



Missouri  
Department of  
Natural Resources

## Use Attainability Analysis

for

WBID 1001 Tributary to Moreau River

Submitted by

MEC Water Resources

To

Missouri Department of Natural Resources

Water Protection Program

On

October 17, 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):	Trip. to Moreau R.
Missouri Water Body Identification (WBID) Number:	1001
8-digit HUC:	10300102
County(ies), Listed Upstream to Downstream:	Cole
Upstream Legal Description (from Table H):	06, 43N, 12W
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated:	3
List all site numbers, <u>consecutively upstream to downstream</u> :	
Site 1:	Herburt Bossaller property just off Beck Rd.
Site 2:	150 meters DN Stream Site 1
Site 3:	150 meters DN Stream Site 2
<b>Include a Site Location Map(s).</b> 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):
Propst Trailer Court - MO 0098299
Twin Bridges MH Village - MO 0048810
Muenkes Brothers Quarry - MO 6490778

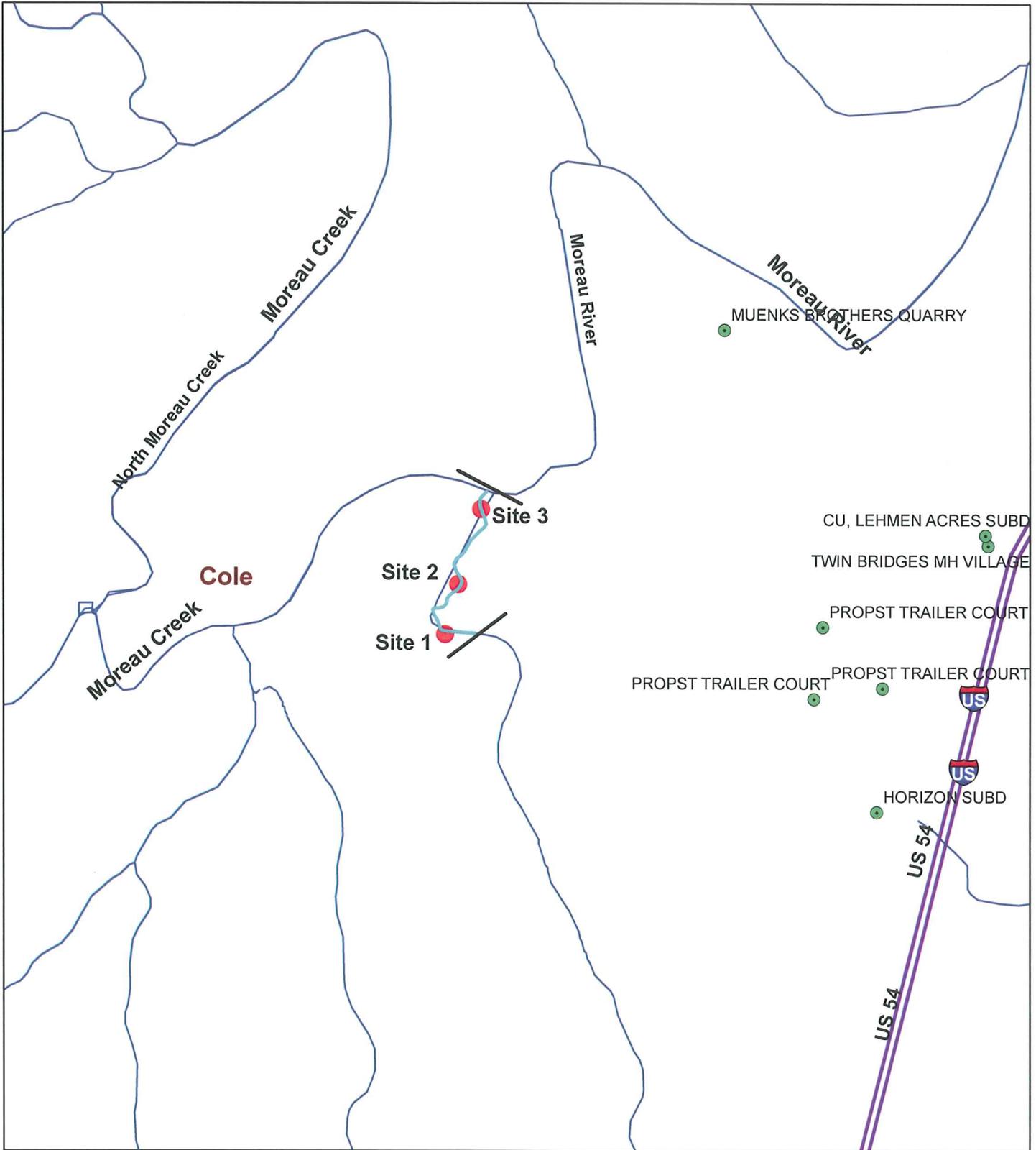
**III. UAA Surveyor** (please **PRINT** legibly)

