



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 3043 Ditch #104

Submitted by
MEC/ERC

To
Missouri Department of Natural Resources
Water Protection Program

On

October 24, 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):	Ditch # 104		
Missouri Water Body Identification (WBID) Number:	3043		
8-digit HUC:	08020204 Little River Ditches		
County(ies), Listed Upstream to Downstream:	New Madrid		
Upstream Legal Description (from Table H):	13, 25N, 13E		
Downstream Legal Description (from Table H):	Mouth		
Number of sites evaluated:	8		
List all site numbers, <u>consecutively upstream to downstream</u> :			
1.) Co Rd 828 - Upstream	3.) Hwy H Downstream	5.) Hwy H4 Bridge Downstream	7.) Co Rd 630 Downstream
2.) Co Rd 820 - Downstream	4.) Ag Air Inc. Co Rd Downstream	6.) Private bridge off Co Rd 613 Downstream	8.) Co Rd 613 Downstream
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):
MFA Oil Bulk Plant - KEWA MO 6350221
Matthews Wastewater Treat MO 0127175

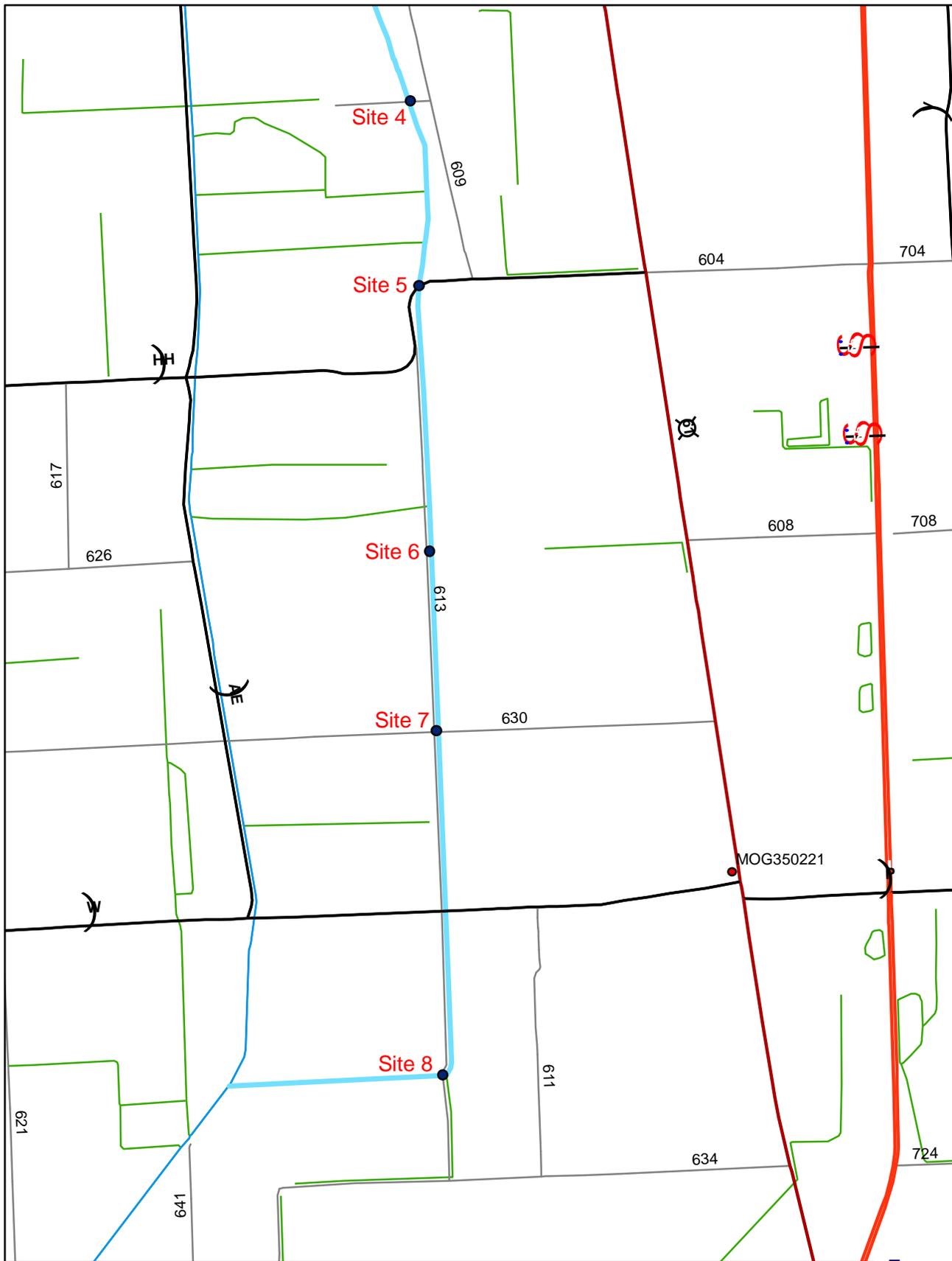
III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Abigail L. Lyon	Telephone Number: (573) 634-7078
Organization/Employer: ERC	

