

Use Attainability Analysis

for

WBID 3187 Buck Branch

Submitted by
SES Inc.

to

Missouri Department of Natural Resources
Water Protection Program

Date received: October 26, 2007

Field Data Sheets for Recreation 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):	Buck Br.		
Missouri Water Body Identification (WBID) Number:	3187		
8 digit HUC code:	11070207	County:	Jasper
Upstream Legal Description (from Table H):	T29N R31W 17		
Downstream Legal Description (from Table H):	T29N R32W 4		
Number of sites evaluated:	4		
List all site numbers, listed consequently upstream to downstream:	1,2,3,4		

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):
Alba WWTP MO0089036

III. UAA Surveyor (please print legibly)

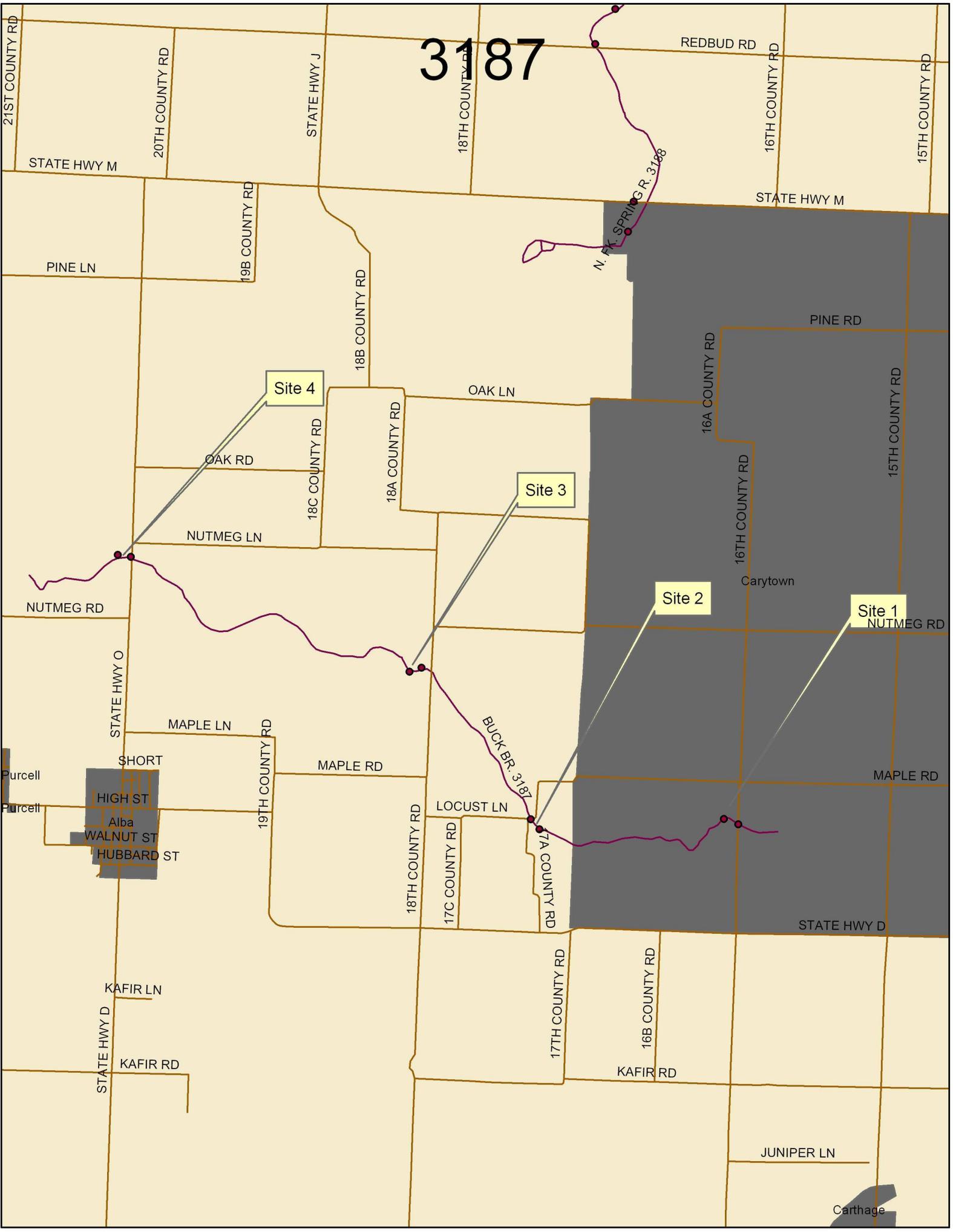
Name of Surveyor:	Aaron Ball	Telephone Number:	913-307-0054
Organization/Employer:	SES, Inc		

