MAIN DITCH #8
WBID 3032

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
301 West High Street
Jefferson City, MO 65102

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

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): Main Ditch #8	
Missouri Water Body Identification (WBID) Number: 3032	
8-digit HUC: 08020204	County: Pemiscot
Upstream Legal Description (from Table H): 18, 20N, 14E	
Downstream Legal Description(from Table H): 3, 19N, 12E	
Number of sites evaluated 7	
List all sites numbers, listed consequently upstream to downstream: 1, 2, 3, 4, 5, 6, 7	

II. Subesegmentation (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): Ross Elem. School
Discharger Permit Number(s): MO 0055344

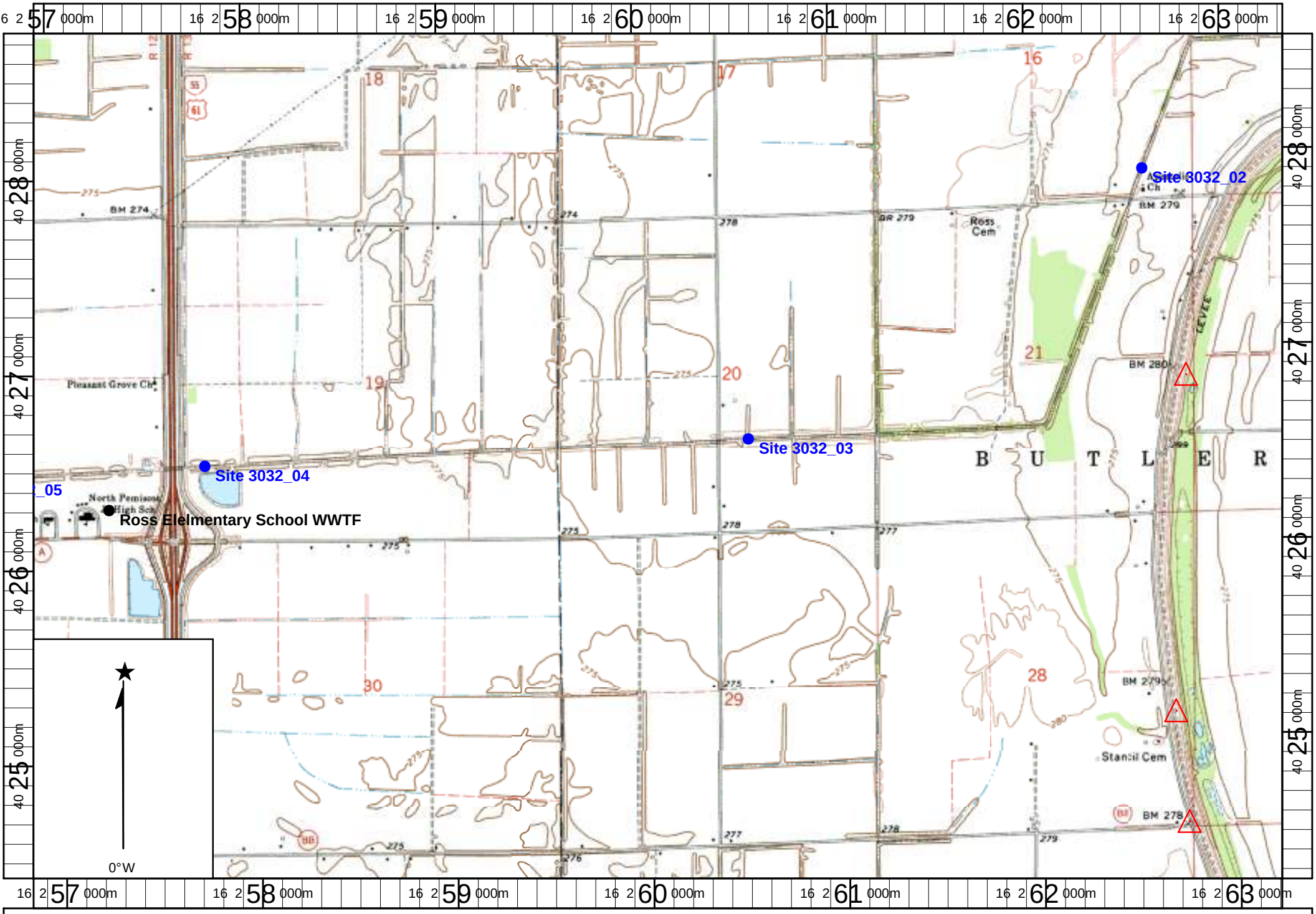
IV. UAA Surveyor (please print legibly)