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: Abigail L. Lyon Date: 10/16/08

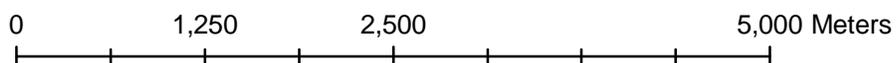
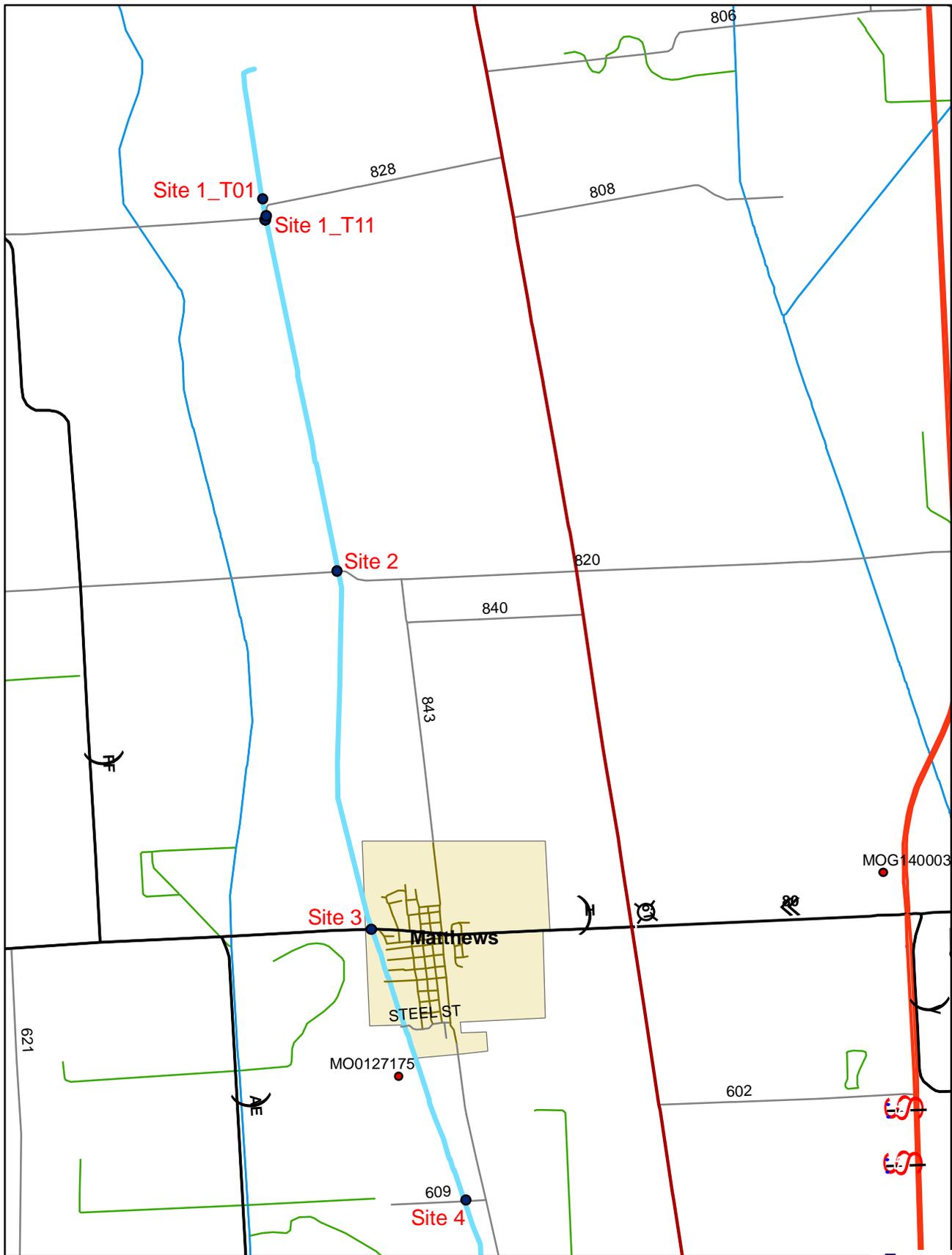
WBID # 3043 - Ditch # 104 New Madrid County