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

Signed: Aaron Ball

Date: 10/23/2007

3187



WBID # 3187
 Site # 1

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9/24/07 10:00am	Site Location Description (e.g. road crossing):
Personnel: Larissa Brown, Aaron Ball	road crossing at 16th county road
Current Weather Conditions: clear	Facility Name: Alba WWTP
Weather conditions for the past 10 days: 4 in rain	Permit Number: MO0089036
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)			
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0380796	4122110	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0380642	4122165	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1	Upstream	2	downstream		
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:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 3187
 Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:

Comments:
 None

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other:
 None

Substrate:

65 % Cobble	10 % Gravel	5 % Sand	% Silt	10 % Mud/Clay	10 % Bedrock
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Aquatic Vegetation:

limited to shoreline and shallow areas. No major floating algal growth

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # __3187__
Site # _____1_____

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: Aaron Ball Date of Survey: 9/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>3187</u> Site #: <u>1</u> Estimated Channel Incision: <u>2</u> (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: <u>0380796</u> UTM Y: <u>4122110</u> +/- _____ (meters) 11 UTM X: <u>0380642</u> UTM Y: <u>4122165</u> +/- _____ (meters) Average Stream Width: <u>8</u> (meters) Length of Survey Segment: <u>160</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Larissa Brown and Aaron Ball</u>	Dissolved Oxygen Date: <u>9/27/07</u> Time: <u>10:00am</u> Dissolved Oxygen: <u>5.9</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>22.4</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		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	
1		0.8	0.35	1	0.35	0.9	0.45	1.1	0.5	1.1	0.75	1.2	0.95	1.3	0.3	0.6	0.05	0.7	0	0.6	0.3	0.5	0.35
2		1.6	0.55	2	0.6	1.8	1	2.2	1	2.2	1	2.4	1	2.6	0.6	1.2	0.4	1.4	0.05	1.2	0.55	1	0.6
3		2.4	0.5	3	0.6	2.7	1	3.3	1	3.3	1	3.6	1	3.9	0.65	1.8	0.5	2.1	0	1.8	0.55	1.5	0.65
4		3.2	0.5	4	0.7	3.6	1	4.4	1	4.4	1	4.8	1	5.2	0.7	2.4	0.55	2.8	0.05	2.4	0.5	2	0.55
5		4	0.55	5	0.7	4.5	0.95	5.5	1	5.5	1	6	1	6.5	0.8	3	0.6	3.5	0.05	3	0.4	2.5	0.4
6		4.8	0.45	6	0.9	5.4	1	6.6	0.9	6.6	1	7.2	1	7.8	0.85	3.6	0.65	4.2	0.1	3.6	0.4	3	0.4
7		5.6	0.5	7	0.95	6.3	0.8	7.7	0.9	7.7	1	8.4	0.95	9.1	0.9	4.2	0.7	4.9	0.1	4.2	0.35	3.5	0.3
8		6.4	0.35	8	0.95	7.2	0.8	8.8	0.8	8.8	0.8	9.6	0.75	10.4	0.75	4.8	0.65	5.6	0.1	4.8	0.3	4	0.25
9		7.2	0.2	9	0.75	8.1	0.4	9.9	0.5	9.9	0.8	10.8	0.4	11.7	0.4	5.4	0.6	6.3	0.1	5.4	0.2	4.5	0.15
Right Bank		8	0	10	0	9	0	11	0	11	0	12	0	13	0	6	0	7	0	6	0	5	0
Feature Type <small>(riffle, run, or pool)</small>		pool		pool		pool		pool		pool		pool		pool		riffle		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: Aaron Ball Date: 9/24/07

