NORTH FORK MIDDLE FABIUS RIVER
WBID 0065

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):	North Fork Middle Fabius River
Missouri Water Body Identification (WBID) Number:	65
8-digit HUC: 07110002	County: Schuyler/Scotland
Upstream Legal Description (from Table H):	21, 66 N, 14 W
Downstream Legal Description(from Table H):	22, 64 N, 12 W
Number of sites evaluated	9
List all sites numbers, listed cnsequantly upstream to downstream:	1- HILLARD LN 2- N. TV TOWER RD 3- HWY V 4- HWY A 5- COUNTY RD 610 6- HWY D 7- WASSER HILL RD 8- COUNTY ROAD 313 9- HWY T

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):	Lancaster WWTF
Discharger Permit Number(s):	MO 0039691

IV. UAA Surveyor (please print legibly)

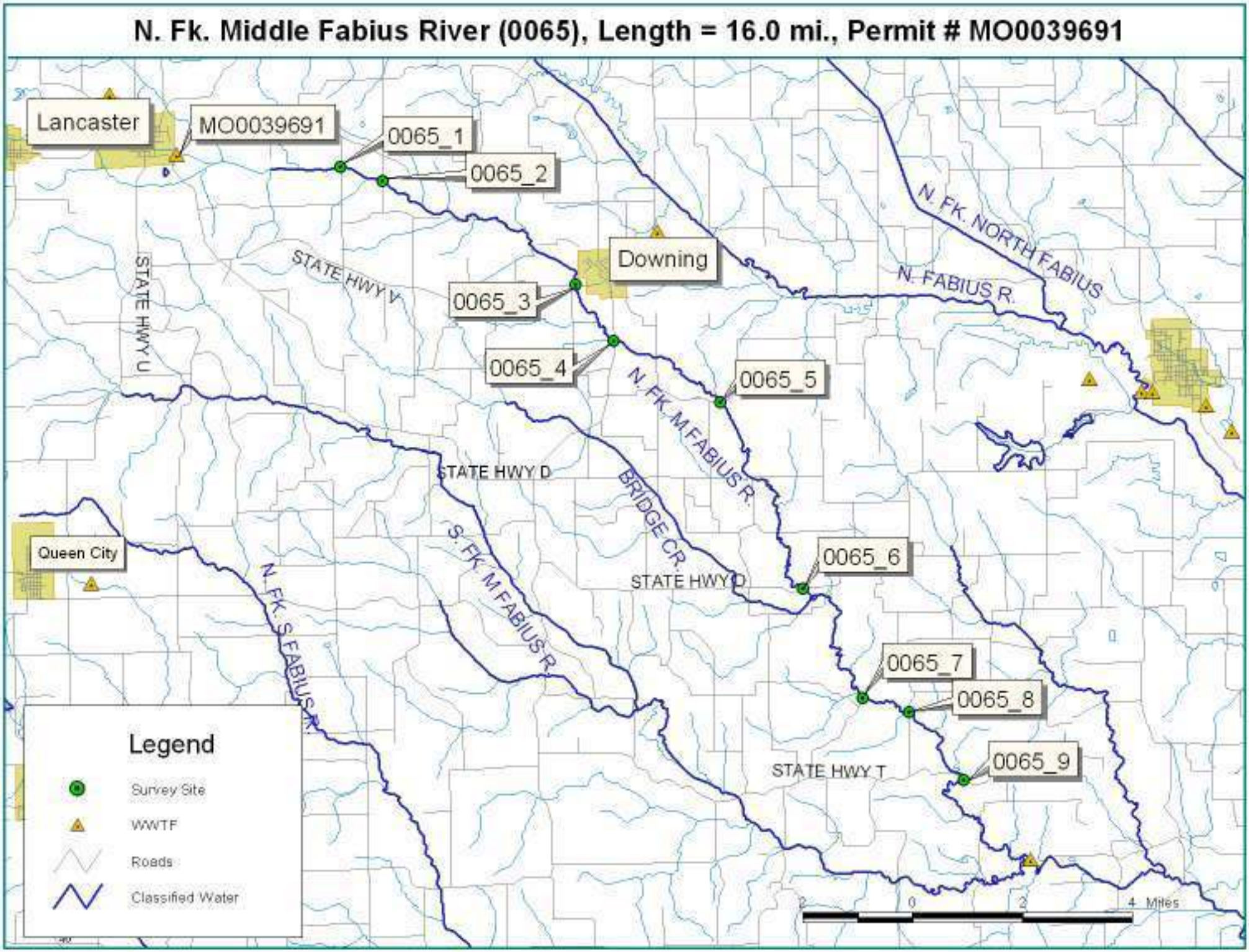
Name of Surveyor RENEE MARTIN	Telephone Number: (573) 443-4100
Organization/Employer: MEC Water Resources	
Position: ENV. SPECIALIST	

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

Signed: _____ **Date:** 5/17/07

RMC 5-23-07

AK 5/29/07


N. Fk. Middle Fabius River (0065), Length = 16.0 mi., Permit # MO0039691
Lancaster
MO0039691
0065_1
0065_2
Downing
0065_3
0065_4
0065_5
0065_6
0065_7
0065_8
0065_9
STATE HWY V
STATE HWY U
STATE HWY D
STATE HWY O
STATE HWY T
N. FK. NORTH FABIUS
N. FABIUS R.
N. FK. M FABIUS R.
BRIDGE CR.
S. FK. M FABIUS R.
N. FK. S FABIUS R.
Queen City
Legend
Survey Site
WWTF
Roads
Classified Water
0
2
4 Miles

WBID# 0065
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 0930	Site Location Description (e.g., road crossing): HILLARD LN BRIDGE CROSSING
Personnel (Data Collectors): R. Martin J. Foth	Facility Name: LANCASTER WWTF
Current Weather Conditions: Clear	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0545821 Y: 4485140

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	± 19 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)
0065_1_135	UPSTREAM, SITE #1, TRANSECT #1		
0065_1_136	DOWNSTREAM, SITE #1, TRANSECT #1		
0065_1_137	BRIDGE FENCE		

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: Ag Fields / gravel Rd - Bridge Crossing

WBID# 0065
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: NONE					

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
—	20	80	—	—	—

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

Very little algae on substrate

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: 5/17/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

AHC 5-23-07 [signature] 5/29/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065 - 1 (WBID_Site#)

Estimated Channel Incision: <1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0545821 UTM Y: 4485140

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

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

Field Staff: Renee Martin & Justyn Foth

Dissolved Oxygen

Date: 5/17/07 Time: 0930

Dissolved Oxygen: 8.25 (mg/L)

Dissolved Oxygen: 81.2 (% sat)

Specific Cond: 393.0 (µS/cm)

Water Temperature: 14.5 (°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	0.3	0.1	0.3	0.1	0.1	0.4	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.7	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1
2	0.6	0.3	1.0	0.8	0.55	0.7	0.55	0.2	0.4	0.2	0.3	0.3	0.3	0.7	0.7	0.25	0.7	0.1	0.2	0.2	0.45	0.2
3	0.9	0.4	1.7	>1.0	1.0	0.6	1.0	0.3	0.6	0.3	0.5	0.4	0.6	1.0	1.2	0.2	1.3	<0.1	0.4	0.2	0.7	0.3
4	1.2	0.4	2.4	1.0	1.45	0.6	1.45	0.4	0.8	0.3	0.7	0.3	6.9	>1.0	1.7	0.1	1.9	0.0	0.6	0.2	0.95	0.3
5	1.5	0.4	3.1	1.0	1.9	0.6	1.9	0.5	1.0	0.35	0.9	0.4	1.2	1.0	2.2	0.1	2.5	0.0	0.8	0.2	1.2	0.2
6	1.8	0.3	3.8	1.0	2.35	0.3	2.35	0.7	1.2	0.3	1.1	0.4	1.5	1.0	2.7	<0.1	3.1	0.0	1.0	0.2	1.45	0.2
7	2.1	0.3	4.5	0.9	2.8	0.4	2.8	0.8	1.4	0.3	1.3	0.4	1.8	1.0	3.2	<0.1	3.7	0.1	1.2	0.2	1.7	0.3
8	2.4	0.3	5.2	0.8	3.25	0.2	3.25	0.8	1.6	0.2	1.5	0.4	2.1	0.95	3.7	<0.1	4.3	0.1	1.4	0.15	1.95	0.3
9	2.7	0.3	5.9	0.8	3.7	0.1	3.7	0.5	1.8	0.2	1.7	0.4	2.4	0.9	4.2	0.1	4.9	0.2	1.6	0.1	2.2	0.3
10	3.0	0.3	6.6	0.7	4.15	0.1	4.15	0.3	2.0	0.2	1.9	0.3	2.7	0.8	4.7	0.1	5.5	0.2	1.8	0.1	2.45	0.25
11	3.3	0.1	7.3	0.2	4.6	0.1	4.6	0.1	2.2	0.1	2.1	0.3	3.0	0.6	5.2	0.1	6.1	0.1	2.0	0.1	2.7	0.1
12	3.3	0.0	7.3	0.0	4.9	0.0	4.6	0.0	2.8	0.0	2.7	0.0	3.8	0.0	5.5	0.0	6.2	0.0	2.8	0.0	2.8	0.0
Feature Type (riffle, run, or pool)	RUN		POOL		POOL		POOL		RUN		RUN		POOL		RUN		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: Renee Martin Date: 5/17/07

