

Stream & Location: Brandywine Creek Dst Former Hudson Rm: 7.85 Date: 02/13/18

Cathy Zamborski, Denise Phillips Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.2560381, -81.475471 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Substrate selection boxes: BEST TYPES (BLDR/SLABS, BOULDER, COBBLE, GRAVEL, SAND, BEDROCK), OTHER TYPES (HARDPAN, DETRITUS, MUCK, SILT, ARTIFICIAL), POOL RIFFLE.

Substrate Quality and Origin selection boxes: ORIGIN (LIMESTONE, TILLS, WETLANDS, etc.), QUALITY (HEAVY, MODERATE, NORMAL, etc.), SILT, EMBEDDEDNESS.

NUMBER OF BEST TYPES: 4 or more [2] 3 or less [0] Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts

Instream Cover selection boxes: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS > 70cm, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS.

Instream Cover Amount selection boxes: EXTENSIVE >75%, MODERATE 25-75%, SPARSE 5-25%, NEARLY ABSENT <5%.

Comments: Aquatic Macro - Good amount Functional (Mod Amt) OTHER SPARSE Cover Maximum 20

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

Channel Morphology selection boxes: SINUOSITY (HIGH, MODERATE, LOW, NONE), DEVELOPMENT (EXCELLENT, GOOD, FAIR, POOR), CHANNELIZATION (NONE, RECOVERED, RECOVERING, RECENT OR NO RECOVERY), STABILITY (HIGH, MODERATE, LOW).

Comments Channel Maximum 20

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

Bank Erosion and Riparian Zone selection boxes: EROSION (NONE/LITTLE, MODERATE, HEAVY/SEVERE), RIPARIAN WIDTH (WIDE > 50m, MODERATE 10-50m, NARROW 5-10m, VERY NARROW < 5m, NONE), FLOOD PLAIN QUALITY (FOREST, SWAMP, SHRUB OR OLD FIELD, RESIDENTIAL, PARK, NEW FIELD, FENCED PASTURE, OPEN PASTURE, ROWCROP), CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION.

Comments: RL-TURNPIKE RL Ground Lot, CONST. STORAGE / Field Riparian Maximum 10

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool / Glide and Riffle / Run Quality selection boxes: MAXIMUM DEPTH (> 1m, 0.7-1m, 0.4-0.7m, 0.2-0.4m, < 0.2m), CHANNEL WIDTH (POOL WIDTH > RIFFLE WIDTH, POOL WIDTH = RIFFLE WIDTH, POOL WIDTH < RIFFLE WIDTH), CURRENT VELOCITY (TORRENTIAL, VERY FAST, FAST, MODERATE, SLOW, INTERSTITIAL, INTERMITTENT, EDDIES).

Comments Pool / Current Maximum 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average)

Riffle / Run Quality selection boxes: RIFFLE DEPTH (BEST AREAS > 10cm, 5-10cm, < 5cm), RUN DEPTH (MAXIMUM > 50cm, MAXIMUM < 50cm), RIFFLE / RUN SUBSTRATE (STABLE, MOD. STABLE, UNSTABLE), RIFFLE / RUN EMBEDDEDNESS (NONE, LOW, MODERATE, EXTENSIVE).

Comments Riffle / Run Maximum 8

6) GRADIENT (6.25 ft/mi) DRAINAGE AREA (5.82 mi^2) selection boxes: VERY LOW - LOW, MODERATE, HIGH - VERY HIGH.

Gradient selection boxes: %POOL, %GLIDE, %RUN, %RIFFLE, Gradient Maximum 10.

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/Sampling observations, Concerns, Access directions, etc.

A) SAMPLED REACH

Check ALL that apply

METHOD

BOAT WADE L. LINE OTHER

STAGE

1st - sample pass - 2nd

HIGH UP NORMAL LOW DRY

DISTANCE

0.5 Km 0.2 Km 0.15 Km 0.12 Km OTHER

CLARITY

1st - sample pass - 2nd

< 20 cm 20-40 cm 40-70 cm > 70 cm / GTB

SECCHI DEPTH

1st _____ cm
2nd _____ cm

CANOPY

> 85% OPEN 66% - 85% 30% - 65% 10% - 30% < 10% CLOSED

C) RECREATION

AREA DEPTH

POOL: > 100ft² > 3ft

B) AESTHETICS

NUISANCE ALGAE INVASIVE MAGROPHYTES EXCESS TURBIDITY DISCOLORATION FOAM / STUM OIL SHEEN TRASH / LITTER NUISANCE ODOR SLUDGE DEPOSITS CSOs/SSOs/OUTFALLS