Name of Surveyor:	Renee Martin	Telephone Number:	573-875-7844
Organization/Employer:	Applied Environmental 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: Renee Martin Date: 8/14/08





**Trib. to Moreau River  
WBID 1001  
Cole County**



WBID # 1001

Site # 01

**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: <u>8/14/08 10:0840</u>	Location Description (e.g., road crossing): <u>Herbert Bossaller property owner just off Beck Rd.</u>
Stream Name: <u>Tributary to Moreau River</u>	
Current Weather Conditions:	Facility Name(s): <u>Propst Trailer Court</u>
Weather Conditions for Past 10 days: <u>0.15" precip</u>	Permit Number(s): <u>MO 0098299</u>
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): <u>561684</u>	Northing (UTM Y): <u>4261401</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>24</u> Meters <sup>km</sup> / <sub>ft</sub>
Site 11	Easting (UTM X): <u>561663</u>	Northing (UTM Y): <u>4261520</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>17</u> Meters <sup>km</sup> / <sub>ft</sub>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2588</u>	<u>UPstream site 1</u>	<u>2589</u>	<u>DN stream</u>	<u>2587</u>	<u>Farm Access Road T-10</u>
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2936</u>	<u>T#10em Deerstand site 1</u>				
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 Data Sheet D- Recreational Use Interview when conducting interviews.) <p style="text-align: center;"><u>N/A</u></p>				



Stream Name & WBID # Trib. to Moreau River & 1001

Date of Survey 8/14/08

Site # 01

**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 checked="" type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <i>Private property Agriculture - Row Crops</i>				

**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 type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other: <i>Farm Access Road, T-10 Site 1</i>			

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

<i>10</i> % Cobble	<i>80</i> % Gravel	<i>—</i> % Sand	<i>—</i> % Silt	<i>10</i> % Mud/Clay	<i>—</i> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

<i>40% Benthic Algae on Substrate</i>
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**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.



Stream Name & WBID # Trib. To Moreau River @ 1001

Date of Survey 8/14/08

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)
<u>Pool</u>	<u>End of T-10 15 meters</u>	<u>3 meters</u>	<u>4 meters</u>	<u>0.6 meters</u>	<u>0.90 m.</u>

**Comments:** (Please record any additional comments here.)

Hunting stands are located w/in the creek area w/in the row crop fields.

