Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 1789 Sandy Creek

Submitted by
Olsson Associates

To
Missouri Department of Natural Resources
Water Protection Program

On
October 14, 2008

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): Sandy Cr.
Missouri Water Body Identification (WBID) Number: 1789
8-digit HUC: 07140105
County(ies), Listed Upstream to Downstream: Perry
Upstream Legal Description (from Table H): 36, 35N, 10E
Downstream Legal Description (from Table H): 1, 34N, 10E
Number of sites evaluated: 3
List all site numbers, consecutively upstream to downstream: 1789-1, 1789-2, 1789-3
Include a Site Location Map(s). The map must include all requirements detailed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol* (Section IV.D.8.a).

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

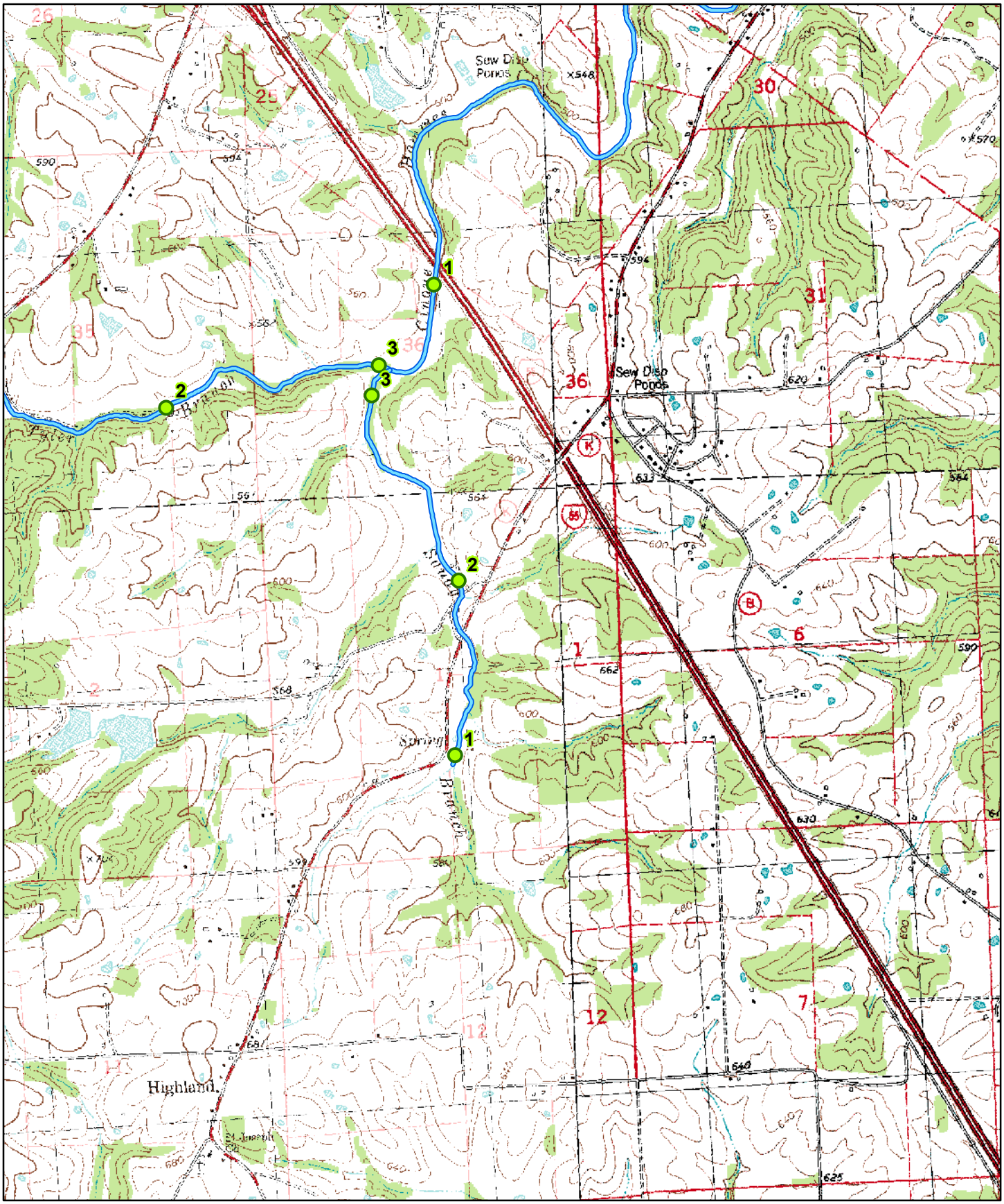
Facility Name(s) and Permit Number(s): N/A

