name of Surveyor: Chris Zell	Telephone Number: (573) 443-4100
Organization/Employer: MEC Water Resources	
Position: Field Team Leader	

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

Signed: _____ **Date:** 5/21/07

RMC 5-21-07
CRS 5/24/07

Long Branch Cr. (0696), Length = 15.0 mi., Permit # MO0106291



WBID# 696
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5/20/07 1307	Site Location Description (e.g., road crossing): Iris Rd –
Personnel (Data Collectors): RK + CZ	
Current Weather Conditions: partly cloudy	Facility Name: MILLARD WWTF Permit Number: M0010629
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0541884 Y: 4427004

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 59 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)
696-1-1	US T1		Upstream Photo
696-1-2	DS T1		Downstream Photo

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☒ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: No trespass sign u.s. of T1

WBID# 696
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)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ 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	05	56	2.7	~2	—	0.14
RUN	09	85	2.5	~3	—	0.16
POOL	03	42	3.6	~8	—	0.16

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%.)

0.2 % Cobble	0.1 % Gravel	% Sand	% Silt	0.7 % Mud/Clay	% Bedrock

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

Filamentous Algae Heavy at T1

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☒ Foam	☐ None	☐ 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: 5/20/07

Organization: MECWR Position: Field Team Member

GNC 5-21-07 AK 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 696 Site #: 696-1 (WBID_Site#) Downstream of Katydid / Iris Rd.

Estimated Channel Incision: 0.33 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0541884 UTM Y: 4427004

Horizontal Accuracy Estimate (GPS Data Quality): +/- 59 (feet)

Average Stream Width: 4 (meters) Length of Survey Segment: 80 (meters) (20x average stream width)

Field Staff: RK + CZ

Dissolved Oxygen

Date: 5/20/07 Time: 13:10

Dissolved Oxygen: 16.3 (mg/L)

Dissolved Oxygen: 178.8 (% sat)

Specific Cond: 647 (µS/cm)

Water Temperature: 19.74 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0.3	0.1	0.15	0.1	0.2	0.1	0.2	0.12	0.4	0.1	0.8	0.1	0.3	0.1	0.1	0.1	0.2	0.10	0.2	0.1	0.4	0.1
2	0.7	0.17	0.55	0.3	0.5	0.12	0.25	0.12	0.6	<0.1	0.9	0.11	0.7	0.15	0.8	0.17	0.4	0.16	0.35	0.11	0.6	0.28
3	1.1	0.19	0.95	0.34	0.8	0.12	0.70	0.12	0.8	<0.1	1	0.12	1.1	0.25	1.5	0.2	0.6	0.2	0.5	0.13	0.8	0.3
4	1.5	0.2	1.35	0.38	1.1	0.11	0.55	0.12	1	<0.1	1.1	0.13	1.5	0.29	2.2	<0.1	0.8	0.15	0.65	0.14	1.0	0.3
5	1.9	0.22	1.75	0.39	1.4	0.13	0.4	0.12	1.2	<0.1	1.2	0.15	1.9	0.29	2.9	<0.1	1.0	0.12	0.8	0.16	1.2	0.31
6	2.3	0.24	2.15	0.36	1.7	0.16	0.45	0.12	1.4	<0.1	1.3	0.2	2.3	0.27	3.6	<0.1	1.2	<0.1	0.95	0.18	1.4	0.29
7	2.7	0.18	2.55	0.35	2.0	0.15	0.5	0.12	1.6	<0.1	1.4	0.19	2.7	0.26	4.3	0.11	1.4	0.1	1.60	0.2	1.6	0.29
8	3.1	0.18	2.95	0.3	2.3	0.1	0.55	0.12	1.8	<0.1	1.5	0.19	3.1	0.29	5.0	0.1	1.6	0.11	1.25	0.19	1.8	0.27
9	3.5	0.15	3.35	0.23	2.6	<0.1	0.6	0.12	2.0	0.4	1.6	0.2	3.5	0.35	5.7	<0.1	1.8	0.1	1.4	0.17	2.0	0.24
10	3.9	0.11	3.75	0.19	2.9	<0.1	0.7	0.12	2.2	0.14	1.7	0.11	3.9	0.3	6.3	0.28	2.0	<0.1	1.55	0.2	2.2	0.16
11	4.3	0.1	4.15	0.1	3.2	<0.1	1	0.12	2.4	0.1	1.8	0.1	4.2	0.1	7.0	0.1	2.2	0.1	1.7	<0.1	2.4	0.1
12	4.8	—	4.5	—	3.6	—	1.3	—	2.7	—	2.5	—	4.8	~~5.2~~	7.2	—	2.5	—	2.1	—	2.9	—
Feature Type (riffle, run, or pool)	pool		pool		pool		riffle		riffle		riffle		pool		pool		run		run		~~pool~~ run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 5/20/07

