APPENDIX B:

FIELD NOTES, PHOTOGRAPHS AND DATA SHEETS

FRENCH CREEK NOTES

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

FIELD NOTES AND PHOTOS

Stream Name and River Mile:	French Creek 0.1
Stream Segment Location:	Near mouth of creek (at Black River)
QHEI Score:	49.25

FIELD NOTES: 19 AUG 2002

Creek is generally low gradient in wide portion near outlet to Black River. Stretch between bridge and wide portion is slow moving. However, deep pools (chest deep) occur. Portion near mouth is fairly uniform (80' wide) and chest to waist deep. Commercial and residential property is within 100 m. of channel on north side, although a 200 +' forested buffer is adjacent. There is a steep 50+/- ' embankment on north side. There is a wider buffer of riparian forest on south side. Dominant species are black walnut, green ash, boxelder and some black willow, cottonwood, and other species, including sycamore. Sources of contaminants are fairly minor, but a tile pipe was noted discharging on the south side of creek; two ditches discharge from the north; several cars and car parts are within and adjacent to the north side of the creek, apparently thrown over the embankment to the north. Also, there may be backflow from the Black River. An intermittent tributary enters the creek from the south.

PHOTOS:

1) French Creek 0.1- facing SW (downstream) towards Black River

Ohio EPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 49.25

River Code: _____ **RM:** 0.1 **Stream:** FRENCH CREEK
Date: 08-19-02 **Location:** NEAR BLACK RIVER CONFLUENCE
Scorers Full Name: JAY MILLER **Affiliation:** U.S. ARMY CORPS OF ENGINEERS - BUFFALO DISTRICT

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	____	____
☐☐-BOULDER [9]	____	____
☐☐-COBBLE [8]	____	____
☐☐-HARDPAN [4]	____	____
☐☐-MUCK [2]	____	____
☐☒-SILT [2]	30	____
☒☐-GRAVEL [7]	60	____
☐☐-SAND [6]	10	____
☐☐-BEDROCK[5]	____	____
☐☐-DETRITUS[3]	____	____
☐☐-ARTIFICIAL[0]	____	____

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐-4 or More [2]
☒-3 or Less [0]

SUBSTRATE ORIGIN — Check ONE (OR 2 & AVERAGE)
☐ -LIMESTONE [1] SILT:
☒-TILLS [1]
☐ -WETLANDS[0]
☐ -HARDPAN [0]
☐ -SANDSTONE [0] EMBEDDEDNESS:
☐ -RIP/RAP [0]
☐ -LACUSTRINE [0]
☐ -SHALE [-1]
☐ -COAL FINES [-2]

SUBSTRATE QUALITY — Check ONE (OR 2 & AVERAGE)
☒- SILT HEAVY [-2]
☐ -SILT MODERATE [-1]
☐ -SILT NORMAL [0]
☐ -SILT FREE [1]
☒-EXTENSIVE [-2]
☐ -MODERATE [-1]
☐ -NORMAL [0]
☐ -NONE [1]

Substrate: 6 Max 20

COMMENTS: NO RIFFLE SOIL MAP SOURCE IS ALLUVIUM

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

(Structure)
1 UNDERCUT BANKS [1]
2 OVERHANGING VEGETATION [1]
0 SHALLOWS (IN SLOW WATER) [1]
0 ROOTMATS [1]

TYPE: Score All That Occur
2 POOLS> 70 cm [2]
0 ROOTWADS [1]
0 BOULDERS [1]
0 OXBOWS, BACKWATERS [1]
0 AQUATIC MACROPHYTES [1]
2 LOGS OR WOODY DEBRIS [1]

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ - EXTENSIVE > 75% [11]
☐ - MODERATE 25-75% [7]
☐ - SPARSE 5-25% [3]
☐ - NEARLY ABSENT < 5%[1]

Cover: 7 Max 20

COMMENTS:

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: 9 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 L R (Per Bank)	FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) L R (Most Predominant Per Bank)		BANK EROSION 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: 8.25 Max 10

COMMENTS:

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)	
☒ - >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]			

Pool/Current: 9 Max 12

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 [RIFFLE=0]		☐ UNSTABLE (Fine Gravel,Sand) [0]	☐ - MODERATE [0]
			☐ - EXTENSIVE [-1]

Riffle/Run: 0 Max 8

COMMENTS: NO DEFINED RIFFLE AREAS ☒ - NO RIFFLE [Metric=0]

Gradient: 10 Max 10

6] GRADIENT (ft/mi): 7.9 DRAINAGE AREA (sq.mi.) : 42.4

%POOL: — %GLIDE: 100
%RIFFLE: — %RUN: —

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

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					

Subjective Rating (1-10) ☐

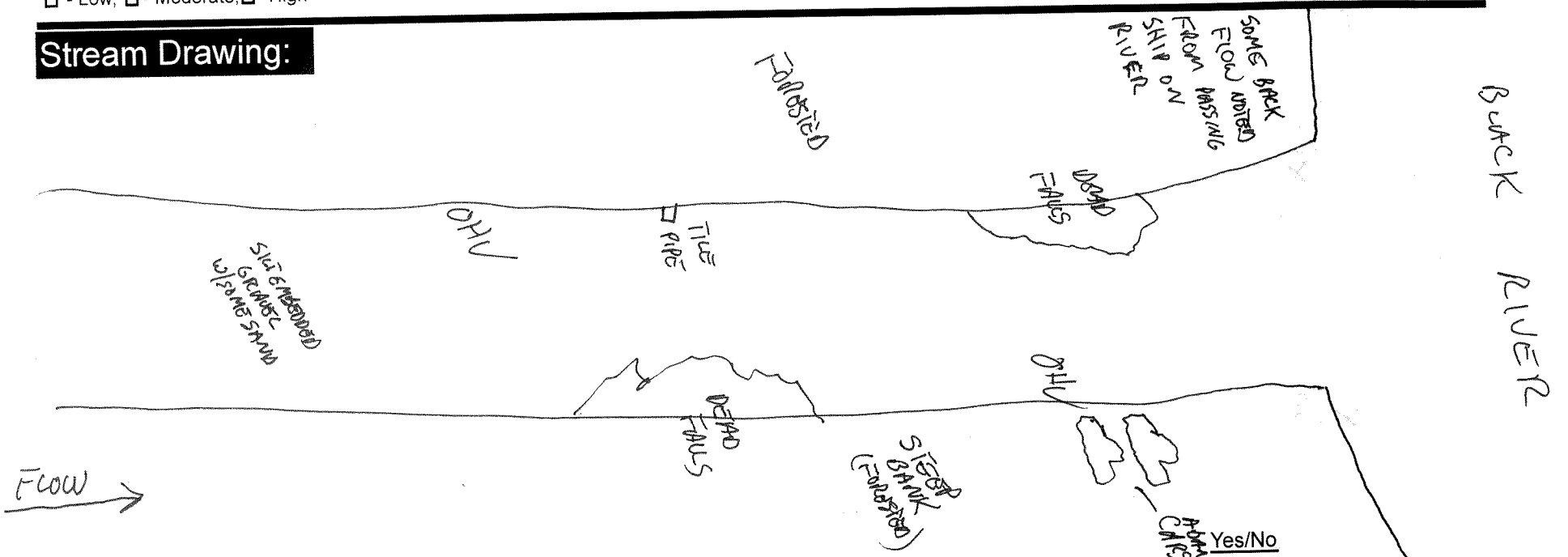
Aesthetic Rating (1-10) ☐

Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

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:



	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?

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.

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

FIELD NOTES AND PHOTOS

Stream Name and River Mile:	French Creek 0.38
Stream Segment Location:	At mouth of "Quarry" Ditch
QHEI Score:	70

FIELD NOTES: 20 AUG 2002

This site is located downstream (west) of the East River Road bridge near the mouth of "Quarry" Ditch. The south bank has a narrow (50') forested buffer with an old field beyond. The north bank has a wide (>100') buffer dominated by upland forest and a riparian wetland later described as Wetland 2. Deep pools (up to 125 cm.) were noted. There is a shale bedrock cut (40' high) which forms the south bank. Moderate erosion is occurring along this stretch of French Creek. The trees in the riparian area are dominated by green ash, eastern cottonwood and boxelder.

PHOTOS:

2) French Creek 0.38 - Facing NE upstream from downstream end of sampling area point.

Ohio EPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 70

River Code: _____ **RM:** 0.38 **Stream:** FRENCH CREEK

Date: 08-20-02 **Location:** NEAR MOUTH OF "QUARRY DITCH"

Scorers Full Name: JAY MILLER **Affiliation:** USACE - BUFFALO

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	____	____
☐☐-BOULDER [9]	____	____
☐☐-COBBLE [8]	5	5
☐☐-HARDPAN [4]	____	____
☐☐-MUCK [2]	____	____
☐☐-SILT [2]	15	10
☒☐-GRAVEL [7]	60	70
☐☒-SAND [6]	20	15
☐☐-BEDROCK[5]	____	____
☐☐-DETRITUS[3]	____	____
☐☐-ARTIFICIAL[0]	____	____

NOTE: Ignore Sludge Originating From Point Sources

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐-LIMESTONE [1] ☒-TILLS [1] ☐-WETLANDS[0] ☐-HARDPAN [0] ☐-SANDSTONE [0] ☐-RIP/RAP [0] ☐-LACUSTRINE [0] ☒-SHALE [-1] ☐-COAL FINES [-2]

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)): SILT: ☐-SILT HEAVY [-2] ☒-SILT MODERATE [-1] ☐-SILT NORMAL [0] ☐-SILT FREE [1]; EMBEDDEDNESS: ☐-EXTENSIVE [-2] ☒-MODERATE [-1] ☐-NORMAL [0] ☐-NONE [1]

Substrate: 13 Max 20

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☒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): 1 UNDERCUT BANKS [1]; 2 OVERHANGING VEGETATION [1]; 0 SHALLOWS (IN SLOW WATER) [1]; 0 ROOTMATS [1]

TYPE: Score All That Occur: 2 POOLS> 70 cm [2]; 1 ROOTWADS [1]; 1 BOULDERS [1]; 1 OXBOWS, BACKWATERS [1]; 0 AQUATIC MACROPHYTES [1]; 2 LOGS OR WOODY DEBRIS [1]

COMMENTS: _____

AMOUNT: (Check ONLY One or check 2 and AVERAGE): ☐ - EXTENSIVE > 75% [11] ☐ - MODERATE 25-75% [7] ☐ - SPARSE 5-25% [3] ☐ - NEARLY ABSENT < 5%[1]

Cover: 10 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

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 (L R (Per Bank))	FLOOD PLAIN QUALITY (*PAST 100 Meter RIPARIAN*) (L R (Most Predominant Per Bank))		BANK EROSION (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: 8 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!): ☒ - >1m [6] ☐ - 0.7-1m [4] ☐ - 0.4-0.7m [2] ☐ - 0.2- 0.4m [1] ☐ - < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE): ☒-POOL WIDTH > RIFFLE WIDTH [2] ☐-POOL WIDTH = RIFFLE WIDTH [1] ☐-POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply): ☐-EDDIES[1] ☐-FAST[1] ☒-MODERATE [1] ☒-SLOW [1] ☐-TORRENTIAL[-1] ☐-INTERSTITIAL[-1] ☐-INTERMITTENT[-2] ☐-VERY FAST[1]

Pool/ Current: 10 Max 12

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 [RIFFLE=0]		☐-UNSTABLE (Fine Gravel,Sand) [0]	☒ - MODERATE [0]
			☐ - EXTENSIVE [-1]

☐ - NO RIFFLE [Metric=0]

Riffle/Run: 5 Max 8

Gradient: 10 Max 10

COMMENTS: _____

6] GRADIENT (ft/mi): 7.9 DRAINAGE AREA (sq.mi.) : 42.3

%POOL: 20 %GLIDE: 40 %RIFFLE: 10 %RUN: 30

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

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					

Subjective Rating (1-10) ☐

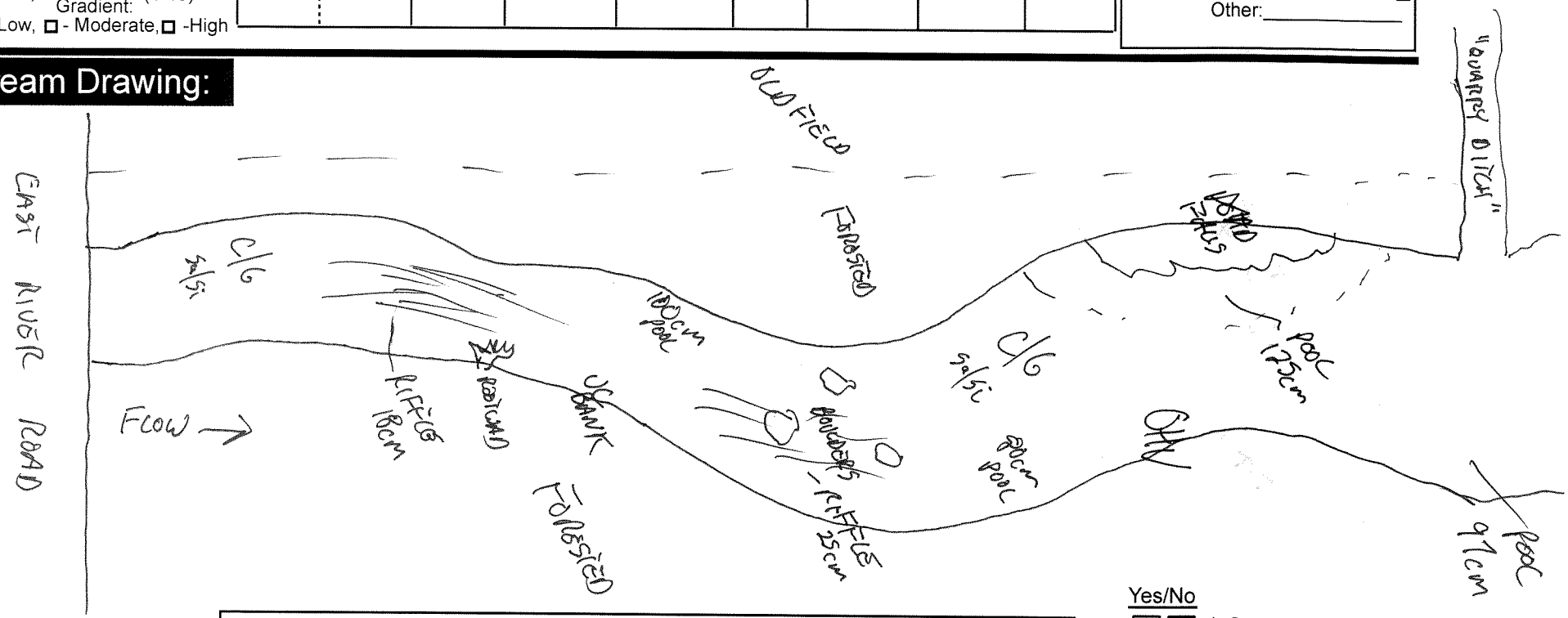
Aesthetic Rating (1-10) ☐

Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

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 0.54
Stream Segment Location:	At East River Road (mouth of Jungbluth Ditch)
QHEI Score:	69.5

FIELD NOTES: 20 AUG 2002

This stretch of French Creek is located immediately upstream (east) of the East River Road bridge. Red Cardinal flower (protected) was noted in three locations along this stretch of creek, including in an overflow channel located along the south side of the creek. The wide forested buffer zone is dominated by green ash, eastern cottonwood, boxelder, sycamore, and sugar maple. Some emergent vegetation is located on the fringes of the creek channel and gravel bars within. (rice cutgrass, jewel weed and reed canary grass).

