



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0719 Halls Creek

Submitted by

MEC Water Resources

To

Missouri Department of Natural Resources

Water Protection Program

On

May 29, 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): Halls Cr.
Missouri Water Body Identification (WBID) Number: 0719
8-digit HUC: 10300102
County(ies), Listed Upstream to Downstream: Callaway
Upstream Legal Description (from Table H): 18, 46N, 8W
Downstream Legal Description (from Table H): Mouth
Number of sites evaluated: 3
List all site numbers, <u>consecutively upstream to downstream</u> : Site 1: 900 m upstream of County Rd. 451 crossing Site 2: 300 m downstream of Site 1 Site 3: County Rd. 451 crossing
Include a Site Location Map(s). The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).

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

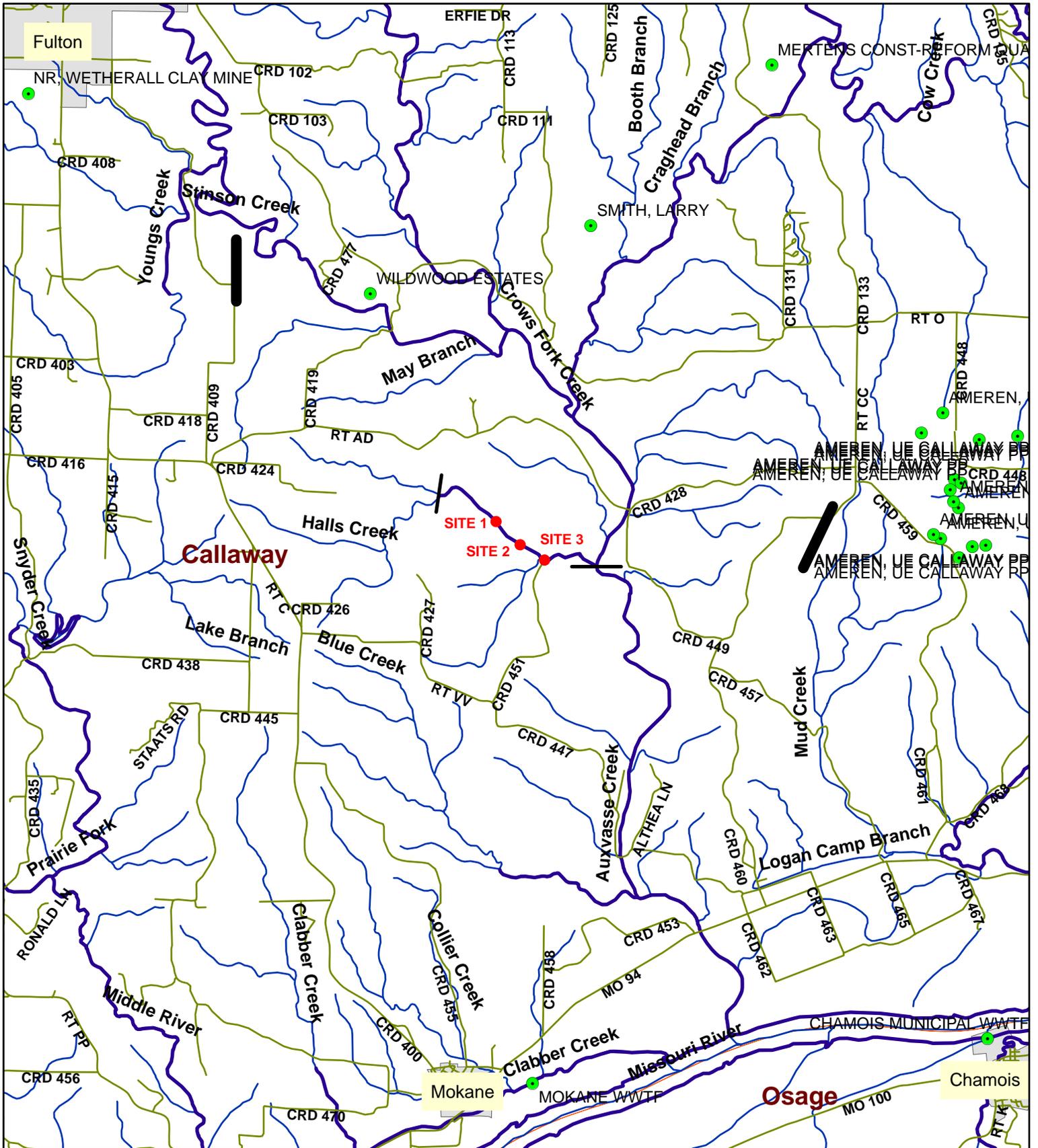
Facility Name(s) and Permit Number(s): Southern Air Duplexes MO 0127876