MEC 5-21-07

AK 9/24/07

WBID# 696
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5/20/07 1435	Site Location Description (e.g., road crossing): Upstream Impala Rd Crossing
Personnel (Data Collectors): RK/CZ	
Current Weather Conditions: Mostly Sunny	Facility Name: Millard WWTF
	Permit Number: MO0106291
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0542914 Y: 4422083

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± ____ Meters	Source Map Scale: 1:24,000 1:100,000 Other ____
EPE	± 73 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)
696-2-1	US T11		US Photo
696-2-2	DS T11		DS Photo

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☒ No trespass sign	☒ Fence	☐ Steep slopes	☒ None of the above	☐ Other:

Comments: Fence across DS of road crossing. Lots of trash.

WBID# 696
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)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☒ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: Cattle hoof prints ~~on bank~~ ~~heard~~ in distance heard RLC 5-23-07					

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	NOT	PRESENT →				
RUN	NOT	PRESENT →				
POOL	06	118m	4.6	15m +	—	0.51

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	0.5 % Sand	% Silt	0.5 % Mud/Clay	% Bedrock

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

None

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☒ Other: manure
COLOR:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum	☐ Foam	☐ None	☐ 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: 5/20/07

Organization: MECWR Position: Field Team Member

RLC 5-21-07 CAK 5/24/07

February 16, 2007

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 696 Site #: 696-2 (WBID_Site#)

Estimated Channel Incision: 0.3 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0542914 UTM Y: 4422083

Horizontal Accuracy Estimate (GPS Data Quality): +/- 73 (feet)

Average Stream Width: 8 (meters) Length of Survey Segment: 160 (meters) (20x average stream width)

Field Staff: RK + CZ

Dissolved Oxygen

Date: 5/20/07 Time: 14:35

Dissolved Oxygen: 13.90 (mg/L)

Dissolved Oxygen: 150.4 (% sat)

Specific Cond: 629 (µS/cm)

Water Temperature: 19.41 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0.3	0.1	0.7	0.1	0.3	0.1	0	0.1	0	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0	0.37	0.7	0.1	0.3	0.1
2	0.8	0.21	0.9	0.12	0.6	0.22	0.3	0.36	0.2	0.16	0.5	0.1	1.2	0.12	0.4	0.15	0.4	0.27	1.3	0.2	0.8	0.1
3	1.3	0.24	1.1	0.14	0.9	0.25	0.6	0.3	0.7	0.24	0.7	0.2	1.9	0.14	0.7	0.15	0.8	0.3	1.9	0.32	1.3	0.23
4	1.8	0.27	1.3	0.15	1.2	0.34	0.9	0.35	1.2	0.31	1.0	0.33	2.6	0.14	1.0	0.24	1.2	0.31	2.5	0.3	1.8	0.44
5	2.3	0.25	1.5	0.15	1.5	0.36	1.2	0.31	1.7	0.38	1.5	0.4	3.3	0.21	1.3	0.28	1.6	0.31	3.1	0.43	2.3	0.51
6	2.8	0.2	1.7	0.18	1.8	0.35	1.5	0.34	2.2	0.37	2	0.5	4.0	0.3	1.6	0.31	2.0	0.29	3.7	0.45	2.8	0.53
7	3.3	0.19	1.9	0.18	2.1	0.38	1.8	0.31	2.7	0.39	2.5	0.46	4.7	0.33	1.9	0.27	2.4	0.23	4.3	0.36	3.3	0.54
8	3.8	0.19	2.1	0.15	2.4	0.37	2.1	0.29	3.2	0.4	3	0.51	5.4	0.3	2.2	0.2	2.8	0.25	4.9	0.36	3.8	0.53
9	4.3	0.16	2.3	0.1	2.7	0.4	2.4	0.19	3.7	0.35	3.5	0.46	6.1	0.33	2.5	0.18	3.2	0.19	5.5	0.37	4.3	0.52
10	4.8	0.24	2.5	<0.1	3.0	0.37	2.7	0.1	4.2	0.35	4.0	0.49	6.8	0.34	2.8	0.12	3.6	0.15	6.1	0.54	4.8	0.38
11	5.3	0.2	2.7	<0.1	3.3	0.35	3.0	<0.1	4.7	0.1	4.5	0.1	7.5	0.3	3.1	0.11	4.0	0.1	6.8	0.4	5.3	0.24
12	5.5	—	3.0	—	3.7	—	3.1	—	5.2	—	4.6	—	7.6	0.1	3.4	0.1	4.1	0.1	7.4	0.1	5.8	0.1
Feature Type (riffle, run, or pool)	pool		pool		pool		pool		pool		pool		pool		pool		pool		pool		pool	