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

Printed Names of Personnel Collecting Data: Renee Martin & Jennifer Hrabik

Surveyor's Signature: Renee Mart Date of Survey: 8/14/08

Organization: AE Solutions Position: Env. Specialist



## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Trib. to Moreau R.</u> Waterbody ID: <u>1001</u> Site #: <u>1001_01</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) <b>01</b> UTM X: <u>561684</u> UTM Y: <u>4261401</u> +/- <u>24</u> (feet) <b>11</b> UTM X: <u>561663</u> UTM Y: <u>4261520</u> +/- <u>17</u> (feet)  Average Stream Width: <u>3.6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Renee Martin</u>	<b>Dissolved Oxygen</b>  Date: <u>8/14/2008</u> Time: <u>8:30</u>  Dissolved Oxygen: <u>5.85</u> (mg/L)  Dissolved Oxygen: <u>61.6</u> (% sat)  Specific Cond: <u>533.0</u> (µS/cm)  Water Temperature: <u>18.2</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)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.47	0.02	0.18	0.07	0.43	0.10	0.32	0.05	0.42	0.10	0.40	0.05	0.32	0.05	0.36	0.02	0.33	0.06	0.34	0.29	0.39	0.07
2	0.94	0.00	0.36	0.09	0.86	0.08	0.64	0.15	0.84	0.12	0.80	0.09	0.64	0.08	0.72	0.08	0.66	0.29	0.68	0.47	0.78	0.11
3	1.41	0.00	0.54	0.15	1.29	0.10	0.96	0.19	1.26	0.16	1.20	0.14	0.96	0.08	1.08	0.18	0.99	0.55	1.02	0.74	1.17	0.25
4	1.88	0.00	0.72	0.15	1.72	0.12	1.28	0.20	1.68	0.18	1.60	0.15	1.28	0.09	1.44	0.26	1.32	0.63	1.36	0.52	1.56	0.27
5	2.35	0.02	0.90	0.15	2.15	0.09	1.60	0.20	2.10	0.19	2.00	0.19	1.60	0.08	1.80	0.28	1.65	0.54	1.70	0.85	1.95	0.27
6	2.82	0.02	1.08	0.10	2.58	0.06	1.92	0.19	2.52	0.21	2.40	0.21	1.92	0.09	2.16	0.24	1.98	0.37	2.04	0.64	2.34	0.27
7	3.29	0.05	1.26	0.08	3.01	0.08	2.24	0.18	2.94	0.24	2.80	0.22	2.24	0.08	2.52	0.19	2.31	0.24	2.38	0.48	2.73	0.26
8	3.76	0.08	1.44	0.05	3.44	0.06	2.56	0.15	3.36	0.24	3.20	0.19	2.56	0.04	2.88	0.12	2.64	0.15	2.72	0.28	3.12	0.20
9	4.23	0.06	1.62	0.03	3.87	0.05	2.88	0.08	3.78	0.26	3.60	0.10	2.88	0.04	3.24	0.02	2.97	0.08	3.06	0.08	3.51	0.16
<b>Right Bank</b>	4.70	0.00	1.80	0.00	4.30	0.00	3.20	0.00	4.20	0.00	4.00	0.00	3.20	0.00	3.60	0.00	3.30	0.00	3.40	0.00	3.90	0.00
<b>Feature Type</b>	run		pool		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: Renee Martin      Date: 8/14/2008

WBID # 1001

Site # 02

**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: <u>8/14/08 0810</u>	Location Description (e.g., road crossing): <u>~ 150 meters downstream Site #1</u>
Stream Name: <u>Trib to Moxee River</u>	
Current Weather Conditions: <u>clear/sunny</u>	Facility Name(s): <u>Probst Trailer Court</u>
Weather Conditions for Past 10 days: <u>0.15" precipitation</u>	Permit Number(s): <u>MO-0098299</u>
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): <u>561736</u>	Northing (UTM Y): <u>4261598</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>36 Meters</u> <u>ft</u>
Site 11	Easting (UTM X): <u>561734</u>	Northing (UTM Y): <u>4261699</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>29 Meters</u> <u>ft</u>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2585</u>	<u>DNStream Site 2</u>	<u>2586</u>	<u>UPstream Site 2</u>		

**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 Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A</u>				



Stream Name & WBID # Trip to Moreau River ; 1001

Date of Survey 8/14/08

Site # 02

**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 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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: Agriculture - Row Crops Private property				

**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 type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: N/A			

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

<u>—</u> % Cobble	<u>90</u> % Gravel	<u>—</u> % Sand	<u>—</u> % Silt	<u>10</u> % Mud/Clay	<u>—</u> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

<u>40% benthic Algae on substrate</u>
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**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.



