

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 5.5
Stream Segment Location: At Bridge Point Trail Road
QHEI Score: 61.75

FIELD NOTES: 10 SEP 2002

This portion of French Creek is located to the east of Bridge Pointe Trail to the south of Colorado Ave. The substrate is a mix of bedrock, boulders, cobbles, gravel and sand. The creek is 30' wide and minnows, frogs, and a muskrat were noted. The narrow (50') buffers contained eastern cottonwood, black willow, green ash, pin oak, American elm, black walnut, black cherry, staghorn sumac, red maple and multiflora rose. The medium velocity portion of the creek is 10-25 cm. Deep. Possible contamination from a carwash along Colorado Ave. was noted along the north bank. It was rust colored. Minor amounts of algae were noted. The banks are 5-10' high.

PHOTOS:



1) French Creek 5.5 – Facing upstream from bridge.



Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **67/74**

River Code: RM: 5.5 Stream: FRENCH CREEK
Date: 09/10/02 Location: AT BRIDGE POINTE TRAIL
Scorer's Full Name: JAY MILLER Affiliation: USACE - BUFFALO

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Estimate % present)
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY
 -BLDR /SLBS[10] 5 10 -GRAVEL [7] 15 30 Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)
 -BOULDER [9] -SAND [6] 15 -LIMESTONE [1] SILT: -SILT HEAVY [-2]
 -COBBLE [8] 30 30 -BEDROCK[5] 30 30 -TILLS [1] -SILT MODERATE [-1] Substrate
 -HARDPAN [4] -DETRITUS[3] -WETLANDS[0] -SILT NORMAL [0]
 -MUCK [2] -ARTIFICIAL[0] -HARDPAN [0] -SILT FREE [1] -EXTENSIVE [-2] Max 20
 -SILT [2] 5 NOTE: Ignore Sludge Originating From Point Sources -SANDSTONE [0] EMBEDDED -MODERATE [-1]
 -RIP/RAP [0] NESS: -NORMAL [0]
 -LACUSTRINE [0] -NON E [1]
 -SHALE [-1]
 -COAL FINES [-2]

NUMBER OF SUBSTRATE TYPES: 4 or More [2] (High Quality Only, Score 5 or >) 3 or Less [0]
COMMENTS: ALTERNATES BETWEEN HIGH SAND/ROCK + HIGH COBBLE

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or check 2 and AVERAGE)
(Structure) TYPE: Score All That Occur
2 UNDERCUT BANKS [1] 0 POOLS > 70 cm [2] 0 OXBOWS, BACKWATERS [1] - EXTENSIVE > 75% [11] Cover
1 OVERHANGING VEGETATION [1] 0 ROOTWADS [1] 0 AQUATIC MACROPHYTES [1] - MODERATE 25-75% [7] Max 20
2 SHALLOWS (IN SLOW WATER) [1] 3 BOULDERS [1] 2 LOGS OR WOODY DEBRIS [1] - SPARSE 5-25% [3]
1 ROOTMATS [1] COMMENTS: - NEARLY ABSENT < 5%[1]

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER
 - HIGH [4] - EXCELLENT [7] - NONE [6] - HIGH [3] - SNAGGING - IMPOUND.
 - MODERATE [3] - GOOD [5] - RECOVERED [4] - MODERATE [2] - RELOCATION - ISLANDS
 - LOW [2] - FAIR [3] - RECOVERING [3] - LOW [1] - CANOPY REMOVAL - LEVEED
 - NONE [1] - POOR [1] - RECENT OR NO RECOVERY [1] - DREDGING - BANK SHAPING
 - ONE SIDE CHANNEL MODIFICATIONS Channel Max 20

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)
 - WIDE > 50m [4] - FOREST, SWAMP [3] - CONSERVATION TILLAGE [1] - NONE/LITTLE [3] Riparian
 - MODERATE 10-50m [3] - SHRUB OR OLD FIELD [2] - URBAN OR INDUSTRIAL [0] - MODERATE [2] Max 10
 - NARROW 5-10 m [2] - RESIDENTIAL, PARK, NEW FIELD [1] - OPEN PASTURE, ROWCROP [0] - HEAVY/SEVERE [1]
 - VERY NARROW <5 m [1] - FENCED PASTURE [1] - MINING/CONSTRUCTION [0]
 - NONE [0]

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY (POOLS & RIFFLES!) Pool/Current
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)
 - >1m [6] - POOL WIDTH > RIFFLE WIDTH [2] - EDDIES [1] - TORRENTIAL [-1] Max 12
 - 0.7-1m [4] - POOL WIDTH = RIFFLE WIDTH [1] - FAST [1] - INTERSTITIAL [-1]
 - 0.4-0.7m [2] - POOL WIDTH < RIFFLE W. [0] - MODERATE [1] - INTERMITTENT [-2]
 - 0.2-0.4m [1] - SLOW [1] - VERY FAST [1]
 - < 0.2m [POOL=0] COMMENTS:

CHECK ONE OR CHECK 2 AND AVERAGE
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS Riffle/Run
 - Best Areas >10 cm [2] - MAX > 50 [2] - STABLE (e.g., Cobble, Boulder) [2] - NONE [2] Max 8
 - Best Areas 5-10 cm [1] - MAX < 50 [1] - MOD. STABLE (e.g., Large Gravel) [1] - LOW [1] Gradient
 - Best Areas < 5 cm [RIFFLE=0] - UNSTABLE (Fine Gravel, Sand) [0] - MODERATE [0] Max 10
 - NO RIFFLE [Metric=0] - EXTENSIVE [-1]

6) GRADIENT (ft/mi): 31.6 DRAINAGE AREA (sq.mi.): 28 %POOL: 20 %GLIDE: 30
%RIFFLE: 30 %RUN: 20

Is Sampling Reach Representative of the Stream (Y/N) ___ If Not, Explain:

- Major Suspected Sources of Impacts (Check All That Apply):
- None
 - Industrial
 - WWTP
 - Ag
 - Livestock
 - Silviculture
 - Construction
 - Urban Runoff
 - CSOs
 - Suburban Impacts
 - Mining
 - Channelization
 - Riparian Removal
 - Landfills
 - Natural
 - Dams
 - Other Flow Alteration
 - Other: _____

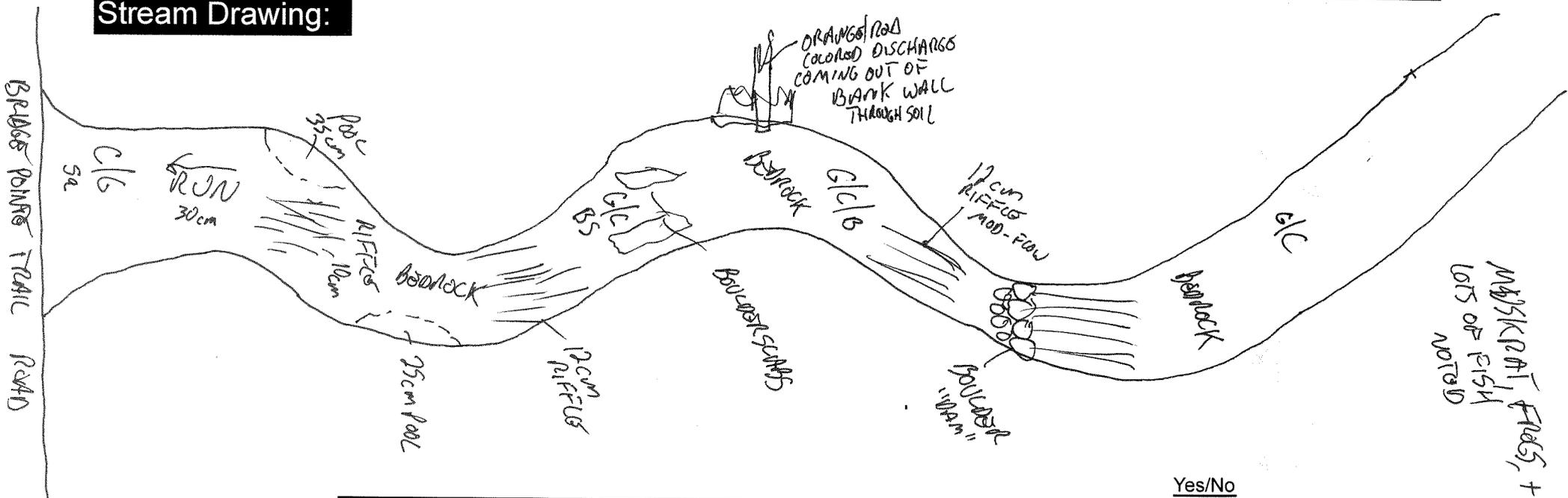
		Gear: _____	Distance: _____	Water Clarity: _____	Water Stage: _____	Canopy -% Open _____
First Sampling Pass	_____	_____	_____	_____	_____	_____
Stream Measurements:						
Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Depth	Mean W/D Ratio	Bankfull Max Depth
		Floodprone Area		Entrenchment		
		Width		Ratio		