0 1,250 2,500 5,000 Meters

WBID # 3043 - Ditch # 104

New Madrid County



Weather Conditions

Weather conditions ten days previous to stream assessment are listed in the tables below. The date(s) that the stream was assessed are shaded.

Data from the WeatherUnderground.com
Dexter, MO

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Avg. Temp (°F)
10/5/2008	0.00	51.0	85.0	66.0
10/6/2008	0.00	60.0	83.0	70.0
10/7/2008	0.78	62.0	74.0	68.0
10/8/2008	0.00	53.0	71.0	64.0
10/9/2008	0.00	47.0	75.0	61.0
10/10/2008	0.00	56.0	83.0	67.0
10/11/2008	0.00	64.0	85.0	72.0
10/12/2008	0.00	64.0	84.0	72.0
10/13/2008	0.00	69.0	76.0	72.0
10/14/2008	0.04	70.0	72.0	71.0
10/15/2008	0.23	62.0	83.0	73.0
10/16/2008	0.43	49.0	64.0	57.0

WBID # 3043

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: <u>10/15/08 19:20</u>	Location Description (e.g., road crossing):
Stream Name: <u>Ditch # 104</u>	<u>Co Rd 828 Upstream</u>
Current Weather Conditions: <u>70° cloudy</u>	Facility Name(s): <u>MFA Oil Bulk Plant - KEWA</u> <u>Matthews WWT</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MOG380221</u> <u>MO0127176</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>1650268031</u>	Northing (UTM Y): <u>4078005</u>	Horizontal Accuracy: <u>6</u> Meters (EPE / FOM / PDOP)
Site 11	Easting (UTM X): <u>1650268051</u>	Northing (UTM Y): <u>4077853</u>	Horizontal Accuracy: <u>8</u> Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>312</u>	<u>Transect II Upstream</u>	<u>313</u>	<u>trash at transects 8-6</u>	<u>314</u>	<u>transect I Downstream</u>
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>315</u>	<u>transect I Downstream</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.)				

Stream Name & WBID # Ditch # 104 3043

Date of Survey 10/15/08

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.)

<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 type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <u>Farm fields - Dumping of trash furniture</u>				

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 type="checkbox"/> None of the above	Comments / Other: <u>Trash Dumping</u>			

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

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

100% Emergent plants

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input 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 type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Dry

*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 # Ditch #104 3043

Date of Survey 10/15/08

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.)

- Transects 8 - 6 trash - chairs, couches, clothes etc.
- Dry

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

Printed Names of Personnel Collecting Data: Abigail Lynn + Travis Howell

Surveyor's Signature: Abigail Lynn Date of Survey: 10/15/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u>	Waterbody ID: <u>3043</u>	Site #: <u>1</u>	Dissolved Oxygen	
Estimated Channel Incision: <u>Dry</u> (m) (height between low bank width and water)			Date: <u>10/15/2008</u>	Time: <u>18:20</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (<u>EPE</u> / PDOP / FOM)			Dissolved Oxygen: <u>Dry</u> (mg/L)	
01 UTM X <u>16S0268031</u>	UTM Y: <u>4078005</u>	+/- <u>6 (meters)</u>	Dissolved Oxygen: <u>Dry</u> (% sat)	
11 UTM X <u>16S0268051</u>	UTM Y: <u>4077853</u>	+/- <u>8 (meters)</u>	Specific Cond: <u>Dry</u> (µS/cm)	
Average Stream Width: <u>Dry</u> (meters)			Length of Survey Segment: <u>150</u> (meters)	
(To determine Length of Reach)			(20x average stream width)	
Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>				

