Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 1627 Bear Creek

Submitted by
Pickett Ray and Silver

To
Missouri Department of Natural Resources
Water Protection Program

Date Received: June 5, 2007

WBID #: 1627

Field Data Sheets for Recreational Use Stream Surveys

Missouri Department of Natural Resources

Data Sheet A - Water Body Identification

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

Water Body Name (from USGS 7.5' quad): Bear Creek	
Missouri Waterbody Identification (WBID) Number: 1627	
8-digit HUC: 10300200	County: Montgomery
Upstream Legal Description (from Table H): 36,47N,5W	
Downstream Legal Description(from Table H): Mouth	
Number of sites evaluated 2 - Stream segment was less than 3 miles	
List all sites numbers, listed consequently upstream to downstream: 1 - Hwy. Y and Blaue Rd.; 2- Hwy. Y	

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. **Attached**

II. Subegmentation (fill this section out only in cases where subesgmentation 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)

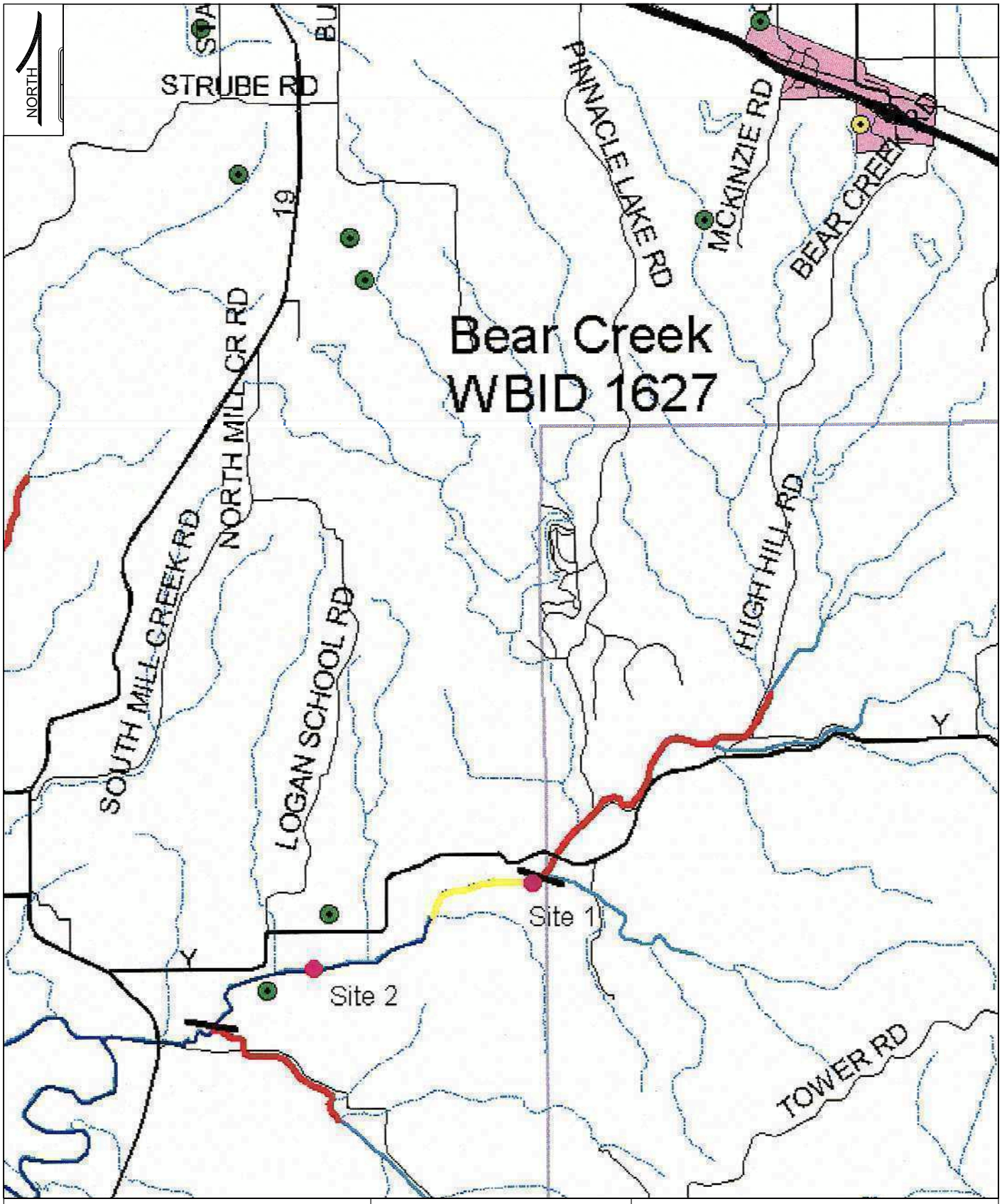
Discharger Facility Name(s): High Hill WWTF	
Discharger Permit Number(s): MO 0102083	