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: 5/20/07

anc 5-21-07

AK 5/24/07

WBID# 696
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: AK + CZ	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): 3/20/07 1605	Route J - upstream
Current Weather Conditions: mostly sunny	Facility Name: Millard WWTF
	Permit Number: MO-0106291
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: 0542944		Y: 4418880	
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	± 20 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)
696_3_1	DS T11		DS Photo
696_3_2	US T11		US Photo.

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 696
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)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ 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	07	137	3.75	~ 2.5m	—	0.15
RUN	05	108	3.9	~ 4 m	—	0.3
POOL	09	166	6.7	~ 15 m+	—	0.74

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%.)

0.4 % Cobble	0.2 % Gravel	% Sand	% Silt	0.4 % Mud/Clay	% Bedrock

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

None

Water Characteristics*: (Mark all that apply.)

ODOR:	☒ Sewage	☐ Musky	☐ Chemical	☐ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ 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: 5/20/07

Organization: MECWR Position: Field Team Member

RWC 5-21-07 CAK 5/29/07

9.3
2.7
6.6

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 696 Site #: 696-3 (WBID_Site#)

Estimated Channel Incision: 0.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0542944 UTM Y: 4418880

Horizontal Accuracy Estimate (GPS Data Quality): +/- 20 (feet)

Average Stream Width: 8 (meters) Length of Survey Segment: 160 (meters) (20x average stream width)

Field Staff: RK + CZ

Dissolved Oxygen

Date: 5/20/07 Time: 16:15

Dissolved Oxygen: 14.58 (mg/L)

Dissolved Oxygen: 161.3 (% sat)

Specific Cond: 606 (µS/cm)

