

**Recreational Use Attainability Analysis of Brushy Creek (Segment 1244)**

**Appendix 2**

**Field Data Sheets**

Site 1

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. Wraast, K. Condaa, M. Shah		
Date & Time:	5/7/10	1030-1124	County Name: Williamson
Stream Name:	Brushy Creek		
Segment No. or nearest downstream Segment No.:	1244		
Description of Site:	Walsh Dr @ Brushy Creek		

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 22.449 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 29 °C

Water Temp

24 °C Secchi to bottom Clear

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |             |   |  |                                   |
|-------------|---|--|-----------------------------------|
| <u>L, R</u> | <input checked="" type="checkbox"/> Forest  | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
|             | <input checked="" type="checkbox"/> Shrub dominated corridor <u>with some trees</u> | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete |
|             | <input type="checkbox"/> Herbaceous marsh   | <input type="checkbox"/> Row crops           | Other (specify): _____            |
|             | <input type="checkbox"/> Mowed/maintained corridor                                  | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Low water BRIDGE, low bank @ the bridge

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

QC  
SO  
QC  
KC  
E  
PL

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 1  
Date: 5/27/10 - 424 W Time: 1030-1124  
5/11/10

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

No primary contact activities that commonly occur were observed

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

No features that would hinder access,  
Shallow but suitable for wading

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

There is a walking trail across the street  
where numerous individuals were observed

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 1  
Date: 5/9/10 Time: 1030-11-24

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water
- Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

Same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

Same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name Brush Creek Site: 1  
 Date: 5/7/10 FDS Page 3 of 8 1020-112d

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

I. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	<u>0.66ft</u>	<u>0.20m</u>
60 meters	<u>0.67ft</u>	<u>0.20m</u>
90 meters	<u>0.62ft</u>	<u>0.21m</u>
120 meters	<u>0.48ft</u>	<u>0.15m</u>
150 meters	<u>0.5ft</u>	<u>0.15m</u>
180 meters	<u>0.52ft</u>	<u>0.16m</u>
210 meters	<u>0.54ft</u>	<u>0.16m</u>
240 meters	<u>0.46ft</u>	<u>0.14m</u>
270 meters	<u>0.58ft</u>	<u>0.18m</u>
300 meters	<u>0.46ft</u>	<u>0.14m</u>
<b>Average</b>		<u>0.17m</u>

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 1  
 Date: 3/7/18 Time: 1030-1124

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	53.9 ft	16.43 m
Width at narrowest point of the stream within 300 meter reach	57 ft	15.54 m
Width at the widest point of the stream within 300 meter reach	80.10 ft	24.41 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:  
Children able to wade

#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 1  
 Date: 5/27/10 Time: 1030-1124

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input checked="" type="checkbox"/> Walking         | <input type="checkbox"/> Motorcycle/ATV       |
| <input checked="" type="checkbox"/> Jogging/running | <input type="checkbox"/> Hunting/Trapping     |
| <input checked="" type="checkbox"/> Bicycling       | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input type="checkbox"/> None                 |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |   |                                 |   |   |  |
|---|---------------------------------|---|---|--|
| <input type="checkbox"/> Culverts   | <input type="checkbox"/> Fences | <input type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap                | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams   | <input type="checkbox"/> Thick vegetation | <input checked="" type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe <input type="checkbox"/> Other (specify): _____ |                                 |   |   |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |   |  |   |  |
|---|--|---|--|
| <input type="checkbox"/> Campgrounds                        | <input type="checkbox"/> Stairs/walkway                          | <input type="checkbox"/> Roads (paved/unpaved)              | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds                        | <input type="checkbox"/> Boating access (ramps)                  | <input checked="" type="checkbox"/> Populated area          | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area                         | <input type="checkbox"/> Beach                                   | <input type="checkbox"/> Docks or rafts                     |  |
| <input checked="" type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing              | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests                   | <input type="checkbox"/> Commercial boating                      | <input type="checkbox"/> Nearby school                      |  |
| <input checked="" type="checkbox"/> Urban/suburban location | <input checked="" type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course                        | <input type="checkbox"/> Paved parking lot                       | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field                       | <input type="checkbox"/> Unimproved parking lot                  | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence                        |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic           |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial                   |
| <input type="checkbox"/> Steep slopes     | <input checked="" type="checkbox"/> None of the Above |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |  |  |
|--|---|--|--|
| <input checked="" type="checkbox"/> Roads  | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys         |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other:            |   |  |  |

Comments: Traffic was constant on the road adjoining running beside the creek and over the bridge.

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 1  
 Date: 5/7/10 Time: 1030-1124

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

1 dead snake

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests  Birds along banks but no nests observed

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: water bottles

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

baseball on the bank

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/7/10  
 Site: 1 Site  
 Description: Walsh Dr @ Brushy Creek  
 Time Begin: 10:39 Time End: 10:59 Meter Type: Sontek Flowtracker  
 Observers: L. Ray, J. WRAST Stream Width\*: 49 ft. Section Width (W): 2.45  
 Observations: Thick bed of filamentous algae may affect depth

Section Midpoint (ft)(m)	Section Depth (ft)(m) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
1.225	0.70			0.85	
3.1075	0.65			1.11	
6.125	0.65	<u>ll</u> <u>5/7/10</u>		0.86	
8.575	0.65			1.06	
11.025	0.75			0.71	
13.475	0.7165	<u>ll</u> <u>5/7/10</u>		0.61	
15.925	0.70			0.38	
18.375	0.70			0.54	
20.825	0.60			0.63	
23.275	0.60			0.49	
25.725	0.60			0.61	
28.175	0.60			0.81	
30.625	0.70			0.33	
33.075	0.70			0.57	
35.525	0.65			0.75	
37.975	0.70			0.80	
40.425	0.60			1.09	
42.875	0.60			1.13	
45.325	0.60			0.43	
47.775	0.60			0.39	

Total Q 21.941

*Emishy*  
5/13/10

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 1.WAD  
Start Date and Time 2010/05/07 10:34:37

## Site Details

Site Name BC1  
Operator(s) JW

## System Information

Sensor Type FlowTracker  
Serial # P1880  
CPU Firmware Version 3.4  
Software Ver 2.30  
Mounting Correction 0.0%

## Units (English Units)

Distance ft  
Velocity ft/s  
Area ft<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	1.4%
Velocity	1.2%	5.5%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.3%	-
<b>Overall</b>	<b>3.3%</b>	<b>5.8%</b>

## Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	49.000
Mean SNR	23.8 dB	Total Area	31.055
Mean Temp	75.87 °F	Mean Depth	0.634
Disch. Equation	Mid-Section	Mean Velocity	0.7065
		<b>Total Discharge</b>	<b>21.9409</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:34	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	10:34	1.23	0.6	0.700	0.6	0.280	0.8497	1.00	0.8497	1.286	1.0931	5.0
2	10:35	3.67	0.6	0.650	0.6	0.260	1.1079	1.00	1.1079	1.592	1.7641	8.0
3	10:36	6.12	0.6	0.650	0.6	0.260	0.8560	1.00	0.8560	1.592	1.3629	6.2
4	10:37	8.57	0.6	0.650	0.6	0.260	1.0581	1.00	1.0581	1.592	1.6847	7.7
5	10:38	11.02	0.6	0.750	0.6	0.300	0.7103	1.00	0.7103	1.837	1.3051	5.9
6	10:40	13.47	0.6	0.650	0.6	0.260	0.6070	1.00	0.6070	1.592	0.9664	4.4
7	10:41	15.92	0.6	0.700	0.6	0.280	0.3773	1.00	0.3773	1.715	0.6471	2.9
8	10:42	18.37	0.6	0.700	0.6	0.280	0.5410	1.00	0.5410	1.715	0.9279	4.2
9	10:43	20.82	0.6	0.600	0.6	0.240	0.6322	1.00	0.6322	1.470	0.9294	4.2
10	10:44	23.27	0.6	0.600	0.6	0.240	0.4925	1.00	0.4925	1.470	0.7239	3.3
11	10:45	25.72	0.6	0.600	0.6	0.240	0.6145	1.00	0.6145	1.470	0.9033	4.1
12	10:46	28.17	0.6	0.600	0.6	0.240	0.8068	1.00	0.8068	1.470	1.1860	5.4
13	10:47	30.62	0.6	0.700	0.6	0.280	0.3314	1.00	0.3314	1.715	0.5684	2.6
14	10:48	33.07	0.6	0.700	0.6	0.280	0.5735	1.00	0.5735	1.715	0.9836	4.5
15	10:49	35.52	0.6	0.650	0.6	0.260	0.7507	1.00	0.7507	1.592	1.1952	5.4
16	10:50	37.97	0.6	0.700	0.6	0.280	0.7999	1.00	0.7999	1.715	1.3719	6.3
17	10:52	40.42	0.6	0.600	0.6	0.240	1.0932	1.00	1.0932	1.470	1.6070	7.3
18	10:52	42.87	0.6	0.600	0.6	0.240	1.1293	1.00	1.1293	1.470	1.6601	7.6
19	10:53	45.32	0.6	0.600	0.6	0.240	0.4285	1.00	0.4285	1.470	0.6299	2.9
20	10:54	47.77	0.6	0.600	0.6	0.240	0.3904	1.00	0.3904	1.104	0.4309	2.0
21	10:54	49.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

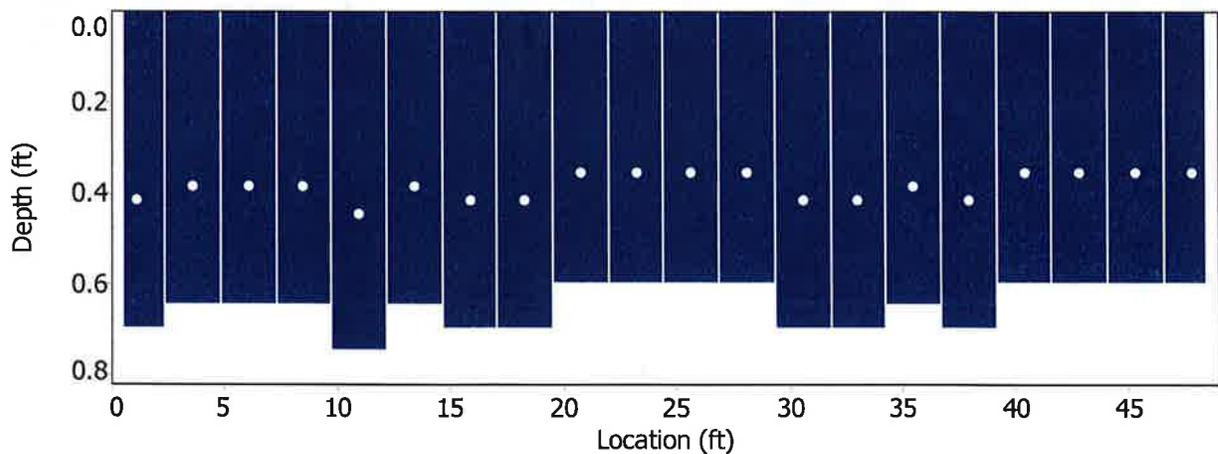
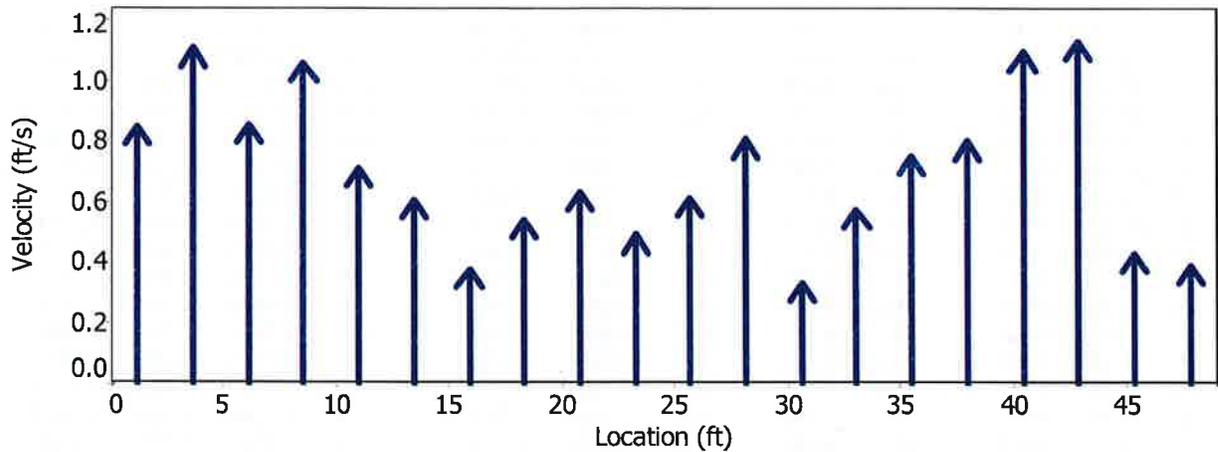
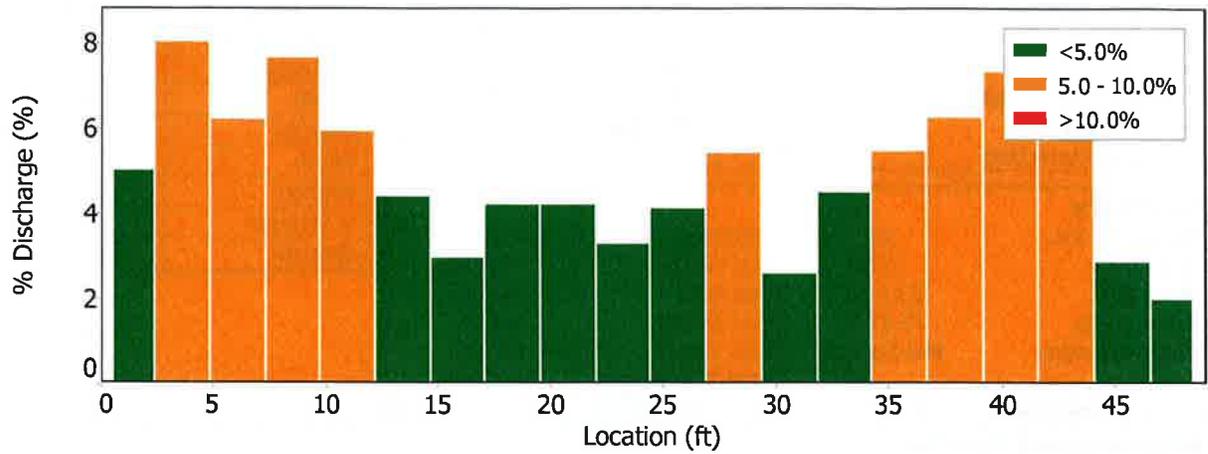
Date Generated: Thu May 13 2010

### File Information

File Name: Brushy Creek 1.WAD  
 Start Date and Time: 2010/05/07 10:34:37

### Site Details

Site Name: BC1  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

**File Information**

File Name Brushy Creek 1.WAD  
Start Date and Time 2010/05/07 10:34:37

**Site Details**

Site Name BC1  
Operator(s) JW

**Quality Control**

St	Loc	%Dep	Message
7	15.92	0.6	Boundary QC is Good; possible boundary interference
9	20.82	0.6	High number of spikes: 3
13	30.62	0.6	High SNR variation during measurement: 9.0,7.7 High standard error: 0.073
19	45.32	0.6	High angle: 28
20	47.77	0.6	High angle: 36

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

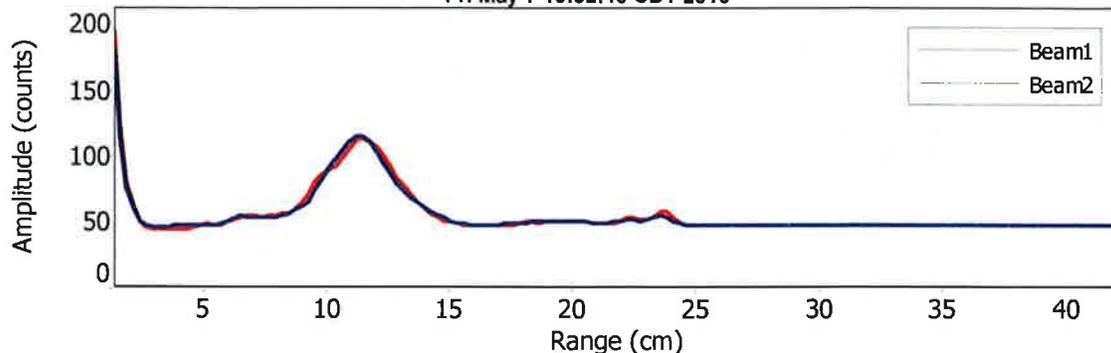
File Name Brushy Creek 1.WAD  
Start Date and Time 2010/05/07 10:34:37

## Site Details

Site Name BC1  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Fri May 7 10:32:40 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 2

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	Lalay, J. West, K. Conder, M. Shah
Date & Time:	5/7/10 1127-1220 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	Great Oaks Dr @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 21.836 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 30 °C Water Temp 25.5 °C

Clear to

Sechi Bottom m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream)

L,R  
L,R

<input checked="" type="checkbox"/> Forest - <u>further down stream</u>	<input type="checkbox"/> Urban	<input type="checkbox"/> Rip rap
<input checked="" type="checkbox"/> Shrub dominated corridor <u>w/ some trees</u>	<input type="checkbox"/> Pasture	<input type="checkbox"/> Concrete
<input type="checkbox"/> Herbaceous marsh	<input type="checkbox"/> Row crops	Other (specify): _____
<input type="checkbox"/> Mowed/maintained corridor	<input type="checkbox"/> Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation)

low Bank

8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

QC  
KC  
SP

L,R

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 2  
Date: 5/7/10 Time: 1127-1220

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Walking trail across the street  
from the creek KC 7/2/10 NONE

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Bridge

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? No

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 2  
Date: 5/7/10 Time: 1127-1220

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
SAME

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
SAME

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
SAME

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 2  
 Date: 5/7/10 FDS Page 3 of 8 Time: 1127-1220

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	0.66ft	0.20m
60 meters	1.29ft	0.39m
90 meters	1.61ft	0.49m
120 meters	1.92ft	0.59m
150 meters	0.86ft	0.27m
180 meters	0.7ft	0.21m
210 meters	0.6ft	0.18m
240 meters	0.61ft	0.19m
270 meters	0.5ft	0.15m
300 meters	0.7ft	0.21m
<b>Average</b>		<b>0.29m</b>

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 2  
 Date: 5/7/10 Time: 1129-1220

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	38.1 (11.612m)
Width at narrowest point of the stream within 300 meter reach	29.9 (9.113m)
Width at the widest point of the stream within 300 meter reach	81.5 (24.84m)

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 9  
 Date: 5/7/90 Time: 1127-1220

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

*Across the street*

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 2  
 Date: 5/7/10 Time: 1127 - 1220

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: Numerous fish observed

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments:

Bats under Bridge  
 dead CAT

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests Bats

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed:

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

N/A ← 7/2/10 There was a walking trail across the street that could promote recreation

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/7/10  
 Site: 2 Site  
 Description: Great Oaks Dr @ Brushy Creek  
 Time Begin: 11:50 Time End: 12:10 Meter Type: Sontek Flowmeter  
 Observers: L. Kay, J. West Stream Width\*: 33.8 Section Width (W): 1.69  
 Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m³/s) (ft³/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.845	0.180	24		0.18	
2.535	0.45	5/7/10		0.74	
4.225	0.55			0.34	
5.915	0.60			0.64	
7.605	0.80			0.59	
9.295	1.0			0.58	
10.985	1.1			0.48	
12.675	1.1			0.66	
14.365	1.2			0.25	
16.055	1.1			0.76	
17.745	1.0			0.95	
19.435	1.0			0.87	
21.125	1.0			0.874	4 5/7/10
22.815	0.90			0.86	
24.505	0.85	85 LR 5/7/10		1.05	
26.195	0.85	LR		1.13	
27.885	0.85			1.16	
29.575	0.90			1.11	
31.265	0.90			0.89	
32.955	0.90			0.58	

Note: Thick Algae on bottom - same as last site.

Total Q 21.477

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

File Information		Site Details	
File Name	Brushy Creek 2.WAD	Site Name	BC2
Start Date and Time	2010/05/07 11:46:28	Operator(s)	JW

System Information		Units (English Units)		Discharge Uncertainty		
Sensor Type	FlowTracker	Distance	ft	<b>Category</b>	<b>ISO</b>	<b>Stats</b>
Serial #	P1880	Velocity	ft/s	Accuracy	1.0%	1.0%
CPU Firmware Version	3.4	Area	ft <sup>2</sup>	Depth	0.3%	1.0%
Software Ver	2.30	Discharge	cfs	Velocity	1.0%	5.3%
Mounting Correction	0.0%			Width	0.1%	0.1%
				Method	1.8%	-
				# Stations	2.3%	-
				<b>Overall</b>	<b>3.3%</b>	<b>5.5%</b>

Summary			
Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	33.800
Mean SNR	38.3 dB	Total Area	28.666
Mean Temp	78.81 °F	Mean Depth	0.848
Disch. Equation	Mid-Section	Mean Velocity	0.7492
		<b>Total Discharge</b>	<b>21.4775</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:46	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:46	0.85	0.6	0.200	0.6	0.080	0.1824	1.00	0.1824	0.250	0.0456	0.2
2	11:48	2.50	0.6	0.450	0.6	0.180	0.7408	1.00	0.7408	0.761	0.5635	2.6
3	11:50	4.23	0.6	0.550	0.6	0.220	0.3379	1.00	0.3379	0.949	0.3205	1.5
4	11:51	5.95	0.6	0.600	0.6	0.240	0.6434	1.00	0.6434	1.035	0.6660	3.1
5	11:52	7.68	0.6	0.800	0.6	0.320	0.5853	1.00	0.5853	1.380	0.8076	3.8
6	11:53	9.40	0.6	1.000	0.6	0.400	0.5846	1.00	0.5846	1.725	1.0086	4.7
7	11:55	11.13	0.6	1.100	0.6	0.440	0.4813	1.00	0.4813	1.898	0.9134	4.3
8	11:55	12.85	0.6	1.100	0.6	0.440	0.6614	1.00	0.6614	1.898	1.2552	5.8
9	11:57	14.58	0.6	1.200	0.6	0.480	0.2467	1.00	0.2467	2.070	0.5108	2.4
10	11:58	16.30	0.6	1.100	0.6	0.440	0.7556	1.00	0.7556	1.898	1.4338	6.7
11	11:59	18.03	0.6	1.000	0.6	0.400	0.9508	1.00	0.9508	1.725	1.6402	7.6
12	11:59	19.75	0.6	1.000	0.6	0.400	0.8737	1.00	0.8737	1.725	1.5072	7.0
13	12:00	21.48	0.6	1.000	0.6	0.400	0.8396	1.00	0.8396	1.725	1.4483	6.7
14	12:01	23.20	0.6	0.900	0.6	0.360	0.8593	1.00	0.8593	1.552	1.3339	6.2
15	12:02	24.93	0.6	0.850	0.6	0.340	1.0531	1.00	1.0531	1.466	1.5444	7.2
16	12:03	26.65	0.6	0.800	0.6	0.320	1.1293	1.00	1.1293	1.183	1.3364	6.2
17	12:05	27.88	0.6	0.850	0.6	0.340	1.1598	1.00	1.1598	1.243	1.4415	6.7
18	12:07	29.58	0.6	0.900	0.6	0.360	1.1070	1.00	1.1070	1.521	1.6838	7.8
19	12:08	31.27	0.6	0.900	0.6	0.360	0.8907	1.00	0.8907	1.521	1.3550	6.3
20	12:08	32.96	0.6	0.900	0.6	0.360	0.5804	1.00	0.5804	1.140	0.6619	3.1
21	12:08	33.80	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

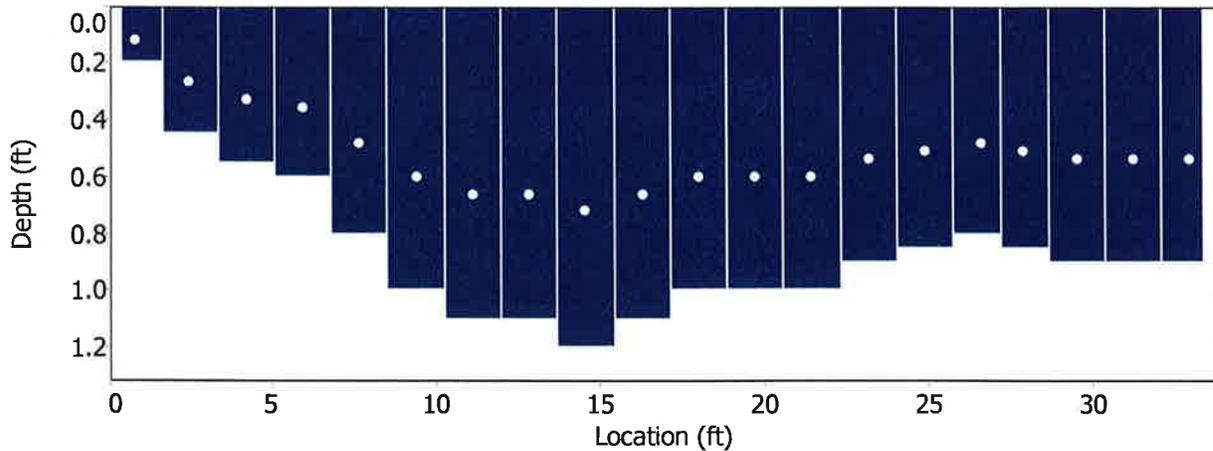
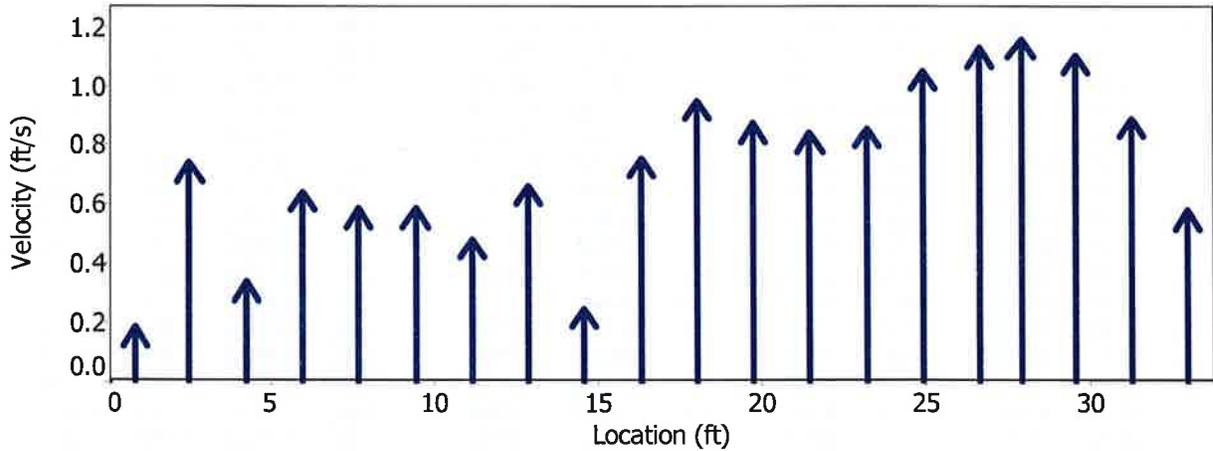
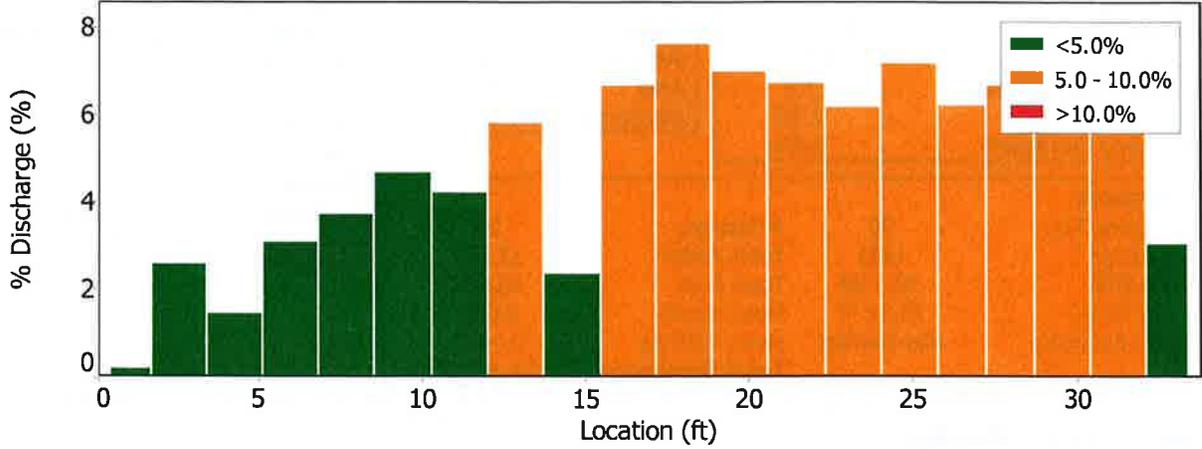
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 2.WAD  
 Start Date and Time: 2010/05/07 11:46:28

## Site Details

Site Name: BC2  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 2.WAD  
 Start Date and Time 2010/05/07 11:46:28

