Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0072 Grassy Creek

Submitted by
Pickett Ray and Silver

To
Missouri Department of Natural Resources
Water Protection Program

Date Received: October 31, 2007

Missouri Department of Natural Resources

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):	Grassy Creek
Missouri Water Body Identification (WBID) Number:	72
8-digit HUC: 7110003	County: Lewis
Upstream Legal Description (from Table H):	34, 61N, 8W
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated:	11
List all sites numbers, listed consequently upstream to downstream: 72-1, 72-2, 72-3, 72-4, 72-5, 72-6, 72-7, 72-8, 72-9, 72-10, 72-11	

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

II. Facility Information (list all permitted discharges to the water body segment)

Facility Name(s) and Permit Number(s): Lewis County Elementary MO 0117650

III. UAA Surveyor (please print legibly)

Name of Surveyor Matt Cosby	Telephone Number: 6366397211
Organization/Employer: PRS	

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

Signed: _____ **Date:** 10/2/07

WBID # 72

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: 10/2/07 830	Site Location Description (e.g., road crossing): Downstream of Farm Rd Crossing
Personnel (Data Collectors): MC LS	
Current Weather Conditions: Cloudy 65° 1.52	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: [redacted] inches of rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 604450 m	Northing (UTM Y): 4433685 m	Horizontal Accuracy: (EPE / FOM / PDOP) 5.0 ~~Meters~~
Site 11	Easting (UTM X): 604596m	Northing (UTM Y): 4433702m	Horizontal Accuracy: (EPE / FOM / PDOP) 11.0 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos & descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

1 low water crossing on farm road.

WBID # 22

Site # 1

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

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)

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:
Surface Deposit:	☒ Oil	☐ Scum	☐ Foam	☐ None	☐ Other:

*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.

WBID # 72

Site # 1

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Most of stream bed was dry. few pools were noticed
1 was sampled, across 2 transects.

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

Surveyor's Signature: _____ Date of Survey: 10/2/07

Organization: PRS Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 1

Estimated Channel Incision: 0 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 604450m UTM Y: 4433685 m +/- (meters) PDOP 5.0

11 UTM X: 604596 m UTM Y: 4433702 m +/- (meters) PDOP 11.0

Average Stream Width: 1 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MCLS

Dissolved Oxygen

Date: 10/2/07 Time: 9:00AM

Dissolved Oxygen: 1.82 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 17.1 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		>1		>1	0	0
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
Right Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	~5	0	~4	0	0	0
Feature Type (riffle, run, or pool)	losing		losing		losing		losing		losing		losing		losing		losing		pool		pool		losing	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

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: 10/2/07 10 AM	Site Location Description (e.g., road crossing): Road crossing 224 (Dam Stream.)
Personnel (Data Collectors): MCLS E	
Current Weather Conditions: Cloudy 65° 1.52	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: ~~Dry~~ Inches rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 605721m	Northing (UTM Y): 4432344m	Horizontal Accuracy: (EPE / FOM / PDOP) 3.8 ~~Meters~~
Site 11	Easting (UTM X): 605738m	Northing (UTM Y): 4432188m	Horizontal Accuracy: (EPE / FOM / PDOP) 5.8 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos and descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72
Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Missouri Department of Natural Resources

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	90 % Sand	% Silt	10 % Mud/Clay	% Bedrock

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

none

Water Characteristics*: (Mark all that apply.)

Odor:	☒ Sewage	☒ Musky	☐ Chemical	☐ None	☐ Other:
Color:	☐ Clear	☐ Green	☒ Gray	☒ Milky	☒ Other: Brown
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	☒ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

*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.

WBID # 72

Site # 2

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

large portion of stream is losing pools were w/in transects 4/5.

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

Surveyor's Signature: _____ Date of Survey: 10/2/07

Organization: PRS Position: Field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 22 Site #: 2

Estimated Channel Incision: 0 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 605721m UTM Y: 4432344m +/- (meters) PDOP: 3.8

11 UTM X: 605738m UTM Y: 4432188m +/- (meters) PDOP: 5.8

Average Stream Width: 3 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MCILS

→ Taken mpal @ transect 4/5

Dissolved Oxygen

Date: 10/2/07 Time: 10 AM

Dissolved Oxygen: 1.98 (mg/L)

Dissolved Oxygen: (% Sat)

Specific Cond: (µS/cm)

Water Temperature: 16.2 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	.3	.16	.13	.14	0	0	0	0	0	0	0	0	0	0	0	0
2							.6	.22	.26	.23												
3							.9	.31	.39	.27												
4							1.2	.49	.52	.25												
5							1.5	.58	.65	.22												
6							1.8	.13	.78	.20												
7							2.1	.50	.91	.14												
8							2.4	.35	1.0	.12												
9							2.7	.14	1.2	.07												
Right Bank	0	0	0	0	0	0	3.0	0	1.3	0		0		0		0		0		0	0	0
Feature Type (riffle, run, or pool)	losing		losing		losing		pool		pool		losing		losing		losing		losing		losing	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

Site # 3

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: 10/2/07 830AM	Site Location Description (e.g., road crossing): Upstream of Rd Xing @ 260
Personnel (Data Collectors): MC LS	
Current Weather Conditions: Cloudy 1.52	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: ~~[illegible]~~ Intermittent rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 607676m	Northing (UTM Y): 4436502m	Horizontal Accuracy: (EPE / FOM / PDOP) 8.0 ~~Meters~~
Site 11	Easting (UTM X): 607739m	Northing (UTM Y): 4436400m	Horizontal Accuracy: (EPE / FOM / PDOP) 2.8 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Seperated photos & descriptions.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72

Site # 3

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

25 % Cobble	25 % Gravel	40 % Sand	% Silt	% Mud/Clay	10 % 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:
Surface Deposit:	☒ Oil	☐ Scum	☐ Foam	☐ None	☐ Other:

*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.