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

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

Signed: Robert A. Bacon **Date:** 5-25-07

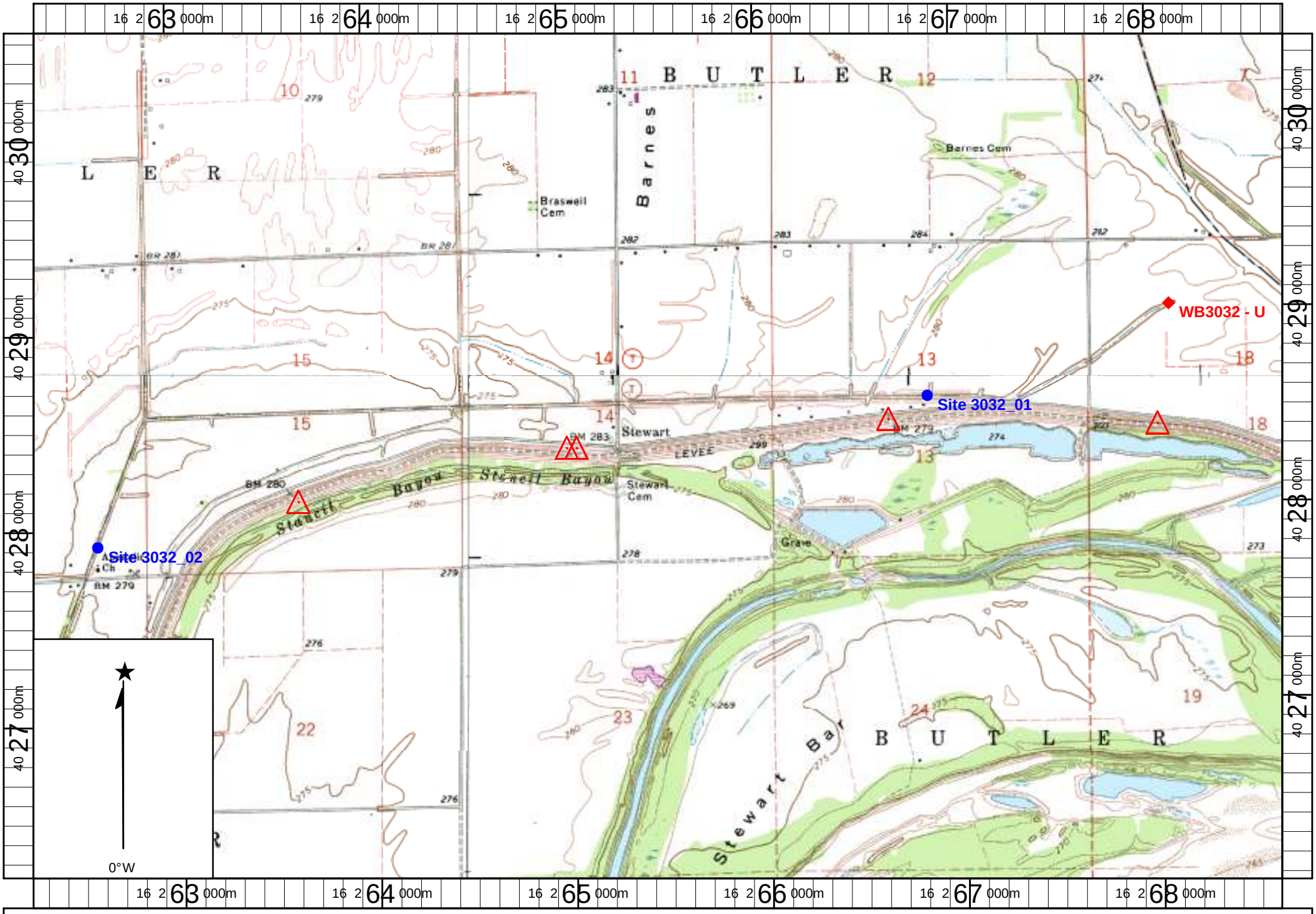
RAC 5-25-07



Name: STANLEY
Date: 5/28/2007
Scale: 1 inch equals 2000 feet

Location: 16 0260077 E 4026503 N

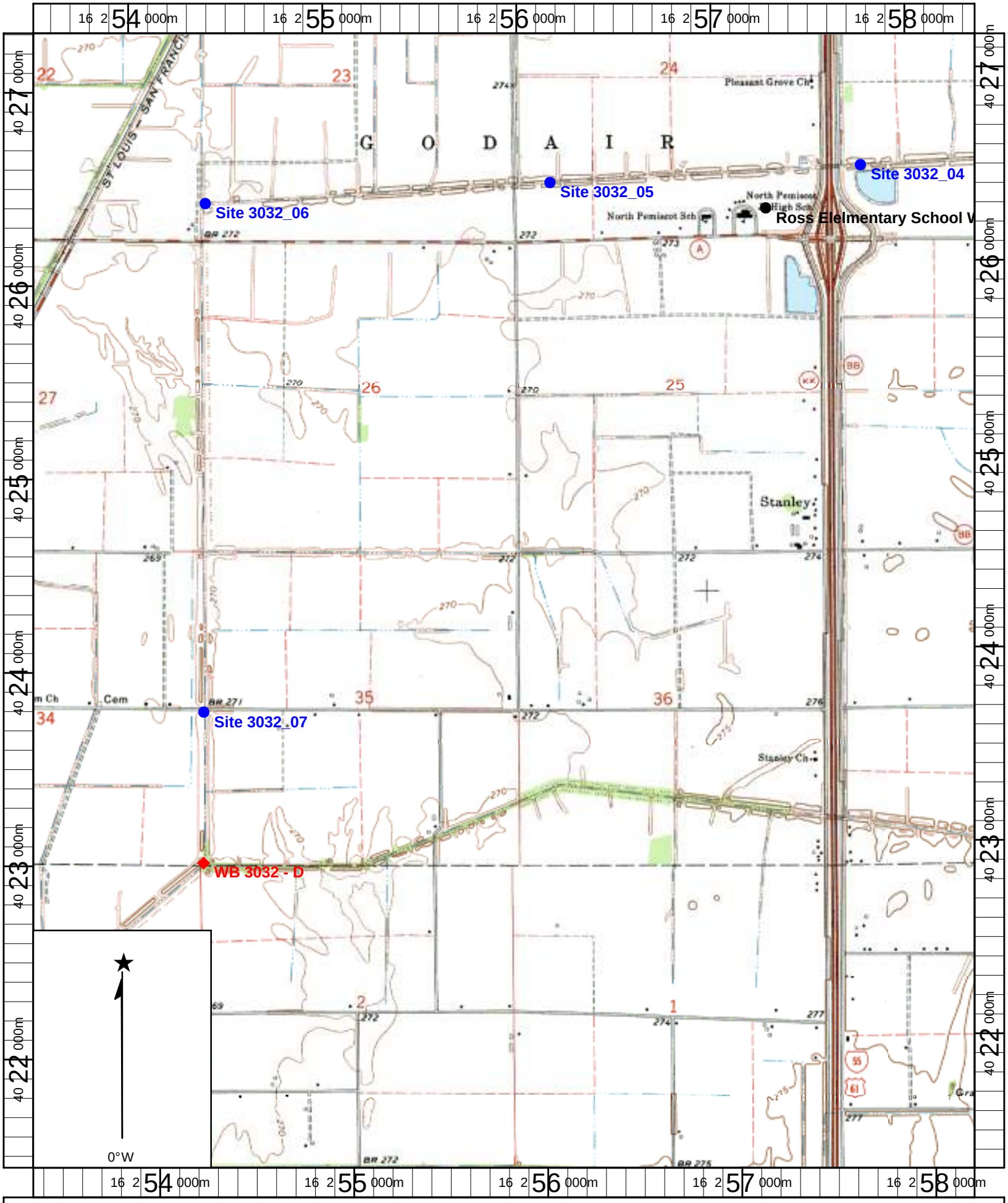
Copyright (C) 2000, Maptech, Inc.



Name: MOORING
Date: 5/28/2007
Scale: 1 inch equals 2000 feet

Location: 16 0265465 E 4028309 N

Copyright (C) 2000, Maptech, Inc.



Name: STANLEY
Date: 5/28/2007
Scale: 1 inch equals 2000 feet

Location: 16 0255853 E 4024306 N

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WBID# 3032
Site# 01

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5-25-2007 16:29	Site Location Description (e.g., road crossing): off county rock 311
Personnel (Data Collectors): Bob and Travis	
Current Weather Conditions: Sunny w/ Clouds 88°F	Facility Name: Ross Elem school
	Permit Number: MO0055344
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: 16 1 0266856 Y: 4028581

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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)
D055	downstream		
D056	upstream		

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# 3032
Site# 01

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: drainage					

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	100 % Silt	% Mud/Clay	% Bedrock

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

100% of channel covered by emergent wetland species & macrophytes + grass

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: 5-25-2007

Organization: ERC Position: Field Manager

RMC 5-28-07

DN D055
UP D056

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 01
(WBID_Site#)