IV. UAA Surveyor (please print legibly)

Name of Surveyor R. Martin	Telephone Number: 573-875-7844
Organization/Employer: AE Solutions	
Position: Env. Specialist	

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

Signed: Renee Martin **Date:** 5/14/07



PICKETT RAY & SILVER
Civil Engineers Land Surveyors Natural Resources

Address:
333 Mid Rivers Mall Drive
St. Peters, Missouri 63376

Phone: (636) 397-1211
Fax: (636) 397-1104
Website: www.prs3.com

© Copyright 2007 by Pickett Ray & Silver, Inc.
CONFIDENTIAL PROPRIETARY MATERIAL The use, reproduction and sales rights of this drawing are reserved by Pickett, Ray & Silver Inc.

WBID #: 1627
Name: Bear Creek
GIS MAP

0 0 0 0

NOT TO SCALE

PRS Job Number: 07031.MODN.00E
Drawn By: M.C. Date: 05-25-07
Checked By : J.V. Date: 05-25-07

\\3serverprs\Projects\07031\dwg\Task 12 Bear Creek 1627.dwg, 5/29/2007 4:59:59 PM, ROBIN REYMOND

PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources

Address:
333 Mid Rivers Mall Drive
St. Peters, Missouri 63376

Phone: (636) 397-1211
Fax: (636) 397-1104
Website: www.prs3.com

© Copyright 2007 by Pickett Ray & Silver, Inc.
CONFIDENTIAL PROPRIETARY MATERIAL The use, reproduction and sales rights of this drawing are reserved by Pickett, Ray & Silver Inc.

WBID #: 1627
Name: Bear Creek
County: Montgomery/ Warren
USGS Location Map

0 0 0 0

NOT TO SCALE

PRS Job Number: 07031.MODN.00E
Drawn By: M.C. Date: 05-25-07
Checked By: J.V. Date: 05-25-07

\\3serverprs\Projects\07031\dwg\Task 12 Bear Creek 1627.dwg, 5/26/2007 10:37:26 AM, 1:200, MATT COSBY

WBID# 1627

Site# 1

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/13/2013	Site Location Description (e.g., road crossing): Hwy. & Blaue Rd.
Personnel (Data Collectors): Renee Martin	
Current Weather Conditions: Partly Cloudy	Facility Name: High Hill WWTF
Weather Conditions for Past 10 days: Unknown	Permit Number: MO 0102083

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: 0637433 Y: 4296103

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

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

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See Attached Photos		1627-1-59 1627-1-60 1627-1-61	Upstream Site #1, Transect #1 Downstream Site #1, Transect #1 Downstream, Site #1, Transect #7, Tracks		

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

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

* **Page Two – Data Sheet B for WBID #** 1627-1 **:**

Stream Morphology:

Missouri Department of Natural Resources

Upstream View's Physical Dimensions: 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					

Downstream View's Physical Dimensions: 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	15 % Gravel	80 % Sand	- % Silt	- % Mud/Clay	- % Bedrock

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

Slight algae on substrate

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:
Surface Deposit:	☐ 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 effect another use.

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

Surveyor's Signature: Renee Martin Date of Survey: 5/10/07

Organization: AE Solutions Position: Env. Specialist

Recreational Use Attainability Analysis Field Survey Sheet

Missouri Department of Natural Resources

Waterbody ID: 1627 Site #: 1627-1

Estimated Bankfull Depth: <1.0 (m) (height between low bank width and water)

GPS Location:

UTM X: 0637433 UTM Y: 4296103

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

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

Field Staff: Renee Martin

Dissolved Oxygen

Dissolved Oxygen: 13.15 (mg/L)

Dissolved Oxygen: 151.2 (% sat)

Specific Cond: 320.5 (µS/cm)