WBID # 72

Site # 3

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

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

Surveyor's Signature: _____ Date of Survey: 10/2/07

Organization: PRS Position: Field Teamleader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 3

Estimated Channel Incision: 0 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: ~~607767~~ 607676m UTM Y: 4430502m +/- (meters) PDOP

11 UTM X: 607739m UTM Y: 4430400m +/- (meters) PDOP

Average Stream Width: 3 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MCLS

Dissolved Oxygen

Date: 10/2/07 Time: 8:30AM

Dissolved Oxygen: 2.86 (mg/L)

8.0 Dissolved Oxygen: (% sat)

2.8

Specific Cond: (µS/cm)

Water Temperature: 17.1 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0.56	.13	.37	.09	0	0	.12	.08	0	0	.21	.10	0	0	0	0	0	0
2					1.1	.30	.74	.20			.24	.10			.42	.12						
3					1.7	.43	1.1	.28			.36	.10			.63	.14						
4					2.2	.50	1.5	.30			.48	.09			.84	.14						
5					2.8	.51	1.9	.24			.60	.06			1.1	.12						
6					3.4	.45	2.2	.20			.72	.06			1.3	.10						
7					3.9	.23	2.6	.12			.84	.04			1.5	.10						
8					4.5	.12	3.0	.06			.96	.02			1.7	.08						
9					5.0	.08	3.3	.04			1.1	.01			1.9	.03						
Right Bank	0	0	0	0	5.6	0	3.7	0	0	0	1.2	0	0	0	2.1	0	0	0	0	0	0	0
Feature Type (riffle, run, or pool)	losing		losing		pool		pool		losing		pool		losing		pool		losing		losing		losing	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72
Site # 4

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: 10/2/07 730AM	Site Location Description (e.g., road crossing): Upstream of Rd Xing @ 156
Personnel (Data Collectors): MCLS	
Current Weather Conditions: Cloudy 60° 1.52	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: ~~Some~~ rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 608133 m	Northing (UTM Y): 4429127m	Horizontal Accuracy: (EPE / FOM / PDOP) 5.6 ~~Meters~~
Site 11	Easting (UTM X): 608237m	Northing (UTM Y): 4429036m	Horizontal Accuracy: (EPE / FOM / PDOP) 2.6 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos and descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72
Site # 4

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☒ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☒ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	80 % Sand	10 % Silt	10 % 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: Skunky
Color:	☐ Clear	☐ Green	☒ Gray	☒ Milky	☐ Other:
Bottom Deposit:	☒ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☒ Oil	☒ Scum	☐ Foam	☐ None	☐ Other:

*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.

WBID # 72

Site # 4

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Cars placed along stream bank, for stabilization?

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

Surveyor's Signature: _____ Date of Survey: 10/2/07

Organization: PRS Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 4

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

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 608133m UTM Y: 4429127m PDOP: 5.6 (meters)

11 UTM X: 608237m UTM Y: 4429036m PDOP: 2.6 (meters)

Average Stream Width: 5 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MC CS

Dissolved Oxygen

Date: 10/2/07 Time: 7:30AM

Dissolved Oxygen: 2.85 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 16.2 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	.55	.24	.13	.03	.28	.20	.23	.17	.14	.05	.23	.05	.66	.23	.58	.43	.43	.04
2					1.1	.36	.26	.08	.56	.15	.46	.28	.28	.03	.46	.10	1.3	.30	1.2	.55	.86	.20
3					1.7	.49	.39	.05	.84	.04	.69	.45	.42	.05	.69	.10	2.0	.37	1.7	.33	1.3	.30
4					2.2	.52	.52	.02	1.1	.03	.92	.53	.56	.04	.92	.12	2.6	.35	2.3	.32	1.7	.36
5					2.8	.45	.65	.03	1.4	.02	1.2	.65	.70	.03	1.28	.11	3.3	.32	2.9	.39	2.2	.42
6					3.3	.41	.78	.03	1.7	.03	1.4	.59	.84	.04	1.4	.09	4.0	.30	3.5	.31	2.6	.40
7					3.9	.41	.91	.02	2.0	.04	1.6	.51	.98	.05	1.6	.07	4.6	.18	4.1	.20	3.0	.32
8					4.4	.35	1.0	.01	2.2	.04	1.8	.34	1.1	.05	1.8	.05	5.3	.13	4.6	.10	3.4	.25
9					5.0	.21	1.2	.01	2.5	.03	2.1	.15	1.3	.02	2.1	.03	5.9	.05	5.2	.13	3.9	.15
Right Bank	0	0	0	0	5.5	0	1.3	0	2.8	0	2.3	0	1.4	0	2.3	0	6.6	0	5.8	0	4.3	0
Feature Type (riffle, run, or pool)	Missing		Missing		pool		pool		pool		pool		pool		run		pool		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

Site # 5

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: 10/1/07 5PM	Site Location Description (e.g., road crossing): Rd Xing @ HWY N (upstream)
Personnel (Data Collectors): MCLS	
Current Weather Conditions: Sunny 80°	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 inches of rain	Permit Number: MO 0117650
Drought Conditions?: No drought X; Phase I □; Phase II □; Phase III □; Phase IV □; Unknown □	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 609104m	Northing (UTM Y): 4427194m	Horizontal Accuracy: (EPE / FOM / PDOP) 2.2 ~~Meters~~
Site 11	Easting (UTM X): 609152m	Northing (UTM Y): 4427046m	Horizontal Accuracy: (EPE / FOM / PDOP) 1.8 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos & descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72

Site # 5

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	33 % Sand	33 % Silt	33 % Mud/Clay	% Bedrock

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

rushes, sedges, willows, smartweed, algae, barnyardgrass, duckweed

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:

*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.

WBID # 72

Site # 5

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Areas of Creek around HWY N are channelized, possibly due to farming/ agriculture.

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

Surveyor's Signature: [signature] Date of Survey: 10/1/07

Organization: PRS Position: field team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Veg: rushes, sedges, willows, smartweed, algae, barnyardgrass, duckweed.

Waterbody ID: 72 Site #: 5

Estimated Channel Incision: 0.02 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 609104m UTM Y: 4427194m PDOP 2.2 (meters)

11 UTM X: 609152m UTM Y: 4427046m PDOP 1.8 (meters)

Average Stream Width: 5 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MCLS

Dissolved Oxygen

Date: 10/1/07 Time: 5:45 PM

Dissolved Oxygen: 11.51 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 21.8° (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	.24	.01	.48	.03	.34	.05	.56	.05	.62	.23	.67	.10	.66	.14	.29	.02	.32	.01	.15	.03	.46	.01
2	.48	.04	.96	.17	.68	.16	1.1	.07	1.2	.15	1.3	.10	1.3	.12	.60	.05	.64	.02	.30	.01	.92	0
3	.72	.04	1.4	.12	1.0	.21	1.7	.05	1.9	.17	2.0	.01	2.0	.10	.90	.07	.96	.01	.45	.02	1.4	0
4	.96	.01	1.9	.14	1.4	.18	2.2	0	2.5	.16	2.7	.06	2.6	.08	1.2	.08	1.3	.01	.60	.04	1.8	0
5	1.2	.03	2.4	.14	1.7	.24	2.8	0	3.1	.15	3.4	.09	3.3	.10	1.5	.10	1.6	.02	.75	.02	2.3	.01
6	1.4	.03	2.9	.15	2.0	.30	3.4	.01	3.7	.22	4.0	.10	4.0	.11	1.8	.09	1.9	.03	.90	.02	2.8	.01
7	1.6	.03	3.3	.13	2.4	.25	3.9	.01	4.3	.24	4.7	.12	4.6	.10	2.1	.03	2.2	.07	1.1	.02	3.2	.0
8	1.9	.01	3.8	1.1	2.7	.21	4.5	.02	5.0	.26	5.4	.20	5.3	.10	2.4	.03	2.6	.16	1.2	.01	3.7	.10
9	2.1	.02	4.3	.08	3.1	.23	5.0	.09	5.6	.14	6.0	.20	6.0	.12	2.9	.03	2.9	.30	1.4	0.1	3.1	0.09
Right Bank	2.4	0	4.8	0	3.4	0	5.6	0	6.2	0	6.7	0	6.6	0	2.9	0	3.2	0	1.5	0	4.6	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 (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