Stream Name & WBID # Trib to Moreau River & 1001

Date of Survey 8/14/08

Site # 02

**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.)

N/A

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

Printed Names of Personnel Collecting Data: RENEE MARTIN & JENNIFER HRABIK

Surveyor's Signature: Renee Mart Date of Survey: 8/14/08

Organization: AE Solutions Position: Env. Specialist



### Field Data Sheets for Recreational Use Stream Surveys

#### Data Sheet C - Field Survey Results

Stream Name: <u>Trib. to Moreau R.</u> Waterbody ID: <u>1001</u> Site #: <u>1001_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) <b>01</b> UTM X: <u>561736</u> UTM Y: <u>4261598</u> +/- <u>36</u> (feet) <b>11</b> UTM X: <u>561734</u> UTM Y: <u>4261699</u> +/- <u>29</u> (feet)  Average Stream Width: <u>2.1</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Jennifer Hrabik and Renee Martin</u>	<b>Dissolved Oxygen</b>  Date: <u>8/14/2008</u> Time: <u>8:10</u>  Dissolved Oxygen: <u>1.60</u> (mg/L)  Dissolved Oxygen: <u>17.3</u> (% sat)  Specific Cond: <u>517.0</u> (µS/cm)  Water Temperature: <u>20.2</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
<b>Station</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Left Bank</b>																							
	1	0.42	0.10	0.18	0.08	0.20	0.04	0.29	0.17	0.05	0.01	0.35	0.20	0.32	0.10	0.08	0.01	0.07	0.01	0.24	0.04	0.08	0.01
	2	0.84	0.26	0.36	0.02	0.40	0.06	0.58	0.39	0.10	0.01	0.70	0.47	0.64	0.27	0.16	0.01	0.14	0.01	0.48	0.10	0.16	0.01
	3	1.26	0.33	0.54	0.00	0.60	0.09	0.87	0.63	0.15	0.01	1.05	0.64	0.96	0.32	0.24	0.02	0.21	0.02	0.72	0.19	0.24	0.01
	4	1.68	0.43	0.72	0.03	0.80	0.10	1.16	0.69	0.20	0.01	1.40	0.64	1.28	0.40	0.32	0.01	0.28	0.03	0.96	0.24	0.32	0.01
	5	2.10	0.51	0.90	0.02	1.00	0.14	1.45	0.73	0.25	0.02	1.75	0.71	1.60	0.43	0.40	0.03	0.35	0.04	1.20	0.20	0.40	0.01
	6	2.52	0.34	1.08	0.00	1.20	0.19	1.74	0.60	0.30	0.02	2.10	0.68	1.92	0.38	0.48	0.05	0.42	0.04	1.44	0.19	0.48	0.01
	7	2.94	0.25	1.26	0.01	1.40	0.21	2.03	0.46	0.35	0.02	2.45	0.59	2.24	0.39	0.56	0.08	0.49	0.03	1.68	0.17	0.56	0.03
	8	3.36	0.16	1.44	0.01	1.60	0.19	2.32	0.37	0.40	0.01	2.80	0.46	2.56	0.33	0.64	0.06	0.56	0.02	1.92	0.15	0.64	0.01
	9	3.78	0.10	1.62	0.01	1.80	0.15	2.61	0.15	0.45	0.01	3.15	0.34	2.88	0.28	0.72	0.02	0.63	0.01	2.16	0.07	0.72	0.01
<b>Right Bank</b>		4.20	0.00	1.80	0.00	2.00	0.00	2.90	0.00	0.50	0.00	3.50	0.00	3.20	0.00	0.80	0.00	0.70	0.00	2.40	0.00	0.80	0.00
<b>Feature Type</b>		pool		run		pool		pool		riffle		pool		pool		riffle		riffle		pool		riffle	

**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: Renee Martin      Date: ####

WBID # 1001

Site # 03

**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: <u>8/14/08 ? 0730</u>	Location Description (e.g., road crossing): <u>150 meters dN stream site 2</u>
Stream Name: <u>Trib to Moreau River</u>	
Current Weather Conditions: <u>Clear/sunny</u>	Facility Name(s): <u>Propst Trailer Court</u>
Weather Conditions for Past 10 days: <u>0.15" precipitation</u>	Permit Number(s): <u>MO 0098299</u>
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): <u>561827</u>	Northing (UTM Y): <u>424895</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>22</u> Meters <sup>pm</sup> / ft
Site 11	Easting (UTM X): <u>561846</u>	Northing (UTM Y): <u>4261962</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>17</u> Meters <sup>pm</sup> / ft

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2580</u>	<u>log jam upstream site 3</u>	<u>2581</u>	<u>DN stream site 3</u>	<u>2584</u>	<u>DN stream site 3</u>
<u>2583</u>	<u>upstream site 3</u>				

**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.) <p style="text-align: center;"><u>N/A</u></p>				



Stream Name & WBID # Trib to Moreau River + 1001

Date of Survey 8/14/08

Site # 03

**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 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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: Private property Row Crops - Agriculture				

**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 type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: N/A			

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

<u>—</u> % Cobble	<u>70</u> % Gravel	<u>—</u> % Sand	<u>10</u> % Silt	<u>20</u> % Mud/Clay	<u>—</u> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

<u>10 % benthic algae on substrate</u>
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**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.