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		0		0		0		0		0		0		0		0		0		0	
2	0		0		0		0		0		0		0		0		0		0		0	
3	0		0		0		0		0		0		0		0		0		0		0	
4	0		0		0		0		0		0		0		0		0		0		0	
5	0		0		0		0		0		0		0		0		0		0		0	
6	0		0		0		0		0		0		0		0		0		0		0	
7	0		0		0		0		0		0		0		0		0		0		0	
8	0		0		0		0		0		0		0		0		0		0		0	
9	0		0		0		0		0		0		0		0		0		0		0	
Right Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feature Type <small>(riffle, run, or pool)</small>	Dry																					

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: Abigail L. Lynn

Date: 10/15/2008

WBID # 3043

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: <u>10/16/08 08:15</u>	Location Description (e.g., road crossing):
Stream Name: <u>Ditch # 104</u>	<u>Co Rd 820 Downstream</u>
Current Weather Conditions: <u>57° cloudy rainy</u>	Facility Name(s): <u>MFA Oil Bulk Plant - KEWA</u> <u>Matthews WWTP</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MOG350221</u> <u>MO0127175</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>1650268491</u>	Northing (UTM Y): <u>4074598</u>	Horizontal Accuracy: <u>6</u> Meters (EPE / FOM / PDOP)
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>316</u>	<u>Transect 1 Mud/silt depth</u>	<u>317</u>	<u>transect 1 Downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # Ditch # 104 3043

Date of Survey 10/10/08

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.)

<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 type="checkbox"/> Other:
Comments: <u>Farm fields</u>				

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:			

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

% Cobble	% Gravel	% Sand	<u>50</u> % Silt	<u>50</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

60-70% Emergent plants

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 type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>black</u>
Bottom Deposit:	<input checked="" 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 # Ditch #104 3043

Date of Survey 10/16/08

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.)

- Unable to cross due to deep water + mud/silt depth
 - dangerous to wade
 - Pole + line method used
 - made it 2-3 meters across stream before too deep

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

Printed Names of Personnel Collecting Data: Miguel Lynn + Travis Howell

Surveyor's Signature: [Signature] Date of Survey: 10/16/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u> Waterbody ID: <u>3043</u> Site #: <u>2</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 (<u>EPE</u> / PDOP / FOM) 01 UTM X <u>16S0268491</u> UTM Y: <u>4074598</u> +/- <u>6</u> (meters) 11 UTM X: _____ UTM Y: _____ +/- _____ (meters) Average Stream Width: <u>10.5 +/-</u> (meters) Length of Survey Segment: <u>200+</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>	Dissolved Oxygen
	Date: <u>10/16/2008</u> Time: <u>8:15</u>
	Dissolved Oxygen: <u>2.1</u> (mg/L)
	Dissolved Oxygen: <u>22.3</u> (% sat)
	Specific Cond: <u>303</u> (µS/cm)
	Water Temperature: <u>18.37</u> (°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	1.05	0.4	0											0		0		0		0		0
2	2.1	0.4	0											0		0		0		0		0
3	3.15	0.6	0											0		0		0		0		0
4	4.2	1	0	Too Deep to Cross Deep Mud/Silt (.6+m mud depth)										0		0		0		0		0
5	5.25	0.9	0	Pole and line method used										0		0		0		0		0
6	6.3	0.9	0											0		0		0		0		0
7	7.35	0.8	0											0		0		0		0		0
8	8.4	0.7	0											0		0		0		0		0
9	9.45	0.2	0											0		0		0		0		0
Right Bank	10.5	0		0		0		0		0		0		0		0		0		0		0
Feature Type <small>(riffle, run, or pool)</small>	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 0.1 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: Abigail L. Lynn Date: 10/16/2008

WBID # 3043

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: <u>10/16/08 08:32</u>	Location Description (e.g., road crossing):
Stream Name: <u>Ditch # 104</u>	<u>Hwy 4 Downstream</u>
Current Weather Conditions: <u>57° clouds rain</u>	Facility Name(s): <u>MFA Oil Bulk Plant - KEWA Mathews Wastewater Treat</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MOG350221 MOO127175</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>1650269598</u>	Northing (UTM Y): <u>4071333</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>4</u> Meters		
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: (EPE / FOM / PDOP) Meters		

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>318</u>	<u>transect 1 Downstream</u>	<u>319</u>	<u>transect 2 mud/silt depth</u>	<u>320</u>	<u>water flowing into Ditch 104</u>
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # Ditch # 1041 3043

Date of Survey 10/16/08

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.)