Site # 6

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: 10/1/07 4PM	Site Location Description (e.g., road crossing): ~~downstream~~ Upstream 33 Rd Xing 264
Personnel (Data Collectors): MC LS	
Current Weather Conditions: Sunny 75	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 inches of Rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 610654 m	Northing (UTM Y): 4426660m	Horizontal Accuracy: (EPE / FOM / (PDOP)) 4.2 ~~Meters~~
Site 11	Easting (UTM X): 610660m	Northing (UTM Y): 4426462m	Horizontal Accuracy: (EPE / FOM / (PDOP)) 3.8 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos and descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72

Site # 6

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☒ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
40	50	10			

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

duckweed (50%)
algae (100%)

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:

*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.

WBID # 72

Site # CP

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Surveyor's Signature: _____ Date of Survey: 10/1/07

Organization: PRS Position: Field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 6

Estimated Channel Incision: 0.2 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 610654m UTM Y: 4426666m PDOP- 4.2 (meters)

11 UTM X: 610660m UTM Y: 4426426m PDOP- 3.8 (meters)

Average Stream Width: 10. (meters) (To determne Length of Reach)

Length of Survey Segment: 200 (meters) (20x average stream width)

Field Staff: MCLS

Dissolved Oxygen

Date: 10/1/07 Time: 4 PM

Dissolved Oxygen: 4.3 (mg/L)

Dissolved Oxygen: (%Sat)

Specific Cond: (µS/cm)

Water Temperature: 19.7 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		>1		>1	.83	.04	1.1	.01	1.1	.17	1.0	.20	1.1	.12	1.4	.43	←	>1	1.3	.10	1.4	.18
2					1.7	.08	2.2	.02	2.2	.27	2.0	.25	2.2	.20	2.8	.91			2.6	.15	2.8	.26
3					2.5	.12	3.3	.04	3.3	.31	3.0	.29	3.3	.15	4.2	.67			3.9	.15	4.2	.26
4					3.3	.17	4.4	.18	4.4	.20	4.0	.25	4.4	.14	5.6	.23			5.2	.20	5.6	.20
5					4.2	.23	5.5	.24	5.5	.19	5.0	.25	5.5	.05	7.0	.05			6.5	.22	7.0	.13
6					5.0	.25	6.6	.30	6.6	.24	6.0	.23	6.6	.08	8.4	.04			7.8	.25	8.4	.06
7					5.8	.24	7.7	.33	7.7	.28	7.0	.20	7.7	.12	9.8	.15			9.1	.32	9.8	0
8					6.6	.33	8.8	.34	8.8	.13	8.0	.20	8.8	.15	11.2	.51			10.4	.40	11.2	.09
9					7.5	.20	9.9	.25	9.9	.10	9.0	.05	9.9	1	12.6	.4			11.7	.32	12.6	.20
Right Bank	10	0	10	0	8.3	0	11.4	0	10.9	0	10.0	0	10.6	0	13.5	0	13	0	13.3	0	13.5	0
Feature Type (riffle, run, or pool)	pool		pool		run		run		run		run		pool		run		pool		Pool		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72
Site # 7

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: 10/1/07 3PM	Site Location Description (e.g., road crossing): Upstream of RdXing 282
Personnel (Data Collectors): MC LS	
Current Weather Conditions: Cloudy	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 inches of rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 611268m	Northing (UTM Y): 4425804m	Horizontal Accuracy: (EPE / FOM / PDOP) 2.3 ~~Meters~~
Site 11	Easting (UTM X): 611356m	Northing (UTM Y): 4425665m	Horizontal Accuracy: (EPE / FOM / PDOP) 2.5 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See additional attached photos & descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72

Site # 7

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

60 % Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	40 % 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:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☐ None	☐ Other:

*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.

WBID # 77

Site # 7

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Surveyor's Signature: _____ Date of Survey: 10/1/07

Organization: PRS Position: field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 79 Site #: 07

Estimated Channel Incision: 0 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE/PDOP/FOM)

01	UTM X: 611268m	UTM Y: 4425804m	+/- 2.3	(meters)
11	UTM X: 611356m	UTM Y: 4425665m	+/- 2.5	(meters)

Average Stream Width: 5 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MC, CS

Dissolved Oxygen

Date: 10/1/07 Time: 12PM

Dissolved Oxygen: 3.60 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 20.0 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.1	.05	.43	.09	0	0	.98	.07	.64	.05	0	0	.71	.13	.51	.15	.30	.10	.58	.05	.59	.02
2	2.2	0	.86	.08			2.0	0.10	1.3	.12			1.4	.22	1.0	.20	.60	.11	1.2	.08	1.2	.02
3	3.3	0	1.3	.14			3.0	.0	1.9	.23			2.1	.23	1.5	.20	.90	.12	1.7	.12	1.8	.13
4	4.4	0	1.7	.12			4.0	.07	2.6	.20			2.8	.23	2.0	.10	1.2	.10	2.3	.20	2.4	.13
5	5.5	0	2.2	.10			5.0	.06	3.2	.22			3.5	.23	2.5	.05	1.5	.10	2.9	.23	3.0	.13
6	6.6	.02	2.6	.10			6.0	.05	3.8	.20			4.2	.20	3.0	.12	1.8	.10	3.5	.29	3.6	.10
7	7.7	.04	3.0	.14			7.0	.03	4.5	.20			4.9	.20	3.5	.10	2.1	.13	4.1	.32	4.2	.02
8	8.8	.02	3.4	.10			8.0	.02	5.1	.20			5.6	.24	4.0	.08	2.4	.00	4.6	.28	4.8	.05
9	9.9	.02	3.9	.05			9.0	.04	5.8	.12			6.3	.17	4.5	.06	2.7	.03	5.2	.15	5.4	.10
Right Bank	10.7	0	4.3	0	0	0	9.8	0	6.4	0	0	0	7.1	0	5.1	0	3.0	0	5.8	0	5.9	0
Feature Type (riffle, run, or pool)	Pool		Pool		losing		Riffle		Pool		losing		Pool		Pool		run		pool		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

Site # 8

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: 10/1/07 2PM	Site Location Description (e.g., road crossing): Road Xing 293
Personnel (Data Collectors): MC LS	
Current Weather Conditions: Cloudy	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 inches rain	Permit Number: MO 0117650
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 612256m	Northing (UTM Y): 4424096m	Horizontal Accuracy: (EPE / FOM / PDOP) 9.2 ~~Meters~~
Site 11	Easting (UTM X): 612422m	Northing (UTM Y): 4424062m	Horizontal Accuracy: (EPE / FOM / PDOP) 2.0 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos and descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 10

Site # 8

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☒ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

10 % Cobble	20 % Gravel	60 % Sand	10 % Silt	% Mud/Clay	% Bedrock

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

Duckweed (5% coverage on surface)

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☒ Musky	☐ Chemical	☐ None	☒ Other: Fishy
Color:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Brown/Red
Bottom Deposit:	☒ Sludge	☐ Solids	☐ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☒ Scum	☐ Foam	☐ None	☐ Other:

*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.

