Recreational Use Attainability Analysis of Bullhead Bayou (Segment 1245C) and Unnamed Tributary of Bullhead Bayou (Segment 1245D)

Appendix 2

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

Data Collectors & Contact Information: J. Ray, K. Conen, R. Thompson, L. Benavides

Date & Time: 11/5/2010, 09:17 AM-01:45 PM  County Name: Fort Bend

Stream Name: Billiard Bayou

Segment No. or nearest downstream Segment No.: 1245a

Description of Site: Palmetto Dr. Access

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 RUAA.

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.

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.

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

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

FDS Page 1 of 8
Field Data Sheets – Basic RUAA Survey

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 occurred 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).
   - This is a drainage ditch, muddy, shallow

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
   - Must to strip mall, sports complex, paved parking lot

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? ☐ Yes ☐ 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:

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Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Date: 7/15/2018
Site: 1
Time: 0817-0950

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 (25 ft) 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).

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).

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: **Bullhead Branch**  
Date: **7/5/2010**  
Site: **0917 - 0950**

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: [ ] Wadable [ ] Non-wadable

1. Wadable 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 #1 (30 meters) Upstream / Downstream / Left Bank / Right Bank
Photos #2 (150 meters) Upstream / Downstream / Left Bank / Right Bank
Photos #3 (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.

<table>
<thead>
<tr>
<th>Pool</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 2</td>
<td></td>
<td></td>
<td></td>
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<td>Pool 3</td>
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<td></td>
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<td>Pool 4</td>
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<tr>
<td>Pool 5</td>
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<td>Pool 6</td>
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<td>Pool 7</td>
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<tr>
<td>Pool 8</td>
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<td></td>
<td></td>
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<tr>
<td>Pool 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td></td>
</tr>
<tr>
<td>60 meters</td>
<td></td>
</tr>
<tr>
<td>90 meters</td>
<td></td>
</tr>
<tr>
<td>120 meters</td>
<td></td>
</tr>
<tr>
<td>150 meters</td>
<td></td>
</tr>
<tr>
<td>180 meters</td>
<td></td>
</tr>
<tr>
<td>210 meters</td>
<td></td>
</tr>
<tr>
<td>240 meters</td>
<td></td>
</tr>
<tr>
<td>270 meters</td>
<td></td>
</tr>
<tr>
<td>300 meters</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>

FDS Page 4 of 8
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>8.6 ft.</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>5.1 ft.</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>15.2 ft.</td>
</tr>
</tbody>
</table>

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 .

<table>
<thead>
<tr>
<th>Photos #s (30 meters)</th>
<th>Upstream</th>
<th>Downstream</th>
<th>Left Bank</th>
<th>Right Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photos #s (150 meters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photos #s (300 meters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
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<tr>
<td>6</td>
<td></td>
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<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
F. Additional RUAA Information

1. Check the following activities observed over the site reach:
   - Drinking or water in mouth
   - Playing on shoreline
   - Bathing
   - Picnicking
   - Walking
   - Motorcycle/ATV
   - Jogging/running
   - Hunting/Trapping
   - Bicycling
   - Wildlife watching
   - Standing
   - None
   - Sitting
   - Other: ________
   - 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).
   [ ] Culverts
   [ ] Barbed wire
   [ ] Dams
   [ ] Thick vegetation
   [ ] Low bridges
   [ ] Water control structure
   [ ] Rip rap
   [ ] Other (specify): __________

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
   Comments: ___________

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).
   [ ] Private Property
   [ ] No trespass sign
   [ ] Industrial
   [ ] Steep slopes
   [ ] No public access
   [ ] Other: __________
   [ ] No roads
   Comments: ___________

6. Check any indications of human use (Attach photos).
   [ ] Roads
   [ ] RV/ATV Tracks
   [ ] Gates on corridor
   [ ] Organized event
   [ ] Fire pit/ring
   [ ] Children's toys
   [ ] No Human Presence
   [ ] Camping Sites
   [ ] Fishing Tackle
   [ ] Remnant's of Kid's play
   [ ] Foot path/prints
   [ ] Other: ________
   Comments: ___________

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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: Cups, 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).
# Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

<table>
<thead>
<tr>
<th>Stream: Bullhead Bayou</th>
<th>Date: 7/15/2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site: 1</td>
<td>Site</td>
</tr>
<tr>
<td>Description: Plantation Dr. Crossing</td>
<td></td>
</tr>
<tr>
<td>Time Begin: 09:28</td>
<td>Time End: 09:46</td>
</tr>
<tr>
<td>Observers: K. Conrad, L. Raymond</td>
<td>Stream Width: 12</td>
</tr>
</tbody>
</table>

## Observations:

<table>
<thead>
<tr>
<th>Section Midpoint (ft/m)</th>
<th>Section Depth (ft/m) (cm) (cm) (D)</th>
<th>Observational Depth (ft/m)</th>
<th>Velocity (V)</th>
<th>Flow (Q) (m³/s) (ft³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At Point (ft/s)(m/s)</td>
<td>Average (ft/s)(m/s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.65</td>
<td>0.25</td>
<td></td>
<td>-0.00</td>
<td>0.000</td>
</tr>
<tr>
<td>1.95</td>
<td>0.60</td>
<td></td>
<td>1.16</td>
<td>0.905</td>
</tr>
<tr>
<td>3.25</td>
<td>0.65</td>
<td></td>
<td>0.03</td>
<td>0.025</td>
</tr>
<tr>
<td>4.55</td>
<td>0.65</td>
<td></td>
<td>0.03</td>
<td>0.025</td>
</tr>
<tr>
<td>5.85</td>
<td>0.75</td>
<td></td>
<td>0.03</td>
<td>0.029</td>
</tr>
<tr>
<td>7.15</td>
<td>0.70</td>
<td></td>
<td>0.03</td>
<td>0.027</td>
</tr>
<tr>
<td>8.45</td>
<td>0.75</td>
<td></td>
<td>-0.02</td>
<td>-0.020</td>
</tr>
<tr>
<td>9.75</td>
<td>0.75</td>
<td></td>
<td>-0.03</td>
<td>-0.029</td>
</tr>
<tr>
<td>11.05</td>
<td>0.10</td>
<td></td>
<td>-0.12</td>
<td>-0.094</td>
</tr>
<tr>
<td>12.35</td>
<td>Too Shallow</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Q = 0.894 ft³/s

0.8697 or 0.870 cfs

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### Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

| Data Collectors & Contact Information: L. Rummel, K. Conn, L. Berkenides, R. Thompson |
| Date & Time: 11/28/2010 10:25 01 | County Name: Fort Bend |
| Stream Name: Bullhead Bayou |
| Segment No. or nearest downstream Segment No.: 1245 1245 |
| Description of Site: Crossing of SH 99 Grand Pkwy |

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. 1.795 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.*

<table>
<thead>
<tr>
<th>Air Temp</th>
<th>Water Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>81.6 °C</td>
<td>29 °C</td>
</tr>
</tbody>
</table>

   **Secchi:** 0.25 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 Forest
   - L Shrub dominated corridor
   - L Herbaceous marsh
   - R Mowed/maintained corridor
   - L Urban
   - L Pasture
   - L Row crops
   - R Concrete
   - R 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 with low bank to creek.
   Have to walk on right shoulder.