<input checked="" 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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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:			

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

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

60-70% Emergent Plants + Submerged plants

Water Characteristics*: (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>black</u>
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 # Ditch # 104 3043

Date of Survey 10/16/08

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.)

- After transect # 2 mud/silt became .67m deep + greater water was shallower on top of mud (.03-.10 deep) unable to walk because of depth of mud - too dangerous

- Notable to gather information beyond transect # 2

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

Printed Names of Personnel Collecting Data: Abigail Lynn + Travis Howell

Surveyor's Signature: Abigail Lynn Date of Survey: 10/16/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u> Waterbody ID: <u>3043</u> Site #: <u>3</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 (<u>EPE</u> / PDOP / FOM) 01 UTM X <u>16S0268598</u> UTM Y: <u>4071333</u> +/- <u>4</u> (meters) 11 UTM X: _____ UTM Y: _____ +/- _____ (meters) Average Stream Width: <u>9 +/-</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>	Dissolved Oxygen
	Date: <u>10/16/2008</u> Time: <u>8:15</u>
	Dissolved Oxygen: <u>6.17</u> (mg/L)
	Dissolved Oxygen: <u>65.9</u> (% sat)
	Specific Cond: <u>304</u> (µS/cm)
	Water Temperature: <u>18.76</u> (°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	0.53	0.13	0.76	0.05											0		0		0		0		
2	1.06	0.13	1.52	0.09											0		0		0		0		
3	1.59	0.21	2.28	0.09											0		0		0		0		
4	2.12	0.22	3.04	0.04	Mud/Silt is +/- .67m deep too danerous to continue										0		0		0		0		0
5	2.65	0.31	3.8	0.12											0		0		0		0		
6	3.18	0.33	4.56	0.11											0		0		0		0		
7	3.71	0.22	5.32	0.17											0		0		0		0		
8	4.24	0.05	6.08	0.24											0		0		0		0		
9	4.77	0.03	6.84	0.27											0		0		0		0		
Right Bank	5.3	0	7.6	0		0		0		0		0		0		0		0		0		0	
Feature Type <small>(riffle, run, or pool)</small>	Run		Run																				

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 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: Abigail L. Lynn Date: 10/16/2008

WBID # 3043

Site # 4

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>10/10/08 09:03</u>	Location Description (e.g., road crossing): <u>Ag Air Inc. - Co Rd that runs by sign - Downstream</u>
Stream Name: <u>Ditch # 104</u>	Facility Name(s): <u>MFA Oil Bulk Plant - KEWA Mathews West</u>
Current Weather Conditions: <u>36° cloudy, rainy</u>	Permit Number(s): <u>MO 6380221 MO 0127175</u>
Weather Conditions for Past 10 days: <u>attached</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>11650269299</u>	Northing (UTM Y): <u>40628932</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>4</u> Meters
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: (EPE / FOM / PDOP) Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>321</u>	<u>Mud silt deep but shallow water</u>	<u>322</u>	<u>transect 1 Downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # Ditch #104 3043

Date of Survey 1/16/08

Site # 4

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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

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:			

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

% Cobble	% Gravel	% Sand	<u>20</u> % Silt	<u>80</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

60-70% Duckweed / Emergent / Submergent plants

Water Characteristics*: (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <u>black</u>
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 # Ditch # 104 3043

Date of Survey 10/14/08

Site # 4

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.)

- Unable to cross + continue down ditch because mud depth was .60 m deep and greater

- Dangerous to cross

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

Printed Names of Personnel Collecting Data: Abigail Lynn & Travis Howell

Surveyor's Signature: [Signature] Date of Survey: 10/14/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u> Waterbody ID: <u>3043</u> Site #: <u>4</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 (<u>EPE</u> / PDOP / FOM) 01 UTM X <u>16S0269299</u> UTM Y: <u>4068832</u> +/- <u>4</u> (meters) 11 UTM X: _____ UTM Y: _____ +/- _____ (meters) Average Stream Width: <u>7.7 +/-</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>	Dissolved Oxygen Date: <u>10/16/2008</u> Time: <u>9:03</u> Dissolved Oxygen: <u>1.34</u> (mg/L) Dissolved Oxygen: <u>13.9</u> (% sat) Specific Cond: <u>401</u> (µS/cm) Water Temperature: <u>16.97</u> (°C)
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Transect Cross-Section