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

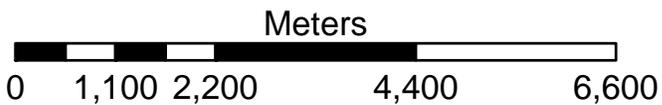
Name of Surveyor: Renee Martin	Telephone Number: 573-875-7844
Organization/Employer: AE Solutions	

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 Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: _____ Date: _____



**Halls Creek
WBID 0719
Callaway County**



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: 4/23/2008 07:20	Location Description (e.g., road crossing):
Stream Name: Halls Creek	900 m upstream of County Rd 451 Crossing
Current Weather Conditions: Sunny & Clear	Facility Name(s): Southern Air Duplexes
Weather Conditions for Past 10 days: .74" precipitation	Permit Number(s): MO 0127876
Official Drought Conditions at time of this survey (search DNR home page for "drought"): 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): 0598628	Northing (UTM Y): 4290533	Horizontal Accuracy: (EPE / FOM / PDOP) 28 Feet
Site 11	Easting (UTM X): 0598711	Northing (UTM Y): 4290397	Horizontal Accuracy: (EPE / FOM / PDOP) 18 Feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2967	Upstream	2968	Dnstream	2969	Fence at Trans 10
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.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" 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/walkway
<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: Private property, pasture Fence on left descending bank & across transect 10				

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input type="checkbox"/> None of the above	Comments / Other:			

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

40% Cobble	60% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic Algae Grasses

Water Characteristics*: (Mark all that apply.)

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 checked="" type="checkbox"/> Fine sediments	<input 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:

*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.

Site # 01

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: _____ Jennifer Hrabik & Renee Martin _____

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Halls Creek</u> Waterbody ID: <u>0719</u> Site #: <u>0719 01</u> Estimated Channel Incision: <u>0.5</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>598628</u> UTM Y: <u>4290533</u> +/- <u>28</u> (feet) 11 UTM X: <u>598711</u> UTM Y: <u>4290397</u> +/- <u>18</u> (feet) Average Stream Width: <u>6.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik & R. Martin</u>	Dissolved Oxygen Date: <u>4/23/200</u> Time: <u>720</u> Dissolved Oxygen: <u>7.63</u> (mg/L) Dissolved Oxygen: <u>71</u> (% sat) Specific Cond: <u>381</u> (µS/cm) Water Temperature: <u>12.1</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	0.87	0.39	0.68	0.10	0.60	0.26	0.87	0.02	0.85	0.12	0.52	0.01	0.40	0.04	0.52	0.04	0.65	0.03	0.37	0.03	0.46	0.04
	2	1.74	0.15	1.36	0.06	1.20	0.43	1.74	0.07	1.70	0.17	1.04	0.01	0.80	0.01	1.04	0.04	1.30	0.06	0.74	0.02	0.92	0.08
	3	2.61	0.01	2.04	0.07	1.80	0.41	2.61	0.08	2.55	0.06	1.56	0.02	1.20	0.04	1.56	0.08	1.95	0.07	1.11	0.01	1.38	0.05
	4	3.48	0.01	2.72	0.07	2.40	0.48	3.48	0.03	3.40	0.06	2.08	0.05	1.60	0.08	2.08	0.05	2.60	0.13	1.48	0.02	1.84	0.08
	5	4.35	0.01	3.40	0.01	3.00	0.51	4.35	0.08	4.25	0.13	2.60	0.04	2.00	0.06	2.60	0.08	3.25	0.17	1.85	0.04	2.30	0.04
	6	5.22	0.01	4.08	0.02	3.60	0.47	5.22	0.08	5.10	0.07	3.12	0.08	2.40	0.08	3.12	0.08	3.90	0.10	2.22	0.06	2.76	0.06
	7	6.09	0.04	4.76	0.04	4.20	0.19	6.09	0.10	5.95	0.10	3.64	0.10	2.80	0.08	3.64	0.07	4.55	0.08	2.59	0.15	3.22	0.07
	8	6.96	0.01	5.44	0.02	4.80	0.08	6.96	0.06	6.80	0.06	4.16	0.18	3.20	0.08	4.16	0.08	5.20	0.08	2.96	0.20	3.68	0.02
	9	7.83	0.02	6.12	0.04	5.40	0.03	7.83	0.04	7.65	0.06	4.68	0.09	3.60	0.07	4.68	0.07	5.85	0.02	3.33	0.17	4.14	0.01
Right Bank		8.70	0.00	6.80	0.00	6.00	0.00	8.70	0.00	8.50	0.00	5.20	0.00	4.00	0.00	5.20	0.00	6.50	0.00	3.70	0.00	4.60	0.00
Feature Type <small>(riffle, run, or pool)</small>		Riffle		Riffle		Run		Run		Run		Run		Riffle		Riffle		Run		Riffle		Riffle	