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

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FDS Page 1 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Biggert Bullhead Bay

Date: 7/5/2010

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 creek is shallow and muddy. Have to park on the shoulder of a busy road (Grand Parkway)

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?  ✔ 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
      - Whitewater-kayaking, rafting, canoeing
   ✔ No secondary contact recreation activities were observed
      - Other secondary contact activities:

FDS Page 2 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Ballard Bayou
Date: 7/5/2010
Site: 2
Time: 10:12 - 10:51

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 individual’s 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).

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:  Unknown

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.

N/A
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Site: 2
Date: 7/1/2003

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) _____________________ Photos #s (150 meters) _____________________ Photos #s (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.

<table>
<thead>
<tr>
<th>Pool 1</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 4</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pool 5</td>
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<tr>
<td>Pool 6</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pool 7</td>
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<td></td>
</tr>
<tr>
<td>Pool 8</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pool 9</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pool 10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td>0.45 m</td>
</tr>
<tr>
<td>60 meters</td>
<td>0.35 m</td>
</tr>
<tr>
<td>90 meters</td>
<td>0.40 m</td>
</tr>
<tr>
<td>120 meters</td>
<td>0.43 m</td>
</tr>
<tr>
<td>150 meters</td>
<td>0.43 m</td>
</tr>
<tr>
<td>180 meters</td>
<td>0.40 m</td>
</tr>
<tr>
<td>210 meters</td>
<td>0.40 m</td>
</tr>
<tr>
<td>240 meters</td>
<td>0.38 m</td>
</tr>
<tr>
<td>270 meters</td>
<td>0.37 m</td>
</tr>
<tr>
<td>300 meters</td>
<td>0.35 m</td>
</tr>
<tr>
<td>Average</td>
<td>0.37 m</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>4m</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>2.5m</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>6m</td>
</tr>
</tbody>
</table>

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

COMMENTS: Too shallow for swimming or fishing.

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 ________

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
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<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
F. Additional RUAA Information

1. Check the following activities observed over the site reach.
   - Drinking or water in mouth
   - Playing on shoreline
   - Bathing
   - Picnicking
   - Walking
   - Motorcycle/ATV
   - Jogging/running
   - Hunting/Trapping
   - Bicycling
   - Wildlife watching
   - Standing
   - Sitting
   - 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).
   - Culverts
   - Fences
   - Log jams
   - Rip rap
   - Water control structure
   - Barbed wire
   - Dams
   - Thick vegetation
   - Low bridges
   - Utility pipe
   - Other (specify): ___________________

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)
   - Bridge crossing
   - Roads (paved/unpaved)
   - Populated area
   - Commercial boating
   - Trails/path (hiking/biking)
   - Paved parking lot
   - Unimproved parking lot
   - Other: _______________________
   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
   - Remnant’s of Kid’s play
   - Organized event
   - No Human Presence
   - Children’s toys
   - No Human Presence
   Comments: ________________________________________________________

FDS Page 6 of 8
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

<table>
<thead>
<tr>
<th>Vertebrates</th>
<th>None</th>
<th>Slight Presence</th>
<th>Moderate Presence</th>
<th>Large Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snakes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Dependent Birds</td>
<td>□ None</td>
<td>Slight Presence</td>
<td>Moderate Presence</td>
<td>Large Presence</td>
</tr>
<tr>
<td>Alligators</td>
<td>□ None</td>
<td>Slight Presence</td>
<td>Moderate Presence</td>
<td>Large Presence</td>
</tr>
</tbody>
</table>

Comments: Whistling Ducks

9. Mammals Observed within 300 meter reach

<table>
<thead>
<tr>
<th>Mammals</th>
<th>None</th>
<th>Slight Presence</th>
<th>Moderate Presence</th>
<th>Large Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domesticated Pets</td>
<td>□ None</td>
<td>Slight Presence</td>
<td>Moderate Presence</td>
<td>Large Presence</td>
</tr>
<tr>
<td>Livestock</td>
<td>□ None</td>
<td>Slight Presence</td>
<td>Moderate Presence</td>
<td>Large Presence</td>
</tr>
<tr>
<td>Feral Hogs</td>
<td>□ None</td>
<td>Slight Presence</td>
<td>Moderate Presence</td>
<td>Large Presence</td>
</tr>
</tbody>
</table>

Comments:

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

- Tracks
- Fecal droppings
- Bird nests

11. Garbage Observed

<table>
<thead>
<tr>
<th>Garbage Observed</th>
<th>None</th>
<th>Rare</th>
<th>Common</th>
<th>Abundant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large garbage in the channel</td>
<td>□ None</td>
<td>Rare</td>
<td>Common</td>
<td>Abundant</td>
</tr>
<tr>
<td>Small garbage in the channel</td>
<td>□ None</td>
<td>Rare</td>
<td>Common</td>
<td>Abundant</td>
</tr>
<tr>
<td>Bank Garbage</td>
<td>□ None</td>
<td>Rare</td>
<td>Common</td>
<td>Abundant</td>
</tr>
</tbody>
</table>

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).
Stream: Bullhead Bayard
Site: 2
Date: 7/15/2018

Description: Crossing of SH 99/Grand Prairie

Time Begin: 10:18
Time End: 10:46
Meter Type: SRG Tek Flowtracker

Observers: K. Conner, J. Cross
Stream Width*: 80
Section Width (W): 1.0

Observations:

<table>
<thead>
<tr>
<th>Section Midpoint (ft/m)</th>
<th>Section Depth (ft/m)</th>
<th>Observational Depth** (ft/m)</th>
<th>Velocity (V) At Point (ft/s)(m/s)</th>
<th>Average (ft/s)(m/s)</th>
<th>Flow (Q) (m³/s)(ft³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.4</td>
<td></td>
<td>0.07</td>
<td>0.028</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>0.7</td>
<td></td>
<td>0.11</td>
<td>0.077</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
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<td>0.12</td>
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<tr>
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<td>0.13</td>
<td>0.117</td>
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<td>0.14</td>
<td>0.147</td>
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<tr>
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<td>1.13</td>
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<td>0.16</td>
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<td>0.163</td>
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<tr>
<td>7.5</td>
<td>1.20</td>
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<td>0.12</td>
<td>0.144</td>
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</tr>
<tr>
<td>8.5</td>
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<td>0.15</td>
<td>0.173</td>
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</tr>
<tr>
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<td>1.10</td>
<td></td>
<td>0.13</td>
<td>0.143</td>
<td></td>
</tr>
<tr>
<td>10.5</td>
<td>1.10</td>
<td></td>
<td>0.11</td>
<td>0.121</td>
<td></td>
</tr>
<tr>
<td>11.5</td>
<td>0.90</td>
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<td>0.11</td>
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<td>0.11</td>
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<td>0.90</td>
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<td>0.10</td>
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<td>14.5</td>
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<td>0.92</td>
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<td>0.07</td>
<td>0.056</td>
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<td>16.5</td>
<td>0.99</td>
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<td>0.05</td>
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<td>0.08</td>
<td>0.052</td>
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<td>18.5</td>
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<td>0.05</td>
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</tr>
<tr>
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<td>0.85</td>
<td>-0.08</td>
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<td></td>
</tr>
</tbody>
</table>