## Site Details

Site Name BC2  
 Operator(s) JW

## Quality Control

St	Loc	%Dep	Message
1	0.85	0.6	SNR (26.0) is different from typical SNR (38.3)
		0.6	High standard error: 0.037
2	2.50	0.6	SNR (21.3) is different from typical SNR (38.3)
3	4.23	0.6	SNR (20.8) is different from typical SNR (38.3)
		0.6	High standard error: 0.050
		0.6	Boundary QC is Poor; possible boundary interference
6	9.40	0.6	SNR (21.5) is different from typical SNR (38.3)
7	11.13	0.6	SNR (24.1) is different from typical SNR (38.3)
9	14.58	0.6	High standard error: 0.032
10	16.30	0.6	High standard error: 0.045

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

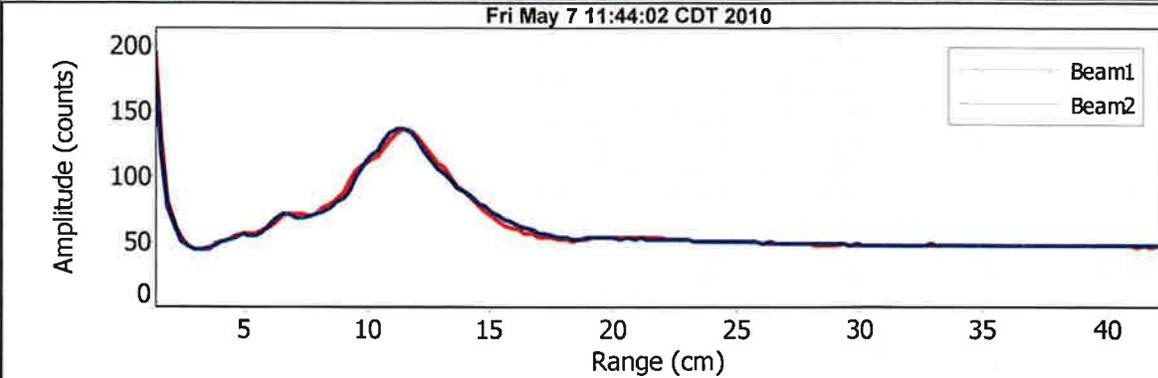
## File Information

File Name Brushy Creek 2.WAD  
Start Date and Time 2010/05/07 11:46:28

## Site Details

Site Name BC2  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 3

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. WRAST, K. Condon, M. Shah
Date & Time:	5/7/10 1231-1323 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	Dry Fork @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 19.008 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 30 °C Water Temp 25 °C

Clean to Bottom m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<u>L,R</u> Forest	_____ Urban	_____ Rip rap
_____ Shrub dominated corridor	_____ Pasture	_____ Concrete
_____ Herbaceous marsh	_____ Row crops	Other (specify): _____
_____ Mowed/maintained corridor	_____ Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation): Low bank - sandbar on side

8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

QC SS RC KC LC RC

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 3  
Date: 5/7/16 Time: 1231-1323

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Shallow - but could wade

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Road along side with a pull-off for cars

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 3  
Date: 5/19/10 Time: 1231-1323

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
Same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
Same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
Same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 3  
 Date: 5/7/10 FDS Page 3 of 8 Time: 1231-1323

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

*- pictures were taken ~~for~~ starting at 300 m*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	0.76	0.23 M
60 meters	0.5ft	0.15 M
90 meters	1.4ft	0.43 M
120 meters	0.7 ft	0.21 M
150 meters	0.96 ft	0.29 M
180 meters	1.4 ft	0.43 M
210 meters	2.3 ft	0.70 M
240 meters	1.78 ft	0.54 M
270 meters	1.9 ft	0.58 M
300 meters	1.76 ft	0.54 M
<b>Average</b>		<b>0.41 M</b>

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 3  
 Date: 3/9/10 Time: 1231-1323

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	31.3 ft	9.54 m
Width at narrowest point of the stream within 300 meter reach	17.0 ft	5.18 m
Width at the widest point of the stream within 300 meter reach	54.75 ft	16.69 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 3  
 Date: 5/9/10 Time: 1231-1323

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input checked="" type="checkbox"/> Standing        | <input type="checkbox"/> None                 |
| <input checked="" type="checkbox"/> Sitting         | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (if yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |  |                                      |  |
|---------------------------------------|---|--|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input checked="" type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input checked="" type="checkbox"/> Thick vegetation | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |  |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |   |  |
|---|---|---|--|
| <input type="checkbox"/> Campgrounds                        | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds                        | <input type="checkbox"/> Boating access (ramps)       | <input checked="" type="checkbox"/> Populated area          | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area                         | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input checked="" type="checkbox"/> Residential             | <input type="checkbox"/> Bridge crossing              | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests                   | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input checked="" type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course                        | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field                       | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence                        |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic           |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial                   |
| <input type="checkbox"/> Steep slopes     | <input checked="" type="checkbox"/> None of the Above |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |   |   |  |  |
|---|---|--|--|
| <input type="checkbox"/> Roads                        | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge                             | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings                  | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor                           | <input type="checkbox"/> No Human Presence |
| <input checked="" type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input checked="" type="checkbox"/> Children's toys <b>Golf Ball</b> |  |
| <input checked="" type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play                     |  |
| <input type="checkbox"/> Other: _____                 |   |  |  |

Comments: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 3  
 Date: 5/9/10 Time: 1231-1323

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

2 Snakes

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests Fish head

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: Beer CANS

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

N/A

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/7/10  
 Site: 3 Site  
 Description: Dry Fork @ Brushy Creek  
 Time Begin: 1245 Time End: 1323 Meter Type: Sontek Flow Tracker  
 Observers: L. Kay, J. Wraast Stream Width\*: 2 17 Section Width (W): 0.85  
 Observations: LR 5/7/10

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.425	0.10				Too shallow
1.275	0.25			0.15	
2.125	0.4			0.21	
2.975	0.5			0.78	
3.825	0.6			1.09	
4.675	0.85			1.46	
5.525	1.0			1.46	
6.375	1.2			1.48	
7.225	1.3			1.73	
8.075	1.94	LR 5/7/10		1.73	
8.925	1.6			1.86	
9.775	1.8			1.21	
10.625	2.0			0.53	
11.475	2.0			0.58	
12.325	2.2			0.61	
13.175	2.4				See flow tracker
14.025	2.35			0.38	
14.875	2.45			0.38	
15.725	2.40			0.19	
16.575	2.35			0.06	

Note: Left Bank is undercut Total Q = 19.298

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 3.WAD  
Start Date and Time 2010/05/07 12:48:36

## Site Details

Site Name BC3  
Operator(s) JW

## System Information

Sensor Type FlowTracker  
Serial # P1880  
CPU Firmware Version 3.4  
Software Ver 2.30  
Mounting Correction 0.0%

## Units (English Units)

Distance ft  
Velocity ft/s  
Area ft<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.0%
Velocity	1.3%	4.6%
Width	0.1%	0.1%
Method	2.1%	-
# Stations	2.4%	-
<b>Overall</b>	<b>3.6%</b>	<b>4.8%</b>

## Summary

Averaging Int.	20	# Stations	21
Start Edge	LEW	Total Width	17.000
Mean SNR	29.8 dB	Total Area	24.417
Mean Temp	77.22 °F	Mean Depth	1.436
Disch. Equation	Mid-Section	Mean Velocity	0.7904
		<b>Total Discharge</b>	<b>19.2983</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:48	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:48	0.42	0.6	0.250	0.6	0.100	0.1503	1.00	0.1503	0.266	0.0399	0.2
2	12:50	2.13	0.6	0.400	0.6	0.160	0.2123	1.00	0.2123	0.510	0.1082	0.6
3	12:51	2.98	0.6	0.500	0.6	0.200	0.7785	1.00	0.7785	0.425	0.3309	1.7
4	12:52	3.83	0.6	0.600	0.6	0.240	1.0896	1.00	1.0896	0.510	0.5558	2.9
5	12:53	4.68	0.6	0.850	0.6	0.340	1.4646	1.00	1.4646	0.723	1.0583	5.5
6	12:54	5.53	0.6	1.000	0.6	0.400	1.4636	1.00	1.4636	0.850	1.2441	6.4
7	12:56	6.38	0.6	1.200	0.6	0.480	1.4829	1.00	1.4829	1.020	1.5129	7.8
8	12:57	7.23	0.6	1.300	0.6	0.520	1.7329	1.00	1.7329	1.105	1.9149	9.9
9	12:58	8.08	0.6	1.400	0.6	0.560	1.7287	1.00	1.7287	1.190	2.0572	10.7
10	12:59	8.93	0.6	1.600	0.6	0.640	1.8596	1.00	1.8596	1.360	2.5293	13.1
11	13:00	9.78	0.6	1.800	0.6	0.720	1.2110	1.00	1.2110	1.530	1.8528	9.6
12	13:01	10.63	0.6	2.000	0.6	0.800	0.5262	1.00	0.5262	1.700	0.8947	4.6
13	13:01	11.48	0.6	2.000	0.6	0.800	0.5774	1.00	0.5774	1.700	0.9817	5.1
14	13:03	12.33	0.6	2.200	0.6	0.880	0.6099	1.00	0.6099	1.870	1.1407	5.9
15	13:04	13.18	0.6	2.400	0.6	0.960	0.5200	1.00	0.5200	2.040	1.0609	5.5
16	13:05	14.03	0.6	2.350	0.6	0.940	0.3766	1.00	0.3766	1.998	0.7524	3.9
17	13:06	14.88	0.6	2.450	0.6	0.980	0.3770	1.00	0.3770	2.083	0.7851	4.1
18	13:07	15.73	0.6	2.400	0.6	0.960	0.1883	1.00	0.1883	2.040	0.3842	2.0
19	13:08	16.58	0.6	2.350	0.6	0.940	0.0630	1.00	0.0630	1.497	0.0943	0.5
20	13:08	17.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

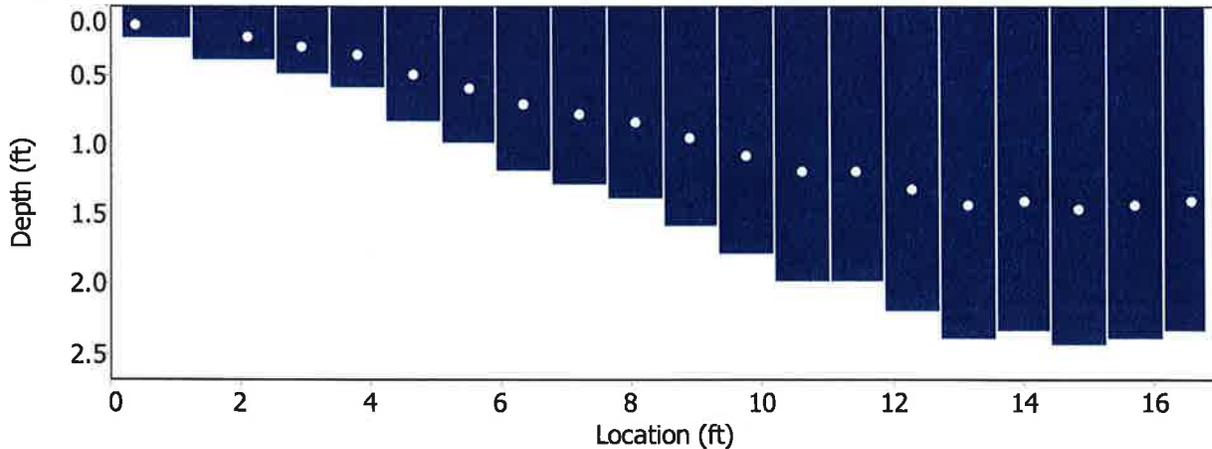
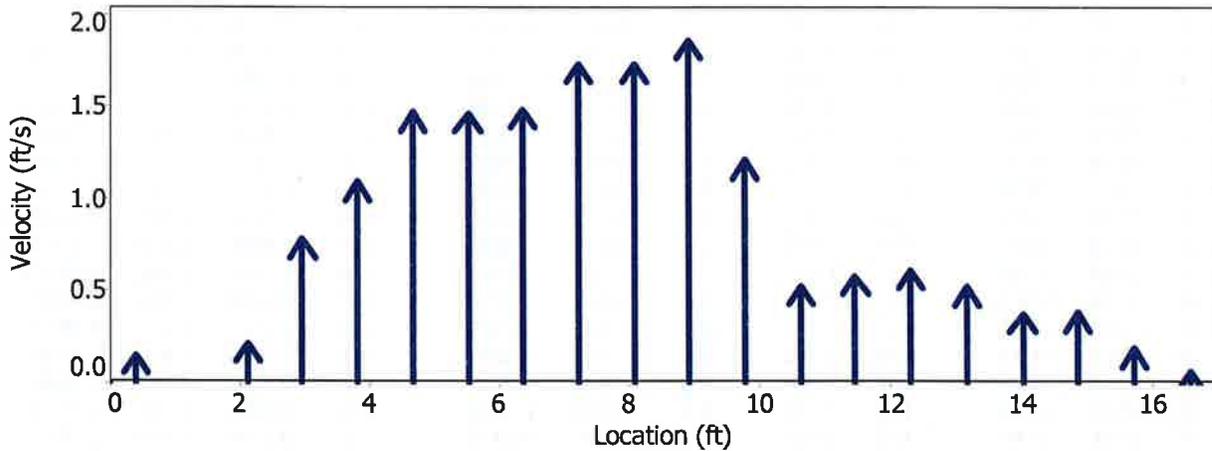
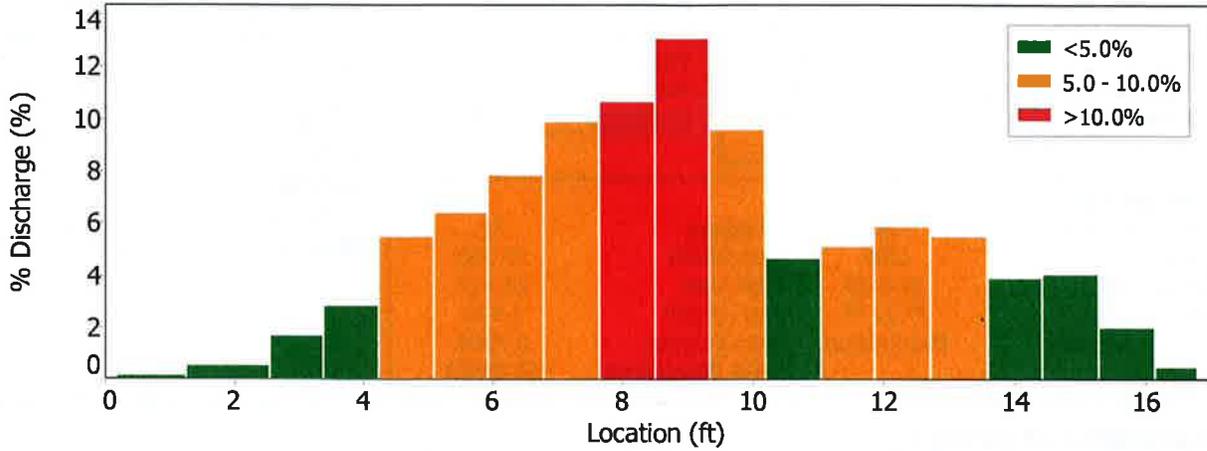
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 3.WAD  
 Start Date and Time: 2010/05/07 12:48:36

## Site Details

Site Name: BC3  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 3.WAD  
Start Date and Time 2010/05/07 12:48:36

## Site Details

Site Name BC3  
Operator(s) JW

## Quality Control

St	Loc	%Dep	Message
2	2.13	0.6	High SNR variation during measurement: 7.7,7.3
11	9.78	0.6	High SNR variation during measurement: 4.7,6.5
		0.6	High standard error: 0.098
13	11.48	0.6	High number of spikes: 3

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

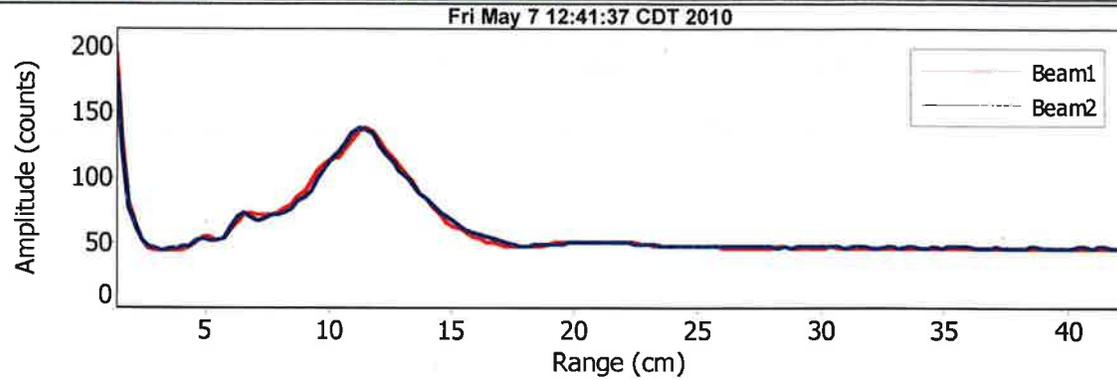
## File Information

File Name Brushy Creek 3.WAD  
Start Date and Time 2010/05/07 12:48:36

## Site Details

Site Name BC3  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 4

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. WRAST, K. Conck, M. Shah		
Date & Time:	5/7/10	1332-1441	County Name: Williamson
Stream Name:	Brushy Creek		
Segment No. or nearest downstream Segment No.:	1244		
Description of Site:	Hairy Man Rd @ Brushy Creek		

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 18.136cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 30 °C Water Temp 25 °C Sechi Clear to bottom m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |   |                                    |
|--|---|------------------------------------|
| <input checked="" type="checkbox"/> Forest         | <input type="checkbox"/> Urban                          | <input type="checkbox"/> Rip rap   |
| <input type="checkbox"/> Shrub dominated corridor  | <input type="checkbox"/> Pasture                        | <input type="checkbox"/> Concrete  |
| <input type="checkbox"/> Herbaceous marsh          | <input type="checkbox"/> Row crops                      | Other (specify): <u>L - Houses</u> |
| <input type="checkbox"/> Mowed/maintained corridor | <input checked="" type="checkbox"/> Denuded/Eroded bank |                                    |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

bridge crossing and gravel circle drive adjacent to stream.

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

E AH  
5/14/10  
RC  
pl

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 4  
Date: 5/7/10 Time: 1332-1441

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

No primary contact activities that commonly occur were observed

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation)

Left Bank ARE private Residences  
Shallow - but could wade

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Road along side of Creek, Gravel parking  
Pull off between rd. and creek.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 4  
Date: 5/17/10 Time: 1332-1441

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 4  
 Date: 5/7/10 FDS Page 3 of 8 Time: 1332-1441

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank  *pictures taken starting at 300m mark*  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance	Depth (meters)
end →	30 meters	2.58      0.79 M
	60 meters	1.7        0.52 M
	90 meters	1.4        0.43 M
	120 meters	2.1        0.64 M
	150 meters	2.2        0.67 M
	180 meters	1.5        0.46 M
	210 meters	2.2        0.67 M
	240 meters	1.35       0.41 M
	270 meters	0.5 f+    0.15 M
start →	300 meters	1.36 f+   0.41 M
	<b>Average</b>	<del>2.58</del> 0.51 M

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 4  
 Date: 5/17/10 Time: 1332-1441

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	<del>45.7</del> 52.6+	15.85 m
Width at narrowest point of the stream within 300 meter reach	45.1 ft	13.75 m
Width at the widest point of the stream within 300 meter reach	<del>45</del> 50.6 ft	15.39 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 4  
 Date: 5/17/10 Time: 1332-1441

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None

*Two people walking dog on Rd.  
 X Other: Persons at Residence on their deck*

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: Old low water bridge downstream of bridge.

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify):
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

*Old low water bridge*

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other:
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other:

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other:
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: The houses have decks and some have seating areas on the bank of the creek.

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 4  
 Date: 5/4/10 Time: 1332-1441

**7. Check all water characteristics that apply (Attach photos).**

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

**8. Vertebrates Observed within 300 meter reach**

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

*Great Blue Heron*

**9. Mammals Observed within 300 meter reach**

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: Dog on deck of house

**10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.**

Tracks  Fecal droppings  Bird nests N/A

**11. Garbage Observed**

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: litter

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/7/10  
 Site: 4 Site  
 Description: Maisy Man Rd @ Brushy Creek  
 Time Begin: 1353 Time End: \_\_\_\_\_ Meter Type: Sontek Flow Tracker  
 Observers: L. Ray, J. Waast Stream Width\*: 52 Section Width (W): 2.6  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
1.3	0.5			-0.03	
3.9	0.3			-0.00*	
6.5	0.5			0.09	
9.1	0.8			0.01	
11.7	1.0			0.07	
14.3	1.3			0.11	
16.9	1.25			0.14	
19.5	1.40			0.60	
22.1	1.60			0.50	
24.7	1.90			0.78	
27.3	1.75			0.81	
29.9	1.60			0.81	
32.5	1.70			0.48	
35.1	1.70			0.28	
37.7	1.70			0.13	
40.3	1.70			0.04	
42.9	1.70			-0.12*	
45.5	-0.90	1.3 <sup>48</sup> 5/7/10		-0.16*	
48.1	1.5			-0.15*	
50.7	1.0			-0.23*	

\* Tree Debris  
upstream  
Along Bank

Total Q 18.227

E  
MES  
5/13

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 4.WAD  
Start Date and Time 2010/05/07 13:52:46

## Site Details

Site Name BC4  
Operator(s) JW

## System Information

Sensor Type FlowTracker  
Serial # P1880  
CPU Firmware Version 3.4  
Software Ver 2.30  
Mounting Correction 0.0%

## Units (English Units)

Distance ft  
Velocity ft/s  
Area ft<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	3.1%
Velocity	1.9%	8.2%
Width	0.2%	0.2%
Method	3.1%	-
# Stations	2.3%	-
<b>Overall</b>	<b>4.4%</b>	<b>8.8%</b>

## Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	53.000
Mean SNR	29.1 dB	Total Area	67.646
Mean Temp	78.32 °F	Mean Depth	1.276
Disch. Equation	Mid-Section	Mean Velocity	0.2694
		<b>Total Discharge</b>	<b>18.2268</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:52	2.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	13:52	3.80	0.6	0.500	0.6	0.200	-0.0308	1.00	-0.0308	0.975	-0.0301	-0.2
2	13:54	6.40	0.6	0.300	0.6	0.120	-0.0026	1.00	-0.0026	0.780	-0.0020	0.0
3	13:56	9.00	0.6	0.500	0.6	0.200	0.0886	1.00	0.0886	1.300	0.1152	0.6
4	13:57	11.60	0.6	0.800	0.6	0.320	0.0135	1.00	0.0135	2.080	0.0280	0.2
5	13:59	14.20	0.6	1.000	0.6	0.400	0.0748	1.00	0.0748	2.600	0.1945	1.1
6	14:00	16.80	0.6	1.300	0.6	0.520	0.1106	1.00	0.1106	3.380	0.3737	2.1
7	14:01	19.40	0.6	1.250	0.6	0.500	0.1391	1.00	0.1391	3.250	0.4521	2.5
8	14:03	22.00	0.6	1.400	0.6	0.560	0.5988	1.00	0.5988	3.640	2.1794	12.0
9	14:03	24.60	0.6	1.600	0.6	0.640	0.4987	1.00	0.4987	4.160	2.0747	11.4
10	14:04	27.20	0.6	1.900	0.6	0.760	0.7769	1.00	0.7769	4.940	3.8379	21.1
11	14:05	29.80	0.6	1.750	0.6	0.700	0.8117	1.00	0.8117	4.550	3.6932	20.3
12	14:06	32.40	0.6	1.600	0.6	0.640	0.8136	1.00	0.8136	4.160	3.3850	18.6
13	14:07	35.00	0.6	1.700	0.6	0.680	0.4797	1.00	0.4797	4.420	2.1203	11.6
14	14:08	37.60	0.6	1.700	0.6	0.680	0.2825	1.00	0.2825	4.420	1.2487	6.9
15	14:09	40.20	0.6	1.700	0.6	0.680	0.1260	1.00	0.1260	4.420	0.5569	3.1
16	14:10	42.80	0.6	1.700	0.6	0.680	0.0440	1.00	0.0440	4.420	0.1943	1.1
17	14:11	45.40	0.6	1.700	0.6	0.680	-0.1184	1.00	-0.1184	4.420	-0.5236	-2.9
18	14:12	48.00	0.6	1.300	0.6	0.520	-0.1565	1.00	-0.1565	3.380	-0.5289	-2.9
19	14:13	50.60	0.6	1.500	0.6	0.600	-0.1516	1.00	-0.1516	3.900	-0.5912	-3.2
20	14:14	53.20	0.6	1.000	0.6	0.400	-0.2251	1.00	-0.2251	2.449	-0.5513	-3.0
21	14:14	55.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

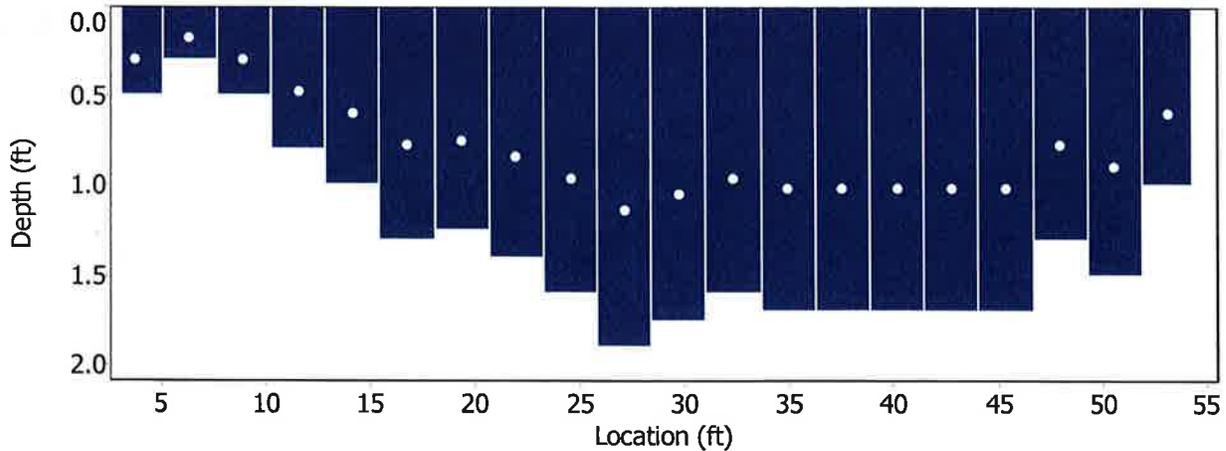
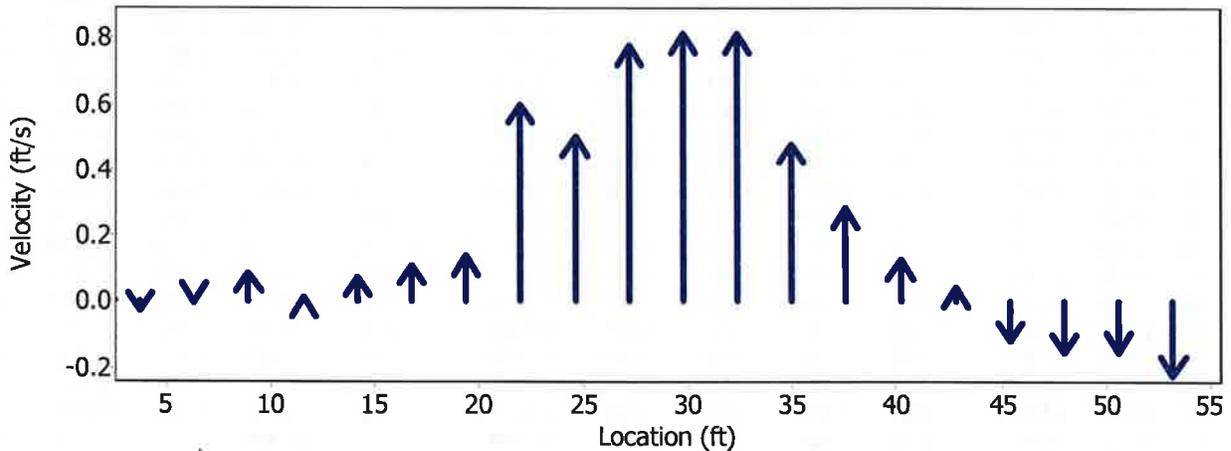
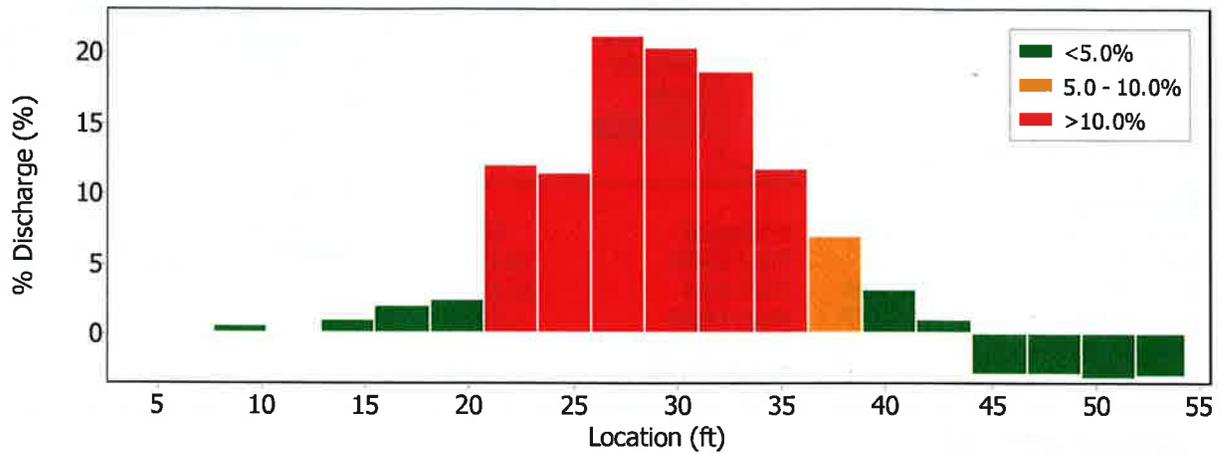
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 4.WAD  
 Start Date and Time: 2010/05/07 13:52:46

## Site Details

Site Name: BC4  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 4.WAD  
 Start Date and Time 2010/05/07 13:52:46

## Site Details

Site Name BC4  
 Operator(s) JW

## Quality Control

St	Loc	%Dep	Message
1	3.80	0.6	High angle: 162 0.6 SNR (45.8) is different from typical SNR (29.1)
3	9.00	0.6	High angle: -33 0.6 SNR (16.3) is different from typical SNR (29.1)
5	14.20	0.6	High angle: -31 0.6 SNR (17.6) is different from typical SNR (29.1) 0.6 High SNR variation during measurement: 5.6,3.9
6	16.80	0.6	High angle: -28
8	22.00	0.6	High standard error: 0.037
13	35.00	0.6	High angle: 20
15	40.20	0.6	High angle: 41
16	42.80	0.6	High angle: 72
17	45.40	0.6	High angle: 134 0.6 SNR (40.8) is different from typical SNR (29.1)
18	48.00	0.6	High angle: -176
19	50.60	0.6	High angle: -175
20	53.20	0.6	High angle: 178

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

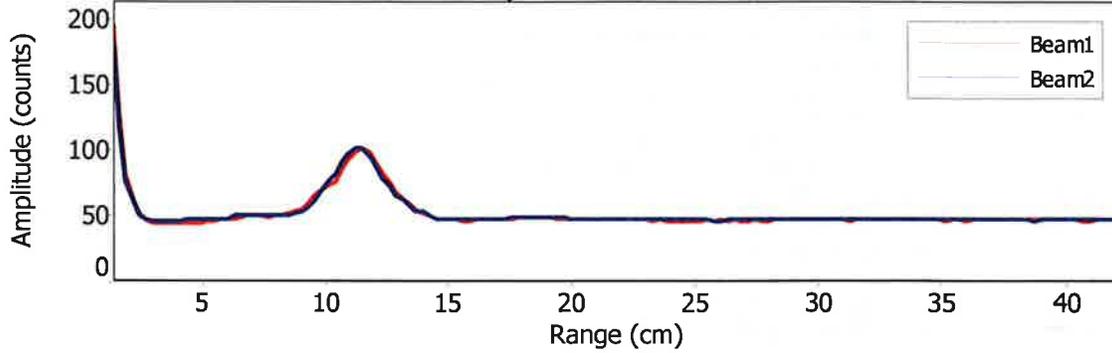
File Name Brushy Creek 4.WAD  
Start Date and Time 2010/05/07 13:52:46

## Site Details

Site Name BC4  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Fri May 7 13:50:53 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

5  
Site 5

**Field Data Sheets – Basic RUAA Survey**  
(should be completed for each site)

Data Collectors & Contact Information:	<u>L. Ray, K. Comdra, J. Wraast, M. Shah</u>
Date & Time:	<u>5/7/10 1510-1655</u> County Name: <u>Williamson</u>
Stream Name:	<u>Bushy Creek</u>
Segment No. or nearest downstream Segment No.:	<u>1244</u>
Description of Site:	<u>N Lake Creek Dr @ Bushy Creek</u>

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

**A. Stream Characteristics:**

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 32.925 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C

Water Temp

25 °C

Clear to Secchi Bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Forest         | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap           |
| <input type="checkbox"/> Shrub dominated corridor  | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete          |
| <input type="checkbox"/> Herbaceous marsh          | <input type="checkbox"/> Row crops           | Other (specify): <u>Large area of flat</u> |
| <input type="checkbox"/> Mowed/maintained corridor | <input type="checkbox"/> Denuded/Eroded bank | <u>Rocks, where people could sit -</u>     |

Right Bank  
Similar to a beach but no sand.