WBID # 872

Site # 8

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Surveyor's Signature: _____ Date of Survey: 10/1/07

Organization: PRS Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 8

Estimated Channel Incision: .03 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 612256m UTM Y: 4424096m PDOP 9.2 ~~(meters)~~

11 UTM X: 612422m UTM Y: 4424062m PDOP 2.0 ~~(meters)~~

Average Stream Width: 6 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MCLS

Dissolved Oxygen

Date: 10/1/07 Time: 2PM

Dissolved Oxygen: 3.6 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 18.7 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	.65	.15	.84	.15	.65	.10		>1	.63	.20	.58	.26	.47	.23	.94	.30	.95	.11	.95	.10	.45	.03
2	1.3	.28	1.7	.23	1.3	.13			1.3	.20	1.2	.21	.94	.24	1.9	.30	1.9	.08	1.9	.15	.90	.08
3	2.0	.37	2.5	.20	2.0	.18			1.9	.20	1.7	.94	1.4	.23	2.8	.34	2.9	.10	2.9	.22	1.4	.12
4	2.6	.40	3.4	.22	2.6	.23			2.5	.23	2.3	.77	2.0	.20	3.8	.44	3.8	.12	3.8	.14	1.8	.13
5	3.3	.38	4.2	.20	3.3	.28			3.2	.25	2.9	.84	2.4	.15	4.7	.62	4.8	.20	4.8	.23	2.3	.15
6	4.3	.25	5.0	.17	4.3	.33			3.8	.24	3.5	.70	2.8	.15	5.6	.50	5.7	.47	5.7	.44	2.7	.18
7	5.0	.20	6.0	.15	5.0	.40			4.4	.23	4.1	.36	3.3	.13	6.6	.30	6.7	.55	6.7	.48	3.2	.22
8	5.6	.15	6.7	.10	5.6	.42			5.0	.22	4.6	.22	3.8	.10	7.5	.24	7.6	.33	7.6	.53	3.6	.34
9	6.3	.05	7.6	.08	6.3	.30			5.7	.05	5.2	.15	4.2	.03	8.5	.14	8.6	.10	8.6	.31	4.1	.29
Right Bank	6.5	0	8.4	0	6.5	0	2.9	0	6.3	0	5.8	0	4.7	0	9.4	0	9.5	0	9.5	0	4.5	0
Feature Type (riffle, run, or pool)	run		Pool		pool		pool		pool		pool		riffel		run		pool		pool		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

Site # 9

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: 10/1/07 1PM	Site Location Description (e.g., road crossing): Road Xing Off 147
Personnel (Data Collectors): MCLS	
Current Weather Conditions: Cloudy	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 inches of rain	Permit Number: MO 0117650
Drought Conditions?: No drought X; Phase I □; Phase II □; Phase III □; Phase IV □; Unknown □	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 613028m	Northing (UTM Y): 4422092m	Horizontal Accuracy: (EPE / FOM (PDOP) 4.6 ~~Meters~~
Site 11	Easting (UTM X): 613177m	Northing (UTM Y): 4421978m	Horizontal Accuracy: (EPE / FOM (PDOP) 3.4 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos & descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72
Site # 9

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☒ No trespass sign	☒ Steep slopes	☐ Other:
Comments: 4 saw after the fact.				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

25 % Cobble	45 % Gravel	20 % Sand	10 % Silt	% Mud/Clay	% Bedrock

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

Rush sp., smartweed, mud.

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:

*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.

WBID # 72

Site # 9

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Surveyor's Signature: _____ Date of Survey: 10/1/07

Organization: PRS Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 9

Estimated Channel Incision: 0.03 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 613072m UTM Y: 4422092m PDOP 4.6 (meters)

11 UTM X: 613177m UTM Y: 4421978m PDOP 3.4 (meters)

Average Stream Width: 7 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MC&LS

Dissolved Oxygen

Date: 10/1/07 Time: 1pm

Dissolved Oxygen: 6.45 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 18.5 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	.7	.10	.9	.13	1	.10	.6	.12	.6	.12	.4	.05	.6	.05	.9	.03	1.1	.08	.9	.22	.7	.17
2	1.4	.03	1.9	.20	2	.10	1.2	.12	1.2	.20	.8	.10	1.2	.11	1.9	.05	2.2	.12	1.8	.30	1.3	.15
3	2.1	.12	2.8	.22	3	.07	1.8	.18	1.8	.25	1.2	.16	1.8	.14	2.8	.03	3.4	.0	2.8	.23	2.0	.15
4	2.8	.20	3.7	.24	4	.08	2.4	.25	2.4	.28	1.6	.20	2.4	.20	3.7	.03	4.5	.25	3.7	.17	2.7	.13
5	3.5	.30	4.7	.25	5	.10	3.0	.27	3.0	.27	2.0	.29	3.0	.23	4.7	.03	5.6	.25	4.6	.15	3.4	.12
6	4.2	.30	5.6	.23	6	.14	3.6	.23	3.6	.25	2.4	.31	3.6	.25	5.6	.03	6.8	.18	5.7	.18	4.0	.11
7	4.9	.25	6.5	.23	7	.12	4.2	.13	4.1	.25	2.8	.30	4.2	.20	6.5	0.03	7.9	0	6.6	.17	4.7	.10
8	5.6	.21	7.4	.08	8	.16	4.8	.15	4.6	.17	3.2	.22	4.8	.13	7.4	0	9.0	.01	7.6	.15	5.4	.07
9	6.3	.18	8.4	.13	9	.05	5.4	.13	5.2	.13	3.6	.11	5.4	.10	8.4	.05	10.1	.08	8.5	.10	6.0	.03
Right Bank	7.1	0	9.3	0	10.1	0	5.9	0	5.6	0	4.0	0	6.1	0	9.3	0	11.3	0	9.2	0	6.7	0
Feature Type (riffle, run, or pool)	pool		run		run		run		pool		pool		run		run		run		pool		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72
Site # 10