Total Q = 1.486
1.795 cfs
Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information: L. Ray, K. Constan, R. Thompson, L. Benavides

Date & Time: 10/5/10 10:56-11:22  County Name: Fort Bend

Stream Name: Billhead Bayou

Segment No. or nearest downstream Segment No.: 12.45, C

Description of Site: Crossing of US 90

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. 4.08 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  60.2 °C  Water Temp  31 °C  Sesshi 0.1492 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
   - Shrub dominated corridor
   - Herbaceous marsh
   - Mowed/maintained corridor

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 is easy because it is low, near paved parking lot, strip mall, gas station, houses

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

FDS Page 1 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Bull Head Bayou  Site: 3
Date: 11/11/10  Time: 10:50-11:22

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
   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:
   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)

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?  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
   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
      - Other secondary contact activities:
   b. No secondary contact recreation activities were observed
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Date: 11/3/18
Site: 3
Time: 10:56-11:22

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  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).
   
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.
   
N/A
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Site: 5056-1122

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.

<table>
<thead>
<tr>
<th>Pool</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
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</thead>
<tbody>
<tr>
<td>Pool 1</td>
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<td>Pool 10</td>
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</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
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</thead>
<tbody>
<tr>
<td>30 meters</td>
<td>1.5 0.34 m</td>
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<tr>
<td>60 meters</td>
<td>1.5 0.34 m</td>
</tr>
<tr>
<td>90 meters</td>
<td>1.2 0.37 m</td>
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<td>120 meters</td>
<td>1.1 0.34 m</td>
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<td>150 meters</td>
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<td>210 meters</td>
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<td>240 meters</td>
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<td>270 meters</td>
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<tr>
<td>300 meters</td>
<td>1.1 0.34 m</td>
</tr>
<tr>
<td>Average</td>
<td>0.35 m</td>
</tr>
</tbody>
</table>

FDS Page 4 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Site: 8
Date: 7/5/10
Time: 1056-1122

- 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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>2.47 m</td>
</tr>
<tr>
<td>Width at narrowest point of the stream</td>
<td>2.183 m</td>
</tr>
<tr>
<td>Width at the widest point of the stream</td>
<td>4.5 m</td>
</tr>
</tbody>
</table>

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

COMMENTS:
Too shallow and too narrow

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 __

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
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<tbody>
<tr>
<td>1</td>
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<td>2</td>
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<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
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
   - Fences
   - Log jams
   - Rip rap
   - Water control structure
   - Barbed wire
   - Dams
   - Thick vegetation
   - Low bridges
   - Utility pipe
   - Other (specify): __________________________

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
   - Commercial boating
   - Trails/paths (hiking/biking)
   - Paved parking lot
   - Unimproved parking lot
   - Roads (paved/unpaved)
   - Populated area
   - Commercial outfitter
   - Nearby school
   - Power Line Corridor
   - Parks (national/city/county/state)
   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/rim
   - Fishing Tackle
   - NPDES Discharge
   - Gates on corridor
   - Remnant's of Kid's play
   - Organized event
   - No Human Presence
   Comments: _____________________________________________________________
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).
Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: Bullehead Bayou
Site: 3
Date: 7/37/18

Description: Crossing of US 90
Time Begin: 11:02
Time End: 11:17
Meter Type: SonTek FlowTracker
Observers: L. Ray, K. Conda
Stream Width*: 7
Section Width (W): 2.323

Observations:

<table>
<thead>
<tr>
<th>Section Midpoint (ft/m)</th>
<th>Section Depth (ft/m) (cm) (D)</th>
<th>Observational Depth** (ft/m)</th>
<th>Velocity (V)</th>
<th>Flow (Q) (m³/s) (ft³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>At Point (ft/s)(m/s)</td>
<td>Average (ft/s)(m/s)</td>
<td></td>
</tr>
<tr>
<td>1.166</td>
<td>0.95</td>
<td></td>
<td>0.162</td>
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<tr>
<td>3.499</td>
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<td>0.164</td>
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<tr>
<td>5.833</td>
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<td></td>
<td>0.164</td>
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<td>1.168</td>
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<td>5.833</td>
<td>1.00</td>
<td></td>
<td>0.06</td>
<td>0.140</td>
</tr>
</tbody>
</table>

Total = 4.042

4.098 cfs

FDS Page 8 of 8
Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

| Data Collectors & Contact Information: | Ray, C. Condra, L. Benavendides, R. Thompson |
| Date & Time: | 11/15/19 1:34-12:00 |
| County Name: | Fort Bend |
| Stream Name: | Bullhead Bayou |
| Segment No. or nearest downstream Segment No.: | 1245 |
| Description of Site: | Crossing of University Blvd 1/4 mile from site |

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:
   - Episodic: 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. 0.042 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 | 31.4 °C |
| Water Temp | 30 °C Secchi 0.390 |

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

   - Forest
   - Shrub dominated corridor
   - Herbaceous marsh
   - Mowed/maintained corridor
   - Urban
   - Pasture
   - Row crops
   - Denuded/Eroded bank
   - Rip rap
   - Concrete
   - Other (specify):

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):

   Mowed Bank

8. Dominant Primary Substrate

   - Cobble □ Sand □ Silt □ Mud/Clay □ Gravel □ Bedrock □ Rip rap □ Concrete
Field Data Sheets – Basic RUAA Survey

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 occurred.
   - Wading-Adults ☐ Surfing ☐ 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 (25 ft) 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).
   - Muddy water, thick vegetation between edge of
   - Banks and water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
   - Bridge crossing next to subdivision, and hotel

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 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:

FDS Page 2 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Site: 46
Date: 7/15/10
Time: 11:30 - 12:07

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

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: Unknown

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: Bullhead Bayou Site: 
Date: 11/17/18 FDS Page 3 of 8

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.

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<tr>
<td>Pool 10</td>
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</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
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<tbody>
<tr>
<td>30 meters</td>
<td>1.65 ft</td>
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<tr>
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<td>1.6 ft</td>
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<tr>
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<td>150 meters</td>
<td>1.9 ft</td>
</tr>
<tr>
<td>180 meters</td>
<td>1.9 ft</td>
</tr>
<tr>
<td>210 meters</td>
<td>1.75 ft</td>
</tr>
<tr>
<td>240 meters</td>
<td>1.8 ft</td>
</tr>
<tr>
<td>270 meters</td>
<td>1.3 ft</td>
</tr>
<tr>
<td>300 meters</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>Width</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>Width</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>Width</td>
</tr>
</tbody>
</table>

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 .

