DWO≑		

Site #	(indicate on attached	map
	- ^^	





Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Dominiun	2. Evaluator's name: EST-K. MUTPhrey
3. Date of evaluation: 8/19/14	4. Time of evaluation: 3: 50
5. Name of stream: UN.T to Juniper Run	6. River basin: Cape Fear
" · · · · · · · · · · · · · · · · · · ·	8. Stream order: 6
9. Length of reach evaluated: 50 FE	10. County: SameSoo
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): <b>NA</b> Longitude (ex77.556611): -78, 53056
Method location determined (circle): GPS Topo Sheet Ortho (	landmarks and attach man identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15 Pagent weather conditions: SUMY	
16. Site conditions at time of visit: undistanted	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(l-lV)
18. Is there a pond or lake located upstream of the evaluation	point? YES (NO)If yes, estimate the water surface area:
	20. Does channel appear on USDA Soil Survey? YES (NO)
	% Commercial% Industrial% Agricultural
10 % Forested	% Cleared / Logged% Other ()
22. Bankfull width: 8	23. 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%)
/	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Ever to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should reharacteristic cannot be evaluated due to site or weather eccomment section. Where there are obvious changes in the cinto a forest), the stream may be divided into smaller reaches	rge 2): Begin by determining the most appropriate ecoregion based on y characteristic must be scored using the same ecoregion. Assign points coregion. Page 3 provides a brief description of how to review the reflect an overall assessment of the stream reach under evaluation. If a onditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture es that display more continuity, and a separate form used to evaluate each age between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse):	ients:
2 = 1	
Evaluator's Signature Kull eurffne. This channel evaluation form is intended to be used on	Date 4/19/14  ly as a guide to assist landowners and environmental professionals in
gathering the data required by the United States Arm	ay Corps of Engineers to make a preliminary assessment of stream n 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.

1		CHARACTERISTICS	"ECOREGI Coastal	ON POINT Piedmont		SCORE
7,9		Presence of flow / persistent pools in stream		0-4	0-5	
]	1	(no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-3	1
	$\Box$	Evidence of past human alteration	0-6	0-5	0-5	$\mathcal{C}$
	2	(extensive alteration = 0; no alteration = max points)				
	3	Riparian zone	0-6	0-4	0-5	()
	, <u> </u>	(no buffer = 0; contiguous, wide buffer = max points)		er er gegen av Skrive Hanna skall til er skrive	3 3 3 3	$\overline{}$
	4 [	Evidence of nutrient or chemical discharges	0-5	0-4	0-4	5
	1	(extensive discharges = 0; no discharges = max points)  Groundwater discharge			0-4	
	5	(no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0
-		Presence of adjacent floodplain	0-4	0-4	0-2	()
	6	(no floodplain = 0; extensive floodplain = max points)	0-4	.0-4	0-2	
	7	Entrenchment / floodplain access	0-5	0 - 4	0-2	ŀ
	/	(deeply entrenched = 0; frequent flooding = max points)				<del>-                                    </del>
1	8	Presence of adjacent wetlands	0-6	0-4	0-2	0
1_	-	(no wetlands = 0; large adjacent wetlands = max points)		<u> </u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
A.	9	Channel sinuosity	0-5	0 - 4	0-3	()
		(extensive channelization = 0; natural meander = max points)  Sediment input		10		
	10	(extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	$\circ$
<u> </u>		Size & diversity of channel bed substrate	NA*	0-4	0.5	
	11	(fine, homogenous = 0; large, diverse sizes = max points)	INA A de la companya de La companya de la companya	0-4	0-5	
	7.0	Evidence of channel incision or widening	0-5	0-4	-: 0-5	$\langle \rangle$
	12	(deeply incised = 0; stable bed & banks = max points)				
	13	Presence of major bank failures	$0-5^{\frac{1}{2}}$	0-5	0-5	4
	1.0	(severe erosion = 0; no erosion, stable banks = max points)	<u> </u>	<u> </u>		<del></del>
3	14	Root depth and density on banks	0-3	0-4	0 – 5	{
		(no visible roots = 0; dense roots throughout = max points)	<del> </del>	<del> </del>	+	
2	15	Impact by agriculture, livestock, or timber production (substantial impact = 0; no evidence = max points)	0-5	0-4	0-5	4
21		Presence of riffle-pool/ripple-pool complexes			0.6	
<b>E</b>	16	(no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0 - 6	
A I		Habitat complexity	0 (	0-6	0-6	2
	17	(little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-0	1 4
<u>5</u> 1		Canopy coverage over streambed	0-5	0-5	0-5	
HAB	18	(no shading vegetation = 0; continuous canopy = max points)		0-3		
	19	Substrate embeddedness	NA*	0-4	0-4	\
J. 44	19	(deeply embedded = 0; loose structure = max)		f)	<del> </del>	<del> </del>
	20	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	10
اح		(no evidence = 0; common, numerous types = max points)		<del></del>		
إخ	21	Presence of amphibians	0 - 4	0-4	0-4	0
		(no evidence = 0; common, numerous types = max points)  Presence of fish	7 T			1 _
BIOLOGY	22	(no evidence = 0; common, numerous types = max points)	0-4	$\sim 0-4$	0-4	
		Evidence of wildlife use		0.5	70.0	1
	23	(no evidence = 0; abundant evidence = max points)	0-6	→ · · 0 – 5	0-5	
rade Talah			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	100	100	
2	4 88	Total Points Possible	100	E 100	100	
· · · · ·	SEC. 36. 4.8	TOTAL SCORE (also enter or	naming the second of the	Aver hearth for	"我就是我们。"	23 1/

<sup>\*</sup> These characteristics are not assessed in coastal streams.

ssa0003

NC DWQ Stream Identification Fort	n version 4.11				
Date: 4/14/11	Project/Site: 5	ERP	Latitude: 35,29219		
Evaluator: EST - K. MUVEWEY	County: Sam	resun	Longitude:	18,5305	
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determing Ephiemeral Inter	nation (circle one) rmittent Perennial	Other Duese, Quad Name:		
· · · · · · · · · · · · · · · · · · ·	Absent	Weak	Moderate	Strong	
A. Geomorphology (Subtotal = 1	0 Absent	1	2	3	
1ª. Continuity of channel bed and bank	6	1	2	3	
2. Sinuosity of channel along thalweg					
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence		1	2	3	
Particle size of stream substrate	0	(1)	2	3	
5. Active/relict floodplain	(0)	1 .	2	3	
6. Depositional bars or benches	6	1	. 2	3	
7. Recent alluvial deposits	(ō)	1	2	3	
8. Headcuts	(0)	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	N	o <del>(</del> 0)	Yes	= 3	
a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 4.5)		<u> </u>		1	
12. Presence of Baseflow	<u> </u>	1	2	3	
13. Iron oxidizing bacteria	(0)	1	2	3	
14. Leaf litter	1.5	D	0.5	0	
15. Sediment on plants or debris	(0)	0.5	11	1.5	
16. Organic debris lines or piles	0	Q.5)	1	1.5	
17. Soil-based evidence of high water table?		lo = 0	Yes	s =(3)	
C. Biology (Subtotal = 3 )		·····			
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)	(6)	1	2	3	
21. Aquatic Mollusks	(6)	11	2	3	
22. Fish	(0)	0.5	1	1.5	
23. Crayfish	(0)	0.5	1	1.5	
24. Amphibians	(0)	0.5	<u> </u>	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed			DBL = 1.5 Other =	· U	
*perennial streams may also be identified using other me	ethods, See p. 35 of man	ual.		<del></del>	
Notes:	<u> </u>	<del> ,</del>		<del></del>	
Sketch:	/				
T / SSA	0003		:		

OffWM width: 3ft. Bank width: 8ft.



Waterbody ssao003 facing upstream south.



Waterbody ssao003 facing downstream north.



Waterbody ssao003 facing east across channel.

DWO≝		

Site #	(indicate on attached map
	5500002





Provide the following information for the stream reach unc	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: EST-IS. MURPHYCY
3. Date of evaluation: 8/14/14	4. Time of evaluation: 9:00 AM
5. Name of stream: UNT to This Run	6. River basin: Cape Fear
7. Approximate drainage area: 20AC	8. Stream order:
9. Length of reach evaluated: 30 Ft	10. County: SOMPSUM
11. Site coordinates (if known): preser in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 35.27980	Longitude (ex77.556611): -78.54931
Method location determined (circle): GPS Topo Sheet Onho to 13. Location of reach under evaluation (note nearby roads and OCAted NOVTH OF GIERO PA	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): †BD	
15. Recent weather conditions: SUANA	
16. Site conditions at time of visit: Und Starbe d	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Water 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:% Residential	% Commercial% Industrial% Agricultural
	% Cleared / Logged% Other ()
22. Bankfull width: 7 ft.	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream: Flat (0 to 2%)	
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 eccharacteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather occomment section. Where there are obvious changes in the cinto a forest), the stream may be divided into smaller reache reach. The total score assigned to a stream reach must rangingless quality.	ge 2): Begin by determining the most appropriate ecoregion based on a 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 ponditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture is that display more continuity, and a separate form used to evaluate each ge between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 6 Comm	ents:
gathering the data required by the United States Arm quality. The total score resulting from the completion	Date 8/19/14  y as a guide to assist landowners and environmental professionals in y Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a to change – version 06 03. To Comment, please call 919-876-8441 x 26.

	4. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	CHARACTERISTICS	ECOREG Coastal	ION ROINI Piedmont	COMPANY OF THE PARTY.	SCORE
	]	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	5
	3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0 - 4	0-5	5
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	j̃, 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
)  - 	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	_3
	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	<u>S</u>
	9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	2
	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	
K	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	10-4	0-5	3
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
YB]	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	).
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5.	0-4	0-5	5
Park Mark	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0 – 6	\
MITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
HABI	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	5
日建設	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
097	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
BIOLOGY	22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
B	23	Evidence of wildlife use	0-6	0-5	0-5	3
1000		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter or	i first page)	2, 10, 12, 14, 15, 12 2, 12, 13, 13, 13, 13, 13, 13, 13, 13, 13, 13		61

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 8/19/14	Project/Site: SERP	Latitude: 35,27980
Evaluator: EST-15, MarPhrey	County: Sampson	Longitude:-78.54931
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Danne:

A. Geomorphology (Subtotal = 17_)	Absent	Weak	Moderate	Strong
1ª. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	(2)	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	0	1	2	(3)
6. Depositional bars or benches	0	(1 )	2	3
7. Recent alluvial deposits	O_	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	N	o =(0 )	Yes	= 3
<sup>a</sup> artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = <u>(つ, 5</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
		7	<del></del>	

B. Hydrology (Subtotal = (O, )				
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 = 0	Yes	€3>

C. Biology (Subtotal =7)				
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	(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; C	DBL = 1.5 Other €	0)

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: 5500011 1 £ 6500002 WSgOODL

OHWM width: 4 A.

Bank width: 7 ft.



Waterbody ssao002 facing east upstream.



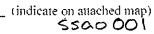
Waterbody ssao002 facing downstream west.



Waterbody ssao002 facing north across channel.