RMC 5-23-07 AK 5/29/07

WBID# 0065
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: ~~10~~ 5/17/07 1045	Site Location Description (e.g., road crossing): N. TV TOWER RD - BRIDGE CROSSING
Personnel (Data Collectors): R. MARTIN	Facility Name: LANCASTER WWTF
Current Weather Conditions: CLEAR	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0547057 Y: 4484735

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	X
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 X
EPE	± 16 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)
0065_2_138	UPSTREAM, SITE # 2 TRANSECT #1		
0065_2_139	DOWNSTREAM, SITE # 2 TRANSECT #1		
0065_livestock_watering2_140	SITE # 2 TRANSECT # 7		
0065_livestock_watering2_141	SITE # 2 TRANSECT #9		
0065_livestock_watering2_142	SITE # 2 TRANSECT #9		

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: Livestock Heading / Cattle / pastures

WBID# 0005
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:					

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	100 % Sand	% Silt	% Mud/Clay	% Bedrock
—	—		—	—	—

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

Little - No Algae on substrate / bottom

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: 5/17/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

RWC 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065_2 (WBID_Site#)

Estimated Channel Incision: 1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0547057 UTM Y: 4484735

Horizontal Accuracy Estimate (GPS Data Quality): +/- 16 (feet)

Average Stream Width: 4.0 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: RENEE MARTIN ; JUSTYN FOTH

Dissolved Oxygen

Date: 5/17/07 Time: 1045

Dissolved Oxygen: 8.40 (mg/L)

Dissolved Oxygen: 88.8 (% sat)

Specific Cond: 397.1 (µS/cm)

Water Temperature: 14.8 (°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	0.3	0.1	0.2	0.1	0.0	0.3	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.1	2.2	0.1	0.0	0.0	0.2	0.1
2	0.85	0.3	0.75	0.2	0.15	0.3	0.45	0.2	0.4	0.1	0.5	0.2	0.5	0.4	0.3	0.4	2.4	0.1	0.2	0.4	0.4	0.2
3	1.4	0.3	1.3	0.15	0.3	0.3	0.7	0.4	0.8	0.1	0.8	0.15	0.9	0.5	0.6	0.4	2.6	0.1	0.4	0.3	1.0	0.2
4	1.95	0.3	1.85	0.15	0.45	0.45	0.95	0.4	1.2	0.1	1.1	0.1	1.3	0.5	0.9	0.4	2.8	0.15	0.6	0.3	1.4	0.2
5	2.5	0.4	2.4	0.15	0.6	0.5	1.2	0.4	1.6	<0.1	1.4	0.1	1.7	0.6	1.2	0.3	3.0	0.15	0.8	0.3	1.8	0.1
6	3.05	0.4	2.95	0.2	0.75	0.45	1.45	0.45	2.0	<0.1	1.7	0.15	2.1	0.6	1.5	0.3	3.2	0.2	1.0	0.25	2.2	0.1
7	3.6	0.45	3.5	0.2	0.9	0.45	1.7	0.2	2.4	<0.1	2.0	0.15	2.5	0.6	1.8	0.3	3.4	0.2	1.2	0.2	2.6	0.1
8	4.15	0.6	4.05	0.2	1.05	0.45	1.95	0.3	2.8	0.1	2.3	0.1	2.9	0.55	2.1	0.4	3.6	0.2	1.4	0.3	3.0	<0.1
9	4.7	0.5	4.6	0.3	1.2	0.4	2.2	0.2	3.2	0.1	2.6	0.1	3.3	0.6	2.4	0.2	3.8	0.1	1.6	0.2	3.4	0.1
10	5.25	0.5	5.15	0.3	1.35	0.4	2.45	0.2	3.6	0.3	2.9	0.1	3.7	0.4	2.7	0.1	4.0	0.1	1.8	0.2	3.8	0.1
11	5.8	0.1	5.7	0.2	1.5	0.2	2.7	0.1	4.0	0.1	3.2	0.1	4.1	0.3	3.0	0.1	4.2	0.1	2.4	0.2	4.2	0.2
12	6.0	0.0	6.2	0.0	2.0	0.0	2.7	0.0	4.5	0.0	3.9	0.0	4.2	0.0	3.2	0.0	4.4	0.0	2.4	0.0	4.3	0.0
Feature Type (riffle, run, or pool)	POOL		POOL		RUN		RUN		RIFFLE		RIFFLE		POOL		RUN		RIFFLE		RUN		RUN	

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

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

Transects in order of up to downstream.

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

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

Signed: [signature] Date: 5/17/07

RMC 5-23-07

WBID# 0065
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 1200	Site Location Description (e.g., road crossing): Hwy V Bridge Crossing
Personnel (Data Collectors): D. Martin + J. Foth	Facility Name: Lancaster WWTF
Current Weather Conditions: Clear	Permit Number: MO 0039691
Weather Conditions for Past 10 days: Unknown	
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: 0552704 Y: 4481690

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	± 23 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)
0065_3_144	Upstream Site #3, Transect #1		
0065_3_145	Downstream Site #3, Transect #1		

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: Agriculture Fields

WBID# 0065
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: NONE					

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	100 % Sand	— % Silt	— % Mud/Clay	— % Bedrock

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

Little algae on rock beneath bridge

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: 5/17/07

Organization: AE Solutions Position: Env. Specialist

Rec 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065 - 3 (WBID_Site#)

Estimated Channel Incision: 1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0552704 UTM Y: 4481690

Horizontal Accuracy Estimate (GPS Data Quality): +/- 23 (feet)

Average Stream Width: 5 (meters) Length of Survey Segment: ~~23~~ 150 rm (meters) (20x average stream width)

Field Staff: RENEE MARTIN ; JUSTIN FOTH

Dissolved Oxygen

Date: 5/17/07 Time: 1200

Dissolved Oxygen: 9.24 (mg/L)

Dissolved Oxygen: 92.7 (% sat)

Specific Cond: 416.1 (µS/cm)

Water Temperature: 15.9 (°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	0.5	0.1	0.6	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.3	0.1	0.4	0.1	0.0	0.1	0.3	0.1	0.2	0.1
2	0.95	0.1	0.9 ~~1.2~~ rm	0.2	0.65	0.1	0.45	0.1	0.65	0.3	0.5	0.2	0.6	0.2	0.9	0.3	0.55	0.25	0.55	0.25	0.75	0.3
3	1.4	0.1	1.2	0.2	1.1	0.1	0.8	0.2	1.0	0.3	0.9	0.3	0.9	0.2	1.4	0.3	1.1	0.35	0.8	0.25	1.3	0.1
4	1.85	0.1	1.5	0.2	1.55	0.1	1.15	0.2	1.35	0.2	1.3	0.35	1.2	0.25	1.9	0.3	1.65	0.5	1.05	0.2	1.85	0.3
5	2.3	0.1	1.8	0.2	2.0	<0.1	1.5	0.2	1.7	0.2	1.7	0.3	1.5	0.3	2.4	0.2	2.2	0.4	1.3	0.2	2.4	0.2
6	2.75	0.1	2.1	0.3	2.45	<0.1	1.85	0.2	2.05	0.2	2.1	0.3	1.8	0.3	2.9	0.3	2.75	0.3	1.55	0.25	2.95	0.2
7	3.2	0.2	2.4	0.3	2.9	0.1	2.2	0.2	2.4	0.15	2.5	0.3	2.1	0.3	3.4	0.25	3.3	0.3	1.8	0.25	3.5	0.2
8	3.65	0.35	2.7	0.3	3.35	0.1	2.55	0.15	2.75	0.1	2.9	0.3	2.4	0.3	3.9	0.2	3.85	0.25	2.05	0.3	4.05	0.2
9	4.1	0.4	3.0	0.3	3.8	0.2	2.9	0.15	3.1	0.1	3.3	0.3	2.7	0.2	4.4	0.2	4.4	0.25	2.3	0.2	4.6	0.2
10	4.55	0.4	3.3	0.2	4.25	0.2	3.25	0.2	3.45	0.1	3.7	0.2	3.0	0.2	4.9	0.35	4.95	0.15	2.55	0.2	5.15	0.2
11	5.0	0.3	3.6	0.1	4.5	0.1	3.6	0.1	3.8	0.1	4.1	0.1	3.3	0.1	5.1	0.3	5.5	0.1	2.8	0.2	5.7	0.1
12	5.4	0.0	3.8	0.0	4.6	0.0	3.9	0.0	4.1	0.0	4.3	0.0	4.0	0.0	5.4	0.3	5.7	0.0	3.4	0.0	6.1	0.0
Feature Type (riffle, run, or pool)	RIFFLE		RUN		RIFFLE		RUN		RUN		RUN		RUN		RUN		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: [signature] Date: 5/17/07

RMC 5-23-07

WBID# 0065
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 1255	Site Location Description (e.g., road crossing): HWY A - BRIDGE CROSSING
Personnel (Data Collectors): R. MARTIN	Facility Name: LANCASTER WWTF
Current Weather Conditions: CLEAR	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0573799 Y: 4480058

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	± 23 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)
0065_4_146	UPSTREAM, SITE #4 TRANSECT #1		
0065_4_147	DOWNSTREAM, SITE #4, TRANSECT #1		

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:

Agriculture Fields on all sides

WBID# 0065
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)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: NONE					

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	50 % Gravel	50 % Sand	— % Silt	— % Mud/Clay	— % Bedrock

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

Some grass on gravel bars

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: 5/17/07

Organization: AG Solutions Position: ENV. SPECIALIST

AWC 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065-4
(WBID_Site#)

Estimated Channel Incision: <1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0553799 UTM Y: 4480058

Horizontal Accuracy Estimate (GPS Data Quality): +/- 23 (feet)

Average Stream Width: 7 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Renee Martin & Justyn Foth

Dissolved Oxygen

Date: 5/17/07 Time: 1255

Dissolved Oxygen: 8.98 (mg/L)

Dissolved Oxygen: 92.2 (% sat)

Specific Cond: 419.3 (µS/cm)

Water Temperature: 16.6 (°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	0.4	0.1	0.2	0.1	0.8	0.1	0.2	0.1	0.1	0.1	0.6	0.1	0.4	0.1	0.5	0.1	0.2	0.1	0.2	0.1	0.2	0.1
2	1.0	0.65 nm	1.0	0.4	1.0	0.1	0.5	0.1	0.85	0.4	0.85	0.1	0.65	0.1	0.9	0.2	0.5	0.2	0.55	0.15	0.7	0.3
3	1.6	0.60	1.8	0.4	1.2	0.2	0.8	0.1	1.6	0.2	1.1	0.1	0.9	0.2	1.3	0.15	0.8	0.2	0.9	0.15	1.2	0.2
4	2.2	0.6	2.6	0.4	1.4	0.2	1.1	0.1	2.35	0.2	1.35	0.1	1.15	0.2	1.7	0.2	1.1	0.2	1.25	0.3	1.7	0.1
5	2.8	0.6	3.4	0.5	1.6	0.2	1.4	0.1	3.1	0.2	1.6	0.1	1.4	0.2	2.1	0.2	1.4	0.2	1.6	0.25	2.2	<0.1
6	3.4	0.5	4.2	0.5	1.8	0.2	1.7	0.15	3.85	0.1	1.85	0.2	1.65	0.2	2.5	0.2	1.7	0.2	1.95	0.3	2.7	<0.1
7	4.0	0.3	5.0	0.6	2.0	0.2	2.0	0.15	4.6	0.1	2.1	0.2	1.9	0.2	2.9	0.2	2.0	0.15	2.3	0.3	3.2	0.1
8	4.6	0.2	5.8	0.5	2.2	0.2	2.3	0.15	5.35	<0.1	2.35	0.2	2.15	0.2	3.3	0.2	2.3	0.15	2.65	0.3	3.7	0.1
9	5.2	0.2	6.6	0.4	2.4	0.1	2.6	0.2	6.1	<0.1	2.6	0.2	2.4	0.25	3.7	0.1	2.6	0.15	3.0	0.3	4.2	0.1
10	5.8	0.2	7.4	0.2	2.6	0.1	2.9	0.2	6.35	0.0	2.85	0.2	2.65	0.1	4.1	0.1	2.9	0.1	3.35	0.2	4.7	0.1
11	6.4	0.1	8.2	0.1	2.8	0.1	3.2	0.1	7.6	0.3	3.1	0.1	2.9	0.1	4.5	0.15	3.2	0.1	3.7	0.2	5.2	0.1
12	6.5	0.0	8.8	0.0	3.2	0.0	3.3	0.0	7.8	0.0	3.7	0.0	3.0	0.0	4.9	0.0	3.3	0.0	4.2	0.0	5.4	0.0
Feature Type (riffle, run, or pool)	POOL		POOL		RIFFLE		RIFFLE		RUN		RUN		RIFFLE		RUN		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: Renee Mart Date: 5/17/07

RMC 5-23-07

WBID# 0065
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 1355	Site Location Description (e.g., road crossing): BRIDGE CAMPGROUND Rd - ~~Bridge~~ CROSSING
Personnel (Data Collectors): RENEE MARTIN	
Current Weather Conditions: CLEAR	Facility Name: LANCASTER WWTF
	Permit Number: MO 0093961
Weather Conditions for Past 10 days: UNKNOWN	
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: 0556921 Y: 4478260

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	X	Satellite Imagery	X
Signal Averaging	X	Interpolation Other	
Real Time Differential Processing	X		

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± ____ Meters	Source Map Scale: 1:24,000 1:100,000 Other ____
EPE	± 25 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)
0065-5-148	UPSTREAM, SITE #5, TRANSECT #1		
0065-5-149	DOWNSTREAM, SITE #5, TRANSECT #1		

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: AGRICULTURE FARM GROUND

WBID# 0065
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: NONE					

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	25	% Sand	—	% Silt	75	% 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: 5/17/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

anc 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065-5 (WBID_Site#)

Estimated Channel Incision: 1.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0556921 UTM Y: 4478260

Horizontal Accuracy Estimate (GPS Data Quality): +/- 25 (feet)

Average Stream Width: 10 (meters) Length of Survey Segment: 200 (meters) (20x average stream width)

Field Staff: RENEE MARTIN & JUSTYN FOTH

Dissolved Oxygen

Date: 5/17/07 Time: 1355

Dissolved Oxygen: 7.45 (mg/L)

Dissolved Oxygen: 77.6 (% sat)

Specific Cond: 423.1 (µS/cm)

Water Temperature: 17.1 (°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	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.1	1.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.3	0.0	0.1	0.3	0.1
2	1.1	0.6	1.0	0.5	1.3	0.4	0.7	0.1	1.9	<0.1	1.2	0.5	1.2	0.5	1.3	0.3	0.75	0.4	1.0	0.7	1.25	0.6
3	2.0	0.8	1.8	0.7	2.4	0.6	1.1	0.1	2.8	0.1	2.2	0.5	2.3	<0.1	2.4	0.2	1.5	0.8	2.0	1.0	2.2	0.6
4	2.9	1.0	2.6	0.85	3.5	0.5	1.5	0.1	3.7	0.2	3.2	0.4	3.4	0.15	3.5	0.2	2.25	0.7	3.0	>1.0	3.15	0.7
5	3.8	>1.0	3.4	0.95	4.6	0.6	1.9	0.2	4.6	0.2	4.2	0.5	4.5	0.1	4.6	0.3	3.0	0.5	4.0	0.6	4.1	0.7
6	4.7	>1.0	4.2	1.0	5.7	0.5	2.3	0.3	5.5	0.2	5.2	0.5	5.6	0.25	5.7	0.4	3.75	0.4	5.0	0.3	5.05	0.7
7	5.6	>1.0	5.0	1.0	6.8	0.5	2.7	0.3	6.4	0.3	6.2	0.4	6.7	0.6	6.8	0.5	4.5	0.5	6.0	0.4	6.0	0.8
8	6.5	>1.0	5.8	1.0	7.9	0.7	3.1	0.3	7.3	0.3	7.2	0.2	7.8	0.95	7.9	0.7	5.25	0.3	7.0	0.4	6.95	>1.0
9	7.4	1.0	6.6	0.9	9.0	0.5	3.5	0.4	8.2	0.3	8.2	0.1	8.9	1.0	9.0	0.5	6.00	0.3	8.0	0.8	7.9	0.9
10	8.3	0.5	7.4	0.45	10.1	0.4	3.9	0.4	9.1	0.1	9.2	0.2	10.0	0.6	10.1	0.3	6.75	0.2	9.0	0.4	8.85	0.6
11	9.2	0.3	8.2	0.2	11.2	0.1	4.3	0.2	10.0	0.1	10.2	0.3	11.1	0.2	11.2	0.1	7.5	0.1	10.0	0.1	9.8	0.1
12	9.6	0.0	8.6	0.0	11.4	0.0	4.9	0.0	10.4	0.0	10.3	0.0	11.5	0.0	11.3	0.1	8.0	0.0	10.1	0.0	10.0	0.0
Feature Type (riffle, run, or pool)	POOL		POOL		POOL		RUN		RUN		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: Renee Martin Date: 5/17/07

RMC 5-23-07

WBID# 0065
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 1510	Site Location Description (e.g., road crossing): HWY D BRIDGE CROSSING
Personnel (Data Collectors): R. MARTIN + J FOTH	Facility Name: LANCASTER WWTF
Current Weather Conditions: CLEAR	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0559346 Y: 4472829

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	X
Precise Positioning Service	X	Satellite Imagery	
Signal Averaging		Interpolation Other	X
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	± 33 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)
0065-6-150 0065-6-151	UPSTREAM, SITE #6, TRANSECT #1 DOWNSTREAM SITE #6, TRANSECT #1		

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:

FARM FIELDS

WBID# 0065
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: None					

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	100 % Sand	— % Silt	— % 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: 5/17/07

Organization: AE Solutions Position: Env. Specialist

QWC 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065_6 (WBID_Site#)

Estimated Channel Incision: 1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0559346 UTM Y: 4472829

Horizontal Accuracy Estimate (GPS Data Quality): +/- 33 (feet)

Average Stream Width: 7.0 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: RENEE MARTIN & JUSTYN FOTH

Dissolved Oxygen

Date: ~~4~~ am 5/17/07 Time: 1510

Dissolved Oxygen: 9.38 (mg/L)

Dissolved Oxygen: 101.6 (% sat)

Specific Cond: 415.9 (µS/cm)

Water Temperature: 19.3 (°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	0.4	0.1	0.0	0.1	0.0	0.1	1.0	0.1	0.3	0.1	1.0	~~0.5~~ 0.1	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1
2	1.1	0.4	0.75	0.4	0.85	0.6	1.5	0.1	1.05	0.2	1.5	0.1	1.1	0.2	0.8	0.2	0.85	0.3	0.9	0.2	0.9	0.3
3	1.8	0.3	1.5	0.6	1.7	0.75	2.0	0.1	1.8	0.2	2.0	0.1	1.9	0.2	1.5	0.3	1.5	0.4	1.6	0.4	1.6	0.4
4	2.5	0.1	2.25	0.7	2.55	0.7	2.5	0.2	2.55	0.2	2.5	0.2	2.7	0.1	2.2	0.3	2.15	0.4	2.3	0.4	2.3	0.4
5	3.2	0.1	3.0	0.5	3.4	0.8	3.0	0.2	3.3	0.1	3.0	0.2	3.5	0.1	2.9	0.25	2.8	0.3	3.0	0.5	3.0	0.4
6	3.9	0.2	3.75	0.6	4.25	0.8	3.5	0.2	4.05	0.2	3.5	0.4	4.3	0.1	3.6	0.3	3.45	0.3	3.7	0.5	3.7	0.4
7	4.6	0.2	4.5	0.5	5.1	0.8	4.0	0.3	4.8	0.1	4.0	0.4	5.1	0.1	4.3	0.4	4.1	0.3	4.4	0.5	4.4	0.4
8	5.3	0.2	5.25	0.5	5.95	0.9	4.5	0.3	5.55	<0.1	4.5	0.6	5.9	0.1	5.0	0.4	4.75	0.2	5.1	0.4	5.1	0.5
9	6.0	0.2	6.00	0.3	6.8	0.8	5.0	0.5	6.3	0.0	5.0	0.4	6.7	0.2	5.7	0.3	5.4	0.2	5.8	0.5	5.8	0.4
10	6.7	0.3	6.75	0.3	7.65	0.5	5.5	0.3	7.05	<0.1	5.5	0.3	7.5	0.2	6.4	0.3	6.05	0.2	6.5	0.3	6.5	0.3
11	7.4	0.3	7.5	0.1	8.5	0.1	6.0	0.1	7.8	0.1	6.0	0.1	8.3	0.2	7.1	0.2	6.7	0.1	7.2	0.1	7.2	0.1
12	8.0	0.0	7.6	0.0	8.8	0.0	6.3	0.1	8.1	0.0	6.2	0.0	8.6	0.0	7.4	0.0	7.0	0.0	7.6	0.0	7.5	0.0
Feature Type (riffle, run, or pool)	RUN		RUN		RUN		RUN		RUN		RUN		RUN		RUN		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: [signature] Date: 5/17/07

QAC 5-23-07

WBID# 0065
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 1620	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): R. Martin + J. Foth	WASSER HILL RD - BRIDGE CROSSING
Current Weather Conditions: CLEAR	Facility Name: LANCASTER WWTF
	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0561091 Y: 4469629

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	X
Precise Positioning Service		Satellite Imagery	
Signal Averaging	X	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	± 17 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)
0065_7_152	UPSTREAM SITE #7, TRANSECT #1		
0065_7_153	DOWNSTREAM SITE #7 TRANSECT #1		

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: AG/FARM FIELDS

WBID# 0085
Site# 7

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						
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%.)

5 % Cobble	5 % Gravel	90 % Sand	% Silt	% Mud/Clay	% Bedrock

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

Little algae on substrate near riffle

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: Chris Mark Date of Survey: 5/17/07

Organization: AE Solutions Position: Env. Specialist

RHC 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065-7 (WBID_Site#)

Estimated Channel Incision: <1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0561091 UTM Y: 4469629

Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

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

Field Staff: Renee Martin & Justyn Foth

Dissolved Oxygen

Date: 5/17/07 Time: 1620

Dissolved Oxygen: 9.85 (mg/L)

Dissolved Oxygen: 103.8 (% sat)

Specific Cond: 415.0 (µS/cm)

Water Temperature: 18.8 (°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	0.9	0.1	0.0	0.1	0.8	0.1	0.2	0.1	0.3	0.1	0.2	0.1	0.3	0.0 dry	0.3	0.1	0.2	0.1	0.0	0.1	0.0	0.3
2	1.4	0.1	1.1	0.3	1.2	<0.1	0.7	0.2	0.65	0.2	0.8	0.3	1.0	0.2	1.0	0.2	1.1	0.1	0.75	0.5	0.4	0.4
3	1.9	0.2	2.2	0.2	1.6	0.2	1.2	0.2	1.0	0.2	1.4	0.2	1.7	0.2	1.7	0.2	2.0	0.1	1.5	0.8	0.8	0.4
4	2.4	0.2	3.3	0.1	2.0	0.3	1.7	0.2	1.35	0.3	2.0	0.2	2.4	0.2	2.4	0.3	2.9	0.2	2.25	0.7	1.2	0.3
5	2.9	0.1	4.4	<0.1	2.4	0.3	2.2	0.25	1.7	0.3	2.6	0.2	3.1	0.2	3.1	0.2	3.8	0.2	3.0	0.6	1.6	0.3
6	3.4	0.2	5.5	<0.1	2.8	0.3	2.7	0.3	2.05	0.3	3.2	0.3	3.8	0.1	3.8	0.1	4.7	<0.1	3.75	0.5	2.0	0.25
7	3.9	<0.1	6.6	<0.1	3.2	0.2	3.2	0.3	2.4	0.3	3.8	0.3	4.5	0.1	4.5	0.1	5.6	0.2	4.5	0.4	2.4	0.2
8	4.4	0.1	7.7	0.0	3.6	0.2	3.7	0.3	2.75	0.4	4.4	0.3	5.2	<0.1	5.2	0.1	6.5	0.3	5.25	0.3	2.8	0.2
9	4.9	0.1	8.8	0.0	4.0	0.2	4.2	0.3	3.1	0.4	5.0	0.4	5.9	0.1	5.9	0.1	7.4	<0.1	6.0	0.2	3.2	0.1
10	5.4	0.1	9.9	0.1	4.4	0.1	4.7	0.2	3.45	0.2	5.6	0.4	6.6	0.1	6.6	0.1	8.3	0.1	6.75	0.1	3.6	0.1
11	5.9	0.1	11.0	0.1	4.8	0.1	5.2	0.1	3.8	0.1	6.2	0.1	7.3	0.1	7.3	0.2	9.2	0.1	7.5	0.1	4.0	0.1
12	7.2	0.0	11.7	0.0	5.1	0.0	5.4	0.0	3.8	0.1	6.6	0.0	7.6	0.0	7.3	0.2	9.2	0.1	8.2	0.0	5.1	0.0
Feature Type (riffle, run, or pool)	RIFFLE		RUN		RUN		RUN		RUN		RUN		RUN		RUN		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: [signature] Date: 5/17/07

AHC 5-23-07

WBID# 0065
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07 1705	Site Location Description (e.g., road crossing): CTY RD 313 BRIDGE CROSSING
Personnel (Data Collectors): R. MARTIN	
Current Weather Conditions: CLEAR	Facility Name: LANCASTER WWTF
	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0562448 Y: 4469219

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	± 21 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)
0065_8_154	UPSTREAM SITE #8 TRANSECT #1		
0065_8_155	DOWN STREAM SITE #8 TRANSECT #1		

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 ERROR RM 5/21/07	☐ Other:

Comments:

WBID# 0065
Site# 8

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: NONE					

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%.)

10 % Cobble	10 % Gravel	80 % Sand	— % Silt	— % Mud/Clay	— % Bedrock

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

Algae only on cobble throughout site

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: Janice Mark Date of Survey: 5/17/07

Organization: AESOLUTIONS Position: Env. Specialist

anc 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065_ Site #: 0065_8 (WBID_Site#)

Estimated Channel Incision: <1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0562451 UTM Y: 4469217

Horizontal Accuracy Estimate (GPS Data Quality): +/- 21 (feet)

Average Stream Width: 12 (meters) Length of Survey Segment: 240 (meters) (20x average stream width)

Field Staff: RENEE MARTIN, JUSTYN FOTH

Dissolved Oxygen

Date: 5/17/07 Time: 1705

Dissolved Oxygen: 8.44 (mg/L)

Dissolved Oxygen: 90.1 (% sat)

Specific Cond: 407.1 (µS/cm)

Water Temperature: 18.7 (°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	0.3	0.1	1.1	0.1	1.4	0.1	0.2	0.2	0.2	0.2	0.6	0.1	0.3	0.1	1.1	0.1	1.0	0.1	0.0	0.1	0.0	0.1
2	1.4	0.2	2.05	0.1	2.0	0.2	1.4	0.4	1.4	0.4	1.15	0.1	1.1	0.2	1.9	0.2	1.45	0.1	1.0	0.3	0.5	0.3
3	2.5	0.2	3.0	0.2	2.6	0.4	2.6	>1.0	2.6	>1.0	1.7	0.1	1.9	0.3	2.7	0.2	1.9	0.2	2.0	0.4	1.0	0.3
4	3.6	0.3	3.95	0.3	3.2	0.6	3.8	>1.0	3.8	>1.0	2.25	0.2	2.7	0.5	3.5	0.2	2.35	0.2	3.0	0.4	1.5	0.2
5	4.7	0.4	4.9	0.6	3.8	0.8	5.0	>1.0	5.0	>1.0	2.8	0.2	3.5	0.6	4.3	0.2	2.8	0.3	4.0	0.3	2.0	0.2
6	5.8	0.4	5.85	0.7	4.4	1.0	6.2	>1.0	6.2	>1.0	3.35	0.1	4.3	0.8	5.1	0.2	3.25	0.2	5.0	0.3	2.5	0.2
7	6.9	0.5	6.8	0.8	5.0	>1.0	7.4	>1.0	7.4	>1.0	3.9	0.1	5.1	0.9	5.9	0.3	3.7	0.2	6.0	0.3	3.0	0.2
8	8.0	0.7	7.75	1.0	5.6	0.9	8.6	>1.0	8.6	>1.0	4.45	0.1	5.9	0.9	6.7	0.3	4.15	0.2	7.0	0.2	3.5	0.2
9	9.1	0.7	8.7	0.8	6.2	0.7	9.8	>1.0	9.8	>1.0	5.0	0.1	6.7	0.9	7.5	0.3	4.6	0.3	8.0	0.2	4.0	0.2
10	10.2	0.5	9.65	0.3	6.8	0.4	11.0	>1.0	11.0	>1.0	5.55	0.1	7.5	0.5	8.3	0.3	5.05	0.4	9.0	0.1	4.5	0.1
11	11.3	0.1	10.6	0.1	7.4	0.1	12.2	0.3	12.2	0.3	6.1	0.1	8.3	0.1	9.0	0.3	5.5	0.1	10.0	0.1	5.0	0.1
12	11.3	0.1	10.6	0.1	7.8	0.0	12.3	0.0	12.3	0.0	6.6	0.0	8.7	0.0	9.0	0.3	5.8	0.0	10.3	0.0	5.3	0.0
Feature Type (riffle, run, or pool)	POOL		POOL		POOL		POOL		POOL		RIFFLE		POOL		POOL		RIFFLE		RUN		RIFFLE	

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

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

Transects in order of up to downstream.

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

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

Signed: [signature] Date: 5/17/07

DNC 5-23-07

WBID# 0065
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/17/07	Site Location Description (e.g., road crossing): HWY T Bridge Crossing
Personnel (Data Collectors): R. MARTIN J. FOTH	Facility Name: LANCASTER WWTF
Current Weather Conditions: CLEAR	Permit Number: MO 0039691
Weather Conditions for Past 10 days: UNKNOWN	
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: 0564047 Y: 4467134

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)	X	Aerial Photograph or DOQQ	X
Precise Positioning Service	X	Satellite Imagery	
Signal Averaging	X	Interpolation Other	X
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	± 21 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)
0065-9-156	DOWNSTREAM SITE #9, TRANSECT #1		
0065-9-167	UP STREAM SITE #9, TRANSECT #1		

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:
Ag fields

WBID# 0065
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: NONE					

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
—	—	100	—	—	—

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

None in section

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: 5/17/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

QAC 5-23-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0065 Site #: 0065 - 9 (WBID_Site#)

Estimated Channel Incision: >1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0564047 UTM Y: 4467234

Horizontal Accuracy Estimate (GPS Data Quality): +/- 21 (feet)

Average Stream Width: 10.5 (meters) Length of Survey Segment: 210 (meters) (20x average stream width)

Field Staff: RENEE MARTIN ; JUSTYN FOTH

Dissolved Oxygen

Date: 5/17/07 Time: 1800

Dissolved Oxygen: 8.02 (mg/L)

Dissolved Oxygen: 85.5 (% sat)

Specific Cond: 405.6 (µS/cm)

Water Temperature: 18.8 (°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	0.3	0.1	1.8	0.1	0.3	0.1	0.3	0.1	0.7	0.1	0.0	0.2	0.0	0.1	0.3	0.1	0.4	0.1	0.6	0.1	0.4	0.1
2	1.8	0.5	2.5	0.1	0.9	0.2	1.5	0.2	2.0	0.3	1.6	0.3	1.6	0.4	0.75	0.2	0.8	0.2	1.2	0.3	1.1	<0.1
3	3.3	0.5	3.2	0.1	1.5	0.3	2.7	0.1	3.3	0.4	3.2	0.2	3.2	0.6	1.2	0.2	1.2	0.3	1.8	0.3	1.8	<0.1
4	4.8	0.6	3.9	0.2	2.1	0.5	3.9	0.2	4.6	0.3	4.8	0.0	4.8	0.2	1.65	0.3	1.6	0.3	2.4	0.3	2.5	<0.1
5	6.3	0.6	4.6	0.3	2.7	0.6	5.1	0.3	5.9	0.3	6.4	0.0	6.4	0.2	2.1	0.3	2.0	0.3	3.0	0.2	3.2	0.1
6	7.8	0.7	5.3	0.3	3.3	0.8	6.3	0.5	7.2	0.3	8.0	0.0	8.0	0.4	2.55	0.3	2.4	0.3	3.6	0.2	3.9	0.1
7	9.3	0.7	6.0	0.3	3.9	0.8	7.5	0.7	8.5	0.3	9.6	0.0	9.6	<0.1	3.0	0.3	2.8	0.3	4.2	<0.1	4.6	0.2
8	10.8	0.7	6.7	0.4	4.5	0.8	8.7	0.9	9.8	0.4	11.2	0.0	11.2	0.0	3.45	0.3	3.2	0.4	4.8	<0.1	5.3	0.2
9	12.3	0.6	7.4	0.3	5.1	0.8	9.9	>1.0	11.1	0.4	12.8	0.0	12.4	0.0	3.9	0.3	3.6	0.4	5.4	<0.1	6.0	0.3
10	13.8	0.6	8.1	0.2	5.7	0.5	11.1	>1.0	12.4	0.2	14.4	0.2	14.4	0.0	4.35	0.2	4.0	0.3	6.0	<0.1	6.7	0.3
11	15.3	0.1	8.8	0.1	6.3	0.1	12.3	0.1	13.7	0.1	16.0	0.1	16.0	0.1	4.8	0.1	4.5	0.1	6.6	0.1	7.4	0.2
12	15.7	0.0	9.2	0.0	6.4	0.0	12.7	0.0	13.8	0.0	16.6	0.0	16.6	0.0	5.1	0.0	4.5	0.1	7.2	0.0	8.0	0.0
Feature Type (riffle, run, or pool)	POOL		RUN		RUN		POOL		POOL		RUN		RUN		RUN		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.

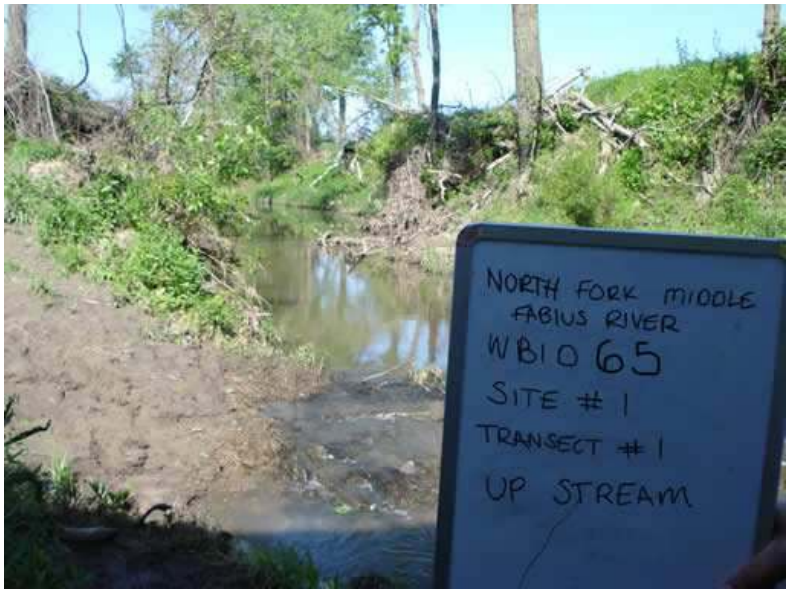
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

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: [signature] Date: 5/17/07

RMC 5-23-07

WBID# 65



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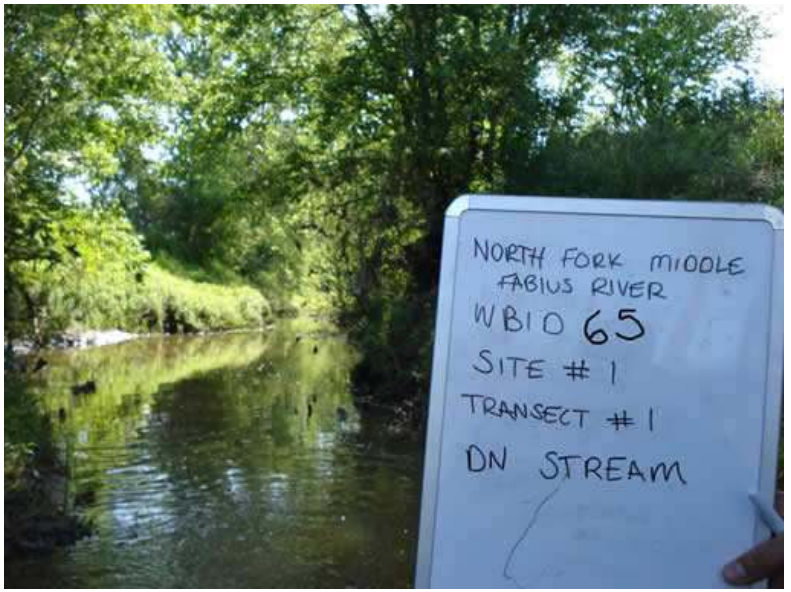
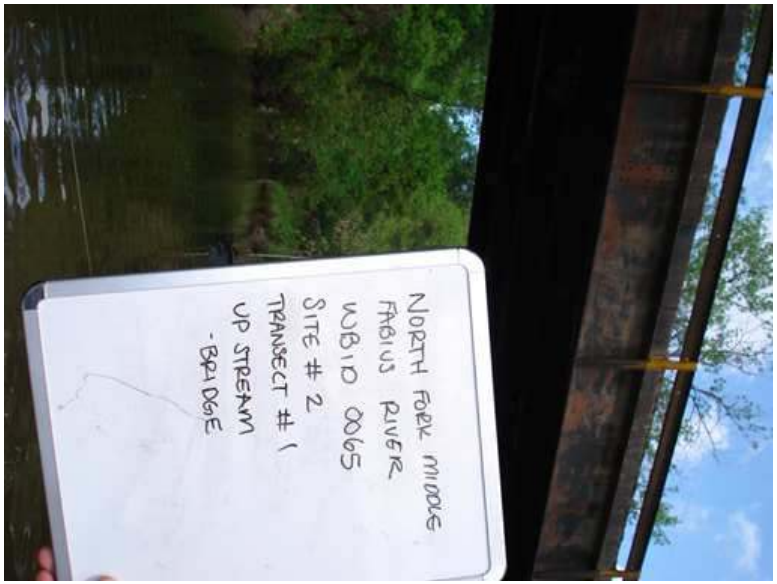


Site# 1 Photo ID# 0065-1-136, Downstream

Site# 1 Photo ID# 0065-1-137, Bridge fence

WBID# 65



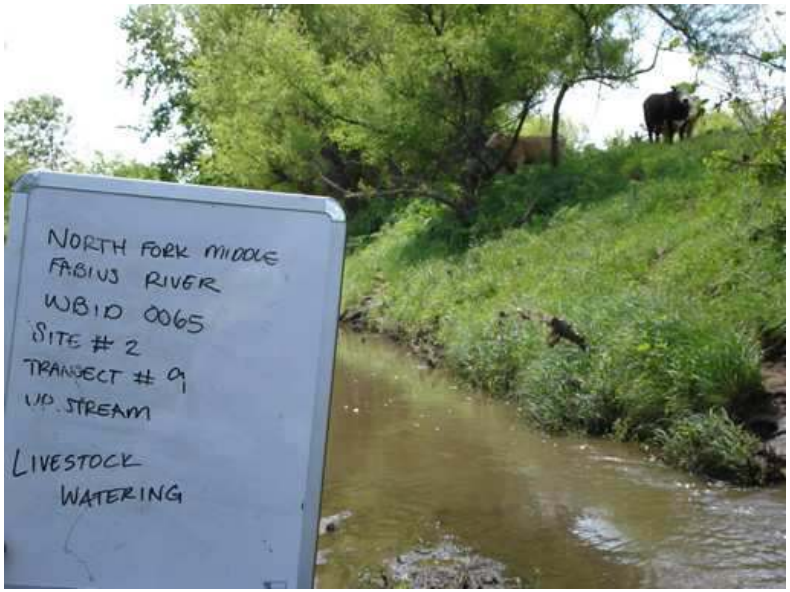
Site# 2 Photo ID# 0065-2-138, Upstream

Site# 2 Photo ID# 0065-2-139, Downstream

Site# 2 Photo ID# 0065-140, Livestock watering

Site# 2 Photo ID# 0065-141, Livestock watering

WBID# 65



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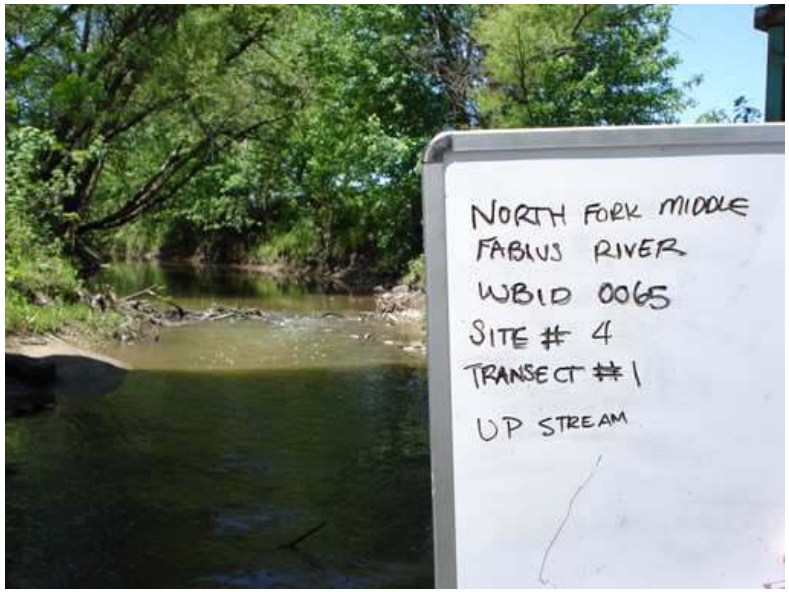
Site# 3 Photo ID# 0065-3-144, Upstream

Site# 3 Photo ID# 0065-3-145, Downstream

WBID# 65



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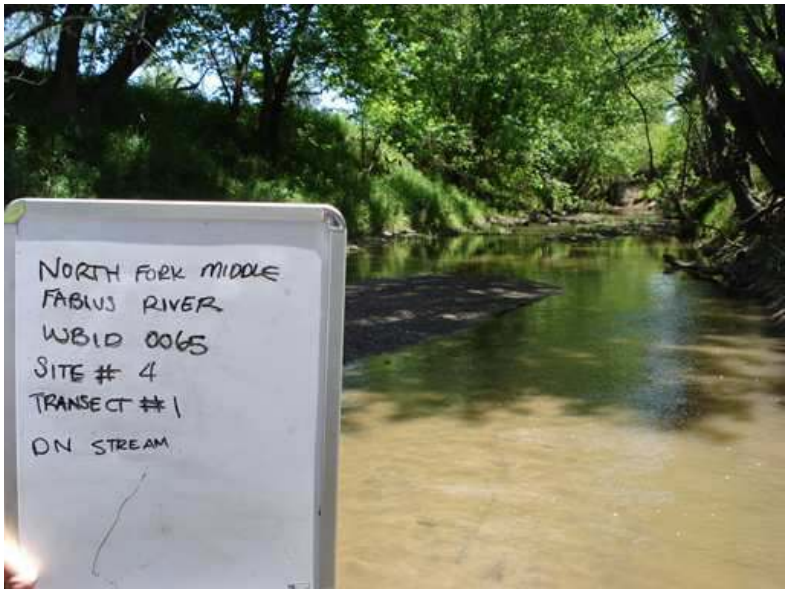

Site# 4 Photo ID# 0065-4-147, Downstream

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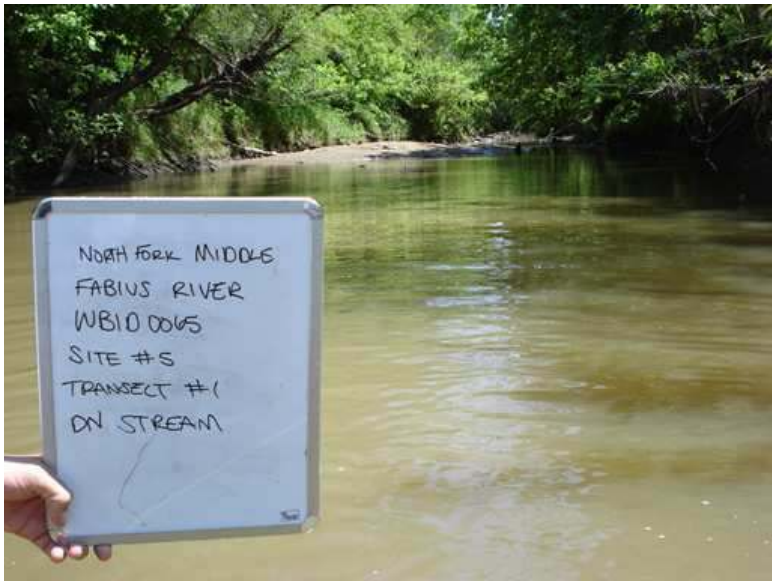
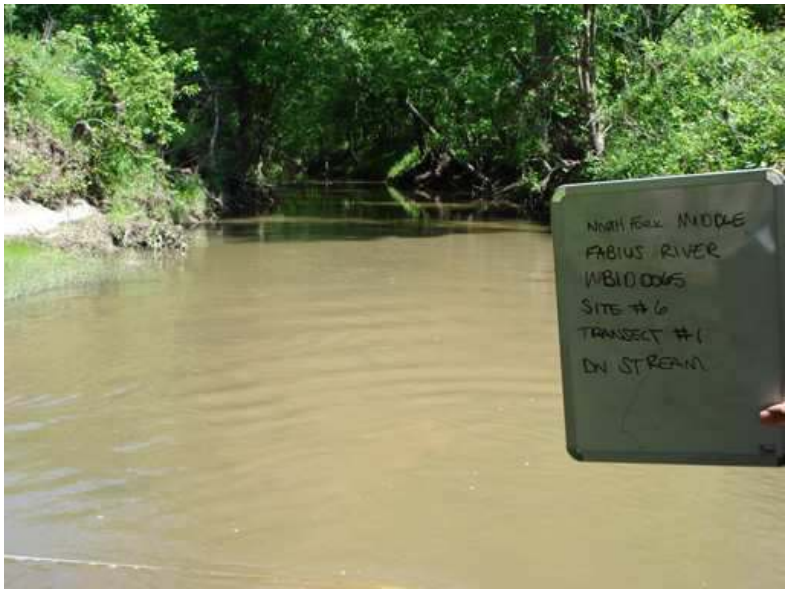


Site# 5 Photo ID# 0065-5-149, Downstream

WBID# 65

Site# 6 Photo ID# 0065-6-150, Upstream



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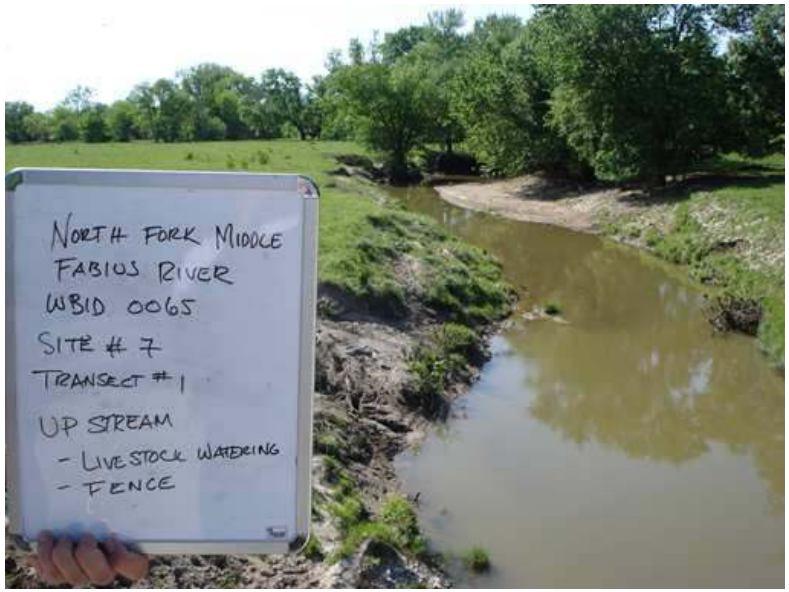

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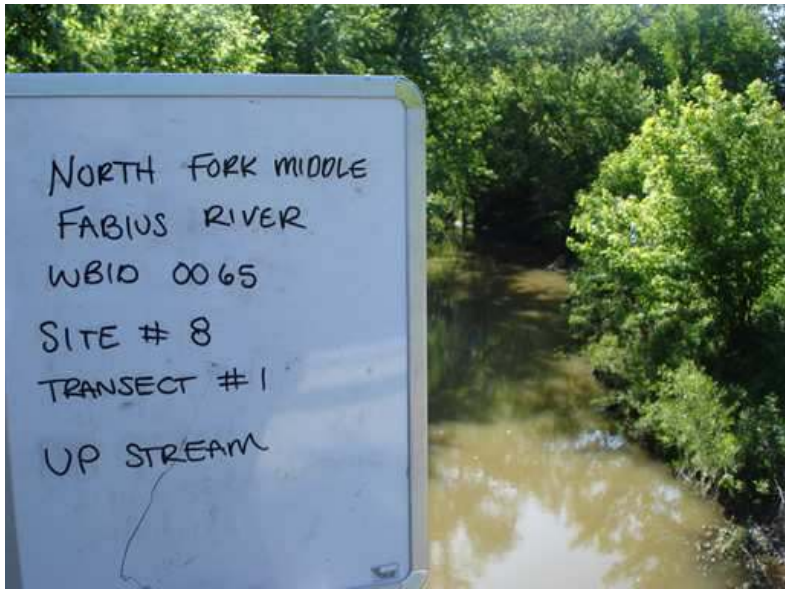
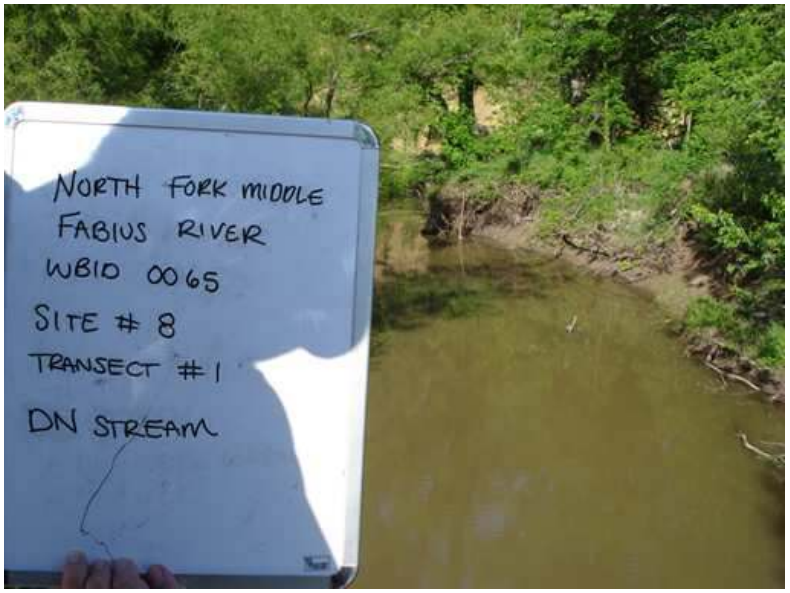
Site# 7 Photo ID# 0065-7-153, Downstream

WBID# 65



Site# 8 Photo ID# 0065-8-154, Upstream



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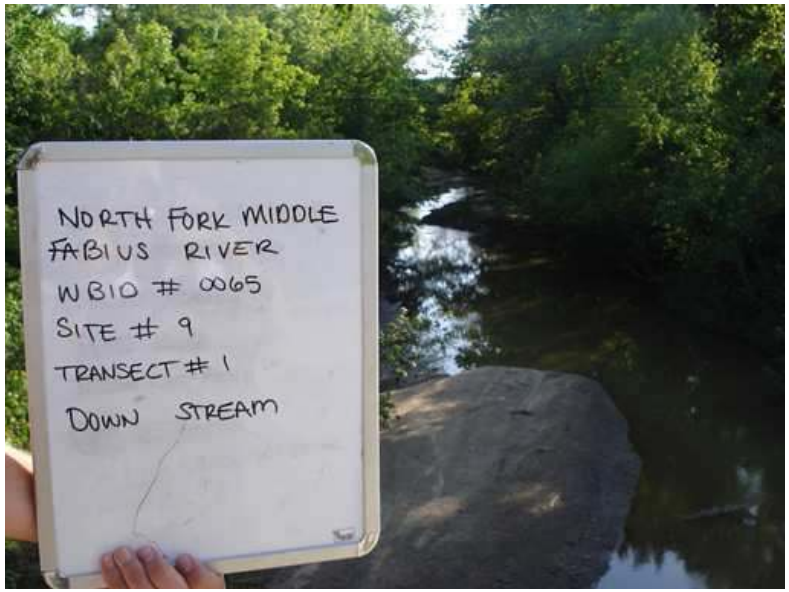
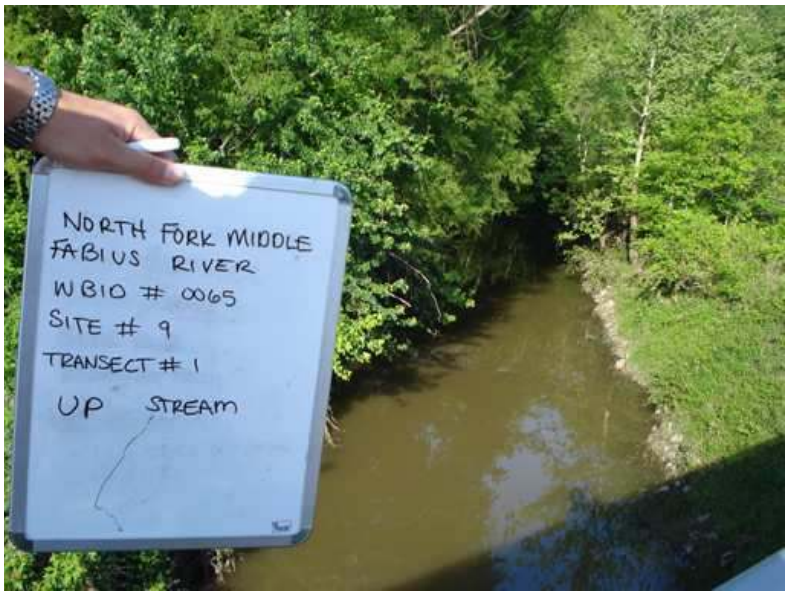


Site# 9 Photo ID# 0065-9-156, Downstream



Site# 9 Photo ID# 0065-9-157, Upstream