	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)	
Station	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Left Bank																							
1	0.77	0.08	0											0		0		0		0			
2	1.54	0.27	0											0		0		0		0			
3	2.31	0.52	0											0		0		0		0			
4	3.08	0.53	0		Mud/Silt is too deep to cross .6m deep										0		0		0		0		
5	3.85	0.05	0											0		0		0		0			
6	4.62	0.06	0											0		0		0		0			
7	5.39	0.07	0											0		0		0		0			
8	6.16	0.05	0											0		0		0		0			
9	6.93	0.08	0											0		0		0		0			
Right Bank	7.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Feature Type <small>(riffle, run, or pool)</small>	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 0.1 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: Abigail L. Lynn Date: 10/16/2008

WBID # 3043

Site # 5

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>10/16/08</u>	Location Description (e.g., road crossing): <u>Hwy 111 Bridge Downstream</u>
Stream Name: <u>Ditch # 104</u>	
Current Weather Conditions: <u>58° cloudy</u>	Facility Name(s): <u>MFA Oil Bulk Plant - KEWA</u> <u>Matthews WWTP</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MOG350221</u> <u>MD 0127175</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>1650269273</u>	Northing (UTM Y): <u>4067163</u>	Horizontal Accuracy: <u>4</u> Meters (EPE / FOM / PDOP)
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>323</u>	<u>transect 1 Downstream</u>	<u>324</u>	<u>transect 1.5 mud too deep</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # Ditch # 104 3043

Date of Survey 12/16/08

Site # 5

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 type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <i>Farm fields</i>				

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:			

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

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

Submergent & Emergent plants / Duckweed
50-60%

Water Characteristics*: (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <i>black</i>
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 # Ditch # 104 3043

Date of Survey 10/16/08

Site # 5

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.)

- Could not continue after transect # 1 - able to do # 1 because ditch was narrow.

- Ditch gets wider - water is shallow but mud is .84 m +/- throughout.

- Too dangerous to cross

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

Printed Names of Personnel Collecting Data: Abigail Lynn & Travis Howell

Surveyor's Signature: Abigail Lynn Date of Survey: 10/16/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u>	Waterbody ID: <u>3043</u>	Site #: <u>5</u>	Dissolved Oxygen	
Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)			Date: <u>10/16/2008</u>	Time: <u>9:23</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (<u>EPE</u> / PDOP / FOM)				
01 UTM X <u>16S0269273</u>	UTM Y: <u>4067163</u>	+/- <u>4</u> (meters)		
11 UTM X: _____	UTM Y: _____	+/- _____ (meters)		
Average Stream Width: <u>4.9 +/-</u> (meters)		Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)		(20x average stream width)		
Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>				

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	0.49	0.03	0												0		0		0		0	
2	0.98	0.05	0												0		0		0		0	
3	1.47	0.12	0												0		0		0		0	
4	1.96	0.25	0		.84m deep mud .05m deep water pole and line method used										0		0		0		0	
5	2.45	0.29	0												0		0		0		0	
6	2.94	0.58	0												0		0		0		0	
7	3.43	0.4	0												0		0		0		0	
8	3.92	0.11	0												0		0		0		0	
9	4.41	0.02	0												0		0		0		0	
Right Bank	4.9	0	0	0		0		0		0		0		0	0		0		0		0	
Feature Type <small>(riffle, run, or pool)</small>	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 0.1 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: Abigail L. Lynn Date: 10/16/2008

WBID # 3043

Site # 6

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>10/16/08 09:41</u>	Location Description (e.g., road crossing): <u>Private Bridge off Co Rd 613 Downstream</u>
Stream Name: <u>Ditch # 104</u>	Facility Name(s): <u>MFA Oil Bulk Plant - Kowa Mattheus WWTP</u>
Current Weather Conditions: <u>58° cloudy</u>	Permit Number(s): <u>MO 6350221 MO 0127175</u>
Weather Conditions for Past 10 days: <u>attached</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>1650269218</u>	Northing (UTM Y): <u>40647663</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>5</u> Meters
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: (EPE / FOM / PDOP) Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>325</u>	<u>Depth of water + mosley mud at T-1</u>	<u>326</u>	<u>transect 1 Downstream</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)

Stream Name & WBID # Ditch # 104 3043

Date of Survey 10/16/08

Site # 6

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 type="checkbox"/> Other:

Comments:
Farm fields

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

None of the above
Comments / Other:

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

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

40-50% long strands filamentous algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: <i>black</i>
Bottom Deposit:	<input checked="" type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input 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 # Ditch # 104 3043

Date of Survey 10/16/08

Site # 6

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.)