T'N	VO	ائك	
1,71			

Site:	4





Provide the following information for the stream reach	under assessment:
1. Applicant's name: DOM INION	2. Evaluator's name: K, MU(PWE)
3. Date of evaluation: 4/19	4. Time of evaluation: 9:00
5. Name of stream: CHE JUNIOR RIN	6. River basin: Cope Fear
7. Approximate drainage area: 20 Acres	8. Stream order: 2
9. Length of reach evaluated: 508-	10. County: <u>SOIMPSON</u>
11. Site coordinates (if known): prefer in decimal degrees.	
Latitude (ex. 34.872312): 35.27982	Longitude (ex77.556611): -78.55057
	and landmarks and attach map identifying stream(s) location):
10(at-4 north of wreen	rath road,
14. Proposed channel work (if any): TGO	0001 001 1
15. Recent weather conditions: Rain Within	the Past 24 hours
16. Site conditions at time of visit: Undistarbed	
	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
	ion point? (YES) NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? (YES) NO	
	% Commercial% Industrial <u>30</u> % Agricultural
	% 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:StraightOccasional ben	dsFrequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Eto each characteristic within the range shown for the characteristics identified in the worksheet. Scores shou characteristic cannot be evaluated due to site or weather comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller real	page 2): Begin by determining the most appropriate ecoregion based on very characteristic must be scored using the same ecoregion. Assign points ecoregion. Page 3 provides a brief description of how to review the ld reflect an overall assessment of the stream reach under evaluation. If a r conditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture ches that display more continuity, and a separate form used to evaluate each range between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 71 Con	mments:
Evaluator's Signature Klu Lafhur	Date_ 8/19/14
This channel evaluation form is intended to be used gathering the data required by the United States A quality. The total score resulting from the comple	only as a guide to assist landowners and environmental professionals in army Corps of Engineers to make a preliminary assessment of stream tion of this form is subject to USACE approval and does not imply a ject to change – version 06-03. To Comment, please call 919-876-8441 x 26.

	CHARACTERISTICS:	Coastal	ION, ROINI Piedmont	RANGE:	SCORE
Alegrand	Presence of flow / persistent pools in stream	A STATE OF THE PARTY OF THE PAR	0-4	0-5	۲
1	(no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-3	_ 5
	Evidence of past human alteration	0-6	0 – 5	0-5	5
2	(extensive alteration = 0; no alteration = max points)	0-0			
	Riparian zone	0-6	0-4	0 - 5	5
3	(no buffer = 0; contiguous, wide buffer = max points)	<u> </u>	the second factor	AND AREA OF AREA	
-4	Evidence of nutrient or chemical discharges	0-5	0-4	0-4	4
	(extensive discharges = 0; no discharges = max points)		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
<u> </u>	(no discharge = 0; springs, seeps, wertains, etc., max points)  Presence of adjacent floodplain	A. A.			$\overline{}$
6	(no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
	Entrenchment / floodplain access		0-4	0-2	3
7	(deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	
	Presence of adjacent wetlands	0-6	0-4	0-2	5
8	(no wetlands = 0; large adjacent wetlands = max points)	0 0		**************************************	
9	Channel sinuosity	0-5	0-4	0-3	3
	(extensive channelization = 0; natural meander = max points)				
10	Sediment input	0-5	0-4	0-4	2
	(extensive deposition= 0; little or no sediment = max points)	T. K. Sandarak	3		
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	ÑA*	0-4	0-5	
	Evidence of channel incision or widening	State at the College Age		0.5	2
12	(deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
13	Presence of major bank failures	0-5	0-5	0-5	7
13	(severe erosion = 0; no erosion, stable banks = max points)	0-3	0-3	0-3	3
	Root depth and density on banks	0-3	0-4	0-5	2
14	(no visible roots - 0; dense roots unoughout - max points).	4			ļ
15	Impact by agriculture, livestock, or timber production	0-5	0-4	0-5	5
1.	(substantial impact –0, no evidence – max points)	• • • • • • • • • • • • • • • • • • • •	<del></del>		<u> </u>
16	Presence of riffle-pool/ripple-pool complexes	0 - 3	0-5	0 – 6	2
	(no nines/ripples or pools – 0, well-developed max points)		1 24		
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points	0-6	0-6	0-6	5
<u> </u>	Canony coverage over streamhed	1	2.5	^ -	-
18	(no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	
<b>-</b>	Substrate embeddedness	NA*	0-4	0-4	
19	(deeply embedded = 0; loose structure = max)	NA.	U-4	0-4	
2	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	17
2	(no evidence = $0$ ; common, numerous types = max points)	J	1		1-
5	Presence of amphibians	0-4	0-4	0-4	3
$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	(no evidence = 0; common; numerous types = max points);				<del>                                     </del>
	Presence of fish	0-4	0-4	0-4	
	(no evidence = 0; continion, numerous types = max points)				
	Evidence of wildlife use  3	0-6	$3 \cdot 30 - 5$	0-5	3
	3 (no evidence = 0; abundant evidence = max points)		30 <b>213 12 8</b> 3		
	Total Points Possible	100	100	100	
		THE BACKETE	200		7
er take	TOTAL SCORE (also enter o	i first page)	retrom West	學研究的對於學	31 1

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

5500001

Date: 8/19	Project/Site: SERP	Latitude: 35 12 198つ
Evaluator: (S. MURPHRE 1)	County: Sampson	Longitude: 78,55057
Total Points:  Stream is at least intermittent 36.5 if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other DUAA e.g. Quad·Name:

A. Geomorphology (Subtotal = 15,5)	Absent	Weak	Moderate	Strong
1ª. Continuity of channel bed and bank	0	1	2	(3)
2. Sinuosity of channel along thalweg	0	1	(2)	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	<u>(2)</u>	3
4. Particle size of stream substrate	0	1	(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	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	= 0	Yes	<u>-{</u> 3}

artificial ditches are not rated; see discussions in manual

B. Hydrology (	Subtotal =	10.5
----------------	------------	------

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 =	7.5

or proceed to the control of the con	1	<del></del>		~	
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	(0)	0.5	1	1.5	
24. Amphibians	Ò	0.5	(1)	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: SSAOWA

- WSAOWW 1

OHWM width: 8Ft.

Bank width: 12 ft.



Waterbody ssao001 facing east upstream.



Waterbody ssao001 facing west downstream.



Waterbody ssao001 facing north across channel.

USACE AID#	DWQ =		Site ≠ (indicate	e on attached map)
		550	NP 003	
SI SI	REAM QUALITY	ASSESSMENT WO	RKSHEET _	
Provide the following inform	ation for the stream reach		_	
1. Applicant's name: Dow	inion	_ 2. Evaluator's name: ES	I LRoper,	Harbour)
3. Date of evaluation: 5/2	0115	_ 4. Time of evaluation:		
5. Name of stream: Ju	MPER RUN	6. River basin: Neus		
7. Approximate drainage area:	>100 ac	_ 8. Stream order: 3."	ك ـــــــ	
9. Length of reach evaluated:_	20ft_	10. County: <u>Sam</u>		
11. Site coordinates (if known	•	12. Subdivision name (if	fany): none	
Latitude (ex. 34.872312): <u>35.</u>	27794	Longitude (ex77.556611)	<u>:- 78 . 55 359</u>	
Method location determined (circ	le): GPS Topo Sheet Ort	ho (Aerial) Photo/GIS Other G and landmarks and attach map へみ SaJan いんり	identifying stream(s) le	ocation):
14. Proposed channel work (it	fany): proposed	pipeline	·	
15. Recent weather conditions			<u> </u>	
16. Site conditions at time of	0 ( )/			
17. Identify any special water		Section 10Tid	al WatersEsse	ential Fisheries Habitat
Trout WatersOuts	tanding Resource Waters	Nutrient Sensitive Waters	sWater Supply '	Watershed(I-IV)
18. Is there a pond or lake loc	ated upstream of the evaluat	ion point? (YES) NO If yes,	estimate the water surf	ace area: 1 w
19. Does channel appear on U	JSGS quad map? (ES) NC	20. Does channel appea	ir on USDA Soil Surve	y?(YES) NO
21. Estimated watershed land	use: 5% Residential	% Commercial	% Industrial	55% Agricultural
y (= 00 1)	40% Forested	% Cleared / Logged		
* (Top of Bank) 22. Bankfull width:	12ft	23. Bank height (from l	bed to top of bank):	49
24. Channel slope down cent	er of stream:Flat (0 to 3	2%) Gentle (2 to 4%)	Moderate (4 to 109	%)Steep (>10%)
•	,	ndsFrequent meander		
location, terrain, vegetation, to each characteristic within characteristics identified in characteristic cannot be eva- comment section. Where the into a forest), the stream ma	stream classification, etc. E in the range shown for the the worksheet. Scores shou duated due to site or weath here are obvious changes in the properties of the stream by be divided into smaller re-	typage 2): Begin by determine the page 2: Begin by determine the page 3 provided and reflect an overall assessment of a stream under the character of a stream under the that display more continuage between 0 and 100, with the page 2: Begin by determine the page 2: Begin by determine the page 3: Begin by determine the page 4: Begin by deter	cored using the same edes a brief description ent of the stream reach coring box and provider review (e.g., the streamity, and a separate for	coregion. Assign point of how to review the under evaluation. If the an explanation in the am flows from a pasture used to evaluate each
Total Score (from reverse	): <u>66</u> co	omments:		

Evaluator's Signature Date 5/20/15

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals it 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 particular mitigation ratio or requirement. Form subject to change – version 06 03. To Commem. please call 919-876-8441 x 26

	#=	GHARACTERISTICS	ECOREG Coastal	ION POINT Piedmont		CORE
4.187 3.134 (0.100)	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	5
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0-5	5
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	5
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
7	5	Groundwafer discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 - 3	0-4	0-4	3
X	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	3
PHX	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	5
	9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	4
	10	Sedimenf input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	4
	11	Size & diversity of channel bed substrate  (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	, 0-5	
X	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
STABILITY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	<u> </u>
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
HTAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4_
HAB	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	
7	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0 – 5	0-5	0
OG	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
BIOLOGY	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
は事を		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on	fîrst page)			66

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11 5500 003

Date: 5/20/15

Project/Site: ACP

Latitude: 35, 27794

54.5. J/20/13		<u> </u>		1 1
Evaluator: ESI (Roper, Harbour)	County: Samp5017		Longitude: -78, 55359	
Total Points:  Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*		Stream Determination (circle one) Ephemeral Intermittent Perennial)		NN4O:
A. Geomorphology (Subtotal = 1)	Absent	Weak	Moderate	Strong
1 <sup>a.</sup> Continuity of channel bed and bank	0	<u> </u>	2	3
Sinuosity of channel along thalweg	0	11	(2)	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence		1	2	3
Particle size of stream substrate	(9)	1	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	(9)	1	2	3
9. Grade control	0	0.5	0	1.5
10. Natural valley	0	0.5	① /	1.5
11. Second or greater order channel	N	o = 0	Yes	= 3
<sup>a</sup> artificial ditches are not rated; see discussions in manual		1		
B. Hydrology (Subtotal =)				_
12. Presence of Baseflow	0	1	2	9
13. Iron oxidizing bacteria	<u> </u>	1	2	3
14. Leaf litter	(a) (5)	1	0.5	0
15. Sediment on plants or debris	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?	N	lo = 0		s = 3),
C. Biology (Subtotal = 5,5 )	<del>_</del>			
18. Fibrous roots in streambed	3	2	<del>1</del>	0
19. Rooted upland plants in streambed	<b>(2)</b>	2	1	0
20. Macrobenthos (note diversity and abundance)	6	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	(6)	0.5	1	1.5
25. Algae	(A)	0.5	$\bigcirc$ 1	1.5
26. Wetland plants in streambed		FACW = 0.75;	BL = 1.5) Other =	= 0
*perennial streams may also be identified using other method	ds. See p. 35 of man			
Notes: Small section of U	hannel.	braided s	system	
Up- and downstream		tata DOIN	+	
a k	1 2/2	- 100	)	
Sketch: $\sqrt{\frac{1}{2}}$				
Pouto point SSAP 003				
1 January				
N C V' VI				
Bankfull Width: 12 Ft				
Dantion				
OHWM Widthi 12ft				
OHAMI. M.				



Waterbody ssap003 facing east upstream.



Waterbody ssap003 facing west downstream.



Waterbody ssap003 facing south across bank.

