Waterbody Data Sheet							
Survey Description							
Project Name:	Mator.	hody Nome					
ACP	Den	body Name: named Pond IT Little Mars	on b Sula	~ <i>D</i>	Waterbody ID		Date: 12 Sept 2014
state: County: NC Robeson		Company:		Crew M		Photo ID(s).	h and West
Tract Number(s):	~~~~~~~~~~~	DD West Milepost Entry:		JG			
24-006			Milepost E		Associated W	etland ID(s):	
Survey Type:	Centerline				None		
No.	enteriine	Re-Route	Access R	oad	Other:		
Physical Attributes				9999, 18 1999 (67 19 19 19 19 19 19 19 19 19 19 19 19 19	an pin a substant de la substant de la familie de la substant de la substant de la substant de la substant de m Anna de la substant d		
Stream Classification: (check one)	phemeral	Intermittent	Perennial			ni kana mana, manina mana di dinana ata 1 ki ki mangan kanan	
Waterbody Type:	Pottery				والمركز	****	
Juiedin	River	Ditch 2 Pond	Lake	Conn	ecting swale *	Other:	
	heck all that apply)	Clear line on bank	e S	helving	Wrested		ouring Water staining
Height: 6 ft.	Bent, matted, missing vegeta	or Wrack		tter and	Abrupt p	lant	Soil characteristic
Width of Waterbody - Top of B Top of Bank at Centerline:	lank to W	idth of Waterbody - W ater Edge at Centerlin	Vater Edge 1		Depth of Wate	ity change er at Centerlir	change
NA ft.					(Approx.)	MA	<i>.</i>
Sinuosity:	Water veloc	ity:	Bank he	ahé			
(check one)	(Approx.)			^{ght:} 10		Bank slop Ri	
Meandering		fps					<u>30</u> degrees
Qualitative Attributes					<u>) ft.</u>		Left: <u>30</u> degrees
Water Appearance:							
(check one)	Clear	Turbid Sheer on sur	e entrend	Surface scum	Algal mats	Other:	
Substrate: Bedrock	Gravel	Sand	C Silt/clay		Organic	Other:	
% of Substrate:%	%	%	%		07		
Width of Riparian Zone: V	egetative Layers	4		fuino	%		%
≥∞ ft.	wg. DBH of Domi	nants: 8	.		Shrubs:	in.	Herbs
Dominant Bank Vegetation:	Sa Sa	lik nigra					
L'quidambar stys	racitlua,	Aces Cuban	n.Vilis	cotu	difota so	ilar cotu	ind: Colo
(ist)	emergen aquatic vegeta	tion, overhanging banks/roots,	leaf packs, larg	e submerged	wood, riffles, deep px	pols):	(Citate)
submerged wo	50						
Aquatic Organisms Observed:							
None							
vasive and/or T&E Species O المعام المعام (المعام) المعام (المعام) المعام (المعام) المعام (المعام) المعام (الم المعام المعام (المعام) المعام (المعام) المعام (المعام) المعام (المعام) المعام (المعام) المعام (المعام) المعام (bserved:		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			******	
ributary is:	turat 🚺	Artificial, man-made	Manii	oulated			
brevound	estock	Manure in aterbody]Waste disc		X Other	accessed	Por line
tream Quality ^b :	Enclose		Low		•••	Crop in	igatiun

Waterbody ID: Ocoh OBS * Connecting swales are water features that do not meet the definition of a waterbody (not an ephemeral waterbody) in that there is not a defined bed, bank, and ordinary high water mark, however, it is a water conveyance feature that is characterized by flow volume, frequency, and duration to make it more than just an erosional feature and connects two potential waters of the U.S. and thereby may be subject to Section 404 permitting. ^b High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man. Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man. Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man. Notes excavated Pond, shows on USGS as connected to Little Marsh Swamp Waterbody Sketch Include north arrow, conterline, distance from conterline, photo locations, survey boundary, and unique IDs of associated features. edge of currido ,roh (DOB to fir . Balance Form Road 1,200 NOrohoda

oroh003



Open water data point oroh003 facing north



Open water data point oroh003 facing west

USACE	AID#
-------	------

DWQ #_

Site #_____ (indicate on attached map)

SROHOLL

Ø

STREAM QUALITY ASSI	ESSMENT WORKSHEET
Provide the following information for the stream reach under as	ssessment:
$M \land D$	Evaluator's name: DAUSST
	Time of evaluation: $10:15$
5. Name of stream: UNT to Little Mash Surther	River basin: Lumbor
	Stream order: 2
1001	. County:_Robesen
11. Site coordinates (if known): prefer in decimal degrees, 12.	. Subdivision name (if any):
Latitude (ex. 34.872312): 340° SO 19.1641° L	ongitude (ex77.556611): 78° 56° 03,967
Method location determined (circle): GPS Topo Sheet Ortho (Aerial 13. Location of reach under evaluation (note nearby roads and landr	l) Photo/GIS Other GIS Other
14. Proposed channel work (if any):	Λ
15. Recent weather conditions: Mainly day -	ew showers
16. Site conditions at time of visit: Rached Spa	u before .
	ction 10 MATidal Waters MEssential Fisheries Habitat rient Sensitive Waters MAWater Supply Watershed MA(I-IV)
18. Is there a pond or lake located upstream of the evaluation point?	
19. Does channel appear on USGS quad map? YES NO 20.	. Does channel appear on USDA Soil Survey? YES (NO)
21. Estimated watershed land use:% Residential%	% Commercial% Industrial 20% Agricultural
20% Forested	% Cleared / Logged% Other ()
A	. Bank height (from bed to top of bank):S
24. Channel slope down center of stream: Flat (0 to 2%)	
25. Channel sinuosity:StraightOccasional bendsI	
Instructions for completion of worksheet (located on page 2): location, terrain, vegetation, stream classification, etc. Every characteristic within the range shown for the ecoregion characteristics identified in the worksheet. Scores should reflect a characteristic cannot be evaluated due to site or weather condition comment section. Where there are obvious changes in the characteristic a forest), the stream may be divided into smaller reaches that of reach. The total score assigned to a stream reach must range betw highest quality. Total Score (from reverse): Comments:	acteristic must be scored using the same ecoregion. Assign points n. Page 3 provides a brief description of how to review the an overall assessment of the stream reach under evaluation. If a ns, enter 0 in the scoring box and provide an explanation in the er of a stream under review (e.g., the stream flows from a pasture display more continuity, and a separate form used to evaluate each
Evaluator's Signature_	Date 9-18-(4)
This channel evaluation form is intended to be used only as a gathering the data required by the United States Army Corr quality. The total score resulting from the completion of thi	guide to assist landowners and environmental professionals in os of Engineers to make a preliminary assessment of stream

particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

#	CUADACTEDISTICS	ECORE	0.000		
π	Presence of flow / nersistent noole in stream		Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	2
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	1
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 - 6	0-4	0-5	1
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0 - 5	0-4	0-4	
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	(
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	l
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	\bigcirc
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	1
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	1
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	1
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	1
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	D
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	N2
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	j
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
	Total Points Possible	100	100	100	

SROHOLI NC DWQ Stream Identification Form Version 4.11 Latitude: 34°50'19, 161 Date: Project/Site: Evaluator: Longitude: 78° 56' 03, 9 County: Total Points: Other UNT TO Stream Determination (circle one) Stream is at least intermittent 2.75 Ephemeral Intermittent Perennial e.g. Quad Name: LITTLE MARSZ if \geq 19 or perennial if \geq 30* Swanp A. Geomorphology (Subtotal = Absent Weak Strong Moderate 1^a. Continuity of channel bed and bank 1 2 3 2. Sinuosity of channel along thalweg Ò 2 1 3 3. In-channel structure: ex. riffle-pool, step-pool, 0 1 2 3 ripple-pool sequence 4. Particle size of stream substrate 0 (1) 2 3 5. Active/relict floodplain 0 1 2 3 6. Depositional bars or benches Ø 1 2 3 7. Recent alluvial deposits Ģe, (1 2 3 8. Headcuts 0 1 2 3 9. Grade control 0 0.5 1 1.5 10. Natural valley 0 0.5 1 1.5 11. Second or greater order channel No = 0Yes = 3^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = . 12. Presence of Baseflow 0 2 1 3 13. Iron oxidizing bacteria (1) 0 2 3 14. Leaf litter 1.5 1 0 15. Sediment on plants or debris 0 0.5 1.5 16. Organic debris lines or piles 0 0.5 1 1.5 17. Soil-based evidence of high water table? No = 0Yes = 3C. Biology (Subtotal = T ר" 18. Fibrous roots in streambed 3 2 0 1 19. Rooted upland plants in streambed 3 2 1 0 20. Macrobenthos (note diversity and abundance) 0 (1)2 3 21. Aquatic Mollusks $\sqrt{0}$ 1 2 3 22. Fish (Ò 0.5 1.5 1 23. Crayfish 0 0.5 1.5 1 24. Amphibians 0.5 1 0 1.5 25. Algae 0 0.5 1 1.5 26. Wetland plants in streambed FACW = 0.75; OBL = 1.5 Other = 0 *perennial streams may also be identified using other methods. See p. 35 of manual Notes: Sketch: FLOP

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sroh011



Waterbody sroh011 facing upstream



Waterbody sroh011 facing downstream

sroh011



Waterbody sroh011 facing upline cross stream

U	S	4	С	E	A	I	D	#	

5606006

Site #_____ (indicate on attached map)

STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: <u>Step ACP</u>	2. Evaluator's name:
3. Date of evaluation: <u>9/12 (14</u>	4. Time of evaluation: 100
5. Name of stream: <u>WT</u> (B Little Marsl Sugar	- 6. River basin: / autobl(
7. Approximate drainage area: (ac	8. Stream order: [2
9. Length of reach evaluated: Zoo	10. County:
Latitude (ex. 34.872312): <u>34 ° 50 ' 58 ''. 611 ''</u>	12. Subdivision name (if any): Longitude (ex77.556611):78°5611452.9
Method location determined (circle): GPS Topo Sheet Ortho (A 13. Location of reach under evaluation (note nearby roads and b	
14. Proposed channel work (if any):	
15. Recent weather conditions: Typical	
16. Site conditions at time of visit:	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation p	oint? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use: <u>16</u> % Residential	% Commercial% Industrial 🕢% Agricultural
<u>30</u> % Forested	% Cleared / Logged% Other ()
22. Bankfull width: 8 10	% Cleared / Logged% Other () 23. Bank height (from bed to top of bank): / /
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: <u>X</u> Straight <u>Occasional bends</u>	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the econ characteristics identified in the worksheet. Scores should ret characteristic cannot be evaluated due to site or weather cor comment section. Where there are obvious changes in the ch into a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must range highest quality.	e 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the paracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 62 Commen	nts: preverty Bener Impaker
	El lui
Evaluator's Signature	Date///////
gathering the data required by the United States Army quality. The total score resulting from the completion (as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a o change – version 06/03. To Comment, please call 919-876-8441 x 26.