III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Lindsey Schmid / Micah Hamer	Telephone Number: 417-890-8802
Organization/Employer: Olsson Associates	

Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analysies: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: Lindsey Schmid **Date: 08-21-08**



MISSOURI RECREATIONAL USE ATTAINABILITY ANALYSIS

NORTH

Feet
0 1,000 2,000
1 in. equals 2,000 ft.

Stream: Sandy Cr.
WBID: 1789

Map Sheet: 1/1
County: Perry

OLSSON ASSOCIATES

Project No. 008-1298

WBID # 1789

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 08-21-08 4:45 p.m.	Location Description (e.g., road crossing):
Stream Name: Sandy Cr.	Private farm with driveway crossing
Current Weather Conditions: Partly cloudy	Facility Name(s): N/A
Weather Conditions for Past 10 days:0.07" @ Cape Girardeau	Permit Number(s): N/A
Official Drought Conditions at time of this survey (search DNR home page for "drought"): 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): 245945	Northing (UTM Y): 4173813	Horizontal Accuracy: (EPE / FOM / PDOP)	49 ft. ~~Meters~~
Site 11	Easting (UTM X): 246010	Northing (UTM Y): 4174003	Horizontal Accuracy: (EPE / FOM / PDOP)	54 ft. ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1789-1-A	Upstream looking down	1789-1-B	Bridge	1789-1-C	Downstream looking up
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 the time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X 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.)

Stream Name & WBID #Sandy Creek 1789 Date of Survey 08-21-08

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

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

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

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

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

% Cobble	20% Gravel	80% Sand	% Silt	% Mud/Clay	% Bedrock

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

Dense vegetation on banks

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☐ None	X Other: COW
Color:	☐ Clear	☐ Green	☐ Gray	☐ Milky	X Other: BROWN
Bottom Deposit:	☐ Sludge	X Solids	X Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X 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 affect another use.

Stream Name & WBID #Sandy Creek 1789 Date of Survey 08-21-08

Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

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.)

Electric fence surrounding most areas of waterway.

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

Printed Names of Personnel Collecting Data: Lindsey Schmid / Micah Hamer

Surveyor's Signature: Lindsey Schmid Date of Survey: 08-21-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Sandy Cr. Waterbody ID: 1789 Site #: 1

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: 245945 UTM Y: 4173813 +/- 49 ft. ~~(meters)~~

11 UTM X: 246610 UTM Y: 4174003 +/- 54 ft. ~~(meters)~~

Average Stream Width: 4.5 (meters) Length of Survey Segment: 150 (meters)
(To determne Length of Reach) (20x average stream width)

Field Staff: Lindsey Schmid / Micah Hamer

Dissolved Oxygen

Date: 08-21-08 Time: 4:45 p.m.

Dissolved Oxygen: 7.22 (mg/L)

Dissolved Oxygen: 86.5 (% sat)

Specific Cond: 140 (µS/cm)

Water Temperature: 24.5 (°C)