NC DWQ Stream Identification Form Version 4.11

Date: 5/4/15	Project/Site:	+CP	Latitude: 35,	27214
Evaluator: ESI (Roper, Harbour)	County: Sar	PSON	Latitude: 35,	8.55901
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determi Ephemeral Inte	nation (circle one) rmittent Perennial	Other e.g. Quad Name:	
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank ditch	0	1	2	3
2. Sinuosity of channel along thalweg	0	Q	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	60	1	2	3
5. Active/relict floodplain	60	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	(P)	1	2	3
8. Headcuts	10	1	2	3
9. Grade control	10)	0.5	1	1.5
10. Natural valley	6	0.5	1	1.5
11. Second or greater order channel	N(	0=0	Yes	= 3
artificial ditches are not rated; see discussions in manual	· · · · · · · · · · · · · · · · · · ·			
B. Hydrology(Subtotal= <u>7.</u> 5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	<u>(1.5)</u>	1	0.5	0
15. Sediment on plants or debris	<u></u>	0.5	1	1.5
16. Organic debris lines or piles	1 6	0.5	1	1.5
17. Soil-based evidence of high water table?	N	lo = 0	Yes	
C. Biology (Subtotal = (0,5)				-
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	6	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	<i>Q</i>	1.5
25. Algae	(0)	0.5	1.	1.5
26. Wetland plants in streambed		FACW = 0.75; 0	BL = 1.5 Other =	0
*perennial streams may also be identified using other metho	ds. See p. 35 of man			
Notes:				
	1			
Sketch:	1			
	\			
S60Pp\$2	{			
56 APT 1 DOIN	<b>ላ</b> ተ			
A Double to	Į.			
	\			
N //	1			
OHWM: HA				

Bank: 6 H.

USACE .	AID#	

DWQ =	

Site #\_\_\_\_ (indicate on attached map)





Provide the following information for the stream reach under	er assessment:
1. Applicant's name: Pominion	2. Evaluator's name: EST (Roper, Harbour)
3. Date of evaluation: 5/4 15	4. Time of evaluation: 1:300m
5. Name of stream: UNT to BEAVER dam Swamp	6. River basin: Cape, Fear
7. Approximate drainage area: 30 a.C.	8. Stream order: O
9. Length of reach evaluated: 20 f+	10. County: Sam SSON
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): none
	Longitude (ex. ~77.556611): <b>-78. 5590</b>
on Green Path Rd between Ma	andmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): <u>Proposed</u> Di	$\cdot$
15. Recent weather conditions: www and dry	$\mathcal{L}$
16. Site conditions at time of visit: ditch in Det	( )
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat  Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation p	20. Does channel appear on USDA Soil Survey? YES
21. Estimated watershed land use: 5% Residential	, <u> </u>
* (Top of Bank) 22. Bankfull width: 6ft	% Cleared / Logged% Other ()  23. Bank height (from bed to top of bank): 3 ft
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 eco 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 clinto 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 naracter 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): 27 Commo	ents:
P 0 - 1	O.O.
gathering the data required by the United States Army quality. The total score resulting from the completion	Date 5/4/6  Tas a guide to assist landowners and environmental professionals in a Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply to change – version 06 03. To Comment, please call 919-876-8441 x 26

	#2	CHARACTERISTICS	THE PARTY OF THE P	ION,POINT Piedmont		SCORE
(2)		Presence of flow / persistent pools in stream	0 – 5	0 – 4	22.50	/1
4	]	(no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	_9
	2	Evidence of past human alteration	0 – 6	0 – 5	0-5	,
	-	(extensive alteration = 0; no alteration = max points)		., · · · · · · · · · · · · · · · · · · ·		<del>-</del>
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0 – 5	2
		Evidence of nutrient or chemical discharges	0-5	0-4	0.00	2
	4	(extensive discharges = 0; no discharges = max points)	V-3			
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	. 0 − 3 ਂ	0-4	0 – 4	2
ଷ}-		(no discharge - 0; springs, seeps, wenands, etc max points)  Presence of adjacent floodplain				
5	6	(no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
PHY	÷ 7	Entrenchment / floodplain access	0-5	0-4	0-2	t
	` /	(deeply entrenched = 0; frequent flooding = max points)				<u> </u>
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
	<b>*</b> 9	Channel sinuosity	0-5	0-4	0-3	1
	9	(extensive channelization = 0; natural meander = max points)	0-3	0-4	0-3	
<b>第</b> 3	10	Sediment input	0-5	0-4	0-4	(
	-	(extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate			* · · · · · · · · · · · · · · · · · · ·	
K.	11	(fine, homogenous = 0; large, diverse sizes = max points)	* NA* (* )	0-4	0-5	AU
3.5	10	Evidence of channel incision or widening	0-5	04	0-5	7
X	12	(deeply incised = 0; stable bed & banks = max points)		0.5-4	0-3	2
STABILIT	13	Presence of major bank failures  (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
BIJ		Root depth and density on banks	<del></del>	0 4	1 0 15	2
Ϋ́	14	(no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	
$S_{\mathbb{I}}$	15	Impact by agriculture, livestock, or timber production	0-5	0-4	0-5	0
18.00	13	(substantial impact =0; no evidence = max points)	1	<del> </del>		
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	
AT		Habitat complexity	0-6	0-6	0-6	1
31T	17	(little or no habitat = 0; frequent, varied habitats = max points)	V - 0	U-U	0-0	1
8	18	Canopy coverage over streambed	0-5	0-5	0-5	10
HAB	<u> </u>	(no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness			<del>- </del>	<del>                                     </del>
	19	(deeply embedded = 0; loose structure = max)	NA*	0-4	0 4	NA
	20	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	~
	20	(no evidence = 0; common, numerous types = max points)			<u> </u>	
Ā	21	Presence of amphibians	0-4	0-4	0-4	2
BIOLOGY		(no evidence = 0; common, numerous types = max points)  Presence of fish	*		<u> </u>	
0	22	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
<b>A</b>	23	Evidence of wildlife use	0-6	0-5	0-5	7
	25	(no evidence = 0; abundant evidence = max points)	Kin Wasi dinarahan	e deservants	n an ann an a	<u> </u>
		Total Points Possible	100	100	100	
168 1683	ent AN National		- Cambridge to	r (* 1838) September 1941 (* 1888)		ヘコ
193		TOTAL SCORE (also enter on	first page)			J + T

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody ssap002 facing south upstream.



Waterbody ssap002 facing north downstream.



Waterbody ssap002 facing west across bank.

NC DWO Stream Identification Form Version 4.11 Date: 5/4/15 Project/Site: A ( P Latitude: 35,27097 Evaluator: ESI (Roper, Harbour) County: Sampson Longitude: 18,55913 Total Points: Stream-Determination (circle one) Other Stream is at least intermittent phemeral Intermittent Perennial e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\* A. Geomorphology (Subtotal = Absent Weak Moderate Strong 1<sup>a.</sup> Continuity of channel bed and bank 1 2 3 n 2. Sinuosity of channel along thalweg 0 2 3 3. In-channel structure: ex. riffle-pool, step-pool, ⊚ 1 2 3 ripple-pool sequence (<u>(i)</u> 4. Particle size of stream substrate 1 2 3 5. Active/relict floodplain  $(\bar{0})$ 1 2 3 6. Depositional bars or benches (0)1 2 3 7. Recent alluvial deposits 0 1 2 3 T) 1 8. Headcuts 3 2 9. Grade control 0.5 1 1.5 10. Natural valley **(**0) 0.5 1 1.5 11. Second or greater order channel Mo = 0Yes = 3artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 12. Presence of Baseflow (2) 0 1 3 13. Iron oxidizing bacteria 6.2 1 3 14. Leaf litter (5) 1 0.5 0 15. Sediment on plants or debris 0.5 1.5 1 16. Organic debris lines or piles 0.5 1 1.5  $N_0 = 0$ Yes = 3 17. Soil-based evidence of high water table? C. Biology (Subtotal = 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 2 1 0 <u>(0)</u> 20. Macrobenthos (note diversity and abundance) 1 2 3 **D** 21. Aquatic Mollusks 1 2 3 22. Fish 0 0.5 1 1.5 23. Crayfish 0.5 (9) 1 1.5 24. Amphibians 0.5 (1.5.) 0 25. Algae 0.5 1.5 FACW = 0.75; OBL = 1.5 Other = 0 26. Wetland plants in streambed \*perennial streams may also be identified using other methods. See p. 35 of manual. Notes: 550-DDDØ2 Sketch:

OHWM: 4 ft Bank: 6 ft.

USACE AID#	DWQ ≠	S	Site # (indicate on attached map)
			ssap 001
STR	EAM QUALITY AS	SSESSMENT WOR	KSHEET
Provide the following information	m for the stream reach undo		
1. Applicant's name: Dowl	nion_	2. Evaluator's name: EST	[(Roper, Harbour)
3. Date of evaluation: $5/4113$		4. Time of evaluation:   Or	Υ
5. Name of stream: UNT to E	leaverdam Swamp	6. River basin: Cape	Fear
7. Approximate drainage area:	so ac	8. Stream order:	
9. Length of reach evaluated:	5+	10. County: 5amp 51	ο <b>ν</b>
11. Site coordinates (if known):	prefer in decimal degrees.	12. Subdivision name (if any	y):
Latitude (ex. 34.872312): 35, 270	797	Longitude (ex77.556611);	78,55913
Method location determined (circle): 13. Location of reach under evalu	(PS) Topo Sheet Ortho (A	Aerial) Photo/GIS Other GIS andmarks and attach map ide	Otherntifying stream(s) location):
on Green Path	Rd between 1	1001ton Rd and	d Timothy Rd
14. Proposed channel work (if any	v): proposed pi	peline	
15. Recent weather conditions: V	, ,	•	
16. Site conditions at time of visit	:agricultural	ditch in bety	veen fields
17. Identify any special waterway	classifications known:	Section 10Tidal W	VatersEssential Fisheries Habitat
Trout WatersOutstand	ing Resource Waters	Nutrient Sensitive Waters	Water Supply Watershed(I-lV)
18. Is there a pond or lake located	l upstream of the evaluation p	oint? YES 😡 If yes, esti	mate the water surface area:
19. Does channel appear on USG	S quad map? YES (10)	20. Does channel appear or	uSDA Soil Survey? YES
21. Estimated watershed land use	: <u>5</u> % Residential	% Commercial	_% Industrial <u>9D</u> % Agricultural
v (- co 1)	<u>S</u> % Forested	% Cleared / Logged	
* (Top of Bank) 22. Bankfull width: 6 f	+	23. Bank height (from bed	to top of bank): 3 ft
24. Channel slope down center o	f stream: Flat (0 to 2%)	Gentle (2 to 4%)	Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:Stra	ightOccasional bends	Frequent meander	Very sinuousBraided channel
location, terrain, vegetation, stre to each characteristic within the characteristics identified in the characteristic cannot be evaluate comment section. Where there into a forest), the stream may be	am classification, etc. Every ne range shown for the eco worksheet. Scores should re ed due to site or weather con are obvious changes in the ch divided into smaller reaches	characteristic must be scored region. Page 3 provides a flect an overall assessment of additions, enter 0 in the scori- paracter of a stream under reve that display more continuity,	the most appropriate ecoregion based on lusing the same ecoregion. Assign points brief description of how to review the of the stream reach under evaluation. If a ng box and provide an explanation in the view (e.g., the stream flows from a pasture and a separate form used to evaluate each score of 100 representing a stream of the

Total Score (from reverse): 2 † Comments:

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.

	CHARACTERISTICS	. n : mil. 7 7 ) . "den 'del' : bellen : enlere :	ION POINT		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	0
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	$0 \div 5$	2
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	2 0 4 4	_2
5	Groundwater discharge (no discharge = 0, springs, seeps, wetlands, etc. = max points)	0-3	0-4	0 ≒ 4	_2_
) 6   6   7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	
<b>E</b> 7	(deeply entrenched = 0; frequent flooding - max points)	0-5	0-4	0-2	
8	(no wetlands = 0; large adjacent wetlands - max points)	0-6	0-4	0-2	<u> </u>
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	1
10	(extensive deposition=0; fittle of no sediment - max points)	0-5	0-4	0-4	
1	(line, nomogenous – 0; large, diverse sizes – max points)	₹, NA*	0-4	0-5	NA
	(deeply incised = 0; stable bed & banks = max points).	0-5	0-4	0-5	2
i i	(severe erosion – 0; no erosion, stable banks – max points)	0-5	0-5	0-5	5
STABILITY 1 1 1	Root depth and density on banks (no visible roots = 0, dense roots throughout = max points)	0-3	0-4	0-5	2
<b>S</b> 1	(substantial impact –0, no evidence – max points)	0-5	0-4	0-5	0
1	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 complexity  (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
HAB	8 Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	0
1.00	9 Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
00	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
BIOLOGY	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	, 0-5	0-5	2
	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter or	first page)			27

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody ssap001 facing northeast upstream.