Subjective Rating (1-10)

Aesthetic Rating (1-10)

Gradient: - Low, - Moderate, - High

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

Yes/No

Is Stream Ephemeral (no pools, totally dry or only damp spots)?

Is there water upstream? How Far: _____

Is There Water Close Downstream? How Far: _____

Is Dry Channel Mostly Natural?

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 6.1
Stream Segment Location: At Detroit Road
QHEI Score: 59

FIELD NOTES: 10 SEP 2002

This portion of French Creek is located upstream (southeast) of Detroit Road. The south bank has a 8+/-' retaining wall along an apartment complex with no buffer. The north bank has a 20-25' wide buffer between residential developments, but becomes wider (100+' to +/- 500') upstream of the bridge. The sand and cobble-dominated substrate also contains boulders, gravel, bedrock, and silt. The forested riparian area contained black walnut, black locust, eastern cottonwood, sycamore, boxelder, Japanese knotweed, hophornbeam, black willow, mulberry, sugar maple, white ash, American basswood, and green ash. A portion of the north bank has bank protection comprised of demolition debris (concrete). Minnows and macro invertebrates were noted. A good pool/riffle complex ranged in depth from 5-50 cm. The creek was 35' wide and has 5-10' banks on either side.

PHOTOS:



1) French Creek 6.1 – Facing upstream from bridge.



2) French Creek 6.1 – Facing downstream from end of sample.



Qualitative Habitat Evaluation Index Field Sheet QHEI Score:

59

River Code: RM: 6.1 Stream: FRENCH CREEK

Date: 9/10/02 Location: AT DETROIT ROAD (ROUTE 254)

Scorers Full Name: JAY MILLER Affiliation: USACE - BUFFALO

1) SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY
BLDR /SLBS [10] 10 5 SAND [6] 25 20 LESTONE [1] SILT:
COBBLE [8] 30 35 BEDROCK [5] 5 5 TILLS [1]
HARDPAN [4] DETRITUS [3] WETLANDS [0]
MUCK [2] ARTIFICIAL [0] HARDPAN [0]
SILT [2] 10 20 NOTE: Ignore Sludge Originating From Point Sources SANDSTONE [0] EMBEDDED
RIP/RAP [0] NESS:
LACUSTRINE [0]
SHALE [-1]
COAL FINES [-2]

Substrate Max 20 14 1/2

NUMBER OF SUBSTRATE TYPES: 4 or More [2] 3 or Less [0]

COMMENTS:

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) (Structure) TYPE: Score All That Occur

AMOUNT: (Check ONLY One or check 2 and AVERAGE)

0 UNDERCUT BANKS [1] 0 POOLS > 70 cm [2] 0 OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1] 0 ROOTWADS [1] 0 AQUATIC MACROPHYTES [1]
2 SHALLOWS (IN SLOW WATER) [1] 2 BOULDERS [1] 1 LOGS OR WOODY DEBRIS [1]
0 ROOTMATS [1] COMMENTS:

EXTENSIVE > 75% [11]
MODERATE 25-75% [7]
SPARSE 5-25% [3]
NEARLY ABSENT < 5% [1]

Cover Max 20 6

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER
HIGH [4] EXCELLENT [7] NONE [6] HIGH [3] SNAGGING IMPOUND.
MODERATE [3] GOOD [5] RECOVERED [4] MODERATE [2] RELOCATION ISLANDS
LOW [2] FAIR [3] RECOVERING [3] LOW [1] CANOPY REMOVAL LEVEED
NONE [1] POOR [1] RECENT OR NO RECOVERY [1] DREDGING BANK SHAPING
ONE SIDE CHANNEL MODIFICATIONS

Channel Max 20 4

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)
WIDE > 50m [4] FOREST, SWAMP [3] CONSERVATION TILLAGE [1] NONE/LITTLE [3]
MODERATE 10-50m [3] SHRUB OR OLD FIELD [2] URBAN OR INDUSTRIAL [0] MODERATE [2]
NARROW 5-10 m [2] RESIDENTIAL, PARK, NEW FIELD [1] OPEN PASTURE, ROWCROP [0] HEAVY/SEVERE [1]
VERY NARROW < 5 m [1] FENCED PASTURE [1] MINING/CONSTRUCTION [0]
NONE [0]

Riparian Max 10 4 1/2

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH MORPHOLOGY CURRENT VELOCITY (POOLS & RIFFLES!)
> 1m [6] POOL WIDTH > RIFFLE WIDTH [2] EDDIES [1] TORRENTIAL [-1]
0.7-1m [4] POOL WIDTH = RIFFLE WIDTH [1] FAST [1] INTERSTITIAL [-1]
0.4-0.7m [2] POOL WIDTH < RIFFLE W. [0] MODERATE [1] INTERMITTENT [-2]
0.2-0.4m [1] SLOW [1] VERY FAST [1]
< 0.2m [POOL=0] COMMENTS:

Pool/Current Max 12 6

CHECK ONE OR CHECK 2 AND AVERAGE
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS
Best Areas > 10 cm [2] MAX > 50 [2] STABLE (e.g., Cobble, Boulder) [2] NONE [2]
Best Areas 5-10 cm [1] MAX < 50 [1] MOD. STABLE (e.g., Large Gravel) [1] LOW [1]
Best Areas < 5 cm [RIFFLE=0] UNSTABLE (Fine Gravel, Sand) [0] MODERATE [0]
EXTENSIVE [-1]
NO RIFFLE [Metric=0]

Riffle/Run Max 8 4

COMMENTS:

6) GRADIENT (ft/mi): 11.6 DRAINAGE AREA (sq.mi.): 27.8
% POOL: 30 % GLIDE: 40
% RIFFLE: 10 % RUN: 20

Gradient Max 10 10

** Best areas must be large enough to support a population of riffle-obligate species

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 6.9
Stream Segment Location: At Stony Ridge Road (RT. 611)
QHEI Score: 69.25

FIELD NOTES: 10 SEP 2002

This portion of French Creek is located upstream (east) of Stony Ridge Road. The substrate is a combination of gravel, sand, bedrock, cobbles, boulders and silt. The 18-30' wide stretch ranges in depth from 25-75 cm. Frogs, ducks, and minnows were noted. The north bank has a fairly wide riparian buffer of cottonwood, black willow, black walnut, boxelder, hophornbeam, American basswood, and multiflora rose. The south bank has little or no buffer to the adjacent residential development. A PVC pipe was noted draining a residential lot to the south.