rwc

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 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

gField Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 4/23/2008 07:20	Location Description (e.g., road crossing):
Stream Name: Halls Creek	300 m downstream of Site 1
Current Weather Conditions: Sunny & Clear	Facility Name(s): Southern Air Duplexes
Weather Conditions for Past 10 days: .74" precipitation	Permit Number(s): MO 0127876
Official Drought Conditions at time of this survey (search DNR home page for "drought"): 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): 0598628	Northing (UTM Y): 4290533	Horizontal Accuracy: (EPE / FOM / PDOP) 28 Feet
Site 11	Easting (UTM X): 0598711	Northing (UTM Y): 4290397	Horizontal Accuracy: (EPE / FOM / PDOP) 18 Feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2967	Upstream	2968	Dnstream	2969	Fence at Trans 10
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.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" 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/walkway
<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: Private property, pasture Fence along left descending bank				

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

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input type="checkbox"/> None of the above	Comments / Other:			

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

30% Cobble	70% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic Algae Grasses

Water Characteristics*: (Mark all that apply.)

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 checked="" type="checkbox"/> Fine sediments	<input 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:

*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.

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)
Pool	10m (right after T1)	4.00	6.00	1.00	>1.00

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: _____ Jennifer Hrabik & Renee Martin _____

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Halls Creek</u> Waterbody ID: <u>0719</u> Site #: <u>0719 02</u> Estimated Channel Incision: <u>0.2</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>599021</u> UTM Y: <u>4290154</u> +/- <u>18</u> (feet) 11 UTM X: <u>599195</u> UTM Y: <u>4290069</u> +/- <u>24</u> (feet) Average Stream Width: <u>6</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>J. Hrabik & R. Martin</u>	Dissolved Oxygen Date: <u>4/23/2008</u> Time: <u>7:50</u> Dissolved Oxygen: <u>7.61</u> (mg/L) Dissolved Oxygen: <u>70.4</u> (% sat) Specific Cond: <u>391.2</u> (µS/cm) Water Temperature: <u>12.3</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	0
1	0.33	0.13	0.59	0.18	0.58	0.01	0.62	0.19	0.73	0.06	0.86	0.38	0.94	0.03	0.48	0.06	0.48	0.10	0.67	0.01	0.48	0.06
2	0.66	0.20	1.18	0.25	1.16	0.03	1.24	0.21	1.46	0.17	1.72	0.34	1.88	0.04	0.96	0.08	0.96	0.15	1.34	0.03	0.96	0.08
3	0.99	0.20	1.77	0.27	1.74	0.03	1.86	0.25	2.19	0.21	2.58	0.25	2.82	0.05	1.44	0.18	1.44	0.08	2.01	0.03	1.44	0.08
4	1.32	0.20	2.36	0.27	2.32	0.03	2.48	0.15	2.92	0.19	3.44	0.23	3.76	0.04	1.92	0.13	1.92	0.06	2.68	0.01	1.92	0.07
5	1.65	0.19	2.95	0.30	2.90	0.07	3.10	0.08	3.65	0.07	4.30	0.19	4.70	0.04	2.40	0.13	2.40	0.07	3.35	0.01	2.40	0.03
6	1.98	0.17	3.54	0.34	3.48	0.09	3.72	0.06	4.38	0.07	5.16	0.15	5.64	0.07	2.88	0.13	2.88	0.04	4.02	0.01	2.88	0.00
7	2.31	0.15	4.13	0.40	4.06	0.09	4.34	0.01	5.11	0.04	6.02	0.10	6.58	0.07	3.36	0.09	3.36	0.02	4.69	0.04	3.36	0.01
8	2.64	0.10	4.72	0.23	4.64	0.01	4.96	0.01	5.84	0.04	6.88	0.13	7.52	0.04	3.84	0.08	3.84	0.01	5.36	0.08	3.84	0.06
9	2.97	0.05	5.31	0.05	5.22	0.06	5.58	0.01	6.57	0.04	7.74	0.12	8.46	0.01	4.32	0.05	4.32	0.01	6.03	0.13	4.32	0.01
Right Bank	3.30	0.00	5.90	0.00	5.80	0.00	6.20	0.00	7.30	0.00	8.60	0.00	9.40	0.00	4.80	0.00	4.80	0.00	6.70	0.00	4.80	0.00
Feature Type <small>(riffle, run, or pool)</small>	Run		Run		Riffle		Run		Riffle		Riffle		Rifle									

rwc

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 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

mField Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
(must be completed for each site)