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	0.34	0.07	0.58	0.32	0.37	0.60	0.71	0.41	0.36	0.05	0.33	0.29	0.47	0.12	0.29	0.05	0.41	0.15	0.55	0.21	0.67	0.41
2	0.68	0.12	1.16	0.40	0.74	0.71	1.42	0.41	0.72	0.16	0.66	0.37	0.94	0.22	0.58	0.08	0.82	0.24	1.10	0.20	1.34	0.46
3	1.02	0.23	1.74	0.41	1.11	0.68	2.13	0.42	1.08	0.16	0.99	0.42	1.41	0.25	0.87	0.13	1.23	0.20	1.65	0.16	2.01	0.39
4	1.36	0.15	2.32	0.48	1.48	0.59	2.84	0.37	1.44	0.20	1.32	0.46	1.88	0.26	1.16	0.18	1.64	0.23	2.20	0.15	2.68	0.34
5	1.70	0.21	2.90	0.43	1.85	0.43	3.55	0.31	1.80	0.16	1.65	0.42	2.35	0.26	1.45	0.46	2.05	0.16	2.75	0.19	3.35	0.24
6	2.04	0.19	3.48	0.31	2.22	0.37	4.26	0.32	2.16	0.15	1.98	0.43	2.82	0.23	1.74	0.32	2.46	0.17	3.30	0.23	4.02	0.20
7	2.38	0.15	4.06	0.36	2.59	0.34	4.97	0.29	2.52	0.12	2.31	0.37	3.29	0.24	2.03	0.29	2.87	0.14	3.85	0.18	4.69	0.18
8	2.72	0.18	4.64	0.35	2.96	0.24	5.68	0.24	2.88	0.15	2.64	0.36	3.76	0.17	2.32	0.31	3.28	0.08	4.40	0.21	5.36	0.17
9	3.06	0.18	5.22	0.32	3.33	0.19	6.39	0.18	3.24	0.14	2.97	0.36	4.23	0.18	2.61	0.27	3.69	0.11	4.95	0.13	6.03	0.18
Right Bank	3.40	0.00	5.80	0.00	3.70	0.00	7.10	0.00	3.60	0.00	3.30	0.00	4.70	0.00	2.90	0.00	4.10	0.00	5.50	0.00	6.70	0.00
Feature Type (riffle, run, or pool)	Run		Run		Run		Run		Riffle		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 bv dividing wetted width by ten)
Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 0.71

MEDIAN 0.21

Surveyor's Signature:

Lindsey Schmid

WBID # 1789

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time: 08-21-08 3:34 p.m.	Location Description (e.g., road crossing):
Stream Name: Sandy Cr.	In farmer's field
Current Weather Conditions: Light rain	Facility Name(s): N/A
Weather Conditions for Past 10 days: 0.07" @ Cape Girardeau	Permit Number(s): N/A
Official Drought Conditions at time of this survey (search DNR home page for "drought"): 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): 246011	Northing (UTM Y): 4174593	Horizontal Accuracy: (EPE / FOM / PDOP)	34 ft. ~~Meters~~
Site 11	Easting (UTM X): 245922	Northing (UTM Y): 4174777	Horizontal Accuracy: (EPE / FOM / PDOP)	37 ft. ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1789-2-A	Upstream looking down	1789-2-B	Bridge	1789-2-C	Downstream looking up
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 the time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X 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.)

Stream Name & WBID #Sandy Cr. 1789 Date of Survey 08-21-08

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

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

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

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

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

% Cobble	20% Gravel	80% Sand	% Silt	% Mud/Clay	% Bedrock

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

Dense grassy vegetation on shore.

Water Characteristics*: (Mark all that apply.)

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

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Stream Name & WBID #Sandy Cr. 1789 Date of Survey 08-21-08

Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

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.

Printed Names of Personnel Collecting Data: Lindsey Schmid / Micah Hamer

Surveyor's Signature: Lindsey Schmid Date of Survey: 08-21-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Sandy Cr. Waterbody ID: 1789 Site #: 2

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: 246011 UTM Y: 4174593 +/- 34 ft. ~~(meters)~~

11 UTM X: 245922 UTM Y: 4174777 +/- 37 ft. ~~(meters)~~

Average Stream Width: 3 (meters) Length of Survey Segment: 150 (meters)

(To determne Length of Reach) (20x average stream width)

Field Staff: Lindsey Schmid / Micah Hamer

Dissolved Oxygen

Date: 08-21-08 Time: 3:45 p.m.