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: 10/1/07 12PM	Site Location Description (e.g., road crossing): Road Xing @ 145
Personnel (Data Collectors): MC LS	
Current Weather Conditions: Cloudy 65°	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 inches rain	Permit Number: MO 0117650
Drought Conditions?: No drought X; Phase I □; Phase II □; Phase III □; Phase IV □; Unknown □	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 615501 m	Northing (UTM Y): 4421314 m	Horizontal Accuracy: (EPE / FOM / PDOP) 4.8 ~~Meters~~
Site 11	Easting (UTM X): 615648 m	Northing (UTM Y): 4421373 m	Horizontal Accuracy: (EPE / FOM / PDOP) 6.4 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos and descriptions					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 72

Site # 10

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☐ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☐ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

% Cobble	45 % Gravel	45 % Sand	10 % 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:
Surface Deposit:	☒ Oil	☐ Scum	☐ Foam	☐ None	☐ Other:

*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.

WBID # 72

Site # 10

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Concrete ripple in stream | along steam bank

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

Surveyor's Signature: _____ Date of Survey: 10/1/07

Organization: PRS Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 10

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

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 615501m UTM Y: 4421314m PDOP 4.8 (meters)

11 UTM X: 615648m UTM Y: 4421373m PDOP 6.4 (meters)

Average Stream Width: 60 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: MCLS

Dissolved Oxygen

Date: 10/1/07 Time: 9:20 AM

Dissolved Oxygen: 7.04 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 18.4 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	.4	.07	1.0	.15	1.0	.02	.3	.10	.2	.02	.3	.01	.3	.03	.3	.06	.4	.05	1.1	.40	.8	.20
2	.8	.22	2.1	.16	1.8	.05	.5	.10	.5	.06	.5	.01	.6	.05	.6	.1	.8	.05	2.2	.35	1.5	.23
3	1.3	.35	3.1	.20	2.8	.03	.8	.08	.7	.10	.8	.03	.9	.05	.9	.1	1.0	.05	3.4	.40	2.3	.22
4	1.7	.55	4.2	.24	3.7	.05	1.1	.06	1.0	.13	1.0	.06	1.2	.10	1.2	.1	1.4	.0	4.5	.25	3.0	.22
5	2.1	.62	5.2	.35	4.7	.05	1.4	.03	1.2	.23	1.3	.10	1.5	.09	1.5	.05	1.8	.01	5.6	.15	3.8	.23
6	2.5	.42	6.2	.50	5.6	0	1.6	.05	1.4	.25	1.5	.10	1.8	.08	1.8	.04	2.2	.05	6.8	.07	4.6	.26
7	2.9	.48	7.3	.52	6.6	.05	1.9	.06	1.7	.20	1.8	.10	2.1	.08	2.1	.03	2.6	.07	7.9	0	5.3	.32
8	3.4	.22	8.3	.52	7.5	.15	2.2	.06	1.9	.15	2	.05	2.4	.05	2.4	.01	2.9	.02	9.0	.12	6.1	.33
9	3.8	.13	9.4	.40	8.5	.20	2.4	.06	2.2	.03	2.3	.02	2.7	.04	2.7	.01	3.3	.02	10.1	.30	6.8	.20
Right Bank	4.2	0	10.4	0	9.5	0	2.7	0	2.4	0	2.5	0	3.0	0	3.0	0	3.8	0	11.2	0	7.6	0
Feature Type (riffle, run, or pool)	run		pool		riffel		pool		run		run		run		run		run		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

WBID # 72

Site # 11

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: 10/1/07 11AM	Site Location Description (e.g., road crossing): Upstream of Bridge crossing on HWY V
Personnel (Data Collectors): MCLS	
Current Weather Conditions: Cloudy 75°	Facility Name: Lewis County Elementary
Weather Conditions for Past 10 days: 1.52 miles of rain	Permit Number: MO 0117650
Drought Conditions?: No drought X; Phase I □; Phase II □; Phase III □; Phase IV □; Unknown □	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 617460 m	Northing (UTM Y): 4419373 m	Horizontal Accuracy: (EPE / FOM / PDOP) 6.0 ~~Meters~~
Site 11	Easting (UTM X): 617581 m	Northing (UTM Y): 4419269 m	Horizontal Accuracy: (EPE / FOM / PDOP) 1.9 ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
See attached photos & descriptions.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

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.)

WBID # 799

Site # 11

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

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	☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	☐ Steep slopes	☐ Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

☒ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV / ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

30% Cobble	30 % Gravel	20 % Sand	10 % Silt	% Mud/Clay	10 % Bedrock

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

Mold

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:

*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.

WBID # 79

Site # 11

Missouri Department of Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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

Surveyor's Signature: [signature] Date of Survey: 10/1/07

Organization: PRS Position: Field Team Leader.

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: 72 Site #: 11

Estimated Channel Incision: 0.50 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 617460 m UTM Y: 4419373m PDOP 6.0 (meters)

11 UTM X: 617581m UTM Y: 4419269m PDOP 1.9 (meters)

Average Stream Width: 7 (meters) (To determne Length of Reach)

Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: Matt Cosby Lauren Strange

Dissolved Oxygen

Date: 10/1/07 Time: 1pm

Dissolved Oxygen: 7.44 (mg/L)

Dissolved Oxygen: (% sat)

Specific Cond: (µS/cm)

Water Temperature: 18.8 (°C)

Missouri Department of Natural Resources

Transect Cross-Section

Station	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)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.2	.30	.92	.45	1.2	.47	.9	.12	.68	.04	1.3	.01	.32	.05	.33	.04	.72	.21	.52	.01	.62	.01
2	2.4	.50	1.8	.42	2.4	.56	1.8	.25	1.4	.10	2.6	.03	.64	.10	.66	.04	1.4	.05	1.0	.01	1.2	.01
3	3.6	.56	2.8	.35	3.6	.45	2.7	.35	2.1	.18	3.9	0	.96	.18	1.0	.05	2.2	.11	1.5	.04	1.9	0
4	4.8	.53	3.7	.30	4.8	.35	3.6	.42	2.8	.35	5.2	0	1.3	.22	1.3	.05	2.9	.13	2.0	.04	2.5	0
5	6.0	.50	4.6	.27	6.0	.32	4.5	.42	3.5	.33	6.5	0	1.6	.23	1.7	.05	3.6	.14	2.5	.08	3.1	.04
6	7.2	.41	5.7	.24	7.2	.27	5.4	.45	4.2	.32	7.8	0	1.9	.19	2.0	.05	4.3	.15	3.0	.14	3.7	.50
7	8.4	.22	6.6	.35	8.4	.33	6.3	.42	4.9	.28	9.1	.0	2.2	.15	2.3	.06	5.0	.10	3.5	.10	4.3	.13
8	9.6	.20	7.6	.05	9.6	.30	7.2	.40	5.6	.21	10.4	.18	2.6	.10	2.6	.04	5.7	.05	4.0	.06	5.0	.30
9	10.8	.13	8.5	.04	10.8	.34	8.1	.13	6.3	.12	11.7	.10	2.9	.10	3.0	.03	6.4	.02	4.5	.05	5.6	.23
Right Bank	11.6	0	9.2	0	11.6	0	9	0	6.8	0	13.3	0	3.2	0	3.3	0	7.2	0	5.2	0	6.2	0
Feature Type (riffle, run, or pool)	pool		pool		run		pool		run		riffle		run		riffle		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