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

GPS Location (taken at transect 1): waypt 37

UTM X: 16S 0266856 UTM Y: 4029581

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

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

Field Staff: Bob and Travis

Dissolved Oxygen

Dissolved Oxygen: — (mg/L)

Dissolved Oxygen: — (% sat)

Specific Cond: — (µS/cm)

Water Temperature: — (°C)

Dry 18:29

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																						
2																						
3											ARC											
4							Stream		Dry													
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
Feature Type (riffle, run, or 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: Robert R Beam Date: 5-25-2007

ARC 5-23-07

WBID# 3032
Site# 02

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-25-2007 17:33	Site Location Description (e.g., road crossing): Upstream to road 314 road crossing
Personnel (Data Collectors): Bob & Travis	
Current Weather Conditions: Sunny, Pt. Cloudy 77F	Facility Name: Ross Elem School Permit Number: MO 0053344
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: 1650262598 Y: 4027909			
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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	±37 ft ± ~~2~~ 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)
D 053	downstream view 02-01		
D 054	upstream view 02-11		

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

2

WBID# 3032
Site# 02

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: Field drainage					

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	20 % Sand	55 % Silt	~~25 Pvc~~ 15% Pvc % Mud/Clay	% Bedrock

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

~100% sumergent aquatic vegetation coverage w/ survey segment

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: turbid
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.

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

Surveyor's Signature: [signature] Date of Survey: 5-25-2007

Organization: ERC Position: Field Manager

RWC 5-25-07

February 16, 2007

DN D053 02-01
UP D054 02-11

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 02 (WBID_Site#)

Estimated Channel Incision: 0.1 (m) (height between low bank width and water) BRC

GPS Location (taken at transect 1):

UTM X: 1630262598 UTM Y: 4027909

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

Average Stream Width: 7.5 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: Bob & Travis

Dissolved Oxygen

Dissolved Oxygen: 14.92 (mg/L)

Dissolved Oxygen: 172.1 (% sat)

Specific Cond: .327 (µS/cm)

Water Temperature: 27.9 (°C)

17:23

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	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01
2	.75	.26	.76	.28	.79	.35	.76	.29	.75	.26	.77	.29	.75	.35	.76	.29	.78	.27	.75	.25	.78	.26
3	1.5	.40	1.52	.38	1.58	.39	1.52	.41	1.5	.42	1.54	.42	1.5	.43	1.52	.42	1.56	.42	1.5	.39	1.56	.30
4	2.25	.41	2.28	.41	2.37	.45	2.28	.45	2.25	.43	2.31	.53	2.25	.54	2.28	.52	2.34	.42	2.25	.37	2.34	.37
5	3.0	.45	3.04	.43	3.16	.46	3.04	.45	3.0	.42	3.08	.50	3.0	.51	3.04	.50	3.12	.42	3.0	.43	3.12	.45
6	3.75	.46	3.80	.46	3.95	.46	3.80	.45	3.75	.44	3.85	.49	3.75	.62	3.80	.58	3.90	.48	3.75	.50	3.90	.53
7	4.5	.46	4.56	.47	4.74	.46	4.56	.41	4.5	.42	4.62	.49	4.5	.50	4.56	.47	4.68	.45	4.5	.45	4.68	.43
8	5.25	.51	5.32	.48	5.53	.49	5.32	.49	5.25	.50	5.39	.49	5.25	.47	5.32	.46	5.46	.41	5.25	.40	5.46	.29
9	6.0	.50	6.08	.47	6.32	.50	6.08	.40	6.0	.49	6.16	.41	6.0	.43	6.08	.39	6.24	.40	6.0	.40	6.24	.40
10	6.75	.34	6.84	.30	7.11	.26	6.84	.27	6.75	.23	6.93	.28	6.75	.30	6.84	.26	7.02	.27	6.75	.24	7.02	.23
11	7.5	.01	7.6	.01	7.90	.01	7.6	.01	7.5	.01	7.7	.01	7.5	.01	7.6	.01	7.8	.01	7.5	.01	7.8	.01
12	~~.19~~ 7.69	0	.21	0	.29	0	.18	0	.24	0	.19	0	.22	0	.18	0	.29	0	0.31	0	.34	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide 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: 5-25-2007

BRC 5-28-07

WBID# 3032
Site# ~~02~~ 03 ALC

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-25-2007 16:02	Site Location Description (e.g., road crossing): upstream of county road 305
Personnel (Data Collectors): Bob and Travis	
Current Weather Conditions: Sunny, Pty Cloudy 94°F	Facility Name: Ross Elem School Permit Number: MO 0055344
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: 16S 0260552		Y: 4026577	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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	± 22 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)
D051	downstream 03-01		
D052	upstream 03-11		

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# 2032
Site# 03

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: drainage					

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	10 % Sand	80 % Silt	10 % Mud/Clay	% Bedrock

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

80% submergent & emergent macrophyte cover
some filamentous algae on macrophytes

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☒ Other: Lightly turbid
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: 5-25-2007

Organization: ERC Position: Field Manager

QWC 5-28-07

DN D051 03-01
Up D052 03-11

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 03 (WBID_Site#)

Estimated Channel Incision: 0.7 (m) (height between low bank width and water) RWC

GPS Location (taken at transect 1):

UTM X: 16S 0260552 UTM Y: 4026577 Way pt. 035

Horizontal Accuracy Estimate (GPS Data Quality): +/- 22 (feet)

Average Stream Width: 6.4 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: Bob

Dissolved Oxygen

Dissolved Oxygen: 12.42 (mg/L)

Dissolved Oxygen: 167.9 (% sat)

Specific Cond: 257 (µS/cm)

Water Temperature: 31.2 (°C)

16:02

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	.01	0	.02	0	.01	0	.01	0	.01	0	.02	0	.01	0	.01	0	.01	0	.01	0	.01
2	.76	.10	.54	.12	.33	.15	.47	.08	.34	.08	.45	.10	.49	.11	.61	.10	.65	.11	.74	.10	.93	.07
3	1.52	.15	1.08	.15	.66	.18	.94	.19	.68	.14	.9	.12	.98	.14	1.22	.12	1.3	.16	1.48	.14	1.86	.14
4	2.28	.16	1.62	.15	.99	.26	1.41	.23	1.02	.14	1.35	.23	1.47	.23	1.83	.16	1.95	.23	2.22	.18	2.79	.14
5	3.04	.12	2.16	.13	1.32	.23	1.88	.29	1.36	.17	1.8	.24	1.96	.14	2.44	.17	2.6	.30	2.96	.21	3.72	.15
6	3.8	.14	2.7	.18	1.65	.19	2.35	.23	1.7	.16	2.25	.18	2.45	.08	3.05	.14	3.25	.20	3.7	.23	4.65	.10
7	4.56	.18	3.24	.19	1.98	.20	2.82	.20	2.04	.16	2.7	.19	2.94	0	3.66	.18	3.9	.20	4.44	.17	5.58	.18
8	5.32	.21	3.78	.20	2.31	.19	3.29	.17	2.38	.18	3.15	.20	3.43	0	4.27	.21	4.55	.16	5.18	.19	6.51	.26
9	6.08	.29	4.32	.18	2.64	.16	3.76	.16	2.72	.20	3.6	.21	3.92	.13	4.88	.22	5.2	.18	5.92	.15	7.44	.33
10	6.84	.17	4.86	.14	2.97	.14	4.23	.12	3.06	.15	4.05	.14	4.41	.10	5.49	.17	5.85	.13	6.66	.11	8.37	.29
11	7.6	.01	5.4	.01	3.3	.01	4.7	.01	3.4	.01	4.5	.01	4.9	.01	6.1	.01	6.5	.01	7.4	.01	9.3	.01
12	RWC dense plant growth prevent estimating wetted area and channel incision																					
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: 5-25-2007

RWC 5-28-07

WBID# 3032
Site# 04

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-25-2007 15:16	Site Location Description (e.g., road crossing): upstream outer road I 55 bridge
Personnel (Data Collectors): Bob and Trent	
Current Weather Conditions: Sunny, Cloudy 96°F	Facility Name: Ross Elem School Permit Number: MO 0053344
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: 16 S 0257766 Y: 4026508

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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	± 24 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)
D049	upstream 04-11		
D050	downstream 04-01		

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 and Interstate 55

WBID# 3032
Site# 04

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	40 % Sand	40 % Silt	20 % Mud/Clay	% Bedrock

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

emergent vegetation line bank
- < 5 of channel covered w/ submergent vegetation

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Lightly turbid
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: 5-25-2007

Organization: ERC Position: Field Manager

February 16, 2007

QWC 5-28-07

Up D049 04-11
Dn D050 04-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 04
(WBID_Site#)

Estimated Channel Incision: .10 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 165 0257766 UTM Y: 4026508 way pt 34
Horizontal Accuracy Estimate (GPS Data Quality): +/- 24 (feet)

Average Stream Width: 5.5 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Bob - Travis

Dissolved Oxygen

Dissolved Oxygen: 6.41 (mg/L)

Dissolved Oxygen: 22.3 (% sat)

Specific Cond: 248 (µS/cm)

Water Temperature: 28.1 (°C)

15:16

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	.01	0	.02	0	.01	0	.01	0	.01	0	.01	0	.01	0	.02	0	.01	0	.01	0	.01
2	.45	.06	.42	.05	.47	.06	.51	.10	.56	.11	.48	.10	.59	.14	.56	.13	.625	.14	.59	.21	.47	.30
3	.96	.10	.84	.11	.94	.15	1.02	.14	1.12	.22	.88	.15	1.18	.28	1.12	.19	1.25	.35	1.18	.29	.94	.29
4	1.35	.26	1.26	.15	1.41	.12	1.53	.17	1.68	.22	1.36	.17	1.77	.31	1.68	.20	1.875	.38	1.77	.30	1.41	.21
5	1.8	.29	1.68	.19	1.88	.20	2.04	.23	2.24	.21	1.84	.26	2.36	.24	2.24	.24	2.5	.34	2.36	.22	1.88	.11
6	2.25	.25	2.1	.21	2.35	.20	2.55	.24	2.8	.21	2.32	.27	2.95	.23	2.8	.28	3.125	.31	2.95	.17	2.35	.01
7	2.7	.29	2.52	.29	2.82	.15	3.06	.20	3.36	.20	2.8	.28	3.54	.26	3.36	.27	3.75	.26	3.54	.18	2.82	.11
8	3.15	.29	2.94	.29	3.29	.17	3.57	.19	3.92	.17	3.28	.24	4.13	.30	3.92	.31	4.375	.20	4.13	.18	3.29	.13
9	3.6	.25	3.36	.25	3.76	.17	4.08	.17	4.48	.12	3.76	.21	4.72	.30	4.48	.30	5	.25	4.72	.13	3.76	.10
10	4.05	.17	3.78	.13	4.23	.13	4.59	.15	5.04	.13	4.24	.18	5.31	.27	5.04	.10	5.625	.15	5.31	.09	4.23	.09
11	4.5	.01	4.2	.01	4.7	.01	5.1	.02	5.6	.01	4.8	.01	5.9	.01	5.6	.01	6.25	.01	5.9	.01	4.7	.01
12	.18	0	.13	0	.11	0	.25	0	.24	0	.17	0	.15	0	.17	0	.13	0	.19	0	.08	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: 5-25-07

RLC 5-28-07

WBID# 3032
Site# 05

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-25-07 / 14:28	Site Location Description (e.g., road crossing): downstream of county road 213 road crossing
Personnel (Data Collectors): Bob & Travis	
Current Weather Conditions: Clear Windy	Facility Name: Ross Elem School Permit Number: MO0095344
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: 165 0256160 Y: 4026458

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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)
D047	downstream view 05-11		
0048	upstream view 05-01		

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.)

none

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: Fields

WBID# 3032
Site# 05

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: Drainage

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	10 % Sand	90 % Silt	% 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:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Turbid
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: 5-25-07

Organization: ERC Position: Field Manager

RLC 5-28-07

Up D048 05-11
Dn D047 05-01

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 05
(WBID_Site#)

Estimated Channel Incision: .15 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 1650256160 UTM Y: 4026458 Waypt 233
Horizontal Accuracy Estimate (GPS Data Quality): +/- 21 (feet)

Average Stream Width: 6.5 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: Bob + Travis

Dissolved Oxygen

Dissolved Oxygen: 13.38 (mg/L)

Dissolved Oxygen: 174.3 (% sat)

Specific Cond: 299 (µS/cm)

Water Temperature: 28.8 (°C)

14:35

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	.01	0	.01	0	.02	0	.01	0	.02	0	.03	0	.01	0	.02	0	.03	0	.03	0	.02
2	.62	.19	.60	.21	.63	.18	.63	.27	.65	.25	.61	.16	.64	.22	.625	.17	.645	.22	.65	.20	.655	.28
3	1.24	.25	1.2	.30	1.26	.28	1.26	.37	1.3	.29	1.22	.24	1.28	.30	1.25	.18	1.29	.29	1.3	.31	1.31	.34
4	1.86	.27	1.8	.28	1.89	.31	1.89	.40	1.95	.28	1.83	.34	1.92	.39	1.875	.20	1.935	.30	1.95	.39	1.965	.39
5	2.48	.25	2.4	.34	2.52	.43	2.52	.28	2.60	.31	2.44	.33	2.56	.38	2.5	.21	2.58	.29	2.60	.40	2.62	.40
6	3.1	.32	3.0	.34	3.15	.37	3.15	.28	3.25	.27	3.05	.38	3.2	.34	3.125	.35	3.225	.29	3.25	.30	3.275	.30
7	3.72	.29	3.6	.25	3.78	.31	3.78	.28	3.9	.24	3.66	.39	3.84	.33	3.75	.39	3.87	.26	3.90	.26	3.93	.27
8	4.34	.30	4.2	.25	4.41	.33	4.41	.28	4.55	.19	4.27	.40	4.48	.39	4.375	.39	4.515	.24	4.55	.18	4.585	.21
9	4.96	.29	4.8	.18	5.04	.26	5.04	.26	5.2	.17	4.88	.32	5.12	.36	5	.31	5.16	.15	5.20	.14	5.24	.18
10	5.58	.25	5.4	.13	5.67	.14	5.67	.22	5.85	.19	5.49	.18	5.76	.36	5.625	.23	5.805	.09	5.85	.10	5.895	.11
11	6.2	.01	6.0	.01	6.3	.02	6.3	.01	6.5	.03	6.1	.03	6.4	.01	6.25	.02	6.45	.01	6.5	.01	6.55	.01
12	.10	0	.10	0	.12	0	.14	0	.10	0	.09	0	.13	0	.14	0	.10	0	.13	0	.10	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide pool		glide 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: 5-25-07
RWC 5-28-07

WBID# 3032
Site# 06

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-25-07 / 13:29	Site Location Description (e.g., road crossing): upstream of Hwy A
Personnel (Data Collectors): Bob + Travis	
Current Weather Conditions: Clear & Windy	Facility Name: Ross Elem School Permit Number: MO0055344
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: 165 0254378		Y: 4026399	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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)
D045	Down Stream		
D046	Up Stream		

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.)

None

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: Fields

WBID# 3032
Site# 06

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: Drainage					

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	10 % Sand	90 % Silt	% 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:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Turbid
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: 5-25-07

Organization: ERC Position: Field Manager

AMC 5-28-07

DN D045 06-01
UP D046 06-11

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 06 (WBID_Site#)

D045 Dn
D046 up

Estimated Channel Incision: .32 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 1650254378 UTM Y: 9026399

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

Average Stream Width: 6.0 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: Bob + Travis

Dissolved Oxygen

Dissolved Oxygen: 11.59 (mg/L)

Dissolved Oxygen: 146.0 (% sat)

Specific Cond: 308 (µS/cm)

Water Temperature: 27.4 (°C)

15:27

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	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.01	0	.02	0	.01	0	.01	0	.1
2	.61	.23	.625	.21	.66	.15	.61	.18	.55	.40	.54	.19	.51	.28	.525	.19	.59	.21	.63	.27	.6	.26
3	1.22	.27	1.25	.24	1.32	.22	1.22	.28	1.10	.44	1.08	.21	1.02	.27	1.05	.24	1.18	.20	1.26	.30	1.2	.31
4	1.83	.41	1.875	.29	1.98	.25	1.83	.31	1.65	.45	1.62	.34	1.53	.20	1.575	.29	1.77	.27	1.89	.31	1.8	.32
5	2.44	.47	2.5	.30	2.64	.28	2.44	.42	2.20	.29	2.16	.42	2.04	.36	2.1	.34	2.36	.29	2.52	.32	2.4	.34
6	3.05	.49	3.125	.33	3.30	.17	3.05	.47	2.75	.30	2.70	.49	2.55	.37	2.625	.35	2.95	.33	3.15	.33	3.0	.28
7	3.66	.41	3.75	.29	3.96	.20	3.66	.35	3.30	.34	3.24	.39	3.06	.39	3.15	.26	2.54	.35	3.78	.35	3.6	.27
8	4.27	.54	4.375	.21	4.62	.20	4.27	.31	3.55	.36	3.78	.27	3.57	.29	3.675	.25	4.13	.29	4.41	.27	4.2	.18
9	4.88	.55	5	.17	5.28	.14	4.88	.22	4.10	.43	4.32	.26	4.08	.23	4.2	.22	4.72	.22	5.04	.25	4.8	.18
10	5.49	.37	5.625	.09	5.94	.18	5.49	.19	4.65	.20	4.86	.14	4.59	.36	4.725	.17	5.31	.11	5.67	.28	5.4	.11
11	6.1	.01	6.25	.01	6.6	.01	6.1	.01	5.5	.01	5.4	.01	5.1	.01	5.25	.01	5.9	.01	6.30	.01	6.0	.01
12	.09	0	.07	0	.19	0	.15	0	.24	0	.32	0	.09	0	.20	0	.15	0	.05	0	.09	0
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide pool		slide 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: Robert A Bauer Date: 5-25-07