Dissolved Oxygen: 6.62 (mg/L)

Dissolved Oxygen: 78.2 (% sat)

Specific Cond: 174 (µS/cm)

Water Temperature: 24.3 (°C)

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	0.95	0.17	0.24	0.12	0.29	0.14	0.52	0.48	0.69	0.23	0.44	0.06	0.36	0.15	0.29	0.15	0.26	0.31	0.26	0.40	0.27	0.36
2	1.90	0.33	0.48	0.21	0.58	0.23	1.04	0.51	1.38	0.36	0.88	0.34	0.72	0.14	0.58	0.20	0.52	0.29	0.52	0.47	0.54	0.39
3	2.85	0.39	0.72	0.52	0.87	0.26	1.56	0.47	2.07	0.29	1.32	0.64	1.08	0.27	0.87	0.25	0.78	0.36	0.78	0.62	0.81	0.40
4	3.80	0.48	0.96	0.54	1.16	0.27	2.08	0.56	2.76	0.38	1.76	0.66	1.44	0.36	1.16	0.24	1.04	0.33	1.04	0.63	1.08	0.43
5	4.75	0.39	1.20	0.56	1.45	0.21	2.60	0.58	3.45	0.38	2.20	0.56	1.80	0.34	1.45	0.33	1.30	0.32	1.30	0.64	1.35	0.40
6	5.70	0.38	1.44	0.47	1.74	0.42	3.12	0.59	4.14	0.35	2.64	0.52	2.16	0.36	1.74	0.29	1.56	0.29	1.56	0.63	1.62	0.41
7	6.65	0.34	1.68	0.29	2.03	0.45	3.64	0.57	4.83	0.35	3.08	0.49	2.52	0.35	2.03	0.21	1.82	0.24	1.82	0.60	1.89	0.40
8	7.60	0.28	1.92	0.30	2.32	0.44	4.16	0.38	5.52	0.40	3.52	0.39	2.88	0.26	2.32	0.14	2.08	0.26	2.08	0.52	2.16	0.35
9	8.55	0.29	2.16	0.23	2.61	0.47	4.68	0.44	6.21	0.37	3.96	0.31	3.24	0.09	2.61	0.12	2.34	0.15	2.34	0.41	2.43	0.39
Right Bank	9.50	0.00	2.40	0.00	2.90	0.00	5.20	0.00	6.90	0.00	4.40	0.00	3.60	0.00	2.90	0.00	2.60	0.00	2.60	0.00	2.70	0.00
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 bv dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 0.66

MEDIAN 0.36

Surveyor's Signature: Lindsey Schmid Date: 8/21/2008

WBID # 1789

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)

(must be completed for each site)

Date & Time:08-21-08 10:30 a.m.	Location Description (e.g., road crossing):
Stream Name: Sandy Cr.	Near farm land, no access
Current Weather Conditions: Partly cloudy	Facility Name(s): N/A
Weather Conditions for Past 10 days:0.07" @ Cape Girardeau	Permit Number(s): N/A
Official Drought Conditions at time of this survey (search DNR home page for "drought"): 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): 245669	Northing (UTM Y): 4175466	Horizontal Accuracy: (EPE / FOM / PDOP)	60 ft. ~~Meters~~
Site 11	Easting (UTM X): 245743	Northing (UTM Y): 4175576	Horizontal Accuracy: (EPE / FOM / PDOP)	187 ft. ~~Meters~~

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1789-3-A	Downstream looking up	1789-3-B	Upstream looking down		
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 the time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X 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.)

Stream Name & WBID # Sandy Cr. 1789 Date of Survey 08-21-08

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

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	X 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	X Livestock Watering
☐ None of the above	Comments / Other: Evidence of livestock watering, but none present			

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

% Cobble	30% Gravel	20% Sand	10% Silt	% Mud/Clay	40% Bedrock

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

Some floating vine plants in shallow areas.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Other:
Color:	X Clear 1/2	☐ Green	☐ Gray	X Milky green 1/2	☐ Other:
Bottom Deposit:	☐ Sludge	X Solids	X Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	X 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 affect another use.