Waterbody ssap001 facing southwest downstream.

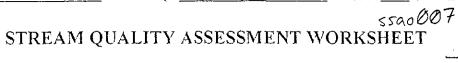


Waterbody ssap001 facing north across bank.

DWO	<u></u>	
DWU	=	

Site	<del>=</del>

\_\_\_ (indicate on attached map)





Provide the following information is	or the stream reach t	inger assessn	ent:				_	
1. Applicant's name: Daninioc	<u> </u>	_ 2. Evalua	itor's name: <u>K</u>	MOYKho	100, 15,	MUL	Phi	<u>ey</u>
3. Date of evaluation: $9/9/14$		_ 4. Time	of evaluation:_	ILOUAN	`			
5. Name of stream: Reaverdain	Swamp	_ 6. River	basin: CAPE	Fear				
7. Approximate drainage area: >50	) acres	_ 8. Stream	ı order: <u> </u>					<u>.</u>
9. Length of reach evaluated: 100 🗲		_ 10. Coui	ny: Samp:	OVI				
11. Site coordinates (if known): pre		<b>12.</b> Subc	ivision name (	if any): <u>// (</u>	<del>}</del>			
Latitude (ex. 34.872312): <u>35.255</u>	86	Longitu	de (ex. –77.55661	1): <u>-7\$,</u>	<u>5643</u>	<u>フ</u>		
Method location determined (circle). G 13. Location of reach under evaluation LOCATES SOUTHWEST	n (note nearby roads a	ınd landmarks	and attach mag			locatio	n):	
14. Proposed channel work (if any):_	TBO		<u> </u>					
15. Recent weather conditions: 6	inches of	rain fo	15+ 36 1	nours				
16. Site conditions at time of visit:	and isturbed			<del></del>				
17. Identify any special waterway cla			10Ti	dal Waters	Ess	ential l	Fisheri	es Habitat
Trout WatersOutstanding	Resource Waters	Nutrient S	Sensitive Wate	rsWa	ter Supply	Waters	shed	(l-lV)
18. Is there a pond or lake located up	stream of the evaluation	on point? YE	S NO lf yes	, estimate th	e water sur	face ar	ea:	
19. Does channel appear on USGS qu	uad map? (YES) NO	<b>20.</b> Doe	s channel appe	ar on USDA	Soil Surve	ey? (Y	ES) N	О
21. Estimated watershed land use:	(O_% Residential	% Co	mmercial-	% Inc	Justrial	<u>20°</u>	% Agri	cultural
* (Top of Bank) 22. Bankfull width: 9 Pd.	70 % Forested	23. Ban	k height (from	bed to top o	of bank):	3/1		
24. Channel slope down center of str	eam:Flat (0 to 29	%)Gent	e (2 to 4%)	Modera	ate (4 to 10°	3%)	_Steep	(%01<) c
25. Channel sinuosity:Straight	Occasional bend	ds <u>V</u> Frequ	ient meander	Very	sinuous		Braideo	d channel
Instructions for completion of we location, terrain, vegetation, stream to each characteristic within the recharacteristics identified in the wor characteristic cannot be evaluated comment section. Where there are into a forest), the stream may be divreach. The total score assigned to highest quality.	classification, etc. Ex- range shown for the dishect. Scores should due to site or weather obvious changes in the vided into smaller read	yery character ecoregion. d reflect an or r conditions, one character of thes that displ	stic must be so Page 3 provide verall assessmenter 0 in the a stream under ay more conting.	cored using les a brief ent of the si scoring box er review (e. nuity, and a	the same eduscription tream reach and providing, the streetestern terms of the streetestern the streetestern terms of the	coregion of how home and earn floren the core and the cor	on. As ow to a revaluexplana ws from d to ev	sign points review the ation. If a ation in the m a pasture aluate each
Total Score (from reverse): 7	<u>5</u> Con	nments: 6	inches	ut la	in PE	XS+-	<u>36</u>	hours
Evaluator's Signature Klim	echlin			Date	9/14			
This channel evaluation form is gathering the data required by quality. The total score resulting particular mitigation ratio or recommendations.	the United States A ag from the complet	rmy Corps of this f	of Engineers i orm is subjec	ndowners a to make a to USAC	nd enviror preliminar E approva	y asse il and	does 1	t of stream not imply

#:	CHARACTERISTICS	The state of the fact of the first of the fact of the	ION ROINI Piedmont	RANGE :: 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	5
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	4
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
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	4
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0-4	12 1 0 - 2 11 1	5
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	6
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3
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	5
12 13 14 20	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	3
<b>2</b> 15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	0
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	H
16 17 18 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	
20	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	3
21	Presence of amphibians	0-4	0-4	0-4	4
X907019 21 22	Precence of fish	0-4	6 0 <del>-</del> 4	0-4	3
22	Evidence of wildlife use	0-6	, 0-5	0-5	5
	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter on	first page)			75

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 0/9/14	Project/Site: ACP	Latitude: 35, 2 <i>5586</i>
Evaluator: fST-K, MURPhrey	county: Sampson	Longitude: - 78,56437
Total Points:  Stream is at least intermittent 39,5  if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent (Perennial)	Other Dunn e.g. Quad Name:

Coomershalogy (Subtotal = 19, 5)	Absent	Weak	Moderate	Strong
Geomorphology (Subtotal = 19.5)		1	2.	(3)
Continuity of charmer bed and bank	<del></del>	<del></del>	(2)	3
. Sinuosity of channel along thalweg	0	<u> </u>	(5)	<del>                                     </del>
. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
. Particle size of stream substrate	0	1	(2)	3
. Active/relict floodplain	0	1	2	(3)
S. Depositional bars or benches	0	<u>(1)</u>	2	3
7. Recent alluvial deposits	0	1	(2)	3_
B. 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 = 0		Yes =(3)	

17. Soil-based evidence of high water table?	No = 0		Yes ₹3 )	
16. Organic debris lines or piles	0	0.5	1	(1.5)
15. Sediment on plants or debris	0	0.5	1	1.5
14. Leaf litter	1.5	\\_\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	0.5	1 5
13. Iron oxidizing bacteria	0		(2)	3
12. Presence of Baseflow	0	1	(6)	<u> </u>
B. Hydrology (Subtotal =\\)			2	(3)

C. Biology (Subtotal = 9 )		<del></del>		6
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	<u> </u>	0.5	(1)	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	Q	0.5	11	(1.5)
25. Algae	(0)	0.5		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.

diverges at culvert + connects back 007

wsao 007 upline

-upland inclusion

·ssa0007

OHWM width: Top of Bank width: 10 4.

Sketch:



Waterbody ssao007 facing northeast upstream.



Waterbody ssao007 facing southwest downstream.

Photo Sheet 1 of 2



Waterbody ssao007 facing northwest across channel.

Open Waterbody Dat	a Sheet			
Survey Description				
Project Name:	Waterbody N	lame:	Waterbody ID:	Date:
Southeast Reliability F	JCP Unnar	med Pand	0500005	9/10/14
State: Count		Company:	Crew Member Initials: Photos:	
· · · · · · · · · · · · · · · · · · ·	MPSUN	ESI		ing North
Tract Number(s):		Nearest Milepost:	Associated Wetland ID(s):	
21-044		409.8	WSA 0 007	<u> </u>
Survey Type: (check one)	⊠Centerline □F	Re-Route □Access Ro	ad 🗆 Other:	
Physical Attributes				·
Waterbody Type: (check one) ☐Stock Pond	i □ Natural Pond □ La	ke ☐ Reservoir ☐ Impoundme	ent 🗆 Oxbow 🗆 Other:	
Hydrologic Regime: □ F	Permanently Flooded I	Semipermanently Flooded D	Seasonally Flooded ☐ Tempora	arily Flooded
OHWM	OHWM Indicator:		<u> </u>	
Height:	(check all that apply)	☑ Clear line □She on bank	elving □Wrested □So vegetation	ouring ⊟Water staining
<u>M</u> n.	□Bent, matted, or r vegetation	nissing □Wrack □Litte line debris	er and GAbrupt plant GSoil community change	characteristic change
Depth of Water:	Bank heig	ght (average):	Bank slope (average):	-
		7 ft.	<u>45</u>	degrees
,		berm		
Qualitative Attributes			·	
Water Appearance: (check one) □No	water ⊡Clear Ūv		Surface ⊡Algal ⊡Other: um mats	
Substrate: Bed	drock 🗆 Boulder 🗆 🤇	Cobble ☐ Gravel ☑ Sand	⊠ Silt/ clay □ Organic □ Othe	г.
% of Substrate:	_%%	%% <u>{</u> U_%	40 %%	_%
Width of Riparian Zone:	Vegetative Layers:	<b>+</b> /		-
>160 <sub>ft</sub> .	(check all that apply)	Trees:	☐ Saplings/Shrubs: ☐ Her	os
N/A□	Avg. DBH of Dominan	ts: <u> </u>	in	in.
Dominant Bank Vegetation	(list): ACEY YUL	rawitionigaupe	N Styracificia	
			nilax rotundifor	
'		, overhanging banks/roots, leaf packs, large	submerged wood, riffles, deep pools, etc.):	
Open wat				
Aquatic Organisms Obser	ved (list): larvae, fro	95		
T&E Species Observed (lis	t):			
NA				
Disturbances (ex: livestock				
run-off	from f	ield		
Waterbody is: (check one)	□ Natural ☑ Artif	icial, man-made ☐ Manipula	ied	
Waterbody Quality a: (check one)	☐ High ☐ Moder	ate D/Low		

1	Waterbody	ID:	
	osao	003	

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)

SSAU 00871 , u x wsau 007 f downline (originates as headcut at edge of field) USAU 008

#### Environmental Field Surveys Open Waterbody Photo Point Page



Open Waterbody osao003 facing north.



|--|

Provide the following information for the stream reach under	r assessment:
1. Applicant's name: Dominio へ	2. Evaluator's name: FSI K. Marphrey
3. Date of evaluation: 9/10/14	4. Time of evaluation: W.30am
5. Name of stream: UNT to Beaverdam Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 6 acres	8. Stream order:
9. Length of reach evaluated: 50F4	10. County: Sampson
11. Site coordinates (if known): preser in decimal degrees.	12. Subdivision name (if any): NA
1.atitude (ex. 34.872312): 35.25175	_ Longitude (ex77.556611);-78,56990
Method location determined (circle): GPS Topo Sheet Ortho (A 13. Location of reach under evaluation (note nearby roads and le	erial) Photo/GIS Other GIS Otherandmarks and attach map identifying stream(s) location):
Located southwest of old us	Hal Hwy
14. Proposed channel work (if any): TBD	0/4/10
15. Recent weather conditions: 6 inches of 1	
16. Site conditions at time of visit: Steam originate	s at headout at edge of field.
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 NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	- 3
	% Commercial% Industrial90% Agricultural
* (Tage F Real)	% Cleared / Logged % Other ()  23. Bank height (from bed to top of bank): /OFC
·	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meander Very sinuous Braided 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 recharacteristic cannot be evaluated due to site or weather concomment section. Where there are obvious changes in the chinto 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 additions, enter 0 in the scoring box and provide an explanation in the aracter 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 a between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 27 Comme	nts:
Evaluator's Signature KUN LUMW)	Date 9/10/14
This channel evaluation form is intended to be used only	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	o change – version 06 03. To Commem, please call 919-876-8441 x 26.

	#*	CHARACTERISTICS	ECOREG	ION POINT		SCORE
	45		Coastar	Piedmont	Mountain	WEEK CO.
	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	$\bigcirc$
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0 - 5	+
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	0
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	7
	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	7
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	04	0-2	$\circ$
	9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	11.
	10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	a
	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	0
ABILITY	13	Presence of major bank failures  (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	0
ABL.	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	0
Sylven	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
ILAI	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
HABI	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	
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
3GX	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
BIOLOGY	22	Presence of fish	0-4	0-4	0-4	0
B	23	Evidence of wildlife use	0-6	0-5	0-5	12
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on	first page)			7:

<sup>\*</sup> These characteristics are not assessed in coastal streams.

SSA0008 NC DWO Stream Identification Form Version 4.11 Latitude: 35,25175 Project/Site: ACP Date: 9 /10 / 11+ Longitude: -78.56990 County: Sampson Evaluator: [S] - K, M. W. P. N. E. Other DUAN A e.g. Quad Name: Stream Determination (circle one) Total Points: Ephemeral Intermittent Perennial Stream is at least intermittent if ≥ 19 or perennial if ≥ 30\* A. Geomorphology (Subtotal = 15.5) Strong Weak Moderate Absent 3 (2) 0 1a. Continuity of channel bed and bank  $\overline{(1)}$ 3 0 2. Sinuosity of channel along thalweg **(**3) 3. In-channel structure: ex. riffle-pool, step-pool, 1 2 0 ripple-pool sequence 2  $\overline{(3)}$ 0 4. Particle size of stream substrate 1 0 5. Active/relict floodplain 3 (2) 0 6. Depositional bars or benches (3 \ 2 0 1 7. Recent alluvial deposits 2 1 (0)8. Headcuts 1.5 (0) 0.5 9. Grade control 1.5 0.5 1 0 10. Natural valley No =(0) Yes = 311. Second or greater order channel artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 3 2 (1 12. Presence of Baseflow 3 (O) 13. Iron oxidizing bacteria 0 0.5 1 (1.5)14. Leaf litter 1.5 (0) 0.5 1 15. Sediment on plants or debris (1)1.5 0.5 16. Organic debris lines or piles Yes, €3) 17 Soil-based evidence of high water table?

17. Soil-based evidence of high water table?		<del></del>		<del></del> _
C. Biology (Subtotal = 5 )				
18. Fibrous roots in streambed	3	(2,)	<u> </u>	U
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	11	1.5
23, Crayfish	0	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
	(0)	0.5	1	1.5
25. Algae 26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			
Zo. Fronding plante in Tarasia		-1		

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Originates as headout at edge of ag, field

Sketch:

WW SAN OWN F downline

SSAN OWN

SSA

OHWM width:

Top of Bank width: 10



Waterbody ssao008 facing south upstream.



Waterbody ssao008 facing north downstream.



Waterbody ssao008 facing east across channel.



Waterbody ssao008 facing north, showing headcut at origin.

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

PERENNIAL BRAIDED STREAM SSAAOOI > BEAVERDAM SWAMP NC DWO Stream Identification Form Version 4.11

110 b 11 Q Stream Identification 1 of in		
Date: APRIL 11, 2015	Project/Site: Dominion - ACP	Latitude: 35° 14 57.129"
Evaluator: GAVIN BLOSSER	County: SAMPSON	Longitude: -78° 34 ' 33.627 "
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other BEAVERD AM SWAMP e.g, Quad Name:

Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*		ination (circle one) ermittent (Perennial		DAM SWAMP
A. Geomorphology (Subtotal = 22.0)	Absent	Weak	Moderate	Strong
1 <sup>a</sup> Continuity of channel bed and bank	0	1)	2	3
Sinuosity of channel along thalweg	0	1	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
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	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	N	lo = 0	Yes	<del>=</del> (3)
a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = //. Ø )	· •			
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?	N	lo = 0	(Yes	= 3
C. Biology (Subtotal = <u>//. 25</u> )				
18. Fibrous roots in streambed	3	2	<u> </u>	0
19. Rooted upland plants in streambed	J a 3	2	1	0
20. Macrobenthos (note diversity and abundance) profile of	many o	1	2	3
21. Aquatic Mollusks	0	Q	2	3
22. Fish	0	05)	1	1.5
23. Crayfish	0	0.5	<b>①</b>	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) OF	3L = 1.5 Other = 0	)
*perennial streams may also be identified using other methods	. See p. 35 of manu	al.		
Notes: Severe Chinese privet inte	station tha	roughoest		
Ctarra in a concept so	RAIDED S	SYSTEM		
Sketch:  N  Proposition  Propos	ornes ornes 55 B	AAOOI PAIDEDIAL PEREMIAN	150' PPOP	ose Due iperine iperine
Annual recommendation and recommendation and recommendation of the		en e	<u>-</u> 5B	

6.75 4.5 11. 25

turn or an anti-construction and a second an

41

STREAM QUALITY ASSESSMENT WORKSHEET PERENNIAL BEALDED STREAM SSAROOL  Provide the following information for the stream reach under assessment:  1. Applicant's name: Deminion ACP 2. Evaluator's name: Clanin Bloosef.  5. Name of evaluation: APRIL 11, 2015 4. Time of evaluation: 1:30 PM  5. Name of stream: Beavernam Summer 55AACOI 6. River basin: Cape Fear  7. Approximate drainage area: 8. Stream order: 10. County: Sampson 11. Site coordinates (if known): prefer in decimal degrees.  1. Latitude (ex. 34.87212): 35° /1 57.127° 10. County: Sampson 11. Site coordinates (if known): prefer in decimal degrees.  1. Latitude (ex. 34.87212): 35° /1 57.127° 11. County: Sampson 11. Stee coordinates (if known): Prefer in decimal degrees.  1. Latitude (ex. 34.87212): 35° /1 57.127° 11. County: Sampson 11. Stee coordinates (if known): Prefer in decimal degrees.  1. Latitude (ex. 34.87212): 35° /1 57.127° 11. County: Sampson 11. Stee coordinates (if known): Prefer in decimal degrees.  1. Latitude (ex. 34.87212): 35° /1 57.127° 11. County: Sampson 11	ACE AID#	DWQ #		Site #	(indicate on attached ma	p)
1. Applicant's name: Dominion—ACP 2. Evaluator's name: CTALLE BLOSSER 4. Survey of evaluation: APRIL 11 2015 4. Time of evaluation: 1:30 PM 5. Name of stream: BEAPERDAM SMORD 55AACOI 6. River basin: CAPE FEAR 9. Length of reach evaluated: 300 1 10. County: SAMPSON 11. Site coordinates (if known): prefer in decimal degrees. 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): A A 1 10. County: SAMPSON 11. Site coordinates (if known): prefer in decimal degrees. 13. Location of reach under evaluation (note nearby roads and landmarks and attach may identifying stream(s) location): 13. Location of reach under evaluation (note nearby roads and landmarks and attach may identifying stream(s) location): 14. Proposed channel work (if any): PIPELINE CROSSING 15. Recent weather conditions: Thumperson Might before LAST 16. Site conditions at time of visit: CLCAR SUMMY Light WINDS 75 F 17. Identify any special waterway classifications known: Section 10 Tidal Waters Essential Fisheries I Trout Waters Outstanding Resource Waters South Waters Water Supply Watershed 18. Is there a pond or lake located upstream of the evaluation point? YES (NO If yes, estimate the water surface area: M/A 19. Does channel appear on USOS quad map? NO 20. Does channel appear on USOS Sil Survey? (YES) NO 21. Estimated watershed land use: 5 % Residential % Commercial % Industrial 5 % Agricult 15 % Cleared / Logged % Other (22. Bankfull width: 30.0	STREA  P to the following information for	M OTTAL ITY A	CCECCMENT W	ORKSHE M SSA	EET Aool	
3. Date of evaluation: APRIL 11, 2015  5. Name of stream: BENEROAM CMOMP 55AACO  6. River basin: Cape FEAR  7. Approximate drainage area: 8. Stream order: 9. Length of reach evaluated: 300  10. County: SAMPSON  11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	nlicent's name: DOMIALION	I - ACP	2. Evaluator's name:	GAVI	N BLOSSER	
5. Name of stream: BENERDAM Sunne SSAROI 6. River basin: Cape FEAR.  7. Approximate drainage area: 8. Stream order: 10. County: SAMPSON 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): JA Lantiude (ex. 34.87312): 35° 14' 57.127" Longitude (ex. 77.556611): 77.6° 34' 33.027" Method location determined (circle): GPB Top Sheet Ortho (Aerial) Photo/GIS Other GIS Othe				1:30	OPM	
8. Stream order: 9. Length of reach evaluated: 300 1 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): \( \text{ \subdivision} \) \(  \s						
11. Site coordinates (if known): prefer in decimal degrees.  Latitude (ex. 34.872312): 35° 14' 57.129''  Method location determined (circle): GPS Topo Sheet Ortho (Acrial) Photo(GIS Other GIS Othe			8 Stream order:			
11. Site coordinates (if known): prefer in decimal degrees.  Latitude (ex. 34.872312); 35° 14' 57.129"  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):  **EAST OF SPRICE BEAMICH ROAD;** National Action of Freedom (if any): PIPELINE CROSSING  14. Proposed channel work (if any): PIPELINE CROSSING  15. Recent weather conditions: Thumperstorals Might before LAST  16. Site conditions at time of visit: CLEAR, SUINNY, Light WINDS, 75° F.  17. Identify any special waterway classifications known: Section 10 Tidal Waters Essential Fisheries I Trout Waters Outstanding Resource Waters Nutrient Sensitive Waters Water Supply Watershed  18. Is there a pond or lake located upstream of the evaluation point? YES (N) If yes, estimate the water surface area: M/M.  19. Does channel appear on USGS quad map? (TES) NO  20. Does channel appear on USDA Soil Survey? (YES) NO  21. Estimated watershed land use: 5 % Residential % Commercial % Industrial (5 % Agricult 15 % Cleared / Logged % Other (22. Bankfull width: 30.0)  22. Bankfull width: 30.0 C 23. Bank height (from bed to top of bank): 3.0  23. Bank height (from bed to top of bank): 3.0  24. Channel slope down center of stream: Flat (0 to 2%) & Gentle (2 to 4%) Moderate (4 to 10%) Steep (2 to 4 to 10 to 2 to 2 to 2 to 2 to 3 to 3 to 3 to 3	and a freezh avaluated:	00'	10 County:	SAMPSO	N	
Method location determined (circle): PS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS	igin of reach evaluated:	er in decimal degrees				
Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other GIS Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location):  **EAST OF SPRING BEANCH ROAD: NORTH OF HAWLY ROAD  14. Proposed channel work (if any): **PIPELINE CRASSING**  15. Recent weather conditions: **Thumperstorms Night before LAST**  16. Site conditions at time of visit: **CLEAR SUMMY Light WINDS 75° F**  21. Identify any special waterway classifications known: **Section 10	4 ( 24 872212) 25° 14' 5	7.129"	Longitude (ev77.55661	n78°	34' 33.027"	
13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location):    LOST OF SPRING BRANCH ROAD   NORTH OF HAWLY ROAD						
14. Proposed channel work (if any): PIPELINE CROSSING  15. Recent weather conditions: Thumperstorms wight before Last  16. Site conditions at time of visit: CLEAR SUNNY, Light WINDS, 75° F  17. Identify any special waterway classifications known: Section 10 Tidal Waters Essential Fisheries I Trout Waters Outstanding Resource Waters Nutrient Sensitive Waters Water Supply Watershed  18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: N/H  19. Does channel appear on USGS quad map? No 20. Does channel appear on USDA Soil Survey? YES NO  21. Estimated watershed land use: 5 % Residential % Commercial % Industrial 5 % Agricult 15 % Cleared / Logged % Other (  22. Bankfull width: 30.0' 23. Bank height (from bed to top of bank): 3.0  24. Channel slope down center of stream: Flat (0 to 2%) Gentle (2 to 4%) Moderate (4 to 10%) Steep (> 25. Channel sinuosity: Straight Occasional bends Frequent meander Very sinuous Braided ch.  Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revicharacteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): 72 Comments: Complex Brainer In Quadrastery through the same coverage. The outer of the score of 100 representing a stream highest quality.	ocation of reach under evaluation	n (note nearby roads and	landmarks and attach map	identifying	stream(s) location):	
16. Site conditions at time of visit: CLEAR SUNNY Light WINDS, 75° F  17. Identify any special waterway classifications known: Section 10Tidal WatersEssential Fisheries ITrout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed  18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: W/H  19. Does channel appear on USGS quad map? YES NO	ENST OF SPRING BRE	ANCH ROAD;	NORTH OF HAM	ILEY ROI	4D	
16. Site conditions at time of visit: CLEAR, SUNNY, Light WINDS, 75° F  17. Identify any special waterway classifications known: Section 10Tidal WatersEssential Fisheries ITrout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed  18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: W/A  19. Does channel appear on USGS quad map? YES NO	roposed channel work (if any):	PIPELINE	CROSSING		and the second s	
16. Site conditions at time of visit: CLERR, SULINY, Light WINDS, 75° F  27. Identify any special waterway classifications known: Section 10Tidal WatersEssential Fisheries ITrout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed	ecent weather conditions:	THUMDERSTORMS	Night before 1	A5T_		
Trout Waters Outstanding Resource Waters Nutrient Sensitive Waters Water Supply Watershed  18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: N/A  19. Does channel appear on USGS quad map? YES NO  20. Does channel appear on USGS Guad map? YES NO  21. Estimated watershed land use: 5 % Residential % Commercial % Industrial 6 % Agricult 15 % Cleared / Logged % Other (  22. Bankfull width: 30.0 % Forested 5 % Cleared / Logged % Other (  23. Bank height (from bed to top of bank): 3.0  24. Channel slope down center of stream: Flat (0 to 2%) Gentle (2 to 4%) Moderate (4 to 10%) Steep (> 25. Channel sinuosity: Straight Occasional bends Frequent meander Very sinuous Braided che Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revi characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluar reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): 72 Comments: Complex Braider in under stream flows from a line a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluar reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): 72 Comments: Complex Braider in under stre	ite conditions at time of visit:	CLEAR , SUNN'	1 , Light WINDS	. 75° /	and a second	
Trout Waters Outstanding Resource Waters Nutrient Sensitive Waters Water Supply Watershed  18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: W//  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 5 % Agricult / 5 % Forested 5 % Cleared / Logged % Other (  22. Bankfull width: 30.0¹ 23. Bank height (from bed to top of bank): 3.0  24. Channel slope down center of stream: Flat (0 to 2%) Gentle (2 to 4%) Moderate (4 to 10%) Steep (> 25. Channel sinuosity: Straight Occasional bends Frequent meander Very sinuous Braided ch Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revich aracteristic sidentified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): 72 Comments: Complex BRAIDED Revenirum Stream Value Value Very Severe Chiaces Privet in festation in underestable than the underestable than t	lentify any special waterway clas	sifications known:	Section 10 Tic	lal Waters	Essential Fisheries Ha	abita
22. Bankfull width: 30.01 23. Bank height (from bed to top of bank): 3.0  24. Channel slope down center of stream: Flat (0 to 2%) Gentle (2 to 4%) Moderate (4 to 10%) Steep (> 25. Channel sinuosity: Straight Occasional bends Frequent meander Very sinuous Braided ch Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revi characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): 72 Comments: Complex BRAIDED Reveniral Stream highest quality.  Total Score (from reverse): 72 Comments: Complex BRAIDED Reveniral Stream highest quality.	there a pond or lake located upstooes channel appear on USGS qua	tream of the evaluation pad map? YES NO	point? YES NO If yes, 20. Does channel appear	estimate the	water surface area: N/A Soil Survey? YES NO	<b>/</b>
24. Channel slope down center of stream:Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (> 25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided characteristic for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revice characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): Comments: Comments: BRAIDED Revenue Character of the stream of t	stimated watershed land use:	5 % Residential	% Commercial	% Indu	strial <u>45</u> % Agricultur	ral
24. Channel slope down center of stream:Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (> 25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided characteristic for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revice characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse): Comments: Comments: BRAIDED Revenue Character of the stream of t		<u>15</u> % Forested	15 % Cleared / Logged	% Othe	er (	
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revice characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse):  Total Score (from reverse)	ankfull width: 30.0'		23. Bank height (from	bed to top of	bank):3.0	
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion be location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revice characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse):  Comments: Complex BRAIDED PREVIOUS Stream Values, Very severe Chinese Privet infestation in underestory than	hannel slope down center of stre	am:Flat (0 to 2%)	Gentle (2 to 4%)	Moderate	e (4 to 10%)Steep (>10	)%)
location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to revi characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream highest quality.  Total Score (from reverse):  Total Score (from reverse):  Comments:  Comments:  Complex BRAIDED Rerewish Stream Chinese Privet infestation in understory through the private of the private infestation in understory through the private infestation in the careful of the stream reach under evaluation characteristic description of how to review characteristics are provided in the scoring through the stream reach under evaluation characteristics and provide an evaluation characteristic description of the stream reach under evaluation characteristics in the characteristic and other provided in the stream reach under evaluation characteristics in the stream reach under evaluation characteristics in	hannel sinuosity:Straight	Occasional bends	Frequent meander	Very si	inuous <u>X</u> Braided char	nel
	ion, terrain, vegetation, stream of the characteristic within the ran exteristics identified in the works exteristic cannot be evaluated du ment section. Where there are of a forest), the stream may be divided. The total score assigned to a	lassification, etc. Every nge shown for the eco sheet. Scores should re to site or weather co bvious changes in the cl ded into smaller reaches	characteristic must be so oregion. Page 3 provide effect an overall assessme nditions, enter 0 in the so haracter of a stream under that display more continu	ored using the same brief de nt of the stree coring box are review (e.g., ity, and a sep	e same ecoregion. Assign pascription of how to review am reach under evaluation. In the stream flows from a paparate form used to evaluate	ooin w th If in th astur e eac
	1 Score (from reverse): 12 flowing through o VALLEY. VERY SEVE	Comme 2N expansive Re Chinese f	ents: Complex BI PFO WETLAND PRIVET INFESTATION	RAIDED D IN I	penervial Street of Low every through	en , n g h.
Evaluator's Signature	uator's Signature	Jamin Bloo	L. Commence of the Commence of	Date	APRIL 11, 2015	

# BEAVERDAM SWAMP STREAM QUALITY ASSESSMENT WORKSHEET PERENNIAL BRAIDED SHREAM SSAAOOI

	#	CHARACTERISTICS	ECOREGION POINT RANGE			- SURF	
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain		
	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	2	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4	
	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	3	
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4	
6	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	3	
	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	2	
L	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	2	
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	4	
	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3	
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	2	
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3	
	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	2	
L	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	4	
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	4.	
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3	
L	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	5	
		Total Points Possible	100	100	100		

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody SSAA001 facing east upstream



Waterbody SSAA001 facing west downstream



Waterbody SSAO001 facing south across

Open Waterbody Data Sheet Survey Description Waterbody Name: Waterbody ID: Project Name: 9/3/2014 Southeast Reliability Unnamed Pord 05a0 001 Crew Member Initials: Company: Photos: State: County: NC Sampson KWM, KSM ESI facing west Nearest Milepost: Associated Wetland ID(s): Tract Number(s): 412.2 N/A 21-063 Survey Type: **⊠**Centerline □Access Road □Re-Route ☐ Other: (check one) Physical Attributes Waterbody Type: Stock Pond □ Natural Pond □ Lake □ Reservoir □ Impoundment □ Oxbow □ Other: (check one) Hydrologic Regime: Permanently Flooded ☐ Semipermanently Flooded ☐ Seasonally Flooded ☐ Temporarily Flooded OHWM OHWM Indicator: Shelving (check all that apply) Clear line □Water □Wrested □Scouring on bank vegetation staining Height: □Bent, matted, or missing □Wrack □Litter and □Abrupt plant □Soil characteristic change debris vegetation community change Bank height (average): Bank slope (average): Depth of Water: >3 ft. 3 45 ft. degrees N/A 🗆 Qualitative Attributes Water Appearance: □No water .⊠Clear (check one) □Turbid □Sheen □ Surface □Algal □Other: on surface scum mats ⊠ Sand ⊠∕Silt/ clay □ Organic ☐ Cobble ☐ Gravel Substrate: ☐ Bedrock □ Boulder (check all that apply) % of Substrate: Width of Riparian Zone: Vegetative Layers: ☐ Trees: (check all that apply) Saplings/Shrubs: ⊠ Herbs < 10 ft. N/A in. N/A in. Avg. DBH of Dominants: N/A 🗆 Dominant Bank Vegetation (list): Liquidambar styraciflua, Acer rubrum, Diodea sp., Ludwigiasp., Boehmeria cylindrica, Eleocharis sp., Cyperus sp. Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): open water, submerged/emergent branches, submerged aquatic vegetation Aquatic Organisms Observed (list): Bluegill, dragonflies (eastern porahawk, blue dasher, eastern amberwing) T&E Species Observed (list): None Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Pasture-now in mowed/lawn condition Waterbody is: (check one) ☐ Natural ☐ Manipulated Waterbody Quality \*: (check one) ☐ High Moderate ☐ Low

1	Waterbody	ID:
		(XX) \
	しつらかこう	ועעע
	000.0	. ,

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)

continues of osaooo 25 data print At corridor was 006 upline

#### Environmental Field Surveys Open Water Photo Point Page



Open Waterbody osao001 facing west.



#### STREAM QUALITY ASSESSMENT WORKSHEET



Provide the following information for the stream reach under assessment: 2. Evaluator's name: EST-15. MUYPHYEY\_\_\_\_\_ 1. Applicant's name Dominion 4. Time of evaluation: 3:00 PM 3. Date of evaluation: 9/3/14 6. River basin: Cape Fear 5. Name of stream: UNT to Starling Swamp 7. Approximate drainage area: 15 ac 8. Stream order: 9. Length of reach evaluated: 50 FE 10. County: 500 PSUC 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): NA Latitude (ex. 34.872312): 35.23175 Longitude (ex. -77.556611): - 78,60530 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): UF Green Poth RUBE. 14. Proposed channel work (if any): て B O 15. Recent weather conditions: 54004 16. Site conditions at time of visit: Und Starbed 17. Identify any special waterway classifications known: \_\_\_\_Section 10 \_\_\_\_Tidal Waters \_\_\_\_Essential Fisheries Habitat \_\_Trout Waters \_\_\_\_Outstanding Resource Waters \_\_\_\_Nutrient Sensitive Waters \_\_\_\_Water 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: 2 ac. 19. Does channel appear on USGS quad map? (YES) NO 20. Does channel appear on USDA Soil Survey? (YES) NO \_\_\_\_º6 Commercial % Industrial 60 % Agricultural 21. Estimated watershed land use: \_\_\_\_\_ % Residential <u>中O</u>% Forested \_\_\_\_% Cleared / Logged \_\_\_\_% Other (\_\_\_\_\_ \* (Top of Bank)
22. Bankfull width: 5 + 

23. Bank height (from bed to top of bank): 2 + 

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 \_\_\_Occasional bends \_\_\_\_Frequent meander \_\_\_\_Very sinuous \_\_\_\_Braided 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 characteristics 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):\_3\ Comments: Evaluator's Signature Meun cechnery

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.

Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges	0-5 0-6 0-6	0-4 0-5	0-5	
(no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6			
(extensive alteration = 0; no alteration = max points)  Riparian zone  (no buffer = 0; contiguous, wide buffer = max points)		0-5	0.5	
Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6		0 – 5	
		0-4	0-5	
(extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0
Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
Entrenchment / floodplain access	0 – 5	0-4	0-2	
Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	0
Channel sinuosity	0-5	0-4	0-3	3
Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0 4	3
Size & diversity of channel bed substrate	NA*	0-4	0-5	
Evidence of channel incision or widening	0-5	0-4	0-5	2
Presence of major bank failures	0-5	0 – 5	0-5	5
Root depth and density on banks	0-3	0-4	0-5	3
Impact by agriculture, livestock, or timber production	0-5	0-4	0-5	3
Presence of riffle-pool/ripple-pool complexes	0 – 3	0-5	0-6	2
Habitat complexity	0-6	0-6	0-6	0
Canopy coverage over streambed	0-5	0-5	0-5	
Substrate embeddedness	NA*	0-4	0-4	
Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	0
Presence of amphibians	0-4	0-4	0-4	
Presence of fish	0-4	0-4	0-4	0
Evidence of wildlife use	0-6	0-5	0-5	1
Total Points Possible	100	100	100	
)	(deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity (extensive channelization = 0; natural meander = max points)  Sediment input (extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)  Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)  Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)  Impact by agriculture, livestock, or timber production (substantial impact = 0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)  Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	(deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity (extensive channelization = 0; natural meander = max points)  Sediment input (extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)  Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)  Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)  Impact by agriculture, livestock, or timber production (substantial impact = 0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)  Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	(deeply entrenched = 0; frequent flooding = max points)   Presence of adjacent wetlands   (no wetlands = 0; large adjacent wetlands = max points)   0-6   0-4	(deeply entrenched = 0; frequent flooding = max points)

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

NC DWQ Stream Identification Form	4 CI 31011 4-11			
rate: 9/3/14	Project/Site: A	CP	Latitude: 35.	23175
ivaluator: EST-K, MU(Phrey	County: SAM	18500	Longitude: - /	18,60530
otal Points: Stream is at least intermittent ≥ 19 or perennial if ≥ 30*	Stream Determing Ephemeral (Inter	nation (circle one) rmittent)Perennial	Other No. e.g. Quad Name:	
A. Geomorphology (Subtotal = 10 )	Absent	Weak	Moderate	Strong
a. Continuity of channel bed and bank	0		2	(3)
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool,	1 0	$\bigcirc$	2	3
ripple-pool sequence		1	(2)	3
4. Particle size of stream substrate	0	(1) .	2	3
5. Active/relict floodplain	0	13	2	3
6. Depositional bars or benches	0	<del>  (3  </del>	2	3
7. Recent alluvial deposits	0 (6)		2	3
8. Headcuts	(0)	1		1.5
9. Grade control	0	0.5	1	1.5
10. Natural valley	(0)	0.5	1	
11. Second or greater order channel	N	lo <del>(</del> 0)	Yes	3 = 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 4.5)				<del></del>
12. Presence of Baseflow	(Q)	1 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	Υe	es <del>=(3)</del>
C. Biology (Subtotal = 5				
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)	(6)	1	2	3
	(0)	1	2	3_
21. Aquatic Mollusks	(6)	0.5	1	1.5
22. Fish	(0)	0.5	1	1.5
23. Crayfish		0.5	1	1,5
24. Amphibians	(o)	0.5	1	1.5
25. Algae			OBL = 1.5 Othe	$\mathbf{r} = 0$
Wetland plants in streambed     *perennial streams may also be identified using other me	thods Seen 35 of ma			
	alous, oee p. 00 01 111			
Notes:			· · · · · · · · · · · · · · · · · · ·	
Sketch: 5500 004 1 2				

OHWM width: 2 FL

Top of Bank width: 5 ft



Waterbody ssao004 facing northeast upstream.



Waterbody ssao004 facing southwest downstream.



Waterbody ssao004 facing northwest across channel.

Open Waterbody Data Shee	·t					
Survey Description						
Project Name:	Waterbody Nan	ne:		Waterbody ID:		Date:
Southeast Reliability	Unnam	ed Pond		0500 C	502	9/3/14
State: County: Sampson	i i	ompany: ES (		w Member Initials: ` ωΜ, KSM	Photos: upline	centerline cina West
Tract Number(s): 2\ - 063	Ne	earest Milepost: 412. +		Associated Wetland		J
Survey Type: (check one) ⊠Center	ine □Re-	Route □ <i>A</i>	Access Road	□Other:		
Physical Attributes						
Waterbody Type: (check one) ⊠Stock Pond □ Natu	ral Pond ☐ Lake	☐ Reservoir ☐ II	mpoundment	☐ Oxbow `☐ Other:		
Hydrologic Regime: 风Permanent	ly Flooded □ S	emipermanently Flo	oded 🗆 Se	easonally Flooded [	⊒ Tempora	rily Flooded
OHWM OHWM In (check all that the fit.		র্ম Clear line on bank	⊅\$helvin	g □Wrested vegetation	□Sco	ouring □Water staining
□Be	ent, matted, or miss station	sing □Wrack line	□Litter a debris	nd □Abrupt plan community c		haracteristic change
Depth of Water:	Bank height	(average): 3ft.		Bank slope (ave	erage): d	egrees
	<u>1</u>		•			
	⊠Clear □Tur Boulder □ Cob	on surface		ace	□ Other	
% of Substrate: %	%	% %	50 <sub>%</sub>	50 <sub>%</sub> / %	•	%
	ive Layers:					
O - (O ft. (check all I	-	<b>对</b> Trees:	×	Saplings/Shrubs:	⊠ Herb	\$
<del></del>	H of Dominants:		_	3_in.	NA	_in.
Dominant Bank Vegetation (list): P Pinus faeda, Acer rubru		•		•	5P.,	
Aquatic Habitats (ex: submerged or emerge					c etc.)'	
Deep water, regetated s				ergea wood, nines, deep pool	s, etc.).	
Aquatic Organisms Observed (list): Minnow sp., Bullfrog.	Dragonflies	(Blue dashers,	slaty skim	ner); landowner channe	reporte	d he stocks with
T&E Species Observed (list):					•	
none						
Disturbances (ex: livestock access, mar	ure in waterbody, wa	ste discharge pipes):	,			
Waterbody is:	ıral 🗷 Artificia	l, man-made □	Manipulated			
Waterbody Quality <sup>a</sup> : (check one) □ High	ı ⊠Moderate	□ Low				····

Waterbody ID:	
0500	ØØ2-

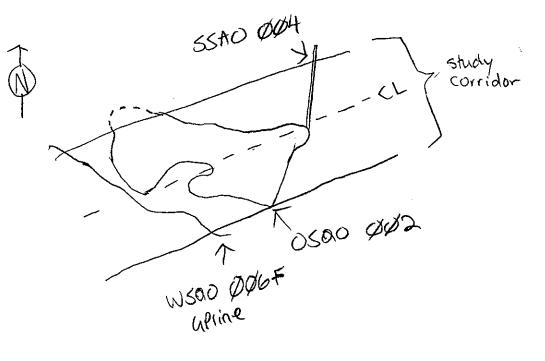
High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

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)





Open Waterbody osao002 facing west.

USACE	4ID≓	

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ite	<b>∓</b>	(indicate	on	anached	map)

5500006





Provide the following information for the stream reach und	lan accecement.
Λ Δ Δ	2. Evaluator's name: K. Markham, K. Murphrey
1. Applicant's name: ACP  3. Date of evaluation: 9/4/14	4. Time of evaluation: 11.25
5. Name of stream: UNT to Starlins Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 6900 acres	8. Stream order: 3
9. Length of reach evaluated: 50 Ct	
-	12. Subdivision name (if any):
Latitude (ex. 34.872312):	- · · · · · · · · · · · · · · · · · · ·
Method location determined (circle): GPS Topo Sheet Ortho (	Aerial) Photo/GIS Other GIS Otherlandmarks and attach map identifying stream(s) location):
15. Recent weather conditions: Your yesterday	7.00 (200 11)
16. Site conditions at time of visit: Undistribed.	
	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(1-IV)
	point? YES NO If yes, estimate the water surface area: 5 90
	20. Does channel appear on USDA Soil Survey? (YES) NO
	°6 Commercial% Industrial% Agricultural
* (Top of Bank) 22. Bankfull width:	% Cleared / Logged% Other ()  23. Bank height (from bed to top of bank): \( \frac{\frac{1}{2}}{2} \)
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather eccomment section. Where there are obvious changes in the cinto a forest), the stream may be divided into smaller reacher reach. The total score assigned to a stream reach must range highest quality.	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points pregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a poditions, 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 is that display more continuity, and a separate form used to evaluate each ge between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 6 Comm side channel of Starlins Swamp-flowi	ents: stream flow out of beaver impoundment ng downline from beaver dam
Evaluator's Signature Keul euthin	Date 9/4/14
gathering the data required by the United States Arm quality. The total score resulting from the completion	y as a guide to assist landowners and environmental professionals in y Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a to change – version 06 03. To Comment, please call 919-876-8441 x 26.

i i i i i	CHADACTEDICTICS	ECOREG	ION POINT	RANGE	SCORE
		· Coastal	Piedmont	Mountain	
1	Presence of flow / persistent pools in stream	0 – 5	0-4	0-5	5
2	(no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0-5	6
3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	6
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	3
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 5	0-4	0-2	5
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0-2	6
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	5
10	(extensive deposition=0; intile or no sediment – max points)	0 – 5	0 – 4	0-4	<u> </u>
11	Size & diversity of channel bed substrate  (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening	NA*	0-4	0-5	$\frac{\partial}{\partial \theta}$
12	(deeply incised = 0; stable bed & banks = max points)  Presence of major bank failures	0-5	0-4	0-5	5
13	(severe erosion = 0; no erosion, stable banks = max points)  Root depth and density on banks	0-5	0-5	0-5	5
12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	(no visible roots = 0; dense roots throughout = max points)  Impact by agriculture, livestock, or timber production	0-3	0-4	0-5	3
15	(substantial impact =0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes	0-5	0-4	0-5	2
16 V 17	(no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity	0-3	0-5	0-6	2
<b>≨</b> 17	(little or no habitat = 0; frequent, varied habitats = max points)  Canopy coverage over streambed	1	0-6	0-6	3
H   18	(no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness	0-5	0-5	0-5	5
19	(deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4)	NA*	0-4	0-4	NA
20 >	(no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	2
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish	0-4	0-4	0-4	2
	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	- California - Cal
2	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	first page)			18

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 9/4/14	Project/Site: ACP	Latitude: 35, 23028
Evaluator: K. Markham, K. Murphrey	County: Sampson	Longitude: - 78,61000
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennia)	Other MingO e.g. Quad Name:

f ≥ 19 or perennial if ≥ 30*	J			
	A.C and	Weak	Moderate	Strong
A. Geomorphology (Subtotal = 18,5)	Absent		, (Pa),	3
<sup>a</sup> 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	1	(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	(0)	1	2	3
9. Grade control	0	0.5	<u> </u>	1.5
10. Natural valley	0	(0.5)	11	1.5
11. Second or greater order channel	N	lo = 0	Yes	s <del>=</del> (3)
artificial ditches are not rated; see discussions in manual				_
B. Hydrology (Subtotal = 9.5 )				1 7 7
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	0	1 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	Ye	es <del>(</del> 3 )
C. Biology (Subtotal = 7 )				<del>-  </del>
18. Fibrous roots in streambed	3	(2)	11	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	11	2	3
21. Aquatic Mollusks	0	11		3
		(65)	1 1	1.5

18. Fibrous roots in streambed	3	(2)	11	0
	(3)	2	1	0
19. Rooted upland plants in streambed	<del>                                     </del>	4	2	3
20. Macrobenthos (note diversity and abundance)				3
21. Aquatic Mollusks	0	1	<u>.                                      </u>	J - J -
22. Fish	0	(0.5)	1	1.5
23. Crayfish	0	(0,5)	1	1.5
24. Amphibians	0	0.5	<u> </u>	1.5
25. Algae	(0)	0.5	11	1.5
26. Wetland plants in streambed		FACW = 0.75; 0	DBL = 1.5 Other =	0)
*noronaled streams may also be identified using other metho	ds. See p. 35 of manu	ıal.		

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

beaver mear Sketch: 5500005  $\omega^{e^{\frac{1}{4}}}$ 



Waterbody ssao006 facing east upstream.



Waterbody ssao006 facing west downstream.

Photo Sheet 1 of 2



Waterbody ssao006 facing south across channel.

5500005





Provide the following information for the stream reach un	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: K. Markham, K. Murphrey
3. Date of evaluation: 9/4/14	4. Time of evaluation: 1000
5. Name of stream: Starling Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 6900 のくぐもら	8. Stream order: 3
9. Length of reach evaluated: 100 F4.	10. County: Sampson
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (es. 34.872312): 35, 22954	Longitude (ex77.556611); - 78.6/220
Method location determined (circle): GPS) Topo Sheet Onho 13. Location of reach under evaluation (note nearby roads an LOCATED WEST OF GREEN PATA	d landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): てBD	
15. Recent weather conditions: Rain within 24 h	Y5 ·
16. Site conditions at time of visit: undisturbed	
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(l-lV)
18. Is there a pond or lake located upstream of the evaluation	point? (YES)NO If yes, estimate the water surface area: 5 ac.
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:º Residential	% Commercial% Industrial 60% Agricultural
40 % Forested	% Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: 2	23. Bank height (from bed to top of bank): > 4 ft.
	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. Ever to each characteristic within the range shown for the echaracteristics identified in the worksheet. Scores should characteristic cannot be evaluated due to site or weather comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reach	age 2): Begin by determining the most appropriate ecoregion based on ry characteristic must be scored using the same ecoregion. Assign points coregion. Page 3 provides a brief description of how to review the reflect an overall assessment of the stream reach under evaluation. If a conditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture es that display more continuity, and a separate form used to evaluate each nge between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 78 Comments of Starting Swamp -	nents:  flowing downline from beaver dam
Evaluator's Signature New Confunction	Date_ 9/4/14
gathering the data required by the United States Art quality. The total score resulting from the completion	ally as a guide to assist landowners and environmental professionals in my Corps of Engineers to make a preliminary assessment of stream on of this form is subject to USACE approval and does not imply a my to change - version 06 03. To Comment, please call 919-876-8441 x 26.

	#.	CHARACTERISTICS		ON POINT Piedmont	RANGE	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0-5	5
	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	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	J
WI.	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	4.
PH.	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 4	0-2	5
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	6
	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	5
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0 5	NA
X	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	5
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0 – 5	0-5	5
IAB	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
[TA]	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	5
HABITAT	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	- Comment
Total Services	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0 – 4	M
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	2
067	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
RIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
14	23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0 5	0-5	5
		Total Points Possible	100	100	100	
2.1		TOTAL SCORE (also enter on	first page)			78

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 9/4/14	Project/Site: ACP	Latitude: 35,22954	
Evaluator: K. Markham / K. Murphier	County: Sampson	Longitude: - 76,61220	
Total Points:  Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other MingO e.g. Quad Name:	

Stream is at least intermittent	Ephemeral Inter	mittent Perennial)	nt Perennial) e.g. Quad Name:	
if ≥ 19 or perennial if ≥ 30*				
A. Geomorphology (Subtotal = 17 )	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank	0	1	2	(3)
Sinuosity of channel along thalweg	0	1	2	(3)
3. In-channel structure: ex. riffle-pool, step-pool,	0	1	(2)	3
ripple-pool sequence				
Particle size of stream substrate	0	1	2)	3
5. Active/relict floodplain	0	<u> </u>	2	(3`)
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	0	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 = 0 Yes = 3		3 = 3)	
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal =)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	0	11	(2)	3
14. Leaf litter	1.5	11	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		es =( <u>3</u> )	
C. Biology (Subtotal = + )				1
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	0	0.5`	(1)	1.5
24 Amphibians	0	0.5	<u>(1)</u>	1.5

24. Amphibians 1.5 0.5 (O) 25. Algae FACW = 0.75; OBL = 1.5 Other = 0) 26. Wetland plants in streambed

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: \$500 pos server manerix Sketch: SSAO

Top of Bank width:



Waterbody ssao005 facing east upstream.



Waterbody ssao005 facing west downstream.



Waterbody ssao005 facing south across channel.

USACE AID#	DWO #	G** #	/1 11
	DWQ#	Site #	(indicate on attached map)
A CONTROL OF THE PROPERTY OF T			- (

6	_	_
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11	1.4	
Н	111	111
и		_



STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach under	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: DDWEST
3. Date of evaluation: 8 - 120 - 15	4. Time of evaluation: 3:00
5. Name of stream: UNT TO MINZOSWM	River basin: Cape Fear
7. Approximate drainage area: > 20 wcvs	8. Stream order:
9. Length of reach evaluated: 50 £4	10. County: SAMPSON
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):
7/ 7 - 1/	Longitude (ex77.556611): 78.6095
Method location determined (circle): GPS Topo Sheet Ortho (A	erial) Photo/GIS Other GIS Other
13. Location of reach under evaluation (note nearby roads and la	andmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): UNKNOW	
15. Recent weather conditions:	any soms
16. Site conditions at time of visit:	La de la companya della companya della companya de la companya della companya del
N/	Section 10 MTidal Waters MEssential Fisheries Habitat
Trout Waters Wutstanding Resource Waters	Nutrient Sensitive Waters Water Supply Watershed (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: 5 owners
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
	% Commercial% Industrial% Agricultural
	% 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:Straight \( \sumeq \text{Occasional bends} \) _	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page location, terrain, vegetation, stream classification, etc. Every characteristics identified in the worksheet. Scores should reflect characteristic cannot be evaluated due to site or weather conditions comment section. Where there are obvious changes in the charinto a forest), the stream may be divided into smaller reaches the	2): Begin by determining the most appropriate ecoregion based on naracteristic 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 sitions, 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 between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): Comments	Doginge Hontre through
- 11	
Evaluator's Signature	Date 8-20-15
This channel evaluation form is intended to be used only as	a guide to assist landowners and environmental professionals in
gamering the data required by the United States Army Ca	orps of Engineers to make a preliminary assessment of stream 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.

#	CHARACTEDISTICS		ION 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	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	2
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	ĺ
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	1
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	0
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	1
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	M
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	2
14	Root depth and density on banks (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 (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0 – 5	0-6	
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	D
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	M
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	L
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	l
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	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

ssag001 NC DWQ Stream Identification Form Version 4.11 Date: 8-20-15 Latitude: 35, 22 ( ) Project/Site: ACP Longitude: 78.6095 County: Evaluator: DAWEST **Total Points:** Stream Determination (circle one) Other Stream is at least intermittent Ephemeral Intermittent Perennial e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\* Weak **Moderate** Strong **Absent** A. Geomorphology (Subtotal =  $\bigcirc$ 3 1a. Continuity of channel bed and bank 0 3 0 1 2 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, 2) 3 0 1 ripple-pool sequence 0 2 3 4. Particle size of stream substrate 2 3 5. Active/relict floodplain 2 3 ō 6. Depositional bars or benches 2 3 0 7. Recent alluvial deposits 2 3 0 8. Headcuts 7 1.5 9. Grade control 0 0 1.5 10. Natural valley Yes = 3 NO = 0 11. Second or greater order channel artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 3 2 12. Presence of Baseflow 3 13. Iron oxidizing bacteria 0 0.5 0 1.5 14. Leaf litter 1.5 15. Sediment on plants or debris 0 1 1.5 16. Organic debris lines or piles 0 Yes = 3 17. Soil-based evidence of high water table? No = 0C. Biology (Subtotal = 0 2 1 18. Fibrous roots in streambed 0 1 19. Rooted upland plants in streambed 3 2 2 3 20. Macrobenthos (note diversity and abundance) 2 3 21. Aquatic Mollusks 1.5 0.5 1 22. Fish 1.5 0.5 23. Crayfish 1.5 1 24. Amphibians 0.5 (0.5)1.5 25. Algae FACW = 0.75; OBL = 1.5 Other = 0 26. Wetland plants in streambed \*perennial streams may also be identified using other methods. See p. 35 of manual. Notes: Sketch:

### SSAG001



Waterbody SSAG001 facing upstream



Waterbody SSAG001 facing downstream

### SSAG001



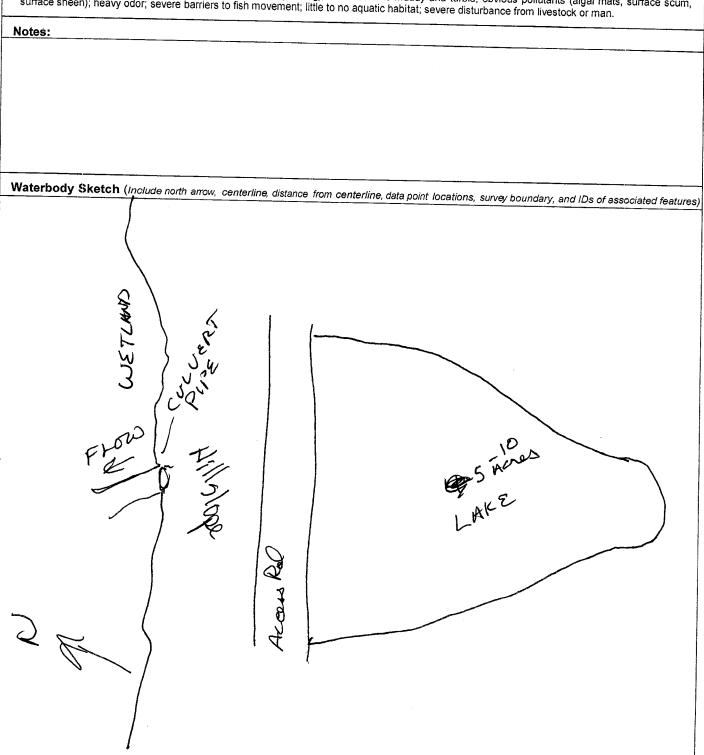
Waterbody SSAG001 facing upline cross stream

Open Waterbody Data Sheet Survey Description Project Name: Waterbody Name: Waterbody ID: PRIVINTE POND Southeastern Re 05A6001 8-20-15 State: County: Company: Crew Member Initials: Photos: DOWEST DO, OB Tract Number(s): Nearest Milepost: Associated Wetland ID(s): NA Survey Type: ⊠Centerline □Re-Route Cxccess Road □Other: Physical Attributes Waterbody Type: (check one) □Stock Pond □ Natural Pond ★ Lake □ Reservoir □ Impoundment □ Oxbow □ Other: Hydrologic Regime: 💢 Permanently Flooded 🛘 Demipermanently Flooded 🔻 Seasonally Flooded 🗘 Temporarily Flooded OHWM OHWM Indicator: (check all that apply) 💢 Clear line □ Shelvina **X**(Wrested □ Scouring □Water Height: vegetation staining ☐Bent, matted, or missing ☐Wrack □Litter and □ Abrupt plant □ Soil characteristic change debris community change Depth of Water: Bank height (average): Bank slope (average): ft. degrees Qualitative Attributes Water Appearance: □No water □Clear **∕**XTurbid □Sheen □Surface □Algal □Other: on surface Substrate: ☐ Bedrock ☐ Cobble ☐ Boulder ☐ Gravel XŞiltr clay ☐ Organic check all that apply) % of Substrate: Width of Riparian Zone: Vegetative Layers: (check all that apply) X Saplings/Shrubs: Avg. DBH of Dominants: Dominant Bank Vegetation (list): Aquatic Organisms Observed (list) T&E Species Observed (list): livestock access, manure in waterbody, waste discharge pipes): vestock cacces Waterbody is: (check one) ☐ Natural Artificial, man-made ☐ Manipulated Waterbody Quality a: (check one)  $\square_{\, \mathsf{High}}$ ☐ Moderate

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.



#### OSAG001



Waterbody 0
OSAG001
facing east



Waterbody *OSAG001* facing west

## OSAG001



Waterbody OSAG001 facing south