WBID # 3187
 Site # 2

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9/24/07 10:50	Site Location Description (e.g. road crossing):
Personnel: Larissa Brown, Aaron Ball	17th county road crossing
Current Weather Conditions: clear	Facility Name: Alba WWTP
Weather conditions for the past 10 days: 4 in rain	Permit Number: MO0089036
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0378684	4122059			
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0373591	4122158			

Photos:

Photo ID#	Photo Purpose	Photo ID#:	Photo Purpose	Photo ID#:	Photo Purpose
3	downstream	4	Cattle		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
5	upstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 3187
 Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: None				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock watering
comments/other: picture 4				

Substrate:

5 % Cobble	65 % Gravel	% Sand	20	% Silt	10	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

None

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 3187
Site # 2

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: Aaron Ball Date of Survey: 9/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>3187</u> Site #: <u>2</u> Estimated Channel Incision: <u>1</u> (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: <u>0378684</u> UTM Y: <u>4122059</u> +/- _____ (meters) 11 UTM X: <u>0373591</u> UTM Y: <u>4122158</u> +/- _____ (meters) Average Stream Width: <u>10</u> (meters) Length of Survey Segment: <u>200</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Larissa Brown, Aaron Ball</u>	Dissolved Oxygen Date: <u>9/24/07</u> Time: <u>10:00</u> Dissolved Oxygen: <u>6.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>22.4</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		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	0.2	1.2	0.4	1.3	0.4	1	0.4	1.1	0.3	1	0.15	1	0.45	1.2	0.6	0.7	0.2	0.9	0.5	1	0.15	
2	2	0.5	2.4	0.6	2.6	0.7	2	0.7	2.2	0.5	2	0.3	2	0.5	2.4	0.6	1.4	0.7	1.8	0.8	2	0.3	
3	3	0.6	3.6	0.7	3.9	0.75	3	0.7	3.3	0.6	3	0.4	3	0.5	3.6	0.35	2.1	0.9	2.7	0.7	3	0.4	
4	4	0.75	4.8	0.75	5.2	0.75	4	0.75	4.4	0.7	4	0.5	4	0.55	4.8	0.2	2.8	0.95	3.6	0.65	4	0.6	
5	5	0.8	6	0.8	6.5	0.65	5	0.65	5.5	0.7	5	0.6	5	0.5	6	0.25	3.5	0.85	4.5	0.6	5	0.8	
6	6	0.8	7.2	0.85	7.8	0.6	6	0.6	6.6	0.6	6	0.7	6	0.5	7.2	0.3	4.2	0.7	5.4	0.65	6	0.8	
7	7	0.75	8.4	0.85	9.1	0.4	7	0.6	7.7	0.7	7	0.7	7	0.4	8.4	0.25	4.9	0.55	6.3	0.5	7	0.7	
8	8	0.7	9.6	0.55	10.4	0.35	8	0.6	8.8	0.5	8	0.6	8	0.25	9.6	0.25	5.6	0.3	7.2	0.45	8	0.6	
9	9	0.5	10.8	0.3	11.7	0.2	9	0.45	9.9	0.4	9	0.45	9	0.1	10.8	0.15	6.3	0.2	8.1	0.25	9	0.55	
Right Bank	10	0	12	0	13	0	10	0	11	0	10	0	10	0	12	0	7	0	9	0	10	0	
Feature Type <small>(riffle, run, or pool)</small>	pool		pool		pool		pool		pool		pool		pool		pool		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: Aaron Ball Date: 9/24/07

WBID # 3187
 Site # 3

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9/24/07 11:40	Site Location Description (e.g. road crossing):
Personnel: Larissa Brown, Aaron Ball	.05 miles downstream of CR18 crossing
Current Weather Conditions: clear	Facility Name: Alba WWTP
Weather conditions for the past 10 days: 4 in rain	Permit Number: MO0089036
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, in Meters)			
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0377432	4123768	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0377304	4123727	

Photos:

Photo ID#	Photo Purpose	Photo ID#:	Photo Purpose	Photo ID#:	Photo Purpose
6	Upstream	7	Downstream		
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:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 3187
 Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: None				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: None				

Substrate:

30 % Cobble	65 % Gravel	% Sand	% Silt	5% Mud/Clay	% Bedrock
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Aquatic Vegetation:

Rooted aquatic vegetation thick in areas. 10% of streams. No algae
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Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 3187
Site # 3

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: Aaron Ball Date of Survey: 9/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>3187</u> Site #: <u>3</u> Estimated Channel Incision: <u>1.5</u> (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: <u>0377432</u> UTM Y: <u>4123768</u> +/- _____ (meters) 11 UTM X: <u>0377304</u> UTM Y: <u>4123727</u> +/- _____ (meters) Average Stream Width: <u>10</u> (meters) Length of Survey Segment: <u>200</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Larissa Brown, Aaron Ball</u>	Dissolved Oxygen Date: <u>9/24/07</u> Time: <u>11:40</u> Dissolved Oxygen: <u>5.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>22.3</u> (°C)
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Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		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	
1		1	0.2	0.9	0.35	0.9	0.1	1	0.5	1.1	0.15	1	0.4	1.2	0.3	0.9	0.1	1.5	0.1	1.1	0.3	0.6	0.2
2		2	0.1	1.8	0.55	1.8	0.5	2	0.55	2.2	0.35	2	0.4	2.4	0.3	1.8	0.2	3	0.15	2.2	0.4	1.2	0.4
3		3	0	2.7	0.5	2.7	0.5	3	0.6	3.3	0.45	3	0.6	3.6	0.3	2.7	0.2	4.5	0.05	3.3	0.1	1.8	0.4
4		4	0	3.6	0.25	3.6	0.3	4	0.6	4.4	0.7	4	0.5	4.8	0.4	3.6	0.2	6	0	4.4	0.2	2.4	0.4
5		5	0.15	4.5	0.4	4.5	0.15	5	0.5	5.5	0.7	5	0.5	6	0.25	4.5	0.2	7.5	0.05	5.5	0.05	3	0.3
6		6	0.45	5.4	0.6	5.4	0.1	6	0.55	6.6	0.65	6	0.3	7.2	0.4	5.4	0.2	9	0.15	6.6	0.1	3.6	0.3
7		7	0.45	6.3	0.85	6.3	0.15	7	0.6	7.7	0.4	7	0.3	8.4	0.5	6.3	0.2	10.5	0.25	7.7	0.2	4.2	0.3
8		8	0.6	7.2	0.5	7.2	0.05	8	0.8	8.8	0.25	8	0.2	9.6	0.55	7.2	0.1	12	0.15	8.8	0.2	4.8	0.3
9		9	0.3	8.1	0.05	8.1	0.1	9	0.7	9.9	0.15	9	0.2	10.8	0.3	8.1	0.2	13.5	0.1	9.9	0.1	5.4	0.1
Right Bank		10	0	9	0.05	9	0	10	0	11	0	10	0	12	0	9	0	15	0	11	0	6	0
Feature Type <small>(riffle, run, or pool)</small>		pool		pool		pool		pool		pool		pool		riffle		riffle		riffle		riffle		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: Aaron Ball Date: 9/24/07

WBID # 3187
 Site # 4

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9/24/07 12:20pm	Site Location Description (e.g. road crossing):
Personnel: Larissa Brown, Aaron Ball	Highway O
Current Weather Conditions: Clear	Facility Name: Alba WWTP
Weather conditions for the past 10 days: 4 in rain	Permit Number: MO0089036
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)			
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0374346	4124945	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0374209	4124968	

Photos:

Photo ID#	Photo Purpose	Photo ID#:	Photo Purpose	Photo ID#:	Photo Purpose
9	upstream	10	downstream		
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:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 3187
 Site # 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:

Comments:

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other:

none

Substrate:

10 % Cobble	60 % Gravel	% Sand	% Silt	% Mud/Clay	30 % Bedrock
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Aquatic Vegetation:

None

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>3187</u> Site #: <u>4</u> Estimated Channel Incision: <u>3</u> (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: <u>0374346</u> UTM Y: <u>4124945</u> +/- _____ (meters) 11 UTM X: <u>0374209</u> UTM Y: <u>4124969</u> +/- _____ (meters) Average Stream Width: <u>8</u> (meters) Length of Survey Segment: <u>200</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Larissa Brown, Aaron Ball</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/24/07</u> Time: <u>12:20</u> Dissolved Oxygen: <u>7.6</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>22.1</u> (°C)
--	---