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Parking in unpaved parking area on right bank, upstream of low water bridge. People can walk ~~to~~ banks upstream? downstream the from parking

8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

KC  
6/16/10

DC  
PL

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 5  
Date: 5/7/10 Time: 1510-1655

#### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input checked="" type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |   |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |   |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |   |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

↳ They were fishing

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Shallow - but could have wading.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Site @ the Round Rock which is a park ?  
tourist attraction

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

#### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek  
Date: 5/7/10

Site: 5  
Time: 1570-1655

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

\_\_\_\_\_

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently unknown  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: \_\_\_\_\_

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
Same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
Same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_

N/A

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 5  
 Date: 6/7/200 FDS Page 3 of 8 Time: 1510-1655

**E. Stream Channel and Substantial Pool:**  
 Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**I. Wadeable Streams**  
 Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

*Pics of Fisherman Foot print sliding into water.*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

*No Pools*

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg --Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	2.3 ft	0.70 m
60 meters	2.52 ft	0.77 m
90 meters	2.1 ft	0.64 m
120 meters	2.44 ft	0.74 m
150 meters	3.08 ft	0.94 m
180 meters	1.32 ft	0.40 m
210 meters	1.10 ft	0.34 m
240 meters	1.86 ft	0.57 m
270 meters	0.96 ft	0.29 m
300 meters	0.96 ft	0.29 m
<b>Average</b>		<b>0.57 m</b>

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: S  
 Date: 5/17/10 Time: 1510-1655

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: dam in upstream portion

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): LARGE ROCKS in the water
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- Water control structure
- None

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Bryshy Creek Site: 5  
 Date: 5/7/10 Time: 1510-1655

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	65 ft	19.8 m
Width at narrowest point of the stream within 300 meter reach	40 ft	12.19 m
Width at the widest point of the stream within 300 meter reach	92 ft	28.04 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

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2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .  
 Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 5  
 Date: 5/7/10 Time: 1510 - 1655

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.  
 Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: BOTTLES, CANS

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy creek Date: 5/7/10  
 Site: 5 Site  
 Description: N Lake Creek Dr @ Brushy Creek  
 Time Begin: 1519 Time End: \_\_\_\_\_ Meter Type: Sontek Flowtracker  
 Observers: L. Kay, J. West Stream Width\*: 40 Section Width (W): 2  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
1.0	0.40			0.13	
3.0	0.60			0.79	
5.0	0.50			0.88	
7.0	0.50			1.03	
9.0	0.60			0.73	
11.0	0.75			0.38	
13.0	0.85			0.26	
15.0	0.95			0.25	
17.0	0.90			1.43	
19.0	0.90			1.50	
21.0	0.70			1.41	
23.0	0.80			1.72	
25.0	0.70			0.95	
27.0	0.70			2.56	
29.0	0.80			2.57	
31.0	0.80			1.98	
33.0	0.80			2.09	
35.0	0.70			1.31	
37.0	0.60			0.19	
39.0	CAN NOT DO FLOW DUE TO THICK ALGAE MATS & VEGETATION				

Total Q 34.368



# Discharge Measurement Summary

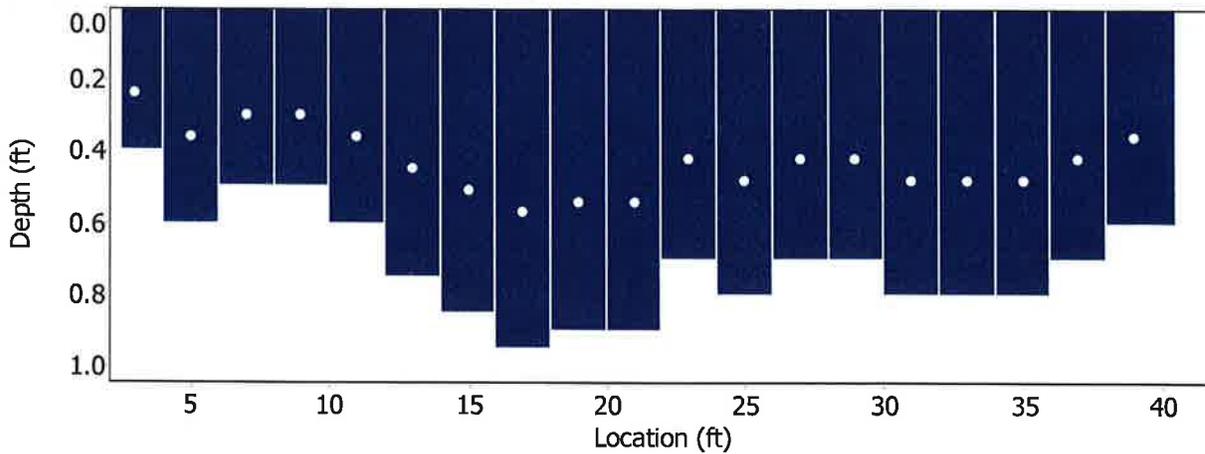
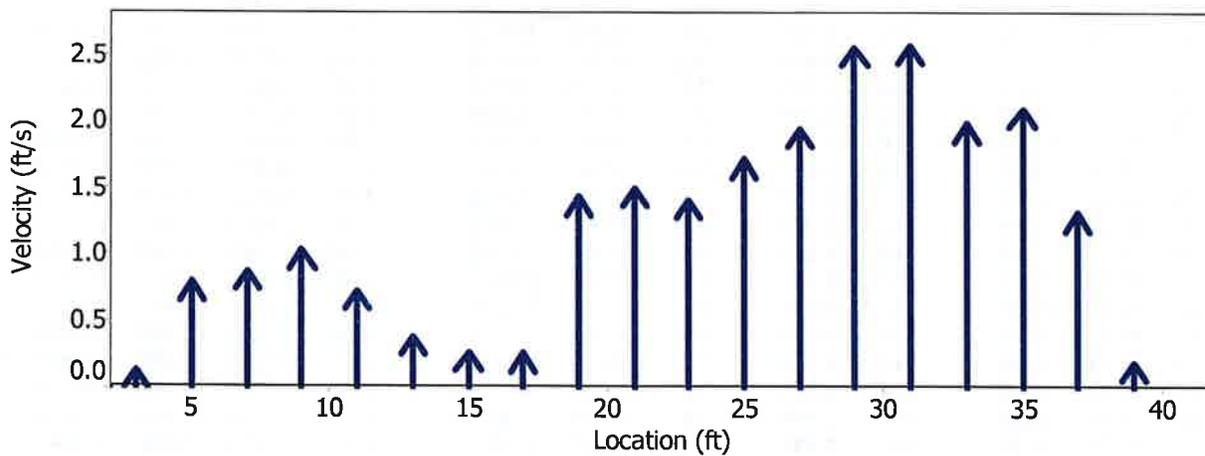
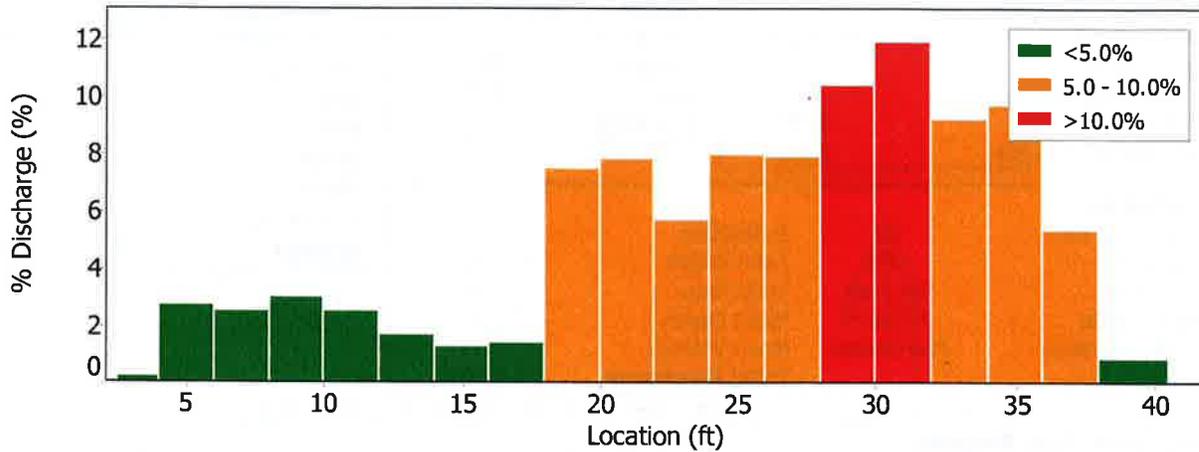
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 5.WAD  
 Start Date and Time: 2010/05/07 15:22:33

## Site Details

Site Name: BC5  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

### File Information

File Name Brushy Creek 5.WAD  
 Start Date and Time 2010/05/07 15:22:33

### Site Details

Site Name BC5  
 Operator(s) JW

### Quality Control

St	Loc	%Dep	Message
1	3.00	0.6	High angle: -47
11	23.00	0.6	High standard error: 0.153
12	25.00	0.6	High angle: -23
17	35.00	0.6	High standard error: 0.122
18	37.00	0.6	High standard error: 0.086

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

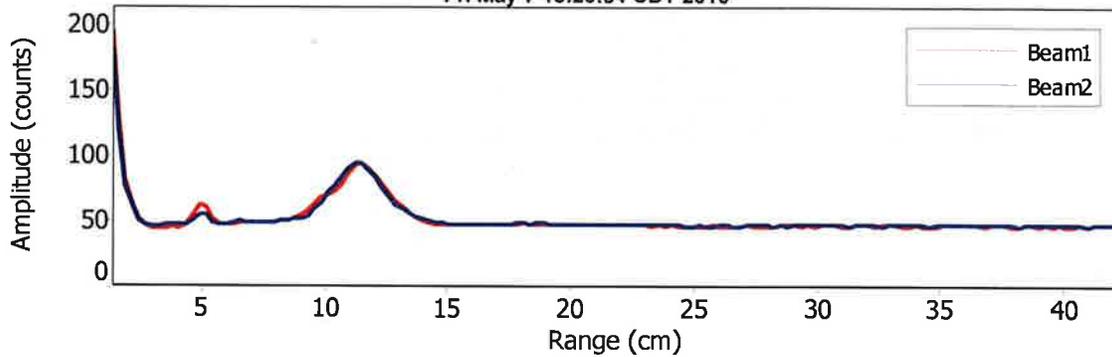
File Name Brushy Creek 5.WAD  
Start Date and Time 2010/05/07 15:22:33

## Site Details

Site Name BC5  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Fri May 7 15:20:54 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 6

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. Weaver, K. Condra, M. Shah
Date & Time:	5/7/10 1615-1718 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	N Lee St @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.          cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 36 °C Water Temp 88 °C

Clean Sechite Bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |   |  |                                   |
|---|--|-----------------------------------|
| <input type="checkbox"/> Forest                               | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input type="checkbox"/> Shrub dominated corridor             | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                     | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input checked="" type="checkbox"/> Mowed/maintained corridor | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Public Park - Round Rock Memorial Park

8. Dominant Primary Substrate

- Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

E AH 5/18/10 SC PL

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 6  
Date: 5/7/10 Time: 1615 - 1718

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

N/A

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Public Road

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? **No**

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 6  
Date: 5/7/10 Time: 1615-1718

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
NO HINDRANCE

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
None

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
None

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
N/A

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 6  
 Date: 5/7/10 FDS Page 3 of 8 Time: 1615-1718

### E. Stream Channel and Substantial Pool

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### 1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

*Took pics of children wading, people near bank, man in water w/ dog, interview*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
	30 meters	1.92 ft
60 meters	2.38 ft	0.73 M
90 meters	2.92 ft	0.89 M
120 meters	1.74 ft	0.53 M
150 meters	2.26 ft	0.69 M
180 meters	3.64 ft	1.11 M
210 meters	3.5 ft	1.07 M
240 meters	2.26 ft	0.69 M
270 meters	2.66 ft	0.81 M
300 meters	1.76 ft	0.54 M
<b>Average</b>		<b>0.76 M</b>

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 6  
 Date: 5/7/10 Time: 1615 - 1718

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	87.6 ft	26.7 m
Width at narrowest point of the stream within 300 meter reach	51 ft	15.54 m
Width at the widest point of the stream within 300 meter reach	92 ft	28.04 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Brushy Creek Site: 6  
 Date: 5/7/10 Time: 1615-1718

**F. Additional RUAA Information**

**1. Check the following activities observed over the site reach.**

- |   |  |
|---|--|
| <input type="checkbox"/> Drinking or water in mouth | <input checked="" type="checkbox"/> Playing on shoreline                     |
| <input type="checkbox"/> Bathing                    | <input checked="" type="checkbox"/> Picnicking                               |
| <input checked="" type="checkbox"/> Walking         | <input type="checkbox"/> Motorcycle/ATV                                      |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping                                    |
| <input type="checkbox"/> Bicycling                  | <input checked="" type="checkbox"/> Wildlife watching - people feeding birds |
| <input checked="" type="checkbox"/> Standing        | <input type="checkbox"/> None  |
| <input checked="" type="checkbox"/> Sitting         | <input type="checkbox"/> Other: _____  |
| <input type="checkbox"/> Lying down/sleeping        |  |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: low water bridge with culvert underneath - very fast moving water here.

**3. Check any channel obstructions that apply (Attach photos).**

- |   |                                 |   |   |  |
|---|---------------------------------|---|---|--|
| <input type="checkbox"/> Culverts   | <input type="checkbox"/> Fences | <input type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap                | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams   | <input type="checkbox"/> Thick vegetation | <input checked="" type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe <input type="checkbox"/> Other (specify): _____ |                                 |   |   |  |

**4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).**

- |   |  |  |  |
|---|--|--|--|
| <input type="checkbox"/> Campgrounds                        | <input type="checkbox"/> Stairs/walkway                          | <input checked="" type="checkbox"/> Roads (paved/unpaved)              | <input type="checkbox"/> Other: _____      |
| <input checked="" type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)                  | <input checked="" type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input checked="" type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                                   | <input type="checkbox"/> Docks or rafts                                |  |
| <input checked="" type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing              | <input type="checkbox"/> Commercial outfitter                          |  |
| <input type="checkbox"/> National forests                   | <input type="checkbox"/> Commercial boating                      | <input checked="" type="checkbox"/> Nearby school                      |  |
| <input checked="" type="checkbox"/> Urban/suburban location | <input checked="" type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                           |  |
| <input type="checkbox"/> Golf Course                        | <input checked="" type="checkbox"/> Paved parking lot            | <input checked="" type="checkbox"/> Parks (national/city/county/state) |  |
| <input checked="" type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot                  | <input checked="" type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

**5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).**

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence                        |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic           |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial                   |
| <input type="checkbox"/> Steep slopes     | <input checked="" type="checkbox"/> None of the Above |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_

**6. Check any indications of human use (Attach photos).**

- |   |  |   |  |
|---|--|---|--|
| <input checked="" type="checkbox"/> Roads             | <input type="checkbox"/> RV/ATV Tracks             | <input type="checkbox"/> NPDES Discharge                    | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings                  | <input type="checkbox"/> Camping Sites             | <input type="checkbox"/> Gates on corridor                  | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform                | <input checked="" type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys                    |  |
| <input checked="" type="checkbox"/> Foot paths/prints | <input checked="" type="checkbox"/> Fishing Tackle | <input checked="" type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other: _____                 |  |   |  |

Comments: tennis ball in water

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 6  
 Date: 5/7/10 Time: 1615-1718

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 \* Water Surface:  clear  scum  foam  debris  oil

Other: \* Water surface is not clear it has scum on top - clear was incorrectly marked -LR 5/7/10

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 \* Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence

Comments: \* Presence of domesticated waterfowl, dogs

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests - domestic birds

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: litter

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

After further observation, we saw between 20-50 people  
children wading in water are home schooled, live in apt. near bank,  
go crawfishing at night, fish with nets, were building  
a dam in the water  
Man in water with dog said there was a 4ft snake  
in water downstream from 300m mark



Site 7

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. West, K. Condra, M. Shah
Date & Time:	5/17/2010 1719-1800 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	Pecan Ave @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:  
 **Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.  
 **Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.  
 **Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.  
 **Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.  
 **Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. \_\_\_\_\_ cfs

4. Water Quality Data (Field Parameters)  
Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.  
Air Temp \_\_\_\_\_ °C Water Temp \_\_\_\_\_ °C Secchi \_\_\_\_\_

Clear to Bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)  
L Forest \_\_\_\_\_ Urban \_\_\_\_\_ Rip rap \_\_\_\_\_  
\_\_\_\_\_ Shrub dominated corridor \_\_\_\_\_ Pasture \_\_\_\_\_ Concrete \_\_\_\_\_  
\_\_\_\_\_ Herbaceous marsh \_\_\_\_\_ Row crops \_\_\_\_\_ Other (specify): \_\_\_\_\_  
R Mowed/maintained corridor \_\_\_\_\_ Denuded/Eroded bank \_\_\_\_\_

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
public park with paved parking; very soft sediment

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

E  
AH  
5/17/10  
DPC

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 7  
Date: 5/17/10 Time: 1719-1800

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Deep with a mud bottom, wide channel

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

In Veterans Park

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 7  
Date: 5/7/10 Time: 1719-1800

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
Same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
none

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
none

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 7  
 Date: 5/7/10 FDS Page 3 of 8 Time: 1719-1800

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable  
66m

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank  Lynne interviewing fisherman  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 7  
 Date: 5/7/10 Time: 1719-1800

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*66m upstream of waterfall*  
*40 ft. downstream of waterfall*  
*depth 1.5 ft / 0.46m*  
*12.19m*

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 7  
 Date: 5/7/10 Time: 1719-1800

F. Additional RUAA Information

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: Children on playground

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: Dam, > 10 ft vertical drop downstream

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- Water control structure
- None

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: Basketball Courts

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: Priv. property sign downstream right bank

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: Picnic Tables

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 7  
 Date: 5/7/10 Time: 1719-1800

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach (1)

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: Presence of turtles

Great Blue Heron

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests N/A

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: Beer bottles, water bottles, food wrappers

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

{ Downstream } - there was a deep pool of 300 m  
Bystanders asked that this site be cleaned out.



Site 8

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. Weast, K. Conder
Date & Time:	5/8/07 0840-0954
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	Lance Ln @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume I, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 26.490 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume I.

Air Temp 25 °C Water Temp 23 °C Secchi Bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |                                    |                              |                        |
|------------------------------------|------------------------------|------------------------|
| <u>L, R</u> Forest                 | _____ Urban                  | _____ Rip rap          |
| _____ Shrub dominated corridor     | _____ Pasture                | _____ Concrete         |
| _____ Herbaceous marsh             | _____ Row crops              | Other (specify): _____ |
| <u>R</u> Mowed/maintained corridor | <u>R</u> Denuded/Eroded bank |                        |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

low bank, wide flat bank to walk on the 30-150 ft stretch

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

E  
AH  
5/18/10  
C  
dpi

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 8  
 Date: 5/8/07 Time: 8:30-0959  
RC 4

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input checked="" type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |   |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |   |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |   |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

None

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Apartment parking lot, culvert bridge

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? No

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 8  
Date: 5/8/10 Time: 0830 - 0959  
0840

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

No

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently

Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

Same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 8  
 Date: 5/8/10 FDS Page 3 of 8 Time: 0840-0959

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

*fire pit, trash, blanket, footprints*

• *photos taken at 289 m, 300 m too deep*  
 a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. *N/A*

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	1.54 ft	0.47 m
60 meters	1.94	0.59 m
90 meters	1.75	0.53 m
120 meters	1.75	0.53 m
150 meters	1.9	0.58 m
180 meters	<del>1.96</del>	> 1.52 m
210 meters	1.96	0.60 m
240 meters	4.18	1.27 m
270 meters	2.42	0.74 m
300 meters	4.47 ft	1.36 m
Average		0.82 m

*← too deep, over 5 ft*

*depth taken at 289 m →*

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 8  
 Date: 5/8/20 Time: 6840-0959

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	29.4ft → 8.96m
Width at narrowest point of the stream within 300 meter reach	15.2ft → 4.63m
Width at the widest point of the stream within 300 meter reach	24m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

### Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 8  
 Date: 5/8/10 Time: 0840-0959

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input checked="" type="checkbox"/> Walking         | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input type="checkbox"/> None                 |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: culvert bridge

3. Check any channel obstructions that apply (Attach photos).

- |  |   |   |                                      |  |
|--|---|---|--------------------------------------|--|
| <input checked="" type="checkbox"/> Culverts | <input type="checkbox"/> Fences                 | <input type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire         | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe        | <input type="checkbox"/> Other (specify): _____ |   |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |   |  |
|---|---|---|--|
| <input type="checkbox"/> Campgrounds                        | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds                        | <input type="checkbox"/> Boating access (ramps)       | <input checked="" type="checkbox"/> Populated area          | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area                         | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input checked="" type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing   | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests                   | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input checked="" type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course                        | <input checked="" type="checkbox"/> Paved parking lot | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field                       | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence                        |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic           |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial                   |
| <input type="checkbox"/> Steep slopes     | <input checked="" type="checkbox"/> None of the Above |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |   |  |  |  |
|---|--|--|--|
| <input type="checkbox"/> Roads                        | <input type="checkbox"/> RV/ATV Tracks             | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings                  | <input type="checkbox"/> Camping Sites             | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform                | <input checked="" type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys         |  |
| <input checked="" type="checkbox"/> Foot paths/prints | <input checked="" type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play |  |

Other: Blanket stretched out on Bank

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 8  
 Date: 5/8/10 Time: 8:30 - 0959  
KC840

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence

Comments: turtles, frogs

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence

Comments: Man walking dog

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests N/A

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: FOOD WRAPPERS, CANS  
Shopping cart on the bank, garden hose

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Field Data Sheet - Basic RUAA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/8/10  
 Site: 8 Site  
 Description: Lance Ln @ Brushy Creek  
 Time Begin: 0850 Time End: 0925 Meter Type: Sontek Flowtracker  
 Observers: J. Wrast Stream Width\*: 17.5 Section Width (W): 0.875  
 Observations: nice sand bar on right bank, 5 foot trails to water

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.4375	0.1			too shallow	
1.3125	0.2			0.59	0.10325
2.1875	0.35			0.63	0.19293
3.0625	0.5			0.73	0.31937
3.9375	0.65			0.87	0.4948
4.8125	0.8			1.03	0.721
5.6875	1.0			0.99	0.86625
6.5625	1.2			1.26	1.323
7.4375	1.4			1.29	1.58025
8.3125	1.5			1.83	2.40187
9.1875	1.7			2.09	3.10887
10.0625	1.7			2.12	3.1535
10.9375	1.7			2.18	3.24275
11.8125	1.8			1.71	2.69325
12.6875	1.8			1.35	2.12625
13.5625	1.75			1.22	1.86812
14.4375	1.7			0.83	1.2316
15.3125	1.55			0.43	0.58318
16.1875	1.5			0.22	0.28875
17.0625	1.45			0.16	0.203

Total Q = 26.530 cfs

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

<b>File Information</b>		<b>Site Details</b>	
File Name	Brushy Creek 8.WAD	Site Name	BC8
Start Date and Time	2010/05/08 08:58:15	Operator(s)	JW

<b>System Information</b>		<b>Units (English Units)</b>		<b>Discharge Uncertainty</b>		
Sensor Type	FlowTracker	Distance	ft	<b>Category</b>	<b>ISO</b>	<b>Stats</b>
Serial #	P1880	Velocity	ft/s	Accuracy	1.0%	1.0%
CPU Firmware Version	3.4	Area	ft^2	Depth	0.2%	0.6%
Software Ver	2.30	Discharge	cfs	Velocity	1.3%	2.0%
Mounting Correction	0.0%			Width	0.1%	0.1%
				Method	2.2%	-
				# Stations	2.4%	-
				<b>Overall</b>	<b>3.6%</b>	<b>2.3%</b>

<b>Summary</b>			
Averaging Int.	20	# Stations	21
Start Edge	LEW	Total Width	17.500
Mean SNR	24.3 dB	Total Area	20.978
Mean Temp	74.29 °F	Mean Depth	1.199
Disch. Equation	Mid-Section	Mean Velocity	1.2646
		<b>Total Discharge</b>	<b>26.5297</b>

<b>Measurement Results</b>												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	08:58	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	08:58	3.13	0.6	0.200	0.6	0.080	0.5873	1.00	0.5873	0.219	0.1286	0.5
2	09:00	4.19	0.6	0.350	0.6	0.140	0.6253	1.00	0.6253	0.339	0.2121	0.8
3	09:01	5.06	0.6	0.500	0.6	0.200	0.7297	1.00	0.7297	0.438	0.3192	1.2
4	09:02	5.94	0.6	0.650	0.6	0.260	0.8727	1.00	0.8727	0.569	0.4963	1.9
5	09:03	6.81	0.6	0.800	0.6	0.320	1.0259	1.00	1.0259	0.700	0.7180	2.7
6	09:04	7.69	0.6	1.000	0.6	0.400	0.9856	1.00	0.9856	0.875	0.8624	3.3
7	09:06	8.56	0.6	1.200	0.6	0.480	1.2585	1.00	1.2585	1.050	1.3216	5.0
8	09:07	9.44	0.6	1.400	0.6	0.560	1.2930	1.00	1.2930	1.225	1.5838	6.0
9	09:08	10.31	0.6	1.500	0.6	0.600	1.8320	1.00	1.8320	1.313	2.4045	9.1
10	09:09	11.19	0.6	1.700	0.6	0.680	2.0925	1.00	2.0925	1.488	3.1129	11.7
11	09:10	12.06	0.6	1.700	0.6	0.680	2.1220	1.00	2.1220	1.488	3.1568	11.9
12	09:11	12.94	0.6	1.700	0.6	0.680	2.1847	1.00	2.1847	1.488	3.2500	12.3
13	09:12	13.81	0.6	1.800	0.6	0.720	1.7133	1.00	1.7133	1.575	2.6982	10.2
14	09:13	14.69	0.6	1.800	0.6	0.720	1.3533	1.00	1.3533	1.575	2.1314	8.0
15	09:14	15.56	0.6	1.750	0.6	0.700	1.2247	1.00	1.2247	1.531	1.8754	7.1
16	09:16	16.44	0.6	1.700	0.6	0.680	0.8281	1.00	0.8281	1.488	1.2319	4.6
17	09:17	17.31	0.6	1.550	0.6	0.620	0.4268	1.00	0.4268	1.356	0.5788	2.2
18	09:18	18.19	0.6	1.500	0.6	0.600	0.2238	1.00	0.2238	1.313	0.2937	1.1
19	09:19	19.06	0.6	1.450	0.6	0.580	0.1621	1.00	0.1621	0.952	0.1542	0.6
20	09:19	19.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