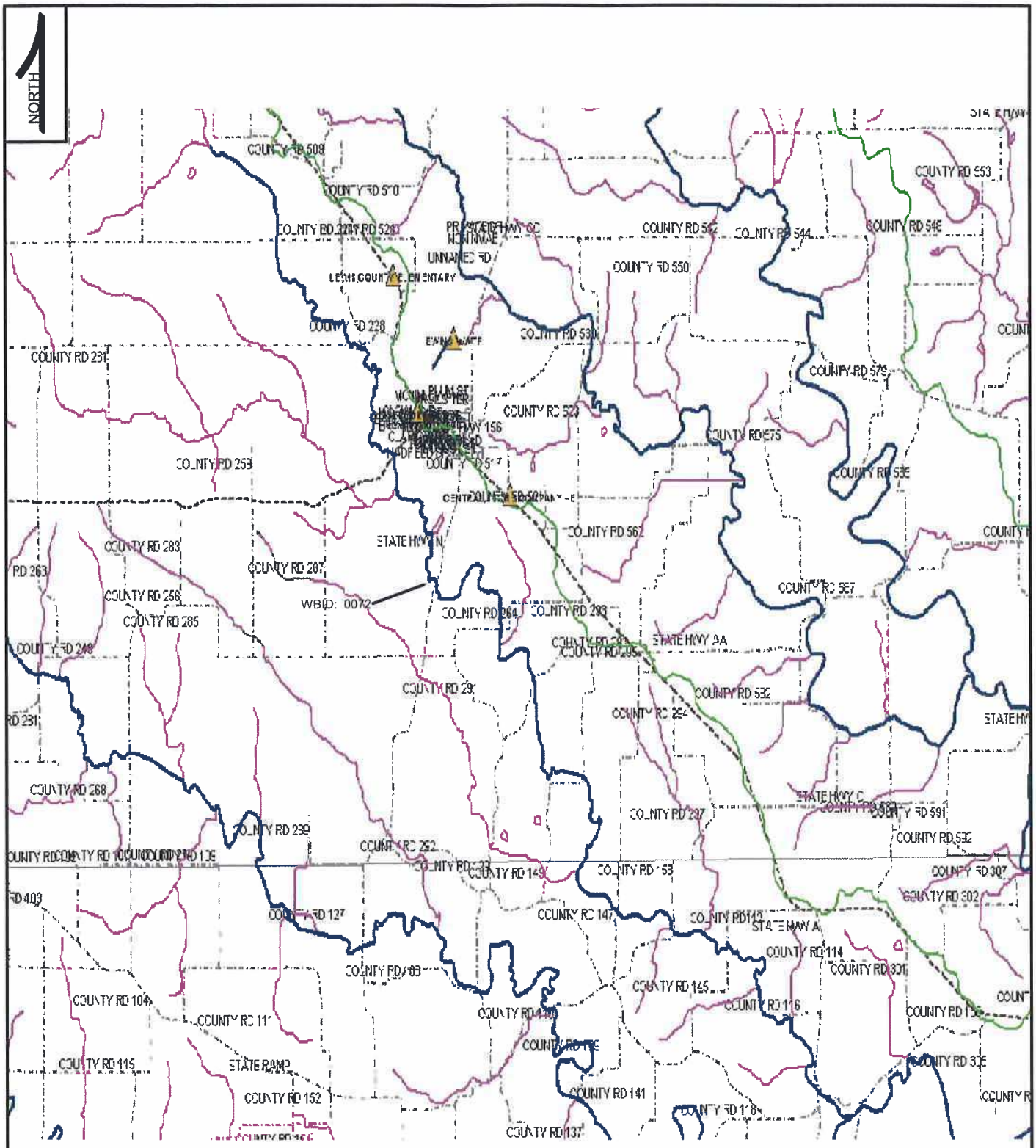
GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:



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.

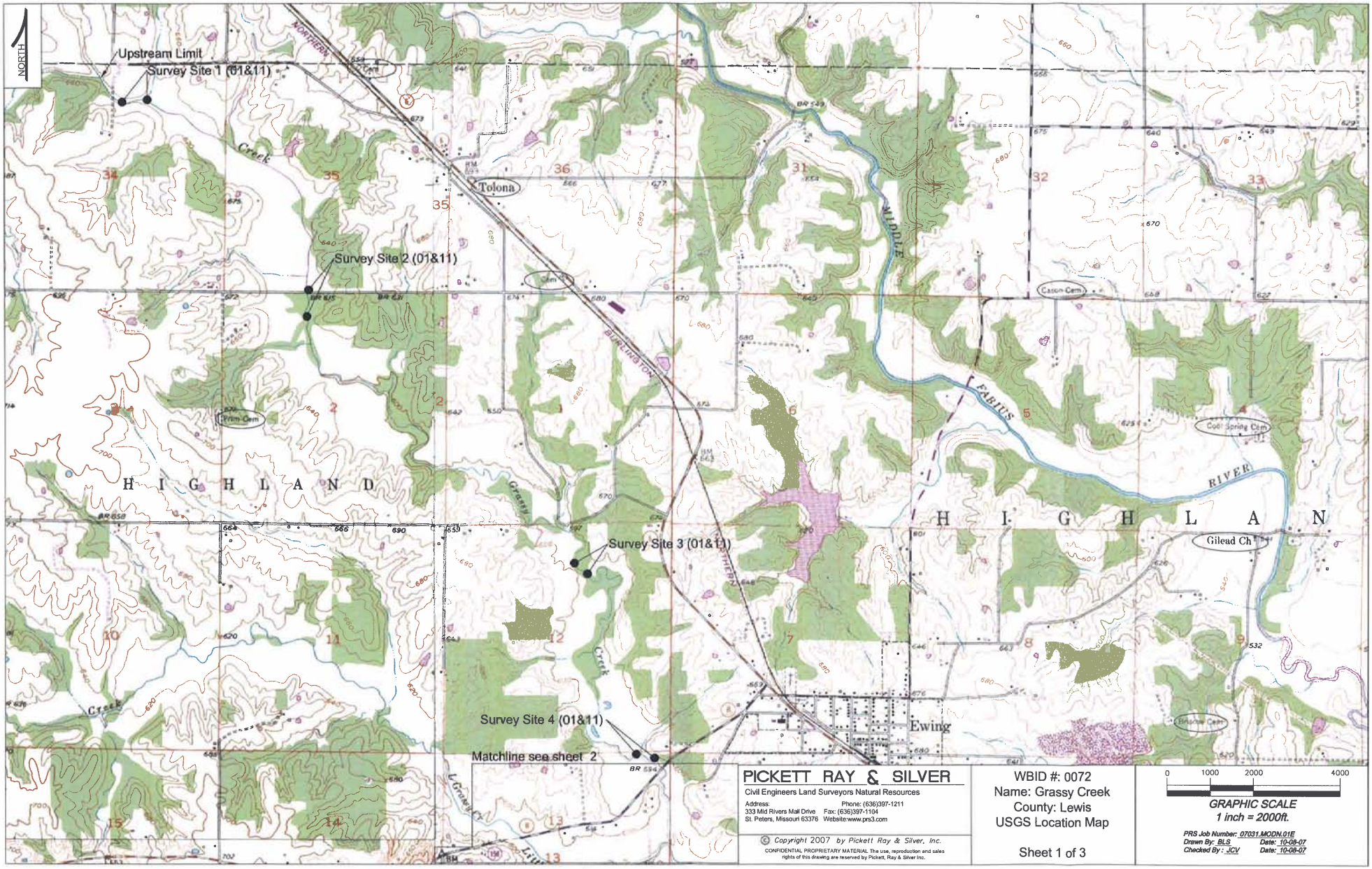
CONFIDENTIAL PROPRIETARY MATERIAL The use, reproduction and sales rights of this drawing are reserved by Pickett, Ray & Silver Inc.