PHOTOS:



1) French Creek 6.9 - Facing upstream from bridge



2) French Creek 6.9 – Tributary entering from south



3) French Creek 6.9 – Facing downstream from end of sample



Qualitative Habitat Evaluation Index Field Sheet QHEI Score:

69 1/4

River Code: RM: 6.9 Stream: FRENCH CREEK
Date: 9/10/02 Location: AT STONEY RIDGE ROAD
Scorers Full Name: JAY MILLER Affiliation: USACE - BUFFALO

1] SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Estimate % present)
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY
BLDR /SLBS [10] 5 15 GRAVEL [7] 20 15
BOULDER [9] SAND [6] 15 10 LIMESTONE [1] SILT:
COBBLE [8] 20 20 BEDROCK [5] 25 30 TILLS [1]
HARDPAN [4] DETRITUS [3] WETLANDS [0] SILT HEAVY [-2]
MUCK [2] ARTIFICIAL [0] HARDPAN [0] SILT MODERATE [-1]
SILT [2] 15 10 NOTE: Ignore Sludge Originating From Point Sources SANDSTONE [0] EMBEDDED SILT NORMAL [0]
RIP/RAP [0] NESS: SILT FREE [1]
LACUSTRINE [0] EXTENSIVE [-2]
SHALE [-1] MODERATE [-1]
COAL FINES [-2] NORMAL [0]
NONE [1]

Substrate
15 1/2
Max 20

NUMBER OF SUBSTRATE TYPES: 4 or More [2]
3 or Less [0]
COMMENTS:

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)
(Structure) TYPE: Score All That Occur AMOUNT: (Check ONLY One or check 2 and AVERAGE)
3 UNDERCUT BANKS [1] 1 POOLS > 70 cm [2] 0 OXBOWS, BACKWATERS [1]
2 OVERHANGING VEGETATION [1] 0 ROOTWADS [1] 0 AQUATIC MACROPHYTES [1]
1 SHALLOWS (IN SLOW WATER) [1] 2 BOULDERS [1] 1 LOGS OR WOODY DEBRIS [1]
1 ROOTMATS [1] COMMENTS:
EXTENSIVE > 75% [11]
MODERATE 25-75% [7]
SPARSE 5-25% [3]
NEARLY ABSENT < 5% [1]

Cover
11
Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER
HIGH [4] EXCELLENT [7] NONE [6] HIGH [3] SNAGGING IMPOUND.
MODERATE [3] GOOD [5] RECOVERED [4] MODERATE [2] RELOCATION ISLANDS
LOW [2] FAIR [3] RECOVERING [3] LOW [1] CANOPY REMOVAL LEVEED
NONE [1] POOR [1] RECENT OR NO RECOVERY [1] DREDGING BANK SHAPING
ONE SIDE CHANNEL MODIFICATIONS

Channel
14
Max 20

4] RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank)
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)
WIDE > 50m [4] FOREST, SWAMP [3] CONSERVATION TILLAGE [1] NONE/LITTLE [3]
MODERATE 10-50m [3] SHRUB OR OLD FIELD [2] URBAN OR INDUSTRIAL [0] MODERATE [2]
NARROW 5-10 m [2] RESIDENTIAL, PARK, NEW FIELD [1] OPEN PASTURE, ROWCROP [0] HEAVY/SEVERE [1]
VERY NARROW < 5 m [1] FENCED PASTURE [1] MINING/CONSTRUCTION [0]
NONE [0]

Riparian
4 3/4
Max 10

5] POOL/GLIDE AND RIFFLE/RUN QUALITY
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY (POOLS & RIFFLES!)
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)
> 1m [6] POOL WIDTH > RIFFLE WIDTH [2] EDDIES [1] TORRENTIAL [-1]
0.7-1m [4] POOL WIDTH = RIFFLE WIDTH [1] FAST [1] INTERSTITIAL [-1]
0.4-0.7m [2] POOL WIDTH < RIFFLE W. [0] MODERATE [1] INTERMITTENT [-2]
0.2-0.4m [1] SLOW [1] VERY FAST [1]
< 0.2m [POOL=0] COMMENTS:

Pool/Current
8
Max 12

CHECK ONE OR CHECK 2 AND AVERAGE
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS
Best Areas > 10 cm [2] MAX > 50 [2] STABLE (e.g., Cobble, Boulder) [2] NONE [2]
Best Areas 5-10 cm [1] MAX < 50 [1] MOD. STABLE (e.g., Large Gravel) [1] LOW [1]
Best Areas < 5 cm [RIFFLE=0] UNSTABLE (Fine Gravel, Sand) [0] MODERATE [0]
EXTENSIVE [-1]
COMMENTS: NO RIFFLE [Metric=0]

Riffle/Run
6
Max 8
Gradient
10
Max 10

6] GRADIENT (ft/mi): 16.1 DRAINAGE AREA (sq.mi.): 97.5
% POOL: 25 % GLIDE: 30
% RIFFLE: 15 % RUN: 30

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 7.65
Stream Segment Location: At Center Road
QHEI Score: 45.5

FIELD NOTES: 10 SEP 2002

This portion of French Creek is located on the east side of Center Road immediately south of a “paper street” (West Park Road). Contamination was noted entering the creek from a road drain under the bridge. The substance was rust-colored with a foul odor. The creek is straight, channelized, deep (50-90 cm.) and narrow (20-25’ wide). There is a wide riparian area (>100’) consisting of green ash, American elm, silky dogwood, gray-stemmed dogwood, northern arrowwood, wild cranberry bush (*Viburnum*), sycamore, American basswood, multiflora rose, pin oak, tulip tree and hawthorne. Frogs were also noted. There was a pump drawing water from the creek for irrigation on the south bank. A strong odor of sewage was noted in this location. The substrate was bedrock-dominated with sand, cobbles, boulders, silt and gravel.

PHOTOS:



1) French Creek 7.65 – Facing upstream from bridge



2) French Creek 7.65 – Road drain under bridge



3) French Creek 7.65 – Facing downstream from end



4) French Creek 7.65 – Facing upstream from end



Qualitative Habitat Evaluation Index Field Sheet

QHEI Score: 45.5

River Code: RM: 7.65 Stream: FRENCH CREEK
Date: 9/10/02 Location: AT CENTER ROAD (RTE. 83)
Scorers Full Name: JAY MILLER Affiliation: USACE - BUFFALO

1] SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Estimate % present)
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY
[] BLDR /SLBS [10] [] GRAVEL [7] 10 Check ONE (OR 2 & AVERAGE) Check ONE (OR 2 & AVERAGE)
[] BOULDER [9] 15 [] SAND [6] 30 [] LIMESTONE [1] SILT:
[] COBBLE [8] 15 [] BEDROCK [5] 20 [] TILLS [1] [] SILT HEAVY [-2]
[] HARDPAN [4] [] DETRITUS [3] [] WETLANDS [0] [] SILT MODERATE [-1]
[] MUCK [2] [] ARTIFICIAL [0] [] HARDPAN [0] [] SILT NORMAL [0]
[] SILT [2] 10 NOTE: Ignore Sludge Originating From Point Sources [] SANDSTONE [0] EMBEDDED [] SILT FREE [1]
[] RIP/RAP [0] NESS: [] MODERATE [-1]
[] LACUSTRINE [0] [] NORMAL [0]
[] SHALE [-1] [] NONE [1]
[] COAL FINES [-2]

NUMBER OF SUBSTRATE TYPES: 4 or More [2]
(High Quality Only, Score 5 or >) 3 or Less [0]
COMMENTS: NO DEFINED RIFFLES AREAS PRESENT