Water Temperature: 20.44 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)	06 Distance (m)	06 Depth (m)
1	0	0.1	0.2	0.1	0	0.1	0.5	0.1	1.5	0.1	1	0.1	1	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.9	0.1	1.0	0.1
2	0.7	0.48	0.7	0.22	0.7	0.48	1.1	0.39	1.7	0.18	1.5	0.18	1.3	0.1	0.9	0.2	0.9	0.4	0.9	0.31	1.8	0.3	1.3	0.11
3	1.4	0.6	1.2	0.3	1.4	0.56	1.7	0.5	1.9	0.2	2	0.21	1.6	0.1	1.4	0.36	1.5	0.5	1.6	0.52	2.7	0.52	1.6	0.15
4	2.1	0.7	1.7	0.46	2.1	0.54	2.3	0.5	2.1	0.25	2.5	0.28	1.9	0.1	1.9	0.36	2.1	0.58	2.3	0.5	3.6	0.76	1.9	0.11
5	2.8	0.7	2.2	0.48	2.8	0.54	2.9	0.51	2.3	0.28	3	0.31	2.2	0.1	2.4	0.4	2.7	0.6	3.0	0.6	4.5	0.82	2.2	0.17
6	3.5	0.64	2.7	0.44	3.5	0.5	3.5	0.5	2.5	0.3	3.5	0.2	2.5	0.1	2.9	0.47	3.3	0.63	3.7	0.64	5.4	0.57	2.5	0.25
7	4.2	0.55	3.2	0.41	4.2	0.5	4.1	0.45	2.7	0.28	4	0.21	2.8	0.1	3.4	0.45	3.9	0.74	4.4	0.6	6.3	0.8	2.8	0.29
8	4.9	0.54	3.7	0.39	4.9	0.44	4.7	0.31	2.9	0.28	4.5	<0.1	3.1	0.12	3.9	0.55	4.5	0.73	5.1	0.51	7.2	0.65	3.1	0.3
9	5.6	0.5	4.2	0.28	5.6	0.32	5.3	0.26	3.1	0.28	5		3.4	0.12	4.4	0.44	5.1	0.58	5.8	0.58	8.1	0.34	3.4	0.3
10	6.3	0.4	4.7	0.22	6.3	0.29	6.0	0.25	3.3	0.17	5.5		3.7	0.15	4.9	0.36	5.7	0.59	6.5	0.29	9.0	0.34	3.7	0.3
11	7.0	0.26	5.2	0.1	6.6	0.1	6.6	0.31	3.5	0.1	6.0		3.7	0.15	5.4	0.12	6.3	0.36	7.0	0.1	9.8	0.2	4.0	0.25
12	8	0.15	5.5	—	6.8	—	7.4	0.1	3.9	—	6.5		3.75	—	5.8	—	6.7	—	7	—	9.8	—	4.6	—
Feature Type (riffle, run, or pool)	pool		pool		pool		pool		run		run		riffle		pool		pool		pool		pool		run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 5/20/07

RMC 5-21-07

[signature] 5/24/07

WBID# 696
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/20/07 19:00	Site Location Description (e.g., road crossing): MARION Rd. CROSSING WEST OF ATLANTA, MO
Personnel (Data Collectors): RK4 CZ	
Current Weather Conditions: CLEAR	Facility Name: MILLARD WWTF
	Permit Number: MO-0106291
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: 0543346		Y: 4416475	
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	± 62 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)
NONE TAKEN			

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: CATTLE IN-STREAM, LOCATED UPSTREAM OF MARION Rd. CROSSING.

WBID# 696
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) CATTLE

☒ Roads	☐ Rope swings	☒ Foot paths/prints	☐ Dock/platform	☒ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ 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: SIMILAR TO IMPALA RD. IN-STREAM Measurements NOT TAKEN

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	0.5 % Sand	% Silt	0.5 % Mud/Clay	% Bedrock

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

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☐ None	☑ Other: Cow Manure
COLOR:	☐ Clear	☑ Green	☐ Gray	☐ Milky	☑ Other: Also brown turbidity.
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☑ Scum	☐ Foam	☐ None	☐ Other: light scum.

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.
In-stream Measurements not collected. Conditions similar to site 2.

Surveyor's Signature:_____ Date of Survey:_____

Organization:_____ Position: _____

WBID# 696
Site# Site 5
Kennedy DS

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5/20/07 8:25 am	Site Location Description (e.g., road crossing): Long Branch Cr. Downstream Kennedy Street Road Crossing
Personnel (Data Collectors): RK + CZ	Facility Name: Millard WWTF
Current Weather Conditions: Clear	Permit Number: MO-0106291
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0542957 Y: 4411629

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 37 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)
696_ _1	DS T1		
696_ _2	US T1		
696_ _3	Public Access Parking Conservation Area.		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☒ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 696
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)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ 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	07	150	6.9	~3m	—	0.23
RUN	NONE	PRESENT				
POOL	09	183	8.4	~16m+	—	0.6

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%.)

0.05 % Cobble	% Gravel	% Sand	% Silt	0.95 % Mud/Clay	0.05 % Bedrock

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

Filamentous algae moderate

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: brown
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☐ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ 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: _____ Date of Survey: 5/20/07

Organization: MEC Position: TT Leader

MLC 5-21-07 MLC 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 696 Site #: 696_5 (WBID_Site#) Long Br. Creek at Kennedy Road Downstream of Crossing.