- Ditch is wider + deeper but mud/silt is still deep (.7m deep + greater)
 - Unable to cross due to deep mud - too dangerous

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

Printed Names of Personnel Collecting Data: Abigail Lynn + Travis Howell

Surveyor's Signature: [Signature] Date of Survey: 10/16/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u>	Waterbody ID: <u>3043</u>	Site #: <u>5</u>	Dissolved Oxygen	
Estimated Channel Incision: <u>0</u> (m) (height between low bank width and water)			Date: <u>10/16/2008</u>	Time: <u>9:23</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (<u>EPE</u> / PDOP / FOM)			Dissolved Oxygen: <u>3.92</u> (mg/L)	
01 UTM X <u>16S0269218</u>	UTM Y: <u>4064765</u>	+/- <u>5</u> (meters)	Dissolved Oxygen: <u>40.6</u> (% sat)	
11 UTM X: _____	UTM Y: _____	+/- _____ (meters)	Specific Cond: <u>345</u> (µS/cm)	
Average Stream Width: <u>4.9 +/-</u> (meters)		Length of Survey Segment: <u>150</u> (meters)	Water Temperature: <u>16.93</u> (°C)	
(To determine Length of Reach)		(20x average stream width)		
Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>				

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	0.88	0.12	0												0		0		0		0	
2	1.76	0.15	0												0		0		0		0	
3	2.64	0.36	0												0		0		0		0	
4	3.52	0.66	0		.7m deep mud unable to continue								0		0		0		0		0	
5	4.4	0.53	0												0		0		0		0	
6	5.28	0.58	0												0		0		0		0	
7	6.16	0.66	0												0		0		0		0	
8	7.04	0.38	0												0		0		0		0	
9	7.92	0.21	0												0		0		0		0	
Right Bank	8.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feature Type <small>(riffle, run, or pool)</small>	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 0.1 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: Abigail L. Lynn Date: 10/16/2008

WBID # 3043

Site # 7

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>10/16/08 09:58</u>	Location Description (e.g., road crossing):
Stream Name: <u>Ditch # 104</u>	<u>Co Rd 630 Downstream</u>
Current Weather Conditions: <u>58° clouds rainy</u>	Facility Name(s): <u>MFA Oil Bulk Plant - Kewa Matthews WWT</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MO 6350221 MO0127175</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>1650269178</u>	Northing (UTM Y): <u>40603145</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>6</u> Meters
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: (EPE / FOM / PDOP) Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>327</u>	<u>transect 1 Downstream</u>	<u>328</u>	<u>depth of mud + shallow water +3</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # Ditch # 104 3043

Date of Survey 10/16/08

Site # 7

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 type="checkbox"/> Other:
Comments: <u>Farm Fields</u>				

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:			

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

% Cobble	% Gravel	<u>20</u> % Sand	<u>40</u> % Silt	<u>40</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

20-30% long strands filamentous algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other: <u>black</u>
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 # Ditch #104 3043

Date of Survey 10/16/08

Site # 7

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.)

- could not continue part transect # 4 mud hole was greater than 0.65m deep
- water was much deeper this site

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

Printed Names of Personnel Collecting Data: Abigail Lyon & Travis Howell

Surveyor's Signature: [Signature] Date of Survey: 10/16/08

Organization: ERC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u>	Waterbody ID: <u>3043</u>	Site #: <u>7</u>	Dissolved Oxygen	
Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)			Date: <u>10/16/2008</u>	Time: <u>9:58</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (<u>EPE</u> / PDOP / FOM)				
01 UTM X <u>16S0269178</u>	UTM Y: <u>4063145</u>	+/- <u>6</u> (meters)		
11 UTM X: _____	UTM Y: _____	+/- _____ (meters)		
Average Stream Width: <u>4-7 +/-</u> (meters)		Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)		(20x average stream width)		
Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>				

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	0.39	0.1	0.36	0.27	0.48	0.06									0		0		0		0		
2	0.78	0.14	0.72	0.43	0.96	0.13									0		0		0		0		
3	1.17	0.4	1.08	0.54	1.44	0.55									0		0		0		0		
4	1.56	0.62	1.44	0.57	1.92	0.56	.65m mud depth unable to continue							0		0		0		0		0	
5	1.95	0.61	1.8	0.6	2.4	0.52									0		0		0		0		
6	2.34	0.58	2.16	0.58	2.88	0.48									0		0		0		0		
7	2.73	0.4	2.52	0.52	3.36	0.22									0		0		0		0		
8	3.12	0.23	2.88	0.43	3.84	0.09									0		0		0		0		
9	3.51	0.11	3.24	0.26	4.32	0.06									0		0		0		0		
Right Bank	3.9	0	3.6	0	4.8	0		0		0		0		0		0		0		0		0	
Feature Type <small>(riffle, run, or pool)</small>	Run		Run		Run																		

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 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: Abigail L. Lynn Date: 10/16/2008

WBID # 3043

Site # 8

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>10/16/08 10:22</u>	Location Description (e.g., road crossing):
Stream Name: <u>Ditch #104</u>	<u>Co Rd 613 Downstream</u>
Current Weather Conditions: <u>59° cloudy</u>	Facility Name(s): <u>MFA Oil Bulk Plant - REWA Matthews WWT</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MO 6350221 MO 0127175</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>1650269042</u>	Northing (UTM Y): <u>4060043</u>	Horizontal Accuracy: <u>5</u> Meters (EPE / FOM / PDOP)
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>329</u>	<u>transect 1 Downstream</u>	<u>330</u>	<u>transect 2 deep water + mud</u>		
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 Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # Ditch # 104 3043

Date of Survey 10/16/08

Site # 8

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 type="checkbox"/> Other:
Comments: <u>Farm Fields</u>				

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:			

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

% Cobble	% Gravel	<u>50</u> % Sand	<u>40</u> % Silt	<u>10</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>80% Algae + long strands of filamentous algae cover</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 type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" 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 # Ditch # 104 8043

Date of Survey 10/16/08

Site # 8

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.)

- Water was deep 1.2m
- Lots of trash in ditch - holes in waders
- Could not continue after transect # 2 due to water depth + mud depth

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

Printed Names of Personnel Collecting Data: Abigail Lynn + Travis Howell

Surveyor's Signature: Abigail Lynn Date of Survey: 10/16/08

Organization: EPC Position: Field Manager

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Ditch # 104</u>	Waterbody ID: <u>3043</u>	Site #: <u>8</u>	Dissolved Oxygen	
Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)			Date: <u>10/16/2008</u>	Time: <u>10:22</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (<u>EPE</u> / PDOP / FOM)			Dissolved Oxygen: <u>6.33</u> (mg/L)	
01 UTM X <u>16S0269042</u>	UTM Y: <u>4060043</u>	+/- <u>5</u> (meters)	Dissolved Oxygen: <u>65.1</u> (% sat)	
11 UTM X: _____	UTM Y: _____	+/- _____ (meters)	Specific Cond: <u>359</u> (µS/cm)	
Average Stream Width: <u>7-10 +/-</u> (meters)		Length of Survey Segment: <u>200+</u> (meters)	Water Temperature: <u>16.41</u> (°C)	
(To determine Length of Reach)		(20x average stream width)		
Field Staff: <u>Abby Lynn and Travis Howell (AL & TH)</u>				

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)								
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.77	0.26	0.99	0.41										0		0		0		0		
2	1.54	0.54	1.98	0.5										0		0		0		0		
3	2.31	0.63	2.97	0.92										0		0		0		0		
4	3.08	0.65	3.96	1.2					Too deep to continue some silt - lots of trash					0		0		0		0		
5	3.85	0.7	4.95	1.2					to dangerous to continue					0		0		0		0		
6	4.62	0.62	5.94	1.1					putting holes in waders					0		0		0		0		
7	5.39	0.65	6.93	1.1										0		0		0		0		
8	6.16	0.55	7.92	0.8										0		0		0		0		
9	6.93	0.34	8.91	0.6										0		0		0		0		
Right Bank	7.7	0	9.9	0		0		0		0		0		0		0		0		0		
Feature Type <small>(riffle, run, or pool)</small>	Run		Run																			

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 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: Abigail L. Lynn Date: 10/16/2008