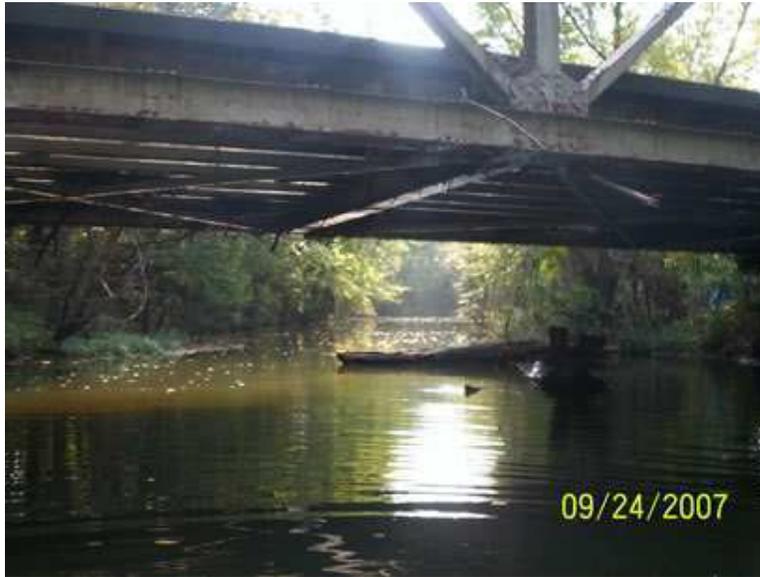
Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	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	0.25	1	0.3	0.9	0.2	0.9	0.2	1.4	0.3	0.8	0.2	1.2	0.4	1.1	0.1	0.8	0	0.9	0	0.6	0.1
2	2.2	0.6	2	0.55	1.8	0.35	1.8	0.8	2.8	0.55	1.6	0.5	2.4	0.5	2.2	0.5	1.6	0.15	1.8	0.05	1.2	0.25
3	3.3	0.8	3	0.6	2.7	0.6	2.7	0.8	4.2	0.45	2.4	0.5	3.6	0.65	3.3	0.8	2.4	0.35	2.7	0.15	1.8	0.4
4	4.4	0.9	4	0.7	3.6	0.75	3.6	0.55	5.6	0.6	3.2	0.5	4.8	0.8	4.4	0.85	3.2	0.55	3.6	0.5	2.4	0.45
5	5.5	0.95	5	0.8	4.5	0.75	4.5	0.8	7	0.45	4	0.35	6	0.7	5.5	0.9	4	0.5	4.5	0.5	3	0.45
6	6.6	0.9	6	0.85	5.4	0.7	5.4	0.8	8.4	0.3	4.8	0.2	7.2	0.45	6.6	0.95	4.8	0.5	5.4	0.45	3.6	0.2
7	7.7	0.7	7	0.85	6.3	0.7	6.3	0.8	9.8	0.3	5.6	0.15	8.4	0.4	7.7	0.95	5.6	0.4	6.3	0.25	4.2	0.1
8	8.8	0.5	8	0.9	7.2	0.7	7.2	0.9	11.2	0	6.4	0.15	9.6	0.45	8.8	0.8	6.4	0.25	7.2	0.1	4.8	0.05
9	9.9	0.3	9	0.9	8.1	0.9	8.1	0.65	12.6	0.2	7.2	0.1	10.8	0.35	9.9	0.5	7.2	0.15	8.1	0.05	5.4	0.05
Right Bank	11	0	10	0	9	0	9	0	14	0	8	0	12	0	11	0	8	0	9	0	6	0
Feature Type (riffle, run, or 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
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Signed: Aaron Ball Date: 9/24/07

WBID# 3187



Site# 1 Photo ID# 1, Upstream



Site# 1 Photo ID# 2, Downstream



Site# 2 Photo ID# 3, Downstream



Site# 2 Photo ID# 4, Cattle

WBID# 3187



Site# 2 Photo ID# 5, Upstream



Site# 3 Photo ID# 6, Upstream



Site# 3 Photo ID# 7, Downstream



Site# 4 Photo ID# 9, Upstream

WBID# 3187



Site# 4 Photo ID# 10, Downstream