WBID #: 0072
Name: Grassy Creek
County: Lewis
GIS Location Map

SHEET 1 OF 1

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-11-07
Checked By : JCV Date: 10-11-07

\\3serverprs\Projects\07031\dwg\07031_MODN_01E\0072 Grassy Creek.dwg, 10/29/2007 9:16:20 AM, 1:2000, MATT COSBY



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 #: 0072
Name: Grassy Creek
County: Lewis
USGS Location Map

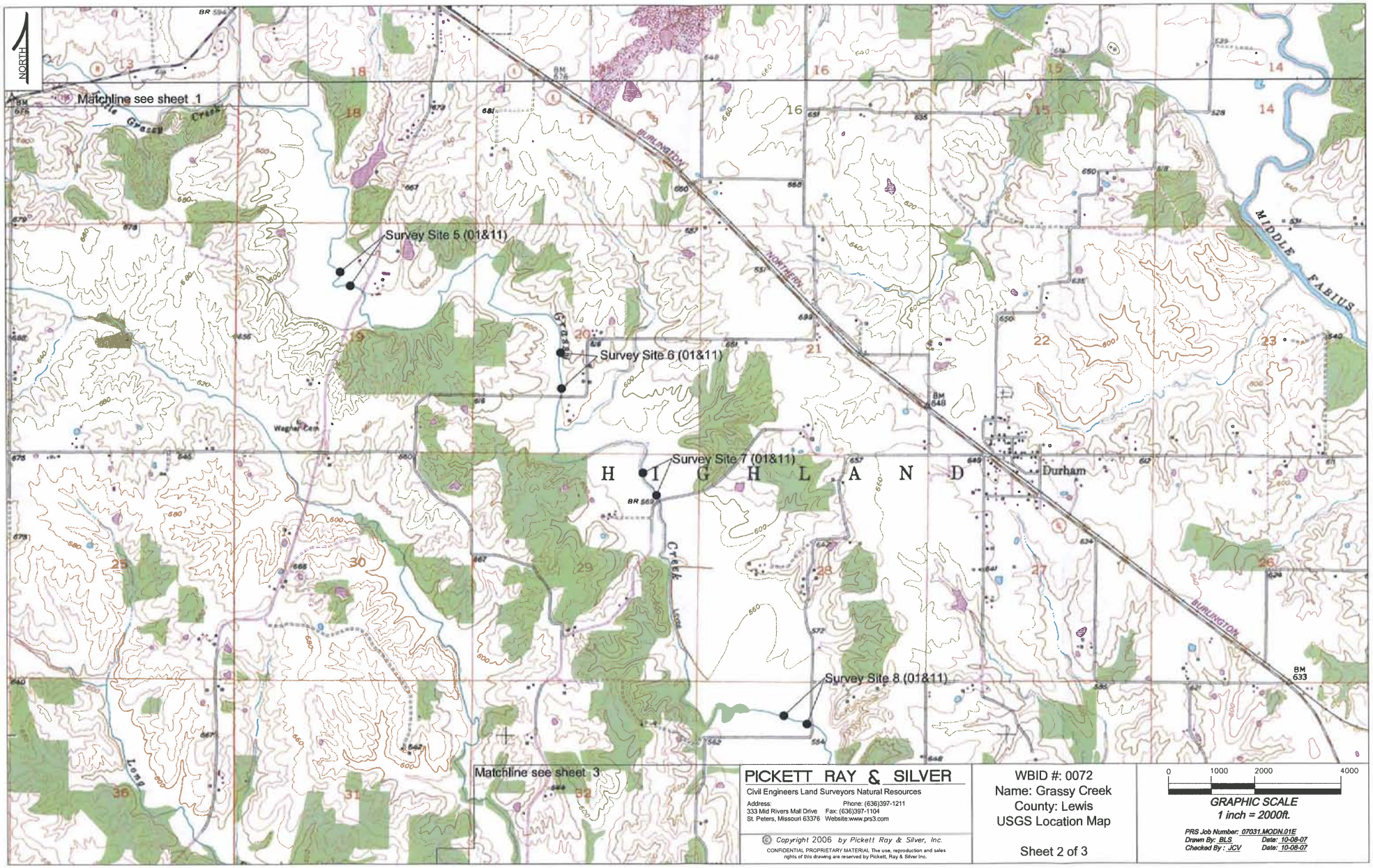
Sheet 1 of 3

0 1000 2000 4000

GRAPHIC SCALE
1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-08-07
Checked By : JCV Date: 10-08-07

\\3serverprs\Projects\07031\dwg\07031_MODN_01E\2072 Grassy Creek.dwg, 10/29/2007 9:11:44 AM, 1:2000, MATT COSBY



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 2006 by Pickett Ray & Silver, Inc.
CONFIDENTIAL PROPRIETARY MATERIAL The use, reproduction and sales rights of this drawing are reserved by Pickett, Ray & Silver Inc.