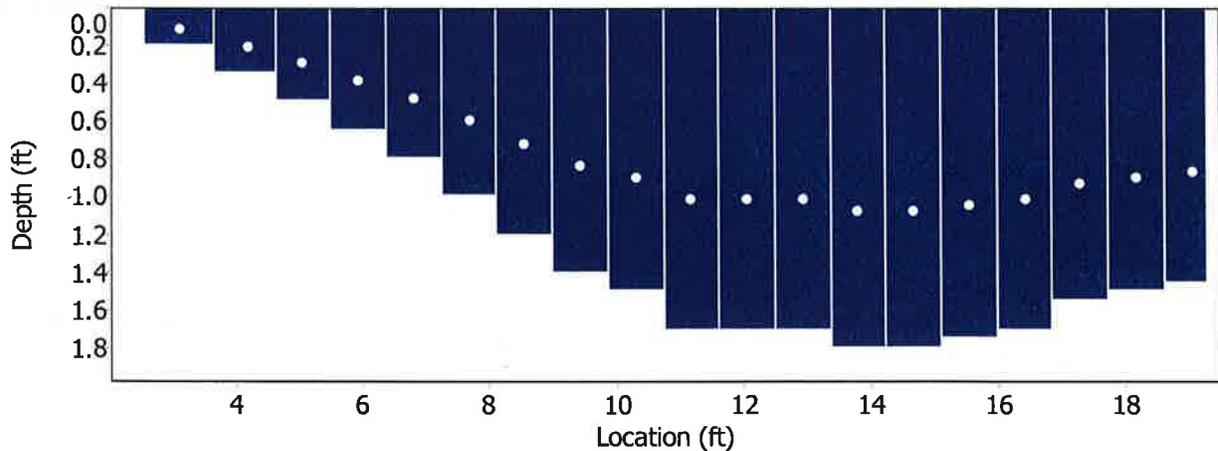
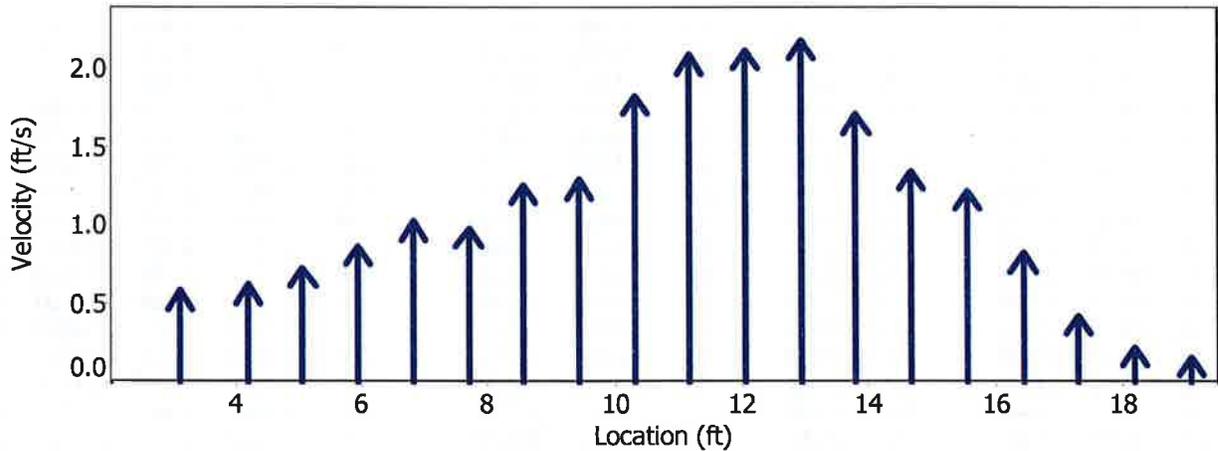
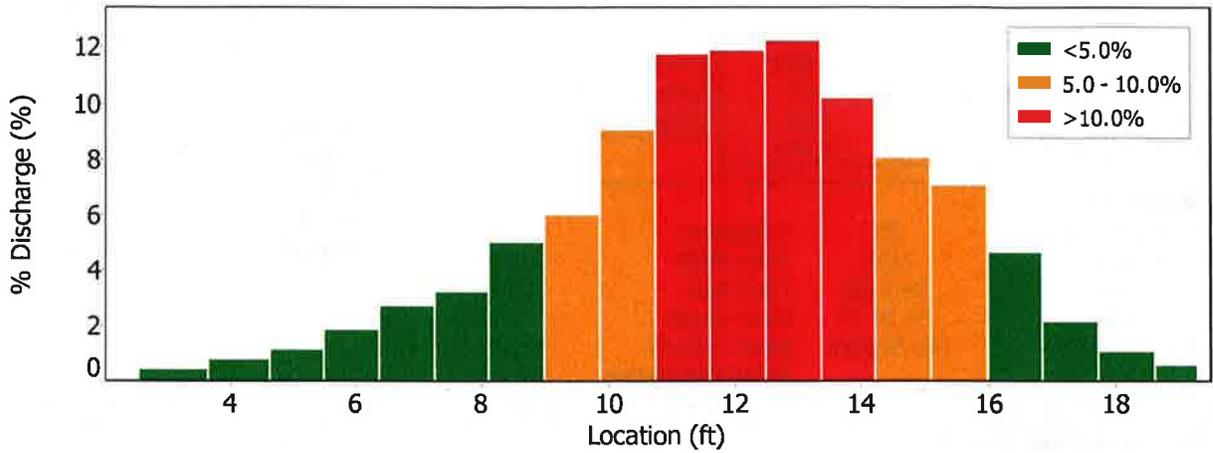
Date Generated: Thu May 13 2010

### File Information

File Name: Brushy Creek 8.WAD  
 Start Date and Time: 2010/05/08 08:58:15

### Site Details

Site Name: BC8  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

**File Information**

File Name Brushy Creek 8.WAD  
Start Date and Time 2010/05/08 08:58:15

**Site Details**

Site Name BC8  
Operator(s) JW

**Quality Control**

St	Loc	%Dep	Message
8	9.44	0.6	High standard error: 0.098
15	15.56	0.6	High angle: 20
16	16.44	0.6	High angle: 22
17	17.31	0.6	High angle: 20
18	18.19	0.6	High angle: 21

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

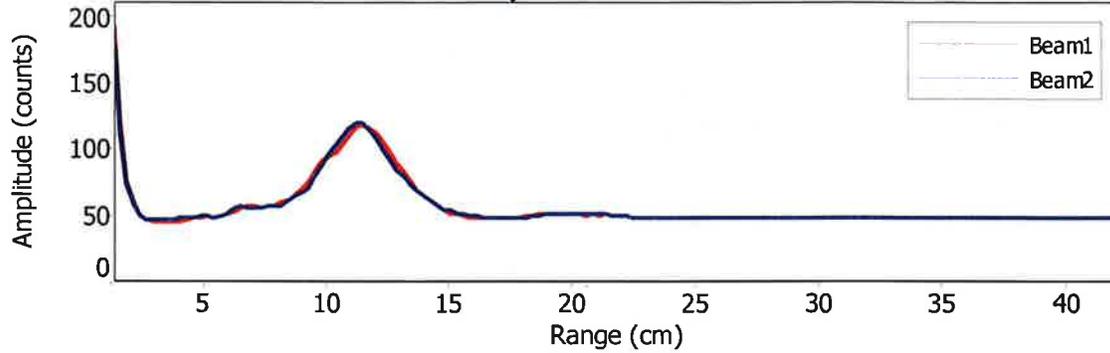
File Name Brushy Creek 8.WAD  
Start Date and Time 2010/05/08 08:58:15

## Site Details

Site Name BC8  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Sat May 8 08:55:10 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 9

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	L. Ray, J. Weast, K. CondeA
Date & Time:	5/8/10 1009
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	Rabb House @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

Could not get access, gate was locked.

2. Check the following stream type that applies on the day of the survey:
- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
  - Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
  - Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
  - Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
  - Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
 Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. \_\_\_\_\_ cfs

4. Water Quality Data (Field Parameters)  
 Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.  
 Air Temp \_\_\_\_\_ °C      Water Temp \_\_\_\_\_ °C Sechi \_\_\_\_\_

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)
- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Forest                    | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input type="checkbox"/> Shrub dominated corridor  | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh          | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
\_\_\_\_\_  
\_\_\_\_\_

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

E  
AH  
5/8/10  
Dpl

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 9  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |  |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |  |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |  |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |  |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

\_\_\_\_\_

\_\_\_\_\_

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

\_\_\_\_\_

\_\_\_\_\_

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site?

### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 9  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
\_\_\_\_\_  
\_\_\_\_\_

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: \_\_\_\_\_

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: \_\_\_\_\_  
 Date: \_\_\_\_\_ FDS Page 3 of 8 Time: \_\_\_\_\_

### E. Stream Channel and Substantial Pool

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### 1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg --Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 9  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

\_\_\_\_\_

\_\_\_\_\_

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 9  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input type="checkbox"/> None                 |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_  
 \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |   |                                      |  |
|---------------------------------------|---|---|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |   |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway               | <input type="checkbox"/> Roads (paved/unpaved)              | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)       | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input type="checkbox"/> Bridge crossing              | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence              |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial         |
| <input type="checkbox"/> Steep slopes     | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____       |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |  |  |
|--|---|--|--|
| <input type="checkbox"/> Roads             | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys         |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other: _____      |   |  |  |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 9  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant
- Algae Cover:  absent  rare  common  abundant
- Odor:  none  rare  common  abundant
- Color:  clear  green  red  brown  black
- Bottom Deposit:  sludge  solids  fine sediments  none  other
- Water Surface:  clear  scum  foam  debris  oil
- Other: \_\_\_\_\_

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence
- Water Dependent Birds  None  slight presence  moderate presence  large presence
- Alligators  None  slight presence  moderate presence  large presence
- Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence
- Domesticated Pets  None  slight presence  moderate presence  large presence
- Livestock  None  slight presence  moderate presence  large presence
- Feral Hogs  None  slight presence  moderate presence  large presence
- Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant
- Small garbage in the channel  None  Rare  Common  Abundant
- Bank Garbage  None  Rare  Common  Abundant
- Briefly describe the kinds of garbage observed: \_\_\_\_\_

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Site 10

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	K. Condra, J. West L. Ray	
Date & Time:	5/9/10 1026-1200	County Name: Williamson
Stream Name:	Brushy Creek	
Segment No. or nearest downstream Segment No.:	1244	
Description of Site:	Paradise Ridge Dr @ Brushy Creek	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
 Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 26.832 cfs

4. Water Quality Data (Field Parameters)  
 Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.  
 Air Temp 22 °C      Water Temp 20 °C      Secchi bottom m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<u>L,R</u> Forest	_____ Urban	_____ Rip rap
_____ Shrub dominated corridor	_____ Pasture	_____ Concrete
_____ Herbaceous marsh	_____ Row crops	Other (specify): _____
_____ Mowed/maintained corridor	<u>L</u> Denuded/Eroded bank	

150 m

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
Steep, vertical banks, Residential area, barb wire fencing along trail.

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

E  
AK  
5/18/10

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 10  
Date: 5/8/10 Time: 1025-1200

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children
- Wading-Adults
- Swimming
- Water skiing
- Diving
- Tubing
- Surfing
- Whitewater-kayaking, canoeing, rafting
- Other: \_\_\_\_\_
- frequent public swimming-created by publicly owned land or commercial operations

No primary contact activities that commonly occur were observed

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual
- Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water
- Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water
- Individual is well away from water between 8 and 30 meters (100 ft) ~~not applicable~~

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Steep vertical banks Slightly steep bank from trail to water and fence along walkway w/ 3 "openings" or breaks in fence.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Residential parking, pedestrian trail

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 10  
Date: 5/8/10 Time: 1025-1200

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
SAME

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
SAME

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
SAME

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 10  
 Date: 5/8/10 FDS Page 3 of 8 Time: 1025-1200

**E. Stream Channel and Substantial Pool**  
 Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

*Pictures like rings, ATV tracks*  
*Pictures @ 243 m*  
*Too deep to continue*  
*Took pictures @ 300 m*  
*6 pictures duplicate U, L*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	<del>1.36</del> (2ft) 1.36
60 meters	1.4
90 meters	1.64
120 meters	1.08
150 meters	1.52
180 meters	3.00
210 meters	2.78
240 meters	3.02
270 meters	2.2
300 meters	2.22
<b>Average</b>	0.62m

\* Depth & width were an average, there wasn't access to the water  
 \* Too deep to continue *R.C. 5/10*

PASS

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 10  
 Date: 5/8/10 Time: 1025-1200

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

*22.5 ft.*

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	<del>40.2</del> 32ft+ / 9.75m
Width at narrowest point of the stream within 300 meter reach	22.5 ft / 6.86m
Width at the widest point of the stream within 300 meter reach	55.8ft / 17.01m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Brushy Creek Site: 10  
 Date: 5/8/10 Time: 1025-1200

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: Picnic tables, ball in the water

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 10  
 Date: 5/8/10 Time: 1025-1200

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil

Other: Got a whiff of natural gas by the truck

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence

Comments: green heron

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence

Comments: Squirrels

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: bottles, beer can, cigarette package

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

ATV Tracks in water between 30 : 60 m and along the bank

\*Spoke w/ gentleman and 3 grandkids. They were on trail, we were in creek "shortly distance"  
 Said his 6yr old grandson comes down and is in the water a lot, can't hardly keep him out.

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/8/10  
 Site: 10 Site  
 Description: Paradise Ridge Dr @ Brushy Creek  
 Time Begin: 1105 Time End: \_\_\_\_\_ Meter Type: Sontek Flowtracker  
 Observers: J. Wrayt Stream Width\*: 22.5 Section Width (W): 1.125  
 Observations: 3 noted trails leading from walking path to water. ATV tire tracks on rocks and across water.

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m³/s) (ft³/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.5625	0.4			0.00	
1.6875	0.6			0.43	
2.8125	0.8			0.37	
3.9375	0.8			0.8	
5.0625	0.8			0.91	
6.1875	0.95			1.39	
7.3125	0.95			1.38	
8.4375	0.95			1.51	
9.5625	1.1			1.36	
10.6875	1.1			1.36	
12.8125	1.15			1.67	
12.9375	1.15			1.90	
14.0625	1.1			1.50	
15.1875	1.1			1.81	
16.3125	1.2			1.63	
17.4375	1.2			1.75	
18.5625	1.2			1.45	
19.6875	1.2			1.25	
20.8125	1.2			-0.01	
21.9375	1.0			-0.16	

Total Q = 26.724 cfs

↑  
eddy on left bank due to undercut bank and exposed roots.

E  
MBS  
5/13



# Discharge Measurement Summary

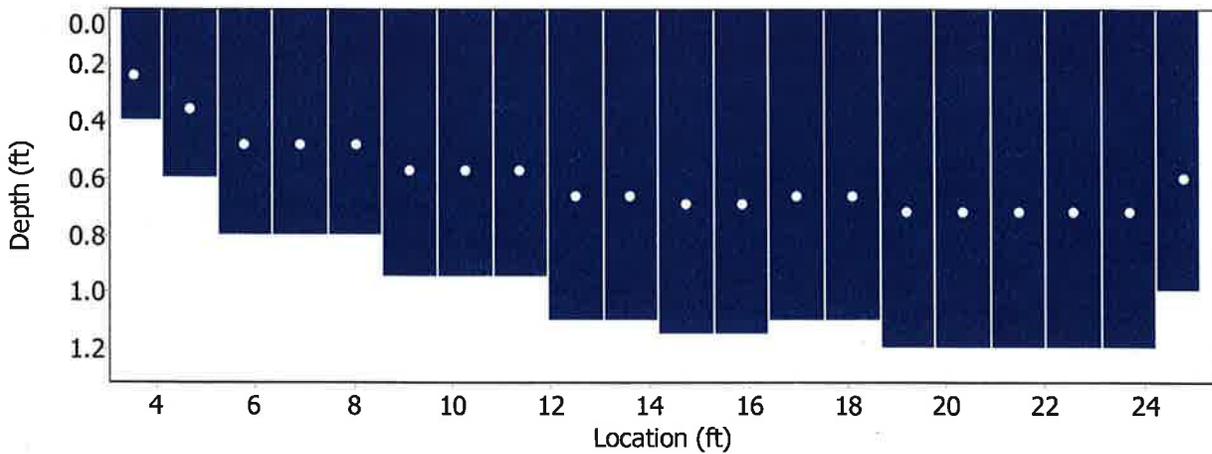
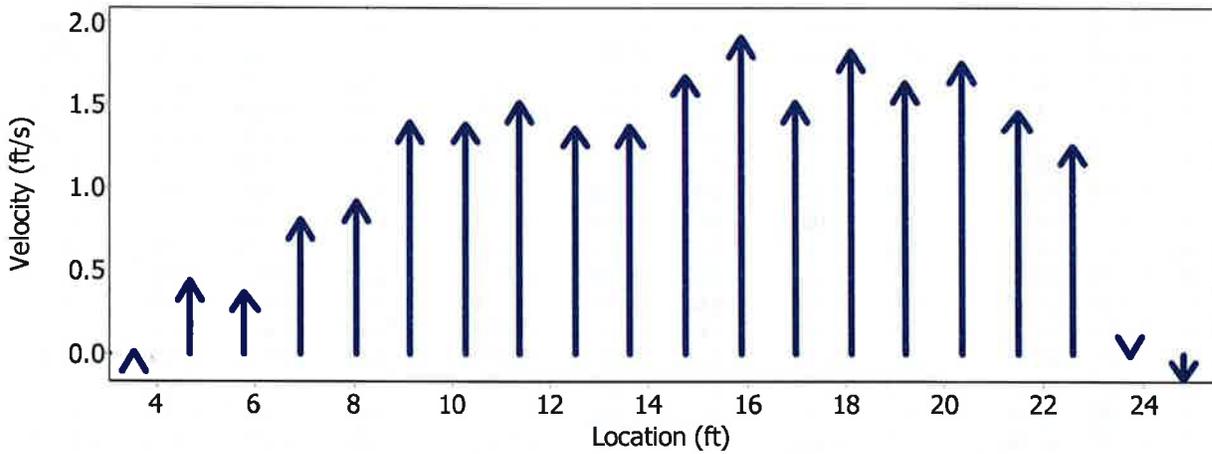
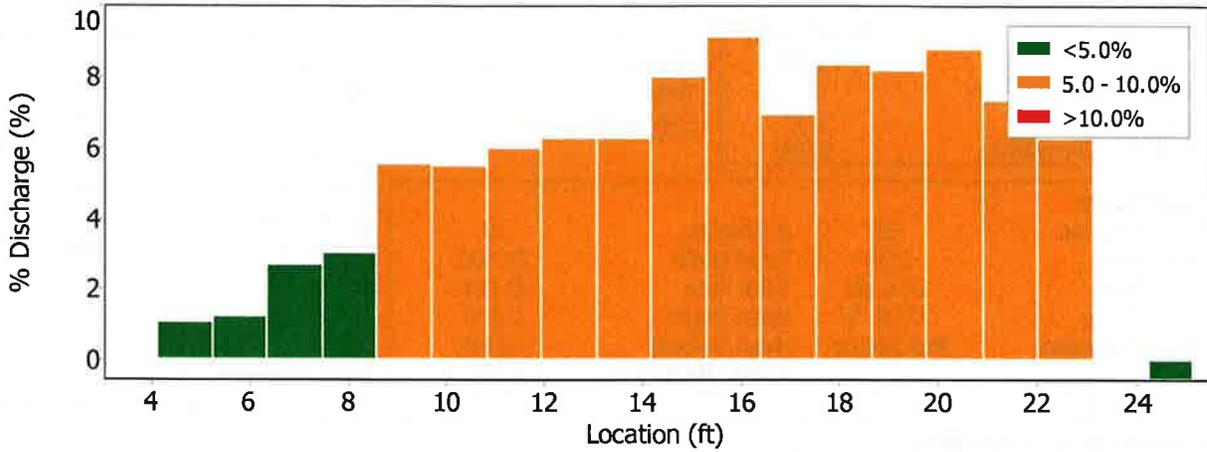
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 10.WAD  
 Start Date and Time: 2010/05/08 11:12:01

## Site Details

Site Name: BC10  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

### File Information

File Name Brushy Creek 10.WAD  
 Start Date and Time 2010/05/08 11:12:01

### Site Details

Site Name BC10  
 Operator(s) JW

### Quality Control

St	Loc	%Dep	Message
1	3.56	0.6	High differences in beam SNR: 21.5,36.5
2	4.68	0.6	SNR (13.3) is different from typical SNR (24.6)
3	5.80	0.6	High SNR variation during measurement: 5.6,5.2
7	10.28	0.6	High number of spikes: 3
14	18.12	0.6	High standard error: 0.091
20	24.84	0.6	High angle: -156

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

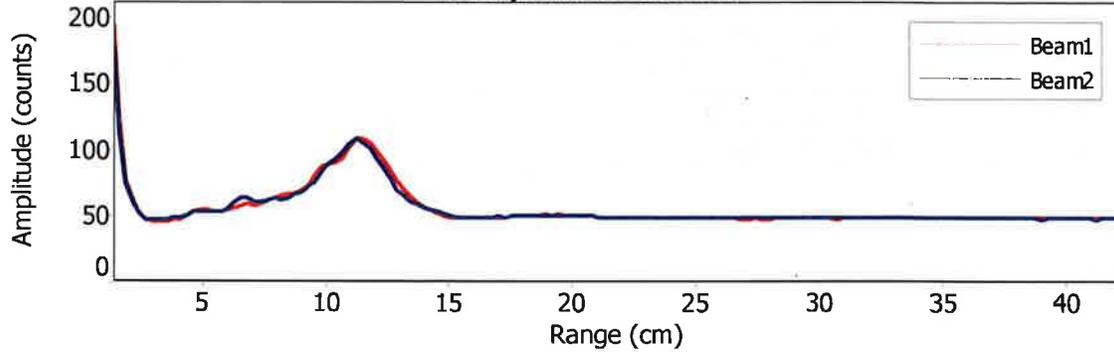
File Name Brushy Creek 10.WAD  
Start Date and Time 2010/05/08 11:12:01

## Site Details

Site Name BC10  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Sat May 8 11:10:45 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 11

### Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	K. Condra, J. Waast, L. Ray	
Date & Time:	5/8/10 12:1-1:35	County Name: Williamson
Stream Name:	Brushy Creek	
Segment No. or nearest downstream Segment No.:	1244	
Description of Site:	Red Bud Ln @ Brushy Creek	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

#### 3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 62.669 cfs

#### 4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp

20.9 C

Water Temp

22 °C Sechi

clear to bottom m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

LR Forest

\_\_\_\_\_ Urban

\_\_\_\_\_ Rip rap

\_\_\_\_\_ Shrub dominated corridor

\_\_\_\_\_ Pasture

\_\_\_\_\_ Concrete

\_\_\_\_\_ Herbaceous marsh

\_\_\_\_\_ Row crops

Other (specify): \_\_\_\_\_

\_\_\_\_\_ Mowed/maintained corridor

\_\_\_\_\_ Denuded/Eroded bank

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

unpaved road to park under overpass

#### 8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

E  
AH  
5/18/10  
PL

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 11
Date: 5/8/2010 Time: 1221-1335

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

X Yes No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- X Wading-Children, Wading-Adults, Swimming, Water skiing, Diving
Tubing, Surfing, Whitewater-kayaking, canoeing, rafting, Other:
No primary contact activities that commonly occur were observed
frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site: None X 1-10 X 11-20 20-50 greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- X Water in mouth or nose of the individual X Primary touch: Individual's body (or portion) immersed in water
Secondary touch: fishing, pets and related contact with water Individual is in a boat touching water
Individual is on shore near water within 8 meters (25ft) of water Individual is well away from water between 8 and 30 meters (100 ft) Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

None

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Unpaved road to park under overpass, drive over low water bridge

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)? Yes X No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing, Boating-commercial, recreational, Non-whitewater-kayaking, rafting, canoeing
X No secondary contact recreation activities were observed
Other secondary contact activities:

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 11  
Date: 5/8/2010 Time: 1221-1335

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
None

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
None

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
same as before

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
N/A  
One of the children that was swimming said that they go down there all the time.

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 11  
 Date: 5/8/10 FDS Page 3 of 8 Time: 1221-1335

### E. Stream Channel and Substantial Pool

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### I. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg - Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
	30 meters	2.2 ft
60 meters	2.02 ft	0.62 m
90 meters	2.0 ft	0.61 m
120 meters	1.6	0.49 m
150 meters	1.6	0.49 m
180 meters	1.6	0.49 m
210 meters	2.9	0.88 m
240 meters	2.0	0.61 m
270 meters	1.82	0.55 m
300 meters	3.2	0.98 m
<b>Average</b>		<b>0.64 m</b>

*pictures of bank out of order - 30, 300, 150 pics of kids swimming between 150-300:150*

*extra of floaty, footprints, kids swimming, boards over water*

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 11  
 Date: 5/8/2010 Time: 1221-1335

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	36.8 ft	11.22 m
Width at narrowest point of the stream within 300 meter reach	29	8.84 m
Width at the widest point of the stream within 300 meter reach	59	17.98 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

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#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets -- Basic RUAA Survey**

Stream Name Brushy Creek Site: 11  
 Date: 5/8/2010 Time: 1221-1335

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: low water bridge

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Low bridges
- Rip rap
- Water control structure
- None

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Brushy Creek Site: 11  
 Date: 5/10/2010 Time: 12:13:35

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: green herons, great blue heron

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: T-shirt, flip flops, bottles, caps

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Family picnicking under the overpass. Kids on shore, in water, swimming, dunking head under water.

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/8/10  
 Site: 11 Site  
 Description: Red Bud Ln @ Brushy Creek  
 Time Begin: 1230 Time End: \_\_\_\_\_ Meter Type: Sontek Flowtracker  
 Observers: J. West Stream Width\*: 29 Section Width (W): 1.45  
 Observations: Series of riffles and runs. a few pools at times in the creek.