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SR06006

STREAM QUALITY ASSESSMENT WORKSHEET

		ECOREGION POINT RANGE			SCORE	
#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	4	
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4	
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	<u>Ц</u>	
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4	
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3	
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2	
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	4	
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3	
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	Z	
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 – 5	0-4	0-4	2	
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5		
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3	
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3	
13 14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	2	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0 - 6	0-6	4	
17	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2.	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4		
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	2	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3	
21 22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	4	
	Total Points Possible	100	100	100		

5R0600(e

NC DWQ Stream Identification Form Version 4.1

1.4.1

Date: 9/11/14	Project/Site:	ERP	Latitude: 340	5861	
Evaluator: DrD	County: 2	beron		'8°58' 14.	
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*		nation (circle one) rmittent Perennial	ne) Other UNT LITTLE MI		
A. Geomorphology (Subtotal =]())	Absent	Weak	Moderate	Strong	
1 ^a Continuity of channel bed and bank	0	4 A	(2)	3	
2. Sinuosity of channel along thalweg	0			3	
3. In-channel structure: ex. riffle-pool, step-pool,					
ripple-pool sequence	0	(1)	2	3	
4. Particle size of stream substrate	0	<u> </u>	2	3	
5. Active/relict floodplain	0		(2)	3	
6. Depositional bars or benches	(0)	1	2	3	
7. Recent alluvial deposits		(1)	2	3	
8. Headcuts	$(\tilde{0})$		2	3	
9. Grade control		0.5	(1)	1.5	
10. Natural valley	0	0.5		1.5	
11. Second or greater order channel	¥	$\overline{b} = 0/$	Yes		
artificial ditches are not rated; see discussions in manual		<u> </u>			
B. Hydrology (Subtotal =)					
12. Presence of Baseflow	0	1	(2)	3	
13. Iron oxidizing bacteria 14. Leaf litter		1	2	3	
	<u> </u>		0.5	0	
15. Sediment on plants or debris	0	0.5		1.5	
16. Organic debris lines or piles	0	0.5	<u>()</u>	1.5	
17. Soil-based evidence of high water table?	INC	0 = 0	(Yes	= 3)	
C. Biology (Subtotal = 9.5)	<u>_</u>			-	
18. Fibrous roots in streambed	(3	2	1	0	
19. Rooted upland plants in streambed	(3)	2	1	0	
20. Macrobenthos (note diversity and abundance)	0	(1)	2	3	
21. Aquatic Mollusks	0	1	2	3	
22. Fish	\square	0,5	1	1.5	
23. Crayfish	G	(0,5	11	1.5	
24. Amphibians	0	(0.5)	1	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed		FACW = 0.75; ØE	3L = 1.5 Other =	0	
*perennial streams may also be identified using other metho	ds. See p. 35 of manua	al.			
Notes:					
Sketch:	Centry LINE	/	Consequences	N	
Flor		Flux			

srog006



Waterbody srog006 facing upstream



Waterbody srog006 facing downstream

srog006



Waterbody srog006 facing upline cross stream

	l	JS.	A	CE	AI	D#
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USACE AID#	DWQ #		Site #	(indicate on attached map)
STRE A	AM QUALITY A	ASSESSMENT W	'ORKSHE	ET
Provide the following information f	or the stream reach un	der assessment:	<i>a</i> [1 1	
1. Applicant's name: ACP		2. Evaluator's name:_	Stephent	bilf man-
3. Date of evaluation: $12/14/14$	5	4. Time of evaluation:		
5. Name of stream: Mercer Br	anch	6. River basin:	an Lo	wer fee Dee
7. Approximate drainage area:		8. Stream order:	A	
9. Length of reach evaluated:	\mathcal{D}'	10. County:Rok	esan	
11. Site coordinates (if known): pre Latitude (ex. 34.872312): 34.853	17 [×]	12. Subdivision name	(if any):	8. 9969
Method location determined (circle): G. 13. Location of reach under evaluation VERTAS RA	PS Topo Sheet Ortho	(Aerial) Photo/GIS Other	GIS Other	
14. Proposed channel work (if any):	ripeline			
15. Recent weather conditions: Nor	mal			
16. Site conditions at time of visit: \underline{S}	umy 50°F			· · · · · · · · · · · · · · · · · · ·
17. Identify any special waterway class	sifications known:	Section 10Ti	dal Waters	Essential Fisheries Habitat
Trout WatersOutstanding I	Resource Waters	_ Nutrient Sensitive Wate	rsWater	Supply Watershed(I-IV)
18. Is there a pond or lake located ups	tream of the evaluation	point? YES NO If yes	, estimate the v	vater surface area:
19. Does channel appear on USGS qu	ad map? YES NO	20. Does channel appe	ar on USDA S	oil Survey? YAS NO
21. Estimated watershed land use:	% Residential	% Commercial	% Indus	trial% Agricultural
22. Bankfull width: Rod	% Forested	% Cleared / Logged23. Bank height (from		(ank):4
24. Channel slope down center of strea	am: Flat (0 to 2%)			
25. Channel sinuosity: 🗹 Straight	Occasional bends	Frequent meander	Very sin	uousBraided channel
Instructions for completion of wor location, terrain, vegetation, stream cl to each characteristic within the ran characteristics identified in the works characteristic cannot be evaluated du comment section. Where there are ob into a forest), the stream may be divid reach. The total score assigned to a highest quality. Total Score (from reverse):	lassification, etc. Every nge shown for the eco sheet. Scores should re e to site or weather con ovious changes in the ch led into smaller reaches stream reach must range	characteristic must be so oregion. Page 3 provid- effect an overall assessme nditions, enter 0 in the s paracter of a stream unde that display more contin- e between 0 and 100, wi	cored using the es a brief desc ent of the stream coring box and r review (e.g., t uity, and a sepa th a score of 10	same ecoregion. Assign points cription of how to review the m reach under evaluation. If a l provide an explanation in the the stream flows from a pasture trate form used to evaluate each
				·····
	1 01			
	+			

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06/03. To Comment, please call 919-876-8441 x 26.

0

Date

C

Evaluator's Signature

#	CUADACERDICELOG	ECOREC	adapa		
<i>\</i> , [#] ,	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	2
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	5
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	5
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	ł
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5
	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
12 13 14	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 - 5	5
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
2 15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	l
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
17 18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	ス
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	Lana and
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	ſ
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0 – 4	0-4	0
21	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	A
	Total Points Possible	100	100	100	

STREAM QUALITY ASSESSMENT WORKSHEET

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

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NC DWQ Stream Identification Form Version 4.11							
Date: 12/14/15	Project/Site: 🏌	LCP	Latitude: 3	34,8333			
Evaluator: 4	County: R	ibeson	Longitude: - 78.9969				
Total Points: Stream is at least intermittent if \geq 19 or perennial if \geq 30* 18.25	Stream Determi	ination (circle one) ermittent) Perennial	Other SY SOUL e.g. Quad Name: Metter Brown				
(<i>reg</i>							
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong			
1 ^{ª.} Continuity of channel bed and bank	0	1	(2)	3			
2. Sinuosity of channel along thalweg	0	(1)	2	3			
3. In-channel structure: ex. riffle-pool, step-pool,	٢	1	2	3			
ripple-pool sequence							
4. Particle size of stream substrate	0	<u>Q</u>	2	3			
5. Active/relict floodplain	0		2	3			
6. Depositional bars or benches		1	2	3			
7. Recent alluvial deposits		1	2	3			
8. Headcuts	Ø	1	2	3			
9. Grade control	0	0.5	1	1.5			
10. Natural valley	0	0.5	1	1.5			
11. Second or greater order channel	N	0 = 0	(Yes	= 3)			
^a artificial ditches are not rated; see discussions in manual 5.5							
B. Hydrology (Subtotal = 455 5.5							
12. Presence of Baseflow	Q		\bigcirc	3			
13. Iron oxidizing bacteria	\bigcirc	1	2	3			
14. Leaf litter	1.5	1	0.5	0			
15. Sediment on plants or debris	\odot	0.5	1	1.5			
16. Organic debris lines or piles	\bigcirc	0.5	1	1.5			
17. Soil-based evidence of high water table?	. No	o = 0	(Yes:	=3)			
C. Biology (Subtotal = 75) 3.75							
18. Fibrous roots in streambed	3	2	(1)	0			
19. Rooted upland plants in streambed	3	(2)	Ť	0			
20. Macrobenthos (note diversity and abundance)	Ø	1	2	3			
21. Aquatic Mollusks	Q	1	2	3			
22. Fish	\bigcirc	0.5	1	1.5			
23. Crayfish	0	0.5	1	1.5			
24. Amphibians	(<u>)</u> (<u>)</u>	0.5	1	1.5			
25. Algae	(Õ)	0.5		1.5			
26. Wetland plants in streambed		EACW = 0.75) OB	L = 1.5 Other = 0				
*perennial streams may also be identified using other methods	. See p. 35 of manua	l.					
Notes: STOFOOI							
Sketch:							
	- magada						