<table>
<thead>
<tr>
<th>Photos # (30 meters)</th>
<th>Upstream</th>
<th>Downstream</th>
<th>Left Bank</th>
<th>Right Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photos # (150 meters)</td>
<td>Upstream</td>
<td>Downstream</td>
<td>Left Bank</td>
<td>Right Bank</td>
</tr>
<tr>
<td>Photos # (300 meters)</td>
<td>Upstream</td>
<td>Downstream</td>
<td>Left Bank</td>
<td>Right Bank</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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<td>3</td>
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<td>9</td>
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<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
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  □ Fences  □ Log jams  □ Rip rap  □ Water control structure
   □ Barbed wire  □ Dams  □ Thick vegetation  □ Low bridges  □ None
   □ Utility pipe  □ Other (specify): __________________________

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).
   □ Campgrounds  □ Stairs/walkway  □ Roads (paved/unpaved)
   □ Playgrounds  □ Boating access (ramps)  □ Populated area  □ None of the Above
   □ Rural area  □ Beach  □ Docks or rafts  □ Commercial outfitter
   □ Residential  □ Bridge crossing  □ Nearby school  □ Power Line Corridor
   □ National forests  □ Commercial boating  □ Parks (national/city/county/state)
   □ Urban/suburban location  □ Trails/paths (hiking/biking)  □ Public Property
   □ Golf Course  □ Paved parking lot  □ ___________
   □ Sports Field  □ Unimproved parking lot
   Comments: near small airport (regional)

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).
   □ Private Property  □ Fence  □ Barge/ship traffic
   □ No trespass sign  □ Wildlife  □ Industrial
   □ Steep slopes  □ None of the Above  □ Other: __________________________
   □ No public access
   □ No roads
   Comments: ________________________________________________________________

6. Check any indications of human use (Attach photos).
   □ Roads  □ RV/ATV Tracks
   □ Rope swings  □ Camping Sites
   □ Dock/platform  □ Fire pit/ Ring
   □ Foot paths/prints  □ Fishing Tackle
   □ Other: __________________________
   Comments: ________________________________________________________________
Stream Name: Bullhead Bayou
Date: 7/5/10
Site: 4
Time: 11:54 - 12:07

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

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: [Handwritten: Alligators]

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: [Handwritten: Cups]

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: Bullhead Bayou
Site: 47
Date: 7/15/10

Description: Crossing of University Blvd, 1/4 mile from #6

Time Begin: 1148 Time End: 1204 Meter Type: Son Tek Stenstruder

Observers: L. Ray, K. Cradock Stream Width*: 16.8 Section Width (W): 1.68

Observations:

<table>
<thead>
<tr>
<th>Section Midpoint (ft)(m)</th>
<th>Section Depth (ft)(m) (cm) (D)</th>
<th>Observational Depth** (ft)(m)</th>
<th>Velocity (V)</th>
<th>Flow (Q) (m³/s) (ft³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>At Point (ft/s)(m/s)</td>
<td>Average (ft/s)(m/s)</td>
</tr>
<tr>
<td>0.84</td>
<td>1.35</td>
<td></td>
<td>-0.07</td>
<td>-0.159</td>
</tr>
<tr>
<td>2.52</td>
<td>1.10</td>
<td></td>
<td>-0.10</td>
<td>-0.269</td>
</tr>
<tr>
<td>2.93</td>
<td>1.50</td>
<td></td>
<td>0.09</td>
<td>0.227</td>
</tr>
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<td>5.61</td>
<td>1.70</td>
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<td>0.19</td>
<td>0.486</td>
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<td>7.29</td>
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<td>8.97</td>
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<td>12.33</td>
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<td>14.01</td>
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<td>0.41</td>
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<tr>
<td>15.69</td>
<td>1.4</td>
<td></td>
<td>0.00</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Total Q = 6.084 m³/s

6.042 cfs
**Field Data Sheets – Basic RUAA Survey**

(should be completed for each site)

| Data Collectors & Contact Information: | L. Ray, K. Andrea, R. Thompson, L. Bonavides |
| Date & Time: | 11/5/10 11:00-12:30 |
| Stream Name: | Bullhead Bayou |
| County Name: | Fort Bend |
| Segment No. or nearest downstream Segment No.: | 1245C |
| Description of Site: | Lexington Blvd above ground parcel. |

*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. 10.984 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: 79.2 °C
- Water Temp: 29 °C
- Secchi: 0.90 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
- ☑ Shrub dominated corridor
- ☑ Herbaceous marsh
- ☑ Urban
- ☑ Pasture
- ☑ Row crops
- ☑ Rip rap
- ☑ Concrete
- ☑ Denuded/Eroded bank
- ☑ Other (specify):

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)

- Maped Bank, Slightly steep, Next to Subdivision

8. Dominant Primary Substrate

- ☑ Cobble
- ☑ Sand
- ☑ Silt
- ☑ Mud/Clay
- ☑ Gravel
- ☑ Bedrock
- ☑ Rip rap
- ☑ Concrete
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:
      - No primary contact activities that commonly occurred were observed
      - 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 (25 ft) 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).
   - It is relatively shallow, otherwise not many

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
   - Bridge crossing next to subdivision storage facility, steep slopes with paved parking

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:

FDS Page 2 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou

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

Site: 5

Time: 1210-1252

Date: 7/15/10

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 □ 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:

SAME

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.

SAME
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou
Site: 8

Date: 7/15/16

FDS Page 3 of 8

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

1. Wadable 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 #\(30\) meters Upstream □ Downstream □ Left Bank □ Right Bank □
Photos #\(150\) meters Upstream □ Downstream □ Left Bank □ Right Bank □
Photos #\(300\) 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.

<table>
<thead>
<tr>
<th>Pool</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pool 2</td>
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<td></td>
<td></td>
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<td>Pool 3</td>
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<td>Pool 4</td>
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<td>Pool 5</td>
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<td>Pool 6</td>
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<td>Pool 7</td>
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<td>Pool 8</td>
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<td>Pool 9</td>
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<td>Pool 10</td>
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</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td>0.52 m</td>
</tr>
<tr>
<td>60 meters</td>
<td>0.58 m</td>
</tr>
<tr>
<td>90 meters</td>
<td>0.52 m</td>
</tr>
<tr>
<td>120 meters</td>
<td>0.79 m</td>
</tr>
<tr>
<td>150 meters</td>
<td>0.40 m</td>
</tr>
<tr>
<td>180 meters</td>
<td>0.46 m</td>
</tr>
<tr>
<td>210 meters</td>
<td>0.49 m</td>
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<tr>
<td>240 meters</td>
<td>0.46 m</td>
</tr>
<tr>
<td>270 meters</td>
<td>0.64 m</td>
</tr>
<tr>
<td>300 meters</td>
<td>0.67 m</td>
</tr>
<tr>
<td>Average</td>
<td>0.56 m</td>
</tr>
</tbody>
</table>
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou  Site:
Date: 7/15/18  Time: 12:16 - 12:52

(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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>8m</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>5m</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>6m</td>
</tr>
</tbody>
</table>

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 .

<table>
<thead>
<tr>
<th>Photos #s (30 meters)</th>
<th>Upstream</th>
<th>Downstream</th>
<th>Left Bank</th>
<th>Right Bank</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>10</td>
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</tbody>
</table>

# Measurements | Width (meters) |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
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  □ Fences  □ Log jams  □ Rip rap  □ Water control structure
   □ Barbed wire  □ Dams  □ Thick vegetation  □ Low bridges  □ None
   □ Utility pipe  □ Other (specify): __________________________

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).
   □ Campgrounds  □ Stairs/walkway  □ Roads (paved/unpaved)
   □ Playgrounds  □ Boating access (ramps)  □ Populated area
   □ Rural area  □ Beach  □ Docks or rafts
   □ Residential  □ Bridge crossing  □ Commercial outfitter
   □ National forests  □ Commercial boating  □ Nearby school
   □ Urban/suburban location  □ Trails/paths (hiking/biking)  □ Power Line Corridor
   □ Golf Course  □ Paved parking lot  □ Parks (national/city/county/state)
   □ Sports Field  □ Unimproved parking lot  □ Public Property
   Comments: ____________________________________________

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).
   □ Private Property  □ Fence
   □ No trespass sign  □ Barge/ship traffic
   □ Wildlife  □ Industrial
   □ Steep slopes  □ None of the Above
   □ No public access  □ Other: ____________________________
   □ No roads
   Comments: ____________________________________________

6. Check any indications of human use (Attach photos).
   ✔ Roads  □ RV/ATV tracks
   □ Rope swings  □ Camping Sites
   □ Dock/platform  □ Fire pit/ring
   □ Foot paths/prints  □ Fishing tackle
   □ Graffiti on bridge
   □ NPDES Discharge
   □ Gates on corridor
   □ Children’s toys
   □ Children’s remnant’s of Kid’s play
   □ Organized event
   □ No Human Presence
   Comments: ____________________________________________

FDS Page 6 of 8
Stream Name: Bullhead Bayou  Site: S
Date: 11/15/10  Time: 12:16 - 12:52

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: Frogs  Turtles

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, 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 Sheet - Basic RUAA Survey
### Stream Flow (Discharge) Measurement

- **Stream:** Bullhead Bayan
- **Date:** 7/3/10
- **Site:** Site
- **Description:** Lexington Blvd above ground portion
- **Time Begin:** 12:23
- **Time End:** 12:50
- **Meter Type:** SonTek FlowTracker
- **Observers:** Z. Ray, L. Trocker
- **Stream Width:** 80.2
- **Section Width (W):** 1.01

### Observations

<table>
<thead>
<tr>
<th>Section Midpoint (ft)(m)</th>
<th>Section Depth (ft)(m)</th>
<th>Observational Depth** (ft)(m)</th>
<th>Velocity (V)</th>
<th>Flow (Q) (m³/s)(ft³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>At Point (ft/s)(m/s)</td>
<td>Average (ft/s)(m/s)</td>
<td>Q = (W)(D)(V)</td>
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<tr>
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<tr>
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<td>-0.01</td>
<td>-0.005</td>
<td></td>
</tr>
</tbody>
</table>

Total Q = 11.007

10.984 cfs

FDS Page 8 of 8
Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

| Data Collectors & Contact Information: | L. Gray, L. Conder, L. Benavente  |
| Date & Time: | 7/25/20 1310-1330 |
| County Name: | Fort Bend |
| Stream Name: | Buffalo Bayou |
| Segment No. or nearest downstream Segment No.: | 124G |
| Description of Site: | First Colony Athletic Park- off Austin Fwy |

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.

| Air Temp | 38.8 °C |
| Water Temp | 30 °C | Secchi: 0.08 m |

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.

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
   - L Shrub dominated corridor
   - L Herbaceous marsh
   - R Mowed/maintained corridor
   - Urban
   - Pasture
   - Row crops
   - Rip rap
   - Concrete
   - Other (specify):
   - 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 vehicle in First Colony Athletic Park right by bridge.
   Bank was gently sloped so easy to access

8. Dominant Primary Substrate
   - Cobble
   - Sand
   - Silt
   - Mud/Clay
   - Gravel
   - Bedrock
   - Rip rap
   - Concrete
Field Data Sheets – Basic RUAA Survey

Stream Name: Bullhead Bayou  Site:
Date: 1/15/10  Time: 1:310-1:330

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 occurred 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 (25 ft) of water ☐ Individual is well away from water between 8 and 30 meters (100 ft) Not applicable Maintenance workers

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: Narrow in spots; lot of garbage in stream.

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

   Road by golf course and athletic 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? ☐ 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)? ☑ 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: __________________________

FDS Page 2 of 8
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 (25 ft) 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  □ Unknown  □ Never  □ Daily  □ Monthly  □ Yearly
   Please describe how often the activities occur?
   
4. If infrequently, what is the reason?  □ Unknown  □ Physical characteristics of the water body  □ Limited public access  □ Other
   If other, list reasons:
   
   unknown

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: Bulhead Bayou
Date: 7/13/13
Site: 4

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.

<table>
<thead>
<tr>
<th>Pool</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 2</td>
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<td>Pool 3</td>
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<td></td>
</tr>
<tr>
<td>Pool 10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td>0.5 ± 0.15 m</td>
</tr>
<tr>
<td>60 meters</td>
<td>0.4 ± 0.12 m</td>
</tr>
<tr>
<td>90 meters</td>
<td>0.5 ± 0.15 m</td>
</tr>
<tr>
<td>120 meters</td>
<td>0.6 ± 0.17 m</td>
</tr>
<tr>
<td>150 meters</td>
<td>0.3 ± 0.09 m</td>
</tr>
<tr>
<td>180 meters</td>
<td>0.3 ± 0.15 m</td>
</tr>
<tr>
<td>210 meters</td>
<td>0.3 ± 0.20 m</td>
</tr>
<tr>
<td>240 meters</td>
<td>0.3 ± 0.09 m</td>
</tr>
<tr>
<td>270 meters</td>
<td>0.7 ± 0.21 m</td>
</tr>
<tr>
<td>300 meters</td>
<td>0.5 ± 0.15 m</td>
</tr>
<tr>
<td>Average</td>
<td>0.15 m</td>
</tr>
</tbody>
</table>

1st Set of PS5 taken at 150m
2nd Set of PS5 taken at 30m
3rd Set of PS5 taken 300m downstream
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
</table>
| Typical Average Width of 300 meter reach | 6
| Width at narrowest point of the stream within 300 meter reach | 3.73 |
| Width at the widest point of the stream within 300 meter reach | 2.5 |

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.

<table>
<thead>
<tr>
<th>Photos #s (30 meters)</th>
<th>Upstream</th>
<th>Downstream</th>
<th>Left Bank</th>
<th>Right Bank</th>
</tr>
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<tbody>
<tr>
<td>Photos #s (150 meters)</td>
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<td>Downstream</td>
<td>Left Bank</td>
<td>Right Bank</td>
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<td>Photos #s (300 meters)</td>
<td>Upstream</td>
<td>Downstream</td>
<td>Left Bank</td>
<td>Right Bank</td>
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<table>
<thead>
<tr>
<th># Measurements</th>
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</tr>
<tr>
<td>10</td>
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</tr>
</tbody>
</table>
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
   - Fences
   - Log jams
   - Rip rap
   - Water control structure
   - Barb wire
   - Dams
   - Thick vegetation
   - Low bridges
   - None
   - Other (specify): ________________________________

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).
   □ Campgrounds
   □ Playgrounds
   □ Residential
   □ Golf Course
   □ Sports Field
   □ Rural area
   □ Beack
   □ Commercial boating
   □ Bridge crossing
   □ Trails/paths (hiking/biking)
   □ Paved parking lot
   □ Unimproved parking lot
   □ Boating access (ramps)
   □NNed area
   □ Commercial outfitter
   □ Nearby school
   □ Power Line Corridor
   □ Parks (national/city/county/state)
   □ Roads (paved/unpaved)
   □ Other: ________________________________
   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
   □ Deck/platform
   □ Foot paths/prints
   □ Other: ________________________________
   □ RV/ATV Tracks
   □ Camping Sites
   □ Fire pit/tring
   □ Fishing Tackle
   □ NPDLS Discharge
   □ Gates on corridor
   □ Children's toys
   □ Remnant's of Kid's play
   □ Organized event
   □ No Human Presence
   Comments: ________________________________
7. Check all water characteristics that apply (Attach photos).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>absent</th>
<th>rare</th>
<th>common</th>
<th>abundant</th>
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</thead>
<tbody>
<tr>
<td>Aquatic Vegetation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae Cover</td>
<td>Absent</td>
<td>rare</td>
<td>common</td>
<td>abundant</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td>rare</td>
<td>common</td>
<td>abundant</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td>green</td>
<td>red</td>
<td>brown</td>
</tr>
<tr>
<td>Bottom Deposit</td>
<td>sludge</td>
<td>solids</td>
<td>fine sediments</td>
<td>none</td>
</tr>
<tr>
<td>Water Surface</td>
<td>clear</td>
<td>scum</td>
<td>foam</td>
<td>debris</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Vertebrates Observed within 300 meter reach

<table>
<thead>
<tr>
<th>Vertebrates</th>
<th>None</th>
<th>slight presence</th>
<th>moderate presence</th>
<th>large presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snakes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Dependent Birds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alligators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>turtle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Mammals Observed within 300 meter reach

<table>
<thead>
<tr>
<th>Mammals</th>
<th>None</th>
<th>slight presence</th>
<th>moderate presence</th>
<th>large presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domesticated Pets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feral Hogs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Tracks</th>
<th>Fecal droppings</th>
<th>Bird nests</th>
</tr>
</thead>
</table>

11. Garbage Observed

<table>
<thead>
<tr>
<th>Garbage</th>
<th>None</th>
<th>Rare</th>
<th>Common</th>
<th>Abundant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large garbage in the channel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small garbage in the channel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank Garbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Briefly describe the kinds of garbage observed:</td>
<td>folding chain, general, household trash, plastic, cords, bottles</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:** Chilmark Bayan  
**Date:** 11/30/10

**Site:**  
**Description:** First Colony Athletic Park off Austin bluff

**Time Begin:** 13:14  
**Time End:** 13:22  
**Meter Type:** Son Tek FladTracker

**Observers:** L. Kay, K. Condron

**Stream Width:** 6.0  
**Section Width (W):** 2.0

## Observations:

<table>
<thead>
<tr>
<th>Section Midpoint</th>
<th>Section Depth</th>
<th>Observational Depth**</th>
<th>Velocity (V) At Point</th>
<th>Average (ft/s) (m/s)</th>
<th>Flow (Q) (m³/s) (ft³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>0.50</td>
<td></td>
<td>0.5</td>
<td>0.38</td>
<td>0.038</td>
</tr>
<tr>
<td>3.0</td>
<td>0.60</td>
<td></td>
<td>0.03</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>0.40</td>
<td></td>
<td>-0.18</td>
<td>-0.144</td>
<td></td>
</tr>
</tbody>
</table>

Total \( Q = 0.212 \)  
0.272 cfs
Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

Data Collectors & Contact Information:  M. Shepard  M. Franks  R. Thompson  L. Benavides
Date & Time:  01/14/10  1020 – 1045  County Name:  Fort Bend
Stream Name:  Mesquite Creek (unnamed tributary to Bullhead Bayou)
Segment No. or nearest downstream Segment No.:  245D
Description of Site:  City Park at Mesquite Dr and Windmill St (Mesquite Park)

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. 0.185 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  33.4 °C  Water Temp  28 °C  secchi: 0.316

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  Forest
   - L R  Shrub dominated corridor
   - L R  Herbaceous marsh
   - L R  Mowed/maintained corridor
   - L R  Urban
   - R L  Pasture
   - R L  Row crops
   - L R  Concrete
   - R L  Other (specify):
   - L R  Demuded/Eroded bank

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

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):  Banks clean & mowed to water's edge for entire 300m, slopes easy

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

FDS Page 1 of 8
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

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

3. 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).
   - channel is very narrow

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
   - park within neighborhood but has no parking

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:

FDS Page 2 of 8
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
   Body on shore near water within 8 meters (25 ft) of water
   In a boat touching water
   Body well away from water between 8 and 30 meters (100 ft) X 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). Water too shallow & channel too narrow

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.
E. Stream Channel and Substantial Pools Measurements
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.

<table>
<thead>
<tr>
<th>Pool</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
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<td></td>
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<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td>0.21 m</td>
</tr>
<tr>
<td>60 meters</td>
<td>0.15</td>
</tr>
<tr>
<td>90 meters</td>
<td>0.17</td>
</tr>
<tr>
<td>120 meters</td>
<td>0.18</td>
</tr>
<tr>
<td>150 meters</td>
<td>0.09</td>
</tr>
<tr>
<td>180 meters</td>
<td>0.12</td>
</tr>
<tr>
<td>210 meters</td>
<td>0.18</td>
</tr>
<tr>
<td>240 meters</td>
<td>0.11</td>
</tr>
<tr>
<td>270 meters</td>
<td>0.17</td>
</tr>
<tr>
<td>300 meters</td>
<td>0.11</td>
</tr>
<tr>
<td>Average</td>
<td>0.16 m</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>1.9 m</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>1.8 m</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>2.4 m</td>
</tr>
</tbody>
</table>

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 .

<table>
<thead>
<tr>
<th>Photos #s (30 meters)</th>
<th>Upstream</th>
<th>Downstream</th>
<th>Left Bank</th>
<th>Right Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photos #s (150 meters)</td>
<td>Upstream</td>
<td>Downstream</td>
<td>Left Bank</td>
<td>Right Bank</td>
</tr>
<tr>
<td>Photos #s (300 meters)</td>
<td>Upstream</td>
<td>Downstream</td>
<td>Left Bank</td>
<td>Right Bank</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
F. Additional RUAA Information

1. Check the following activities observed over the site reach.
   - Drinking or water in mouth
   - Playing on shoreline
   - Bathing
   - Picnicking
   - Walking
   - Motorcycle/ATV
   - Jogging/running
   - Hunting/Trapping
   - **Bicycling**
   - Wildlife watching
   - Standing
   - None
   - Sitting
   - Other: __________
   - 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).
   - Culverts
   - Fences
   - Log jams
   - Rip rap
   - Water control structure
   - Barbed wire
   - Dams
   - Thick vegetation
   - Low bridges
   - None
   - Utility pipe
   - Other (specify): _______________________________________________________

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)
   - Other: ____________
   - Roads (paved/unpaved)
   - Populated area
   - Docks or rafts
   - Commercial outfitter
   - Nearby school
   - Power Line Corridor
   - Paved parking lot
   - Unimproved parking lot
   - Parks (national/city/county/state)
   - Public Property
   Comments: ____________________________
   - There wasn't a walk way to the creek

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
   - Other: __________
   - No roads
   - Fence
   - Barge/ship traffic
   - Industrial
   - None of the Above
   - Other: __________
   Comments: ____________________________
   - There was easy access

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
   Comments: ____________________________
   - There was graffiti

---

FDS Page 6 of 8
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: sand  solids  fine sediments  none  other
Water Surface: clear  scum  foam  debris  oil
Other:

8. Vertebrates Observed within 300 meter reach

Snakes
Water Dependent Birds
Alligators
Comments:

9. Mammals Observed within 300 meter reach

Wild
Domesticated Pets
Livestock
Feral Hogs
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
Small garbage in the channel
Bank Garbage
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).
### Field Data Sheet - Basic RUAA Survey

**Stream Flow (Discharge) Measurement**

<table>
<thead>
<tr>
<th>Stream: Mesquite Park @ Unnamed Trib</th>
<th>Date: 6/17/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site: 1</td>
<td>Site</td>
</tr>
</tbody>
</table>

**Description:** Mesquite Park @ Unnamed Trib

**Time Begin:** 10:28  **Time End:** 10:42  **Meter Type:** Sontek FlowTracker

**Observers:** M. Shepard, M. Franks

**Stream Width:** 5.5  **Section Width (W):** 0.55

<table>
<thead>
<tr>
<th>Section Midpoint (ft/m)</th>
<th>Section Depth (ft/m) (cm) (D)</th>
<th>Observational Depth** (ft/m)</th>
<th>Velocity (V)</th>
<th>Flow (Q) (m³/s) ft/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At Point (ft/s)(m/s)</td>
<td>Average (ft/s)(m/s)</td>
<td>Q = (W)(D)(V)</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>0.275</td>
<td>0.5</td>
<td>0.00</td>
<td>0.000</td>
</tr>
<tr>
<td>7.9</td>
<td>0.475</td>
<td>0.6</td>
<td>0.04</td>
<td>0.013</td>
</tr>
<tr>
<td>11.5</td>
<td>1.375</td>
<td>0.6</td>
<td>0.03</td>
<td>0.010</td>
</tr>
<tr>
<td>23.1</td>
<td>1.375</td>
<td>0.6</td>
<td>0.09</td>
<td>0.030</td>
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<td>0.027</td>
</tr>
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<td>47.0</td>
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<td>0.026</td>
</tr>
<tr>
<td>56.1</td>
<td>4.125</td>
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<td>0.08</td>
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</tr>
<tr>
<td>62.7</td>
<td>5.225</td>
<td>0.3</td>
<td>0.04</td>
<td>0.007</td>
</tr>
</tbody>
</table>

**Total Q = 0.344 ft/s**

FDS Page 8 of 8
Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information: M. Shepard, M. Franks, E. Thompson, L. Benavides
Date & Time: 1/19/10  1047
County Name: Fort Bend
Stream Name: Green Fields Dr & Unnamed Tributary to Bullhead Bayou
Segment No. or nearest downstream Segment No.: 1245-D

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 RUAA.

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.
   - 0.133 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  33.1 °C  Water Temp  34.1 °C  Secchi 0.206m

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

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

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):
   Banks cleared to water for 300+ ft,
   Slopes relatively gentle

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

FDS Page 1 of 8
Field Data Sheets – Basic RUAA Survey

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

b. Check the number of individuals observed at the site: Circle 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 water – except for one pool

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
   Bridge crossing, can park & walk down
   Homes all along top of R & L banks

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 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
   - No secondary contact recreation activities were observed
   - Other secondary contact activities:

FDS Page 2 of 8
Field Data Sheets - Basic RUAA Survey

Stream Name: Green Fields @ Unnamed Trib Site: 2
Date: 6/19/11 Time: 10:41

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) X N/A

d. 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).

Shallow, narrow channel

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 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.
E. Stream Channel and Substantial Pools Measurements

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 □ 3
Photos #s (150 meters) Upstream □ Downstream □ Left Bank □ Right Bank □ 2
Photos #s (300 meters) Upstream □ Downstream □ Left Bank □ Right Bank □ 1

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.

<table>
<thead>
<tr>
<th>Pool 1</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 3</td>
<td></td>
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<td></td>
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<tr>
<td>Pool 4</td>
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<td></td>
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<td>Pool 5</td>
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<td>Pool 6</td>
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<td>Pool 7</td>
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<td>Pool 8</td>
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<td></td>
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<td>Pool 9</td>
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<td></td>
</tr>
<tr>
<td>Pool 10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td></td>
</tr>
<tr>
<td>60 meters</td>
<td></td>
</tr>
<tr>
<td>90 meters</td>
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<td>120 meters</td>
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<tr>
<td>150 meters</td>
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<tr>
<td>180 meters</td>
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<td>210 meters</td>
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<tr>
<td>240 meters</td>
<td></td>
</tr>
<tr>
<td>270 meters</td>
<td></td>
</tr>
<tr>
<td>300 meters</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>

The first set of pictures are in reverse order.
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>19.10 ft</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>10.5 ft</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>29.2 ft</td>
</tr>
</tbody>
</table>

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 # (30 meters) Upstream_ Downstream_ Left Bank_ Right Bank_
- Photos # (150 meters) Upstream_ Downstream_ Left Bank_ Right Bank_
- Photos # (300 meters) Upstream_ Downstream_ Left Bank_ Right Bank_

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
F. Additional RUAA Information

1. Check the following activities observed over the site reach.
- Drinking or water in mouth
- Playing on shoreline
- Bathing
- Picnicking
- Walking
- Motorcycle/ATV
- Jogging/running
- Hunting/Trapping
- Bicycling
- Wildlife watching
- Standing
- None
- Sitting
- Other: __________
- 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).
- Culverts
- Fences
- Log jams
- Rip rap
- Water control structure
- Barbed wire
- Dams
- Thick vegetation
- Low bridges
- None
- Utility pipe
- Other (specify): ______________________________________

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
- Nearby school
- Trails/paths (hiking/biking)
- Power Line Corridor
- Paved parking lot
- Unimproved parking lot
- Parks (national/city/county/state)
- Roads (paved/unpaved)
- Other: __________

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).
- Private Property
- No trespass sign
- Wildfire
- Steep slopes
- No public access
- No roads
- Fence
- Barge/ship traffic
- Industrial
- None of the Above
- Other: __________

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
- Other: ______________________

Comments: __________________________________________

[Handwritten note: There was an abandoned bike in the creek.]

FDS Page 6 of 8
Field Data Sheets – Basic RUAA Survey

Stream Name: Green Fields Creek Site: 2
Date: 1/19/10 Time: 11:04

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: There was a neon green film in the water.

8. Vertebrates Observed within 300 meter reach
   Snakes: None
   Water Dependent Birds: None slight presence moderate presence large presence
   Alligators: None
   Comments: There was two wading birds.

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: abandon bike

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:** Green Fields Dr
**Site:** #2
**Date:** 6/18/10
**Description:**
**Time Begin:** 11:10
**Time End:**
**Meter Type:** Sontek FlowTracker
**Observers:** W. Shepherd, M. Frans

**Stream Width (m):** 13.7
**Section Width (W):** 1.32

| Section Midpoint (ft/m) | Section Depth (ft/m) (cm) (D) | Observational Depth** (ft/m) | Velocity (V) (ft/s)(m/s) | Flow (Q) (m³/s) (ft³/s)
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td>0.04</td>
<td>0.026</td>
</tr>
<tr>
<td>4.32</td>
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<td>0.06</td>
<td>0.040</td>
</tr>
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<td>5.94</td>
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<td>0.040</td>
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<tr>
<td>9.90</td>
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<td>-0.01</td>
<td>-0.009</td>
</tr>
<tr>
<td>11.22</td>
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<td></td>
<td>-0.04</td>
<td>-0.032</td>
</tr>
<tr>
<td>12.54</td>
<td>0.3</td>
<td></td>
<td>-0.00</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Total Q = 0.032 cfs**

0.133

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FDS Page 8 of 8
Field Data Sheets – Basic RUAA Survey  
(should be completed for each site)

| Data Collectors & Contact Information: H. Shepard, R. Evans, R. Thompson, L. Benavides |
| Date & Time: 6/19/10 | County Name: Fort Bend |
| Stream Name: Austin Pkwy (unnamed tributary to Bullhead Bayou) |
| Segment No. or nearest downstream Segment No.: 12-45-50 |
| Description of Site: Crossing of Austin Pkwy near First Colony Park |

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. 0.1643 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.

<table>
<thead>
<tr>
<th>Air Temp</th>
<th>Water Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.3°C</td>
<td>35.8°C</td>
</tr>
</tbody>
</table>

5. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)
   - Forest
   - Shrub dominated corridor
   - Herbaceous marsh
   - Mowed/maintained corridor
   - Urban
   - Pasture
   - Row crops
   - Other (specify): Rip rap
   - Concrete
   - 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):
   - Relatives gently mowed to water
   - For 300 + meters

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

FDS Page 1 of 8
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 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 of water is low; mud very soft, slimy to calm.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
   - School & park on 1 bank w/ parking

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 kayaking, rafting, canoeing were observed
      - Other secondary contact activities: ____________________________

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Field Data Sheets - Basic RUAA Survey

Stream Name: Austin Pkwy @ Unnamed 7.6
Site: 3
Date: 6/19/10
Time: 11:38

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
   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).
   Too shallow, narrow channel

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  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.
E. Stream Channel and Substantial Pools Measurements

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.

<table>
<thead>
<tr>
<th>Pool</th>
<th>Length (meters)</th>
<th>Width (meters)</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pool 2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pool 3</td>
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<tr>
<td>Pool 4</td>
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<tr>
<td>Pool 5</td>
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<td>Pool 6</td>
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<td>Pool 7</td>
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<tr>
<td>Pool 8</td>
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<td></td>
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<tr>
<td>Pool 9</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pool 10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Depth (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 meters</td>
<td>0.17</td>
</tr>
<tr>
<td>60 meters</td>
<td>0.17</td>
</tr>
<tr>
<td>90 meters</td>
<td>0.15</td>
</tr>
<tr>
<td>120 meters</td>
<td>0.15</td>
</tr>
<tr>
<td>150 meters</td>
<td>0.14</td>
</tr>
<tr>
<td>180 meters</td>
<td>0.14</td>
</tr>
<tr>
<td>210 meters</td>
<td>0.10</td>
</tr>
<tr>
<td>240 meters</td>
<td>0.15</td>
</tr>
<tr>
<td>270 meters</td>
<td>0.14</td>
</tr>
<tr>
<td>300 meters</td>
<td>0.18</td>
</tr>
<tr>
<td>Average</td>
<td>0.21</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Average Width of 300 meter reach</td>
<td>3.5 ft</td>
</tr>
<tr>
<td>Width at narrowest point of the stream within 300 meter reach</td>
<td>1.5 ft</td>
</tr>
<tr>
<td>Width at the widest point of the stream within 300 meter reach</td>
<td>9.2 ft</td>
</tr>
</tbody>
</table>

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☒ 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 _______

<table>
<thead>
<tr>
<th># Measurements</th>
<th>Width (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
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<td>8</td>
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</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
F. Additional RUAA Information

1. Check the following activities observed over the site reach.
   - Drinking or water in mouth
   - Playing on shoreline
   - Bathing
   - Picnicking
   - Walking
   - Motorcycle/ATV
   - Jogging/running
   - Hunting/Trapping
   - Bicycling
   - Wildlife watching
   - Standing
   - Sitting
   - Lying down/sleeping

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

3. Check any channel obstructions that apply (Attach photos).
   - Culverts
   - Fences
   - Log jams
   - Rip rap
   - Water control structure
   - Barbed wire
   - Dams
   - Thick vegetation
   - Low bridges
   - Other (specify):

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
   - Roads (paved/unpaved)
   - Bridge crossing
   - Boating access (ramps)
   - Populated area
   - Commercial boating
   - Docks or rafts
   - Nearby school
   - Rails/paths (hiking/biking)
   - Commercial outfitter
   - Paved parking lot
   - Power line corridor
   - Unimproved parking lot
   - Parks (national/city/county/state)
   - Public Property

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
   - Industrial
   - No public access
   - Roads
   - Fence
   - Barge/ship traffic
   - Industrial
   - None of the Above
   - Other:

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
   - Comments: There was a cooler and tractor tracks

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7. Check all water characteristics that apply (Attach photos).
Aquatic Vegetation: absent □ rare □ common □ abundant □
Algae Cover: absent □ rare □ common □ abundant □
Odor: □ clear □ green □ red □ brown □ black □
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: one wading bird & two ducks

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: coolers

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).
<table>
<thead>
<tr>
<th>Section Midpoint (ft/m)</th>
<th>Section Depth (ft/m) (cm)</th>
<th>Observational Depth**</th>
<th>Velocity (V)</th>
<th>Flow (Q) (m³/s)</th>
<th>Q = (W)(D)(V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.53</td>
<td>0.25</td>
<td></td>
<td>0.22</td>
<td>0.058</td>
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<tr>
<td>1.59</td>
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<td>+0.14</td>
<td>0.059</td>
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</tr>
<tr>
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<td>0.01</td>
<td>0.006</td>
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<td>0.011</td>
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<td>0.02</td>
<td>0.011</td>
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<td>-0.00</td>
<td>0.000</td>
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<tr>
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<td>0.01</td>
<td>0.006</td>
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<tr>
<td>7.95</td>
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<td>0.013</td>
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<tr>
<td>9.01</td>
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<td>10.07</td>
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<td>0.04</td>
<td>0.017</td>
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</tr>
</tbody>
</table>

**Total Q = 0.131 cfs**

0.164