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.725	0.45			1.22	
2.175	0.6			2.90	
3.625	0.8			2.84	
5.075	1.2			3.10	
6.525	1.3			3.16	
7.975	1.1			3.24	
9.425	1.0			3.01	
10.875	1.0			3.07	
12.325	0.7			2.99	
13.775	0.7			3.15	
15.225	0.5			3.36	
16.675	0.6			2.85	
18.125	0.8			2.30	
19.575	0.9			2.78	
21.025	0.9			2.96	
22.475	0.8			2.80	
23.925	0.7			2.81	
25.375	0.6			2.80	
26.825	0.3			2.02	
28.275	0.1			Too shallow	

Total Q = 62.666 cfs

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 11.WAD  
Start Date and Time 2010/05/08 12:39:13

## Site Details

Site Name BC11  
Operator(s) JW

## System Information

Sensor Type FlowTracker  
Serial # P1880  
CPU Firmware Version 3.4  
Software Ver 2.30  
Mounting Correction 0.0%

## Units (English Units)

Distance ft  
Velocity ft/s  
Area ft<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	2.3%
Velocity	0.5%	2.0%
Width	0.1%	0.1%
Method	1.9%	-
# Stations	2.4%	-
<b>Overall</b>	<b>3.2%</b>	<b>3.2%</b>

## Summary

Averaging Int.	20	# Stations	21
Start Edge	LEW	Total Width	29.000
Mean SNR	24.3 dB	Total Area	21.621
Mean Temp	72.97 °F	Mean Depth	0.746
Disch. Equation	Mid-Section	Mean Velocity	2.8984
		<b>Total Discharge</b>	<b>62.6663</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:39	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
<i>1</i>	<i>12:39</i>	<i>2.73</i>	<i>0.6</i>	<i>0.450</i>	<i>0.6</i>	<i>0.180</i>	<i>1.2162</i>	<i>1.00</i>	<i>1.2162</i>	<i>0.489</i>	<i>0.5953</i>	<i>0.9</i>
2	12:41	4.17	0.6	0.600	0.6	0.240	2.8986	1.00	2.8986	0.870	2.5217	4.0
3	12:42	5.62	0.6	0.800	0.6	0.320	2.8389	1.00	2.8389	1.160	3.2921	5.3
4	12:44	7.07	0.6	1.200	0.6	0.480	3.0968	1.00	3.0968	1.740	5.3883	8.6
5	12:45	8.52	0.6	1.300	0.6	0.520	3.1591	1.00	3.1591	1.885	5.9535	9.5
6	12:46	9.97	0.6	1.100	0.6	0.440	3.2428	1.00	3.2428	1.595	5.1718	8.3
7	12:47	11.42	0.6	1.000	0.6	0.400	3.0115	1.00	3.0115	1.450	4.3661	7.0
8	12:48	12.87	0.6	1.000	0.6	0.400	3.0725	1.00	3.0725	1.450	4.4545	7.1
9	12:49	14.32	0.6	0.700	0.6	0.280	2.9872	1.00	2.9872	1.015	3.0322	4.8
10	12:50	15.77	0.6	0.700	0.6	0.280	3.1460	1.00	3.1460	1.015	3.1934	5.1
11	12:51	17.22	0.6	0.500	0.6	0.200	3.3635	1.00	3.3635	0.725	2.4382	3.9
12	12:54	18.67	0.6	0.600	0.6	0.240	2.8468	1.00	2.8468	0.870	2.4766	4.0
13	12:55	20.12	0.6	0.800	0.6	0.320	2.3005	1.00	2.3005	1.160	2.6678	4.3
14	12:56	21.57	0.6	0.900	0.6	0.360	2.7779	1.00	2.7779	1.305	3.6244	5.8
15	12:57	23.02	0.6	0.900	0.6	0.360	2.9554	1.00	2.9554	1.305	3.8560	6.2
16	12:58	24.47	0.6	0.800	0.6	0.320	2.8009	1.00	2.8009	1.160	3.2480	5.2
17	12:59	25.92	0.6	0.700	0.6	0.280	2.8127	1.00	2.8127	1.015	2.8550	4.6
18	13:00	27.37	0.6	0.600	0.6	0.240	2.7966	1.00	2.7966	0.870	2.4330	3.9
19	13:02	28.82	0.6	0.300	0.6	0.120	2.0190	1.00	2.0190	0.544	1.0984	1.8
20	13:02	31.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

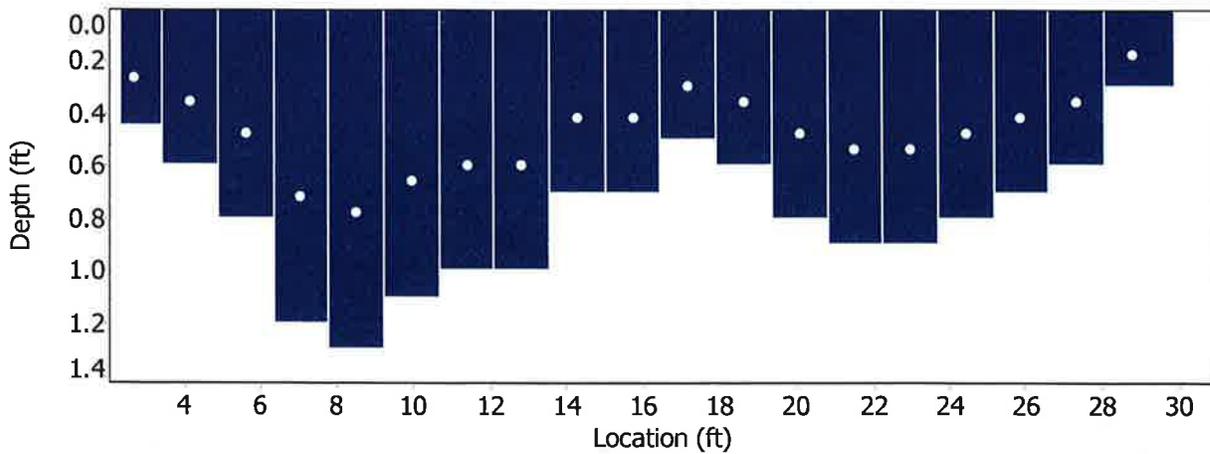
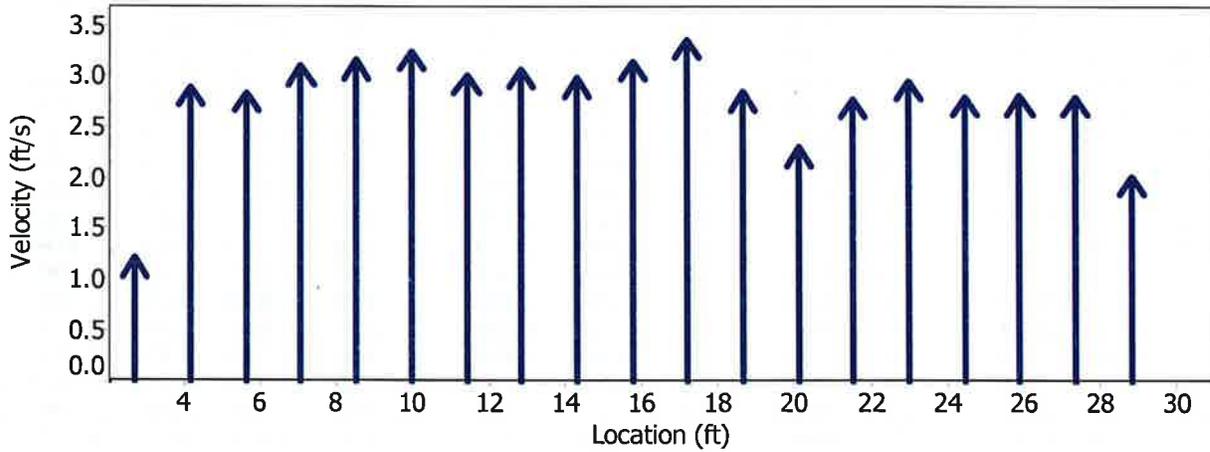
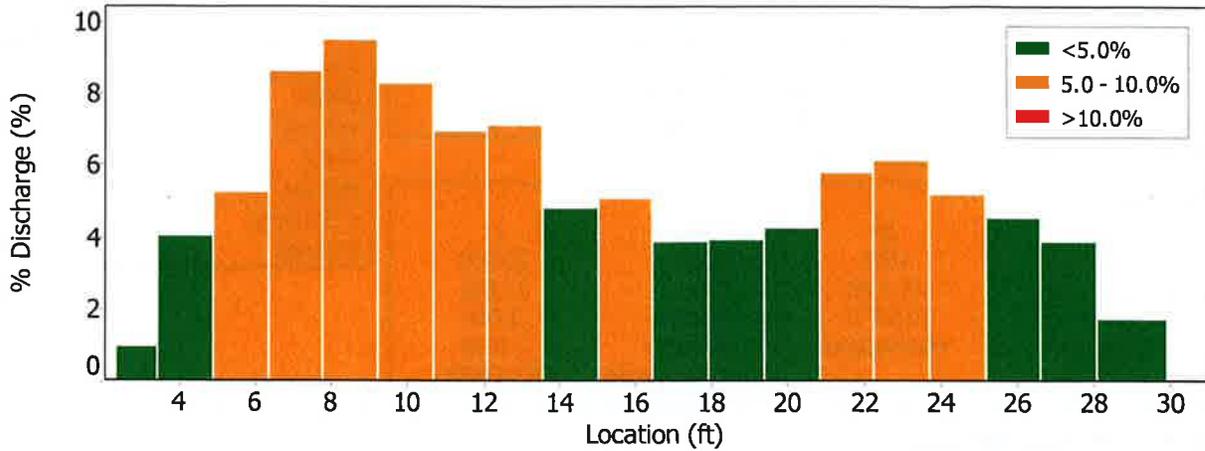
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 11.WAD  
 Start Date and Time: 2010/05/08 12:39:13

## Site Details

Site Name: BC11  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

**File Information**

File Name Brushy Creek 11.WAD  
Start Date and Time 2010/05/08 12:39:13

**Site Details**

Site Name BC11  
Operator(s) JW

**Quality Control**

St	Loc	%Dep	Message
1	2.73	0.6	High angle: 23
		0.6	High SNR variation during measurement: 6.9,5.2
13	20.12	0.6	High standard error: 0.126
14	21.57	0.6	High angle: -22
16	24.47	0.6	High angle: -23
17	25.92	0.6	High angle: -22
18	27.37	0.6	High angle: -21
19	28.82	0.6	High angle: -22

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

**File Information**

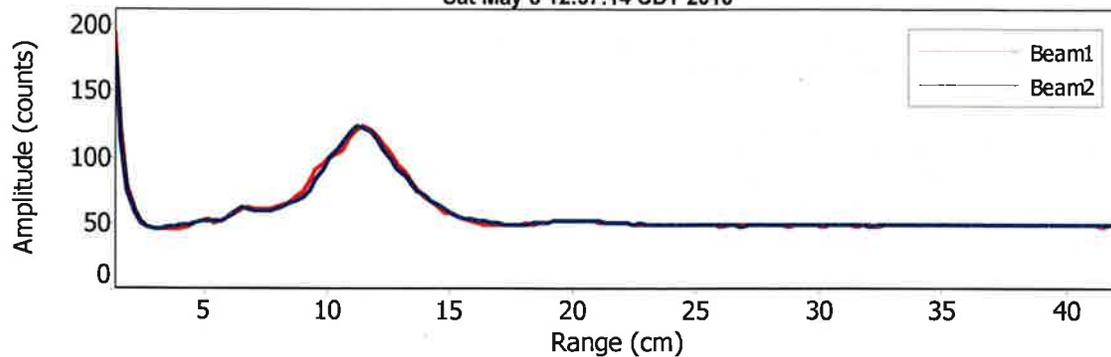
File Name Brushy Creek 11.WAD  
Start Date and Time 2010/05/08 12:39:13

**Site Details**

Site Name BC11  
Operator(s) JW

**Automatic Quality Control Test (BeamCheck)**

Sat May 8 12:37:14 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Site 12

Field Data Sheets - Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	K. Condra, G. Waast, L. Ray
Date & Time:	5/10/10 1348-1448 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	CR123 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 64.547cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 25 °C Water Temp 22 °C Sechi clear to bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |  |                                   |
|--|--|-----------------------------------|
| <u>L,R</u> Forest                                  | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input type="checkbox"/> Shrub dominated corridor  | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh          | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Bank at low water bridge makes easy to get to water

8. Dominant Primary Substrate

- Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

E AH QPV  
5/10/10

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 12  
Date: 5/18/10 Time: 1348-1449

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?  
 Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

No public parking

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Low water bridge

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 12  
Date: 5/8/10 Time: 1348-1449

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
N/A

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 12  
 Date: 3/8/10 FDS Page 3 of 8 Time: 1348-1449

### E. Stream Channel and Substantial Pool

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### I. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank  *standing on bridge 194m 194m*

*picture order  
150, 194,  
30*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. *N/A*

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg - Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	<i>4.08</i>
60 meters	<i>2.48</i>
90 meters	<i>1.2</i>
120 meters	<i>1.0 ft.</i>
150 meters	<i>4.5 ft.</i>
180 meters	<i>&gt; 4 ft</i>
210 meters	<i>No depth taken</i>
240 meters	
270 meters	
300 meters	
Average	<i>0.38 m</i>

*\*Depth  
Low water  
Bridge @  
194 m  
4.18 ft. → 1.27m*

*Non-wadeable*

*From the low water bridge we could see 116 m down stream*

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 12  
 Date: 3/8/10 Time: 1348 - 1448

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

64

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	64 → 19.51
Width at narrowest point of the stream within 300 meter reach	18.8 FT → 5.73m
Width at the widest point of the stream within 300 meter reach	→ 51 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .  
 Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

## Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 12  
 Date: 5/9/10 Time: 1348-1448

### F. Additional RUAA Information

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input checked="" type="checkbox"/> Bicycling       | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input type="checkbox"/> None                 |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: low water bridge

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |   |   |  |
|---------------------------------------|---|---|---|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap                | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation | <input checked="" type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |   |   |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |   |  |
|---|---|---|--|
| <input type="checkbox"/> Campgrounds                        | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds                        | <input type="checkbox"/> Boating access (ramps)       | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area                         | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input checked="" type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing   | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests                   | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input checked="" type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course                        | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field                       | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: yes, urban/suburban location

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Private Property | <input type="checkbox"/> Fence              |
| <input checked="" type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife                    | <input type="checkbox"/> Industrial         |
| <input type="checkbox"/> Steep slopes                | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access            | <input type="checkbox"/> Other: _____       |
| <input type="checkbox"/> No roads                    |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |   |  |
|--|---|---|--|
| <input checked="" type="checkbox"/> Roads  | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge            | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor          | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input checked="" type="checkbox"/> Children's toys |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play    |  |
| <input type="checkbox"/> Other: _____      |   |   |  |

Comments: football floating on water

**Field Data Sheets – Basic RUA Survey**

Stream Name Bruohy Creek Site: 12  
 Date: 5/8/10 Time: 1348-1448

**7. Check all water characteristics that apply (Attach photos).**

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

**8. Vertebrates Observed within 300 meter reach**

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: green heron

**9. Mammals Observed within 300 meter reach**

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

**10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.**

- Tracks  Fecal droppings  Bird nests N/A

**11. Garbage Observed**

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: beer can, plates, football

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Field Data Sheet - Basic RUAA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 5/18/10  
 Site: 12 Site  
 Description: CR 123 @ Brushy Creek  
 Time Begin: 1400 Time End: 1445 Meter Type: Sontek FlowTracker  
 Observers: J. Wast Stream Width\*: 64 Section Width (W): 3.2  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
1.6	0.1			too shallow	
5.12	0.2			0.64	
8.32	0.3			1.32	
11.52	0.3			2.18	
14.72	0.35			2.01	
17.92	0.2			1.43	
21.12	0.4			1.75	
24.32	0.4			1.66	
27.52	0.6			2.07	
30.72	0.8			2.85	
33.92	0.7			2.4	
37.12	0.85			2.16	
40.32	0.7			2.13	
43.52	0.8			2.09	
46.72	0.95			1.82	
49.92	0.95			1.91	
53.12	0.9			1.42	
56.32	0.8			1.16	
59.52	0.65			1.06	
62.72	0.4			0.60	

Total Q = 64.451 cfs

E  
MRS  
5/13

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

<b>File Information</b> File Name: Brushy Creek 12.WAD Start Date and Time: 2010/05/08 14:13:40		<b>Site Details</b> Site Name: BC12 Operator(s): JW																									
<b>System Information</b> Sensor Type: FlowTracker Serial #: P1880 CPU Firmware Version: 3.4 Software Ver: 2.30 Mounting Correction: 0.0%		<b>Units (English Units)</b> Distance: ft Velocity: ft/s Area: ft^2 Discharge: cfs																									
<b>Summary</b> Averaging Int.: 20 # Stations: 21 Start Edge: LEW Total Width: 64.000 Mean SNR: 26.4 dB Total Area: 35.807 Mean Temp: 72.89 °F Mean Depth: 0.559 Disch. Equation: Mid-Section Mean Velocity: 1.8000 <b>Total Discharge: 64.4509</b>		<b>Discharge Uncertainty</b> <table border="1"> <thead> <tr> <th>Category</th> <th>ISO</th> <th>Stats</th> </tr> </thead> <tbody> <tr> <td>Accuracy</td> <td>1.0%</td> <td>1.0%</td> </tr> <tr> <td>Depth</td> <td>0.4%</td> <td>3.0%</td> </tr> <tr> <td>Velocity</td> <td>0.8%</td> <td>2.6%</td> </tr> <tr> <td>Width</td> <td>0.1%</td> <td>0.1%</td> </tr> <tr> <td>Method</td> <td>2.0%</td> <td>-</td> </tr> <tr> <td># Stations</td> <td>2.4%</td> <td>-</td> </tr> <tr> <td><b>Overall</b></td> <td><b>3.4%</b></td> <td><b>4.1%</b></td> </tr> </tbody> </table>		Category	ISO	Stats	Accuracy	1.0%	1.0%	Depth	0.4%	3.0%	Velocity	0.8%	2.6%	Width	0.1%	0.1%	Method	2.0%	-	# Stations	2.4%	-	<b>Overall</b>	<b>3.4%</b>	<b>4.1%</b>
Category	ISO	Stats																									
Accuracy	1.0%	1.0%																									
Depth	0.4%	3.0%																									
Velocity	0.8%	2.6%																									
Width	0.1%	0.1%																									
Method	2.0%	-																									
# Stations	2.4%	-																									
<b>Overall</b>	<b>3.4%</b>	<b>4.1%</b>																									

Measurement Results												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:13	4.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:15	9.12	0.6	0.200	0.6	0.080	0.6444	1.00	0.6444	0.833	0.5364	0.8
2	14:16	12.32	0.6	0.300	0.6	0.120	1.3235	1.00	1.3235	0.960	1.2699	2.0
3	14:17	15.52	0.6	0.300	0.6	0.120	2.1765	1.00	2.1765	0.960	2.0884	3.2
4	14:18	18.72	0.6	0.350	0.6	0.140	2.0128	1.00	2.0128	1.120	2.2546	3.5
5	14:19	21.92	0.6	0.200	0.6	0.080	1.4285	1.00	1.4285	0.640	0.9148	1.4
6	14:20	25.12	0.6	0.400	0.6	0.160	1.7457	1.00	1.7457	1.280	2.2340	3.5
7	14:21	28.32	0.6	0.400	0.6	0.160	1.6637	1.00	1.6637	1.280	2.1291	3.3
8	14:22	31.52	0.6	0.600	0.6	0.240	2.0705	1.00	2.0705	1.920	3.9756	6.2
9	14:23	34.72	0.6	0.800	0.6	0.320	2.5482	1.00	2.5482	2.559	6.5220	10.1
10	14:24	37.92	0.6	0.700	0.6	0.280	2.4049	1.00	2.4049	2.240	5.3876	8.4
11	14:26	41.12	0.6	0.850	0.6	0.340	2.1608	1.00	2.1608	2.720	5.8774	9.1
12	14:27	44.32	0.6	0.700	0.6	0.280	2.1296	1.00	2.1296	2.240	4.7709	7.4
13	14:28	47.52	0.6	0.800	0.6	0.320	2.0915	1.00	2.0915	2.559	5.3531	8.3
14	14:29	50.72	0.6	0.950	0.6	0.380	1.8235	1.00	1.8235	3.040	5.5438	8.6
15	14:31	53.92	0.6	0.950	0.6	0.380	1.9072	1.00	1.9072	3.040	5.7982	9.0
16	14:33	57.12	0.6	0.900	0.6	0.360	1.4193	1.00	1.4193	2.880	4.0870	6.3
17	14:34	60.32	0.6	0.800	0.6	0.320	1.1585	1.00	1.1585	2.559	2.9650	4.6
18	14:35	63.52	0.6	0.650	0.6	0.260	1.0610	1.00	1.0610	2.080	2.2066	3.4
19	14:36	66.72	0.6	0.400	0.6	0.160	0.5984	1.00	0.5984	0.897	0.5365	0.8
20	14:36	68.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

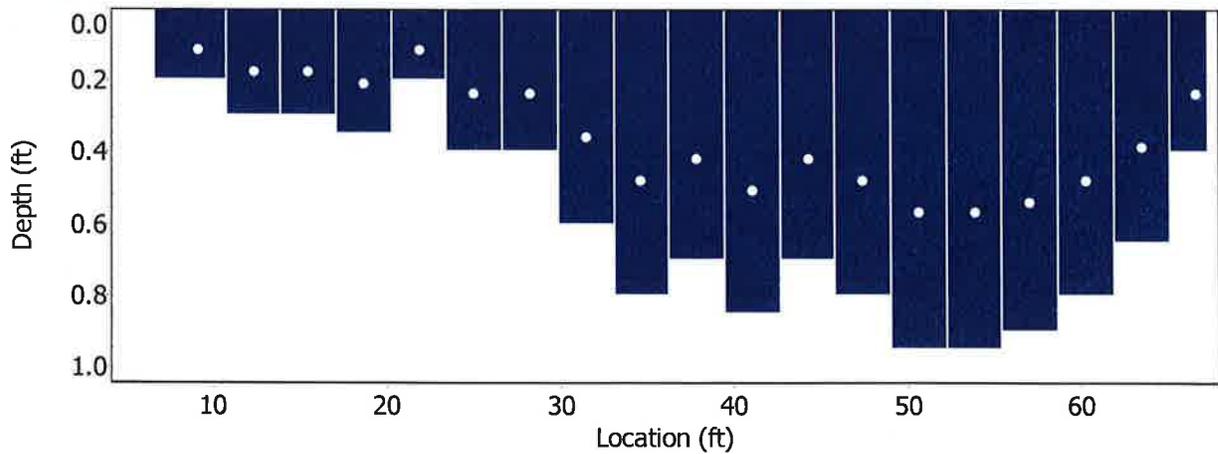
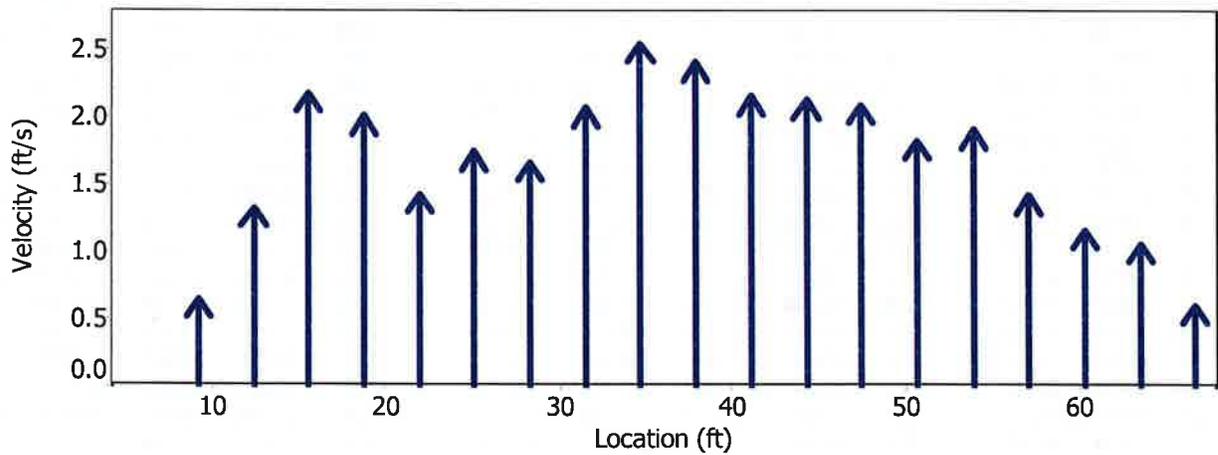
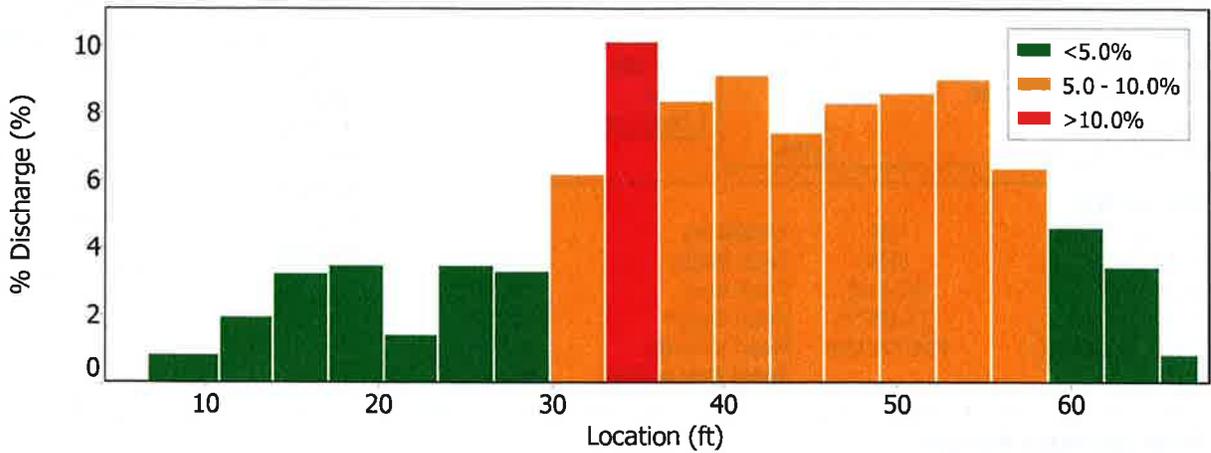
Date Generated: Thu May 13 2010

### File Information

File Name Brushy Creek 12.WAD  
 Start Date and Time 2010/05/08 14:13:40

### Site Details

Site Name BC12  
 Operator(s) JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

### File Information

File Name Brushy Creek 12.WAD  
 Start Date and Time 2010/05/08 14:13:40

### Site Details

Site Name BC12  
 Operator(s) JW

### Quality Control

St	Loc	%Dep	Message
1	9.12	0.6	High angle: 38
3	15.52	0.6	High angle: 29
6	25.12	0.6	High standard error: 0.102
7	28.32	0.6	High angle: 21
8	31.52	0.6	High angle: 27
11	41.12	0.6	High standard error: 0.114
14	50.72	0.6	High angle: -26
15	53.92	0.6	High angle: -20
16	57.12	0.6	High angle: -24
17	60.32	0.6	High angle: -22
19	66.72	0.6	High angle: -21

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

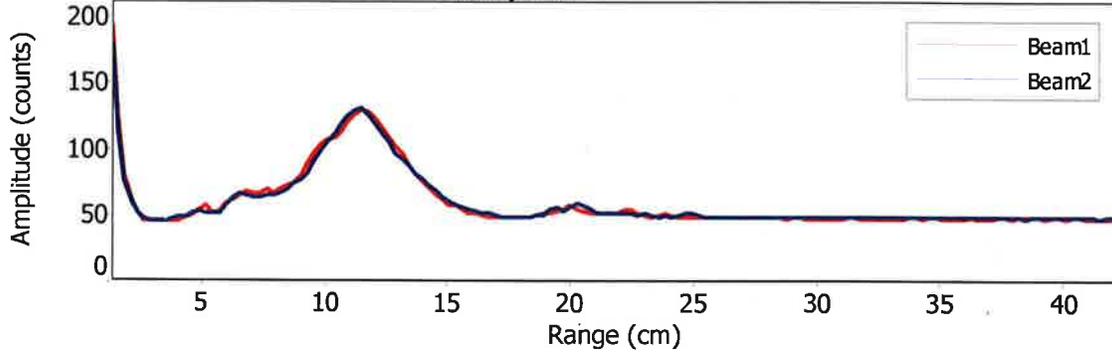
File Name Brushy Creek 12.WAD  
Start Date and Time 2010/05/08 14:13:40

## Site Details

Site Name BC12  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Sat May 8 14:12:28 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Side 13

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

cc 5/8/10  
1505-1617

Data Collectors & Contact Information:	K. Condra, J. Wraast, L. Roy
Date & Time:	5/8/10 1305-1617 cc
County Name:	Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	Tollway 130 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 63.281 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 22 °C      Water Temp 22 °C      Sechi Clean to Bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |                                 |                           |   |
|---------------------------------|---------------------------|---|
| <u>L, R</u> Forest              | _____ Urban               | <u>L, R</u> Rip rap                                     |
| _____ Shrub dominated corridor  | _____ Pasture             | _____ Concrete  |
| _____ Herbaceous marsh          | _____ Row crops           | Other (specify): <u>L, R has columns from toll ROAD</u> |
| _____ Mowed/maintained corridor | _____ Denuded/Eroded bank |   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Unpaved parking under bridge but steep, rocky slope to stream

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

E  
AH  
5/12/10  
Dpc

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 13  
Date: 5/8/10 Time: 1505-1617  
1505-

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

No primary contact activities that commonly occur were observed

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Fairly steep Bank, large boulders

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

unpaved Road to under bridge

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 13  
Date: 5/8/10 Time: ~~1305~~ 1617  
1505

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body. N/A  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 13  
 Date: 5/8/10 FDS Page 3 of 8 Time: 1305-1412  
1505-1617

### E. Stream Channel and Substantial Pool:

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### I. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

Site 13 pics start at picture of LOVE

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

N/A

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg - Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	2.5 ft	0.76 m
60 meters	2.0 ft	0.61 m
90 meters	1.9 ft	0.60 m
120 meters	1.8 ft	0.25 m
150 meters	1.0 ft	0.33 m
180 meters	1.9 ft	0.60 m
210 meters	2.6 ft	0.81 m
240 meters	2.5 ft	0.87 m
270 meters	1.9 ft	0.60 m
300 meters	1.4 ft	0.43 m
<b>Average</b>		<b>0.59 m</b>

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 13  
 Date: 5/8/10 Time: ~~1305~~ 1505-1617  
KL

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	35 ft	10.67 m
Width at narrowest point of the stream within 300 meter reach	30 ft	9.14 m
Width at the widest point of the stream within 300 meter reach	66 ft	20.12 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

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**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .  
 Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 13  
 Date: 5/8/10 Time: 1305-1617  
1505-

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): Large boulders
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: On the right bank, there is a large, wide flat rocky area, suitable for use as a beach area.

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence
- Other: Graffiti under bridge

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 13  
 Date: 5/8/10 Time: 1305-1617  
1505-

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: CANS, food wrappers

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Graffiti on wall under bridge

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Bushy creek Date: 5/8/10  
 Site: 13  
 Description: Tollway 130 @ Bushy Creek  
 Time Begin: 1510 Time End: \_\_\_\_\_ Meter Type: Sontek FlowTracker  
 Observers: J. Wast Stream Width\*: 35 Section Width (W): 1.75  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.57	1.0			0.79	
2.32	0.9			0.82	
4.07	1.2			1.13	
5.82	1.2			1.16	
7.57	1.35			1.37	
9.32	1.4			1.56	
11.07	1.4			1.39	
12.82	1.3			<del>1.43</del> 1.43	
14.57	1.3			1.60	
16.32	1.3			1.34	
18.07	1.3			1.66	
19.82	1.2			2.02	
21.57	1.3			1.86	
23.32	1.4			1.88	
25.07	1.3			1.90	
26.82	1.3			2.31	
28.57	1.0			2.06	
30.32	0.7			1.91	
32.07	0.7			1.59	
33.82	0.7			0.87	

Total Q = 62.673 cfs

E  
MES  
5/3

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 13.WAD  
Start Date and Time 2010/05/08 15:26:00

## Site Details

Site Name BC13  
Operator(s) JW

## System Information

Sensor Type FlowTracker  
Serial # P1880  
CPU Firmware Version 3.4  
Software Ver 2.30  
Mounting Correction 0.0%

## Units (English Units)

Distance ft  
Velocity ft/s  
Area ft<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	1.5%
Velocity	1.0%	2.0%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.3%	-
<b>Overall</b>	<b>3.2%</b>	<b>2.7%</b>

## Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	35.000
Mean SNR	23.7 dB	Total Area	39.897
Mean Temp	72.88 °F	Mean Depth	1.140
Disch. Equation	Mid-Section	Mean Velocity	1.5709
		<b>Total Discharge</b>	<b>62.6733</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	15:26	4.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	15:26	4.57	0.6	1.000	0.6	0.400	0.7874	1.00	0.7874	1.160	0.9133	1.5
2	15:27	6.32	0.6	0.900	0.6	0.360	0.8189	1.00	0.8189	1.575	1.2897	2.1
3	15:28	8.07	0.6	1.200	0.6	0.480	1.1342	1.00	1.1342	2.100	2.3821	3.8
4	15:29	9.82	0.6	1.200	0.6	0.480	1.1562	1.00	1.1562	2.100	2.4282	3.9
5	15:32	11.57	0.6	1.350	0.6	0.540	1.3691	1.00	1.3691	2.363	3.2346	5.2
6	15:33	13.32	0.6	1.400	0.6	0.560	1.5650	1.00	1.5650	2.450	3.8340	6.1
7	15:35	15.07	0.6	1.400	0.6	0.560	1.3914	1.00	1.3914	2.450	3.4088	5.4
8	15:36	16.82	0.6	1.300	0.6	0.520	1.4311	1.00	1.4311	2.275	3.2554	5.2
9	15:37	18.57	0.6	1.300	0.6	0.520	1.5965	1.00	1.5965	2.275	3.6316	5.8
10	15:38	20.32	0.6	1.300	0.6	0.520	1.3386	1.00	1.3386	2.275	3.0450	4.9
11	15:39	22.07	0.6	1.300	0.6	0.520	1.6640	1.00	1.6640	2.275	3.7853	6.0
12	15:40	23.82	0.6	1.200	0.6	0.480	2.0243	1.00	2.0243	2.100	4.2514	6.8
13	15:41	25.57	0.6	1.300	0.6	0.520	1.8566	1.00	1.8566	2.275	4.2234	6.7
14	15:42	27.32	0.6	1.400	0.6	0.560	1.8835	1.00	1.8835	2.450	4.6144	7.4
15	15:43	29.07	0.6	1.300	0.6	0.520	1.9042	1.00	1.9042	2.275	4.3316	6.9
16	15:44	30.82	0.6	1.300	0.6	0.520	2.3081	1.00	2.3081	2.275	5.2503	8.4
17	15:44	32.57	0.6	1.000	0.6	0.400	2.0633	1.00	2.0633	1.750	3.6108	5.8
18	15:45	34.32	0.6	0.700	0.6	0.280	1.9140	1.00	1.9140	1.225	2.3451	3.7
19	15:46	36.07	0.6	0.700	0.6	0.280	1.5853	1.00	1.5853	1.225	1.9424	3.1
20	15:47	37.82	0.6	0.700	0.6	0.280	0.8734	1.00	0.8734	1.026	0.8958	1.4
21	15:47	39.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

# Discharge Measurement Summary

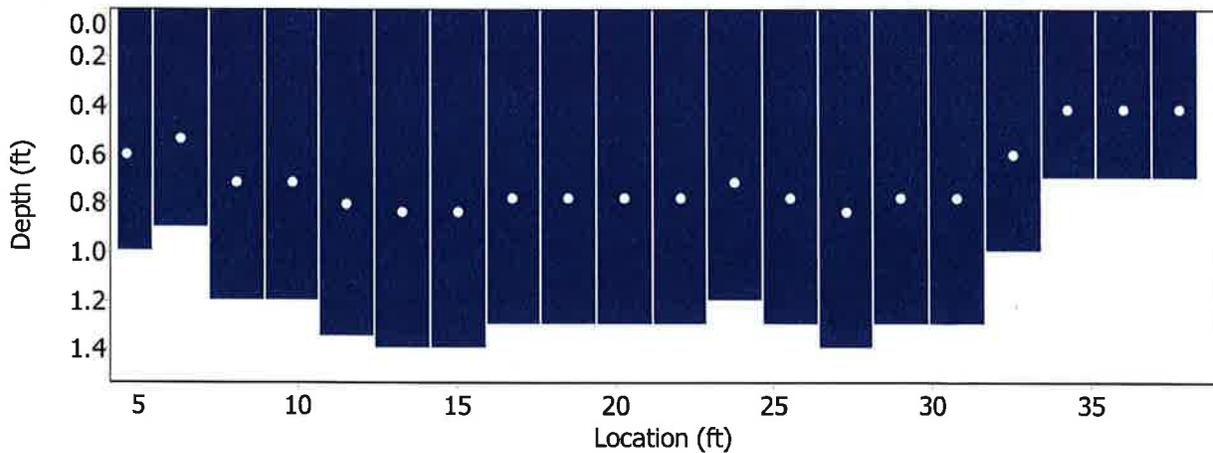
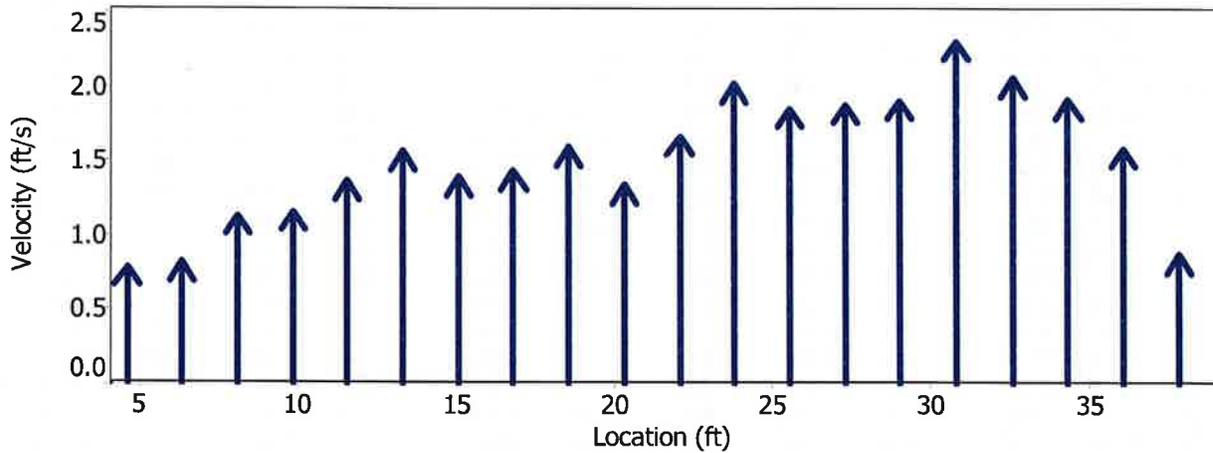
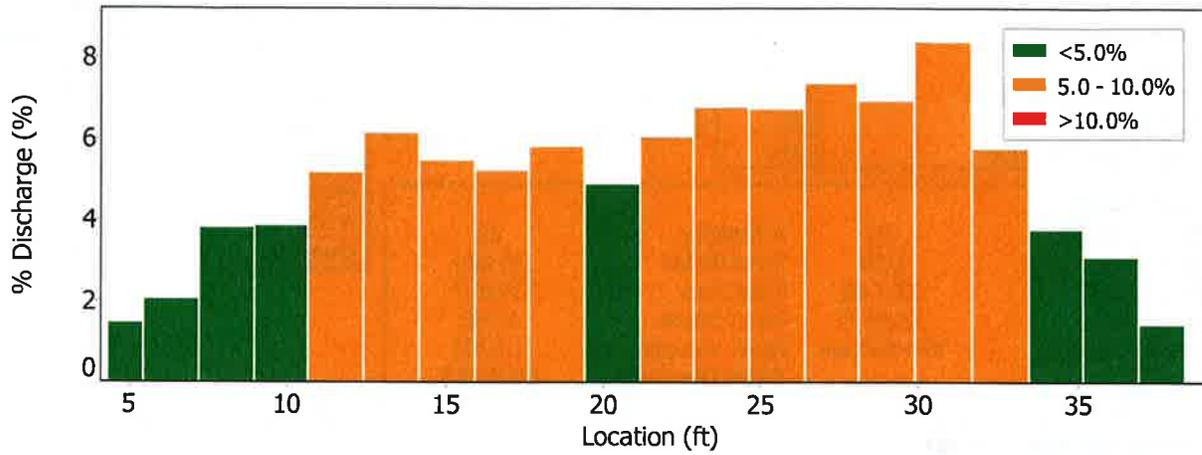
Date Generated: Thu May 13 2010

## File Information

File Name: Brushy Creek 13.WAD  
 Start Date and Time: 2010/05/08 15:26:00

## Site Details

Site Name: BC13  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

### File Information

File Name Brushy Creek 13.WAD  
Start Date and Time 2010/05/08 15:26:00

### Site Details

Site Name BC13  
Operator(s) JW

### Quality Control

St	Loc	%Dep	Message
1	4.57	0.6	High number of spikes: 3
		0.6	High angle: 21
		0.6	High SNR variation during measurement: 4.7,6.0
2	6.32	0.6	High angle: 21
4	9.82	0.6	High number of spikes: 5
15	29.07	0.6	High standard error: 0.123

# Discharge Measurement Summary

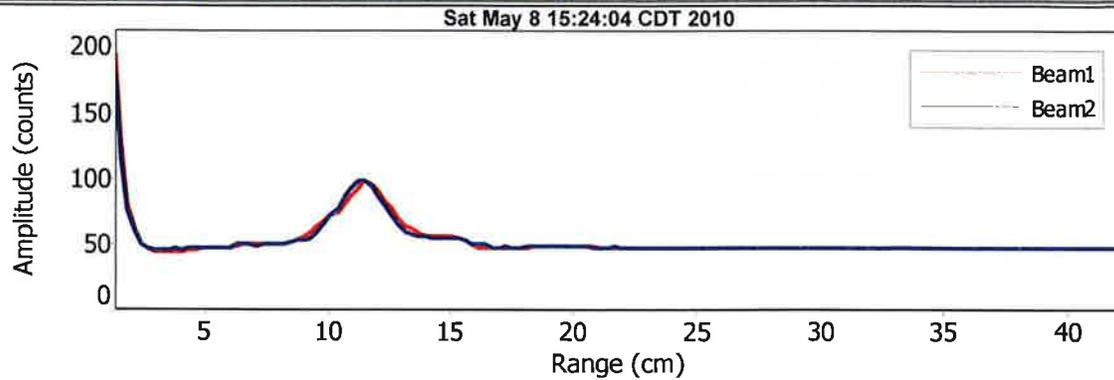
Date Generated: Thu May 13 2010

**File Information**

File Name Brushy Creek 13.WAD  
Start Date and Time 2010/05/08 15:26:00

**Site Details**

Site Name BC13  
Operator(s) JW

**Automatic Quality Control Test (BeamCheck)**

- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Sik 14

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	J. Wrast, K. Condra, L. Ray
Date & Time:	5/8/10 1620-1745
County Name:	Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	FM 685 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 64.143cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp

24 ~~14~~ °C

Water Temp

22 °C

clear to bottom

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |                                 |                           |                        |
|---------------------------------|---------------------------|------------------------|
| <u>4R</u> Forest                | _____ Urban               | _____ Rip rap          |
| _____ Shrub dominated corridor  | _____ Pasture             | _____ Concrete         |
| _____ Herbaceous marsh          | _____ Row crops           | Other (specify): _____ |
| _____ Mowed/maintained corridor | _____ Denuded/Eroded bank |                        |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Park on side of busy road (but enough room to pull over completely)

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

E AH Opl  
5/18/10

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 14  
Date: 5/10/10 Time: 1620-1745

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

algae cover is slippery, shallow water.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Bridge crossing, w/ nice bedrock banks to walk down.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? NO

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name: Bushy Creek Site: 14  
Date: 5/8/10 Time: 1620-1745

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

Same

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

Same

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

N/A

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 14  
 Date: 5/8/10 FDS Page 3 of 8 Time: 1620-1745

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	2.2 ft	0.67 m
60 meters	1 ft	0.30 m
90 meters	1.7 ft	0.52 m
120 meters	1.2 ft	0.37 m
150 meters	1.6 ft	0.49 m
180 meters	1.5 ft	0.46 m
210 meters	1.4 ft	0.43 m
240 meters	1.6 ft	0.49 m
270 meters	1.5 ft	0.46 m
300 meters	1.3 ft	0.40 m
<b>Average</b>		<b>0.46 m</b>

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 14  
 Date: 5/8/10 Time: 1620-1745

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	47.4ft	14.45 m
Width at narrowest point of the stream within 300 meter reach	37 ft	11.28 m
Width at the widest point of the stream within 300 meter reach	72ft	21.95 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 14  
 Date: 5/8/10 Time: 1620-1745

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: old low water bridge @ ~30m

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Low bridges
- Rip rap
- Water control structure
- None

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bundy Creek Site: 14  
 Date: 5/8/10 Time: 1620-1745

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant rare  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: Sum on sides.

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests raccoon

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: cans, wrappers,

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

graffiti under bridge

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

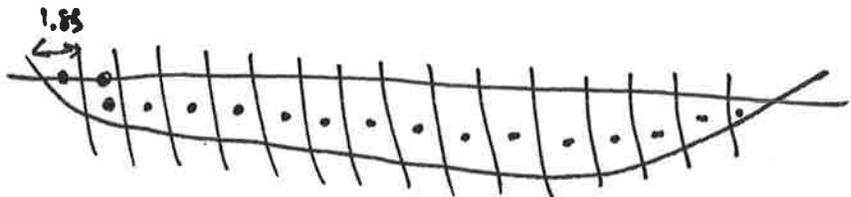
Stream: Brushy Creek Date: 5/8/10  
 Site: 14 Site  
 Description: FM 685 @ Brushy Creek  
 Time Begin: 1025 Time End: 1741 Meter Type: Sontek Flowtracker  
 Observers: J. West, Ray, Condra Stream Width\*: 37 Section Width (W): 1.85  
 Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.925	0.4 ft			0.69	
2.775	0.5			1.31	
4.625	1.4			1.2	
6.475	1.5			1.22	
8.325	1.5			1.38	
10.175	1.5			1.34	
12.025	1.4			1.42	
13.875	1.8			1.07	
15.725	2.0			0.90	
17.575	1.6			0.98	
19.425	1.6			0.96	
21.275	1.5			1.03	
23.125	1.4			1.05	
24.975	1.5			1.13	
26.825	1.3			1.09	
28.675	1.2			0.29	
30.525	1.0			0.04	
32.375	0.9			-0.03	
34.225	0.5			0.04	
36.075	0.5			0.02	

Total Q

43.677

On left there was AN eddy  
Bank





# Discharge Measurement Summary

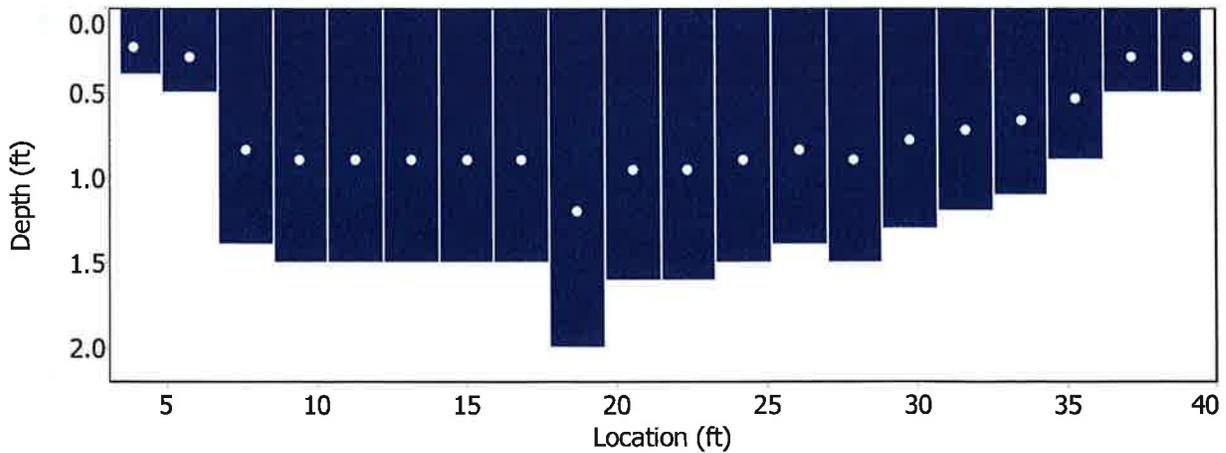
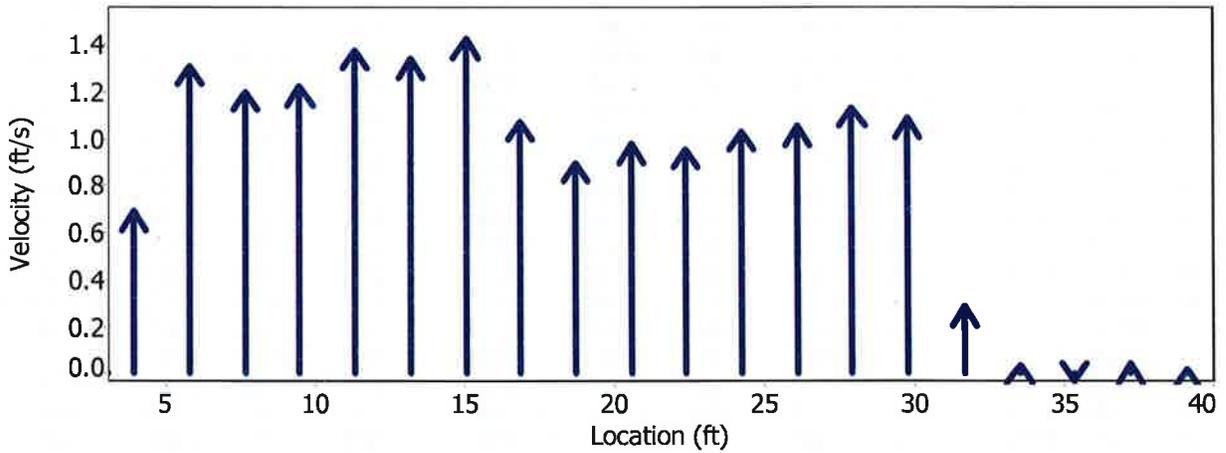
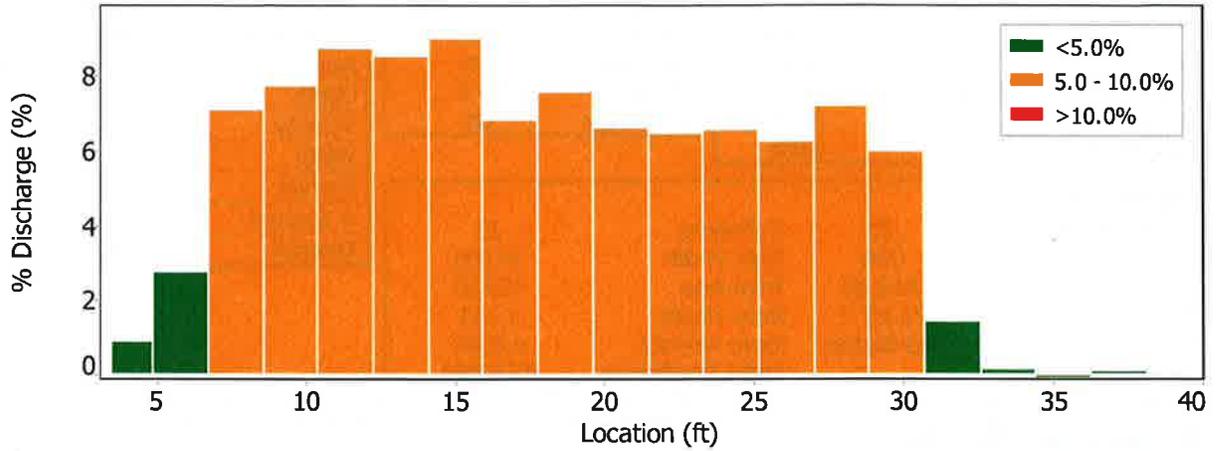
Date Generated: Thu May 13 2010

### File Information

File Name: Brushy Creek 14.WAD  
 Start Date and Time: 2010/05/08 16:48:35

### Site Details

Site Name: BC14  
 Operator(s): JW



# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

File Name Brushy Creek 14.WAD  
 Start Date and Time 2010/05/08 16:48:35

## Site Details

Site Name BC14  
 Operator(s) JW

## Quality Control

St	Loc	%Dep	Message
1	3.92	0.6	SNR (17.6) is different from typical SNR (28.2)
2	5.77	0.6	High angle: 24
		0.6	SNR (17.6) is different from typical SNR (28.2)
5	11.33	0.6	High standard error: 0.078
13	26.13	0.6	High standard error: 0.081
17	33.53	0.6	High SNR variation during measurement: 6.0,4.7
18	35.38	0.6	High angle: -170
		0.6	SNR (50.9) is different from typical SNR (28.2)
19	37.23	0.6	High angle: 40
		0.6	SNR (44.5) is different from typical SNR (28.2)
20	39.08	0.6	High angle: 59
		0.6	SNR (51.6) is different from typical SNR (28.2)

# Discharge Measurement Summary

Date Generated: Thu May 13 2010

## File Information

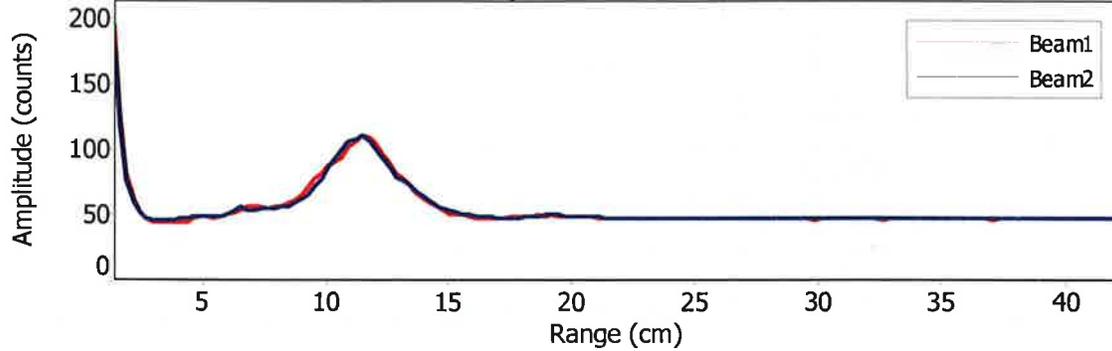
File Name Brushy Creek 14.WAD  
Start Date and Time 2010/05/08 16:48:35

## Site Details

Site Name BC14  
Operator(s) JW

## Automatic Quality Control Test (BeamCheck)

Sat May 8 16:45:08 CDT 2010



- ✔ Noise level check - Pass
- ✔ SNR check - Pass
- ✔ Peak location check - Pass
- ✔ Peak shape check - Pass

Side 15

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information: <u>P. Lokanath, A. Hughes, C. Green, R. Thompson</u>	
Date & Time: <u>05/08/17: 7:20-18:05</u>	County Name: <u>Williamson</u>
Stream Name: <u>Brushy Creek</u>	
Segment No. or nearest downstream Segment No.: <u>1244</u>	
Description of Site: <u>Riverwalk Dr @ Brushy Creek</u>	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

#### 3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.

58.76 cfs  
56.76

#### 4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 20 °C      Water Temp 21 °C      Seachi 21-20

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |                                      |                           |                        |
|--------------------------------------|---------------------------|------------------------|
| <u>L/R</u> Forest                    | <u>6</u> Urban            | _____ Rip rap          |
| <u>L/R</u> Shrub dominated corridor  | _____ Pasture             | _____ Concrete         |
| <u>L/R</u> Herbaceous marsh          | _____ Row crops           | Other (specify): _____ |
| <u>L/R</u> Mowed/maintained corridor | _____ Denuded/Eroded bank |                        |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

small metal bridge crossing.

#### 8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

E.O.

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 15  
Date: 05/08/10 Time: 17:20 - 18:05

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site;  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

depth on PL water up to collar PL access to water only through left bank, vegetated banks, boulders on the moderate slope left light bank on left bank right

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

out bridge crossing.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 15  
Date: 05/08/10 Time: 1720-18:05

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
has boulders <sup>N/A</sup> covered with algae, left to right bank <sup>left</sup>

**D. Noncontact Recreation Evaluation** N/A  
Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 15  
 Date: 05/08/10 FDS Page 3 of 8 Time: 1720-1805

### E. Stream Channel and Substantial Pool

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### I. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank  GPS 30.52269, 97.58976  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank  30.52314, 97.56040  
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank  30.52448, 97.56104

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg - Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	2.7 ft
60 meters	1.5 ft
90 meters	1.0 ft
120 meters	2.5 ft
150 meters	1.1 ft
180 meters	.8 ft
210 meters	.8
240 meters	1.2
270 meters	1.0
300 meters	1.7
<b>Average</b>	

0.61m  
0.46m  
0.30m  
0.70m  
0.34m  
0.24m  
0.24m  
0.37m  
0.30m  
0.52m  
0.41m

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 15  
 Date: 5/8/10 Time: 1720-1805

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	37 ft   11.28 m
Width at narrowest point of the stream within 300 meter reach	56 ft   17.07 m
Width at the widest point of the stream within 300 meter reach	22 ft   6.71 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 15  
 Date: 05/08/16 Time: 1720-

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: Baseball

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 15  
Date: 05/08/10 Time: 17:20

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant
- Algae Cover:  absent  rare  common  abundant
- Odor:  none  rare  common  abundant
- Color:  clear  green  red  brown  black
- Bottom Deposit:  sludge  solids  fine sediments  none  other
- Water Surface:  clear  scum  foam  debris  oil
- Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence
  - Water Dependent Birds  None  slight presence  moderate presence  large presence
  - Alligators  None  slight presence  moderate presence  large presence
- Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence
  - Domesticated Pets  None  slight presence  moderate presence  large presence
  - Livestock  None  slight presence  moderate presence  large presence
  - Feral Hogs  None  slight presence  moderate presence  large presence
- Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant
  - Small garbage in the channel  None  Rare  Common  Abundant
  - Bank Garbage  None  Rare  Common  Abundant
- Briefly describe the kinds of garbage observed: plastic bottle, plastic bag, soda can

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

observed 2 kids (boys) walking on the bridge they had skateboards with them

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Bushy Creek Date: 05/08/10  
 Site: 15 Site  
 Description: Riverwalk Dr @ Bushy Creek  
 Time Begin: 17:23 Time End: 17:50 Meter Type: Sontek Flowtracces  
 Observers: P. Lokanath, J. Thompson Stream Width\*: 45.4 Section Width (W): 2.27  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
1.135	<del>0.2</del> <sup>0.2 PL</sup>				
3.40	0.6			0.93	
5.675	0.6			0.91	
7.94	0.7			1.29	
10.215	0.9			1.36	
12.48	1.0			1.64	
14.75	1.1			1.80	
17.02	1.2			1.90	
19.29	1.1			<del>1.82</del> <sup>1.82 PL</sup>	1.62
21.56	1.0			1.72	
23.83	0.90			1.68	
26.10	0.90			1.70	
28.37	<del>1.70</del> <sup>1.70 PL</sup>			1.76	
30.64	1.0			1.65	
32.91	0.9			1.62	
35.18	0.9			1.75	
37.45	1.0			1.62	
39.72	1.0			1.17	
41.99	0.9			0.35	
44.26	0.5			-0.08	

→ too shallow

1.62

total Q = 24.507

E  
MES  
5/10/10

Site 16

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	P. Lokanath, A. Hughes, C. Green, R. Thompson
Date & Time:	05/08/10 9:05 - 17:05 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	CR 137 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 58.99 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 21 °C

Water Temp

20 °C Secchi > 1.20 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<input type="checkbox"/> Forest	<input type="checkbox"/> Urban	<input type="checkbox"/> Rip rap
<input checked="" type="checkbox"/> Shrub dominated corridor	<input type="checkbox"/> Pasture	<input type="checkbox"/> Concrete
<input type="checkbox"/> Herbaceous marsh	<input type="checkbox"/> Row crops	Other (specify): _____
<input type="checkbox"/> Mowed/maintained corridor	<input type="checkbox"/> Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

bridge crossing,

8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

AKC  
EKC

### Field Data Sheets – Basic RUAA Survey

Stream Name Bearshy Creek Site: 16  
Date: 05/08/10 Time: 1605-1705

#### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed  
 Wading-Adults  Surfing  
 Swimming  Whitewater-kayaking, canoeing, rafting  
 Water skiing  Other: \_\_\_\_\_  
 Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

too shallow, too only upto calf, steep steep bank slopes.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing, road

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

#### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 16  
Date: 05/08/10 Time: 1605-1705

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other N/A  
If other, list reasons: \_\_\_\_\_

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

steep slo bank slopes, vegetation on banks.

**D. Noncontact Recreation Evaluation** N/A  
*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name: Breidhy Creek Site: 16  
 Date: 05/08/10 FDS Page 3 of 8 Time: 1605-1705

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank  30.50658, 97.548190  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank  30.50761, 97.54864  
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank  30.50899, 97.54898

GPS

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	3.0	0.91 m
60 meters	2.6	0.79 m
90 meters	1.8	0.55 m
120 meters	1.7	0.52 m
150 meters	1.6 ft	0.49 m
180 meters	1.7 ft	0.21 m
210 meters	1.2 ft	0.37 m
240 meters	2 ft	0.61 m
270 meters	2.1	0.64 m
300 meters	1.4	0.52 m
<b>Average</b>		<b>0.56 m</b>

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 16  
 Date: 05/08/10 Time: 1605-1705

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	<del>44 ft</del> 53.2 ft
Width at narrowest point of the stream within 300 meter reach	<del>53.2</del> 44 ft
Width at the widest point of the stream within 300 meter reach	68 ft

16.22 m  
13.41 m  
20.73 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Brunshy Creek Site: 16  
 Date: 05/08/10 Time: 1605-1705

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- Water control structure
- None

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: graffiti under the bridge.

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 16  
 Date: 05/08/10 Time: 1605-1705

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests N/A

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: styrofoam cup, plastic bag  
in water, beer bottles, beer cans, soda cans.

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Field Data Sheet - Basic RUAA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 05/08/10  
 Site: 16 Site  
 Description: CR 137 @ Brushy Creek  
 Time Begin: 16:20 Time End: 16:45 Meter Type: Sontek Flowtracker  
 Observers: P. Lokanath, R. Thompson Stream Width\*: 53.2 Section Width (W): 2.66  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
1.33	0.85	0.15		0.02	0.0
3.99	0.4			0.01	
6.65	0.6			0.01	
9.31	0.8			1.31	
11.97	1.1			1.47	
14.63	1.2			1.51	
17.29	1.2			1.38	
19.95	1.2			1.35	
22.61	1.4			1.34	
25.21	1.4			1.27	
27.93	1.5			1.42	
30.59	1.6			1.63	
33.25	1.4			1.49	
35.91	1.3			1.33	
38.57	1.4			0.90	
41.23	1.3			0.41	
43.89	1.3			0.12	
46.55	1.2			0.08	
49.21	0.7			0.13	
51.87	0.7			0.10	

total Q = 24.702

Site 17

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	P. Lokanath, A. Hughes, R. Thompson, C. Greene	
Date & Time:	5/8/10 14:30-15:27	County Name: Williamson
Stream Name:	Brushy Creek	
Segment No. or nearest downstream Segment No.:	1244	
Description of Site:	CR 129 @ Brushy Creek	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 28.89 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 25 °C Water Temp 21 °C Secchi 71.20 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |  |                                   |
|--|--|-----------------------------------|
| <input checked="" type="checkbox"/> Forest                   | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input checked="" type="checkbox"/> Shrub dominated corridor | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                    | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor           | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

bridge crossing

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

E KC  
QC PL

Field Data Sheets – Basic RUAA Survey

Stream Name: Brushy Creek Site: 17
Date: 05/08/10 Time: 1430-1527

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

[ ] Yes [X] No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- [ ] Wading-Children [ ] Tubing [X] No primary contact activities that commonly occur were observed
[ ] Wading-Adults [ ] Surfing
[ ] Swimming [ ] Whitewater-kayaking, canoeing, rafting
[ ] Water skiing [ ] Other:
[ ] Diving [ ] frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site: [X] None [X] 1-10 [ ] 11-20 [ ] 20-50 [ ] greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- [ ] Water in mouth or nose of the individual [ ] Primary touch: Individual's body (or portion) immersed in water
[ ] Secondary touch: fishing, pets and related contact with water [ ] Individual is in a boat touching water
[ ] Individual is on shore near water within 8 meters (25ft) of water [X] Individual is well away from water between 8 and 30 meters (100 ft) [X] Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

the left bank is heavily vegetated right bank is steep slope. too shallow in some areas

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)? [ ] Yes [X] No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- [ ] Fishing
[ ] Boating-commercial, recreational
[ ] Non-whitewater-kayaking, rafting, canoeing
[X] No secondary contact recreation activities were observed
[ ] Other secondary contact activities:

Field Data Sheets – Basic RUAA Survey

Stream Name Bearshy Creek Site: 17  
Date: 05/05/10 Time: 1430-1527

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other N/A  
If other, list reasons: \_\_\_\_\_

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
vegetation on banks & steep right bank  
same

**D. Noncontact Recreation Evaluation** N/A  
*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 17  
 Date: 05/08/10 FDS Page 3 of 8 Time: 1430-1527

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)	
30 meters	1.0 ft	0.30 m
60 meters	1.2 ft	0.37 m
90 meters	1.2 ft	0.37 m
120 meters	3.5 ft	1.07 m
150 meters	2.6 ft	0.79 m
180 meters	.7 ft	0.21 m
210 meters	3.0 ft	0.91 m
240 meters	.9 ft	0.27 m
270 meters	1.7 ft	0.52 m
300 meters	.8 ft	0.24 m
<b>Average</b>		<b>0.51 m</b>

No GPS readings

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 17  
 Date: 05/08/10 Time: 1430-1527

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	<del>52 ft</del> - 15.85m
Width at narrowest point of the stream within 300 meter reach	28 ft - 8.53m
Width at the widest point of the stream within 300 meter reach	55 ft - 16.76m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 17  
 Date: 05/08/10 Time: 1430-1527

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- Water control structure
- None

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes → R.B
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: R.B-Right bank

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bunshij Creek Site: 17  
 Date: 10/05/08/10 Time: 1430-1527  
 AH

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: 1 snake.

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: plastic bottles, cans

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Water is the shallowest in some areas & greater than 3 ft at some locations  
lots of algae in water, huge trees fallen on the banks.



Site 18

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	P. Lokanath, A. Hughes, R. Thompson, C. Green
Date & Time:	05/08/10 13:50 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	FM 973 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 48.391 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 24 °C Water Temp 21 °C Secchi 0.660 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Forest                              | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input checked="" type="checkbox"/> Shrub dominated corridor | <input type="checkbox"/> Pasture             | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                    | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor           | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

trail to get under the bridge, unpaired parking area on the right bank

8. Dominant Primary Substrate

- Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

EKC  
QCP

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 18  
Date: 05/08/19 Time: 13:15-13:50

#### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input checked="" type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |   |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |   |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |   |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

lots of logs in water, deeper than 4ft on upstream & downstream of bridge.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

an unpaved parking area on the right bank,

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

#### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 18  
Date: 05/08/10 Time: 13:15 - 13:50

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
N/A

**D. Noncontact Recreation Evaluation** N/A

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 18  
 Date: 05/08/10 FDS Page 3 of 8 Time: 1215-1350

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank  @ 120 m log jam downstream  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank  @ 160 m

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	4 + 1.22m
150 meters	2.4 ft 0.73m
180 meters 160 m	+4 ft 1.22m
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	1.06m

log jam upstream  
too deep

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 18  
 Date: 05/08/00 Time: 1315-1356

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	31.5 ft   9.60m
Width at narrowest point of the stream within 300 meter reach	27.4 ft   8.35m
Width at the widest point of the stream within 300 meter reach	47 ft   14.33m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

\_\_\_\_\_

\_\_\_\_\_

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 18  
 Date: 05/09/10 Time: 13:15 - 13:50

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input checked="" type="checkbox"/> None      |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |  |                                      |  |
|---------------------------------------|---|--|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input checked="" type="checkbox"/> Log jams | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation    | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |  |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |  |   |  |
|--|--|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway                    | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)            | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input checked="" type="checkbox"/> Beach                  | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing        | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating                | <input type="checkbox"/> Nearby school                      |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking)      | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot                 | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input checked="" type="checkbox"/> Unimproved parking lot | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence                        |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic           |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial                   |
| <input type="checkbox"/> Steep slopes     | <input checked="" type="checkbox"/> None of the Above |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |   |   |  |  |
|---|---|--|--|
| <input checked="" type="checkbox"/> Roads             | <input checked="" type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings                  | <input type="checkbox"/> Camping Sites            | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform                | <input type="checkbox"/> Fire pit/ring            | <input type="checkbox"/> Children's toys         |  |
| <input checked="" type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle           | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other:                       | _____   |  |  |

Comments: paddle on the bank

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 18  
 Date: 05/08/90 Time: 13:15-13:50

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

bottom deposit - gravel

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence

Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence

Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel <sup>PL</sup>  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: plastic bottles, beer cans, tires in water

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



17  
Site 19

**Field Data Sheets – Basic RUAA Survey**  
(should be completed for each site)

Data Collectors & Contact Information	P. L. Conath, A. Hughes, R. Thompson, C. Green
Date & Time:	05/03/10 12:35-13:00 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	CR 457 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

**A. Stream Characteristics:**

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

**3. Streamflow**

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.            cfs

not able to access water

**4. Water Quality Data (Field Parameters)**

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 24 °C Water Temp            °C Secchi            m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |   |                                       |                                    |
|---|---------------------------------------|------------------------------------|
| <u>R/L</u> Forest                           | <u>          </u> Urban               | <u>          </u> Rip rap          |
| <u>R/L</u> Shrub dominated corridor         | <u>R/L</u> Pasture                    | <u>          </u> Concrete         |
| <u>          </u> Herbaceous marsh          | <u>          </u> Row crops           | Other (specify): <u>          </u> |
| <u>          </u> Mowed/maintained corridor | <u>          </u> Denuded/Eroded bank |                                    |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

an old bridge, broken w/ holes in it  
steep banks unable to access water

**8. Dominant Primary Substrate**

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

EKC  
ADL

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 19  
Date: 05/08/10 Time: 12:35 - 13:00

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

The banks are heavily vegetated with steep slopes, the bridge is broken with holes on it.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

A broken bridge crossing

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 19  
Date: 05/02/10 Time: 12:35-13:00

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

Lack of unpaved road to the site, just a handpl  
the broken bridge.

**D. Noncontact Recreation Evaluation**

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

The bridge is old & broken, banks are steep  
unable to access water, banks heavily  
vegetated.

## Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 19  
 Date: 05/08/10 FDS Page 3 of 8 Time: 12:35-13:00

### E. Stream Channel and Substantial Pool

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

#### 1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 19  
 Date: 05/08/10 Time: 12:35 - 13:00

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	<del>31 ft</del>
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

*took pic of upstream & downstream*

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*width* 31.5 ft *downstream* (9.60m)  
 32.2 ft *→ upstream* (9.81m)

*depth* 5.6 ft *→ upstream* (1.71m)  
 3.0 ft *→ downstream* (0.91m)

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 19  
 Date: 08/07/10 0510@10 Time: 12:35 - 1:00

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: appears to be a shooting range lots of shells around

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Bushy Creek Site: 19  
 Date: 05/08/10 Time: 12:35-13:00

**7. Check all water characteristics that apply (Attach photos).**

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

**8. Vertebrates Observed within 300 meter reach**

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

**9. Mammals Observed within 300 meter reach**

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

**10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.**

- Tracks  Fecal droppings  Bird nests

**11. Garbage Observed**

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: plastic bottles, paper plates, bullet shells, plastic bags.

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Need to drive through a wooded area to reach the bridge, no roads, the bridge is broken, the banks are steep, the depth on upstreams was greater than 5ft



Site 20

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information: P. Lokenath, A. Hughes, R. Thompson, C. Green		
Date & Time: 05/08/10	130-1225	County Name: Williamson
Stream Name: Brushy Creek		
Segment No. or nearest downstream Segment No.: 1244		
Description of Site: SH 95 @ Brushy Creek		

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
 Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 63.592 cfs

4. Water Quality Data (Field Parameters)  
*Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.*  
 Air Temp 21 °C      Water Temp 22 °C      Secchi 0.472 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<input checked="" type="checkbox"/> Forest	<input type="checkbox"/> Urban	<input type="checkbox"/> Rip rap
<input checked="" type="checkbox"/> Shrub dominated corridor	<input type="checkbox"/> Pasture	<input type="checkbox"/> Concrete
<input type="checkbox"/> Herbaceous marsh	<input type="checkbox"/> Row crops	Other (specify): _____
<input type="checkbox"/> Mowed/maintained corridor	<input type="checkbox"/> Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
bridge crossing, a car drive down from the road to reach under the bridge, unpaved parking area on the right bank left

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete  
also banks

EKC  
AC  
PL

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 20  
Date: 5/8/10 Time: 1130-1235

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children
- Wading-Adults
- Swimming
- Water skiing
- Diving
- Tubing
- Surfing
- Whitewater-kayaking, canoeing, rafting
- Other: \_\_\_\_\_
- frequent public swimming-created by publicly owned land or commercial operations

No primary contact activities that commonly occur were observed

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

The banks are moderately steep, both upstream & downstream of bridge depth is greater than 4ft.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

No unpaved parking area on the right/left bank

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek  
Date: 5/8/10

Site: 19<sup>th</sup> 20  
Time: 1130-1225

b. Check the number of individuals observed at the site.

None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

bank lined with cobble under the bridge (covered with chickens manure)  
unpaved parking area on the left bank

**D. Noncontact Recreation Evaluation** N/A

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name: Bushy Creek Site: 19<sup>th</sup> 20  
 Date: 05/08/10 FDS Page 3 of 8 Time: 1130-1225

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank  **Photos at 137 m**  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank  **photos at 172 m**

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance	Depth (meters)
	30 meters	
	60 meters	
	90 meters	
137m	120 meters <del>137m</del> AH	<del>1.22m</del> 1.22m
	150 meters	2.4 ft 0.73m
	180 meters 172 m	4 ft 1.22m
	210 meters	
	240 meters	
	270 meters	
	300 meters	
	<b>Average</b>	

can see 161m downstream  
 AH can see 151m upstream

can see 151m upstream

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 19<sup>th</sup> 20  
 Date: 05/08/10 Time: 1130-1225

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	26.3 ft	8.02 m
Width at narrowest point of the stream within 300 meter reach	12 ft	3.66 m
Width at the widest point of the stream within 300 meter reach	29.8 ft	9.08 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

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2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Bushy Creek Site: 19-20  
 Date: 5/8/10 Time: 1130-1225

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input checked="" type="checkbox"/> None      |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |  |                                      |  |
|---------------------------------------|---|--|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input checked="" type="checkbox"/> Log jams | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation    | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |  |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |  |   |  |
|--|--|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway                    | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)            | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                             | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing        | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating                | <input type="checkbox"/> Nearby school                      |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking)      | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot                 | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input checked="" type="checkbox"/> Unimproved parking lot | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |
|--|---|
| <input type="checkbox"/> Private Property        | <input type="checkbox"/> Fence              |
| <input type="checkbox"/> No trespass sign        | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife                | <input type="checkbox"/> Industrial         |
| <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access        | <input type="checkbox"/> Other: _____       |
| <input type="checkbox"/> No roads                |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |  |  |
|--|---|--|--|
| <input checked="" type="checkbox"/> Roads  | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys         |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other: _____      |   |  |  |

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Bushy creek Site: 19<sup>th</sup> 20  
 Date: 5/18/10 Time: 11:30-1225

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests N/A

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: tire, plastic bottles, soda can,  
92 mm caliber shell casing, plus tie bags,

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Appeared to be a shooting range / area on  
the left bank.

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 05/08/10  
 Site: 19<sup>th</sup> 20 Site  
 Description: SH 95 @ Brushy Creek  
 Time Begin: 12:00 Time End: \_\_\_\_\_ Meter Type: Sontek Flowtracker  
 Observers: P. Lollanath, R. Thompson Stream Width\*: 26.3 Section Width (W): 1.315  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.65	0.4			-0.11	
1.97	0.7			0.09	
3.28	0.09			0.60	
4.60	1.2			1.36	
5.91	2.0			1.33	
7.23	2.0			1.85	
8.54	2.0			2.24	
9.86	2.2			1.72	
11.17	2.2			1.88	
12.49	2.1			1.53	
13.80	2.0			1.92	
15.12	2.0			1.92	
16.43	2.0			1.89	
17.75	1.9			1.70	
19.06	1.80			1.46	
20.38	1.70			1.13	
21.69	1.70			1.03	
23.01	1.70			0.96	
24.32	1.30			0.81	
25.64	1.00			0.52	

Total Q = 53.0724fs

E  
MOS  
5/18

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information: <u>P. Lokanath, A. Hughes, R. Thompson, C. Green</u>	
Date & Time: <u>05/08/10 11:20-11:40</u>	County Name: <u>Williamson</u>
Stream Name: <u>Brushy Creek</u>	
Segment No. or nearest downstream Segment No.: <u>1244</u>	
Description of Site: <u>CR 456 @ Brushy Creek</u>	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

#### 3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.            cfs

*No USGS data found*

#### 4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 21 °C

Water Temp            °C

*unable to access water*

*Secchi*

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<input type="checkbox"/> Forest	<input type="checkbox"/> Urban	<input type="checkbox"/> Rip rap
<u>R/L</u> Shrub dominated corridor	<u>R/L</u> Pasture	<input type="checkbox"/> Concrete
<input type="checkbox"/> Herbaceous marsh	<input type="checkbox"/> Row crops	Other (specify): <u>          </u>
<input type="checkbox"/> Mowed/maintained corridor	<input type="checkbox"/> Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Bridge crossing, steep slopes (bank), heavily vegetated banks, right bank is fenced off (electrical fence)

#### 8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

*banks*

EKE

QC  
PL

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 21  
Date: 05/08/10 Time: 11:20-11:40

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Right bank is fenced off (electrical fence) left bank very steep, unable to access water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site?

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 21  
Date: 05/08/10 Time: 11:20 - 11:40

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
fenced off right bank (would be private property)

**D. Noncontact Recreation Evaluation**

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
The banks are very steep, right bank is fenced off both upstream & downstream left bank is very steep & heavily vegetated.

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 21  
 Date: 05/08/10 FDS Page 3 of 8 Time: 11:20 - 11:40

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams N/A

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

### Field Data Sheets – Basic RUAA Survey

Stream Name Bryushy Creek Site: 21  
 Date: 05/08/10 Time: 11:20 - 11:40

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

*Photos taken of both upstream & downstream, and electric fence.*  
 Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

width : upstreams → 9.14m<sup>PL</sup> 8.84m  
 downstreams → 9.14m

Depth : upstreams → 0.91m  
 downstreams → 0.30m.

Able to see 64m upstreams, 67m downstreams

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 01  
 Date: 05/08/10 Time: 11:20 - 11:40

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Log jams
- Thick vegetation
- Other (specify): \_\_\_\_\_
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: Unpaved parking area on the left side facing downstream.

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 21  
Date: 05/08/10 Time: 11:20 - 11:40

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant
- Algae Cover:  absent  rare  common  abundant
- Odor:  none  rare  common  abundant
- Color:  clear  green  red  brown  black
- Bottom Deposit:  sludge  solids  fine sediments  none  other
- Water Surface:  clear  scum  foam  debris  oil

Other: bottom deposit appears to be fine sediments

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence
- Water Dependent Birds  None  slight presence  moderate presence  large presence
- Alligators  None  slight presence  moderate presence  large presence

Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence
- Domesticated Pets  None  slight presence  moderate presence  large presence
- Livestock  None  slight presence  moderate presence  large presence
- Feral Hogs  None  slight presence  moderate presence  large presence

Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant
- Small garbage in the channel  None  Rare  Common  Abundant
- Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: traffic cone, plastic bottles, a dead dog on the bank, fish bones.

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

lots of logs in the water, steep bank slopes.



Site 22

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information:	<u>P. Lohman, A. Hughes, C. Green, R. Thompson</u>
Date & Time:	<u>05/08/10 10:05-11:05</u> County Name: <u>Williamson</u>
Stream Name:	<u>Brushy Creek</u>
Segment No. or nearest downstream Segment No.:	<u>1244</u>
Description of Site:	<u>CR 455 @ Brushy Creek</u>

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.

dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

#### 3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 72.73 cfs

#### 4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp \_\_\_\_\_ °C Water Temp 22 °C Secchi 0.380 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<input type="checkbox"/> Forest	<input type="checkbox"/> Urban	<input type="checkbox"/> Rip rap
<input checked="" type="checkbox"/> Shrub dominated corridor	<input checked="" type="checkbox"/> Pasture	<input type="checkbox"/> Concrete
<input type="checkbox"/> Herbaceous marsh	<input type="checkbox"/> Row crops	Other (specify): _____
<input type="checkbox"/> Mowed/maintained corridor	<input type="checkbox"/> Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Bridge coming, vegetated banks, soft clay banks!

#### 8. Dominant Primary Substrate

Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete  
banks

EKC  
AC  
PL

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 22  
Date: 05/08/10 Time: 1005-1105

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

heavily vegetated banks, fast flowing

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Bridge crossing.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 22  
Date: 05/08/10 Time: 1005-1105

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

same as before

**D. Noncontact Recreation Evaluation** N/A

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 22  
 Date: 05/08/10 FDS Page 3 of 8 1005-1105

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

*Photos taken at 131m and 227m*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	> 4 ft   > 1.22 m
150 meters	1.1 ft   0.34 m
180 meters	3.3 ft   1.01 m
210 meters	2.1 ft   0.64 m
240 meters	3.2 ft   0.98 m
270 meters	
300 meters	
<b>Average</b>	<b>0.84m</b>

*} unable to go due to depth > 4 ft (> 1.22m)*

*@ 227 m.*

*} unable to go due to depth > 4 ft*

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 22  
 Date: 5/8/2010 Time: 1005-1105

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)	
Typical Average Width of 300 meter reach	24.7	7.53m
Width at narrowest point of the stream within 300 meter reach	18 ft	5.49m
Width at the widest point of the stream within 300 meter reach	30 ft	9.14 m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .  
 Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 22  
 Date: 5/8/2010 Time: 1005-1105

F. Additional RUAA Information

1. Check the following activities observed over the site reach.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline | <input type="checkbox"/> Bathing         |
| <input type="checkbox"/> Picnicking                 | <input type="checkbox"/> Walking              | <input type="checkbox"/> Motorcycle/ATV  |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     | <input type="checkbox"/> Bicycling       |
| <input type="checkbox"/> Wildlife watching          | <input type="checkbox"/> Standing             | <input checked="" type="checkbox"/> None |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Lying down/sleeping  | Other: _____                             |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?

Yes  No  (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |  |                                       |  |   |
|--|---------------------------------------|--|---|
| <input type="checkbox"/> Culverts                | <input type="checkbox"/> Fences       | <input checked="" type="checkbox"/> Log jams | <input type="checkbox"/> Rip rap          |
| <input type="checkbox"/> Water control structure | <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                | <input type="checkbox"/> Thick vegetation |
| <input type="checkbox"/> Low bridges             | <input type="checkbox"/> Utility pipe | <input type="checkbox"/> None                | Other (specify): _____                    |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)       | <input type="checkbox"/> Populated area                     |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |
| <input type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing   | <input type="checkbox"/> Commercial outfitter               |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |
| <input type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |
| <input type="checkbox"/> Other: _____            | <input type="checkbox"/> None of the Above            |   |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |                                     |  |   |
|---|-------------------------------------|--|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence      | <input type="checkbox"/> No trespass sign        | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access | <input type="checkbox"/> No roads   | <input type="checkbox"/> Other: _____            |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |   |  |  |  |
|---|--|--|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> RV/ATV Tracks           | <input type="checkbox"/> NPDES Discharge   | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings      | <input type="checkbox"/> Camping Sites           | <input type="checkbox"/> Gates on corridor | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform    | <input type="checkbox"/> Fire pit/ring           | <input type="checkbox"/> Children's toys   | <input type="checkbox"/> Footpaths/prints  |
| <input type="checkbox"/> Fishing Tackle   | <input type="checkbox"/> Remnant's of Kid's play | <input type="checkbox"/> Other: _____      |  |

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 22  
 Date: 05/08/10 Time: 1005-1105

7. Check all water characteristics that apply (Attach photos):

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: plastic bottles, metal nails, rubber ball

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

The banks are heavily vegetative & moderately steep, soft banks the water was clear in past flowing, lots of tree logs in water



Site 23

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	<i>P. Iotaniath, C. Green, R. Thompson, A. Hughes</i>
Date & Time:	<i>05/08/10 08:59-09:55</i> County Name: <i>Williamson</i>
Stream Name:	<i>Brushy Creek</i>
Segment No. or nearest downstream Segment No.:	<i>1244</i>
Description of Site:	<i>FM 619 @ Brushy Creek</i>

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. *52.5 cfs 59.22 cfs*

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp *16* °C Water Temp *22* °C Secchi *.27* m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Forest                              | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input checked="" type="checkbox"/> Shrub dominated corridor | <input checked="" type="checkbox"/> Pasture  | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                    | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor           | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

*Steep banks, thick vegetation on banks*

8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

EKC  
A<sup>c</sup>pc

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 23  
Date: 05/08/10 Time: 0859-0955

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

N/A <sup>Att</sup> depth > 5 ft, steep banks

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Bridge crossing

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Bunshy Creek Site: 23  
Date: 05/08/10 Time: 0859-0955

b. Check the number of individuals observed at the site.

None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body. N/A

Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

AH steep banks Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

same as before

#### D. Noncontact Recreation Evaluation

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

Steep banks, Depth > 5 ft

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 23  
 Date: 05/08/10 FDS Page 3 of 8 Time 0859 - 0955

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 23  
 Date: 05/09/10 Time: 0859-0955

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	30 ft (9.14m)
Width at narrowest point of the stream within 300 meter reach	29.5 ft (8.99m)
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

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#### 2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

*took at Bridge*

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*able to see 74 m upstream*

*49 m downstream*

*Depth taken from bridge*

*> 3.5 ft both upstream (>1.07m) & downstream*

*depth is greater than 5 ft (1.52m)*

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 23  
 Date: 05/08/10 Time: 0859-0955

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 23  
 Date: 05/09/10 Time: 0859-0955

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: plastic bottles, cans

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population? <sup>AH</sup>  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Right bank very steep



# Discharge Measurement Summary

Date Generated: Fri, June 04, 2010

Site Information		Measurement Information	
Site Name	bcf619	Party	pl
Station Number	Brushy 23	Boat/Motor	
Location			

System Information		System Setup		Units	
System Type	RS-M9	Transducer Depth (m)	0.35	Distance	m
Serial Number	468	Salinity (ppt)	0.0	Velocity	m/s
Firmware Version	0.80	Magnetic Declination (deg)	0.0	Area	m <sup>2</sup>
Software Version	1.00			Discharge	m <sup>3</sup> /s

Discharge Calculation Settings				Discharge Results	
Track Reference	Bottom-Track	Left Method	Sloped Bank	Width (m)	7.38
Depth Reference	Vertical Beam	Right Method	Sloped Bank	Area (m <sup>2</sup> )	8.5
Coordinate System	ENU	Top Fit Type	Power Fit	Mean Speed (m/s)	0.252
		Bottom Fit Type	Power Fit	Total Q (m <sup>3</sup> /s)	2.13

Measurement Results																
Tr		Time		Distance			Mean Vel			Discharge					%	
#		Time	Duration	Track	DMG	Width	Area	Boat	Water	Left	Right	Top	Middle	Bottom	Total	Measured
1	R	6:31:10	0:03:23	8.91	5.14	7.14	8.1	0.044	0.255	0.10	0.12	0.71	0.99	0.15	2.07	48.0
2	L	6:34:49	0:02:52	8.80	5.53	7.53	8.7	0.051	0.255	0.11	0.10	0.77	1.08	0.16	2.21	48.9
3	R	6:37:56	0:03:26	8.80	5.35	7.35	8.4	0.043	0.252	0.11	0.10	0.73	1.01	0.16	2.11	47.7
4	L	6:41:34	0:03:12	8.16	5.51	7.51	8.8	0.042	0.245	0.09	0.09	0.76	1.05	0.15	2.14	48.9
		<b>Mean</b>	0:03:13	8.67	5.38	7.38	8.5	0.045	0.252	0.10	0.10	0.74	1.03	0.15	2.13	48.4
		<b>Std Dev</b>	0:00:14	0.30	0.15	0.15	0.3	0.004	0.004	0.01	0.01	0.02	0.03	0.00	0.05	0.5
		<b>COV</b>	0.000	0.034	0.029	0.021	0.030	0.079	0.017	0.072	0.096	0.030	0.033	0.031	0.024	0.011

Exposure Time: 0:12:53

Tr1=Brushy Creek 23-2.riv; Tr2=Brushy Creek 23-3.riv; Tr3=Brushy Creek 23-4.riv; Tr4=Brushy Creek 23-1.riv;

## Comments

Parameters and settings marked with a "\*" are not constant for all files.

Report generated using SonTek RiverSurveyor Live v1.00

Site 24

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information:	P. Iokanath, A. Hughes, R. Thompson, C. Green
Date & Time:	05/07/10 17:00-17:30 County Name: Williamson
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	FM112 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:  
 Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.  
 Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.  
 Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.  
 Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.  
 Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.  cfs No USGS data found

4. Water Quality Data (Field Parameters)  
Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.  
Air Temp 32 °C Water Temp 25 °C Secchi 0.310 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)  
 Forest  Urban  Rip rap  
 R/L Shrub dominated corridor  R/L Pasture  Concrete  
 Herbaceous marsh  Row crops  Other (specify): \_\_\_\_\_  
 Mowed/maintained corridor  Denuded/Eroded bank

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
bank, soft sediment banks. steep slopes beyond the bridge.

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

EKC  
QC  
pu

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 24  
Date: 05/07/10 Time: 1700-1730

#### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input checked="" type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |   |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |   |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |   |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

The creek is deep & fast flowing

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Bridge crossing, moderately easy bank slopes lined with cob boulders.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

#### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek  
Date: 05/07/10

Site: 24  
Time: 1700 - 1730

b. Check the number of individuals observed at the site.

None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

same as before

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

The water is fast flowing & is greater than 4 ft in the middle.