Estimated Channel Incision: 0.3 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0542957 UTM Y: 4411629

Horizontal Accuracy Estimate (GPS Data Quality): +/- 37 (feet)

Average Stream Width: 8.9 (meters) Length of Survey Segment: 180 (meters) (20x average stream width)

Field Staff: CZ + RK

Dissolved Oxygen

Date: 5/20/07 Time: 8.30

Dissolved Oxygen: 7.32 (mg/L)

Dissolved Oxygen: 75.4 (% sat)

Specific Cond: 427 (µS/cm)

Water Temperature: 16.9 (°C)

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)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.15	0.1	0.5	0.1	0.2	0.1	0.8	0.1	0	0.1	0.1	0.13	1.4	0.1	1.0	0.1	0.8	0.1	0.8	0.1	0	0.1
2	1.05	0.48	1.0	0.3	0.5	0.11	1.0	0.14	0.4	0.35	0.7	0.34	1.9	0.1	1.6	0.18	1.5	0.18	1.5	0.28	1	0.16
3	1.95	0.61	1.5	0.3	0.8	0.23	1.2	0.16	0.8	0.36	1.3	0.36	2.4	0.11	2.2	0.2	2.2	0.22	2.2	0.32	2	0.56
4	2.85	0.6	2.0	0.4	1.1	0.2	1.4	0.16	1.2	0.33	1.9	0.33	2.9	0.13	2.8	0.25	2.9	0.29	2.9	0.42	3	0.55
5	3.75	0.59	2.5	0.5	1.4	0.2	1.6	0.15	1.6	0.32	2.5	0.27	3.4	0.17	3.4	0.3	3.6	0.47	3.6	0.41	4	0.28
6	4.65	0.56	3.0	0.51	1.7	0.29	1.8	0.11	2.0	0.3	3.1	0.29	3.9	0.16	4.0	0.35	4.3	0.47	4.3	0.45	5	0.23
7	5.55	0.59	3.5	0.42	2.0	0.21	2.0	0.12	2.4	0.28	3.7	0.22	4.4	0.19	4.6	0.42	5.0	0.54	5.0	0.44	6	0.14
8	6.45	0.55	4.0	0.32	2.3	0.17	2.2	0.13	2.8	0.2	4.3	0.2	4.9	0.15	5.2	0.55	5.7	0.57	5.7	0.46	7	0.2
9	7.35	0.44	4.5	0.28	2.6	0.14	2.4	0.12	3.2	0.18	4.9	0.18	5.4	0.23	5.8	0.5	6.3	0.6	6.4	0.36	8	0.11
10	8.25	0.3	5.0	0.14	2.9	0.12	2.6	0.11	3.6	0.13	5.5	0.13	5.9	0.2	6.4	0.35	7.0	0.53	7.1	0.3	9	0.19
11	8.9	<0.1	5.5	0.1	3.2	0.1	2.8	0.1	4.0	0.1	6.1	0.1	6.4	0.21	7.0	0.13	7.7	0.37	7.8	0.11	10	0.25
12	9.1	–	6.0	0	3.5	0	3.0	<0.1	4.4	0	6.7	<0.1	6.9	0.2	7.1	0.1	8.4	0.11	8.5	0	11	0.1
Feature Type (riffle, run, or pool)	pool		pool		pool		pool		pool		pool		riffle		Pool		pool		pool		pool	

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: 5/20/07

5-21-07 5/24/07

WBID# 0696
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5/20/08 10:20	Site Location Description (e.g., road crossing): Upstream of Kennedy St
Personnel (Data Collectors): RK + CZ	
Current Weather Conditions: Clear	Facility Name: Millard WWTF
	Permit Number: MO 0106291
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

543,056 4,411,805

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: ~~0542957~~ AK		Y: ~~4411629~~ AK	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± 37 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)
- -1	US TII		
- -2	DS TII		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ 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.)