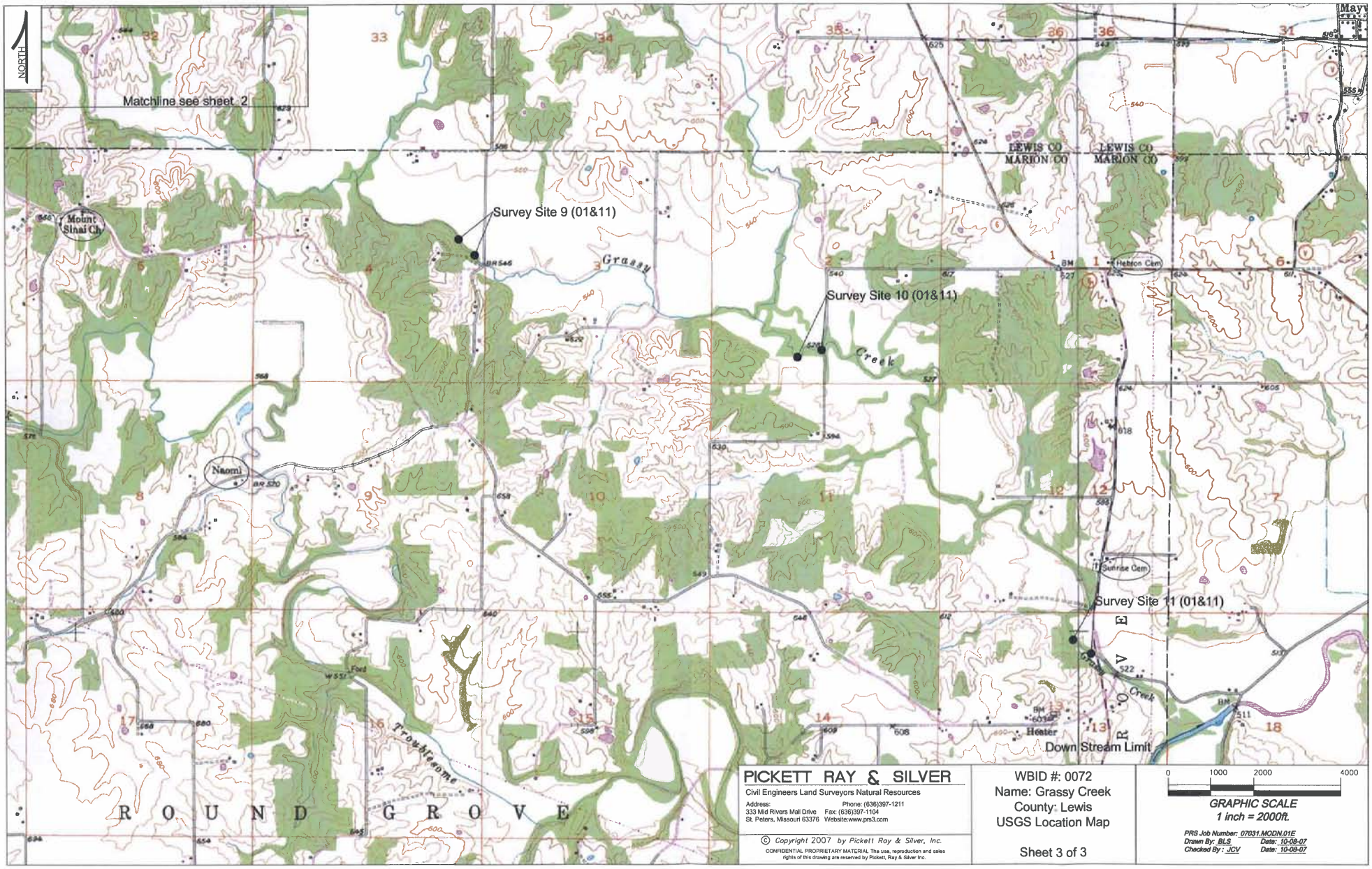
WBID #: 0072
Name: Grassy Creek
County: Lewis
USGS Location Map

Sheet 2 of 3

0 1000 2000 4000
GRAPHIC SCALE
1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-08-07
Checked By: JCV Date: 10-08-07

\\3serverprs\Projects\07031\dwg\07031_MODN_01E\0072 Grassy Creek.dwg, 10/10/2007 11:28:52 AM, BLSTOESZ



\\3serverprs\Projects\07031\dwg\07031_MODN_01E\0072 Grassy Creek.dwg, 10/29/2007 9:14:21 AM, 1:2000, MATT COSBY

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 #: 0072
Name: Grassy Creek
County: Lewis
USGS Location Map

Sheet 3 of 3

0 1000 2000 4000
GRAPHIC SCALE
1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-08-07
Checked By : JCV Date: 10-08-07

WBID# 0072 Grassy Creek

Site# 1 Transect 1, Upstream

Site# 1 Transect 1, Downstream

Site# 1 Transect 11, Upstream

Site# 1 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 2 Transect 1, Upstream

Site# 2 Transect 1, Downstream

Site# 2 Transect 11, Upstream

Site# 2 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 3 Transect 1, Upstream

Site# 3 Transect 1, Downstream

Site# 3 Transect 11, Upstream

Site# 3 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 4 Transect 1, Upstream

Site# 4 Transect 1, Downstream

Site# 4 Transect 11, Upstream

Site# 4 Transect 11, Downstream

WB

Site# 5 Transect 1, Upstream

Site# 5 Transect 1, Downstream

Site# 5 Transect 11, Upstream

Site# 5 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 6 Transect 1, Upstream

Site# 6 Transect 1, Downstream

Site# 6 Transect 11, Upstream

Site# 6 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 7 Transect 1, Upstream

Site# 7 Transect 1, Downstream

Site# 7 Transect 11, Upstream

Site# 7 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 8 Transect 1, Upstream

Site# 8 Transect 1, Downstream

Site# 8 Transect 11, Upstream

Site# 8 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 8 Cars in creek

Site# 9 Transect 1, Downstream

Site# 9 Transect 11, Upstream

Site# 9 Transect 11, Downstream

WBID# 0072 Grassy Creek

Site# 9 Transect 1, Upstream

Site# 10 Concrete rubble

Site# 10 Rubble

Site# 10 Transect 1, Downstream

WBID# 0072 Grassy Creek

Site# 10 Transect 1, Upstream

Site# 10 Transect 11, Downstream

Site# 10 Transect 11, Upstream

Site# 11 Transect 1, Downstream

WBID# 0072 Grassy Creek

Site# 11 Transect 1, Upstream

Site# 11 Transect 11, Downstream

Site# 11 Transect 11, Upstream