Stream Name & WBID # Sandy Cr. 1789 Date of Survey 08-21-08

Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

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.

Printed Names of Personnel Collecting Data: Lindsey Schmid / Micah Hamer

Surveyor's Signature: Lindsey Schmid Date of Survey: 08-21-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: Sandy Cr. Waterbody ID: 1789 Site #: 3

Estimated Channel Incision: 0.1 (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: 245669 UTM Y: 4175466 +/- 60 ft ~~(meters)~~

11 UTM X: 245743 UTM Y: 4175576 +/- 187 ft. ~~(meters)~~

Average Stream Width: 5 (meters) Length of Survey Segment: 150 (meters)

(To determne Length of Reach) (20x average stream width)

Field Staff: Lindsey Schmid / Micah Hamer

Dissolved Oxygen

Date: 08-21-08 Time: 10:30 a.m.

Dissolved Oxygen: 7.58 (mg/L)

Dissolved Oxygen: 88.5 (% sat)

Specific Cond: 384 (µS/cm)

Water Temperature: 22.9 (°C)

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	0.94	0.29	0.76	0.05	0.51	0.09	0.38	0.15	0.42	0.05	0.43	0.06	0.31	0.12	0.47	0.05	0.31	0.13	0.42	0.26	0.57	0.32
2	1.88	0.34	1.52	0.08	1.02	0.15	0.76	0.19	0.84	0.05	0.86	0.09	0.62	0.12	0.94	0.05	0.62	0.15	0.84	0.21	1.14	0.31
3	2.82	0.36	2.28	0.06	1.53	0.20	1.14	0.19	1.26	0.05	1.29	0.13	0.93	0.17	1.41	0.05	0.93	0.16	1.26	0.24	1.71	0.30
4	3.76	0.27	3.04	0.07	2.04	0.19	1.52	0.24	1.68	0.05	1.72	0.20	1.24	0.00	1.88	0.05	1.24	0.18	1.68	0.26	2.28	0.29
5	4.70	0.10	3.80	0.20	2.55	0.27	1.90	0.26	2.10	0.05	2.15	0.26	1.55	0.08	2.35	0.12	1.55	0.22	2.10	0.08	2.85	0.29
6	5.64	0.05	4.56	0.21	3.06	0.33	2.28	0.29	2.52	0.05	2.58	0.31	1.86	0.12	2.82	0.21	1.86	0.20	2.52	0.08	3.42	0.31
7	6.58	0.05	5.32	0.24	3.57	0.35	2.66	0.30	2.94	0.05	3.01	0.37	2.17	0.14	3.29	0.20	2.17	0.20	2.94	0.10	3.99	0.32
8	7.52	0.07	6.08	0.10	4.08	0.38	3.04	0.36	3.36	0.06	3.44	0.29	2.48	0.13	3.76	0.18	2.48	0.19	3.36	0.08	4.56	0.26
9	8.46	0.14	6.84	0.18	4.59	0.36	3.42	0.30	3.78	0.07	3.87	0.22	2.79	0.20	4.23	0.21	2.79	0.06	3.78	0.09	5.13	0.09
Right Bank	9.40	0.00	7.60	0.00	5.10	0.00	3.80	0.00	4.20	0.00	4.30	0.00	3.10	0.00	4.70	0.00	3.10	0.00	4.20	0.00	5.70	0.00
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 bv dividing wetted width by ten)
Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
All measurements to be taken to the nearest 0.01 meter.

MAXIMUM 0.38

MEDIAN 0.18

Surveyor's Signature: Lindsey Schmid Date: 08-21-08

WBID:1784-1B
Road crossing
8/21/08 4:40pm

ULD
8/21/08

WBID:1784-1A
ULD
8/21/08 4:40pm

WBID:1784-1C
DLU
8/21/08 5:15pm

WBID:1789-3A
DLU
8/21/08 10:35am

WBID:1789-2B
DLU
8/21/08 4:30pm

WBID:1789-3B
ULD
8/21/08 11:00am