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)
(Structure) TYPE: Score All That Occur AMOUNT: (Check ONLY One or check 2 and AVERAGE)
1 UNDERCUT BANKS [1] 2 POOLS > 70 cm [2] 0 OXBOWS, BACKWATERS [1]
2 OVERHANGING VEGETATION [1] 0 ROOTWADS [1] 0 AQUATIC MACROPHYTES [1]
0 SHALLOWS (IN SLOW WATER) [1] 2 BOULDERS [1] 1 LOGS OR WOODY DEBRIS [1]
1 ROOTMATS [1] COMMENTS: [] EXTENSIVE > 75% [11]
[] MODERATE 25-75% [7]
[] SPARSE 5-25% [3]
[] NEARLY ABSENT < 5% [1]

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER
[] HIGH [4] [] EXCELLENT [7] [] NONE [6] [] HIGH [3] [] SNAGGING [] IMPOUND.
[] MODERATE [3] [] GOOD [5] [] RECOVERED [4] [] MODERATE [2] [] RELOCATION [] ISLANDS
[] LOW [2] [] FAIR [3] [] RECOVERING [3] [] LOW [1] [] CANOPY REMOVAL [] LEVEED
[] NONE [1] [] POOR [1] [] RECENT OR NO RECOVERY [1] [] DREDGING [] BANK SHAPING
[] ONE SIDE CHANNEL MODIFICATIONS

COMMENTS:

4] RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank)
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)
[] WIDE > 50m [4] [] FOREST, SWAMP [3] [] CONSERVATION TILLAGE [1] [] NONE/LITTLE [3]
[] MODERATE 10-50m [3] [] SHRUB OR OLD FIELD [2] [] URBAN OR INDUSTRIAL [0] [] MODERATE [2]
[] NARROW 5-10 m [2] [] RESIDENTIAL, PARK, NEW FIELD [1] [] OPEN PASTURE, ROWCROP [0] [] HEAVY/SEVERE [1]
[] VERY NARROW <5 m [1] [] FENCED PASTURE [1] [] MINING/CONSTRUCTION [0]
[] NONE [0]

COMMENTS:

5.] POOL/GLIDE AND RIFFLE/RUN QUALITY
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY [POOLS & RIFFLES!]
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)
[] >1m [6] [] POOL WIDTH > RIFFLE WIDTH [2] [] EDDIES [1] [] TORRENTIAL [-1]
[] 0.7-1m [4] [] POOL WIDTH = RIFFLE WIDTH [1] [] FAST [1] [] INTERSTITIAL [-1]
[] 0.4-0.7m [2] [] POOL WIDTH < RIFFLE W. [0] [] MODERATE [1] [] INTERMITTENT [-2]
[] 0.2-0.4m [1] [] SLOW [1] [] VERY FAST [1]
[] < 0.2m [POOL=0] COMMENTS:

CHECK ONE OR CHECK 2 AND AVERAGE
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS
[] Best Areas >10 cm [2] [] MAX > 50 [2] [] STABLE (e.g., Cobble, Boulder) [2] [] NONE [2]
[] Best Areas 5-10 cm [1] [] MAX < 50 [1] [] MOD. STABLE (e.g., Large Gravel) [1] [] LOW [1]
[] Best Areas < 5 cm [] UNSTABLE (Fine Gravel, Sand) [0] [] MODERATE [0]
[] RIFFLE=0 [] EXTENSIVE [-1]
COMMENTS: DEEP, SLOW MOVING CHANNEL, NO RIFFLES NOTED [] NO RIFFLE [Metric=0]

6] GRADIENT (ft/mi): 3.9 DRAINAGE AREA (sq.mi.): 26.1
%POOL: [] %GLIDE: 100
%RIFFLE: [] %RUN: []

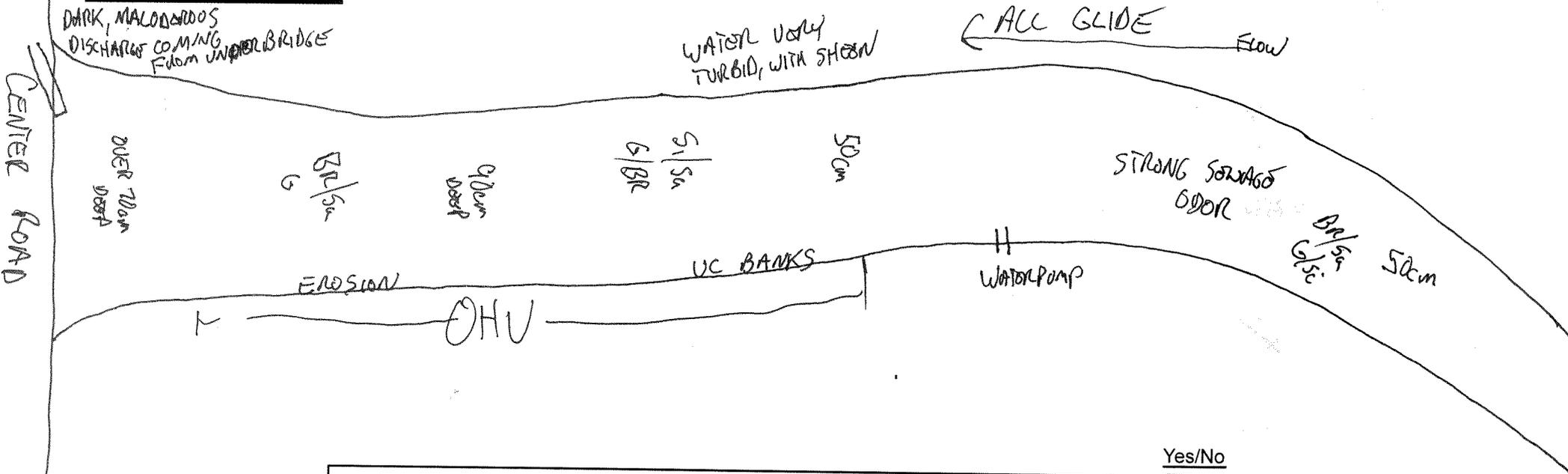
Is Sampling Reach Representative of the Stream (Y/N) ___ If Not, Explain:

- Major Suspected Sources of Impacts (Check All That Apply):
- None
 - Industrial
 - WWTP
 - Ag
 - Livestock
 - Silviculture
 - Construction
 - Urban Runoff
 - CSOs
 - Suburban Impacts
 - Mining
 - Channelization
 - Riparian Removal
 - Landfills
 - Natural
 - Dams
 - Other Flow Alteration
 - Other: _____

<input style="width: 100%; height: 50px;" type="text"/> Subjective Rating (1-10)	<input style="width: 100%; height: 50px;" type="text"/> Aesthetic Rating (1-10)	Gear: _____	Distance: _____	Water Clarity: _____	Water Stage: _____	Canopy -% Open _____		
First Sampling Pass _____								
Stream Measurements:								
Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Depth	Mean W/D Ratio	Bankfull Max Depth	Floodprone Area Width	Entrenchment Ratio

- Low, - Moderate, - High

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

- Yes/No
- Is Stream Ephemeral (no pools, totally dry or only damp spots)?
 - Is there water upstream? How Far: _____
 - Is There Water Close Downstream? How Far: _____
 - Is Dry Channel Mostly Natural?

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 8.4
Stream Segment Location: At Keller Street
QHEI Score: Not Applicable

FIELD NOTES: 10 SEP 2002

This stretch of French Creek is located at the terminus of Keller Street. No QHEI stream data was taken due to the overabundance of ducks and chickens in and around the creek channel and lack of suitable access. Narrow riparian buffers were located on both banks and dominated by eastern cottonwood, boxelder, silver maple, American basswood, and black walnut. Wider buffers are apparent further downstream (>100'). A retaining wall is located at the end of Keller and along the residential lots. A footbridge is used by the last residence on the south side of Keller to access several sheds/chicken coops on the southwest side of the creek. Feces from these birds may be a significant source of contamination

PHOTOS:



1) French Creek 8.4 – Facing downstream from the end of Keller Street



2) French Creek 8.4 - Facing upstream from the end of Keller Street

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 8.9
Stream Segment Location: At Jaycox Road (mouth of "Schwartz" Ditch)
QHEI Score: 42

FIELD NOTES: 10 SEP 2002

This stretch of French Creek runs adjacent to Jaycox Road between Riegelsberger Road and the outlet of 'Schwartz' Ditch. It appears Schwartz Ditch may be a significant source of siltation. The east bank of the creek (10-15' wide) provides a narrow buffer to Jaycox Road, which parallels the creek. The west bank is also a narrow (20 +/-) riparian buffer to residential development and fallow agricultural land. Dominant species noted include: poison ivy, black nightshade, stinging nettle, raspberry bushes, boxelder, green ash, black willow, and multiflora rose. The creek channel is generally 20' wide with depths ranging from 5-50 cm, although a deep pool (80 cm) is present. The substrate is dominated by sand and gravel with lesser amounts of cobbles and silt. Minnows and frogs were noted. Algae was also noted, indicating eutrophication. Erosion was noted along both banks (15' +/-). Some demolition debris was noted along the east bank (concrete, rebar). A culvert from under Jaycox road empties 15' above the creek channel and may cause minor erosion. It does not appear this culvert transfers significant water.

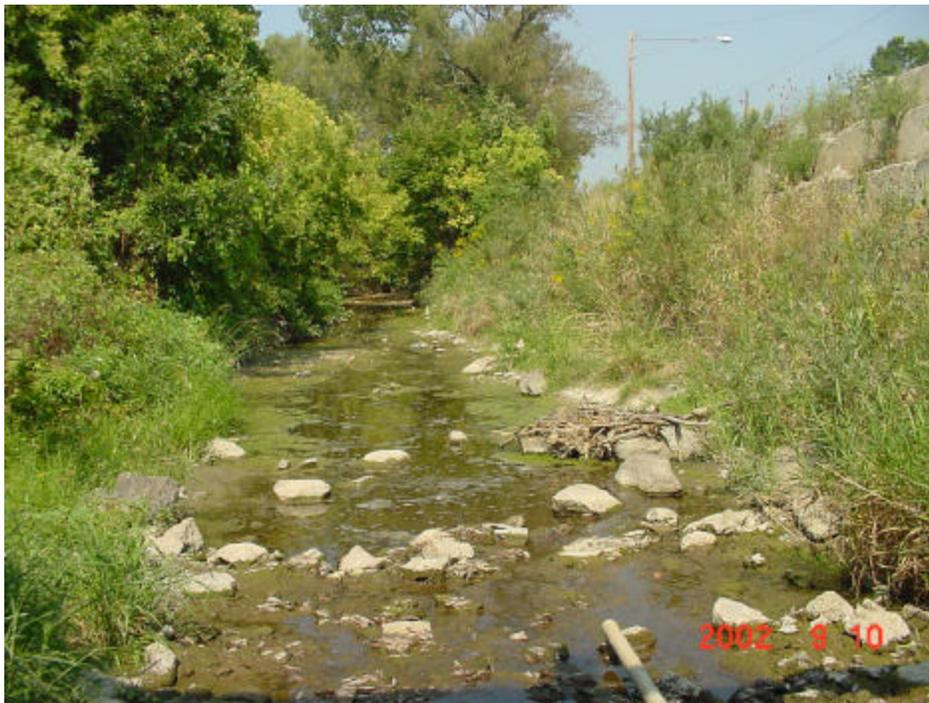
PHOTOS:



1) French Creek 8.9 – Facing downstream from Schwartz Ditch



2) French Creek 8.9 - Facing upstream from Schwartz Ditch



4) French Creek 8.9 – Facing downstream from Riegelsberger



Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 47

River Code: RM: 8.9 Stream: FRENCH CREEK
 Date: 9/10/02 Location: AT MOUTH OF "SCHWARTZ" DITCH BY JAYCOX ROAD
 Scorers Full Name: JAY MILLER Affiliation: USACE - BUFFALO

1) SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present)

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> -BLDR /SLBS [10] _____	<input checked="" type="checkbox"/> -GRAVEL [7] <u>30</u> <u>30</u>	Check ONE (OR 2 & AVERAGE)		Check ONE (OR 2 & AVERAGE)
<input type="checkbox"/> -BOULDER [9] <u>5</u>	<input checked="" type="checkbox"/> -SAND [6] <u>30</u> <u>30</u>	<input type="checkbox"/> -LIMESTONE [1]	SILT:	<input checked="" type="checkbox"/> -SILT HEAVY [-2]
<input type="checkbox"/> -COBBLE [8] <u>5</u> <u>10</u>	<input type="checkbox"/> -BEDROCK [5] _____	<input checked="" type="checkbox"/> -TILLS [1]		<input type="checkbox"/> -SILT MODERATE [-1]
<input type="checkbox"/> -HARDPAN [4] _____	<input type="checkbox"/> -DETRITUS [3] _____	<input type="checkbox"/> -WETLANDS [0]		<input type="checkbox"/> -SILT NORMAL [0]
<input type="checkbox"/> -MUCK [2] <u>5</u> <u>5</u>	<input type="checkbox"/> -ARTIFICIAL [0] _____	<input type="checkbox"/> -HARDPAN [0] _____		<input type="checkbox"/> -SILT FREE [1] _____
<input type="checkbox"/> -SILT [2] <u>20</u> <u>20</u>	NOTE: Ignore Sludge Originating From Point Sources	<input type="checkbox"/> -SANDSTONE [0] EMBEDDED		<input checked="" type="checkbox"/> -EXTENSIVE [-2]
-----		<input type="checkbox"/> -RIP/RAP [0] NESS:		<input type="checkbox"/> -MODERATE [-1]
NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> 4 or More [2]		<input type="checkbox"/> -LACUSTRINE [0]		<input type="checkbox"/> -NORMAL [0]
(High Quality Only, Score 5 or >)	<input type="checkbox"/> 3 or Less [0]	<input type="checkbox"/> -SHALE [-1]		<input type="checkbox"/> -NONE [1]
COMMENTS: _____		<input type="checkbox"/> -COAL FINES [-2]		

Substrate
12
 Max 20

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure)	TYPE: Score All That Occur	AMOUNT: (Check ONLY One or check 2 and AVERAGE)
<u>1</u> UNDERCUT BANKS [1]	<u>1</u> POOLS > 70 cm [2]	<input type="checkbox"/> - EXTENSIVE > 75% [11]
<u>2</u> OVERHANGING VEGETATION [1]	<u>0</u> ROOTWADS [1]	<input type="checkbox"/> - MODERATE 25-75% [7]
<u>2</u> SHALLOWS (IN SLOW WATER) [1]	<u>1</u> BOULDERS [1]	<input type="checkbox"/> - SPARSE 5-25% [3]
<u>1</u> ROOTMATS [1]	COMMENTS: _____	<input type="checkbox"/> - NEARLY ABSENT < 5% [1]

Cover
9
 Max 20

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
<input type="checkbox"/> - HIGH [4]	<input type="checkbox"/> - EXCELLENT [7]	<input type="checkbox"/> - NONE [6]	<input type="checkbox"/> - HIGH [3]	<input type="checkbox"/> - SNAGGING <input type="checkbox"/> - IMPOUND.
<input type="checkbox"/> - MODERATE [3]	<input type="checkbox"/> - GOOD [5]	<input type="checkbox"/> - RECOVERED [4]	<input type="checkbox"/> - MODERATE [2]	<input checked="" type="checkbox"/> - RELOCATION <input type="checkbox"/> - ISLANDS
<input type="checkbox"/> - LOW [2]	<input type="checkbox"/> - FAIR [3]	<input checked="" type="checkbox"/> - RECOVERING [3]	<input checked="" type="checkbox"/> - LOW [1]	<input checked="" type="checkbox"/> - CANOPY REMOVAL <input type="checkbox"/> - LEVEED
<input checked="" type="checkbox"/> - NONE [1]	<input checked="" type="checkbox"/> - POOR [1]	<input type="checkbox"/> - RECENT OR NO RECOVERY [1]		<input type="checkbox"/> - DREDGING <input type="checkbox"/> - BANK SHAPING
				<input checked="" type="checkbox"/> - ONE SIDE CHANNEL MODIFICATIONS

Channel
6
 Max 20

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH	FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN)	BANK EROSION
L R (Per Bank)	L R (Most Predominant Per Bank)	L R (Per Bank)
<input type="checkbox"/> - WIDE > 50m [4]	<input type="checkbox"/> - FOREST, SWAMP [3]	<input type="checkbox"/> - NONE/LITTLE [3]
<input type="checkbox"/> - MODERATE 10-50m [3]	<input type="checkbox"/> - SHRUB OR OLD FIELD [2]	<input checked="" type="checkbox"/> - MODERATE [2]
<input type="checkbox"/> - NARROW 5-10 m [2]	<input checked="" type="checkbox"/> - RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> - HEAVY/SEVERE [1]
<input checked="" type="checkbox"/> - VERY NARROW < 5 m [1]	<input type="checkbox"/> - FENCED PASTURE [1]	
<input type="checkbox"/> - NONE [0]		

Riparian
4
 Max 10

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)	MORPHOLOGY (Check 1 or 2 & AVERAGE)	CURRENT VELOCITY (POOLS & RIFFLES!) (Check All That Apply)
<input type="checkbox"/> - >1m [6]	<input checked="" type="checkbox"/> - POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> - EDDIES [1] <input type="checkbox"/> - TORRENTIAL [-1]
<input checked="" type="checkbox"/> - 0.7-1m [4]	<input type="checkbox"/> - POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> - FAST [1] <input type="checkbox"/> - INTERSTITIAL [-1]
<input type="checkbox"/> - 0.4-0.7m [2]	<input type="checkbox"/> - POOL WIDTH < RIFFLE W. [0]	<input type="checkbox"/> - MODERATE [1] <input checked="" type="checkbox"/> - INTERMITTENT [-2]
<input type="checkbox"/> - 0.2- 0.4m [1]		<input checked="" type="checkbox"/> - SLOW [1] <input type="checkbox"/> - VERY FAST [1]
<input type="checkbox"/> - < 0.2m [POOL=0]	COMMENTS: _____	

Pool/Current
5
 Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input type="checkbox"/> - Best Areas >10 cm [2]	<input type="checkbox"/> - MAX > 50 [2]	<input type="checkbox"/> - STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> - NONE [2]
<input type="checkbox"/> - Best Areas 5-10 cm [1]	<input checked="" type="checkbox"/> - MAX < 50 [1]	<input type="checkbox"/> - MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> - LOW [1]
<input checked="" type="checkbox"/> - Best Areas < 5 cm [RIFFLE=0]		<input checked="" type="checkbox"/> - UNSTABLE (Fine Gravel, Sand) [0]	<input type="checkbox"/> - MODERATE [0]
COMMENTS: <u>FEW RIFFLES, SHALLOW</u>		<input type="checkbox"/> - NO RIFFLE [Metric=0]	<input checked="" type="checkbox"/> - EXTENSIVE [-1]

Riffle/Run
0
 Max 8

Gradient
6
 Max 10

6) GRADIENT (ft/mi): 5.8 DRAINAGE AREA (sq.mi.): 75.1

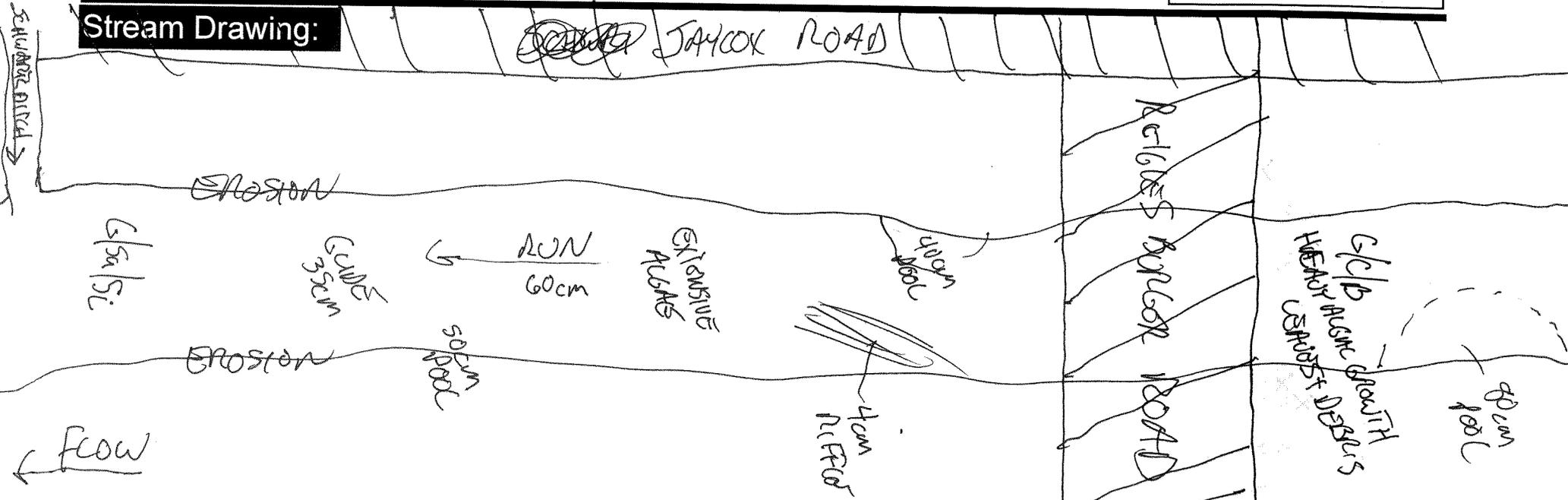
% POOL: 20	% GLIDE: 50
% RIFFLE: 10	% RUN: 20

Is Sampling Reach Representative of the Stream (Y/N) ___ If Not, Explain:

- Major Suspected Sources of Impacts (Check All That Apply):
- None
 - Industrial
 - WWTP
 - Ag
 - Livestock
 - Silviculture
 - Construction
 - Urban Runoff
 - CSOs
 - Suburban Impacts
 - Mining
 - Channelization
 - Riparian Removal
 - Landfills
 - Natural
 - Dams
 - Other Flow Alteration
 - Other: _____

	Gear: _____	Distance: _____	Water Clarity: _____	Water Stage: _____	Canopy -% Open _____			
<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div> Subjective Rating (1-10)	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div> Aesthetic Rating (1-10)	First Sampling Pass _____						
Stream Measurements:								
Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Mean Depth	W/D Ratio	Bankfull Max Depth	Floodprone Area Width	Entrench. Ratio

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

- Yes/No
- Is Stream Ephemeral (no pools, totally dry or only damp spots)?
 - Is there water upstream? How Far: _____
 - Is There Water Close Downstream? How Far: _____
 - Is Dry Channel Mostly Natural?

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 10.4
Stream Segment Location: At Mills Road
QHEI Score: 27

FIELD NOTES: 11 SEP 2002

This portion of French Creek is located upstream (south) of Mills Road, as it flows through Murial Village, a condominium complex. The creek has been severely altered in this area. The 25' wide, 0-30 cm. deep channel is the result of reshaping. The substrate is dominated by sand, silt and gravel. There is no buffer on either side (mowed lawn to condos). Geese, ducks, and minnows were noted in the pools. There is great restoration potential in this area.

PHOTOS:



1) French Creek 10.4 – Facing upstream from Mills Road



2) French Creek 10.4 – Facing downstream toward bridge



3) French Creek 10.4 – Facing upstream from end of sample



Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **27**

River Code: RM: 10.4 Stream: FRENCH CREEK
Date: 9/11/02 Location: AT MILLS ROAD
Scorer's Full Name: JAY MILLER Affiliation: USACE - BUFFALO

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Estimate % present)

TYPE		POOL RIFFLE		POOL RIFFLE		SUBSTRATE ORIGIN		SUBSTRATE QUALITY	
<input type="checkbox"/> BLDR /SLBS [10]	___	<input type="checkbox"/> GRAVEL [7]	<u>20</u>	<u>20</u>	Check ONE (OR 2 & AVERAGE)		Check ONE (OR 2 & AVERAGE)		
<input type="checkbox"/> BOULDER [9]	___	<input checked="" type="checkbox"/> SAND [6]	<u>40</u>	<u>40</u>	<input type="checkbox"/> LIMESTONE [1]	SILT:	<input checked="" type="checkbox"/> SILT HEAVY [-2]	Substrate	
<input type="checkbox"/> COBBLE [8]	___	<input type="checkbox"/> BEDROCK [5]	___	___	<input type="checkbox"/> TILLS [1]		<input type="checkbox"/> SILT MODERATE [-1]	4 Max 20	
<input type="checkbox"/> HARDPAN [4]	___	<input type="checkbox"/> DETRITUS [3]	___	___	<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> SILT NORMAL [0]		
<input type="checkbox"/> MUCK [2]	___	<input type="checkbox"/> ARTIFICIAL [0]	___	___	<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> SILT FREE [1]		
<input checked="" type="checkbox"/> SILT [2]	<u>40</u>	NOTE: Ignore Sludge Originating From Point Sources		<input type="checkbox"/> SANDSTONE [0]	EMBEDDED	<input checked="" type="checkbox"/> EXTENSIVE [-2]			
				<input type="checkbox"/> RIP/RAP [0]	NESS:	<input type="checkbox"/> MODERATE [-1]			
				<input checked="" type="checkbox"/> LACUSTRINE [0]		<input type="checkbox"/> NORMAL [0]			
				<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]			
				<input type="checkbox"/> COAL FINES [-2]					

NUMBER OF SUBSTRATE TYPES: 4 or More [2] 3 or Less [0]

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure)		TYPE: Score All That Occur		AMOUNT: (Check ONLY One or check 2 and AVERAGE)		Cover	
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70 cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE > 75% [11]	2 Max 20			
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]				
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	<input type="checkbox"/> SPARSE 5-25% [3]				
<input type="checkbox"/> ROOTMATS [1]	COMMENTS:		<input type="checkbox"/> NEARLY ABSENT < 5% [1]				

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	Channel
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	<input type="checkbox"/> SNAGGING	4 Max 20
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]	<input checked="" type="checkbox"/> RELOCATION	
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input checked="" type="checkbox"/> LOW [1]	<input checked="" type="checkbox"/> CANOPY REMOVAL	
<input checked="" type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input checked="" type="checkbox"/> RECENT OR NO RECOVERY [1]		<input type="checkbox"/> DREDGING	
				<input type="checkbox"/> BANK SHAPING	
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH		FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN)		BANK EROSION		Riparian
L R (Per Bank)	L R (Most Predominant Per Bank)	L R	L R (Per Bank)	3 Max 10		
<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/> NONE/LITTLE [3]			
<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input checked="" type="checkbox"/> MODERATE [2]			
<input type="checkbox"/> NARROW 5-10 m [2]	<input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/> HEAVY/SEVERE [1]			
<input type="checkbox"/> VERY NARROW < 5 m [1]	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/> MINING/CONSTRUCTION [0]				
<input checked="" type="checkbox"/> NONE [0]						

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)	MORPHOLOGY (Check 1 or 2 & AVERAGE)	CURRENT VELOCITY (POOLS & RIFFLES!) (Check All That Apply)	Pool/Current
<input type="checkbox"/> >1m [6]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> EDDIES [1]	4 Max 12
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> FAST [1]	
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE W. [0]	<input type="checkbox"/> MODERATE [1]	
<input checked="" type="checkbox"/> 0.2-0.4m [1]		<input checked="" type="checkbox"/> SLOW [1]	
<input type="checkbox"/> < 0.2m [POOL=0]	COMMENTS:	<input type="checkbox"/> TORRENTIAL [-1]	
		<input type="checkbox"/> INTERSTITIAL [-1]	
		<input type="checkbox"/> INTERMITTENT [-2]	
		<input type="checkbox"/> VERY FAST [1]	

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS	Riffle/Run
<input type="checkbox"/> Best Areas >10 cm [2]	<input type="checkbox"/> MAX > 50 [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]	0 Max 8
<input type="checkbox"/> Best Areas 5-10 cm [1]	<input checked="" type="checkbox"/> MAX < 50 [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]	
<input checked="" type="checkbox"/> Best Areas < 5 cm [RIFFLE=0]		<input checked="" type="checkbox"/> UNSTABLE (Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]	Gradient
COMMENTS:		<input type="checkbox"/> NO RIFFLE [Metric=0]	<input checked="" type="checkbox"/> EXTENSIVE [-1]	10 Max 10

6) GRADIENT (ft/mi): 7.6 DRAINAGE AREA (sq.mi.): 15.8
% POOL: 30 % GLIDE: 60
% RIFFLE: 10 % RUN: -

***U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
FRENCH CREEK WATERSHED SURVEY***

FIELD NOTES AND PHOTOS

Stream Name and River Mile: French Creek 10.7
Stream Segment Location: At Chesterfield Avenue
QHEI Score: 40

FIELD NOTES: 11 SEP 2002

This portion of French Creek is located south (upstream) of Chesterfield Ave. The 15-18' wide, 0-25 cm. deep channel has 3-6' banks and a substrate of gravel, sand, and silt. Minnows and algae were noted. The section is a straight, incised channel between residential developments with a retention wall on the east bank. The 5' wide, vegetated buffer is dominated by red raspberry, boxelder, perennial ryegrass, thistle and Canada goldenrod.