41



Waterbody srof001 facing northwest upstream



Waterbody srof001 facing southeast downstream



Waterbody srof001 facing east across

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form	Version 4.11				
Date: 12/15/15	Project/Site:	ICP	Latitude: 34		
Evaluator:	County: R_{c}	beson	Longitude:	79.0052	
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*7.5	Stream Determ	ination (circle one) ermittent Perennial	Other Stoff002 e.g. Quad Name:		
<i>.</i>					
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong	
1 ^{a.} Continuity of channel bed and bank	0	1	2	3	
2. Sinuosity of channel along thalweg	(\hat{O})	1	2	3	
 In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 	Ó	1	2	3	
4. Particle size of stream substrate	0	Ø	2	3	
5. Active/relict floodplain	Ø	1	2	3	
6. Depositional bars or benches	\bigcirc	1	2	3	
7. Recent alluvial deposits	Q	1	2	3	
8. Headcuts	<u> </u>	1	2	3	
9. Grade control	Ø	0.5	1	1.5	
10. Natural valley	Ø	0.5	1	1.5	
11. Second or greater order channel	reater order channel				
^a artificial ditches are not rated; see discussions in manual		Accession of the second se			
B. Hydrology (Subtotal =)		1	<u> </u>		
12. Presence of Baseflow	0		2	3	
13. Iron oxidizing bacteria	(0)	1	2	3	
14. Leaf litter	1.5	1	0.5	\bigcirc	
15. Sediment on plants or debris	(0)	0.5	1	1.5	
16. Organic debris lines or piles	$\overline{(0)}$	0.5	1	1.5	
17. Soil-based evidence of high water table?	N	o = 0	Yes	= 3	
C. Biology (Subtotal = $3,5$)			and a second sec	Construction of the second	
18. Fibrous roots in streambed	3	(2)	1	0	
19. Rooted upland plants in streambed	3	2	(1)	0	
20. Macrobenthos (note diversity and abundance)	0	1	2	3	
21. Aquatic Mollusks	0	1	2	3	
22. Fish	0	0.5	1	1.5	
23. Crayfish	\odot	0.5	1	1.5	
24. Amphibians	0	0.5	1	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed		FACW = 0.75; OB	L = 1.5 @ther = (y	
*perennial streams may also be identified using other methods					
Notes: 5 rot002, Unporned trib to "Black By	ranch", Tadpole's	present; Ditch	, No flow		
Sketch:	W				
Hereenau	f-				
	ł	<u>.</u>			
Office 15"					

Site #____ (indicate on attached map)

STREAM QUALITY ASS	ESSMENT WORKSHEET
Provide the following information for the stream reach under a	assessment:
1. Applicant's name: Dominion 2.	Evaluator's name:
3. Date of evaluation: 12/15/15 4.	Time of evaluation: 100
5. Name of stream: Unnamed frib to Black Broch 6. 7. Approximate drainage area: 8.	. River basin: Lower fee Dee
7. Approximate drainage area: 8.	. Stream order:
9. Length of reach evaluated: 200'	0. County: Roberton
11. Site coordinates (if known): prefer in decimal degrees.	2. Subdivision name (if any):
Latitude (ex. 34.872312): 34.872 3	Longitude (ex77.556611): - 79.005>
Method location determined (circle): GPS Topo Sheet Ortho (Aeri 13. Location of reach under evaluation (note nearby roads and land	
14. Proposed channel work (if any): Pipeline	
15. Recent weather conditions: Mormal	
16. Site conditions at time of visit: $50^{\circ}F$	
	ection 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersNu	trient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point	t? YES NO If yes, estimate the water surface area:
	0. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 5% Residential	_% Commercial% Industrial 50_% Agricultural
$\frac{25}{5}$ % Forested $\frac{26}{5}$	2% Cleared / Logged% Other ()
22. Bankfull width: 2	3. Bank height (from bed to top of bank): 5'
24. Channel slope down center of stream:Flat (0 to 2%)	_Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: <u>Straight</u> Occasional bends	_Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every cha to each characteristic within the range shown for the ecoregi characteristics identified in the worksheet. Scores should reflect characteristic cannot be evaluated due to site or weather conditi comment section. Where there are obvious changes in the charac- into a forest), the stream may be divided into smaller reaches that reach. The total score assigned to a stream reach must range be highest quality.	: Begin by determining the most appropriate ecoregion based on racteristic must be scored using the same ecoregion. Assign points on. Page 3 provides a brief description of how to review the t an overall assessment of the stream reach under evaluation. If a ons, enter 0 in the scoring box and provide an explanation in the cter of a stream under review (e.g., the stream flows from a pasture display more continuity, and a separate form used to evaluate each tween 0 and 100, with a score of 100 representing a stream of the
/	
Evaluator's Signature DM/Hd//	Date_ 12/15/15
This channel evaluation form is intended to be used only as a gathering the data required by the United States Army Conquality. The total score resulting from the completion of the completion	a guide to assist landowners and environmental professionals in rps of Engineers to make a preliminary assessment of stream his form is subject to USACE approval and does not imply a ange – version 06/03. To Comment, please call 919-876-8441 x 26.

ш	CHADA OTEDICTICO	ECOREGION POINT RANGE			SCORE	
#			Piedmont	Mountain	SCORE	Sector 1
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0 – 5	1	
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 - 6	0-5	0-5		
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0 – 5	0	
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0-4	2	1
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2	
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0	
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0-4	0-2	1	
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	١	
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0	
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3	
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	have	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3	
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3	
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1	٦
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	l	-
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	erragenetation?	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	١	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2	
22	(no evidence = 0; common, numerous types = max points) (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0 - 6	0 - 5	0-5	2	
	Total Points Possible	100	100	100		

STREAM QUALITY ASSESSMENT WORKSHEET



Waterbody srof002 facing east upstream



Waterbody srof002 facing west downstream



Waterbody srof002 facing north across

USACE AID#_

DWQ #_

Site #_____ (indicate on attached map)

STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach une	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: Stepten Haffman
3. Date of evaluation: $12/15/12$	4. Time of evaluation: 1530
5. Name of stream: Black Brock	6. River basin: Lower fee Dee 8. Stream order: 2nd
7. Approximate drainage area:	8. Stream order: 2 nd
9. Length of reach evaluated: <u>300</u>	10. County: Robegin
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):
Latitude (ex. 34.872312): 34.8256	Longitude (ex. –77.556611): – 79. 0078
Method location determined (circle): GPS Topo Sheet Ortho 13. Location of reach under evaluation (note nearby roads and RHC 20	(Aerial) Photo/GIS Other GIS Other
14. Proposed channel work (if any): Pipeline	
15. Recent weather conditions: Nor and	
16. Site conditions at time of visit: 50° '5	
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	_Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? (YES) NO	20. Does channel appear on USDA Soil Survey? YES NO
	10 % Commercial% Industrial 🔏 % Agricultural
40 % Forested	10_% Cleared / Logged% Other (
22. Bankfull width: [2]	23. Bank height (from bed to top of bank): 1.5'
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:Straight VOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the cl into a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must rang highest quality.	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points bregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the haracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each e between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): Comme	ents:
Evaluator's Signature	Date 12/15/15
gathering the data required by the United States Army quality. The total score resulting from the completion particular mitigation ratio or requirement. Form subject t	as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a o change – version 06/03. To Comment, please call 919-876-8441 x 26.
and the second	1

STREAM	QUALITY	ASSESSMENT	WORKSHEET
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		ECOREC	SCODE		
#	CHARACTERISTICS –		Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0 – 5	3
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	°0 – 5	1
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0-4	0-2	4
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	4
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0 - 4	0-3	4
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	diareas
- 12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0 – 5	0-4	0-5	4
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4
13 14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
² 15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0 - 5	0-6	0
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0-6	0-6	2
4 17 18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	<u> </u>
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	<u>Ô</u>
21 22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	U
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3
	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter on f	irst page)			53

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Date: 12/15/15	Project/Site:	ACP	Latitude: $34, 82, 56$		
Evaluator: 514	County: R	es or	Longitude: $-79,0078$		
Total Points: Stream is at least intermittent if \geq 19 or perennial if \geq 30* \downarrow \downarrow \downarrow \downarrow \downarrow	Stream Determi Ephemeral Inte	ination (circle one) ermittent Perennial	Other STG 1003 e.g. Quad Name: Black Brack		
A. Geomorphology (Subtotal = 10.5)	Absent	Weak	Moderate	Strong	
1 ^a Continuity of channel bed and bank	0	1	2	3	
2. Sinuosity of channel along thalweg	0	1	(2)	3	
3. In-channel structure: ex. riffle-pool, step-pool,	-				
ripple-pool sequence	\odot	1	2 *	3	
4. Particle size of stream substrate	0	<u>(</u>)	2	3	
5. Active/relict floodplain	0	(1)	2	3	
6. Depositional bars or benches	(0)	1	2	3	
7. Recent alluvial deposits	Q	$\overline{(1)}$	2	3	
3. Headcuts	(0)	1	2	3	
9. Grade control	0	0.5	1	1.5	
10. Natural valley	0	(0.5)	1	1.5	
11. Second or greater order channel	N	0 = 0	(Tes = 3		
artificial ditches are not rated; see discussions in manual					
B. Hydrology (Subtotal =6)					
12. Presence of Baseflow	0	1	(Ž)	3	
13. Iron oxidizing bacteria	(0)	1	2	3	
14. Leaf litter	1.5	1	(0.5)	0	
15. Sediment on plants or debris	0	(0.5)	1	1.5	
16. Organic debris lines or piles	(0)	0.5	1	1.5	
17. Soil-based evidence of high water table?		o = 0	Yes	= 3	
C. Biology (Subtotal = $4,75$)					
18. Fibrous roots in streambed	3	(2)	1	0	
19. Rooted upland plants in streambed	3	2	<u>(</u> 1)	0	
20. Macrobenthos (note diversity and abundance)	0	(D)	2	3	
21. Aquatic Mollusks	$\overline{(0)}$	1	2	3	
22. Fish	65	0.5	1	1.5	
23. Crayfish		0.5	1	1.5	
24. Amphibians	Ö	0.5	1	1.5	
25. Algae	0	0.5	1	1.5	
26. Wetland plants in streambed		(FACW=0.75) OB	$\frac{1}{1 = 15}$ Other = (
*perennial streams may also be identified using other method	s See n 35 of manus	and the second s		,	
		struction, silt	ferie, Aluce	loot allow ups	
Sketch:					