☐ City/county parks	☐ Playgrounds	☒ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 0696
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)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ 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	None	PRESENT				
RUN	NONE	PRESENT				
POOL	08	160	9.55	16m +	—	>1m

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	0.05 % Sand	% Silt	.95 % Mud/Clay	% Bedrock

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

None

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☑ Other: Brown
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ 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: 5/20/07

Organization: [illegible] Position: [illegible]

[illegible] 5-21-07 [illegible] 5/24/07

upstream Kennedy St

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 696 Site #: 6 (WBID_Site#) Upstream of Kennedy Rd

Estimated Channel Incision: 0.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0542957 UTM Y: 4411629

Horizontal Accuracy Estimate (GPS Data Quality): +/- 37 (feet)

Average Stream Width: 9 (meters) Length of Survey Segment: 180 (meters) (20x average stream width)

Field Staff: RK + CZ

Dissolved Oxygen

Date: 5/20/07 Time: 10:20

Dissolved Oxygen: 7.18 (mg/L)

Dissolved Oxygen: 75.3 (% sat)

Specific Cond: 432 (µS/cm)

Water Temperature: 17.2 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0.1	0.1	0	0.1	0.1	0.1	0.2	0.1	0	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	>1	0.1	0	0	0.1
2	0.7	0.39	0.55	0.3	1.1	0.13	1.6	>1	1	0.15	0.9	0.11	0.95	0.13	0.95	0.16	1	>1	1	0.1	0.1	0.1
3	1.4	0.22	1.7	0.53	2.1	0.3	3.0	>1	2	0.50	1.8	0.4	1.8	0.11	1.8	0.15	2	>1	1.9	0.1	0.7	0.42
4	2.1	>1	2.55	0.73	3.1	0.44	4.4	>1	3	0.92	2.7	0.55	2.65	0.2	2.75	0.34	3	>1	2.8	0.38	1.6	0.57
5	2.8	>1	3.3	0.83	4.1	0.55	5.8	>1	4	1	3.6	0.66	3.5	0.31	3.6	0.57	4	>1	3.7	0.6	2.5	0.65
6	3.5	0.97	4.15	0.73	5.1	0.65	7.2	>1	5	1	4.5	0.78	4.35	0.45	4.45	0.86	5	>1	4.6	0.83	3.4	0.64
7	4.2	0.98	5	0.61	6.1	0.69	8.6	>1	6	1	5.4	0.8	5.2	0.43	5.3	>1	6	>1	5.5	0.92	4.3	0.64
8	4.9	0.9	5.85	0.62	>1	0.54	10	0.45	7	0.85	6.3	0.77	6.05	0.35	6.15	>1	7	>1	6.4	1	5.2	0.69
9	5.6	0.73	6.7	0.55	8.1	0.45	11.4	0.3	8	0.85	7.2	0.7	6.9	0.42	7.0	0.92	8	>1	7.3	>1	6.1	0.7
10	6.3	0.4	7.55	0.57	9.1	0.45	12.8	0.51	9	0.83	8.1	0.45	7.75	0.55	7.85	0.76	9	>1	8.2	1	7.0	0.83
11	7	0.1	8.3	0.3	10.1	0.35	14.2	0.28	10	0.67	9.0	0.28	8.5	0.51	8.7	0.4	10	0.92	9.1	0.46	7.9	0.64
12	7.2	—	9.5	0.1	11.1	0.1	15.6	0.1	11	0.1	9.9	0.1	9.35	0.1	9.55	0.1	11	0.36	10.0	0.1	8.6	0.14
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

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: 5/20/07

RKC 5-22-07 [signature] 5/24/07

WBID# 0696

Site# 1 Photo ID# 696-1-1, Upstream

Site# 1 Photo ID# 696-1-2, Downstream

Site# 2 Photo ID# 696-2-1, Upstream

Site# 2 Photo ID# 696-2-2, Downstream

WBID# 0696

Site# 3 Photo ID# 696-3-1, Downstream

Site# 3 Photo ID# 696-3-2, Upstream

Site# 5 Photo ID# 696-5-1, Downstream

Site# 5 Photo ID# 696-5-2, Upstream

WBID# 0696

Site# 5 Photo ID# 696-5-3, Parking / Conservation area