Date & Time: 4/23/2008 08:25	Location Description (e.g., road crossing):
Stream Name: Halls Creek	County Rd 451 Crossing
Current Weather Conditions: Sunny & Clear	Facility Name(s): Southern Air Duplexes
Weather Conditions for Past 10 days: .74" precipitation	Permit Number(s): MO 0127876
Official Drought Conditions at time of this survey (search DNR home page for "drought"): 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): 0599419	Northing (UTM Y): 4289905	Horizontal Accuracy: (EPE / FOM / PDOP) 15 Feet
Site 11	Easting (UTM X):0599603	Northing (UTM Y): 4289938	Horizontal Accuracy: (EPE / FOM / PDOP) 25 Feet

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
2972	Upstream – fence- low H2O crossing	2973	Dnstream		
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.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" 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/walkway
<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: Private property, pasture				

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

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input type="checkbox"/> None of the above	Comments / Other:			
Low H2O crossing				

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

25% Cobble	60% Gravel	5% Sand	% Silt	% Mud/Clay	10% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Benthic Algae Grasses

Water Characteristics*: (Mark all that apply.)

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 checked="" type="checkbox"/> Fine sediments	<input 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:

*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.

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: _____ Jennifer Hrabik & Renee Martin _____

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Halls Creek</u> Waterbody ID: <u>0719</u> Site #: <u>0719 03</u> Estimated Channel Incision: <u>0.2</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>599419</u> UTM Y: <u>4289905</u> +/- <u>15</u> (feet) 11 UTM X: <u>599603</u> UTM Y: <u>4289938</u> +/- <u>25</u> (feet) Average Stream Width: <u>7.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>JHrabik & R Martin</u>	Dissolved Oxygen Date: <u>4/23/2008</u> Time: <u>8:25</u> Dissolved Oxygen: <u>6.3</u> (mg/L) Dissolved Oxygen: <u>57.2</u> (% sat) Specific Cond: <u>405</u> (µS/cm) Water Temperature: <u>12.9</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	1.40	0.15	1.18	0.06	0.40	0.20	0.34	0.03	0.45	0.09	0.50	0.15	0.75	0.18	0.75	0.13	0.75	0.04	0.58	0.24	0.62	0.04
2	2.80	0.08	2.36	0.00	0.80	0.30	0.68	0.10	0.90	0.10	1.00	0.26	1.50	0.32	1.50	0.13	1.50	0.02	1.16	0.30	1.24	0.08
3	4.20	0.19	3.54	0.00	1.20	0.48	1.02	0.16	1.35	0.19	1.50	0.26	2.25	0.24	2.25	0.10	2.25	0.02	1.74	0.17	1.86	0.08
4	5.60	0.19	4.72	0.00	1.60	0.60	1.36	0.32	1.80	0.21	2.00	0.25	3.00	0.23	3.00	0.05	3.00	0.06	2.32	0.23	2.48	0.15
5	7.00	0.00	5.90	0.01	2.00	0.55	1.70	0.27	2.25	0.19	2.50	0.20	3.75	0.17	3.75	0.04	3.75	0.04	2.90	0.16	3.10	0.19
6	8.40	0.00	7.08	0.02	2.40	0.55	2.04	0.26	2.70	0.16	3.00	0.06	4.50	0.16	4.50	0.04	4.50	0.06	3.48	0.12	3.72	0.20
7	9.80	0.01	8.26	0.06	2.80	0.50	2.38	0.20	3.15	0.15	3.50	0.04	5.25	0.08	5.25	0.06	5.25	0.15	4.06	0.07	4.34	0.24
8	11.20	0.32	9.44	0.01	3.20	0.45	2.72	0.10	3.60	0.07	4.00	0.03	6.00	0.06	6.00	0.04	6.00	0.16	4.64	0.12	4.96	0.23
9	12.60	0.16	10.62	0.03	3.60	0.13	3.06	0.03	4.05	0.07	4.50	0.02	6.75	0.02	6.75	0.04	6.75	0.08	5.22	0.03	5.58	0.20
Right Bank	14.00	0.00	11.80	0.00	4.00	0.00	3.40	0.00	4.50	0.00	5.00	0.00	7.50	0.00	7.50	0.00	7.50	0.00	5.80	0.00	6.20	0.00
Feature Type <small>(riffle, run, or pool)</small>	Run		Riffle		Pool		Run		Run		Run		Run		Riffle		Riffle		Run		Run	

rwc

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 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: _____

AES

WBID # 0719

SITE # 1

UPSTREAM

5mm



AES
WBID # 0719
SITE # 1
DNSTREAM

WBID #0719
Site #1
Transect #10
Fence



AES

WBID # 0719

SITE # 2

UP STREAM



AES
WBID # 0719
SITE # 2
DNSTREAM



AES

WBID# 0719

SITE# 3

UPSTREAM

AES

WB ID # 0719

SITE # 3

DN STREAM