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 24  
 Date: 05/07/10 FDS Page 3 of 8 Time: 1700-1730

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams *N/A*

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

**Field Data Sheets – Basic RUA Survey**

Stream Name Brushy Creek Site: 24  
 Date: 05/07/10 Time: 1700-1730

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	24 ft (7.32m)
Width at narrowest point of the stream within 300 meter reach	All 24 ft 17 ft (5.18m)
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

*pictures at the bridge*

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*able to see 100m upstream*

*Depth = 2 ft (0.61m) upstream able to see 56m downstream  
 = 3.5 ft (1.07m) downstream*

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 24  
 Date: 05/07/10 Time: 1700-1730

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input checked="" type="checkbox"/> None      |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |  |                                      |  |
|---------------------------------------|---|--|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input checked="" type="checkbox"/> Log jams | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation    | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |  |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)       | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing   | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence                        |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic           |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial                   |
| <input type="checkbox"/> Steep slopes     | <input checked="" type="checkbox"/> None of the Above |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |  |  |
|--|---|--|--|
| <input checked="" type="checkbox"/> Roads  | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys         |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other: _____      |   |  |  |

Comments: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 24  
 Date: 05/07/10 Time: 1700-1730

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: Tire, beer cans

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

The water is fast flowing & deep in the middle greater than 4ft unable to access full 300m up & downstream of bridge heavily vegetation on banks & steep bank slopes at beyond the bridge.





Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 25  
Date: 05/11/10 Time: 1545-1610 AH  
1605

**B. Primary Contact Water Recreation Evaluation:**

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Fast Flowing Water, Vegetated banks

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

Bridge crossing

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

**C. Secondary Contact Water Recreation Evaluation:**

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 25  
Date: 05/07/10 Time: 1545-1605

b. Check the number of individuals observed at the site.

None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body. N/A

Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A

Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly N/A

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

Same as before

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

Same as Fast Flowing Water

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 25  
 Date: 05/07/10 FDS Page 3 of 8 Time: 1545-1605

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

6 inches upstream  
(0.15m)  
1.5 ft downstream  
(0.6m)

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 25  
 Date: 05/07/10 Time: 1545-1605

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	(10.06m)
Width at narrowest point of the stream within 300 meter reach	<del>44 ft</del> 33 ft
Width at the widest point of the stream within 300 meter reach	44 ft (13.41m)

upstream  
downstream

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

took pictures under the bridge

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

down

able to see 82m downstream

able to see 93m upstream

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Bushy Creek Site: 25  
 Date: 05/07/10 Time: 1545-1605

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input checked="" type="checkbox"/> None      |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |  |                                      |  |
|---------------------------------------|---|--|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input checked="" type="checkbox"/> Log jams | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation    | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |  |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)       | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing   | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |
|--|---|
| <input type="checkbox"/> Private Property        | <input type="checkbox"/> Fence              |
| <input type="checkbox"/> No trespass sign        | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife                | <input type="checkbox"/> Industrial         |
| <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access        | <input type="checkbox"/> Other: _____       |

Comments: Fast Flowing

6. Check any indications of human use (Attach photos).

- |  |   |  |  |
|--|---|--|--|
| <input checked="" type="checkbox"/> Roads  | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys         |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other: _____      |   |  |  |

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 25  
 Date: 05/07/10 Time: 1545-1605

**7. Check all water characteristics that apply (Attach photos).**

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

**8. Vertebrates Observed within 300 meter reach**

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

**9. Mammals Observed within 300 meter reach**

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

**10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.**

Tracks  Fecal droppings  Bird nests N/A

**11. Garbage Observed**

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant  
 Briefly describe the kinds of garbage observed: Beer cans, plastic bottles

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information: <u>P. L. Kanath, A. Hughes, R. Thompson, C. Green</u>	
Date & Time: <u>05/07/10 1450-1530</u>	County Name: <u>Milam</u>
Stream Name: <u>Brushy Creek</u>	
Segment No. or nearest downstream Segment No.: <u>1244</u>	
Description of Site: <u>CR 486 @ Brushy Creek</u>	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

**Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

**Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

#### 3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume I, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 79.92 cfs

#### 4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume I.

Air Temp 30 °C Water Temp 22.5 °C Secchi 0.32 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |   |  |                                   |
|---|--|-----------------------------------|
| <input type="checkbox"/> Forest   | <input type="checkbox"/> Urban                         | <input type="checkbox"/> Rip rap  |
| <u>L/R</u> <input checked="" type="checkbox"/> Shrub dominated corridor | <u>L/R</u> <input checked="" type="checkbox"/> Pasture | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                               | <input type="checkbox"/> Row crops                     | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor                      | <input type="checkbox"/> Denuded/Eroded bank           |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Bridge crossing, able to drive to reach under the bridge.

#### 8. Dominant Primary Substrate

- Cobble
  - Sand
  - Silt
  - Mud/Clay
  - Gravel
  - Bedrock
  - Rip rap
  - Concrete
- bank

E KC  
APL

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 26  
Date: 05/02/10 Time: 1450-1530

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

too deep, water depth greater than 4ft on upstream & downstream of bridge.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 26  
Date: 14 50 - 15 30 Time: 05/07/10  
Time Date

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
N/A

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 26  
 Date: 1450 - 1530 FDS Page 3 of 8 Time: 05107110  
 Time: 05107110

**E. Stream Channel and Substantial Pool:**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams** N/A

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 26  
 Date: 1450-1530 Time: 05107110  
 Time: \_\_\_\_\_ Date: \_\_\_\_\_

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

\_\_\_\_\_

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

*Pics taken under bridge facing upstream & downstream*  
 Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Notes:

able to access 63ft upstream & 26.52m (19.20m) downstream of bridge.

depth → upstream > 1.22m  
 downstream > 1.22m

width → upstream side of bridge → 32.5ft (9.91m)  
 downstream side of bridge → 36.0ft (10.97m)

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 26  
 Date: 05/07/10 Time: 1450 - 1530

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input checked="" type="checkbox"/> None      |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |   |                                 |  |                                      |  |
|---|---------------------------------|--|--------------------------------------|--|
| <input type="checkbox"/> Culverts   | <input type="checkbox"/> Fences | <input checked="" type="checkbox"/> Log jams | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams   | <input type="checkbox"/> Thick vegetation    | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe <input type="checkbox"/> Other (specify): _____ |                                 |  |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway               | <input checked="" type="checkbox"/> Roads (paved/unpaved)   | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps)       | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                        | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input checked="" type="checkbox"/> Bridge crossing   | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating           | <input type="checkbox"/> Nearby school                      |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Trails/paths (hiking/biking) | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot            | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot       | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |
|--|---|
| <input type="checkbox"/> Private Property        | <input type="checkbox"/> Fence              |
| <input type="checkbox"/> No trespass sign        | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife                | <input type="checkbox"/> Industrial         |
| <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access        | <input type="checkbox"/> Other: _____       |
| <input type="checkbox"/> No roads                |   |

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |  |  |
|--|---|--|--|
| <input checked="" type="checkbox"/> Roads  | <input checked="" type="checkbox"/> RV/ATV Tracks | <input type="checkbox"/> NPDES Discharge         | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites            | <input type="checkbox"/> Gates on corridor       | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring            | <input type="checkbox"/> Children's toys         |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle           | <input type="checkbox"/> Remnant's of Kid's play |  |
| <input type="checkbox"/> Other: _____      |   |  |  |

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Brushy Creek Site: 26  
 Date: 05/07/10 Time: 14:50 - 15:30

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: tire, beer can, plastic buckets, in water, paper plates

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Brushy Creek Date: 05/07/10  
 Site: 26 Site  
 Description: CR 486 @ Brushy Creek  
 Time Begin: 14:50 Time End: 15:25 Meter Type: Sontek FlowTracker  
 Observers: P. Lotanath, R. Thompson Stream Width\*: 24.5 Section Width (W): 1.225  
 Observations: \_\_\_\_\_

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m³/s) (ft³/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.612	1.3			0.36	
1.837	1.6			0.67	
3.06	1.6			0.61	
4.28	1.7			0.60	
5.51	1.4			1.19	
6.73	1.4			1.14	
7.95	1.5			0.84	
9.18	2.0			1.29	
10.405	2.0			1.14	
11.63	2.5	1.25 5.00	0.77 1.21		
12.855	2.7	1.35 5.4	1.22 1.23		
14.08	2.7	1.55 5.4	1.41 1.42		
15.305	2.8	1.4 5.6	0.23 1.46		
16.53	3.2	1.6 6.4	1.34 1.61		
17.75	3.3	1.65 6.6	1.36 1.61		
18.98	3.2	1.6 6.4	1.56 1.75		
20.20	3.0	1.5 6.0	1.30 1.61		
21.43	3.0	1.5 6.0	0.88 1.19		
22.65	1.7			0.94	
23.889	1.30			1.00	

total Q = 108.339

Entered  
MES 5/10

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information:	<u>P. Lokimath, A. Hughes, R. Thompson, C. Green</u>
Date & Time:	<u>05/07/10 1335-1410</u> County Name: <u>Milam</u>
Stream Name:	<u>Brushy Creek</u>
Segment No. or nearest downstream Segment No.:	<u>1244</u>
Description of Site:	<u>CR 440 @ Brushy Creek</u>

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.

- dry
- no flow
- low
- normal
- high
- flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

#### 3. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.      cfs

#### 4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp      °C      Water Temp      °C

Secchi      m  
*unable to access water*

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |   |  |                                   |
|---|--|-----------------------------------|
| <input type="checkbox"/> Forest   | <input type="checkbox"/> Urban                         | <input type="checkbox"/> Rip rap  |
| <input checked="" type="checkbox"/> <u>R/L</u> Shrub dominated corridor | <input checked="" type="checkbox"/> <u>R/L</u> Pasture | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                               | <input type="checkbox"/> Row crops                     | Other (specify): <u>    </u>      |
| <input type="checkbox"/> Mowed/maintained corridor                      | <input type="checkbox"/> Denuded/Eroded bank           |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

Bridge crossing.

#### 8. Dominant Primary Substrate

- Cobble
- Sand
- Silt
- Mud/Clay
- Gravel
- Bedrock
- Rip rap
- Concrete

*Handwritten initials and marks at bottom right corner.*

## Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 27  
 Date: 1335-1410 Time: 05107110  
 Time \_\_\_\_\_ Date \_\_\_\_\_

### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input checked="" type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |   |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |   |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |   |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Steep bank slopes, upstream → heavy vegetation, downstream → heavy vegetation & soft sediments.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 27  
Date: 1335-1470 Time: 0510710  
Time base

b. Check the number of individuals observed at the site.  
 None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.  
 Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).  
Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  
 other  
If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).  
Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).  
steep banks.

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.  
Steep & soft bank slopes, heavily vegetated along the banks, unable to access water (pics taken)

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 27  
 Date: 1335-1410 FDS Page 3 of 8 Time: 05107110  
 Time 1335-1410 Date 05107110

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams N/A

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

### Field Data Sheets – Basic RUAA Survey

Stream Name Brushy Creek Site: 24  
 Date: 1335-14/10 Time: 05/07/10  
Time Date

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No

COMMENTS:

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

*took pics facing upstream & downstream*  
 Also, take photos facing upstream, downstream, left bank, and right bank at .  
 Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Notes :-

Able to see 97m upstream  
 Able to see 70m downstream

width :- upstream → 8.50m  
 downstream → 10m

Depth :- upstream → 0.61m  
<sup>width</sup> downstream → 0.30m

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 94  
 Date: 05/02/10 Time: 1335-1410

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Log jams
- Thick vegetation
- Other (specify): \_\_\_\_\_
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: Bullet shells

**Field Data Sheets – Basic RUAA Survey**

Stream Name Brushy Creek Site: 27  
 Date: 05/07/10 Time: 1395 - 1410

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other: \_\_\_\_\_

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: 22mm caliber shells, plastic bottles, paper dates on bank

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Site 28

Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:	P. Lokarth, A. Hughes, R. Thompson, C. Green
Date & Time:	05/07/10, 12:00 - 3:30 County Name: Milam
Stream Name:	Brushy Creek
Segment No. or nearest downstream Segment No.:	1244
Description of Site:	US79 @ Brushy Creek

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:

- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
- Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
- Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
- Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
- Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
 Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 61.764 cfs

4. Water Quality Data (Field Parameters)  
 Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.  
 Air Temp 28 °C Water Temp 23 <sup>26</sup> <sup>AH</sup> °C Secchi .28 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<u>L/R</u> Forest	<u>L/R</u> Urban	<u>    </u> Rip rap
<u>L/R</u> Shrub dominated corridor <sup>with trees</sup>	<u>L/R</u> Pasture	<u>    </u> Concrete
<u>    </u> Herbaceous marsh	<u>    </u> Row crops	Other (specify): <u>    </u>
<u>    </u> Mowed/maintained corridor	<u>    </u> Denuded/Eroded bank	

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
bridge crossing, soft banks, able to drive off the road & park under the bridge

8. Dominant Primary Substrate:  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

QC  
TB  
7/1  
Epi

### Field Data Sheets – Basic RUAA Survey

Stream Name Bunshy Creek Site: 28  
Date: 05/07/10 Time: 12:00-13:30

#### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   | <input checked="" type="checkbox"/> No primary contact activities that commonly occur were observed |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |   |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other: _____   |   |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |   |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Fast flowing, too deep, soft substrate

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing,

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

#### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing  
 Boating-commercial, recreational  
 Non-whitewater-kayaking, rafting, canoeing  
 No secondary contact recreation activities were observed  
 Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 28  
Date: 05/07/10 Time: 12:00-1330

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

same as before.

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A

Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other N/A

If other, list reasons: \_\_\_\_\_

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

soft banks, under a hoopl

**D. Noncontact Recreation Evaluation** N/A

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 28  
 Date: 05/07/10 FDS Page 3 of 8 Time: 1200-1330

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

**1. Wadeable Streams**

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

*took pics just upstream & downstream of bridge*

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg --Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

*unable to wade -> too deep able to walk only 10m upstream & downstream of bridge able to see 84m upstream & 48m downstream from under the bridge.*

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 28  
 Date: 05/07/10 Time: 1200-1330

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	23 m
Width at narrowest point of the stream within 300 meter reach	18 m
Width at the widest point of the stream within 300 meter reach	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

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2. Non-wadeable Streams N/A

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 28  
 Date 05/07/10 Time: 1200-1330

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: too deep, soft substrate

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Bushy Creek Site: 28  
 Date: 05/07/10 Time: 1200-1330

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: Decap PL Dead wild hog,  
beer cans, soda cans, beer cans,

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Railroad tracks about 300 PL (bridge) about 60m  
upstream of bridge.

**Field Data Sheet - Basic RUA Survey**  
Stream Flow (Discharge) Measurement

Stream: Bushy Creek Date: 05/07/10  
 Site: 28 Site  
 Description: US 79 @ Bushy Creek  
 Time Begin: \_\_\_\_\_ Time End: \_\_\_\_\_ Meter Type: Sontek Flowtracker  
 Observers: \_\_\_\_\_ Stream Width\*: 19 ft. Section Width (W): 0.95  
 Observations: P. Lokanth, A. Hughes, R. Thompson, C. Green

Section Midpoint (ft)(m)	Section Depth (ft)(m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m <sup>3</sup> /s) (ft <sup>3</sup> /s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	
0.475	<del>2</del> <sup>AH</sup> .4			0.62	
1.425	.6			0.93	
2.375	.8			1.75	
3.325	1.2			<del>2.2</del> <sup>AH</sup> 2.15	
4.275	1.45			2.23	
5.225	1.7			2.13	
6.175	2.0			1.90	
7.125	2.0			2.08	
8.075	2.1			2.13	
9.025	2.3			2.26	
9.975	2.3			2.21	
10.925	2.2			2.31	
11.875	2.0			2.12	
12.825	2.0			1.79	
13.775	2.0			1.79	
14.725	2.1			1.95	
15.675	1.9			1.87	
16.625	1.7			1.42	
17.575	1.5			1.68	
18.525	1.2			1.33	

total Qs: 65.020

Entered  
MGS  
5/11/10

Site 29

### Field Data Sheets – Basic RUAA Survey (should be completed for each site)

07 06/10/10

Data Collectors & Contact Information: P. LeCuneth, A. Hughes, R. Thompson, C. Green	
Date & Time: 05/06/10 11:30-11:50	County Name: Milam
Stream Name: Brushy Creek	
Segment No. or nearest downstream Segment No.: 1244	
Description of Site: CR 443 @ Brushy creek	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

1. Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded

2. Check the following stream type that applies on the day of the survey:
- Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.
  - Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.
  - Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.
  - Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.
  - Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
 Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites.        cfs

4. Water Quality Data (Field Parameters)  
 Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.  
 Air Temp 29 °C      Water Temp 23 °C      Secchi N/A m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

<u>R/L</u> Forest	<u>      </u> Urban	<u>      </u> Rip rap
<u>      </u> Shrub dominated corridor	<u>L</u> Pasture	<u>      </u> Concrete
<u>      </u> Herbaceous marsh	<u>      </u> Row crops	Other (specify): <u>      </u>
<u>      </u> Mowed/maintained corridor	<u>      </u> Denuded/Eroded bank	

unable to access water

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

parts in ditch An old metal bridge crossing, unpaired road

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

QC TB 9/11

EPL

Field Data Sheets – Basic RUAA Survey

Stream Name Bunshy Creek Site: 29  
Date: 05/07/10 Time: 11:30-11:50

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

steep slopes, difficulty getting down to the water, heavily vegetated banks.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Burnshy Creek Site: 29  
Date: 05/07/10 Time: 11:30 - 11:50

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

same as before.

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

no unpaved road, metal bridge crossing.

**D. Noncontact Recreation Evaluation** N

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

steep slopes, heavily vegetated banks  
unable to access the water

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 29  
 Date: 05/07/10 FDS Page 3 of 8 Time: 11:30 - 11:50

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams N/A

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

*lower depth of water near bridge = 0.98m (down stream)*

**Field Data Sheets – Basic RUAA Survey**

Stream Name Bushy Creek Site: 29  
 Date: 05/07/10 Time: 11:30-11:50

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	27 ft → 8.23m
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	30 ft → 9.14m

→ upstream side of the bridge  
 → downstream side of the bridge

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

**2. Non-wadeable Streams**

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .  
 Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

side of bridge both facing upstream

Pic taken on upstream side & downstream of bridge

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

upstream → able to see 65m

downstream → able to see 63m

Field Data Sheets – Basic RUAA Survey

Stream Name Burnhy Creek Site: 29  
Date: 05/07/10 Time: 11:30-11:50

F. Additional RUAA Information

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Banahy Creek Site: 29  
Date: 05/07/10 Time: 11:30 - 11:50

7. Check all water characteristics that apply (Attach photos).

- Aquatic Vegetation:  absent  rare  common  abundant
- Algae Cover:  absent  rare  common  abundant
- Odor:  none  rare  common  abundant
- Color:  clear  green  red  brown  black
- Bottom Deposit:  sludge  solids  fine sediments  none  other
- Water Surface:  clear  scum  foam  debris  oil
- Other:

8. Vertebrates Observed within 300 meter reach

- Snakes  None  slight presence  moderate presence  large presence
- Water Dependent Birds  None  slight presence  moderate presence  large presence
- Alligators  None  slight presence  moderate presence  large presence
- Comments: \_\_\_\_\_

9. Mammals Observed within 300 meter reach

- Wild  None  slight presence  moderate presence  large presence
- Domesticated Pets  None  slight presence  moderate presence  large presence
- Livestock  None  slight presence  moderate presence  large presence
- Feral Hogs  None  slight presence  moderate presence  large presence
- Comments: \_\_\_\_\_

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

- Tracks  Fecal droppings  Bird nests N/A

11. Garbage Observed

- Large garbage in the channel  None  Rare  Common  Abundant
- Small garbage in the channel  None  Rare  Common  Abundant
- Bank Garbage  None  Rare  Common  Abundant
- Briefly describe the kinds of garbage observed: beer bottle box.

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

Unable to access the water, heavy vegetation  
in steep slopes



Site 30

### Field Data Sheets - Basic RUAA Survey (should be completed for each site)

Data Collectors & Contact Information: <u>P. Lokenath, A. Hughes, R. Thompson, C. Green</u>	
Date & Time: <u>05/07/10 09:55-11:00</u>	County Name: <u>Milam</u>
Stream Name: <u>Bushy Creek</u>	
Segment No. or nearest downstream Segment No.: <u>1244</u>	
Description of Site: <u>FM 908 @ Bushy Creek</u>	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

#### A. Stream Characteristics:

- Check the following channel flow status that applies.  
 dry  no flow  low  normal  high  flooded
- Check the following stream type that applies on the day of the survey:  
**Ephemeral:** A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.  
 **Intermittent:** A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 cubic feet per second is considered intermittent.  
 **Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.  
 **Perennial:** A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.  
 **Designated or unclassified tidal stream:** A stream that is tidally influenced. If you checked this box, you will need to contact the Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Streamflow  
 Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 67.90 cfs

4. Water Quality Data (Field Parameters)  
 Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 25 °C Water Temp 21.0 °C Secchi 0.552 m

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Forest                              | <input type="checkbox"/> Urban               | <input type="checkbox"/> Rip rap  |
| <input checked="" type="checkbox"/> Shrub dominated corridor | <input checked="" type="checkbox"/> Pasture  | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Herbaceous marsh                    | <input type="checkbox"/> Row crops           | Other (specify): _____            |
| <input type="checkbox"/> Mowed/maintained corridor           | <input type="checkbox"/> Denuded/Eroded bank |                                   |

6. Ease of bank access to the water body:  Easy  Moderately easy  Moderately difficult  Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  
bridge crossing moderately easy bank slopes soft banks sinking upto ankle water edge

8. Dominant Primary Substrate  
 Cobble  Sand  Silt  Mud/Clay  Gravel  Bedrock  Rip rap  Concrete

QC

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 30  
Date: 05/07/10 Time: 09:55-11:00

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- Wading-Children  Tubing  No primary contact activities that commonly occur were observed
- Wading-Adults  Surfing
- Swimming  Whitewater-kayaking, canoeing, rafting
- Water skiing  Other: \_\_\_\_\_
- Diving  frequent public swimming-created by publicly owned land or commercial operations

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water
- Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water
- Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

Fast flowing, soft substrate, moderately steep banks

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

bridge crossing.

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site? N/A

C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.

- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 30  
Date: 05/07/10 Time: 09:55 - 11:00

b. Check the number of individuals observed at the site.

None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

Secondary touch: fishing, pets and related contact with water  In a boat touching water  
 Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft) N/A

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

Same as before

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently N/A

Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: N/A

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

Same as before

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

moderately steep slopes, soft banks

**D. Noncontact Recreation Evaluation**

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 30  
 Date: 05/07/10 FDS Page 3 of 8 Time: 09:55-11:00

**E. Stream Channel and Substantial Pool**

Please check the following which best describes the river or stream:  Wadeable  Non-wadeable

1. Wadeable Streams N/A

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during base flow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at the 30 meters, 150 meters, and 300 meters.

Photos #s (30 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg – Take depth measurements approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

} unable to take depth too fast flow & deep.

unable to mark 300 m, able to see & 71 downstream (beyond 90 m mark)

48m upstream beyond 30m mark

### Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 30  
 Date: 05/07/10 Time: 09:55 - 11:00

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	18 <sup>ft</sup> 23 <sup>ft</sup> m 17.68m
Width at narrowest point of the stream within 300 meter reach	18m
Width at the widest point of the stream within 300 meter reach	58 ft → 17.68m 23m

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation?  Yes  No  
 COMMENTS:

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .

Photos #s (30 meters) Upstream  Downstream  Left Bank  Right Bank   
 Photos #s (150 meters) Upstream  Downstream  Left Bank  Right Bank  pictures taken @ 60 m  
 Photos #s (300 meters) Upstream  Downstream  Left Bank  Right Bank  pictures taken @ 90 m

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

unable to measure widths just flowing water

**Field Data Sheets – Basic RUAA Survey**

Stream Name: Bushy Creek Site: 30  
 Date: 05/07/10 Time: 09:55 - 11:00

**F. Additional RUAA Information**

1. Check the following activities observed over the site reach.

- Drinking or water in mouth
- Bathing
- Walking
- Jogging/running
- Bicycling
- Standing
- Sitting
- Lying down/sleeping
- Playing on shoreline
- Picnicking
- Motorcycle/ATV
- Hunting/Trapping
- Wildlife watching
- None
- Other: \_\_\_\_\_

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- Culverts
- Barbed wire
- Utility pipe
- Fences
- Dams
- Other (specify): \_\_\_\_\_
- Log jams
- Thick vegetation
- Rip rap
- Low bridges
- None
- Water control structure

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- Campgrounds
- Playgrounds
- Rural area
- Residential
- National forests
- Urban/suburban location
- Golf Course
- Sports Field
- Stairs/walkway
- Boating access (ramps)
- Beach
- Bridge crossing
- Commercial boating
- Trails/paths (hiking/biking)
- Paved parking lot
- Unimproved parking lot
- Roads (paved/unpaved)
- Populated area
- Docks or rafts
- Commercial outfitter
- Nearby school
- Power Line Corridor
- Parks (national/city/county/state)
- Public Property
- Other: \_\_\_\_\_
- None of the Above

Comments: \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- Private Property
- No trespass sign
- Wildlife
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: \_\_\_\_\_

Comments: \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- Roads
- Rope swings
- Dock/platform
- Foot paths/prints
- Other: \_\_\_\_\_
- RV/ATV Tracks
- Camping Sites
- Fire pit/ring
- Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- Organized event
- No Human Presence

Comments: beef box on the bank.

Field Data Sheets – Basic RUAA Survey

Stream Name Bushy Creek Site: 30  
 Date: 05/07/10 Time: 09:55-11:00

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:  absent  rare  common  abundant  
 Algae Cover:  absent  rare  common  abundant  
 Odor:  none  rare  common  abundant  
 Color:  clear  green  red  brown  black  
 Bottom Deposit:  sludge  solids  fine sediments  none  other  
 Water Surface:  clear  scum  foam  debris  oil  
 Other:

8. Vertebrates Observed within 300 meter reach

Snakes  None  slight presence  moderate presence  large presence  
 Water Dependent Birds  None  slight presence  moderate presence  large presence  
 Alligators  None  slight presence  moderate presence  large presence  
 Comments: 2 snakes

9. Mammals Observed within 300 meter reach

Wild  None  slight presence  moderate presence  large presence  
 Domesticated Pets  None  slight presence  moderate presence  large presence  
 Livestock  None  slight presence  moderate presence  large presence  
 Feral Hogs  None  slight presence  moderate presence  large presence  
 Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.

Tracks  Fecal droppings  Bird nests

11. Garbage Observed

Large garbage in the channel  None  Rare  Common  Abundant  
 Small garbage in the channel  None  Rare  Common  Abundant  
 Bank Garbage  None  Rare  Common  Abundant

Briefly describe the kinds of garbage observed: beer cans, plastic bottles, a metal drum/container

12. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

The stream is wide & fast flowing, very soft sediments, unable to access complete 300m due to vegetation on the banks.



# Discharge Measurement Summary

Date Generated: Fri, June 04, 2010

Site Information		Measurement Information	
Site Name	brushy at 980	Party	thompson hughes
Station Number	Brushy 30	Boat/Motor	
Location			

System Information		System Setup		Units	
System Type	RS-M9	Transducer Depth (m)	0.35	Distance	m
Serial Number	468	Salinity (ppt)	0.0	Velocity	m/s
Firmware Version	0.80	Magnetic Declination (deg)	0.0	Area	m <sup>2</sup>
Software Version	1.00			Discharge	m <sup>3</sup> /s

Discharge Calculation Settings				Discharge Results	
Track Reference	Bottom-Track	Left Method	Sloped Bank	Width (m)	14.49
Depth Reference	Vertical Beam	Right Method	Sloped Bank	Area (m <sup>2</sup> )	13.1
Coordinate System	ENU	Top Fit Type	Power Fit	Mean Speed (m/s)	0.201
		Bottom Fit Type	Power Fit	Total Q (m <sup>3</sup> /s)	2.63

Measurement Results																
Tr		Time		Distance			Mean Vel			Discharge					%	
#		Time	Duration	Track	DMG	Width	Area	Boat	Water	Left	Right	Top	Middle	Bottom	Total	Measured
1	L	7:29:52	0:04:11	11.66	9.74	13.74	13.0	0.046	0.204	0.11	0.13	1.14	1.03	0.23	2.65	39.1
2	L	7:39:25	0:02:58	11.50	10.75	14.75	13.0	0.065	0.200	0.06	0.14	1.18	0.98	0.24	2.60	37.6
3	R	7:42:44	0:03:49	12.30	10.63	14.63	13.3	0.054	0.204	0.10	0.16	1.17	1.08	0.21	2.72	39.6
4	L	7:46:49	0:03:06	11.53	10.84	14.84	13.2	0.062	0.195	0.09	0.16	1.13	0.99	0.21	2.56	38.6
		<b>Mean</b>	0:03:31	11.75	10.49	14.49	13.1	0.057	0.201	0.09	0.15	1.16	1.02	0.22	2.63	38.7
		<b>Std Dev</b>	0:00:30	0.33	0.44	0.44	0.1	0.007	0.004	0.02	0.01	0.02	0.04	0.01	0.06	0.7
		<b>COV</b>	0.000	0.028	0.042	0.030	0.010	0.126	0.018	0.198	0.093	0.019	0.039	0.051	0.022	0.019

Exposure Time: 0:14:04

Tr1=Brushy Creek 30-1.riv; Tr2=Brushy Creek 30-2.riv; Tr3=Brushy Creek 30-3.riv; Tr4=Brushy Creek 30-4.riv;

## Comments

Parameters and settings marked with a "\*" are not constant for all files.

Report generated using SonTek RiverSurveyor Live v1.00