RWC 5-28-07

WBID# 3032
Site# 07

Field Data Sheets for Recreational Use Stream Surveys

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

Date & Time: 5-25-2007 11:28	Site Location Description (e.g., road crossing): downstream of county road 244
Personnel (Data Collectors): Bob + Travis	
Current Weather Conditions: Sunny, Pty Cloudy	Facility Name: Ross Elem School Permit Number: MO 0055344
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: 16 S 0254296		Y: 4023765	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the location 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	± 24 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)
D043	downstream 07-01		
D044	upstream 07-11		

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# 3032
Site# 07

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: drainage					

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	85 % Silt	15 % Mud/Clay	% Bedrock

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

< 5% aquatic vegetation

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Turbid
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: 5-25-2007

Organization: ERC Position: Field Manager

RNC 5-28-07

D0 45 Down (07-01
D044 up (07-11

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 3032 Site #: 07 (WBID_Site#)

Estimated Channel Incision: .36 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 165 0254296 UTM Y: 4023765

Horizontal Accuracy Estimate (GPS Data Quality): +/- 24 (feet)

Average Stream Width: 7.5 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: Bob and Travis

Dissolved Oxygen

Dissolved Oxygen: 7.12 (mg/L)

Dissolved Oxygen: 87.0 (% sat)

Specific Cond: 386 (µS/cm)

Water Temperature: 25.6 (°C)

11:28

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)
1	0	.02	0	.01	0	.01	0	.01	0	.01	0	.01
2	.45	.23	.58	.12	.86	.29	.78	.19	.95	.19	.92	.22
3	.90	.30	1.16	.17	1.72	.23	1.56	.24	1.90	.21	1.84	.27
4	1.35	.58	1.74	.28	2.58	.30	2.34	.31	2.85	.25	2.76	.20
5	1.8	.72	2.32	.35	3.44	.25	3.12	.34	3.8	.28	3.68	.32
6	2.25	.72	2.9	.30	4.30	0	3.9	.27	4.75	.25	4.6	.34
7	2.7	.69	3.48	.30	5.16	0	4.68	.27	5.7	.26	5.52	.28
8	3.15	.60	4.06	.34	6.02	.01	5.46	.21	6.65	.32	6.44	.33
9	3.6	.34	4.64	.29	6.88	.15	6.24	.15	7.6	.29	7.36	.42
10	4.05	.28	5.22	.28	7.74	.24	7.02	.13	8.55	.18	8.28	.31
11	4.5	.01	5.8	.01	8.6	.01	7.8	.01	9.5	.01	9.2	.01
12	0	.14	0	1.56	0	.29	0	.53	0	.47	0	.32
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide pool		slide pool	

Measurement	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	.01	0	.01	0	.01	0	.01	0	.01
2	.86	.05	.92	.11	.84	.07	.71	.09	.78	.08
3	1.72	.04	1.84	.18	1.68	.11	1.42	.12	1.56	.09
4	2.58	0	2.76	.17	2.52	.10	2.13	.13	2.34	.14
5	3.44	0	3.68	.20	3.36	.06	2.84	.16	3.12	.17
6	4.3	.01	4.6	.16	4.2	.01	3.55	.17	3.9	.18
7	5.16	.03	5.52	.17	5.04	0	4.26	.18	4.68	.20
8	6.02	.05	6.44	.05	5.88	.16	4.97	.20	5.46	.13
9	6.88	.07	7.36	.04	6.72	.10	5.68	.13	6.24	.11
10	7.74	.07	8.28	.02	7.56	.09	6.39	.10	7.02	.08
11	8.6	.01	9.2	.01	8.4	.01	7.1	.01	7.8	.01
12	0	.41	0	.38	0	.37	0	.29	0	.17
Feature Type (riffle, run, or pool)	slide pool		slide pool		slide pool		slide pool		slide 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: 5-25-07

MLC 5-28-07

WBID# 3032

Site# 1 Photo ID# D055, Downstream

Site# 1 Photo ID# D056, Upstream

Site# 2 Photo ID# D053, Downstream

Site# 2 Photo ID# D054, Upstream

WBID# 3032

Site# 3 Photo ID# D051, Downstream

Site# 3 Photo ID# D052, Upstream

Site# 4 Photo ID# D049, Upstream

Site# 4 Photo ID# D050, Downstream

WBID# 3032

Site# 5 Photo ID# D047, Downstream

Site# 5 Photo ID# D048, Upstream

Site# 6 Photo ID# D045, Downstream

Site# 6 Photo ID# DO46, Upstream

WBID# 3032

Site# 7 Photo ID# D043, Downstream

Site# 7 Photo ID# D044, Upstream