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Waterbody srof003 facing northwest upstream



Waterbody srof003 facing southeast downstream



Waterbody srof003 facing southwest across

Open Waterbody Data Sheet

Survey Descripti	on					
Project Name:		Waterbody Na	ame: t	1	Vaterbody ID:	Date:
ACP		HNNG	MEJ PO	NO	0r00001	10/18/16
State:	County:	0	Company:	Crew	Member Initials:	Photos: Facing
NC	Robeso	n	ESI	LF	2, LJ	S,W
Tract Number(s):		1	learest Milepost:		Associated Wetland	
24-029,	24-027		167.2		NA	
Survey Type: (check one)	Centerlin	e 🗆 Re	e-Route	Access Road	□Other:	
Physical Attribut	es					
Waterbody Type:						
(check one)	ck Pond 🗆 Natura	I Pond 🗆 Lak	e 🗆 Reservoir 🗆	Impoundment	Oxbow D Other:	
Hydrologic Regime:	Permanently	Flooded 🛛	Semipermanently F	ooded 🗆 Seas	onally Flooded	Temporarily Flooded
OHWM Height: <u>>3f</u> t	OHWM Indi (check all that a		Clear line on bank	□Shelving	□Wrested vegetation	□Scouring □Water staining
n	□Ben vegeta		ssing ⊡Wrack line	□Litter and debris	□Abrupt plant community ch	□Soil characteristic change ange
Depth of Water:		Bank heigh	t (average):		Bank slope (aver	age):
>3	<u> </u>		ft		-	9D degrees
N/A			above surf	ace		
Qualitative Attril	outes					0
Water Appearance: (check one)	□No water 🗶	Clear 🗆 Tu	urbid DSheen on surfac		e ⊡Algal ⊡ mats	Other:
Substrate:	Bedrock B	louider 🗆 Co	bble 🛛 Gravel	Ø Sand Ø S	ilt/ clay	Other:
(check all that apply) % of Substrate:	%	%	%%	80 % Z	<u> </u>	%
Width of Riparian Zo			\rd_	~		2
ft	(check all tha	t apply)	Trees:	_K Sa	plings/Shrubs:	A Herbs
NAK		l of Dominants	:: <u> </u>		in.	<u>NA</u> in.
Dominant Bank Veg	(approx.)					
		vs, Beti	la nigr	6		
Aquatic Habitats (ex	submerged or emerged a	quatic vegetation, o	verhanging banks/roots, lea	af packs, large submerge	ed wood, riffles, deep pools,	etc.):
none						
Aquatic Organisms	Observed (list):					
none						
T&E Species Obser	/ed (list):					
none						
Disturbances (ex: liv			aste discharge pipes):	1 intrin		
	and he	, , , , , , , , , , , , , , , , , , ,	www.cojw	namian	uc	
Waterbody is: (check one)	🗆 Natura	al 💢 Artifici	al, man-made 🛛 🗆] Manipulated		
	:					

Waterbody ID: 000000 High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man. Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man. Low Quality: Rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man. Notes: Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point locations, survey boundary, and IDs of associated features) ٨ 2 9 000000

Environmental Field Surveys Open Water Point Photo Page



Open Waterbody oroo001 facing south.



Open Waterbody oroo001 facing southwest.

Open Waterbody Data Sheet

Survey Description								
Project Name:		Waterbody N	lame:			Waterbody ID:	·····	Date:
Southeastern Reliabil	ity ACP	WWAM	$\epsilon \Delta$			OROHOO	2	9-10-14
	inty:		Company:		Crew	Member Initials:	Photos:	
NCE	Dobesor		DOWES	T	*7	5D, 3G		2
Tract Number(s):	······································		Nearest Milepost			Associated Wetland	ID(s):	
24-0	58		46	\mathcal{O}		NONE		
Survey Type: (check one)	⊠Centerline	e 🗆 🗆 F	e-Route	□Access Roa	ad	Other:		
Physical Attributes								
Waterbody Type: (check one)	ond 🗆 Natural	Pond 🗆 La	ke 🗆 Reservoir		int D] Oxbow 🛛 Other:		
Hydrologic Regime:	Permanently	Flooded [Semipermanently	y Flooded	Sea	sonally Flooded	Tempora	rily Flooded
онwм	OHWM Indie (check all that ap		M Olympit		, .			
Height:		(1 , 1)	🕅 Clear li on bank	ne ⊡She	iving	□Wrested vegetation		ouring ⊟Water staining
I	⊟Bent vegeta		nissing □Wrack line	□Litte debris		□Abrupt plant community cha		characteristic change
Depth of Water:	<u>I</u>	Bank heig	ht (average): _/			Bank slope (aver	age):	
	t.		6	ft.		-	<u>30</u> d	egrees
Qualitative Attribute	S			<u>taðuð á anna taðun gun anna sa anna</u>	•••••••	I		
Water Appearance: (check one)	o water 🛛	Clear	urbid □She on sur		Surfac	e ⊡Algal ⊡o mats	Other:	
Substrate:	Bedrock 🗆 B	oulder 🗆 C	obble 🗆 Gravel			Silt/ clay 🛛 Organic	Other	
% of Substrate:	%	%	%	» <u>50</u> %	5	0%%		%
Width of Riparian Zone:	Vegetative				,			
10_{ft}	(check all that	apply)	Trees:			aplings/Shrubs:	Herbs	8
N/A 🗆	(approx.)	of Dominant	<u> </u>			<u>3_in</u> .		_in.
Dominant Bank Vegetation	on (list): Gyvac i H	wa, Ae	er rubrum,	Pines	tæe	da, Sassi	afras	albideem
Aquatic Habitats (ex: subm	erged or emerged ac		overhanging banks/roots	, leaf packs, large s	ubmerg	ed wood, riffles, deep pools, e	etc.):	
Aquatic Organisms Obse	rved (list):							
leope	rd frog	s, w	ater skā	tes				
T&E Species Observed (list): 7705			<u> </u>				
Disturbances (ex: livestock		in waterbody.	vaste discharge pipes	s):				****
		•	ATTON	PONT	5			
Waterbody is: (check one)	Natural		ial, man-made	Manipulate	d			
Waterbody Quality ^a : (check one)	□ High	Moderat	e Xi Low					

ROHOOD High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man. Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man. Low Quality: Rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man. Notes: Man-made excavated, out if upland pend. 45'×120' L, Irrightion Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point locations, survey boundary, and IDs of associated features) 10044

Waterbody ID:

oroh002



Open water data point oroh002 facing northwest



Open water data point oroh002 facing southwest

DWQ #_

STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach under	er assessment: 550,005
1. Applicant's name: Dominica	2. Evaluator's name: DDWest
3. Date of evaluation: 9/10 (2014	4. Time of evaluation: $(2:3\circ)$
5. Name of stream: UNT to Tenmile Swamp	6. River basin: Lumban
7. Approximate drainage area: <50 Acres	8. Stream order: 45+
9. Length of reach evaluated: 300 Feet	10. County: Robeson
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):
Latitude (ex. 34.872312): 34 47 17.781 1	12. Subdivision name (if any): Longitude (ex77.556611):79 ひこ この19(ごい
Method location determined (circle): GPS Topo Sheet Ortho (A 13. Location of reach under evaluation (note nearby roads and la	erial) Photo/GIS Other GIS Otherandmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): None	
15. Recent weather conditions: Normal	
16. Site conditions at time of visit: Normal	
17. Identify any special waterway classifications known:	_Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters]	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
	oint? YES O If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	% Commercial% Industrial <u>50</u> % Agricultural
	% Cleared / Logged% Other ()
	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every c to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should refl characteristic cannot be evaluated due to site or weather cond comment section. Where there are obvious changes in the cha into a forest), the stream may be divided into smaller reaches the reach. The total score assigned to a stream reach must range highest quality.	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points egion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a litions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture nat display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the stream of the stream. Likely $TT by (corps - OHM)$ observed.
gathering the data required by the United States Army C quality. The total score resulting from the completion of	Date $09/10/2014$ s a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26.

Srog 005

STREAM QUALITY	ASSESSMENT	WORKSHEET
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#	CHARACTERISTICS	ECOREC	0.000		
	eminutertexistics		Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	0
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	1
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0-4	0-5	2
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	1
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	6
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	· 1
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	Ō
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	i
12 13 14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
17	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0 – 5	
	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter on fin	st page)			19

Srog DO 5

NC DWQ Stream Identification Form Version 4.11

Date: 69/10/2018		<u> </u>			
01/10/2014	Project/Site: A C P		Lauude: 34047'17.781"N		
Date: 69/10/2014 Evaluator: DDWest	County: Robeson Lon		Longitude: ->	9002'20.191"	
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*	Stream Determin Ephemeral Inter	nation (circle one) rmittent Perennial	Other UNT e.g. Quad Name	047'17.781"M 9002'20.191" to Tenalle Swamp	
			-1		
A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong	
1 ^{a.} Continuity of channel bed and bank	0	1	Q	3	
2. Sinuosity of channel along thalweg	0	1	2	3	
3. In-channel structure: ex. riffle-pool, step-pool,	0				
ripple-pool sequence		1	2	3	
4. Particle size of stream substrate	0	1	2	3	
5. Active/relict floodplain	Ó	1	2	3	
6. Depositional bars or benches	\bigcirc	1	2	3	
7. Recent alluvial deposits	()	1	2	3	
8. Headcuts	\odot	1	2	3	
9. Grade control	0	0.5	1	1.5	
10. Natural valley	\bigcirc	0.5	1	1.5	
11. Second or greater order channel	No	=0	Yes	= 3	
^a artificial ditches are not rated; see discussions in manual					
B. Hydrology (Subtotal = 4.5)					
12. Presence of Baseflow	(\tilde{O})	1	2	3	
13. Iron oxidizing bacteria		1	2	3	
14. Leaf litter	1.5	1	0.5	0	
15. Sediment on plants or debris	0	0.5	1	1.5	
16. Organic debris lines or piles	0	0.5	1	1.5	
17. Soil-based evidence of high water table?	No = 0 Yes € 3				
C. Biology (Subtotal = 5)				9	
18. Fibrous roots in streambed	3	2	(1)	0	
19. Rooted upland plants in streambed	3	2	1	0	
20. Macrobenthos (note diversity and abundance)					
21. Aquatic Mollusks		1	2	3	
22. Fish		1	2	3	
23. Crayfish	-	0.5	1	1.5	
24. Amphibians	0	0.5	1	1.5	
25. Algae	0	6.5	1	1.5	
26. Wetland plants in streambed	-0-	0.5	1	1.5	
*perennial streams may also be identified using other method		FACW = 0.75; OB	$L = 1.5$ Other \neq	♪	
		e k			
Notes: Rates ophemical = ditch	w/ OHWI	<u>vi</u>			
Sketch:					
			/	/	
	//		0-		
			POT	1 1 1	
	7000		- Ont	- Claroa	
	· • • • •		<i>v</i> .		
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5rog 005



Waterbody srog005 facing upstream



Waterbody srog005 facing downstream



Waterbody srog005 facing upline cross stream

DWQ #_

Site #_____ (indicate on attached map)

STREAM QUALITY ASS	SESSMENT WORKSHEET
Provide the following information for the stream reach under	assessment.
The second se	$\therefore Evaluator's name: DD WEST$
	Time of evaluation: $4:06$
	. River basin: Lumber
7. Approximate drainage area: 750 acres Surger	Stream order:
	0. County:Rabeson
	2. Subdivision name (if any):
Latitude (ex. 34.872312): 34 46 28.655	
Method location determined (circle): (PS) Topo Sheet Ortho (Aer 13. Location of reach under evaluation (note nearby roads and lan	ial) Photo/GIS Other GIS Other
14. Proposed channel work (if any): NONE	
15. Recent weather conditions: Machly Que -	LI SUGARES
16. Site conditions at time of visit:	
17. Identify any special waterway classifications known: NB s Performed Waters De Outstanding Resource Waters DE Nu	ection 10 $\underline{N}^{\underline{N}}$ Tidal Waters $\underline{N}^{\underline{M}}_{\underline{N}}$ Essential Fisheries Habitat trient Sensitive Waters $\underline{N}^{\underline{N}}_{\underline{N}}$ Water Supply Watershed $\underline{N}^{\underline{N}}_{\underline{N}}$ (I-IV)
18. Is there a pond or lake located upstream of the evaluation poin	
	0. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	_% Commercial% Industrial 🙆% Agricultural
$\frac{20}{6}$ Forested	_% Cleared / Logged% Other ()
	3. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	_Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: <u> </u>	_Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2) location, terrain, vegetation, stream classification, etc. Every cha to each characteristic within the range shown for the ecoregi characteristics identified in the worksheet. Scores should reflect characteristic cannot be evaluated due to site or weather conditi comment section. Where there are obvious changes in the characteristic a forest), the stream may be divided into smaller reaches that reach. The total score assigned to a stream reach must range be highest quality.	Begin by determining the most appropriate ecoregion based on racteristic must be scored using the same ecoregion. Assign points on. Page 3 provides a brief description of how to review the t an overall assessment of the stream reach under evaluation. If a ons, enter 0 in the scoring box and provide an explanation in the eter of a stream under review (e.g., the stream flows from a pasture display more continuity, and a separate form used to evaluate each tween 0 and 100, with a score of 100 representing a stream of the Magn - magle diffed
(
Evaluator's Signature This channel evaluation form is intended to be used only as a gathering the data required by the United States Army Con	Date <u>9-9-14</u> guide to assist landowners and environmental professionals in ps of Engineers to make a preliminary assessment of stream

gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

SROGOOL

STREAM QUALITY ASSESSMENT WORKSHEET

#	CHARACTERISTICS	ECOREGION POINT RANGE		FRANGE	SCODE	
		Coastal	Piedmont	Mountain	SCORE	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	.2	
	Evidence of past human alteration				· /	
2	(extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5		
3	Riparian zone	0-6	0-4	0.5		
	(no buffer = 0; contiguous, wide buffer = max points)	0-0	0-4	0-5	2	
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	1	
3 7	Groundwater discharge				<u> </u>	
5 6 7	(no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0 – 4		
6	Presence of adjacent floodplain	0-4	0-4	0-2		
<u> </u>	(no floodplain = 0; extensive floodplain = max points)	0=4	0=4	0-2		
1 7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0 - 2	/	
0	Presence of adjacent wetlands				(
8	(no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	2	
9	Channel sinuosity	0-5	0-4	0-3	\wedge	
	(extensive channelization = 0; natural meander = max points)		0-4	0=3	0	
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 – 5	0-4	0-4	1	
11	Size & diversity of channel bed substrate				1 HA .	
11	(fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0 – 5	MAS	
12	Evidence of channel incision or widening	0-5	0-4	0-5	1	
	(deeply incised = 0; stable bed & banks = max points) Presence of major bank failures	·	, , , , , , , , , , , , , , , , , , ,		(
13 13 14	(severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0-5	0-5	2	
9 14	Root depth and density on banks	0-3	0-4	0 6	1	
	(no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	1	
16	Presence of riffle-pool/ripple-pool complexes					
16	(no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	\mathcal{O}	
V 17	Habitat complexity	0-6	0-6	0-6	<u>``</u>	
<u>,</u>	(little or no habitat = 0; frequent, varied habitats = max points)	0=0	0-0	0=0		
V 17 18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2-	
80.000	Substrate embeddedness			_	_11	
19	$(\text{deeply embedded} = 0; \text{ loose structure} = \max)$	NA*	0-4	0-4	PR	
20	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	D	
	(no evidence = 0; common, numerous types = max points)		÷ ;		U	
3 21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1	
21	Presence of fish	<u> </u>		<u>.</u>	~ ~	
	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	<u> </u>	
23	Evidence of wildlife use	0-6	0-5	0-5	2-	
	(no evidence = 0; abundant evidence = max points)		-		-	
	Total Points Possible	100	100	100	(
	TOTAL SCORE (also enter on fir	st page)			74	
These of	haracteristics are not assessed in coastal streams.				4	

5 ROG004

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NC DWQ Stream Identification Form Version 4.11

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	ACP		7620.633		
County: Ro	beson	Longitude: 7	Latitude: 34° 46' 28.655 Longitude: 79° 02' 57.0		
Stream Determi Ephemeral Inte	nation (circle one) rmittent)Perennial	Other			
Absent	Weak	Moderate	Strong		
0	1		3		
0	(1)		3		
		2	3		
		2	3		
	Ð	2	3		
	1	2	3		
	(1)		3		
	1		3		
		· · · · · · · · · · · · · · · · · · ·	1.5		
			1.5		
		Yes	= 3		
			n an		
0	(1)	(A)	3		
			3		
	$-\frac{1}{1}$	(0.5)	0		
	05	1	1.5		
·····		(1)	1.5		
3	2	(1)	0		
			0		
			3		
	1		3		
	0.5		1.5		
			1.5		
0			1.5		
0			1.5		
ds. See p. 35 of manua					
dikkon	edge y fi	el I + fore	sted		
1					
7					
	Stream Determine Absent 0	Stream Determination (circle one) Ephemeral Intermittent Perennial Absent Weak 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0.5	Stream Determination (circle one) Ephemeral Intermittent Perennial Other e.g. Quad Name: e.g. Q		



Waterbody srog004 facing upstream



Waterbody srog004 facing downstream



Waterbody srog004 facing upline cross stream

DWQ #_

Site #____ (indicate on attached map)

STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: $DDWEST$
3. Date of evaluation: $9 - 23 - 14$	4. Time of evaluation:
5. Name of stream: UNT to SADDLE TREE	6. River basin: Lumber
7. Approximate drainage area: 100 ACRES	8. Stream order: 5F
9. Length of reach evaluated:	10. County:Robeson
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONC
Latitude (ex. 34.872312): 36° 46° 17.964/1	Longitude (ex77.556611): <u>79°03°15.874</u>
Method location determined (circle): GPS Topo Sheet Ortho (A 13. Location of reach under evaluation (note nearby roads and l	erial) Photo/GIS Other GIS Other
14. Proposed channel work (if any): NOVE	
15. Recent weather conditions: Moinly Dry	- few showers
16. Site conditions at time of visit: <u>Mormal</u>	,
17. Identify any special waterway classifications known:	Section 10 NATidal Waters MAEssential Fisheries Habitat
MATrout Waters MOOutstanding Resource Waters MA	Nutrient Sensitive Waters $M_{\rm W}$ ater Supply Watershed $M_{\rm (I-IV)}$
18. Is there a pond or lake located upstream of the evaluation po	int? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
	% Commercial% Industrial 🖉 Agricultural
40% Forested	% Cleared / Logged% Other ()
22. Bankfull width:	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream: $_$ Flat (0 to 2%) _	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should reflect characteristic cannot be evaluated due to site or weather cond comment section. Where there are obvious changes in the char into a forest), the stream may be divided into smaller reaches the	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points gion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a itions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture hat display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): <u>51</u> Comment	s: Man-made ditch
Evaluator's Signature	Date9-23-1×/
This channel evaluation form is intended to be used only as gathering the data required by the United States Army C	a guide to assist landowners and environmental professionals in corps of Engineers to make a preliminary assessment of stream

gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

		ECODE			
#	CHARACTERISTICS	Coastal	GION POINT	a state of the second se	SCORE
	Presence of flow / persistent pools in stream	Cuastai	Piedmont	Mountain	
1	(no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	2
	Evidence of past human alteration				
2	(extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	O
3	Riparian zone	Park and			0
	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	2
4	Evidence of nutrient or chemical discharges	0-5	0-4	0-4	, i
	(extensive discharges = 0; no discharges = max points)	and the second	V T	0-4	4
5	Groundwater discharge	0-3	0-4	0-4	
5 6 7	(no discharge = 0; springs, seeps, wetlands, etc. = max points) Presence of adjacent floodplain				\mathcal{T}
6	(no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	10
7	Entrenchment / floodplain access	and an).
	(deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	MA
8	Presence of adjacent wetlands	0-6	0-4	0.0	
	(no wetlands = 0; large adjacent wetlands = max points)	0-0	0-4	0-2	5
9	Channel sinuosity	0-5	0-4	0-3	\bigcirc
	(extensive channelization = 0; natural meander = max points) Sediment input			<u> </u>	
10	(extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	4
1.1	Size & diversity of channel bed substrate				1
11	(fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
12	Evidence of channel incision or widening	0 F	· · · ·	<u> </u>	
13 14	(deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	X3
13	Presence of major bank failures	0-5	0-5	0-5	-7
71 Marca 1919 - 1919	(severe erosion $= 0$; no erosion, stable banks = max points)		0.5	0=5	>
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	()
	Impact by agriculture, livestock, or timber production				
15	(substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
16	Presence of riffle-pool/ripple-pool complexes				
a la tracción de	(no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	O
17 18	Habitat complexity	0-6	0-6	0-6	l
	(little or no habitat = 0; frequent, varied habitats = max points)	0-0	0=0	0=0	
18	Canopy coverage over streambed	0-5	0-5	0-5	
	(no shading vegetation = 0; continuous canopy = max points)				i
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
	Presence of stream invertebrates (see page 4)				
20	(no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	O
21	Presence of amphibians	<u> </u>			;
	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
22	Presence of fish	0-4	0-4	0-4	α
	(no evidence = 0; common, numerous types = max points)		<u> </u>	· ·	
23	Evidence of wildlife use	0-6	0-5	0-5	
<u> </u>	(no evidence = 0; abundant evidence = max points)				
	Total Points Possible	100	100	100	
			1	L	21
	TOTAL SCORE (also enter on fi	rst page)			>

* These characteristics are not assessed in coastal streams.

SROHOIS

NC DWQ Stream Identification Form Version 4.11

e: ACP	Latitude: 37	046'12.964'		
County: Robeson		Longitude: 79°03 15.87		
Stream Determination (circle one) Ephemeral Intermittent Perennial		TO SAPPLETK : Swamp		
		······		
it Weak	Moderate	Strong		
1	2	(3)		
1	2	3		
1	2	3		
(1)	2	3		
1	2			
(1)		3		
	2	3		
	2	3		
0.5	21	3		
0.5	11	1.5		
No = 0	1	1.5		
	Yes	= 3		
1	2	3		
(1)	2	3		
	(0.5)	0		
(0.5)				
(0.5)		1.5		
No = 0	1 Yes	1.5		
110 - 0	Tes	<u>.</u>		
(2)	*			
	1	0		
	1	0		
1	2	3		
	2	3		
0.5	1	1.5		
0.5	1	1.5		
0.5	1	1.5		
0.5	1	1.5		
FACW = 0.75; OB	$L = 1.5$ Other \neq (9		
manual.				
, p				
AR 105	CORRIRO	R		
FART ATT				
• •				
	1			

sroh015



Waterbody sroh015 facing upstream



Waterbody sroh015 facing downstream

sroh014



Waterbody sroh015 facing downline cross stream

DWQ #__

SROHO13

Site #_____ (indicate on attached map)

STREAM QUALITY AS	SESSMENT WORKSHEET
Provide the following information for the stream reach under	· assessment:
	2. Evaluator's name: DDWEST
3. Date of evaluation: $4 - 44 - 14$	4. Time of evaluation: $2:35$
- SADDIETRES	6. River basin: Lumber
	8. Stream order: 15t
	10. County:
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312); <u>34 * 46 * 08 - 2-26 "</u>	
Method location determined (circle): GPS Topo Sheet Ortho (Ae 13. Location of reach under evaluation (note nearby roads and lan	rial) Photo/GIS Other GIS Other
14. Proposed channel work (if any):	<u>^</u>
15. Recent weather conditions: A gen the W	Lainly On - Leve showers
16. Site conditions at time of visit: Normal	
	Section 10 NAridal Waters Wessential Fisheries Habitat utrient Sensitive Waters MAWater Supply Watershed MA(I-IV)
	nt? YES (NO If yes, estimate the water surface area:
	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	_% Commercial% Industrial 🛞% Agricultural
20% Forested	_% Cleared / Logged% Other ()
	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every ch to each characteristic within the range shown for the ecoreg characteristics identified in the worksheet. Scores should reflec characteristic cannot be evaluated due to site or weather condi comment section. Where there are obvious changes in the chara- into a forest), the stream may be divided into smaller reaches tha	2): Begin by determining the most appropriate ecoregion based on aracteristic must be scored using the same ecoregion. Assign points tion. Page 3 provides a brief description of how to review the ct an overall assessment of the stream reach under evaluation. If a tions, enter 0 in the scoring box and provide an explanation in the acter of a stream under review (e.g., the stream flows from a pasture at display more continuity, and a separate form used to evaluate each etween 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): Comments	·
MAn-mad	h clitch
Evaluator's Signature	Date9-22-14/

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET SROHOT3

4	¥	CHARACTERISTICS	ECOREGION POINT RANGE			GOODE
'			Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	2
2	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	1
4	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	Ī
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	Ì
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
8	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	\bigcirc
9	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
1	0	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2
1	1	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NB
1	2	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	[]
1	3	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	1
1	4	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0 – 5	i
2 1	5	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	1
926 (AN 200)	6	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
1	7	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
1	8	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
	9	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
65 20 A.	.0	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	(
2	1	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
2	2	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
2	3	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0 - 6	0-5	0-5	2
		Total Points Possible	100	100	100	

* These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form	Version 4.11		SROHA	013	
Date: 9-22-14	Project/Site:	ACP	Latitude: 34° 46' 08.226" Longitude: 79° 03' 27.971" Other UNT TO SADIZE e.g. Quad Name: 5207471		
Evaluator: DDWEST	County: Robert Longitude: 79° 62		"02" 27.977"		
Total Points:	Stroom Dataumi	nation (circle one)	an INT	TO SADDLER	
Stream is at least intermittent 22.75 if \geq 19 or perennial if \geq 30*	Ephemeral Inte	rmittent Berennial	e g Quad Name	SWAM	
A. Geomorphology (Subtotal = 7	Absent	Weak	Moderate	Strong	
1 ^a Continuity of channel bed and bank	0	1	2	3	
2. Sinuosity of channel along thalweg	(0)	1	2	3	
3. In-channel structure: ex. riffle-pool, step-pool,					
ripple-pool sequence	\bigcirc	1	2	3	
4. Particle size of stream substrate	0		2	3	
5. Active/relict floodplain	0	0	2	3	
6. Depositional bars or benches	\bigcirc	1	2	3	
7. Recent alluvial deposits	0	<u>(</u>)	2	3	
8. Headcuts	0	<u></u>	2	3	
9. Grade control	0	(0.5)	1	1.5	
10. Natural valley	0	(0.5)	1	1.5	
11. Second or greater order channel		=0)	Yes	= 3	
^a artificial ditches are not rated; see discussions in manual					
B. Hydrology (Subtotal =, 5)			<u>.</u>		
12. Presence of Baseflow	0	1	(2)	3	
13. Iron oxidizing bacteria	0	(1)	2	3	
14. Leaf litter	1.5	1	0.5	0	
15. Sediment on plants or debris	0	(0.5)	1	1.5	
16. Organic debris lines or piles	0	(0.5)	1	1.5	
17. Soil-based evidence of high water table?	No = 0 $(Yes = 3)$				
C. Biology (Subtotal = <u>6, 2,5</u>)					
18. Fibrous roots in streambed	3	2	(1)	0	
19. Rooted upland plants in streambed	(3)	2	1	0	
20. Macrobenthos (note diversity and abundance)	0	(1)	2	3	
21. Aquatic Mollusks	(0)	1	2	3	
22. Fish	(0)	0.5	1	1.5	
23. Crayfish	(6)	0.5	1	1.5	
24. Amphibians	0	0.5	1	(1.5)	
25. Algae	0	0.5	(1)	1.5	
26. Wetland plants in streambed		(FACW = 0.75;)OBI	= 1.5 Other = (
*perennial streams may also be identified using other methods	. See p. 35 of manua				
Notes:					
1 1-10					
Sketch:	Robi	- 7	Corri Pa	JR R	
		kummun 1775/1989			
11/					

sroh013



Waterbody sroh013 facing upstream



Waterbody sroh013 facing downstream

sroh013



Waterbody sroh013 facing upline cross stream

USACE A	AID#
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Site #____ (indicate on attached map)

Srog003

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Dominian 2. Evaluator's name: DD West
3. Date of evaluation: 9/9/14/ 4. Time of evaluation: 12.30
5. Name of stream: UNT to Liftle ten Mile Swarp 6. River basin: Lunber
7. Approximate drainage area: < 50 ac 8. Stream order: 157 arder
9. Length of reach evaluated: 300 10. County: Rode San
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312):
Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other
13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location):
See Map
14. Proposed channel work (if any): NONE
15. Recent weather conditions: Neavy rain yesterday
16. Site conditions at time of visit: Overcast & Sneery. Low 80, (°F)
17. Identify any special waterway classifications known:Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES XO 20. Does channel appear on USDA Soil Survey? YES XO 21. Estimated watershed land use: % Residential % Commercial % Industrial 50 % Agricultural
% Forested % Cleared / Logged Source / Shreet 22. Bankfull width: % Cleared / Logged Source / Shreet 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream: Flat (0 to 2%) Gentle (2 to 4%) Moderate (4 to 10%) Steep (>10%)
25. Channel sinuosity:Straight XOccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.
Total Score (from reverse): 30 Comments:
alalic/
Evaluator's Signature Date

DWQ #

athering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

	#	CHARACTERISTICS	ECOREGION POINT RANGE			
		and the provide second	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	0
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	6
HI	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	4
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	Ø
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 - 5	0-4	0-4	2
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	MA
N	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	0
BILT	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0-5	0-5	4
STABILITY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 - 4	0-5	1
0	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	1
L	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
HABITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
HAE	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	MA
Y	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	6
DOU	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	B
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	6
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	1
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fir	st page)			30

* These characteristics are not assessed in coastal streams.

srog 003

K

Date: 09/09/2014	Project/Site: A	Project/Site: ACP		Latitude: 34°46 01.492 Longitude: 79°03 19.4	
Evaluator: DDWest	County: Rob	County: Robeson		° 03'19.4	
Fotal Points:Stream is at least intermittent $f \ge 19$ or perennial if $\ge 30^*$ 19.7:	Stream Determi	nation (circle one) mittent Perennial	Other UNT e.g. Quad Name:	to Little Tenmile	
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong	
^{a.} Continuity of channel bed and bank	0	1	(2)	3	
2. Sinuosity of channel along thalweg	0	Ð	2	3	
 In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 	0	1	2	3	
 Particle size of stream substrate 	0	(1)	2	3	
5. Active/relict floodplain	0	(1)	2	3	
Depositional bars or benches	0	1	2	3	
. Recent alluvial deposits	0		2	3	
3. Headcuts	0	Ð	2	3	
. Grade control	0	0.5	1	1.5	
0. Natural valley	0	0.5	1	1.5	
1. Second or greater order channel	No	€0)	Yes	= 3	
artificial ditches are not rated; see discussions in manual		0	ale da data e construito da secon		
8. Hydrology (Subtotal = <u>355 4</u>)					
2. Presence of Baseflow	\bigcirc	1	2	3	
3. Iron oxidizing bacteria	0	1	2	3	
4. Leaf litter	1.5	1	0.5	0	
5. Sediment on plants or debris	O	(0.5)	1	1.5	
6. Organic debris lines or piles	(0)	0.5	1	1.5	
7. Soil-based evidence of high water table?	No	= 0	Yes		
C. Biology (Subtotal = 5.75)					
8. Fibrous roots in streambed	3	(2)	1	0	
9. Rooted upland plants in streambed	3	(2)	1	0	
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3	
21. Aquatic Mollusks	6	1	2	3	
22. Fish	0	0.5	1	1.5	
3. Crayfish	0	0.5	1	1.5	
4. Amphibians	0	0.5	(1)	1.5	
5. Algae	0	0.5	1	1.5	
6. Wetland plants in streambed		FACW € 0.75; OB	L = 1.5 Other = 0		
*perennial streams may also be identified using other meth	ods. See p. 35 of manua		area particular a second contract and		
lotes:					
Sketch: Wrog0615_w					
	How	500900	3		

 $\rightarrow N$ 3



Waterbody srog003 facing upstream



Waterbody srog003 facing downstream



Waterbody srog003 facing upline cross stream

USACE AID#	DWQ #		Site #	(indicate on attached map)
III STRE	AM QUALITY A	SSESSMENT WOI	RKSHE	ET
Provide the following information	for the stream reach und	ler assessment:		
I. Applicant's name: Opmin	NIAN	2. Evaluator's name:	DW	est
3. Date of evaluation: 9/9	114			
5. Name of stream: UNT 4.	Suddletree Sugar	6. River basin: Lunb	er	C.
7. Approximate drainage area:		(T		
. Length of reach evaluated:	Souft	0 1	San	
11. Site coordinates (if known): p	refer in decimal degrees.	12. Subdivision name (if a	uny):	
Latitude (ex. 34.872312): 39° 45'4	8.000"	Longitude (ex77.556611):	79°03'2	7.888"
Method location determined (circle):	GPS Topo Sheet Ortho (A	Aerial) Photo/GIS Other GIS	Other	
13. Location of reach under evaluat				
perpendicular				
14. Proposed channel work (if any)				
15. Recent weather conditions:	Theavy Tain	Yesterday		- 1
16. Site conditions at time of visit:_				
17. Identify any special waterway c				
Trout WatersOutstandin				
18. Is there a pond or lake located u	0			-
19. Does channel appear on USGS		11		
21. Estimated watershed land use:				trial 1 <u>00</u> % Agricultural
22. Bankfull width: <u>3</u>				()
		23. Bank height (from bec		
24. Channel slope down center of s		. ,		· · · · · ·
25. Channel sinuosity: Kraigh				
Instructions for completion of w location, terrain, vegetation, stream to each characteristic within the characteristics identified in the wo characteristic cannot be evaluated comment section. Where there are into a forest), the stream may be di- reach. The total score assigned to highest quality.	a classification, etc. Every range shown for the econ orksheet. Scores should ret due to site or weather cor e obvious changes in the ch ivided into smaller reaches a stream reach must range	characteristic must be score region. Page 3 provides a flect an overall assessment nditions, enter 0 in the scor haracter of a stream under re that display more continuity between 0 and 100, with a	d using the a brief desc of the streat ing box and view (e.g., f y, and a sepata a score of 1	same ecoregion. Assign points cription of how to review the m reach under evaluation. If a l provide an explanation in the the stream flows from a pasture trate form used to evaluate each 00 representing a stream of the
Total Score (from reverse):	Commer	nts: Incised	Man.	male, agricultu

Srog002

Evaluator's Signature Date_ This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06/03. To Comment, please call 919-876-8441 x 26.

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	#	CHARACTERISTICS	ECOREC	GION POINT	RANGE	Street - States
		CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 - 5	0-4	0-5]
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	B
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 - 6	0-4	0 - 5	B
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0 - 5	0-4	0-4	
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0 - 4	2
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	6
PH	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	B
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	6
A North Contraction	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	1
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0 - 5	NIA
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	0
ABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	1
STAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	0
T	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
HABITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
HAB	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	81
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	MA
Y	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
BIOLOGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
3101	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	8
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	1
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fir	st page)			12

STREAM QUALITY ASSESSMENT WORKSHEET

* These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 09/09/2014		1CP	Latitude: 3	9°45'48.000
Evaluator: DD West	County: Robeson			
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial		Other UNT e.g. Quad Name	79° 03' 27.88 to Saddletra : Swanp
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1 ^{ª.} Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	(0)	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool,		·····		
ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	$\overline{\mathcal{O}}$	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0 '	(1)	2	3
8. Headcuts	03	1	2	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	\bigcirc	0.5	1	1.5
11. Second or greater order channel	Nø	=0)	Yes	= 3
^a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal =)				
12. Presence of Baseflow	0	1	2)	3
13. Iron oxidizing bacteria		1	2	3
14. Leaf litter	1.5	1	0,5	0
15. Sediment on plants or debris		0.5	(1)	1.5
16. Organic debris lines or piles	+	0.5		
17. Soil-based evidence of high water table?		= 0		<u> </u>
C. Biology (Subtotal = 7.5)	110		165	<u></u>
18. Fibrous roots in streambed				
19. Rooted upland plants in streambed	3	2	<u>(1)</u>	0
20. Macrobenthos (note diversity and abundance)	3	(2)	1	0
21. Aquatic Mollusks	0	3	2	3
22. Fish	0	1	2	3
23. Crayfish	<u> </u>	0.5	1	1.5
	0	0.5		1.5
24. Amphibians		0.5	(1)	1.5
25. Algae		0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75; OB	L = 1.5) Other =	0
*perennial streams may also be identified using other methods	. See p. 35 of manual	•		
Notes:				
Sketch: A Flow Srohooz		- ·	,	()

MA



Waterbody srog002 facing upstream



Waterbody srog002 facing downstream



Waterbody srog002 facing upline cross stream

NC DWQ Stream Identification Form Date: 8/23/16	Project/Site: A.	LP	Latitude: 34.	76494
Evaluator: ESI - L. Roper	County: Fobeson		Longitude: -79, 059	
Total Points:Stream is at least intermittent $if \ge 19$ or perennial if $\ge 30^*$ 30^*	Stream Determin Ephemeral Inter	nation (circle one) mittent Perennial	Other	Rennert
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank d; tch	0	1	2	3
2. Sinuosity of channel along thalweg	0	Ø	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	Ø	1	2	3
6. Depositional bars or benches	Ø	1	2	3
7. Recent alluvial deposits	07	1	2	3
8. Headcuts	8	1	2	3
9. Grade control		0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	CONTRACTOR OF CONT	=0)	Yes :	= 3
^a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 5,5)		0		
12. Presence of Baseflow	0	9	2 .	3
13. Iron oxidizing bacteria	Ø	1	2	3
14. Leaf litter	1.5	0.5	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No	= 0	Yes	= 3
C. Biology (Subtotal =)				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	O	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	O	0.5	1 *	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	()	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75; OB	L = 1.5 Other = 0)
*perennial streams may also be identified using other method Notes: OHWM present	ls. See p. 35 of manual			
Sketch: Rennert Srool				
DHWM: 3Ft Stogool : Bank: 6ft	srog 002			

USACE AID# DWQ #	Site # (indicate on attached map)
	500002
STREAM QUALITY AS	SESSMENT WORKSHEET
Provide the following information for the stream reach under	
I. Applicant's name: Dominion	2. Evaluator's name: EST-L. Roper
3. Date of evaluation: 8/23/16	4. Time of evaluation: 930 am
5. Name of stream: UT to Saddletvee Swamp	6. River basin: Lumber
7. Approximate drainage area: 20ac	8. Stream order: D
9. Length of reach evaluated: 20 f+	10. County: Robeson
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):
Latitude (ex. 34.872312): 34.76494	Longitude (ex77.556611): -79.05938
Method location determined (circle): (PS) Topo Sheet Ortho (A 13. Location of reach under evaluation (note nearby roads and la	erial) Photo/GIS Other GIS Other andmarks and attach map identifying stream(s) location):
East of Rennert Rd. near Monic	a Rd
14. Proposed channel work (if any): TBD	·
15. Recent weather conditions: Warm + dry	
16. Site conditions at time of visit: aq. field ditch	+ roadside
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersN	Nutrient Sensitive WatersWater Supply Watershed(1-1V)
18. Is there a pond or lake located upstream of the evaluation po	int? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES 0	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential%	% Commercial% Industrial 40% Agricultural
60% Forested	% Cleared / Logged% Other ()
22. Bankfull width: 6Ff	23. Bank height (from bed to top of bank): 4 fe
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every c to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should refl characteristic cannot be evaluated due to site or weather cond comment section. Where there are obvious changes in the cha into a forest), the stream may be divided into smaller reaches th	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points gion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a litions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture nat display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 19 : Commen	ts:
gathering the data required by the United States Army C quality. The total score resulting from the completion of	Date <u>8/24/16</u> s a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26.