D) J MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCoured
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

E) ISSUES

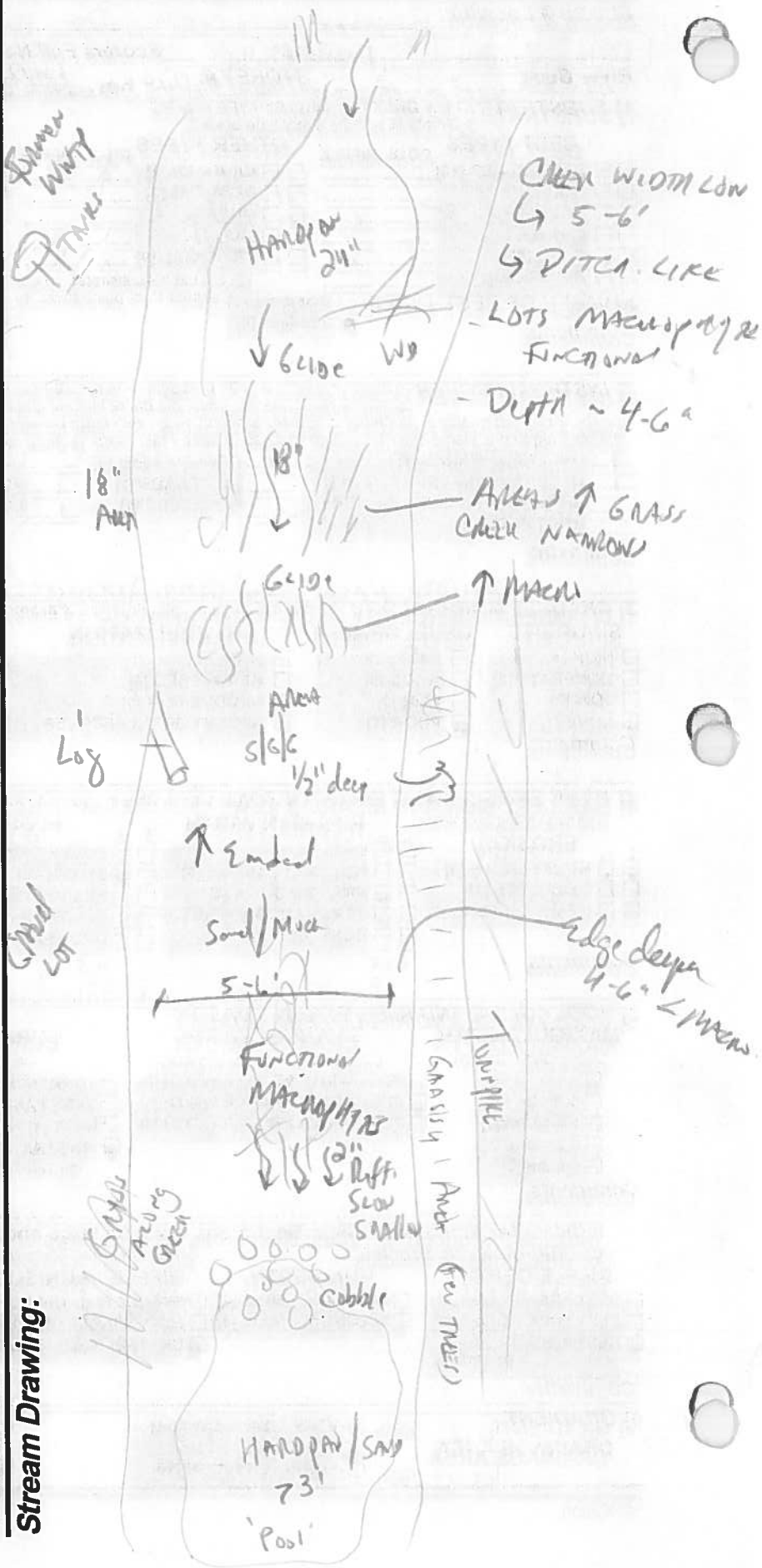
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT & GRIME
CONTAMINATED / LANDFILL
BIMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F) MEASUREMENTS

width depth
max. depth
 bankfull width
bankfull depth
W/D ratio
bankfull max. depth
floodprone width
entrench. ratio

Legacy Tree:

Stream Drawing:



Stream & Location: Brandywine Creek Ust East Highland RM: 3.55 Date: 8/10/18

DA: 22.9 mi² Gradient: 120 Scores Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.2936 181.524734 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Substrate assessment grid with categories: BEST TYPES, OTHER TYPES, POOL RIFFLE, ORIGIN, QUALITY, and NUMBER OF BEST TYPES. Includes handwritten scores and a 'Substrate' box with value 145.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts

Instream Cover assessment grid with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS, and AMOUNT. Includes handwritten scores and a 'Cover' box with value 9.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

Channel Morphology assessment grid with categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, and STABILITY. Includes handwritten scores and a 'Channel' box with value 16.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

Bank Erosion and Riparian Zone assessment grid with categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY, and CONSERVATION. Includes handwritten scores and a 'Riparian' box with value 6.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool / Glide and Riffle / Run Quality assessment grid with categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY, and Recreation Potential. Includes handwritten scores and a 'Pool / Current' box with value 11.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Riffle / Run Quality assessment grid with categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, and RIFFLE / RUN EMBEDDEDNESS. Includes handwritten scores and a 'Riffle / Run' box with value 7.

6] GRADIENT (120 ft/mi)

Gradient assessment grid with categories: DRAINAGE AREA, GRADIENT, % POOL, % GLIDE, % RUN, and % RIFFLE. Includes handwritten scores and a 'Gradient' box with value 4.

Gradient > upper band of "very high" gradient classification = 4

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
 - WADE
 - L. LINE
 - OTHER
- STAGE**
- HIGH
 - UP
 - NORMAL
 - LOW
 - DRY
- 1st--sample pass-- 2nd

DISTANCE

- 0.5 Km
 - 0.2 Km
 - 0.15 Km
 - 0.12 Km
 - OTHER
- CLARITY**
- < 20 cm
 - 20--40 cm
 - 40-70 cm
 - > 70 cm/OTB
 - SECCHI DEPTH
- meters

CANOPY

- > 85% - OPEN
- 65% - 85%
- 30% - 65%
- 10% - 30%
- < 10% - CLOSED

CJ RECREATION

AREA DEPTH

POOL: >100r2 >3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MAGROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCOURED
- IMPOUND / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

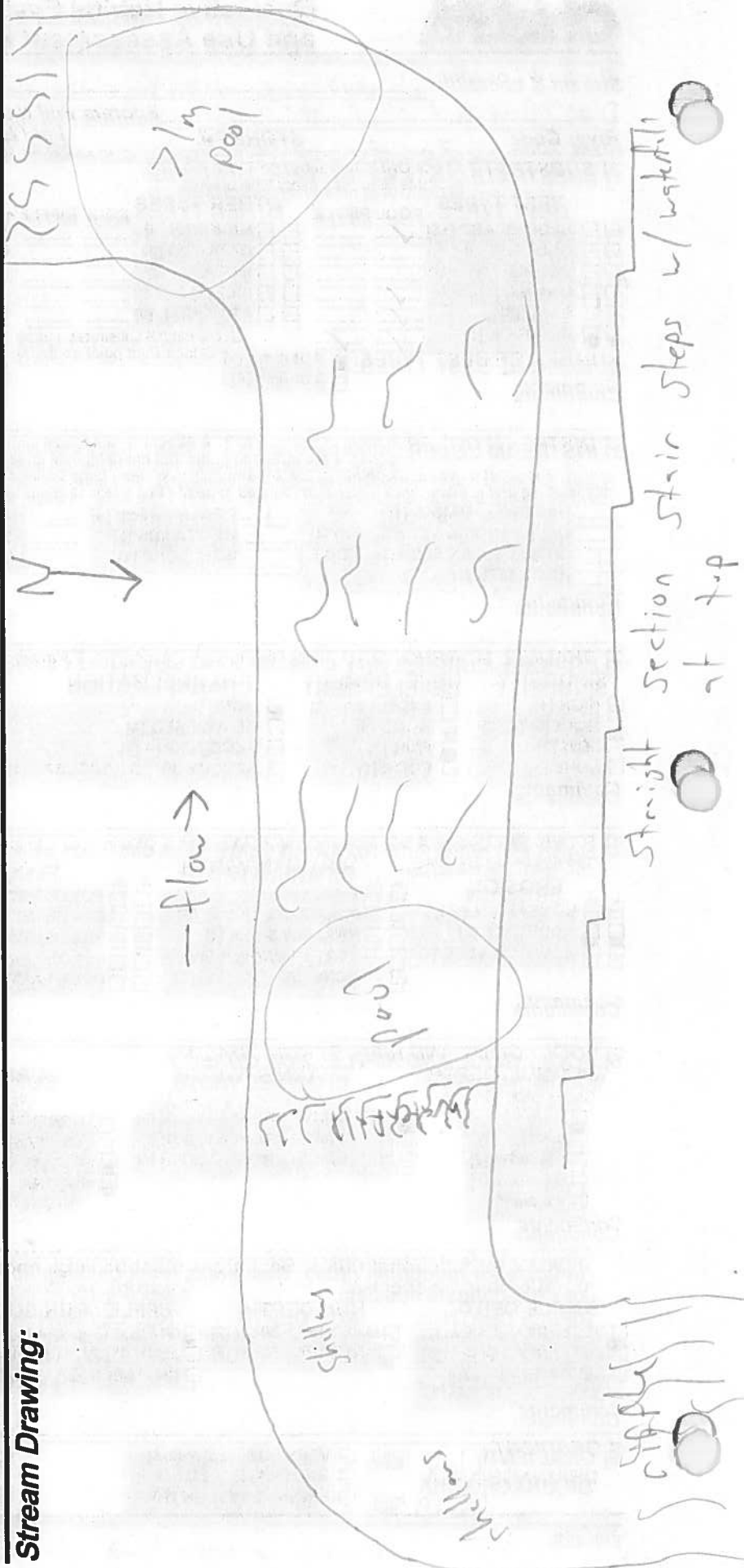
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- width
- depth
- max. depth
- bankfull width
- bankfull depth
- W/D ratio
- bankfull max. depth
- floodproofing width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Stream & Location: Brandywine Creek Brandywine Ski Resort RM: 0.45 Date: 07/13/18