PHOTOS:



1) French Creek 10.7 – Facing south (upstream)



2) French Creek 10.7 - Facing downstream



Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **40**

River Code: RM: 10.7 Stream: FRENCH CREEK
Date: 9/11/02 Location: AT CHESTERFIELD AVENUE
Scorers Full Name: JAY MILLOR Affiliation: USACE - BUFFALO

1) SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present)
TYPE POOL RIFFLE POOL RIFFLE SUBSTRATE ORIGIN SUBSTRATE QUALITY
 -BLDR /SLBS[10] -GRAVEL [7] 50 50 Check ONE (OR 2 & AVERAGE)
 -BOULDER [9] -SAND [6] 30 30 -LIMESTONE [1] SILT:
 -COBBLE [8] -BEDROCK[5] -TILLS [1] -SILT MODERATE [-1]
 -HARDPAN [4] -DETRITUS[3] -WETLANDS[0] -SILT NORMAL [0]
 -MUCK [2] -ARTIFICIAL[0] -HARDPAN [0] -SILT FREE [1]
 -SILT [2] 20 20 NOTE: Ignore Sludge Originating From Point Sources -SANDSTONE [0] EMBEDDED -EXTENSIVE [-2]
 -RIP/RAP [0] NESS: -MODERATE [-1]
 -LACUSTRINE [0] -NORMAL [0]
 -SHALE [-1] -NONE [1]
 -COAL FINES [-2]
NUMBER OF SUBSTRATE TYPES: 4 or More [2] 3 or Less [0]
COMMENTS:

Substrate
11
Max 20

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions) AMOUNT: (Check ONLY One or check 2 and AVERAGE)
(Structure) TYPE: Score All That Occur
0 UNDERCUT BANKS [1] 0 POOLS > 70 cm [2] 0 OXBOWS, BACKWATERS [1] - EXTENSIVE > 75% [11]
1 OVERHANGING VEGETATION [1] 0 ROOTWADS [1] 0 AQUATIC MACROPHYTES [1] - MODERATE 25-75% [7]
2 SHALLOWS (IN SLOW WATER) [1] 0 BOULDERS [1] 0 LOGS OR WOODY DEBRIS [1] - SPARSE 5-25% [3]
1 ROOTMATS [1] COMMENTS: - NEARLY ABSENT < 5%[1]
Cover

Cover
4
Max 20

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OTHER
 - HIGH [4] - EXCELLENT [7] - NONE [6] - HIGH [3] - SNAGGING - IMPOUND.
 - MODERATE [3] - GOOD [5] - RECOVERED [4] - MODERATE [2] - RELOCATION - ISLANDS
 - LOW [2] - FAIR [3] - RECOVERING [3] - LOW [1] - CANOPY REMOVAL - LEVEED
 - NONE [1] - POOR [1] - RECENT OR NO RECOVERY [1] - DREDGING - BANK SHAPING
 - ONE SIDE CHANNEL MODIFICATIONS
Channel

Channel
5
Max 20

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream
RIPARIAN WIDTH FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) BANK EROSION
L R (Per Bank) L R (Most Predominant Per Bank) L R L R (Per Bank)
 - WIDE > 50m [4] - FOREST, SWAMP [3] - CONSERVATION TILLAGE [1] - NONE/LITTLE [3]
 - MODERATE 10-50m [3] - SHRUB OR OLD FIELD [2] - URBAN OR INDUSTRIAL [0] - MODERATE [2]
 - NARROW 5-10 m [2] - RESIDENTIAL, PARK, NEW FIELD [1] - OPEN PASTURE, ROWCROP [0] - HEAVY/SEVERE [1]
 - VERY NARROW <5 m[1] - FENCED PASTURE [1] - MINING/CONSTRUCTION [0]
 - NONE [0]
COMMENTS: Riparian

Riparian
5
Max 10

5) POOL/GLIDE AND RIFFLE/RUN QUALITY
MAX. DEPTH MORPHOLOGY CURRENT VELOCITY (POOLS & RIFFLES!)
(Check 1 ONLY!) (Check 1 or 2 & AVERAGE) (Check All That Apply)
 - >1m [6] - POOL WIDTH > RIFFLE WIDTH [2] - EDDIES[1] - TORRENTIAL[-1]
 - 0.7-1m [4] - POOL WIDTH = RIFFLE WIDTH [1] - FAST[1] - INTERSTITIAL[-1]
 - 0.4-0.7m [2] - POOL WIDTH < RIFFLE W. [0] - MODERATE [1] - INTERMITTENT[-2]
 - 0.2- 0.4m [1] - < 0.2m [POOL=0] COMMENTS: - SLOW [1] - VERY FAST[1]
Pool/
Current

Pool/
Current
4
Max 12

CHECK ONE OR CHECK 2 AND AVERAGE
RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS
 - Best Areas >10 cm [2] - MAX > 50 [2] - STABLE (e.g., Cobble, Boulder) [2] - NONE [2]
 - Best Areas 5-10 cm[1] - MAX < 50[1] - MOD. STABLE (e.g., Large Gravel) [1] - LOW [1]
 - Best Areas < 5 cm [RIFFLE=0] - UNSTABLE (Fine Gravel, Sand) [0] - MODERATE [0] - EXTENSIVE [-1]
COMMENTS: - NO RIFFLE [Metric=0]

Riffle/Run
1
Max 8
Gradient
10
Max 10

6) GRADIENT (ft/mi): 8.5 DRAINAGE AREA (sq.mi.): 11.1
% POOL: 30 % GLIDE: 35
% RIFFLE: 15 % RUN: 20

Is Sampling Reach Representative of the Stream (Y/N) ___ If Not, Explain:

- Major Suspected Sources of Impacts (Check All That Apply):
- None
 - Industrial
 - WWTP
 - Ag
 - Livestock
 - Silviculture
 - Construction
 - Urban Runoff
 - CSOs
 - Suburban Impacts
 - Mining
 - Channelization
 - Riparian Removal
 - Landfills
 - Natural
 - Dams
 - Other Flow Alteration
 - Other: _____

Subjective Rating (1-10)

Aesthetic Rating (1-10)

Gradient:

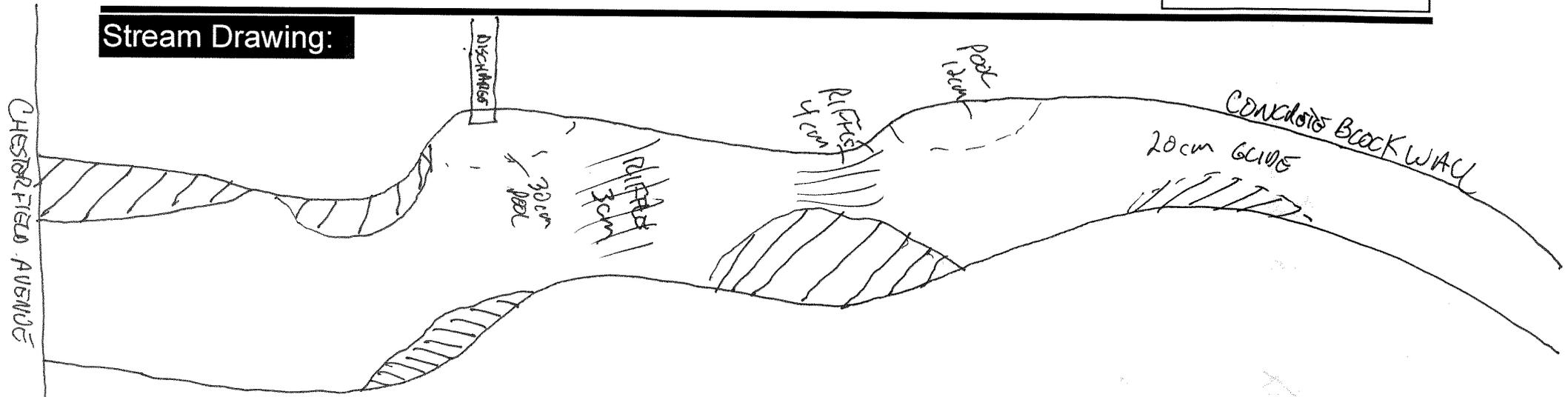
- Low, - Moderate, - High

Gear: _____ Distance: _____ Water Clarity: _____ Water Stage: _____ Canopy -% Open: _____

First Sampling Pass _____

Stream Measurements:									
Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Depth	Mean W/D Ratio	Bankfull Max Depth	Floodprone Area	Entrench. Width	Entrench. Ratio

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

- Yes/No
- Is Stream Ephemeral (no pools, totally dry or only damp spots)?
 - Is there water upstream? How Far: _____
 - Is There Water Close Downstream? How Far: _____
 - Is Dry Channel Mostly Natural?