			ECOREGION POINT RANGE			GOODE	
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE	
-	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 - 5	0-4	0-5	1	
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0-5	0-5	O	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	0	
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2	
Constraint of	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0	
2 Carlos	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	D	
States -	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0	
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 - 6	0-4	0-2	0	
12000	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	D.	
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2	
1000	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5		
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0 – 5	0-4	0-5	4	
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4	
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2	
	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	D	
100	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	.0	
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1	
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	D	
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4		
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0	
10.10.1	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1	
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	1	
		Total Points Possible	100	100	100		
200		TOTAL SCORE (also enter on fi	rst page)	16000	A To a the a	19	

STREAM QUALITY ASSESSMENT WORKSHEET

* These characteristics are not assessed in coastal streams.

Environmental Field Surveys Waterbody Photo Page



Waterbody data point sroo002 facing east upstream.



Waterbody data point sroo002 facing west downstream.

Photo Sheet 1 of 2

Environmental Field Surveys Waterbody Photo Page



Waterbody data point sroo002 facing north across bank.

USACE AID#	DWQ #	Site #	(indicate on attached map)
IIII STREA	M QUALITY ASSI	ESSMENT WORKSHI	CET
Provide the following information for	or the stream reach under a	ssessment:	
1. Applicant's name: Dominium		0	PASCAROSA
3. Date of evaluation: 999114		Time of evaluation: 0920	<u> </u>
5. Name of stream: Unt to S	111 0	1 0	ver
7. Approximate drainage area: <5	~	Stream order: 1st order	
9. Length of reach evaluated: 30	a FI	County: Robeson	
11. Site coordinates (if known): pref		Subdivision name (if any):	
	-1 ()		23'32.300" W
Method location determined (circle): GI 13. Location of reach under evaluation	S Topo Sheet Ortho (Aeria	l) Photo/GIS Other GIS Other	
14. Proposed channel work (if any):	temporary none		
15. Recent weather conditions:		100 805/0F)	Heavy rain yester
16. Site conditions at time of visit: \pm	Acised roadside	feature Over cast .	budy low 80°F
7. Identify any special waterway clas	sifications known: See	ction 10Tidal Waters	Essential Fisheries Habitat
Trout WatersOutstanding F	-	ient Sensitive WatersWate	Star (B. T A)
8. Is there a pond or lake located ups			
9. Does channel appear on USGS qua		Does channel appear on USDA S	
21. Estimated watershed land use:	\bigcirc	% Commercial% Indu	
		% Cleared / Logged <u>5</u> % Othe	
22. Bankfull width: 2.53'		Bank height (from bed to top of	
24. Channel slope down center of strea		Gentle (2 to 4%)Moderate	
25. Channel sinuosity: Straight			
Instructions for completion of worl location, terrain, vegetation, stream cl to each characteristic within the rar characteristics identified in the works characteristic cannot be evaluated du comment section. Where there are ob into a forest), the stream may be divid reach. The total score assigned to a s highest quality.	Asheet (located on page 2): assification, etc. Every chara- age shown for the ecoregion heet. Scores should reflect a e to site or weather condition ovious changes in the charact- led into smaller reaches that c	Begin by determining the most acteristic must be scored using the n. Page 3 provides a brief det an overall assessment of the stream ns, enter 0 in the scoring box an er of a stream under review (e.g., lisplay more continuity, and a sen	appropriate ecoregion based on e same ecoregion. Assign points scription of how to review the am reach under evaluation. If a d provide an explanation in the the stream flows from a pasture parate form used to evaluate each
rotal Score (from reverse): 2°	Comments:	Mar-made "	neised feature.
and the second			

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

ECOREGION POINT RANGE # **CHARACTERISTICS** SCORE Coastal Piedmont Mountain Presence of flow / persistent pools in stream 1 0 - 50 - 42 0 - 5(no flow or saturation = 0; strong flow = max points) Evidence of past human alteration 2 0 0 - 60 - 50 - 5(extensive alteration = 0; no alteration = max points) **Riparian** zone 3 0 - 60 - 40 - 5(no buffer = 0; contiguous, wide buffer = max points) Evidence of nutrient or chemical discharges 4 0 - 50 - 42 0 - 4(extensive discharges = 0; no discharges = max points) Groundwater discharge PHYSICAL 5 2 0 - 30 - 40 - 4(no discharge = 0; springs, seeps, wetlands, etc. = max points) Presence of adjacent floodplain 6 2 0 - 40 - 40 - 2(no floodplain = 0; extensive floodplain = max points) Entrenchment / floodplain access 7 0 - 50 - 40 - 2(deeply entrenched = 0; frequent flooding = max points)Presence of adjacent wetlands 8 0 0 - 60 - 40 - 2(no wetlands = 0; large adjacent wetlands = max points) **Channel** sinuosity 9 0 - 50 - 40 - 3(extensive channelization = 0; natural meander = max points) Sediment input 10 2 0 - 50 - 40 - 4(extensive deposition= 0; little or no sediment = max points) Size & diversity of channel bed substrate 11 NA* 0 - 40 - 5NA (fine, homogenous = 0; large, diverse sizes = max points) Evidence of channel incision or widening 12 0 - 50 - 40 - 52 (deeply incised = 0; stable bed & banks = max points) STABILITY Presence of major bank failures 3 13 0 - 50 - 50 - 5(severe erosion = 0; no erosion, stable banks = max points) Root depth and density on banks 14 0 - 30 - 40 - 5(no visible roots = 0; dense roots throughout = max points) Impact by agriculture, livestock, or timber production 15 0 - 50 - 40 - 5(substantial impact =0; no evidence = max points) Presence of riffle-pool/ripple-pool complexes 16 0 - 30 - 50 - 60 (no riffles/ripples or pools = 0; well-developed = max points) HABITAT Habitat complexity Q 17 0 - 60 - 60 - 6(little or no habitat = 0; frequent, varied habitats = max points) Canopy coverage over streambed 0 18 0 - 50 - 50 - 5(no shading vegetation = 0; continuous canopy = max points) Substrate embeddedness 19 NA* 0 - 40 - 4(deeply embedded = 0; loose structure = max) Presence of stream invertebrates (see page 4) 20 0 - 40 - 50 - 5(no evidence = 0; common, numerous types = max points) BIOL/OGV **Presence of amphibians** 2 21 0 - 40 - 40 - 4(no evidence = 0; common, numerous types = max points) **Presence** of fish 22 0 0 - 40 - 40 - 4(no evidence = 0; common, numerous types = max points) Evidence of wildlife use 23 0 - 60 - 50 - 5(no evidence = 0; abundant evidence = max points)

STREAM QUALITY ASSESSMENT WORKSHEET Sng OO

* These characteristics are not assessed in coastal streams.

Total Points Possible

TOTAL SCORE (also enter on first page)

100

100

100

25

5509001

NC DWQ Stream Identification Form Version 4.11

Date: 09/09/2014	Project/Site:	CP	Latitude: 34	°45'46.8
Evaluator: DDWest	County: Rak	reson	Longitude: -7	4°03'32,
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*	Stream Determination (circle one) Ephemeral (intermitten) Perennial		Latitude: 34°45'468 Longitude: -79°03'32 Other UNT to Saddler e.g. Quad Name:	
A. Geomorphology (Subtotal = 5.5)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0		2	3
3. In-channel structure: ex. riffle-pool, step-pool,	0	1	2	3
ripple-pool sequence				-
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	6	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits 8. Headcuts	0	Ð	2	3
9. Grade control	0	1	2	3
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel		0.5	1 Yes:	1.5
^a artificial ditches are not rated; see discussions in manual			Tes	- 3
B. Hydrology (Subtotal = $(4, 5)$)				
12. Presence of Baseflow	0	(1)	2	3
13. Iron oxidizing bacteria		<u> </u>		
14. Leaf litter	0		2	3
15. Sediment on plants or debris	1.5	(1)	0.5	0
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?		0.5	1 Yes	1.5
C. Biology (Subtotal = 8,5)) = 0	res	, 3)
18. Fibrous roots in streambed	3	2	(1)	0
19. Rooted upland plants in streambed	3	2	<u>1</u>	0
20. Macrobenthos (note diversity and abundance)	0	(1)	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish		0.5	1	1.5
23. Crayfish	0	(0.5)	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	(0.5)	1	1.5
26. Wetland plants in streambed		FACW = 0.75; OB	1 = (15) Other = (
*perennial streams may also be identified using other method	Is See p. 35 of manua			
Notes:				
				an a
Sketch:				
ennert Red				
The Strog				



Waterbody srog001 facing upstream



Waterbody srog001 facing downstream



Waterbody srog001 facing upline cross stream

DWQ #_

Srok@10

Site #_ _ (indicate on attached map)

STREAM QUALITY A	ASSESSMENT WORKSHEET
Provide the following information for the stream reach un	der assessment:
1. Applicant's name:	2. Evaluator's name: TGA/ DDWest
3. Date of evaluation: 5 September 2014	4. Time of evaluation: 1220
5. Name of stream: Raft Swamp	6. River basin: Lumber
7. Approximate drainage area: 20 miles ²	8. Stream order: 4th or acenter
9. Length of reach evaluated: _/OO	10. County:
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):
Latitude (ex. 34.872312): <u>34° 45 39 527</u>	Longitude (ex77.556611): 79 05 12.936
Method location determined (circle): GPS) Topo Sheet Ortho 13. Location of reach under evaluation (note nearby roads and	(Aerial) Photo/GIS Other GIS Other
Approximately 0.35 mile west of Shann	
14. Proposed channel work (if any): Non C	
15. Recent weather conditions:	· · · · · · · · · · · · · · · · · · ·
16. Site conditions at time of visit: Normal	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	_Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? (YES)NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 5% Residential	Commercial% Industrial
Solution (Second Second	% Cleared / Logged% Other ()
22. Bankfull width: 50 feet	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the cl into a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the haracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each e between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 89 Comme Evaluating what appears 70 9 CULLER	nts: Braided Channel Harough Swamp Be the main channel in
	Date <u>S</u> Septembers 20,14 as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream

quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.