PHOTOS:

No photo's available.

OhioEPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 69.5

River Code: _____ **RM:** 0.54 **Stream:** FRENCH CREEK
Date: 08-19-02 **Location:** AT EAST RIVER ROAD
Scorers Full Name: JAY MILLER **Affiliation:** USACE - BUFFALO

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	___	___
☐☐-BOULDER [9]	___	10
☐☒-COBBLE [8]	30	30
☐☐-HARDPAN [4]	___	___
☐☐-MUCK [2]	___	___
☐☐-SILT [2]	20	10

	POOL	RIFFLE
☒☐-GRAVEL [7]	40	40
☐☐-SAND [6]	10	10
☐☐-BEDROCK[5]	___	___
☐☐-DETRITUS[3]	___	___
☐☐-ARTIFICIAL[0]	___	___

NOTE: Ignore Sludge Originating From Point Sources

SUBSTRATE ORIGIN Check ONE (OR 2 & AVERAGE)
☐ -LIMESTONE [1]
☒ -TILLS [1]
☐ -WETLANDS[0]
☐ -HARDPAN [0]
☐ -SANDSTONE [0]
☐ -RIP/RAP [0]
☐ -LACUSTRINE [0]
☒ -SHALE [-1]
☐ -COAL FINES [-2]

SILT: EMBEDDEDNESS:
SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE)
☐ - SILT HEAVY [-2]
☐ -SILT MODERATE [-1]
☒ -SILT NORMAL [0]
☐ -SILT FREE [1]
☐ -EXTENSIVE [-2]
☐ -MODERATE [-1]
☒ -NORMAL [0]
☐ -NONE [1]

Substrate: 17 Max 20

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☒ 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)
1 UNDERCUT BANKS [1]
2 OVERHANGING VEGETATION [1]
1 SHALLOWS (IN SLOW WATER) [1]
0 ROOTMATS [1]

TYPE: Score All That Occur
1 POOLS> 70 cm [2]
0 ROOTWADS [1]
2 BOULDERS [1]
1 OXBOWS, BACKWATERS [1]
0 AQUATIC MACROPHYTES [1]
1 LOGS OR WOODY DEBRIS [1]

COMMENTS: _____

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ - EXTENSIVE > 75% [11]
☐ - MODERATE 25-75% [7]
☐ - SPARSE 5-25% [3]
☐ - NEARLY ABSENT < 5%[1]

Cover: 9 Max 20

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

SINUOSITY
☐ - HIGH [4]
☒ - MODERATE [3]
☐ - LOW [2]
☐ - NONE [1]

DEVELOPMENT
☐ - EXCELLENT [7]
☒ - GOOD [5]
☐ - FAIR [3]
☐ - POOR [1]

CHANNELIZATION
☐ - NONE [6]
☒ - RECOVERED [4]
☐ - RECOVERING [3]
☐ - RECENT OR NO RECOVERY [1]

STABILITY
☐ - HIGH [3]
☒ - MODERATE [2]
☐ - LOW [1]

MODIFICATIONS/OTHER
☐ - SNAGGING
☐ - RELOCATION
☐ - CANOPY REMOVAL
☐ - DREDGING
☐ - IMPOUND.
☐ - ISLANDS
☐ - LEVEED
☒ - BANK SHAPING
☒ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 14 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 (L R Per Bank)
☒ ☐ - WIDE > 50m [4]
☐ ☐ - MODERATE 10-50m [3]
☐ ☐ - NARROW 5-10 m [2]
☐ ☐ - VERY NARROW <5 m[1]
☐ ☐ - NONE [0]

FLOOD PLAIN QUALITY (*PAST 100 Meter RIPARIAN*) (L R Most Predominant Per Bank)
☒ ☒ FOREST, SWAMP [3]
☐ ☐ -SHRUB OR OLD FIELD [2]
☒ ☐ -RESIDENTIAL,PARK,NEW FIELD [1]
☐ ☐ -FENCED PASTURE [1]
☐ ☐ -CONSERVATION TILLAGE [1]
☐ ☐ -URBAN OR INDUSTRIAL [0]
☐ ☐ -OPEN PASTURE,ROWCROP [0]
☐ ☐ -MINING/CONSTRUCTION [0]

BANK EROSION (L R Per Bank)
☐ ☐ -NONE/LITTLE [3]
☒ ☐ -MODERATE [2]
☐ ☒ -HEAVY/SEVERE[1]

Riparian: 7.5 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ - >1m [6]
☒ - 0.7-1m [4]
☐ - 0.4-0.7m [2]
☐ - 0.2- 0.4m [1]
☐ - < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ -POOL WIDTH > RIFFLE WIDTH [2]
☐ -POOL WIDTH = RIFFLE WIDTH [1]
☒ -POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☒ -EDDIES[1]
☐ -FAST[1]
☒ -MODERATE [1]
☒ -SLOW [1]
☐ -TORRENTIAL[-1]
☐ -INTERSTITIAL[-1]
☐ -INTERMITTENT[-2]
☐ -VERY FAST[1]

Pool/ Current: 7 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☒ - Best Areas >10 cm [2]
☐ - Best Areas 5-10 cm[1]
☐ - Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☐ - MAX > 50 [2]
☒ - MAX < 50[1]

RIFFLE/RUN SUBSTRATE
☐ -STABLE (e.g.,Cobble, Boulder) [2]
☒ -MOD. STABLE (e.g.,Large Gravel) [1]
☐ -UNSTABLE (Fine Gravel,Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ - NONE [2]
☒ - LOW [1]
☐ - MODERATE [0]
☐ - EXTENSIVE [-1]

☐ - NO RIFFLE [Metric=0]

Riffle/Run: 5 Max 8

Gradient: 10 Max 10

COMMENTS: _____

6] GRADIENT (ft/mi): 10.8 DRAINAGE AREA (sq.mi.) : 42

%POOL: 20 %GLIDE: 10
%RIFFLE: 40 %RUN: 30

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

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					

Subjective Rating (1-10) ☐

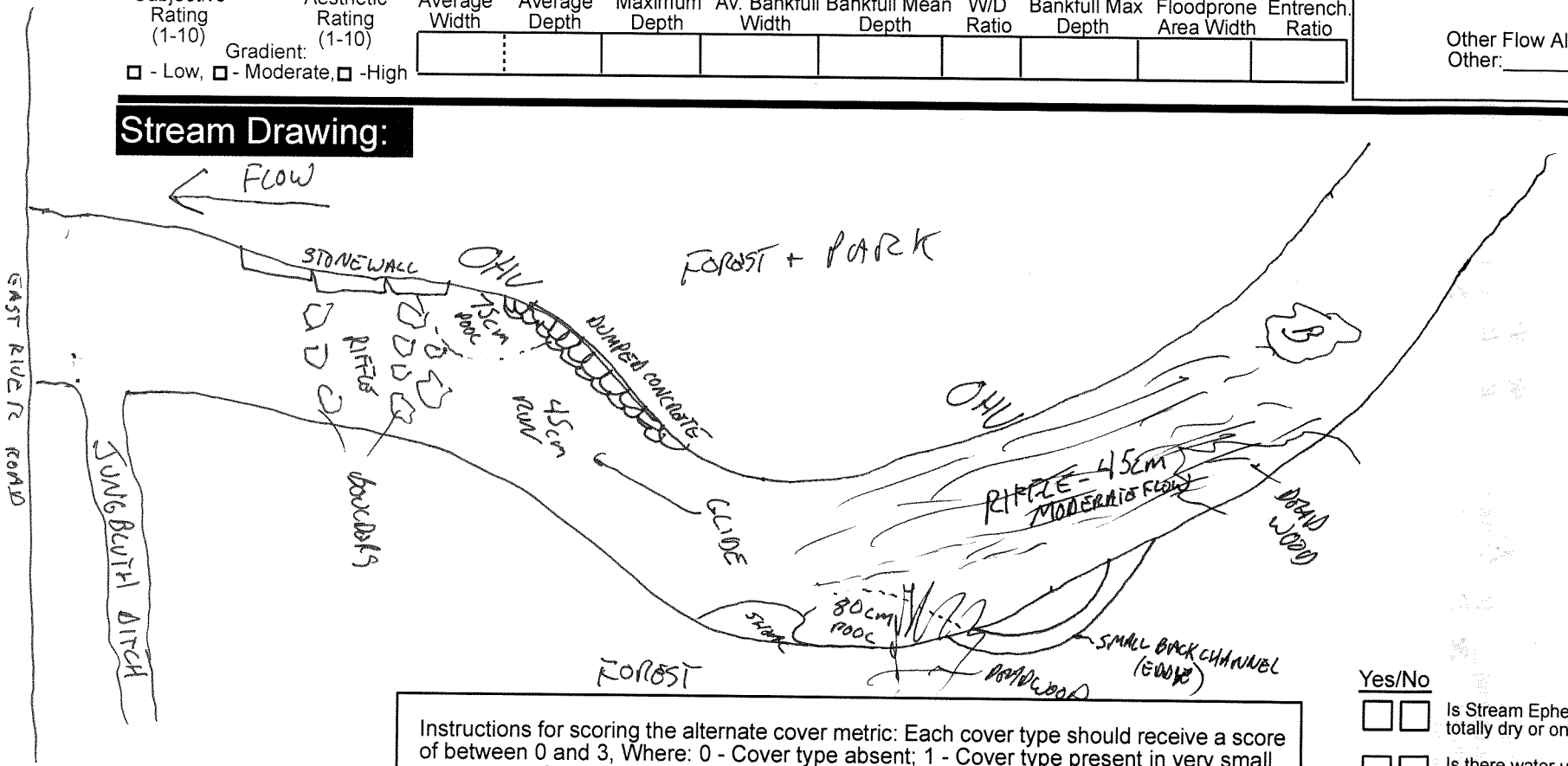
Aesthetic Rating (1-10) ☐

Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

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:



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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 1.4
Stream Segment Location:	At French Creek Reservation Bridge
QHEI Score:	74

FIELD NOTES: 20 AUG 2002

This stretch of French Creek is located upstream of the footbridge for the hiking trail in the French Creek Reservation Park. Invertebrates and crayfish were noted. The substrate is dominated by bedrock, with 10% boulders and cobbles, 5% silt and sand, respectively. The generally wide riparian area is dominated by upland forested species including sugar maple, American basswood, eastern cottonwood, sycamore, black cherry, red oak and American beech. Reed canary grass was noted intermittently along the channel fringe. The channel is sinuous and is a good mix of pool/riffle/glide, ranging in width from 35' to 90'.

PHOTOS:

1) French Creek 1.4 – Facing upstream from the park footbridge

2) French Creek 1.4 – Facing downstream from the park footbridge

Ohio EPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 74

River Code: _____ **RM:** 1.4 **Stream:** FRENCH CREEK
Date: 08-20-02 **Location:** NEAR FOOTBRIDGE IN FRENCH CREEK RESTORATION
Scorers Full Name: JAY MILLER **Affiliation:** USACE-BUFFALO

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	___	___
☐☐-BOULDER [9]	●	10
☐☐-COBBLE [8]	5	15
☐☐-HARDPAN [4]	___	___
☐☐-MUCK [2]	___	___
☐☐-SILT [2]	5	5
☐☒-GRAVEL [7]	20	25
☐☐-SAND [6]	5	5
☒☐-BEDROCK[5]	65	40
☐☐-DETRITUS[3]	___	___
☐☐-ARTIFICIAL[0]	___	___

NOTE: Ignore Sludge Originating From Point Sources

SUBSTRATE ORIGIN Check ONE (OR 2 & AVERAGE)
☐-LIMESTONE [1] ☐-TILLS [1] ☐-WETLANDS[0] ☐-HARDPAN [0] ☐-SANDSTONE [0] ☐-RIP/RAP [0] ☐-LACUSTRINE [0] ☒-SHALE [-1] ☐-COAL FINES [-2]

SILT: ☐- SILT HEAVY [-2] ☐-SILT MODERATE [-1] ☒-SILT NORMAL [0] ☐-SILT FREE [1]

EMBEDDEDNESS: ☐-EXTENSIVE [-2] ☐-MODERATE [-1] ☒-NORMAL [0] ☐-NONE [1]

SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE)

Substrate: 13 Max 20

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☒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)
1 UNDERCUT BANKS [1]
2 OVERHANGING VEGETATION [1]
2 SHALLOWS (IN SLOW WATER) [1]
0 ROOTMATS [1]

TYPE: Score All That Occur
1 POOLS> 70 cm [2]
0 ROOTWADS [1]
1 BOULDERS [1]

1 OXBOWS, BACKWATERS [1]
0 AQUATIC MACROPHYTES [1]
1 LOGS OR WOODY DEBRIS [1]

COMMENTS: _____

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐- EXTENSIVE > 75% [11]
☐- MODERATE 25-75% [7]
☐- SPARSE 5-25% [3]
☐- NEARLY ABSENT < 5%[1]

Cover: 9 Max 20

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

SINUOSITY
☐- HIGH [4]
☒- MODERATE [3]
☐- LOW [2]
☐- NONE [1]

DEVELOPMENT
☐- EXCELLENT [7]
☒- GOOD [5]
☐- FAIR [3]
☐- POOR [1]

CHANNELIZATION
☒- NONE [6]
☐- RECOVERED [4]
☐- RECOVERING [3]
☐- RECENT OR NO RECOVERY [1]

STABILITY
☒- HIGH [3]
☐- MODERATE [2]
☐- LOW [1]

MODIFICATIONS/OTHER
☐- SNAGGING ☐- IMPOUND.
☐- RELOCATION ☐- ISLANDS
☐- CANOPY REMOVAL ☐- LEVEED
☐- DREDGING ☐- BANK SHAPING
☐- ONE SIDE CHANNEL MODIFICATIONS

Channel: 17 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 (L R Per Bank)
☒☒- WIDE > 50m [4]
☐☐- MODERATE 10-50m [3]
☐☐- NARROW 5-10 m [2]
☐☐- VERY NARROW <5 m[1]
☐☐- NONE [0]

FLOOD PLAIN QUALITY (*PAST 100 Meter RIPARIAN*) (L R Most Predominant Per Bank)
☒☒FOREST, SWAMP [3]
☐☐-SHRUB OR OLD FIELD [2]
☐☐-RESIDENTIAL,PARK,NEW FIELD [1]
☐☐-FENCED PASTURE [1]

(L R)
☐☐-CONSERVATION TILLAGE [1]
☐☐-URBAN OR INDUSTRIAL [0]
☐☐-OPEN PASTURE,ROWCROP [0]
☐☐-MINING/CONSTRUCTION [0]

BANK EROSION (L R Per Bank)
☐☐-NONE/LITTLE [3]
☒☒-MODERATE [2]
☐☐-HEAVY/SEVERE[1]

Riparian: 9 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐- >1m [6]
☒- 0.7-1m [4]
☐- 0.4-0.7m [2]
☐- 0.2- 0.4m [1]
☐- < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☒-POOL WIDTH > RIFFLE WIDTH [2]
☐-POOL WIDTH = RIFFLE WIDTH [1]
☐-POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☒-EDDIES[1]
☐-FAST[1]
☒-MODERATE [1]
☒-SLOW [1]
☐-TORRENTIAL[-1]
☐-INTERSTITIAL[-1]
☐-INTERMITTENT[-2]
☐-VERY FAST[1]

Pool/Current: 9 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☒- Best Areas >10 cm [2]
☐- Best Areas 5-10 cm[1]
☐- Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☒- MAX > 50 [2]
☐- MAX < 50[1]

RIFFLE/RUN SUBSTRATE
☒STABLE (e.g.,Cobble, Boulder) [2]
☐MOD. STABLE (e.g.,Large Gravel) [1]
☐UNSTABLE (Fine Gravel,Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐- NONE [2]
☒- LOW [1]
☐- MODERATE [0]
☐- EXTENSIVE [-1]

☐- NO RIFFLE [Metric=0]

Riffle/Run: 7 Max 8

Gradient: 10 Max 10

COMMENTS: _____

6] GRADIENT (ft/mi): 7.4 DRAINAGE AREA (sq.mi.) : 35.3

%POOL: 10 %GLIDE: 20
%RIFFLE: 30 %RUN: 40

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

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					

Subjective Rating (1-10) ☐

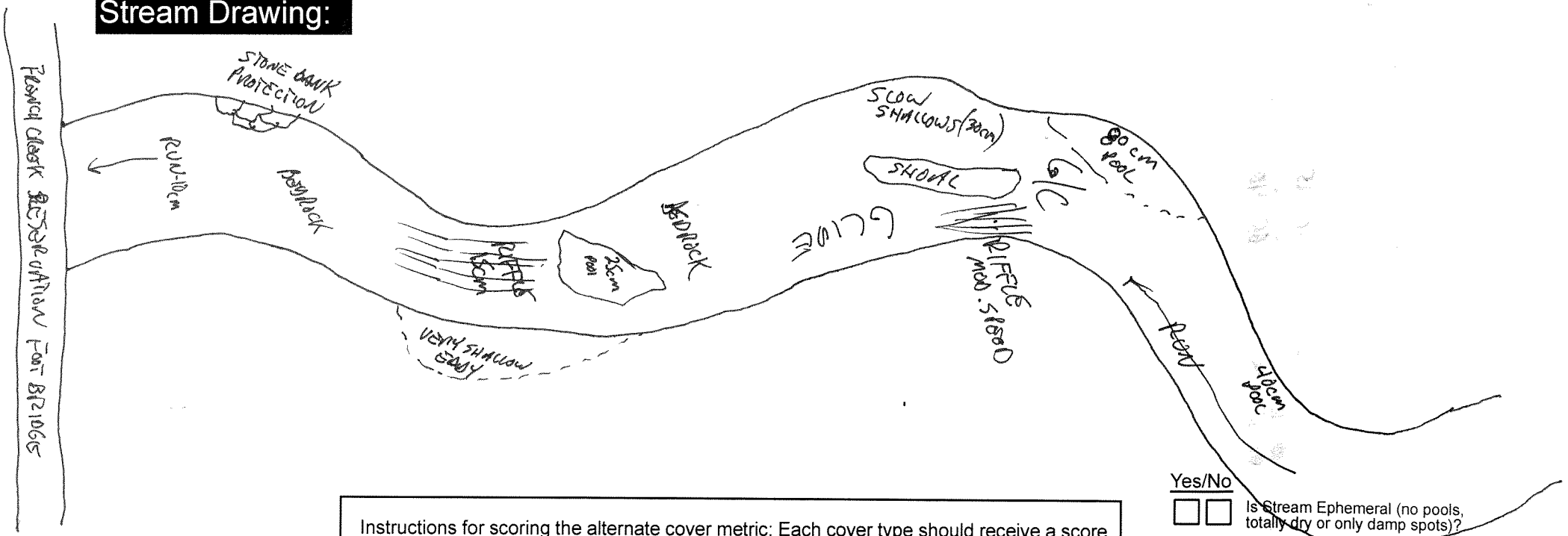
Aesthetic Rating (1-10) ☐

Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

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:



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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 3.2
Stream Segment Location:	At Abbe Road
QHEI Score:	69.5

FIELD NOTES: 21 AUG 2002

This portion of French Creek is located on the east side of Abbe Road. The creek has a low sinuosity with a mix of riffles and pools. The channel width ranges from 25-40' with a maximum pool depth of 75 cm. The substrate is dominated by boulders, cobbles, sand and gravel. Lesser amounts of silt are also present. The riparian forest bordering each bank ranges from 20' to greater than 100' and is dominated by green ash, red oak, American elm, mulberry, black walnut and black willow. Small amounts of emergent vegetation (i.e. duck potato, jewel weed) are located on gravel bars within the creek. The banks are generally 5-10' high. Crayfish and frogs were noted in the stream. Some household garbage was noted on the north bank (appliances, etc.).

PHOTOS:

1) French Creek 3.2 – Facing upstream (east) of Abbe Road

2) French Creek 3.2 – Facing downstream from Abbe Road

3) French Creek 3.2 – Debris on bank

Ohio EPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 69½

River Code: _____ **RM:** 3.2 **Stream:** FRENCH CREEK
Date: 08-21-02 **Location:** AT ABBE ROAD (ROUTE 301)
Scorers Full Name: JAY MILLER **Affiliation:** USACE - BUFFALO

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	___	___
☐☐-BOULDER [9]	15	20
☒☐-COBBLE [8]	25	30
☐☐-HARDPAN [4]	___	___
☐☐-MUCK [2]	___	___
☐☐-SILT [2]	10	5

NOTE: Ignore Sludge Originating From Point Sources

	POOL	RIFFLE
☐☐-GRAVEL [7]	20	25
☐☒SAND [6]	30	70
☐☐-BEDROCK[5]	___	___
☐☐-DETRITUS[3]	___	___
☐☐-ARTIFICIAL[0]	___	___

SUBSTRATE ORIGIN Check ONE (OR 2 & AVERAGE)
☐ -LIMESTONE [1]
☒-TILLS [1]
☐ -WETLANDS[0]
☐ -HARDPAN [0]
☐ -SANDSTONE [0]
☐ -RIP/RAP [0]
☐ -LACUSTRINE [0]
☐ -SHALE [-1]
☐ -COAL FINES [-2]

SILT:
EMBEDDEDNESS:

SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE)
☐ - SILT HEAVY [-2]
☐ -SILT MODERATE [-1]
☒-SILT NORMAL [0]
☐ -SILT FREE [1]
☐ -EXTENSIVE [-2]
☐ -MODERATE [-1]
☒-NORMAL [0]
☐ -NONE [1]

Substrate: 17 Max 20

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☒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)
1 UNDERCUT BANKS [1]
2 OVERHANGING VEGETATION [1]
2 SHALLOWS (IN SLOW WATER) [1]
2 ROOTMATS [1]

TYPE: Score All That Occur
1 POOLS> 70 cm [2]
1 ROOTWADS [1]
3 BOULDERS [1]
0 OXBOWS, BACKWATERS [1]
0 AQUATIC MACROPHYTES [1]
2 LOGS OR WOODY DEBRIS [1]

COMMENTS: _____

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ - EXTENSIVE > 75% [11]
☐ - MODERATE 25-75% [7]
☐ - SPARSE 5-25% [3]
☐ - NEARLY ABSENT < 5%[1]

Cover: 14 Max 20

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

SINUOSITY
☐ - HIGH [4]
☐ - MODERATE [3]
☒- LOW [2]
☐ - NONE [1]

DEVELOPMENT
☐ - EXCELLENT [7]
☐ - GOOD [5]
☒- FAIR [3]
☐ - POOR [1]

CHANNELIZATION
☐ - NONE [6]
☒- RECOVERED [4]
☐ - RECOVERING [3]
☐ - RECENT OR NO RECOVERY [1]

STABILITY
☒- HIGH [3]
☐ - MODERATE [2]
☐ - LOW [1]

MODIFICATIONS/OTHER
☐ - SNAGGING
☐ - RELOCATION
☐ - CANOPY REMOVAL
☐ - DREDGING
☒- ONE SIDE CHANNEL MODIFICATIONS
☐ - IMPOUND.
☐ - ISLANDS
☐ - LEVEED
☐ - BANK SHAPING

Channel: 12 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
L R (Per Bank)
☐☐- WIDE > 50m [4]
☐☒- MODERATE 10-50m [3]
☒☐- NARROW 5-10 m [2]
☐☒- VERY NARROW <5 m[1]
☐☐- NONE [0]

FLOOD PLAIN QUALITY (*PAST 100 Meter RIPARIAN*)
L R (Most Predominant Per Bank)
☐ ☐-FOREST, SWAMP [3]
☐ ☐-SHRUB OR OLD FIELD [2]
☒ ☒RESIDENTIAL,PARK,NEW FIELD [1]
☐ ☐-FENCED PASTURE [1]

L R
☐ ☐-CONSERVATION TILLAGE [1]
☐ ☒-URBAN OR INDUSTRIAL [0]
☒ ☐-OPEN PASTURE,ROWCROP [0]
☐ ☐-MINING/CONSTRUCTION [0]

BANK EROSION
L R (Per Bank)
☐ ☐-NONE/LITTLE [3]
☒☒-MODERATE [2]
☐ ☐-HEAVY/SEVERE[1]

Riparian: 4½ Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ - >1m [6]
☒- 0.7-1m [4]
☐ - 0.4-0.7m [2]
☐ - 0.2- 0.4m [1]
☐ - < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ -POOL WIDTH > RIFFLE WIDTH [2]
☐ -POOL WIDTH = RIFFLE WIDTH [1]
☒-POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ -EDDIES[1]
☐ -FAST[1]
☒-MODERATE [1]
☒-SLOW [1]
☐ -TORRENTIAL[-1]
☐ -INTERSTITIAL[-1]
☐ -INTERMITTENT[-2]
☐ -VERY FAST[1]

Pool/ Current: 6 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ -*Best Areas >10 cm [2]
☒- Best Areas 5-10 cm[1]
☐ - Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☒- MAX > 50 [2]
☐ - MAX < 50[1]

RIFFLE/RUN SUBSTRATE
☒STABLE (e.g.,Cobble, Boulder) [2]
☐-MOD. STABLE (e.g.,Large Gravel) [1]
☐-UNSTABLE (Fine Gravel,Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ - NONE [2]
☒- LOW [1]
☐ - MODERATE [0]
☐ - EXTENSIVE [-1]

☐ - NO RIFFLE [Metric=0]

Riffle/Run: 6 Max 8

Gradient: 10 Max 10

COMMENTS: _____

6] GRADIENT (ft/mi): 6.8 DRAINAGE AREA (sq.mi.) : 31.7

%POOL: 10 %GLIDE: 25
%RIFFLE: 30 %RUN: 35

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

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) ☐

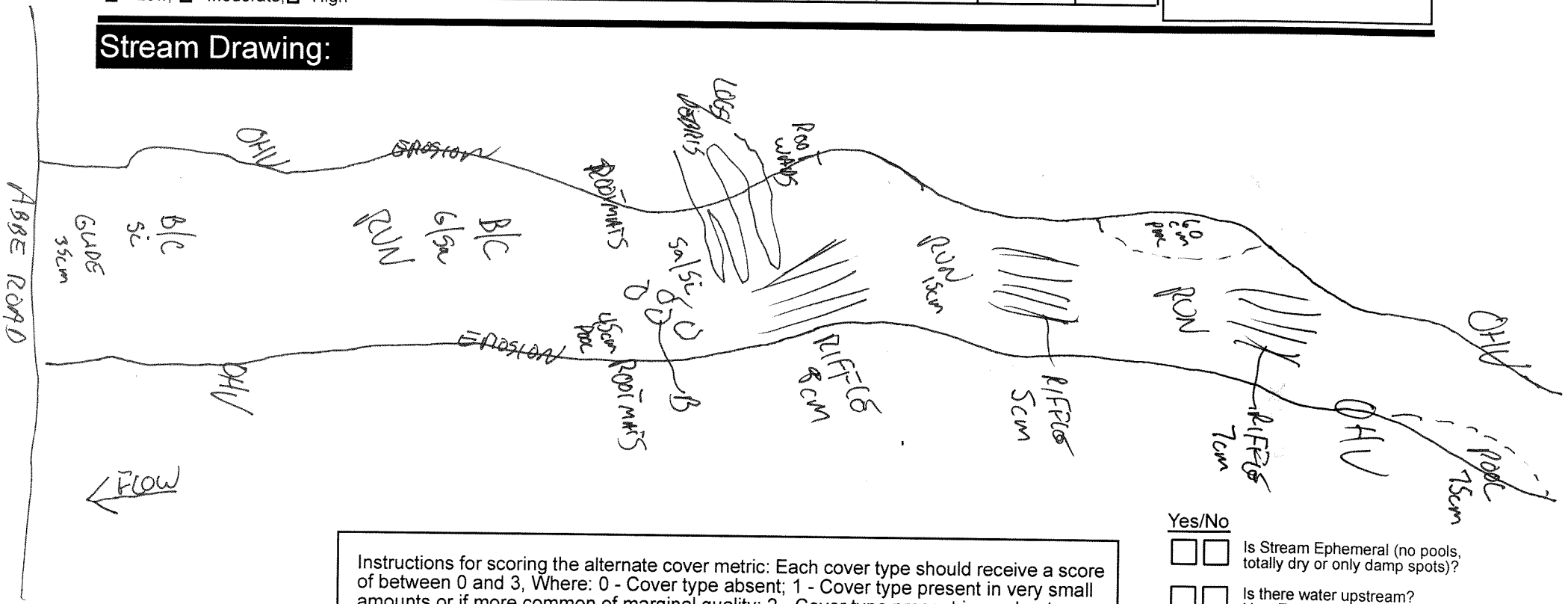
Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

	Gear:	Distance:	Water Clarity:	Water Stage:	Canopy -% Open
First Sampling Pass					

Stream Measurements:

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

Stream Drawing:



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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 4.0
Stream Segment Location:	At mouth of Avins Ditch
QHEI Score:	64.5

FIELD NOTES: 21 AUG 2002

This section of French Creek is located south of Colorado Road at the confluence of Avins Ditch. The riparian area is narrow, with residential and commercial development on the north (south side of Colorado Ave.), and a cell tower and utility lines to the south. Spoils were located on the south bank, indicating that the creek had apparently been dredged at one time. The narrow wooded buffer on portions of the north bank are dominated by willow, eastern cottonwood and boxelder. The south bank can best be described as shrub/scrub/disturbed with dominant species including: Japanese knotweed (Exotic), gray-stemmed dogwood, field bindweed, multiflora rose and raspberry bushes. The substrate in the creek is dominated by gravel, sand, boulders, cobbles and silt. Many fish were noted in this section with macro invertebrates, including crayfish. Potential for restoration includes tree plantings along the banks.

PHOTOS:

1) French Creek 4.0 – Facing downstream from the south.

2) French Creek 4.0 – Facing upstream from end of sample

3) French Creek 4.0 – Facing upstream (out of sample area)

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 64.5

River Code: _____ **RM:** 4.0 **Stream:** FRENCH CREEK
Date: 08-21-02 **Location:** AT MOUTH OF RUINS DITCH
Scorers Full Name: JAY MILLER **Affiliation:** USACE-BUFFALO

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	___	___
☐☐-BOULDER [9]	20	15
☐☐-COBBLE [8]	___	20
☐☐-HARDPAN [4]	___	___
☐☐-MUCK [2]	___	___
☐☐-SILT [2]	20	10
☒☐-GRAVEL [7]	20	35
☐☒-SAND [6]	40	20
☐☐-BEDROCK[5]	___	___
☐☐-DETRITUS[3]	___	___
☐☐-ARTIFICIAL[0]	___	___

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☒-4 or More [2]
☐-3 or Less [0]

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)
☐-LIMESTONE [1]
☒-TILLS [1]
☐-WETLANDS[0]
☐-HARDPAN [0]
☐-SANDSTONE [0]
☐-RIP/RAP [0]
☐-LACUSTRINE [0]
☐-SHALE [-1]
☐-COAL FINES [-2]

SILT: EMBEDDEDNESS:

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)
☐-SILT HEAVY [-2]
☒-SILT MODERATE [-1]
☐-SILT NORMAL [0]
☐-SILT FREE [1]
☐-EXTENSIVE [-2]
☒-MODERATE [-1]
☐-NORMAL [0]
☐-NONE [1]

Substrate: 14 Max 20

COMMENTS: _____

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

(Structure)
0 UNDERCUT BANKS [1]
1 OVERHANGING VEGETATION [1]
3 SHALLOWS (IN SLOW WATER) [1]
1 ROOTMATS [1]

TYPE: Score All That Occur
0 POOLS> 70 cm [2]
0 ROOTWDS [1]
3 BOULDERS [1]
0 OXBOWS, BACKWATERS [1]
3 AQUATIC MACROPHYTES [1]
1 LOGS OR WOODY DEBRIS [1]

COMMENTS: LOTS OF FISH / CRAYFISH NOTED

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ - 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
☐ - HIGH [4]
☒ - MODERATE [3]
☐ - LOW [2]
☐ - NONE [1]

DEVELOPMENT
☒ - EXCELLENT [7]
☐ - GOOD [5]
☐ - FAIR [3]
☐ - POOR [1]

CHANNELIZATION
☐ - NONE [6]
☒ - RECOVERED [4]
☐ - RECOVERING [3]
☐ - RECENT OR NO RECOVERY [1]

STABILITY
☐ - HIGH [3]
☒ - MODERATE [2]
☐ - LOW [1]

MODIFICATIONS/OTHER
☐ - SNAGGING
☐ - RELOCATION
☐ - CANOPY REMOVAL
☒ - DREDGING
☒ - ONE SIDE CHANNEL MODIFICATIONS
☐ - IMPOUND.
☐ - ISLANDS
☐ - LEVEED
☒ - BANK SHAPING

Channel: 14 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 (L R (Per Bank))
☒☐ - WIDE > 50m [4]
☐☐ - MODERATE 10-50m [3]
☒☐ - NARROW 5-10 m [2]
☐☐ - VERY NARROW <5 m[1]
☐☐ - NONE [0]

FLOOD PLAIN QUALITY (*PAST 100 Meter RIPARIAN*) (L R (Most Predominant Per Bank))
☐☐-FOREST, SWAMP [3]
☐☒-SHRUB OR OLD FIELD [2]
☒☐-RESIDENTIAL,PARK,NEW FIELD [1]
☐☐-FENCED PASTURE [1]
☐☐-CONSERVATION TILLAGE [1]
☐☐-URBAN OR INDUSTRIAL [0]
☐☐-OPEN PASTURE,ROWCROP [0]
☐☐-MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank))
☒☒-NONE/LITTLE [3]
☐☐-MODERATE [2]
☐☐-HEAVY/SEVERE[1]

Riparian: 7½ Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ - >1m [6]
☐ - 0.7-1m [4]
☐ - 0.4-0.7m [2]
☒ - 0.2- 0.4m [1]
☐ - < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☒-POOL WIDTH > RIFFLE WIDTH [2]
☐-POOL WIDTH = RIFFLE WIDTH [1]
☐-POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐-EDDIES[1]
☐-FAST[1]
☒-MODERATE [1]
☒-SLOW [1]
☐-TORRENTIAL[-1]
☐-INTERSTITIAL[-1]
☐-INTERMITTENT[-2]
☐-VERY FAST[1]

Pool/Current: 5 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ - *Best Areas >10 cm [2]
☒ - Best Areas 5-10 cm[1]
☐ - Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☐ - MAX > 50 [2]
☒ - MAX < 50[1]

RIFFLE/RUN SUBSTRATE
☐-STABLE (e.g.,Cobble, Boulder) [2]
☒-MOD. STABLE (e.g.,Large Gravel) [1]
☐-UNSTABLE (Fine Gravel,Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ - NONE [2]
☐ - LOW [1]
☒ - MODERATE [0]
☐ - EXTENSIVE [-1]

☐ - NO RIFFLE [Metric=0]

Riffle/Run: 3 Max 8

Gradient: 10 Max 10

COMMENTS: _____

6] GRADIENT (ft/mi): 6.7 DRAINAGE AREA (sq.mi.) : 31.1

%POOL: 20 %GLIDE: 10
%RIFFLE: 35 %RUN: 35

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

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

Subjective Rating (1-10) ☐

Aesthetic Rating (1-10) ☐

Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

	Gear:	Distance:	Water Clarity:	Water Stage:	Canopy -% Open
First Sampling Pass					

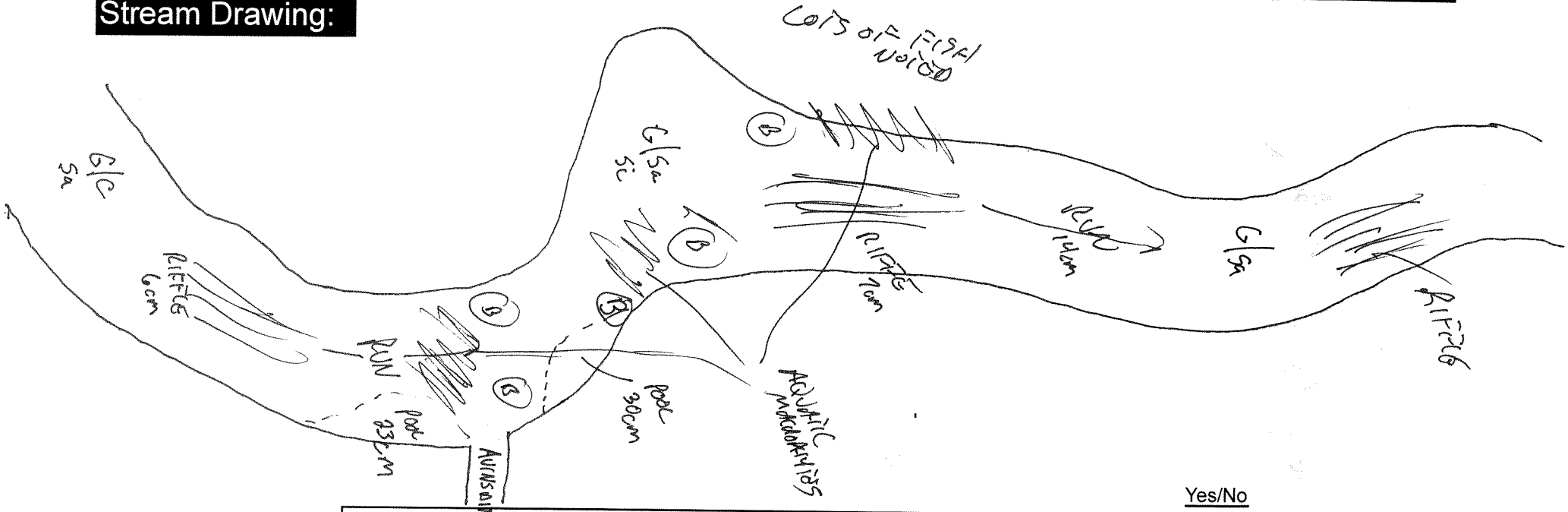
Stream Measurements:

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

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:_____

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 4.5
Stream Segment Location:	At I-90 crossing
QHEI Score:	43.5

FIELD NOTES: 09 SEP 2002

This portion of French Creek is located to the southeast of I-90 near the Colorado Avenue interchange. The creek has very little sinuosity and has a substrate dominated by gravel and silt, with some boulders, cobbles, and sand. The riparian buffer above the 10-12' banks ranges in width from 50-150' with old fields beyond the forested riparian area. Dominant species adjacent to the creek include boxelder, eastern cottonwood, black willow and gray-stemmed dogwood. Intermittent narrow herbaceous fringes are dominated by blue vervain and reed canary grass. Some areas of the streambed were dry during the investigation with water levels generally 10-50 cm. The SW corner of I-90 and Colorado Ave. is currently under heavy excavation/fill. The lack of silt fencing poses a high erosion potential and siltation of the creek. In addition, various ATV trails cross the creek as well as evidence of pickup trucks being driven down the creek bed itself. Minnows and macro invertebrates were noted.

PHOTOS:

1) French Creek 4.5 – Facing upstream from SW of I-90

2) French Creek 4.5 – Facing downstream towards I-90

3) French Creek 4.5 – Facing downstream (end of sample).

4) French Creek 4.5 – ATV trails on south side of creek

5) French Creek 4.5 – Vehicle tracks in creek bed

6) French Creek 4.5 - Construction on north bank

7) French Creek 4.5 - Construction on north bank adjacent to I-90 access road

Ohio EPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 43½

River Code: _____ **RM:** 4.5 **Stream:** FRENCH CREEK
Date: 09-09-02 **Location:** AT I-90
Scorers Full Name: JAY MILLER **Affiliation:** USACE-BUFFALO

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

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]		
☐☐-BOULDER [9]	5	5
☐☐-COBBLE [8]	10	10
☐☐-HARDPAN [4]		
☐☐-MUCK [2]		
☐☒-SILT [2]	25	15

NOTE: Ignore Sludge Originating From Point Sources

	POOL	RIFFLE
☒☐-GRAVEL [7]	40	60
☐☐-SAND [6]	20	10
☐☐-BEDROCK[5]		
☐☐-DETRITUS[3]		
☐☐-ARTIFICIAL[0]		

SUBSTRATE ORIGIN Check ONE (OR 2 & AVERAGE)
☐ -LIMESTONE [1]
☒ -TILLS [1]
☐ -WETLANDS[0]
☐ -HARDPAN [0]
☐ -SANDSTONE [0]
☐ -RIP/RAP [0]
☐ -LACUSTRINE [0]
☐ -SHALE [-1]
☐ -COAL FINES [-2]

SUBSTRATE QUALITY Check ONE (OR 2 & AVERAGE)
SILT:
☐ - SILT HEAVY [-2]
☒ -SILT MODERATE [-1]
☐ -SILT NORMAL [0]
☐ -SILT FREE [1]
EMBEDDEDNESS:
☐ -EXTENSIVE [-2]
☒ -MODERATE [-1]
☐ -NORMAL [0]
☐ -NONE [1]

Substrate: 10 (Max 20)

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☒ 4 or More [2]
☐ 3 or Less [0]

COMMENTS: WATER VERY TURBID WHEN DISTURBED

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

(Structure)
1 UNDERCUT BANKS [1]
1 OVERHANGING VEGETATION [1]
2 SHALLOWS (IN SLOW WATER) [1]
1 ROOTMATS [1]

TYPE: Score All That Occur
0 POOLS> 70 cm [2]
0 ROOTWADS [1]
1 BOULDERS [1]
0 OXBOWS, BACKWATERS [1]
0 AQUATIC MACROPHYTES [1]
1 LOGS OR WOODY DEBRIS [1]

COMMENTS:

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ - EXTENSIVE > 75% [11]
☐ - MODERATE 25-75% [7]
☐ - SPARSE 5-25% [3]
☐ - NEARLY ABSENT < 5%[1]

Cover: 7 (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: 7 (Max 20)

COMMENTS: FAIRLY STRAIGHT

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

RIPARIAN WIDTH L R (Per Bank)	FLOOD PLAIN QUALITY (*PAST 100 Meter RIPARIAN*) L R (Most Predominant Per Bank)	L R	BANK EROSION 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: 4½ (Max 10)

COMMENTS: NARROW WOODED, THEN NEWFIELD ON BOTH SIDES

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ - >1m [6]
☐ - 0.7-1m [4]
☒ - 0.4-0.7m [2]
☐ - 0.2- 0.4m [1]
☐ - < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☒ -POOL WIDTH > RIFFLE WIDTH [2]
☐ -POOL WIDTH = RIFFLE WIDTH [1]
☐ -POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ -EDDIES[1]
☐ -FAST[1]
☐ -MODERATE [1]
☒ -SLOW [1]
☐ -TORRENTIAL[-1]
☐ -INTERSTITIAL[-1]
☒ -INTERMITTENT[-2]
☐ -VERY FAST[1]

COMMENTS: MOSTLY GLIDE - SLOW, SOMETIMES INTERMITTENT FLOW

Pool/Current: 3 (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]

☐ - NO RIFFLE [Metric=0]

COMMENTS: SHALLOW NARROW RIFFLES

Riffle/Run: 2 (Max 8)

Gradient: 10 (Max 10)

6] GRADIENT (ft/mi): 8.1 DRAINAGE AREA (sq.mi.) : 28.9

%POOL: 15 %GLIDE: 70
%RIFFLE: 5 %RUN: 10

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

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					

Subjective Rating (1-10) ☐

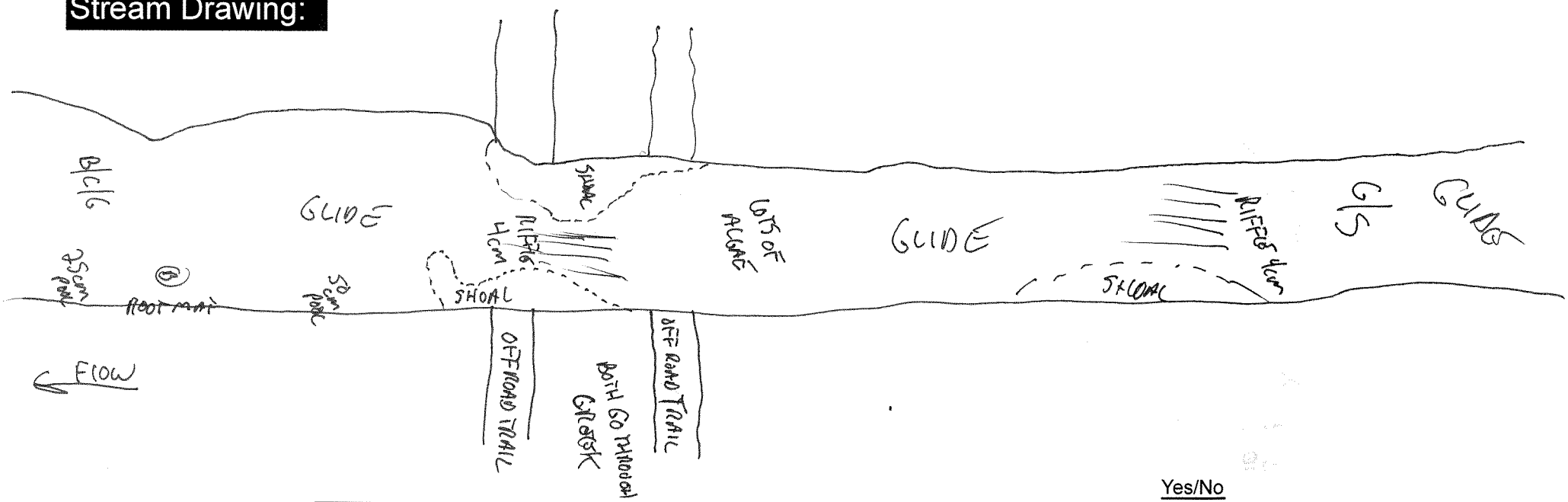
Aesthetic Rating (1-10) ☐

Gradient: ☐ - Low, ☐ - Moderate, ☐ -High

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:



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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?