Stream Name & WBID # Trib to Moreau River # 1001

Date of Survey 8/14/08

Site # 03

**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)
		N/A			

**Comments:** (Please record any additional comments here.)

N/A

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

Printed Names of Personnel Collecting Data: Renee Martin & Jennifer Hrabik

Surveyor's Signature: Renee Martin Date of Survey: 8/14/08

Organization: AE Solutions Position: Env. Specialist

### Field Data Sheets for Recreational Use Stream Surveys

#### Data Sheet C - Field Survey Results

Stream Name: <u>Trib. to Moreau R.</u> Waterbody ID: <u>1001</u> Site #: <u>1001_03</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) <b>01</b> UTM X: <u>561827</u> UTM Y: <u>4261895</u> +/- <u>22</u> (feet) <b>11</b> UTM X: <u>561846</u> UTM Y: <u>4261962</u> +/- <u>17</u> (feet)  Average Stream Width: <u>2.1</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Jennifer Hrabik and Renee Martin</u>	<b>Dissolved Oxygen</b>
	Date: <u>8/14/2008</u> Time: <u>7:30</u>  Dissolved Oxygen: <u>2.75</u> (mg/L)  Dissolved Oxygen: <u>28.8</u> (% sat)  Specific Cond: <u>476.1</u> (µS/cm)  Water Temperature: <u>18.6</u> (°C)

#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Station		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Left Bank</b>																							
	1	0.13	0.01	0.28	0.03	0.30	0.07	0.32	0.07	0.23	0.14	0.18	0.10	0.19	0.04	0.09	0.04	0.13	0.02	0.19	0.08	0.31	0.18
	2	0.26	0.02	0.56	0.05	0.60	0.17	0.64	0.08	0.46	0.12	0.35	0.19	0.38	0.13	0.18	0.05	0.26	0.02	0.38	0.21	0.62	0.34
	3	0.39	0.03	0.84	0.08	0.90	0.09	0.96	0.09	0.69	0.15	0.53	0.20	0.57	0.17	0.27	0.19	0.39	0.02	0.57	0.21	0.93	0.28
	4	0.52	0.03	1.12	0.04	1.20	0.00	1.28	0.07	0.92	0.19	0.70	0.26	0.76	0.11	0.36	0.16	0.52	0.01	0.76	0.19	1.24	0.28
	5	0.65	0.06	1.40	0.02	1.50	0.00	1.60	0.15	1.15	0.21	0.88	0.25	0.95	0.06	0.45	0.16	0.65	0.03	0.95	0.15	1.55	0.25
	6	0.78	0.07	1.68	0.01	1.80	0.00	1.92	0.21	1.38	0.20	1.05	0.23	1.14	0.05	0.54	0.15	0.78	0.03	1.14	0.04	1.86	0.21
	7	0.91	0.06	1.96	0.02	2.10	0.04	2.24	0.24	1.61	0.16	1.23	0.24	1.33	0.12	0.63	0.08	0.91	0.04	1.33	0.05	2.17	0.23
	8	1.04	0.09	2.24	0.01	2.40	0.15	2.56	0.25	1.84	0.14	1.40	0.23	1.52	0.09	0.72	0.08	1.04	0.03	1.52	0.08	2.48	0.21
	9	1.17	0.05	2.52	0.02	2.70	0.18	2.88	0.17	2.07	0.08	1.58	0.16	1.71	0.05	0.81	0.03	1.17	0.01	1.71	0.04	2.79	0.13
<b>Right Bank</b>		1.30	0.00	2.80	0.00	3.00	0.00	3.20	0.00	2.30	0.00	1.75	0.00	1.90	0.00	0.90	0.00	1.30	0.00	1.90	0.00	3.10	0.00
Feature Type		run		pool		run		run		pool		pool		run		run		run		run		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: Renee Martin      Date: #####