Water Temperature: 22.2 (°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	0.3	0.1	0.8	0.1	0.5	0.1	0.0	0.2	1.0	0.1	0.5	0.1	1.0	0.1	0.7	0.1	1.3	0.1	0.0	0.1
2	1.05	0.2	1.2	0.2	1.6	0.2	1.5	0.3	1.5	0.8	2.4	0.3	1.7	0.0	2.2	0.1	1.6	0.1	2.3	0.2	1.1	0.2
3	1.70	0.3	2.1	0.2	2.4	0.4	2.5	0.8	3.0	1.0	3.8	0.4	2.9	0.0	3.4	0.1	2.5	0.1	3.3	0.2	2.2	0.3
4	2.25	0.3	3.0	0.2	3.2	0.5	3.5	>1.0	4.5	>1.0	5.2	0.5	4.1	0.0	4.6	0.1	3.4	0.15	4.3	0.2	3.3	<0.1
5	2.80	0.3	3.9	0.2	4.0	0.5	4.5	>1.0	6.0	>1.0	6.6	0.4	5.3	<0.1	5.8	0.2	4.3	0.2	5.3	0.2	4.4	0.0
6	3.35	0.3	4.8	0.2	4.8	0.8	5.5	>1.0	7.5	>1.0	8.0	0.4	6.5	0.2	7.0	0.2	5.2	0.2	6.3	0.2	5.5	0.0
7	3.9	0.3	5.7	0.25	5.6	0.6	6.5	>1.0	9.0	0.95	9.4	0.4	7.7	0.4	8.2	0.1	6.1	0.2	7.3	0.1	6.6	0.0
8	4.45	0.2	6.6	0.3	6.4	0.6	7.5	1.0	10.5	0.5	10.8	0.3	8.9	0.4	9.4	0.1	7.0	0.2	8.3	0.1	7.7	0.1
9	5.0	0.1	7.5	0.3	7.2	0.4	8.5	0.8	12	0.3	12.2	0.3	10.1	0.4	10.6	0.1	7.9	0.2	9.3	0.1	8.8	0.3
10	5.55	0.1	8.4	0.2	8.0	0.2	9.5	0.6	13.5	0.3	13.6	0.2	11.3	0.2	11.8	0.1	8.8	0.1	10.3	0.1	9.9	0.3
11	6.1	0.1	9.3	0.1	8.8	0.1	10.5	0.4	15	0.1	15.0	0.1	12.5	0.1	13.0	0.1	9.7	0.1	11.3	0.1	11.0	0.2
12	6.8	0.0	10	0.0	9.4	0.0	10.8	0.0	15.2	0.0	15.5	0.0	13.5	0.0	13.4	0.0	10.0	0.0	11.4	0.0	11.5	0.0
Feature Type (riffle, run, or pool)	Riffle		Riffle		Pool		Pool		Pool		Run		Run		Riffle		Riffle		Riffle		Riffle	
depths less than 0.1m?																						

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 inorder of up to downstream.

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

Mearsurement 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: 5/10/07

WBID# 1627

Site# 2

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/14/2007	Site Location Description (e.g., road crossing): Near Ammonia Pipe Facility
Personnel (Data Collectors): Renee Martin	
Current Weather Conditions: Clear	Facility Name: High Hill WWTF
Weather Conditions for Past 10 days: Unknown	Permit Number: MO 0102083

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: 0634589 Y: 4295130

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

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

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± - Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 26 Feet or ± - Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See Attached Photos		1627-2-69 1627-2-70	Upstream, Site #2, Transect #1 Downstream, Site #2, Transect #2		

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 surround stream segment

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

* **Page Two – Data Sheet B for WBID #** 1627-2 **:**

Stream Morphology:

Missouri Department of Natural Resources

Upstream View's Physical Dimensions: 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					

Downstream View's Physical Dimensions: 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	5 % Gravel	95 % Sand	- % Silt	- % Mud/Clay	- % Bedrock

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

Little amts. of grass on sand bars within stream

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:
Surface Deposit:	☐ 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 effect another use.

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

Surveyor's Signature: Renee Martin Date of Survey: 5/10/07

Organization: AE Solutions Position: Env. Specialist

Recreational Use Attainability Analysis Field Survey Sheet

Missouri Department of Natural Resources

Waterbody ID: 1627 Site #: 1627-2

Estimated Bankfull Depth: _____ (m) (height between low bank width and water)

GPS Location:

UTM X: 0634589 UTM Y: 4295130

Horizontal Accuracy Estimate (GPS Data Quality): +/- 26 (feet) PDOP: _____

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

Field Staff: Renee Martin

Dissolved Oxygen

Dissolved Oxygen: 6.69 (mg/L)

Dissolved Oxygen: 72.9 (% sat)

Specific Cond: 334.4 (µS/cm)

Water Temperature: 19.6 (°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	0.2	0.1	0.3	0.1	0.1	0.1	0.5	0.1	0.2	0.1	0.3	0.1	0.1	0.0	0.0	0.5	0.4	0.1	0.0	0.3	0.2	0.1
2	1.5	0.1	1.5	0.2	1.2	0.2	1.5	0.2	0.8	0.1	1.15	0.3	0.8	0.4	0.8	0.7	1.2	0.4	0.9	0.6	1.1	0.3
3	2.8	0.1	2.7	0.1	2.3	0.3	2.5	0.3	1.4	0.1	2.0	0.4	1.5	0.5	1.6	0.7	2.0	0.6	1.8	0.7	2.0	0.35
4	4.1	0.1	3.9	0.2	3.4	0.2	3.5	0.3	2.0	0.2	2.85	0.3	2.2	0.4	2.4	0.6	2.8	0.6	2.7	0.7	2.9	0.4
5	5.4	0.2	5.1	0.2	4.5	0.3	4.5	0.3	2.6	0.2	3.7	0.4	2.9	0.45	3.2	0.5	3.6	0.5	3.6	0.6	3.8	0.4
6	6.7	0.3	7.3	0.2	5.6	0.3	5.5	0.3	3.2	0.25	4.55	0.4	3.6	0.4	4.0	0.5	4.4	0.4	4.5	0.4	4.7	0.5
7	8.0	0.2	8.5	0.1	6.7	0.4	6.5	0.3	3.8	0.3	5.4	0.35	4.3	0.4	4.8	0.45	5.2	0.3	5.4	0.4	5.6	0.6
8	9.3	0.2	9.7	0.1	7.8	0.4	7.5	0.3	4.4	0.2	6.25	0.2	5.0	0.4	5.6	0.4	6.0	0.3	6.3	0.4	6.5	0.65
9	10.6	0.1	10.9	0.1	8.9	0.4	8.5	0.35	5.0	0.3	7.1	0.2	5.7	0.3	6.4	0.4	6.8	0.3	7.2	0.4	7.4	0.65
10	11.9	0.1	12.1	0.2	10.0	0.65	9.5	0.35	5.6	0.3	7.95	0.15	6.4	0.2	7.2	0.3	7.6	0.2	8.1	0.35	8.3	0.55
11	13.2	0.1	13.3	0.1	11.1	0.2	10.5	0.20	6.2	0.2	8.8	0.1	7.1	0.1	8.0	0.2	8.4	0.1	9.0	0.1	9.2	0.3
12	13.3	0.0	13.5	0.0	11.3	0.0	10.8	0.0	6.5	0.0	9.0	0.0	8.0	0.0	8.0	0.2	8.8	0.0	9.2	0.0	9.6	0.0
Feature Type (riffle, run, or pool)	Run		Run		Run/Pool		Run		Riffle		Run/Riffle		Run		Run		Run		Run		Run	
depths less than 0.1m?																						

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 inorder of up to downstream.

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

Mearsurement 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: 5/10/07

WBID# 1627

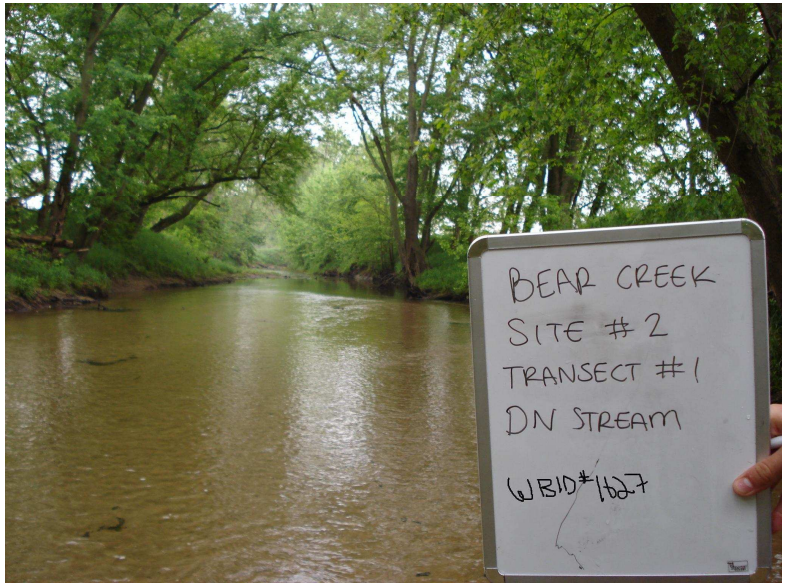
Site# 1 Photo ID# Upstream transect 1

Site# 1 Photo ID# Downstream transect 1

Site# 1 Photo ID# Downstream transect 7

Site# 2 Photo ID# Upstream transect 1

WBID# 1627



Site# 2 Photo ID# Downstream transect 1