Scorers Full Name & Affiliation: Cathy Zamborsky, Denise Phillips Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.2869781, -81.553872 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Substrate assessment grid with categories: BEST TYPES, OTHER TYPES, ORIGIN, QUALITY, and EMBEDDEDNESS. Includes checkboxes for various substrate types and a score of 18.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts

Instream Cover assessment grid with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, ROOTWADS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS. Includes checkboxes and a score of 14.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

Channel Morphology assessment grid with categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes checkboxes and a score of 15.5.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

Bank Erosion and Riparian Zone assessment grid with categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes checkboxes and a score of 8.25.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool/Glide and Riffle/Run Quality assessment grid with categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY, RECREATION POTENTIAL. Includes checkboxes and a score of 11.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Riffle/Run Substrate assessment grid with categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes checkboxes and a score of 5.

6] GRADIENT (47.62 ft/mi) DRAINAGE AREA (2700 mi^2) Assessment grid with categories: GRADIENT, DRAINAGE AREA, POOL, GLIDE, RUN, RIFFLE. Includes checkboxes and a score of 4.

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/Sampling observations, Concerns, Access directions, etc.

AJ SAMPLED REACH

Check ALL that apply

METHOD

BOAT WADE L LINE OTHER

STAGE

1st -sample pass-- 2nd

HIGH UP NORMAL LOW DRY

DISTANCE

0.5 Km 0.2 Km 0.15 Km 0.12 Km OTHER

CLARITY

1st -sample pass-- 2nd

< 20 cm 20-40 cm 40-70 cm > 70 cm/GTB

SECHI DEPTH

1st _____ cm

2nd _____ cm

CANOPY

> 85% - OPEN

65% - 85%

30% - 65%

10% - 30%

< 10% - CLOSED

CJ RECREATION

AREA DEPTH

POOL: > 100ft² > 3ft

BJ AESTHETICS

NUISANCE ALGAE

INVASIVE MACROPHYTES

EXCESS TURBIDITY

DISCOLORATION

FOAM / SCUM

OIL SHEEN

TRASH / LITTER

NUISANCE ODOR

SLUDGE DEPOSITS

CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA

ACTIVE / HISTORIC / BOTH / NA

YOUNG-SUCCESSION-OLD

SPRAY / SNAG / REMOVED

MODIFIED / DIPPED OUT / NA

LEVEED / ONE SIDED

RELOCATED / CUTOFFS

MOVING-BEDLOAD-STABLE

ARMORED / SLUMPS

ISLANDS / SCoured

IMPOUNDED / DESICCATED

FLOOD CONTROL / DRAINAGE

EJ ISSUES

WWTP / CSO / NPDES / INDUSTRY

HARDENED / URBAN / DIRT&GRIME

CONTAMINATED / LANDFILL

BMPs-CONSTRUCTION-SEDIMENT

LOGGING / IRRIGATION / COOLING

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PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

width

depth

max. depth

bankfull width

bankfull depth

W/D ratio

bankfull max. depth

floodproofing width

entrench. ratio

Legacy Tree:

Stream Drawing:

