

Waterbody shlh019 facing west upstream



Waterbody shlh019 facing east downstream



Waterbody shlh019 facing upline cross stream

DWQ #_

Site #____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: DOMINION 2. Evaluator's name: DIDWEST
3 Data of and 1/2 101 20
5. Name of stream: Un named to b to Benner cham. Tar-Pamlico
7. Approximate drainage area: 750 acres 8. Stream order: (St
9. Length of reach evaluated: 100 ft 10. County: Halffred
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): 36'16'21.657" Longitude (ex77.556611): 77" HIOB. 355"
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):
14. Proposed channel work (if any):
15. Recent weather conditions: Dry - dew showers
16. Site conditions at time of visit: Norman
17. Identify any special waterway classifications known: Desction 10 NArdal Waters WAssential Fisheries Habitat
Me Trout Waters Me Substanding Resource Waters NHNutrient Sensitive Waters 10 Water Supply Watershed MAT-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? (ES NO 20. Does channel appear on USDA Soil Survey? (FES NO
21. Estimated watershed land use:% Residential% Commercial% Industrial 30% Agricultural
70% Forested% Cleared / Logged% Other (
22. Bankfull width: 23. Bank height (from bed to top of bank): 7
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 Cccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the 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): Comments:
Evaluator's Signature Date

	#	CHARACTERISTICS	ECOREC	GION POINT	RANGE	and the second second
Contractor Contractor		 A second s	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	2-
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
ΡH	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2-
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	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	NA
IY	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	\$7
SILI	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0 – 5	0-5	2
STABILITY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
	15	(substantial impact =0; no evidence = max points)	0-5	0-4	0-5	.3
E	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0 - 5	0-6	i
HABITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
HAI	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	NA
Y	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	1
BIOLOGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
BIO	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	3
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fir	st page)			47

STREAM QUALITY ASSESSMENT WORKSHEET

* These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form	Version 4.11			1016
Date: 8.6.14	Project/Site: 52	ERP	Latitude: 3	"16'21.657"
Evaluator: DDEDEST	County: 14	alifiax	Longitude: 7	7' 41.08 35
Total Points: Stream is at least intermittent 28.75		nation (circle one) rmittent Perennial	Other UNT to e.g. Quad Name:	o Beaverdam ş wal
A. Geomorphology (Subtotal = (3)	Absent	Weak	Madauata	Strong
1 ^a Continuity of channel bed and bank	0 Absent	VVeak	Moderate 2	Strong
2. Sinuosity of channel along thalweg	0	(1)		3
3. In-channel structure: ex. riffle-pool, step-pool,	0		2	3
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	(I)	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	1	8.2	3
9. Grade control	0	(0.5)	1	1.5
10. Natural valley	0	(0.5)	1	1.5
11. Second or greater order channel		0=0	Yes	
^a artificial ditches are not rated; see discussions in manual			105	
B. Hydrology (Subtotal =)		~		
12. Presence of Baseflow	0	(1)	2	3
13. Iron oxidizing bacteria	0			3
14. Leaf litter	1.5	<u> </u>	(0.5)	0
15. Sediment on plants or debris	0	0.5	0.5	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water, table?		0.5	- Kes	
C. Biology (Subtotal = $O \cdot (S)$)	INC)=0	(Tes	
18. Fibrous roots in streambed	3	6	1	0
19. Rooted upland plants in streambed	(3)	the second se	1	
		2		0
20. Macrobenthos (note diversity and abundance)	0		2	3
21. Aquatic Mollusks	()	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	0	0.5		1.5
24. Amphibians	0	0.5	(1)	1.5
25. Algae	0	0.52	1	1.5
26. Wetland plants in streambed			_ = 1.5 Other = (0
*perennial streams may also be identified using other methods	. See p. 35 of manua			
Notes:				

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Waterbody shlh016 facing north upstream



Waterbody shlh016 facing south downstream



Waterbody shlh016 facing north cross stream

USACE AID#	DWQ #	S	ite # (i	SHLHOR ndicate on attached map)
	STREAM QUALITY AS	SESSMENT WOR	KSHEET	
 Applicant's name: Do Date of evaluation: B Name of stream Screen Approximate drainage are Length of reach evaluated 	a 7100 ACRES	 Evaluator's name: Dialogname Time of evaluation: 2 : Tar River basin Stream order: 2 : County: 12. Subdivision name (if any second sec		
	rcle): GPS Topo Sheet Ortho (A evaluation (note nearby roads and la		Other	
18. Is there a pond or lake la 19. Does channel appear on 21. Estimated watershed lar 22. Bankfull width:	ns: Diversed	Section 10 Pridal W Nutrient Sensitive Waters Print? YES NO If yes, estin 20. Does channel appear on % Commercial % Cleared / Logged 23. Bank height (from bed to	Water Sup nate the water USDA Soil S _% Industrial _% Other (o top of bank	surface area: Survey YES NO % Agricultural
25. Channel sinuosity:	nter of stream: KFlat (0 to 2%)	•	_Very sinuou	sBraided channe
location, terrain, vegetation to each characteristic with characteristics identified in characteristic cannot be ev comment section. Where t into a forest), the stream m reach. The total score assis highest quality.	, stream classification, etc. Every c in the range shown for the ecore the worksheet. Scores should refl aluated due to site or weather cond here are obvious changes in the cha ay be divided into smaller reaches the gned to a stream reach must range	characteristic must be scored egion. Page 3 provides a ect an overall assessment of ditions, enter 0 in the scoring racter of a stream under revi- hat display more continuity, a	using the sam prief descript the stream re g box and pr ew (e.g., the and a separate	ne ecoregion. Assign point tion of how to review the each under evaluation. If ovide an explanation in the stream flows from a pasture form used to evaluate each
Total Score (from reverse	e): Commen	ts:		
Evaluator's Signature	Al hrem	Da	ie 🔊 - (a	6-12

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.

SHLH17

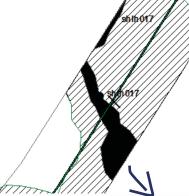
STREAM QUALITY ASSESSMENT WORKSHEET

	#	CILADA OTEDICTICO	ECOREC	SION POINT	RANGE	
	#	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	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	5
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
AL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
LEI DICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4
E	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	5
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	L
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	MA
-	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	33
ITTTTTT	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
WT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
TALIDAR	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	NA
-	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	3
5	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
INNTAI	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
	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	
		TOTAL SCORE (also enter on fi	rst page)			12

* These characteristics are not assessed in coastal streams.

SHLH 17

Date: 8-6-14	Project/Site:	RP	Latitude: 36°	16'07.006
Evaluator: DOUEST	County: 144	LIFAX	Longitude: 7	16'07.006 7° 41'20.
Total Points: Stream is at least intermittent 50.5 if ≥ 19 or perennial if ≥ 30*	Stream Determin Ephemeral Inter	nation (circ le one) mittent Perennia	Other Beave	erdam Swamp
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank	0	1	2	(3)
2. Sinuosity of channel along thalweg	0	1	(2)	3
 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	E	3
7. Recent alluvial deposits	0	1	2	(3)
8. Headcuts	0	Û	2	3
9. Grade control	0	0.5	1	(15)
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No	= 0	Aes	= 3
^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 13.5) 12. Presence of Baseflow	0	1	2	$\overline{(3)}$
13. Iron oxidizing bacteria	0	1	2	(3)
14. Leaf litter	(1.5)	1	0.5	
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	
C. Biology (Subtotal = 14)			\sim	
18. Fibrous roots in streambed	$\left(3\right)$	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	Ð	1.5
23. Crayfish	0	0.5	a	1.5
24. Amphibians	0	0.5	Ð	1.5
25. Algae	0	0.5	$\begin{pmatrix} 1 \end{pmatrix}$	1.5
26. Wetland plants in streambed		FACW = 0.75; C	BL = 1.5 Other = 0)
*perennial streams may also be identified using other meth	nods. See p. 35 of manual	•		
Notes:		The state of the s		and the second





Waterbody shlh017 facing west upstream



Waterbody shlh017 facing east downstream



Waterbody shlh017 facing north cross stream

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DWQ #_

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Site #_____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Dominicon 2. Evaluator's name: DOUEST
3. Date of evaluation: $8 - 6 - 14$. Time of evaluation: $3 - 6 - 5$
5. Name of stream: Unnamed trib to Bennier derman Tar
7. Approximate drainage area: >50 acres 8. Stream order: 150
9. Length of reach evaluated: 100000 10. County: HAG (1878)
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): 361558.437" Longitude (ex77.556611): 77° 41' 28 044"
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):
14. Proposed channel work (if any): NONE
15. Recent weather conditions: Dry - two howers
16. Site conditions at time of visit: Normal
17. Identify any special waterway classifications known: 12 Section 10 12 Tidal Waters Lissential Fisheries Habitat Norout Waters 12 Dutstanding Resource Waters 22 Rutrient Sensitive Waters 12 Water Supply Watershed 1-1V)
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 50% Agricultural 50% Forested % Cleared / Logged % Other ()
22. Bankfull width: 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream; Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightCcasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the 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.
Fundamental State 14
Evaluator's Signature <u>Date</u> <u>Date</u> <u>Date</u> <u>Date</u> <u>C</u>
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.

SHLHO18

STREAM	QUALITY	ASSESSMENT	WORKSHEET
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	#	CHADACTEDICTICC	ECOREC	GION POINT	FRANGE	agona
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	1
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
AL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	l
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	l l
H	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 - 6	0-4	0-2	2
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	(
	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	WA
T	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
STABILLLY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
IAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	D
IIA	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
HABIIAI	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
200	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	Ĩ
BIULUGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fi	rst page)			30

* These characteristics are not assessed in coastal streams.

SHLHOIS

NC DWQ Stream Identification I	Form	Version 4	4.11
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Version 4.11 Project/Site: County: Image: County: County: Image: County: Stream Determine Image: County: Stream Determine Image: County: Absent 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Weak 1 1 1 1 1 1 1 1 1 1 1 1 1	Longitude: 77	15 'S8、 43 7* イノ 'スタ、C to Beaverdam Strong 3 3 3 3 3 3
County: Stream Determine Ephemeral Inter O O O O O O O O O O	Weak 1 1 1 1 1 1 1 1 1 1 1 1 1	Longitude: 77 Other UNT t e.g. Quad Name: Moderate 2 2 2 2 2 2 2 2	7 ' イノ' ス &、C to Beaverdam Strong 3 3 3 3
Absent 0 0 0 0 0 0 0	Weak 1 1 1 1 1 1 1 1 1	e.g. Quad Name: Moderate 2 2 2 2 2 2 2 2 2	Strong 3 3 3 3 3
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		2 2 2	3 3
		2	
\bigcirc		2	
\bigcirc	1		
0	21		3
		2	3
-		2	3
0	0.5	1	1.5
(0)	0.5	1	1.5
	0=0)	Yes	
6			
	27 2 -212-72		
0		2	3
0	(1^{\prime})	2	. 3
1.5	1	(0.5)	0
0	0.5	1	1.5
0	(0.5)	1 _	1.5
N	0 = 0	Yes	=3
	6	\sim	
3	(2)	1	0
(3)	2	1	0
(D)	1	2	3
	1	2	3
60	0.5	1	1.5
0	0.5	(1)	1.5
0	the second se		1.5
0		1	1.5
		_ = 1.5 Other = (
See p. 35 of manua			
oco p. co or mana			
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shih018



Waterbody shlh018 facing west upstream



Waterbody shlh018 facing east downstream



Waterbody shlh018 facing upline cross stream

USACE AID#_

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DWQ #___

Site #____ (indicate on attached map)

		SHLA002
	Provide the following information for the stream reach under a	assessment:
		Evaluator's name: GAVIN BLOSSER
		Time of evaluation: 11:45 AM
	0	River basin: Tar-Pam
F		Stream order:FIRST_ORDER
		D. County: HALIFAX
		2. Subdivision name (if any):
	Latitude (ex. 34.872312): <u>36 - 263388</u> I	
	Method location determined (circle): GPS Topo Sheet Ortho (Aeria 13. Location of reach under evaluation (note nearby roads and land	marks and attach map identifying stream(s) location):
	~ 600 feet to South AND PARALLEL	TO RichNeek Roma in forest surrounded by
	14. Proposed channel work (if any): <u>PiPFLiNE CRO</u>	Mancaltoni fiel
	15. Recent weather conditions: thunderstorms over	ight
	16. Site conditions at time of visit: PARTLY CLOUDY, WI	RM, HUMID, light & VARIABLE WINDS
*	717. Identify any special waterway classifications known:	
		rient Sensitive WatersWater Supply Watershed(I-IV)
	18. Is there a pond or lake located upstream of the evaluation point	
	19. Does channel appear on USGS quad map? (YES) NO 20	D. Does channel appear on USDA Soil Survey? (YES) NO 💥
	21. Estimated watershed land use: _3_% Residential	
		% Cleared / Logged 2 % Other (<u><i>Ropps</i></u>))
	22. Bankfull width:5.5 23	
	24. Channel slope down center of stream:Flat (0 to 2%)	
	25. Channel sinuosity:StraightOccasional bends	
	location, terrain, vegetation, stream classification, etc. Every char to each characteristic within the range shown for the ecoregic characteristics identified in the worksheet. Scores should reflect characteristic cannot be evaluated due to site or weather condition comment section. Where there are obvious changes in the characteristic a forest), the stream may be divided into smaller reaches that	Begin by determining the most appropriate ecoregion based on acteristic must be scored using the same ecoregion. Assign points on. Page 3 provides a brief description of how to review the an overall assessment of the stream reach under evaluation. If a ons, enter 0 in the scoring box and provide an explanation in the ter of a stream under review (e.g., the stream flows from a pasture display more continuity, and a separate form used to evaluate each ween 0 and 100, with a score of 100 representing a stream of the
	Total Score (from reverse): 52 Comments: <u>Alous Chrough</u> PFO WELLAND WI by Agricultural FIELDS; FREQUENT	Low gradient intermittent stream

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

STREAM QUALITY ASSESSMENT WORKSHEET

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

* These characteristics are not assessed in coastal streams.

STREAM SHLA002 Intermitlent UNT TO BEAVERDAM SWRMP

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

Date: April 10,2045 ,	Project/Site: 79	TLANTIC COAST PiPELINE	Latitude: 36	263388				
Evaluator: GAVIN BLOSSER	County: Has		Longitude: '	Longitude: - 77. 694073				
Total Points:Stream is at least intermittent $if \ge 19$ or perennial if $\ge 30^*$	Stream Determi	nation (circle one) rmittent Perennial	Other	Other UNT TO BEAVER JAN e.g. Quad Name:				
A. Geomorphology (Subtotal = \2)	Absent	Weak	Moderate	Strong				
1 ^a Continuity of channel bed and bank	0	1	(2)	3				
2. Sinuosity of channel along thalweg	0	1	(2)	3				
 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	1	1.5				
10. Natural valley	0	(0.5)	1	1.5				
11. Second or greater order channel	No	(≠0)	Yes =					
artificial ditches are not rated; see discussions in manual								
B. Hydrology (Subtotal = <u>8,5</u>)								
12. Presence of Baseflow	0	1	(2)	2				
			2	3				
13. Iron oxidizing bacteria 14. Leaf litter	0	(1)	2	3				
	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 =)								
18. Fibrous roots in streambed	3	(2)	1	0				
19. Rooted upland plants in streambed	no" (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		0.5	1	1.5				
24. Amphibians	0	0.5	1	1.5				
25. Algae	0	0.5	1	1.5				
26. Wetland plants in streambed		FACW = 0.75; OBI	= 1.5 Other $= 0$)				
*perennial streams may also be identified using other methods.	See p. 35 of manual		A CONTRACT AND A CONTRACT					
Notes:								
A second s								
Sketch:	Ag. field	Richi	yeck					
A	and the second	1-17	SOAL					
λ' $(-9)_{0}$	1	1 (1.7.11	C 019				
N	Stream	- PFO We	FLAND WHL	GOIT				
iv fie concert	SHLA002	Ti Ag						
FOREST		Sel Sieco						
		Frence Street						
AG FIELD 1301	->1 < 1501 >		ICLP					
	C 11 6	12 19.1	, an ann para					
12	0 41 SI							



Waterbody SHLA002 facing west upstream



Waterbody SHLA002 facing east downstream



Waterbody SHLA002 facing west across

USACE AID#	ŧ
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DWQ #____

SHLGOIZ

Site #____ (indicate on attached map)

STREAM QUALITY A	ASSESSMENT WORKSHEET
Provide the following information for the stream reach un	ider assessment:
1. Applicant's name: DOMINION	2. Evaluator's name:
3. Date of evaluation: 8/17/14	4. Time of evaluation: Z ¹ 00 p-
5. Name of stream: UNT to Beaudan Swamp	6. River basin: Tar
7. Approximate drainage area:	8. Stream order: 1
9. Length of reach evaluated: 50	10. County: Her Inferro
11. Site coordinates (if known): prefer in decimal degrees.	
Latitude (ex. 34.872312): 36 15 27,613 "	Longitude (ex77.556611): 177° 411'54,987"
Method location determined (circle): GPS Topo Sheet Ortho 13. Location of reach under evaluation (note nearby roads and MONE	(Aerial) Photo/GIS Other GIS Other
14. Proposed channel work (if any): NONE	
15. Recent weather conditions: DRY	
16. Site conditions at time of visit:	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	_Nutrient Sensitive Waters Water Supply Watershed (I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES 1 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? VES NO
21. Estimated watershed land use:% Residential	% Commercial % Industrial 30 % Agricultural
50% Forested	% Cleared / Logged% Other ()
22. Bankfull width: 10	% Cleared / Logged% Other () 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	\bigcirc Gentle (2 to 4%) Moderate (4 to 10%) Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on pag 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 con comment section. Where there are obvious changes in the ch into a forest), the stream may be divided into smaller reaches	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 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 between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 78 Commen	nts:
quality. The total score resulting from the completion of	Date Date Date Date Date Date Date Date

SHLGOIZ

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREC	GION POIN	FRANGE	and the state of the		
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			Coastal	Piedmont	Mountain	SCORE		
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	4		
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	ÿ		
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	1 ú		
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	65		
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2		
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	H		
HI	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	Ú		
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3		
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	4		
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	R		
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	3		
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3		
ILII	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	3		
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3		
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	3		
ITA'	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3		
HABITAT	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	Ú		
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	3		
X	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	3		
90	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3		
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3		
	23Evidence 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	st page)		and the second second	78		
* 1	hace of	naracteristics are not assessed in coastal streams	F-63)			10		

* These characteristics are not assessed in coastal streams.

SHLGOIZ

NC DWQ Stream Identification Form Version 4.11

Date: 8/7/14	Project/Site: 5	ERP	Latitude: -36	15 29.6134		
Evaluator: DDWest	County: He	1;fex	Longitude: 77° 41'54,982			
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*	Stream Determin Ephemeral Inter	nation (circle one) rmittent Perennial	Other UNT to Beaverdam Sw e.g. Quad Name:			
A. Geomorphology (Subtotal = 21,5)	Absent	14/1-				
1 ^a Continuity of channel bed and bank		Weak	Moderate	Strong		
2. 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	0	0	2	3		
4. Particle size of stream substrate	0	1	Q .	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	Ô.	3		
9. Grade control	0	0.5	Ð	1.5		
10. Natural valley	0	0.5	1	(1.5)		
11. Second or greater order channel	No	=(0)	Yes			
^a artificial ditches are not rated; see discussions in manual						
B. Hydrology (Subtotal = 17)				0		
12. Presence of Baseflow	0	1	2	3		
13. Iron oxidizing bacteria	0	1	2	3		
14. Leaf litter	1.5	12	0,5			
15. Sediment on plants or debris	0	0.5	(1)	1.5		
16. Organic debris lines or piles	0	0.5	8	1.5		
17. Soil-based evidence of high water table?		= 0	Yes 7			
C. Biology (Subtotal = //)			(
18. Fibrous roots in streambed	3	(2)	1	0		
19. Rooted upland plants in streambed	3	2	1	0		
20. Macrobenthos (note diversity and abundance)	0	1	(2)	3		
21. Aquatic Mollusks	Ô	1	2	3		
22. Fish	0	0.5	- a	1.5		
23. Crayfish	0	0.5	(1)	1.5		
24. Amphibians	0	0.5	6.	1.5		
25. Algae	0	0.5	1.	1.5		
26. Wetland plants in streambed		FACW = 0.75; OBL				
*perennial streams may also be identified using other method	ds. See p. 35 of manual.					
Notes:						
		10000				
Sketch:	C/L					
	0/11					
Sy		N >				

shlg012



shlg012 facing upstream



shlg012 facing downstream

shlg012



shlg012 side shot

USACE AID#	DWQ #	Site # (indicate on attached map)
STREA		SSESSMENT WORKSHEET
Provide the following information f	or the stream reach un	der assessment:
1. Applicant's name: Dominion		2. Evaluator's name: TODA Previnger
3. Date of evaluation: 11 17/14		4. Time of evaluation: Ar
5. Name of stream: UNT to Beau	erdam Creek	6. River basin: Tar - Pamlico
7. Approximate drainage area:		8. Stream order: 1st Order based on field abservation
9. Length of reach evaluated: ~ 30	0'	10. County: Hal; fax
11. Site coordinates (if known): pre	fer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312):36°14'49"	N	Longitude (ex77.556611): 77°42'33" W
Method location determined (circle): G 13. Location of reach under evaluation	PS Topo Sheet Ortho (n (note nearby roads and	(Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location):
5.71 + SR 1206		
14. Proposed channel work (if any):_	Unknown	
15. Recent weather conditions: Re.	n is last 24 hou	r\$
16. Site conditions at time of visit:	urcast, drizzl	e, 45°F
17. Identify any special waterway cla	ssifications known:	Section 10Tidal WatersEssential Fisheries Habitat
		_Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located ups	stream of the evaluation p	point? YES NO If yes, estimate the water surface area:
		20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use:	10 % Residential	% Commercial% Industrial 40% Agricultural
	20 % Forested	10 % Cleared / Logged 20% Other (7ine Plantations)
22. Bankfull width: 3		23. Bank height (from bed to top of bank): 3
24. Channel slope down center of stre	eam: <u>X</u> Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:Straight	∠ Occasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream c	lassification, etc. Every	(e 2): Begin by determining the most appropriate ecoregion based on 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): 36	Comments: Stream channel impacted by timber
activities - Left bank recently	clear-aut. Mostly one long pool with a few
& riffles. Forsted wollands and	either side of stade
Evaluator's Signature Toll	Date Martine

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

STREAM QUALITY ASSESSMENT WORKSHEET

LOG	t	I	IAB	ITAT	ſ	S	FAB	ШЩ	Y					PHA	7SIC	AL	a h				i. Antonio
21	20	19	18	17	16	15	14	13	12	11	10	9	∞	7	6	S	4	3	2	1	#
Presence of amphibians (no evidence = 0; common, numerous types = max points)	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	Substrate embeddedness (deeply embedded = 0; loose structure = max)	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	Sediment input (extensive deposition= 0; little or no sediment = max points)	Channel sinuosity (extensive channelization = 0; natural meander = max points)	(no wetlands = 0; large adjacent wetlands = max points)	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	CHARACTERISTICS
0-4	0-4	NAT	0-5	0-6	0-3	0-5	0-3	0-5	0-5	NA*	0-5	0-5	0-6	0-5	0-4	0-3	0 - S	9-0	0-6	0-5	Coastal
0-4	0-5	0-4	0-5	0-6	0-5	0-4	0-4	0-5	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-5	0-4	Cosstal Piedmont
0-4	0-5	0-4	0-5	0-6	0-6	0-5	0-5	0-5	0-5	0-5	0-4	0-3	0-2	0-2	0-2	0-4	0-4	0-5	2+0-5	0-5	Mountain
0	0	y	1	y	-	-	-	Ŵ	4	0	ν	-	V	W	-	ν	÷	l.	to V	۷	SCORE

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

NC DWQ Stream Identification Form	Version 4.11		SHLB	100		
Date: 11/17/14	Project/Site: Do	minion ACP	Latitude:			
ivaluator: Torp Prevninger	County: Hal, S	ionx	Longitude:	Longitude:		
tream is at least intermittent ≥ 19 or perennial if ≥ 30*	Stream Determi Ephemeral	nation (circle one) rmittent Perennial	Other e.g. Quad Name:			
. Geomorphology (Subtotal =_ 8 , <u>5</u>)	Absent	Weak	Moderate	Strong		
^a Continuity of channel bed and bank	0	1	2	3		
Sinuosity of channel along thalweg	0	0	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		
Active/relict floodplain	0	0	2	3		
Depositional bars or benches	0	0	2	3		
Recent alluvial deposits	0	- d	2			
Headcuts	Ő		2	3		
Grade control		0.5	2	3		
). Natural valley		∩ ().5				
I. Second or greater order channel			1	1.5		
artificial ditches are not rated; see discussions in manual			Yes =	3		
. Hydrology (Subtotal = $(0, 5)$)		- 13 ansed	on field obse	ervations		
2. Presence of Baseflow	0	Ð	2	3		
3. Iron oxidizing bacteria	0	1	2	3		
Leaf litter	(1.5)	1	0.5	0		
5. Sediment on plants or debris		0.5	1			
. Organic debris lines or piles		0.5	Ð	1.5		
'. Soil-based evidence of high water table?		= 0	(Yes =	1.5		
Biology (Subtotal = $(a,75)$)			(103 -			
. Fibrous roots in streambed	3	2	1			
. Rooted upland plants in streambed	(3)	2	1	0		
. Macrobenthos (note diversity and abundance)		1	2	0		
. Aquatic Mollusks		1		3		
Fish		0.5	2	3		
. Crayfish	0		1	1.5		
. Amphibians		0.5	1	1.5		
. Algae	1 0	0.5	1	1.5		
. Wetland plants in streambed		0.5	1	1.5		
erennial streams may also be identified using other methods.		FACW = 0.75; DB	L = 1.5 Other = 0			
otes: Rain in last 24 hours, weak be	3 bank at up	stream reach,	mostly one los	· lead Co		
few plants in channel, no nick points .						
tetch: CB/2 WHLB =	x /2 150'	CB CIA	reut			
Flow -> Flow ->	12 12	X , cied				
	I Z	$/ \sim$				
SHLBID WHLBIDDPPO	11111	- 3.				
	HLBIDO	7				
WHLBIOD TITIS	111					
			N			
1 7 41						
1			N			
Mixed Pine Hardw	γ 41		N			



Waterbody SHLB100 facing northwest upstream



Waterbody SHLB100 facing southeast downstream



Waterbody SHLB100 facing northeast across

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

DWQ #_

SHLH DD9 Site #____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: SE Pominis 2. Evaluator's name: DTD West
3. Date of evaluation: 7/14/141
5. Name of stream: UNT 10 But Swamp 6. River basin: 100 For - Parm 40
7. Approximate drainage area: 700 au 8. Stream order: 2.0
9. Length of reach evaluated: 300 1
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312); SG (3' 41.432"
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):
14. Proposed channel work (if any):
15. Recent weather conditions: TuOn and
16. Site conditions at time of visit:
17. Identify any special waterway classifications known:Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES 40 If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? (ES NO 20. Does channel appear on USDA Soil Survey? (VES NO
21. Estimated watershed land use:% Residential% Commercial% Industrial 5 % Agricultural
S Forested % Cleared / Logged % Other (
22. Bankfull width: 5 % Forested % Cleared / Logged % Other () 23. Bank height (from bed to top of bank): 3 /
24. Channel slope down center of stream: (VFlat (0 to 2%) Gentle (2 to 4%)
25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristic 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): Comments: Multiple Bewer Dans
Evaluator's Signature Date Date Z/14/14/14/ This channel evaluation form is interded 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 guality. The total score resulting from the completion of the form
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.

SHLU 009

	#	CHARACTERISTICS	ECOREGION POINT RANGE			-
			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	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	6
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	3
PH	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	3
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
ILI	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0 – 5	4
STABILITY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	4
E	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	Z
ITA	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	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	3
907	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	333
	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	
		TOTAL SCORE (also enter on fir	st page)			82

* These characteristics are not assessed in coastal streams.

EWSN

Evaluator: \mathcal{A} \mathcal{A} \mathcal{C} out Total Points: fish present and 18 Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ fish present and 18 Stream is at least intermittent on geomorphology Stream is at least intermittent if $\geq 30^*$	ject/Site: <u>}</u> inty: <u>//w</u> am Determin	Weak 1 1 1 1 1 1 1 1 1 1 1 1 1	Other UNT t	⁶ <i>13 ¹ 41.5</i> 5 <i>F</i> 7 ° 43 ⁽ ≈ 8. o Burnt Goat Swa
Evaluator: J W 64 Cou Total Points: fish present and 18 Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* fish present and 18 Stre Eph A. Geomorphology (Subtotal =) A. Geomorphology (Subtotal =) A. 1ª. Continuity of channel bed and bank 2. Sinuosity of channel along thalweg 3. 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. 5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	Absent 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Weak 1 1 1 1 1 1 1 1 1 1 1 1 1	Moderate	o Burnt Goat Swa Strong
Stream is at least intermittent if \geq 19 or perennial if \geq 30* on geomorpholgy Eph A. Geomorphology (Subtotal =)	Absent 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Weak 1 1 1 1 1 1 1 1	Moderate	o Burnt Goat Swa Strong
1 ^a . Continuity of channel bed and bank 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	0 0 0 0 0 0 0 0 0 0 0	$\frac{1}{1}$ 1 1 1 (1)	2 (2) (2)	(<u>3</u>) 3
1 ^a . Continuity of channel bed and bank 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	0 0 0 0 0 0 0 0 0 0 0	$\frac{1}{1}$ 1 1 1 (1)	2 (2) (2)	(<u>3</u>) 3
2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	0 0 0 0 0 0 0 0 0	1 1 1 1 1 (1)	(2)	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	0 0 0 0 0 0	1 1 1 (1)	(2)	
ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	0 0 0 0 (0)	1		3
4. Particle size of stream substrate 5. 5. Active/relict floodplain 6. 6. Depositional bars or benches 7. 7. Recent alluvial deposits 8. 8. Headcuts 9. 9. Grade control 10. 10. Natural valley 10.	0 0 0 (0)	1		
5. Active/relict floodplain 6. Depositional bars or benches 7. Recent alluvial deposits 8. Headcuts 9. Grade control 10. Natural valley	0 0 0 (0)	1	(2)	3
6. Depositional bars or benches 7. 7. Recent alluvial deposits 8. 8. Headcuts 9. 9. Grade control 10. 10. Natural valley 10.	0 0 (0)		(4)	
7. Recent alluvial deposits 8 8. Headcuts 9 9. Grade control 10 10. Natural valley 10	0	(g)		3
8. Headcuts 9. Grade control 10. Natural valley	0	M/	2	3
9. Grade control 10. Natural valley			2	3
10. Natural valley		0.5	- Ö	3
			(H)	1.5
	0	0.5		1.5
^a artificial ditches are not rated; see discussions in manual	NO	= 0	Yes :	= 3
B. Hydrology (Subtotal =)			\bigcirc	
12. Presence of Baseflow	0	1	2	
		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 =)				
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		the second se	OBL = 1.5 Other = 0).
*perennial streams may also be identified using other methods. See p	. 35 of manual			
Notes:			an a	

50



Waterbody shlh009 facing north upstream



Waterbody shlh009 facing south downstream



Waterbody shlh009 facing south cross stream



Waterbody shlh009 facing north cross stream

SHLH 010

Site #____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Dournon 2. Evaluator's name: DDUEST
3. Date of evaluation: $7 - 14 - 14$ 4. Time of evaluation: 1.50
5. Name of stream: Unpame of frib to Burnt Gont River basin: Constant TAG- Pamilico
7. Approximate drainage area: 750 acres Swamp. Stream order: 15
9. Length of reach evaluated: 100000 10. County: Hallow
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): 36° 13' 28.005" Longitude (ex77.556611): 77°43'41,173"
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): In agriculture field near
14. Proposed channel work (if any): None
15. Recent weather conditions: Mainhy Day - few showers
16. Site conditions at time of visit: Normal
17. Identify any special waterway classifications known: WASection 10 MATidal Waters NAEssential Fisheries Habitat
NATrout Waters NA Outstanding Resource Waters NA Nutrient Sensitive Waters NA Water Supply Watershed WH(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 100 % Agricultural
22. Bankfull width: 2 ff % Forested _% Cleared / Logged % Other () 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream: Krlat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: StraightOccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.
15 0 010
Total Score (from reverse): 10 Comments: Man-made ditch in Barrenture field Dirdinary high where marks and hydricson present win ditch
Evaluator's Signature Date 7-14-14 This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in contacting the data manimum 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.

SALHOID

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			GOODE
<i>n</i>		CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
and a line	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0 - 5	{
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	1
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	0
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	1
TY	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	D
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	Ô
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 – 5	0-4	0-4	(
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0-5	0-5	3
IAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
2	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	0
HABITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	l
HAB	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	0
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
200	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
PIOLOGY	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	2
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fir	st page)			15

* These characteristics are not assessed in coastal streams.



SHLH010

NC DWQ Stream Identification Form Version 4.11

Project/Site:	E Reliebelty	Latitude: 36	13'28.005		
County: Na	County: Malitad Stream Determination (circle one)		Longitude:77°43'41. 17 Other UNT to Burnt Goat		
Stroom Datarmi					
Ephemeral Inte					
-prioriter ar finte	referminal	e.g. Quad Name			
Absent					
	Weak	6.6	Strong		
	1	(2)	3		
0	(1)	2	3		
0	(1)	2	3		
0					
	- (2		3		
			3		
		and the second se	3		
	- 0/		3		
		and the second se	3		
			1.5		
//		1	1.5		
No	=0	Yes =	= 3		
0	(1)	2			
		2	3		
		20	3		
		(25)	0		
		0	1.5		
		1	1.5		
INO INO	= 0	(Yes =	3		
			0		
			0		
2011		2	3		
		2	3		
	The second	1	1.5		
	0.5	1	1.5		
	0.5		1.5		
0	0.5	4	1.5		
	FACW = 0.75; ØBL	= 1.5 Other = 0			
ods. See p. 35 of manual.	C				
1		/			
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/		/			
/		/			
/		/			
/		/			
/ ch	lh010	/			
/ 311		/			
/	/				
	County: Stream Determi Ephemeral inter Absent 0 0 0 0 0 0 0 0 0 0 0 0 0	County: Matched Stream Determination (circle one) Ephemeral (ntermittent Perennial) Absent Weak 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	County:MallAyLongitude: County:Stream Determination circle one) Ephemeral intermittent PerennialOther UNT to e.g. Quad NameAbsentWeakModerate01201201201201201201201201201201201201201201200.510 </td		



Waterbody shlh010 facing west upstream



Waterbody shlh010 facing east downstream



Waterbody shlh010 facing south cross stream



Waterbody shlh010 facing north cross stream

DWQ #

SHLH OIL Site #____ (indicate on attached map)

Here	STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following info	rmation for the stream reach un	der assessment:
	ominion	2. Evaluator's name: $DDWEST$
3. Date of evaluation: 7	-15-14	4. Time of evaluation: 8:50
	cket Swamp	6. River basin: Trar - Pairnelico
	ea: 7100 acres	8. Stream order:] St
9. Length of reach evaluated		10. County: His I frax
	vn): prefer in decimal degrees.	12. Subdivision name (if any):
Latitude (ex. 34.872312): 36	13'08.153"	Longitude (ex77.556611): 77° 44' 03,891
Method location determined (ci 13. Location of reach under South of H	evaluation (note nearby roads and evaluation (note nearby roads and eathsville Road	Aerial) Photo/GIS Other GIS Other
14. Proposed channel work (
	ns: Mainly Dry-	tew showers
16. Site conditions at time of	rvisit: Normal	A
Trout Weter O	rway classifications known: $\int \frac{Q}{M}$	ASection 10 NA Tidal Waters MA Essential Fisheries Habitat
I rout watersOuts	standing Resource Waters /VA	Nutrient Sensitive Waters MAWater Supply Watershed MA (I-IV)
10. Is there a pond or lake lo	cated upstream of the evaluation po	oint? YES NO If yes, estimate the water surface area:
19. Does channel appear on t		20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land		% Commercial% Industrial 6D% Agricultural
22 D 1 C 11	1 <u>40</u> % Forested _	% Cleared / Logged% Other ()
22. Bankfull width: 25		23. Bank height (from bed to top of bank): 35'
24. Channel slope down cent	er of stream: \angle Flat (0 to 2%) _	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:S	StraightOccasional bends	Frequent meanderVery sinuous Braided channel
location, terrain, vegetation, s to each characteristic withir characteristics identified in the characteristic cannot be evalu- comment section. Where the into a forest), the stream may	a of worksheet (located on page stream classification, etc. Every c in the range shown for the ecore he worksheet. Scores should reflu- uated due to site or weather cond ere are obvious changes in the chan be divided into smaller reaches the ned to a stream reach must range l	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points egion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a litions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture hat display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse):	73 cury wet/mul	s: Perennial Stream in
	2-1-0	
Evaluator's Signature	the Unice	Date 7-15-12)
	m is intended to be used only as	a guide to assist landowners and environmental professionals in

TI 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.

121	#	CHARACTERISTICS	ECOREGION POINT RANGE		RANGE	a starter and	
		the second se	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	3	
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2	
1.5	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		
AL	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	
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	<u> </u>	
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	5.	
	9	(extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	<u>6</u> 3	
	10	(extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3	
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NH	
7	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	H	
TLIT	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	- <u>-</u>	
STABILITY	14	(no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	$-\frac{1}{2}$	
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3	
Ľ	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	
LA.	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	<u> </u>	
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA	
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	2	
BIULUGY	21	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2	
IUL	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2	
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	H	
		Total Points Possible	100	100	100	All and a second second	
		TOTAL SCORE (also enter on firs	t page)			73	
Tł	ese ch	aracteristics are not assessed in coastal streams.			and the second designed of		

STREAM QUALITY ASSESSMENT WORKSHEET

* These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 7-15-14	Project/Site:	Reliabil	Latitude:2/	13'08.15
Evaluator: DDWEST	County: HA	ifax	Latitude:36" Longitude: 7	7°44'03
Total Points:	Stream Determin	ation (single an	e) Other Jacke	
Stream is at least intermittent $\frac{45}{19 \text{ or perennial if } \geq 30^{\circ}}$	Ephemeral Inter	mittent Perenn	al e.g. Quad Name:	
			e.y. Quad Name.	
A. Geomorphology (Subtotal = 20)	AL			
1 ^a Continuity of channel bed and bank	Absent	Weak	Moderate	Strong
2. Sinuosity of channel along thalweg	0	1	3	(3)
3. In-channel structure: ex. riffle-pool, step-pool,	0	1	(2)	3
ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	$\left(\begin{array}{c} 2 \end{array} \right)$	
5. Active/relict floodplain	0	1	2	3
5. Depositional bars or benches	0	1		3
7. Recent alluvial deposits	0	1		3
3. Headcuts	$\left(\right)$	1		
9. Grade control		0.5	2	3
0. Natural valley	0	0.5	1	(1.5)
1. Second or greater order channel		= 0)	1	(1.5)
artificial ditches are not rated; see discussions in manual		-0/	Yes =	= 3
3. Hydrology (Subtotal = 12,5)				
2. Presence of Baseflow	0	4		27
3. Iron oxidizing bacteria	and the second	1	2	3
4. Leaf litter	0	1	2	(3)
5. Sediment on plants or debris	1.5	1	(0.5)	0
6. Organic debris lines or piles	0	0.5	1	(15)
7. Soil-based evidence of high water table?	0	0.5	1	(1.5)
Biology (Subtotal = 12.5)	No :	= 0	Yes =	3)
B. Fibrous roots in streambed				
9. Rooted upland plants in streambed	3	2	1	0
D. Macrobenthos (note diversity and abundance)	(3)	2	1	0
1. Aquatic Mollusks	0	1	Ô	3
2. Fish	\bigcirc	1	2	3
3. Crayfish	0	0.5		1.5
4. Amphibians	0	0.5		1.5
	0	0.5	1	(1.5)
5. Algae	0	0.5	1	(1.5)
6. Wetland plants in streambed		FACW = 0.75	BL = 1.5) Other = 0	
perennial streams may also be identified using other metho	ds. See p. 35 of manual.			
otes:				
ketch:		X		
	shih011			
	SV ////////////////////////////////////			
			, 	
		1111111111		
	2			



Waterbody shlh011 facing upstream



Waterbody shlh011 facing downstream



Waterbody shlh011 facing upline cross stream

USACE	AID	¥
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Evaluator's Signature_

DWQ #_

DWQ #	Site #	(indicate on attached map)
STREAM QUALITY ASSESSMENT WO	RKSHEE	Т
Provide the following information for the stream reach under assessment:		
1. Applicant's name: Dominion 2. Evaluator's name:	DENEST	92
3. Date of evaluation: <u>7-15-14</u> 4. Time of evaluation:		
	- Pamla	ico
7. Approximate drainage area: 750 acres 8. Stream order: 154		
9. Length of reach evaluated: 100 ft 10. County: 140/16) HOX	
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if	anv).	_
Latitude (ex. 34.872312): 36° (2' 56.510" Longitude (ex77.556611)		118761
Method location determined (circle): GPS Tone Sheet Orthe (A		
13. Location of reach under evaluation (note nearby roads and landmarks and attach map i	dentifying strea	am(s) location):
14 Proposed abarration by the second		
14. Proposed channel work (if any): None		
15. Recent weather conditions: Mainly dry - few showers)	
16. Site conditions at time of visit: Normal		
17. Identify any special waterway classifications known: MABection 10 WAPidal	Waters M	Essential Fisheries Habitat
<u>NETrout Waters</u> <u>NETrout Standing Resource Waters</u> <u>NETrout Waters</u>	NAVater Su	pply Watershed (I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, es		
19. Does channel appear on USGS quad map? YES NO 20. Does channel appear of		
21. Estimated watershed land use: $\frac{5}{20}$ % Residential% Commercial		
22 Dealed II Logged Cleared / Logged	% Other ()
22. Bankfull width: 23. Bank height (from bec	to top of bank)):(e
24. Channel slope down center of stream: X Flat (0 to 2%)Gentle (2 to 4%)	_Moderate (4 to	10%)Steep (>10%)
25. Channel sinuosity:Straight/Occasional bendsFrequent meander	Very sinuous	s Braided channel
Instructions for completion of worksheet (located on page 2): Begin by determining location, terrain, vegetation, stream classification, etc. Every characteristic must be scored to each characteristic within the range shown for the ecoregion. Page 3 provides a characteristic identified in the worksheet. Scores should reflect an overall assessment of characteristic cannot be evaluated due to site or weather conditions, enter 0 in the score comment section. Where there are obvious changes in the character of a stream under reviento a forest), the stream may be divided into smaller reaches that display more continuity, reach. The total score assigned to a stream reach must range between 0 and 100, with a highest quality.	the most appr d using the sam brief descript of the stream re ng box and pro- view (e.g., the s	opriate ecoregion based on e ecoregion. Assign points ion of how to review the each under evaluation. If a byide an explanation in the tream flows from a pasture
Total Score (from reverse): MD Comments: 	tont 5th Dithin	forested

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

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			The second as
		and the second	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	1
	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	5
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 - 3	0-4	0-4	1
PHYSICAL	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	0-4	0-2	F
	9	(extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	$\frac{1}{2}$
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
ILII	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
STABILITY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
Ś	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
ITA	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
HABITAT	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	NA
X	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
BIOLOGY	21	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
IOI	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	$\overline{\mathbb{O}}$
	23	(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		the second second		LID
* TI	iese ch	aracteristics are not assessed in coastal streams	n page)			10

* These characteristics are not assessed in coastal streams.

Date: 7-15-14	Version 4.11		SHL	H 012
	Project/Site:	- Reliability	Latitude: 36	17 56.5
Evaluator: DOWEST Total Points:	County: H	alifnx	Longitude: 7	7°44'1
Stream is at least intermittent 25.25	Stream Determi Ephemeral (nte	nation_(circle one) rmittent)Perennial	Other UNT to	o Jacket Swa :
A. Geomorphology (Subtotal = 12.5)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank	0	1	ALC: NOT ALC	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)		
4. Particle size of stream substrate			2	3
5. Active/relict floodplain	0	Đ	2	3
6. Depositional bars or benches	0	(I)	2	3
7. Recent alluvial deposits	0	Đ		3
8. Headcuts	0	1	2	3
9. Grade control	0	1	Q	3
10. Natural valley	0	0.5	1>	1.5
11. Second or greater order channel	0	0.5	1	1.5
a artificial ditches are not rated; see discussions in manual	(No	=0	Yes =	= 3
B. Hydrology (Subtotal = <u>5, 5</u>)				
12. Presence of Baseflow	8	(1)	2	3
13. Iron oxidizing bacteria	$\left(\begin{array}{c} 0 \end{array} \right)$			
14. Leaf litter	1.5	1	2 (0.5)	3
15. Sediment on plants or debris	0	65	0.5	0
16. Organic debris lines or piles	0	(0.5)		1.5
17. Soil-based evidence of high water table?	No		1	1.5
C. Biology (Subtotal = $(Q, 2S)$		- 0	(Yes =	3)
8. Fibrous roots in streambed		(3)	Ø	
9. Rooted upland plants in streambed	ann			0
20. Macrobenthos (note diversity and abundance)		2	1	0
1. Aquatic Mollusks		1	2	3
2. Fish		0.5	2	3
3. Crayfish	Della Tr		1	1.5
4. Amphibians				1.5
5. Algae			1	
6. Wetland plants in streambed			1	1.5
perennial streams may also be identified using other methods	Soon 25 of monuel	FACVV = 0.75; OBL	= 1.5 Other = 0	
lotes:	bee p. 55 of manual.			
4. Amphibians	0 0 See p. 35 of manual.	0.5 0.5 (0.5) FACW = 0.75; OBL	$\frac{1}{1}$ 1 = 1.5 Other = 0	1.5 1.5 1.5



Waterbody shlh012 facing upstream



Waterbody shlh012 facing downstream



Waterbody shlh012 facing upline cross stream

DWO	#
~ · · · ×	· · · ·

Site #____ (indicate on attached map)

	STREAM QUALITY AS	SESSMENT WORKSHEET					
	Provide the following information for the stream reach under	er assessment:					
	1. Applicant's name: Dominion - ACP	2. Evaluator's name: GAVIN BLOSSER					
	3. Date of evaluation: APRIL 10, 2015	4. Time of evaluation: 0830 AM					
	5. Name of stream: BREECHES Swamp - SHLADDI	6. River basin: Tar-Pam	*				
*	7. Approximate drainage area:	6. River basin: I ar-Pam 8. Stream order: 3 rd	*				
1.	9. Length of reach evaluated: <u>300 feet</u>	10. County: HALIFAX					
		12. Subdivision name (if any): N/A					
		Longitude (ex77.556611): - 77.761213					
	13. Location of reach under evaluation (note nearby roads and la	andmarks and attach map identifying stream(s) location):					
	MEACH CYALINTED is 200 to 500 fo	cet west of I-95 ROW					
	14. Proposed channel work (if any): <u>Piperine</u> CROSSING						
	15. Recent weather conditions: thus dens to Rms	LAST NIGHT					
	16. Site conditions at time of visit: Partly Cloudy	1 63° humit winds calm					
×	17. Identify any special waterway classifications known:	_Section 10Tidal WatersEssential Fisheries Habitat					
M	Trout WatersOutstanding Resource Waters]	Nutrient Sensitive WatersWater Supply Watershed(I-IV)					
	18. Is there a pond or lake located upstream of the evaluation po	bint? YES (NO) If yes, estimate the water surface area: N/A					
		20. Does channel appear on USDA Soil Survey? (YES)NO 💥					
	21. Estimated watershed land use: <u>2</u> % Residential	% Commercial% Industrial% Agricultural					
	<u>45</u> % Forested	/ % Cleared / Logged 2% Other ($I.95 ROW$)					
	22. Bankfull width: 17.0 fcct	23. Bank height (from bed to top of bank): 2.75 feet					
	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 c to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should refl	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points egion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a ditions, enter 0 in the scoring box and provide an explanation in the					

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): 54	Comments: Receiv	ives RUM-OFF FROM Adjacent
AgriculTURAL fields :	fLOWS through PFO	WETLAND : fimbered ~ 10 years
AGD DUTSIDE WETLAND	boundanies - this Al	nea heavy infestation of
ChiNese PRIVER AND	JAPANESE HONALSOCK	Kie : downstream of proposed
Dipeline connider is		
Pa	2.	

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

STREAM QUALITY ASSESSMENT WORKSHEET

	4	CHARACTERISTICS		ION POIN	Γ RANGE	SCODE
	#	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	3
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	3
	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	3
AL	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	3
HH	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	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	N/A
X	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	1
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
LAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
Ś	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
_	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
ABITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
IAB	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	N/A
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	1
90	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	Ø
	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	

TOTAL SCORE (also enter on first page)

54

* These characteristics are not assessed in coastal streams. PelerIMIPL STREAM SHLAOO1

2

PERENNIAL STREAM → SHLA00| NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Perenniai Strea	lis and men				
NC DWQ Stream Identification Form V		PERENNIAL STREAM I			
Date: April 10, 2015	Project/Site:	+LANTIC COAst	Latitude: 36.	197706	
Date: April 10,2015 Evaluator: GAVIN BLOSSER	County: 14A	LIANITIC COAST PIPELINC LIFAX			
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determ Ephemeral Inte	ination (circle one) ermittent Perennial	Other BReed e.g. Quad Name:	hes Swamp	
)A/	Moderate	Strong	
A. Geomorphology (Subtotal = 15,5)	Absent	Weak	2	3	
1 ^a Continuity of channel bed and bank	0	1	(2)	3	
2. Sinuosity of channel along thalweg	0	1			
 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		1	2	3	
9. Grade control	0	(0.5)	1	1.5	
10. Natural valley	0	0.5	P	1.5	
11. Second or greater order channel		lo = 0	Yes	= 3)	
^a artificial ditches are not rated; see discussions in manual					
B. Hydrology (oublette	0	1	2	3	
12. Presence of Baseflow	0		and the second se	3	
13. Iron oxidizing bacteria	0		2	0	
14. Leaf litter	1.5	0	0.5		
15. Sediment on plants or debris	0	0.5	1	1.5	
16. Organic debris lines or piles	0	0.5	D	1.5	
17. Soil-based evidence of high water table?	N N	lo = 0	Yes	= 3	
C. Biology (Subtotal = <u>/ O_aO</u>)					
18. Fibrous roots in streambed	3	2	(1)	0	
19. Rooted upland plants in streambed	3	2	1	0	
20. Macrobenthos (note diversity and abundance)	0		2	3	
21. Aquatic Mollusks Commo	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; OE	BL = 1.5 Other = 0	0	
*perennial streams may also be identified using other methods		ual.			
Notes: WEAK AND DISCONTINUES BED	+ BANK				
Sketch: TN SCRUB	Timber	Agricultural Agricultural HeD IDYRS	fierD	SNEED ROAD DEAD END	
Timbered in Last 10 years		Agnicultur	100 gen - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 -	AT I-95	
Ag Field SHILA-00 Stateom WETLAND WHLHOZO WHLHOZO	41	GENERE (CAPANES AT L	Chinese pr. e honcyster wetland ec	ivet f inc infestm nges + out	

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Waterbody SHLA001 facing west upstream



Waterbody SHLA001 facing east downstream



Waterbody SHLA001 facing north across

USACE AID#_

DWQ #_

Site #____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment: SHLHQIS
1. Applicant's name: DOWEST
3. Date of evaluation: $7 \cdot 29 \cdot 14$ 4. Time of evaluation: $(1, 0.5)$
5. Name of stream: inprimed frip to Ricky 6. River basin: TAr - premited
7. Approximate drainage area: 250 acres 8. Stream order: 15t
9. Length of reach evaluated: 10. County: 14m (1900)
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): 36° (1° 16.00) Longitude (ex77.556611): 77° 45° 57. 313'
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):
14. Proposed channel work (if any): None
15. Recent weather conditions: Dry - Jerry Shervers
16. Site conditions at time of visit: Norma
17. Identify any special waterway classifications known: WHSection 10 WHAdal Waters NHEssential Fisheries Habitat
Marout Waters WAOutstanding Resource Waters WA Nutrient Sensitive Waters WAWater 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 $\frac{\%}{20\%}$ Agricultural
20% Forested % Cleared / Logged % Other () 22. Bankfull width: 6 23 Bank height (from hed to top of hearly); 100
22. Bankfull width: 6 23. Bank height (from bed to top of bank): 100 24. Channel slope down center of stream: Year (0 to 2%) Gentle (2 to 4%) Moderate (4 to 10%) Steep (>10%)
25. Channel sinuosity:
Instructions for completion of worksheet (located on page 2): Design by determined
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.
Total Score (from reverse): 23 Comments: Man made dipehin edge Lucous adjacent to ag tield
Evaluator's Signature Arth Augen Date 7-29-14
This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in
gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a

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

SHLHOOIS STREAM QUALITY ASSESSMENT WORKSHEET

# CHARACTERISTICS ECO			ECOREGION POINT RANGE		
	CHARACTERISTICS	Coastal	The second s		SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	1
2	Evidence of past human alteration	0 - 6	0-5	0-5	
3	Riparian zone	0-6	0-4	0-5	
4	Evidence of nutrient or chemical discharges	0-5	0-4	0-4	1
5	Groundwater discharge	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	1
7	Entrenchment / floodplain access	0-5	0-4	0-2	
8	Presence of adjacent wetlands	0-6	0-4	0-2	
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	2
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	1
13	(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)
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0 - 5	0-4	0-5	R
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	D
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6]
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0 - 5	0-5	3
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	Ø
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
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	1
	TOTAL SCORE (also enter on first	st page)			23
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points) 2 Evidence of past human alteration (extensive alteration = 0; no alteration = max points) 3 Riparian zone (no buffer = 0; contiguous, wide buffer = max points) 4 Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points) 5 Groundwater discharge (extensive discharges = 0; no discharges = max points) 6 Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points) 7 Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points) 8 Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points) 9 Channel inuosity (extensive channelization = 0; natural meander = max points) 10 Sediment input (extensive deposition= 0; little or no sediment = max points) 11 Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points) 12 Evidence of major bank failures (severe erosion = 0; no erosion, stable banks = max points) 13 Presence of major bank failures (severe erosion = 0; dense roots throughout = max points) 14 Root depth and density on banks (no visible roots = 0; dense roots throughout = max points) 15 Impact by agriculture,	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points) 0-5 2 Evidence of past human alteration (extensive alteration = 0; no alteration = max points) 0-6 3 (no buffer = 0; contiguous, wide buffer = max points) 0-6 4 Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points) 0-5 5 Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points) 0-4 7 Entrenchment / floodplain = max points) 0-5 8 Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands (no wetlands = 0; large adjacent wetlands) 0-5 9 Channel sinuosity (extensive channelization = 0; natural meander = max points) 0-5 10 Sediment input (extensive deposition = 0; indural meander = max points) 0-5 11 Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points) 0-5 12 Evidence of major bank failures (severe erosion = 0; no erosion, stable banks = max points) 0-5 13 Presence of major bank failures (no visible roots = 0; dense roots throughout = max points) 0-5 14 Root depth and density on banks (no visible roots = 0; dense roots throughout = max poin	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points) 0-5 0-4 2 Evidence of past human alteration (extensive alteration = 0; no alteration = max points) 0-6 0-5 3 (no buffer = 0; configuous, wide buffer = max points) 0-6 0-4 4 Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points) 0-5 0-4 5 (no discharge = 0; springs, seeps, wetlands, etc. = max points) 0-3 0-4 6 (no discharge = 0; frequent floodplain (no floodplain = 0; extensive floodplain = max points) 0-5 0-4 7 Entrenchment / floodplain access (deeply entrenched = 0; frequent floodplain = max points) 0-5 0-4 8 Presence of adjacent wetlands = max points) 0-5 0-4 9 Channel sinusty (extensive channelization = 0; natural meander = max points) 0-5 0-4 10 (extensive channelization = 0; natural meander = max points) 0-5 0-4 11 Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points) 0-5 0-4 12 Evidence of channel incision or widening (deeply ineised = 0; stable bed & hanks	Image: construction Presence of flow / persistent pools in stream (no flow or saturation = 0, strong flow = max points) $0-5$ $0-4$ $0-5$ 2Evidence of past human alteration (extensive alteration = 0, no discharges = max points) $0-6$ $0-5$ $0-5$ 3Riparian zone (no buffer = 0, contiguous, wide buffer = max points) $0-6$ $0-4$ $0-5$ 4Evidence of nutrient or chemical discharges (extensive discharges = 0, no discharges = max points) $0-6$ $0-4$ $0-4$ 5Groundwater discharges (no floodplain = 0; extensive floodplain = max points) $0-4$ $0-4$ $0-2$ 7Entrenchement / floodplain max points) $0-5$ $0-4$ $0-2$ 8Presence of adjacent Modplain (no wellands = 0; requent flooding = max points) $0-5$ $0-4$ $0-2$ 9Channel sinuosity (extensive chanolization = 0; natural meander = max points) $0-5$ $0-4$ $0-2$ 9Channel sinuosity (extensive chanolization = 0; natural meander = max points) $0-5$ $0-4$ $0-2$ 10(extensive deposition = 0; large, diverse sizes = max points) $0-5$ $0-4$ $0-2$ 11Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points) $0-5$ $0-4$ $0-5$ 13Presence of major bank failures (no visible roots = 0; dense roots throughout = max points) $0-5$ $0-6$ $0-5$ 14Root depth and density on banks (no visible roots = 0; dense roots throughout = max points) $0-5$ $0-6$ $0-6$ 15Impact by

* These characteristics are not assessed in coastal streams.

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

	Project/Site: 5	ERP	Latitude: 24	· 11' 16.00
Date: 7-29-14 Evaluator: DBUZST	County: Hollfrox		Latitude: 36° 11' 16.0 Longitude: 77°45'5	
Total Points:Stream is at least intermittent 20.75 if ≥ 19 or perennial if $\geq 30^*$	Stream Determin Ephemeral	nation (circle one) rmittent Perennial	Other UNT to e.g. Quad Name:	o Rocky Swa
A. Geomorphology (Subtotal = 9.5)	Absent	Weak	No. Jane 4	01
1^{a} Continuity of channel bed and bank	0 Absent	1 vveak	Moderate (2)	Strong
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool,		6		3
ripple-pool sequence	0		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		2	3
7. Recent alluvial deposits	0	(1)	2	3
3. Headcuts	0		2	3
9. Grade control	0	(0.5)	1	1.5
0. Natural valley	(0)	0.5	1	1.5
11. Second or greater order channel	No	= 0	Yes =	
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 5.5)				
2. Presence of Baseflow	0	(1)	2	3
3. Iron oxidizing bacteria	0	1	2	3
4. Leaf litter	1.5	(1)	0.5	the second s
5. Sediment on plants or debris	(0)	0.5		0
6. Organic debris lines or piles		(0.5)	1	1.5
7. Soil-based evidence of high water table?	No	= 0	1 Yes =	1.5
C. Biology (Subtotal = $5:75$)	110		Tes -	- 3)
8. Fibrous roots in streambed	3	(2)	4	0
9. Rooted upland plants in streambed	3	(2)	1	0
0. Macrobenthos (note diversity and abundance)	Ő		1	0
o. Macrobertinos (note diversity and abundance)		1	2	3
1 Aquatic Mollucke		1	2	3
1. Aquatic Mollusks		0.5	1	1.5
2. Fish	(0)	0.5		
2. Fish 3. Crayfish		(0.5)	1	1.5
2. Fish 3. Crayfish 4. Amphibians	0	0.5	1	1.5
2. Fish 3. Crayfish 4. Amphibians 5. Algae		05 0.5 0.5	1	1.5 1.5
2. Fish 3. Crayfish 4. Amphibians	0	0.5 0.5 0.5 FACW = 0.75; OBL	1	1.5 1.5



Waterbody shlh015 facing south upstream



Waterbody shlh015 facing north downstream



Waterbody shlh015 facing west cross stream

- 11	1	11	-	7	0
SH	L	T	U	1	U
1					

USACE AID# DW0) # Site # (indicate	on attached map)
STREAM QUALIT	Y ASSESSMENT WORKSHEET	
Provide the following information for the stream reac	ہے۔ under assessment:	COLOR T
1. Applicant's name: Dominion	2. Evaluator's name: PPWEST	
3. Date of evaluation: 9-26-14	4. Time of evaluation: (1): 45	
5. Name of stream: UNT TO Rocky Swam		0
7. Approximate drainage area: > 25 acres	8. Stream order: 15t	
9. Length of reach evaluated: 100 ff	10. County: (tra) trax	
11. Site coordinates (if known): prefer in decimal degrees		
Latitude (ex. 34.872312): 36° 10' 53. 866"	Longitude (ex77.556611): 77°46' 16.10	08"
Method location determined (circle): GPS) Topo Sheet C 13. Location of reach under evaluation (note nearby road	rtho (Aerial) Photo/GIS Other GIS Other	i i i i i i i i i i i i i i i i i i i
14. Proposed channel work (if any):None		
15. Recent weather conditions: Recent Let	wir ray, mostly Day	
16. Site conditions at time of visit: Normal	()) · · · · · · · · · · · · · · · · ·	
17. Identify any special waterway classifications known: <u>MA</u> Trout Waters <u>MA</u> Outstanding Resource Waters	NA Section 10 NA Tidal Waters NA Essenti	ial Fisheries Habitat
18. Is there a pond or lake located upstream of the evalua	ion point? YES (NO) If yes, estimate the water surface	area:
19. Does channel appear on USGS quad map? YES (NO		
21. Estimated watershed land use: 2 % Residential	16	% Agricultural
/ f Sorested	% Cleared / Logged% Other (2008 - 19 19 19 19 19 19 19 19 19 19 19 19 19
22. Bankfull width:	23. Bank height (from bed to top of bank):	1
24. Channel slope down center of stream: Flat (0 to 2	%)Gentle (2 to 4%)Moderate (4 to 10%) _	Steep (>10%)
25. Channel sinuosity: <u>Straight</u> Occasional ber	dsFrequent meanderVery sinuous	_Braided channel
Instructions for completion of worksheet (located on location, terrain, vegetation, stream classification, etc. E to 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 to into a forest), the stream may be divided into smaller rea reach. The total score assigned to a stream reach must highest quality.	very characteristic must be scored using the same ecoreg ecoregion. Page 3 provides a brief description of I d reflect an overall assessment of the stream reach und r conditions, enter 0 in the scoring box and provide an he character of a stream under review (e.g., the stream fl ches that display more continuity, and a separate form us	gion. Assign points how to review the ler evaluation. If a a explanation in the lows from a pasture and to evaluate each
Total Score (from reverse): <u>3</u> Cor	iments: MAN-make ditch .	
Evaluator's Signature have here	Date_ 9-26-14	4
This channel evaluation form is intended to be used of gathering the data required by the United States A quality. The total score resulting from the score	nly as a guide to assist landowners and environment my Corps of Engineers to make a preliminary asso	al professionals in essment of stream

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

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STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHADACTEDISTICS	ECOREGION POINT RANGE			
		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	3
	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	2
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	1
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	1
Hd	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	D
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	1
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
TAB	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	2
F	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0 - 5	0-6	1
ITA'	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
HABITAT	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	NA
Y	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	1
.90°	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
	Image: Second	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 on fir	st page)	and the first state		31

* These characteristics are not assessed in coastal streams.

SHLH020

NC DWQ Stream Identification Form Version 4 11

Bala O D ())	· · · · · · · · · · · · · · · · · · ·			
Date: 9-26-14)	Project/Site:	ACP	Latitude: 36	10'53.866"
Evaluator: DOWEST	County: HA	lifax	Longitude: 7	10'53.866" 1'46' 16.108
Total Points:	Stroom Dotorm	for an an and a state of the st	au ArATT	10 10m 00
Stream is at least intermittent 21.25 if \geq 19 or perennial if \geq 30*	Ephemeral Inte	ination (circle one) rmittent Perennia	Other 0707	ROCKY
		Ferennia	e.g. Quad Name	ROCKY SWAMP
A Geomorphology (Outstate) for 5	·····			
A. Geomorphology (Subtotal = $(0, 5)$)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	\bigcirc	2	3
 In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 	0	\bigcirc	2	3
4. Particle size of stream substrate	0	(1)	2	
5. Active/relict floodplain	Ô	1	2	3
6. Depositional bars or benches	0	1	2	
7. Recent alluvial deposits			2	3
8. Headcuts	$\overline{()}$		2	3
9. Grade control	0	0.5	2	and the second data
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel		0.5	Yes	1.5
^a artificial ditches are not rated; see discussions in manual			res	= 3
B. Hydrology (Subtotal = 7,5)				
12. Presence of Baseflow	0	1	(2)	0
13. Iron oxidizing bacteria	0			3
14. Leaf litter		(P)	2	3
15. Sediment on plants or debris	1.5		0.5	0
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?		(0.5)	1	1.5
C. Biology (Subtotal = $7, 25$)		5 = 0	Yes	= 3>
18. Fibrous roots in streambed				
19. Rooted upland plants in streambed	3	2	(1)	0
20. Macrobenthos (note diversity and abundance)		2	1	0
21. Aquatic Mollusks	Ô	D	2	3
22. Fish		1	2	3
23. Crayfish		0.5	1	1.5
24. Amphibians	<u>(i)</u>	0.5	1	1.5
25. Algae	0	0.5	\bigcirc	1.5
26. Wetland plants in streambed	0	(0.5)	1	1.5
*perennial streams may also be identified using other methods		FACW = 0.75;)OI	BL = 1.5 Other = 0	
Notes:	s. See p. 35 of manua	ll.		
				~11010DA
		0	N THI	SHLH020
Sketch:	Ŵ	XI	1-1-1	
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Waterbody shlh020 facing upstream



Waterbody shlh020 facing downstream



Waterbody shlh020 facing upline cross stream

DWQ =

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Site \neq _____ (indicate on attached map) shlo 001

STREAM QUALITY ASSE	SSMENT WORKSHEET
Provide the following information for the stream reach under as	
1. Applicant's name: Dominion 2. H	ivaluator's name: ESI-J. Horbour, K.MURPhrey
	ime of evaluation: 1Pm
5. Name of stream: UNT to ROCKY SWOMP 6. I	River basin: Tay - Pamlico
	Stream order: 2
9. Length of reach evaluated: 1008+ 10.	County: Halisox
•	Subdivision name (if any): NA
	ongitude (ex77.556611):-77.77281
Method location determined (circle): GPS Topo Sheet Ortho (Aeria 13. Location of reach under evaluation (note nearby roads and lands LOCOTEL WEST OF I-95 J NORTH	narks and attach map identifying stream(s) location):
14. Proposed channel work (if any): Proposed Pifeline	
15. Recent weather conditions: Sang	· · · · · · · · · · · · · · · · · · ·
16. Site conditions at time of visit: UndiStarbad	······································
	ction 10Tidal WatersEssential Fisheries Habitat
	rient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point	
	D. Does channel appear on USDA Soil Survey? (YES) NO
	% Commercial% Industrial 60% Agricultural
$ = 50^{\circ}$ Forested	% Cleared / Logged% Other ()
	3. Bank height (from bed to top of bank): 1 &
24. Channel slope down center of stream:Flat (0 to 2%)	
25. Channel sinuosity:StraightOccasional bends	_Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2) location, terrain, vegetation, stream classification, etc. Every cha to each characteristic within the range shown for the ecoregic characteristics identified in the worksheet. Scores should reflec characteristic cannot be evaluated due to site or weather condit comment section. Where there are obvious changes in the chara- into a forest), the stream may be divided into smaller reaches tha reach. The total score assigned to a stream reach must range be highest quality.	Begin by determining the most appropriate ecoregion based on racteristic must be scored using the same ecoregion. Assign points on. Page 3 provides a brief description of how to review the t an overall assessment of the stream reach under evaluation. If a ions, enter 0 in the scoring box and provide an explanation in the cter of a stream under review (e.g., the stream flows from a pasture t display more continuity, and a separate form used to evaluate each etween 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 444 Comments	; <u> </u>
mil and	
Evaluator's Signature Keil ecolow	Date 7/20/15

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

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STREAM QUALITY ASSESSMENT WORKSHEET

		CHARACTERISTICS		ION POINT	the maximum of law Car and the output of the	CORE
计			Coastal	Piedmont	Mountain	和對於記念
1		Presence of flow <i>l</i> persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	2
2	-	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
3		(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	5
4	3 (2 (1) 2 (1)	Evidence of nutrient or chemical discharges (extensive discharges = 0, no discharges = max points).	0-5	0-4	0-4	2
5		(no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
6		(no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
7	Ť	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
8	+	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	Lf
9		Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	١
10		Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	0
1	1	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	. 0-4	0-5	
1: 1:	2	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
	3	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4
	4	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	, i
1	5	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
n line	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
2	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	5
	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
BIOLOGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	22	Presence of fish	0 - 4	0-4	0-4	0
8	23	Evidence of wildlife use	0-6	0-5	0-5	5
		Total Points Possible	100	100	100	

* These characteristics are not assessed in coastal streams.

NC DWO Stream Identification Form '	NC DWQ Stream Identification Form Version 4.11			sh10001	
Date: 7/20/15	Project/Site: ACP		Latitude: 36, 17959		
Evaluator: ESI-J. Harbur, K. Murphies	County: Halifox		Longitude: -77, 7728		
Total Points: Stream is at least intermittent $22, 5$ if ≥ 19 or perennial if $\geq 30^*$	Stream Determination (circle one) Ephemeral (Intermitten) Perennial		Other Ringwood e.g. Quad Name:		
	Absent	Weak	Moderate	Strong	
A. Geomorphology (Subtotal = [0,5])	- O	1	(2)	3	
1" Continuity of channel bed and ballk	0	- 71		3	
2. Sinuosity of channel along thalweg					
3. In-channel structure: ex. riffle-pool, step-pool,	0		. 2	3	
ripple-pool sequence 4. Particle size of stream substrate	0	1 1	(2)	3	
	0	(1) .	2	3	
5. Active/relict floodplain	0		2	3	
6. Depositional bars or benches		1 1	2	3	
7. Recent alluvial deposits	- 8-	1	2	3	
8. Headcuts		0.5		1.5	
9. Grade control		(0.5)	1	1.5	
10. Natural valley	0				
11. Second or greater order channel	No = 0 Yes = (3)				
^a artificial ditches are not rated; see discussions in manual					
B. Hydrology (Subtotal =)		~~~~		1	
12. Presence of Baseflow	Q		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	G	1.5	
17. Soil-based evidence of high water table?	No = 0		Yes(= 3)		
C. Biology (Subtotal = 5)	3	(2)	1	0	
18. Fibrous roots in streambed	(3)	2	1	0	
19. Rooted upland plants in streambed			2	3	
20. Macrobenthos (note diversity and abundance)		1 1	2	3	
21. Aquatic Mollusks		0.5	1	1.5	
22. Fish		0.5	1 1	1.5	
23. Crayfish		0.5	1 1	1.5	
24. Amphibians	$-\frac{0}{0}$	0.5	1	1.5	
25. Algae			; OBL = 1.5 Other		
26. Wetland plants in streambed			, OBL - 1.5 Other	(0)	
*perennial streams may also be identified using other me	thods. See p. 35 of n	lanual.			
Notes:					
Sketch:	shlo 002	01			
	shio 002		100-00-0		

OHWM width: 484 Top of Bank width: 58t

1

Environmental Field Surveys Waterbody Photo Page



Waterbody shlo001 facing east upstream.



Waterbody shlo001 facing west downstream.

Photo Sheet 1 of 2

Environmental Field Surveys Waterbody Photo Page



Waterbody shlo001 facing north across bank.

DWC) =	
D	· _	

Site = (indicate on attached map) 5hb OO2

STREAM QUALITY	ASSESSMENT	WORKSHEET
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Provide the following information for the stream reac	h und	er assessment:	
I. Applicant's name: Dominion		2. Evaluator's name: EST-J, Harberry	K. Murphrey

in applicant o name.	
3. Date of evaluation: 7/20/15	4. Time of evaluation: 1:30 PM
5. Name of stream: UNT to ROCKY SWOMP	6. River basin: Tar Pomico
7. Approximate drainage area: 10 actes	8. Stream order: 💍
9. Length of reach evaluated: 508+	10. County: Hali Fox
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
1.aiitude (ex. 34.872312): 36,17918	Longitude (ex77.556611): -77.77178
Method location determined (circle): GPS, Topo Sheet Orthe 13. Location of reach under evaluation (note nearby roads ar LOCA+-Cd WeSt of $T-95$ + NC	nd landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): POPosed Pi	Peline
15. Recent weather conditions: 54009	<u> </u>
16. Site conditions at time of visit: Und Sturbed	· · · · · · · · · · · · · · · · · · ·
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Water Supply Watershed (1-1V)
18. Is there a pond or lake located upstream of the evaluation	on point? YES OIIf 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: 10 % Residential	% Commercial% Industrial% Agricultural
 * (Top of Bank) 22. Bankfull width: 4 F4 24. Channel slope down center of stream: Flat (0 to 29) 	% Cleared / Logged% Other (23. Bank height (from bed to top of bank):, S&+ %)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bend	lsFrequent meanderVery sinuousBraided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the 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): 43

Comments:_____

Evaluator's Signature Kein levfor

Date 7/20/15

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 Commem, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

		CHARACTERISTICS		IONROINI		CORE
	加える		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	2
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
	3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	05	5.
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points).	0-5	0-4	0 - 4	2
	.5	(no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
9- 5-	6	Presence of adjacent floodplain	0-4	0-4	0-2	2.
- C.	7	(no floodplain = 0; extensive floodplain = max points) Entrenchment / floodplain access	0-5	0-4	0-2	3
	8	(deeply entrenched = 0; frequent flooding = max points) Presence of adjacent wetlands	0-6	0-4	0-2	4
	9	(no wetlands = 0; large adjacent wetlands = max points) Channel sinuosity	0-5	0-4	0-3	1.
	10	(extensive channelization = 0; natural meander = max points) Sediment in put	0-5	0-4	0-4	()
-		(extensive deposition= 0; little or no sediment = max points) Size & diversity of channel bed substrate	NA*	0-4	0-5	
	12	(fine, homogenous = 0; large, diverse sizes = max points) Evidence of channel incision or widening	0-5	0-4	0-5	4
NIL	12 13	(deeply incised = 0; stable bed & banks = max points). Presence of major bank failures	0-5	0-5	0-5	3
STABILITY	14	(severe erosion = 0; no erosion, stable banks = max points) Root depth and density on banks	0-3	0-4	0-5	
ST		(no visible roots = 0; dense roots throughout = inax points) Impact by agriculture, livestock, or timber production	0-5	0-4	0-5	$\overline{)}$
	15	(substantial impact =0; no evidence = max points) Presence of riffle-pool/ripple-pool complexes	0-3	0-5	0-6	2
TAT	16	(no riffles/ripples or pools = 0; well-developed = max points) Habitat complexity		0-6	0-6	12
	17	(little or no habitat = 0; frequent, varied habitats = max points Canopy coverage over streambed				
HAB	18	(no shading vegetation = 0; continuous canopy = max points Substrate embeddedness		0-5	0-5	15
	19	(deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	
V 🐇	20	(no evidence = 0; common, numerous types - max points)	0-4	0-5	0-5	$\downarrow 0$
0C	21	(no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
RIOLOGY	22	(no evidence = 0; common, numerous types - max points)	0-4	0-4	0-4	\bigcirc
B	23	Evidence of wildlife use	0-6	0-5	0-5	2
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		Total Points Possible	100	100	100	
		Total Points Possible TOTAL SCORE (also enter o	alan (antar ang	100	100	

* These characteristics are not assessed in coastal streams.

The first of the first for Form	Vorcion 11		shlo	002
NC DWQ Stream Identification Form	Version 4.11	-P	1	2010
Date: 7/20/15	Project/Site: ACP		Latitude: 36,17918	
Evaluator: ESI-J. Harbong K. Murphrey	County: Halifax		Longitude: -77, 77178 Other Ringwood, NC e.g. Quad Name:	
Total Points: Stream is at least intermittent $1 \ge 19$ or perennial if $\ge 30^*$	Stream Determi Ephemeral Inte	nation (circle one) rmittent) Perennial	Other Rin e.g. Quad Name:	gwood, NC
				Chroma
A. Geomorphology (Subtotal = 6.5)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank	0	<u>1</u>	(2)	3
2. Sinuosity of channel along thalweg	0	1	2	
3. In-channel structure: ex. riffle-pool, step-pool,	0	(1)	. 2	3
ripple-pool sequence	0		2	3
4. Particle size of stream substrate	0	(1).	2	3
5. Active/relict floodplain	(0)		2	3
6. Depositional bars or benches	16	1 1	2	3
7. Recent alluvial deposits	105	1 1	2	3
8. Headcuts		0.5	1	1.5
9. Grade control		(0.5)	1	1.5
10. Natural valley		No = 0)		s = 3
11. Second or greater order channel			100	
^a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = <u>5, 5</u>)			2	3
12. Presence of Baseflow		1		3
13. Iron oxidizing bacteria		1	. 2	0
14. Leaf litter	1.5	(1)	0.5	1.5
15. Sediment on plants or debris	0	(0.5)	1	
16. Organic debris lines or piles	0	0.5		1.5
17. Soil-based evidence of high water table?		No = 0		es <u>€3</u>)
C. Biology (Subtotal = <u>5</u>)				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(ò)	1	2	3
21. Aquatic Mollusks	(ŏ)	1	2	
22. Fish	(0)	0.5	1	1.5
23. Crayfish	\odot	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26 Wetland plants in streambed			08L = 1.5 Othe	<u>r = U [</u>
*perennial streams may also be identified using other me	thods. See p. 35 of n	nanual.		
Notes: OHWM present				
Holds. Off WIT project				
Sketch:	shlo 00	2		
OHWM width: 38+			2	
Top of Bank width: 48+				

Environmental Field Surveys Waterbody Photo Page



Waterbody shlo002 facing southeast upstream.



Waterbody shlo002 facing northwest downstream.

Photo Sheet 1 of 2

Environmental Field Surveys Waterbody Photo Page



Waterbody shlo002 facing southwest across bank.

USACE	AID#	
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DWQ #_

SHLH 013

Site #_____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Dominion 2. Evaluator's name: DOWEST
3. Date of evaluation: 7-22-14 4. Time of evaluation: 600000000 1:30
5. Name of stream: unnamed frib to Raky Summer basin: TAR - Pam/100
7. Approximate drainage area: 750 acres 8. Stream order: 154
9. Length of reach evaluated: 100 ft 10. County: Hplifax
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): <u>26 09 37.715</u> Longitude (ex77.556611): <u>77°47'03.893</u> "
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):
14. Proposed channel work (if any):
15. Recent weather conditions: Mainly Dor - few showers
16. Site conditions at time of visit:
17. Identify any special waterway classifications known: <u>NA</u> Section 10 <u>NA</u> Tidal Waters <u>NA</u> Essential Fisheries Habitat
NATrout Waters NA Outstanding Resource Waters NA Nutrient Sensitive Waters MA Water Supply Watershed MA (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 85% Agricultural
5% Forested% Cleared / Logged% Other ()
22. Bankfull width: 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream: Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the 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): Comments: Field ditch formated w/
UCTIANO Veg and intercepted ground wonfere
Evaluator's Signature <u>Automatical Date</u> <u>7-22-14</u> 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

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.

SHLHO13

STREAM Q	UALITY	ASSESSMENT	WORKSHEET
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			ECOREGION POINT RANGE			
	#	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	l
	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	0
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	D
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	\bigcirc
HA	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	l
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	Ó
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	D
時間の	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	1
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
STABILLTY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	l
2	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	0
ITA	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
HABITAT	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	\bigcirc
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	D
BIULUGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
SIUL	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
9	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fi	rst page)			14

* These characteristics are not assessed in coastal streams.

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

Date: 7-22-14	Project/Site: 55	Reliabel	Latitude: 36	09'37.71	
Evaluator: DDWEST	County:	fax	Longitude: 7	7°47'03	
Total Points: Stream is at least intermittent 21.5 if ≥ 19 or perennial if $\geq 30^*$	Stream Determin Ephemeral Inter	nation (circle on mittent Perenni	e) Other UNT to	Other UNT to Rocky Swam	
3					
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong	
1 ^a Continuity of channel bed and bank	0	(1)	2	3	
2. Sinuosity of channel along thalweg	\bigcirc	1	2	3	
 In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 	$\left(\circ \right)$	1	2	3	
4. Particle size of stream substrate					
5. Active/relict floodplain	0		2	3	
6. Depositional bars or benches		1	2	3	
7. Recent alluvial deposits		1	2	3	
B. Headcuts	-	1	2	3	
9. Grade control		1	2	3	
10. Natural valley	0	(2.5)	1	1.5	
1. Second or greater order channel	0	0.5	1	1.5	
artificial ditches are not rated; see discussions in manual	(No	= 0')	Yes =	: 3	
B. Hydrology (Subtotal = 10.5)					
2. Presence of Baseflow	0	1	2	(3)	
3. Iron oxidizing bacteria	0	1	(2)	3	
4. Leaf litter	1.5	(1)	0.5	0	
5. Sediment on plants or debris	0	(0.5)	1	1.5	
Organic debris lines or piles	0	0.5	0	1.5	
7. Soil-based evidence of high water table?	No :		(Yes =		
C. Biology (Subtotal =)		The second second		Ĵ	
8. Fibrous roots in streambed	3	2	(1)	0	
9. Rooted upland plants in streambed	(3)	2		0	
0. Macrobenthos (note diversity and abundance)	0	(1)	2		
1. Aquatic Mollusks		1	2	3	
2. Fish		0.5		3	
3. Crayfish		0.5	1	1.5	
4. Amphibians		CO. W. Constanting of the state of the	1	1.5	
5. Algae	$+$ $\overline{0}$ $+$	0.5	-0	1.5	
6. Wetland plants in streambed			1	1.5	
perennial streams may also be identified using other metho	de See p 25 of monuel	FACW = 0.75;(0	BL = 1.5) Other = 0		
otes:	us. dee p. 55 of manual.				
otes.		Subviej for the A			
L-L-L					
ketch:	,		,		
			/		
			7		
			/		
	/shlh01	13 /			
/	1	/			



Waterbody shlh013 facing west upstream



Waterbody shlh013 facing east downstream



Waterbody shlh013 facing south cross stream

DWQ #_

Site #____ (indicate on attached map)

12

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Dominion 2. Evaluator's name: DDWEST
3. Date of evaluation: $7 - 22 - (14)$ 4. Time of evaluation: 1:50
5. Name of stream Unnamed tob to Ricky Swin & Biver basin: Thr - Pam / 120
7. Approximate drainage area: 750 acres 8. Stream order: 15t
9. Length of reach evaluated: 100 St 10. County: Hali Day
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): <u>36°09'32.896</u> Longitude (ex77.556611): <u>77° 417'07.809'</u>
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):
17. Identify any special waterway classifications known: WASection 10 NA Tidal Waters NA Essential Fisheries Habitat
\underline{N} Prout Waters \underline{N} Outstanding Resource Waters \underline{N} Nutrient Sensitive Waters \underline{N} Water Supply Watershed \underline{N} (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
15% Forested% Cleared / Logged% Other ()
22. Bank full width: 23. Bank height (from bed to top of bank): O
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): 14 Comments: fr/D Ditch in cotton-comfie
Total Score (from reverse): Comments: TATA AVIAL IN COLLON-COMMENT
Evaluator's Signature And Date 7-22-14
This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

SHLH014 STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHADACTEDISTICS	ECOREC	GION POINT	FRANGE	acon
	π	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORI
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	1
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	(
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	0
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	D
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	(
	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	0
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	0
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	1
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	2
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	Ó
	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	1
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0-5	0-5	0
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
	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	2
		Total Points Possible	100	100	100	

* These characteristics are not assessed in coastal streams.

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

Version 4.11 Project/Site:	sminion	Latitude: 36°0	9 32.986
County: HIA	ifax	Longitude: 77	047'07.8
Stream Determin Ephemeral Inter	nation (circle one) mittent Rerennial	Other UNT to e.g. Quad Name:	Rocky Swam
A harané 🗌	Wook	Moderate	Strong
Absent			3
			3
	1		3
0	1	2	
0	0	2	3
$\left(0 \right)$	1	2	3
	1	2	3
10	1	2 🧬	3
and	1	2	3
0	(05)	1	1.5
0	(0.5)	1	1.5
	0=0)	Yes	= 3
0	1	2	3
		15)	3
			0
		1	1.5
		(1)	1.5
		Ves	= 3
		(1)	0
			0
			3
		and the second se	3
		and the second se	1.5
and the second s		and the second se	1.5
and the set of the set			1.5
the state of the second st			1.5
		BL = 1.5 Other =	
	FACW = 0.75	BL = 1.5 Other =	0
ods. See p. 35 of man	ual.		
	Project/Site:	Project/Site: $Ominion$ County: H_A ($f_A \chi$ Stream Determination (circle one) Ephemeral intermittent Rerennial Absent Weak Q (1) Q (1) <td>Project/Site: $\bigcirc m$ (n $\lor o$) Latitude: $\bigcirc form form form form form form form form$</td>	Project/Site: $\bigcirc m$ (n $\lor o$) Latitude: $\bigcirc form form form form form form form form$



Waterbody shlh014 facing west upstream



Waterbody shlh014 facing east downstream



Waterbody shlh014 facing north cross stream

USACE AID#	USACE	AID#	
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DWQ #_

sh14022

Site #_____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Nominion 2. Evaluator's name: NWest
3. Date of evaluation: $10/66/2014$ 4. Time of evaluation: $4:30$
5. Name of stream: UNT to Fishing Creek 6. River basin: UNT to Fishing Creek Tar
7. Approximate drainage area: 2100 Acres 8. Stream order: 15t Pare 1.
9. Length of reach evaluated: 30 10. County: Halfford
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):
Latitude (ex. 34.872312): 36°09'08 .143' Longitude (ex77.556611): 77° 47' 44. 450"
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): Farm Rd / Access Rd.
14. Proposed channel work (if any): No ne .
15. Recent weather conditions: Norral
16. Site conditions at time of visit: $799 - (109 - 5K5c5 - Wooded)$
17. Identify any special waterway classifications known:Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? (YES) NO 20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use:% Residential% Commercial% Industrial 50% Agricultural
50% Forested% Cleared / Logged% Other ()
22. Bankfull width: 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:Straight <i>Soccasional bends</i> Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the 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): 73 Comments: Revended Stream
Evaluator's Signature Michael 7. R. Date 10/06/2014
This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

#	CHARACTERISTICS			FRANGE	00000
(Him Report		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	3
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	3
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	4
5	Groundwater discharge	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	5
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	И
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	4
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	2
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4
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	M
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	3
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3
	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter on fin	rst page)			73
	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	3 Riparian zone (no buffer = 0; contiguous, wide buffer = max points) 4 Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points) 5 Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points) 6 Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points) 7 Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points) 8 Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points) 9 Channel sinuosity (extensive channelization = 0; natural meander = max points) 10 Sediment input (extensive deposition= 0; little or no sediment = max points) 11 Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points) 12 Evidence of major bank failures (severe erosion = 0; no erosion, stable banks = max points) 13 Presence of mijor bank failures (no visible roots = 0; dense roots throughout = max points) 14 Root depth and density on banks (no visible roots = 0; dense roots throughout = max points) 15 Impact by agriculture, livestock, or timber production (substantial impact = 0; no evidence = max points) 15 Impact by agriculture, livestock, or timber production (no riffles/ripples or pools = 0; well-developed = max points) 18 Canop	1 Riparian zone 0 - 6 3 (no buffer = 0; contiguous, wide buffer = max points) 0 - 6 4 Evidence of nutrient or chemical discharges 0 - 5 5 Groundwater discharges = max points) 0 - 3 6 Presence of adjacent floodplain 0 - 4 7 Entrenchment / floodplain access 0 - 5 8 Presence of adjacent wetlands 0 - 6 9 Channel sinuosity 0 - 5 9 Channel sinuosity 0 - 5 10 (extensive channelization = 0; natural meander = max points) 0 - 5 11 Sted ment input (extensive channelization = 0; natural meander = max points) 0 - 5 11 Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points) 0 - 5 12 Evidence of rainor bank failures (no visible roots = 0; no erosion, stable banks = max points) 0 - 5 13 Presence of major bank failures (no visible roots = 0; dense roots throughout = max points) 0 - 5 14 Root depth and density on banks (no visible roots = 0; dense roots throughout = max points) 0 - 5 14 Root depth and density on banks 0 - 5 15 Impact by	(extensive aniertation = 0, no sinternation = max points)3 Riparia zone 0-60-44 Evidence of nutrient or chemical discharges 0-50-45(no discharges = 0; on discharges = max points)0-50-46 Groundwater discharge 0-30-46 Presence of adjacent floodplain 0-40-47 Entrenchmet / floodplain access 0-50-48(no wetlands = 0; large adjacent wetlands0-50-49 Channel sinuosity 0-50-49 Channel sinuosity 0-50-410Sediment input0-50-411Size & diversity of channel serve sizes = max points)0-50-412Evidence of channel incision or widening0-50-413Size & diversity of channel bed substrateNA*0-414(extensive deposition = 0; large, diverse sizes = max points)0-50-413Size & diversity of banks failures0-50-514Root depth and density on banks0-50-515Impact by agriculture, livestock, or timber production0-50-416Presence of major bank failures0-30-517Habitat complexity0-50-418Impact by agriculture, livestock, or timber production0-50-519Substrate ambeddedness0-30-50-510Stattati alimpact =0; no evidence = max points)0-50-5 <td< td=""><td>3(extensive and auton = max points)0 - 60 - 40 - 54(b) of the format a concern (concern)0 - 60 - 40 - 54(extensive discharges = 0, no discharges = max points)0 - 50 - 40 - 45(c) of scharge = 0, springs, seeps, wetlands, etc. = max points)0 - 30 - 40 - 46Presence of adjacent floodplain = max points)0 - 40 - 40 - 27Entrechment / floodplain = max points)0 - 50 - 40 - 28Presence of adjacent wetlands = max points)0 - 50 - 40 - 29Channel sinuosity0 - 50 - 40 - 29Channel sinuosity0 - 50 - 40 - 310(extensive channel:sinuosity)0 - 50 - 40 - 311Size & diversity of channel bed substrateNA*0 - 50 - 412Evidence of thannel incision or widening0 - 50 - 40 - 513Rester of adjacen tose lands0 - 50 - 40 - 514Root depti and density on banks0 - 50 - 40 - 515Impact by agriculture, livestock, or timber production0 - 50 - 40 - 516Presence of infloe-polytiple-pol complexes0 - 50 - 40 - 516Rate of the of the of the optical state set of throughout = max points)0 - 50 - 40 - 516Rate of the optical set of throughout = max points)0 - 50 - 50 - 517Habitat complex</td></td<>	3(extensive and auton = max points)0 - 60 - 40 - 54(b) of the format a concern (concern)0 - 60 - 40 - 54(extensive discharges = 0, no discharges = max points)0 - 50 - 40 - 45(c) of scharge = 0, springs, seeps, wetlands, etc. = max points)0 - 30 - 40 - 46Presence of adjacent floodplain = max points)0 - 40 - 40 - 27Entrechment / floodplain = max points)0 - 50 - 40 - 28Presence of adjacent wetlands = max points)0 - 50 - 40 - 29Channel sinuosity0 - 50 - 40 - 29Channel sinuosity0 - 50 - 40 - 310(extensive channel:sinuosity)0 - 50 - 40 - 311Size & diversity of channel bed substrateNA*0 - 50 - 412Evidence of thannel incision or widening0 - 50 - 40 - 513Rester of adjacen tose lands0 - 50 - 40 - 514Root depti and density on banks0 - 50 - 40 - 515Impact by agriculture, livestock, or timber production0 - 50 - 40 - 516Presence of infloe-polytiple-pol complexes0 - 50 - 40 - 516Rate of the of the of the optical state set of throughout = max points)0 - 50 - 40 - 516Rate of the optical set of throughout = max points)0 - 50 - 50 - 517Habitat complex

* These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification For	m Version 4.11	51	14022	
Date: 10/6/14	Project/Site: A	cp	Latitude: 36° d	9 68 143"
Evaluator: DOWEST	County: Hali-	fax	Longitude:	
Total Points: Stream is at least intermittent 32.5^{i} $if \ge 19$ or perennial if $\ge 30^{*}$		nation (circle one) rmittent Perennia		to Fishing Creek
A. Geomorphology (Subtotal = 15)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1	\bigcirc	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
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		1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No	Ð	Yes	= 3
^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 9.5)				
12. Presence of Baseflow	0			2
		1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	0	0.5	0
15. Sediment on plants or debris	0	0.5	(1)	1.5
16. Organic debris lines or piles17. Soil-based evidence of high water table?	0	0.5	1	1.5
C. Biology (Subtotal =)		0 = 0	Yes	= 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)	0		2	3
21. Aquatic Mollusks		$-\frac{1}{1}$	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	(T)	1.5
24. Amphibians	0	0.5	- 2	1.5
25. Algae	0	0.5		1.5
26. Wetland plants in streambed		and the second sec	BL = 1.5 Other € 0	
*perennial streams may also be identified using other method	ods. See n. 35 of manua			
Notes:				
Sketch: AR 85			whiko3	ЧĘ
	sh	12022		



Waterbody shlh022 facing upstream



Waterbody shlh022 facing downstream



Waterbody shlh022 facing upline cross stream

USA	CE	AI	D#

DWQ #

SAL601

Site #____ (indicate on attached map)

STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach un	
1. Applicant's name: Donuno-	2. Evaluator's name: DAD
3. Date of evaluation: 7/22/14	4. Time of evaluation: 1:30
5. Name of stream: UNT to Fishing Cruck	6. River basin: Roandle
7. Approximate drainage area: 720 aves	8. Stream order: Unlaw
9. Length of reach evaluated: ZDO '	10. County:Malify
11. Site coordinates (if known): prefer in decimal degrees.	12 Subdivision difference
Latitude (ex. 34.872312): 36° 08' 51. 399"	Longitude (ex. -77.556611): $77^{\circ}47'37.202^{\prime\prime}$
Method location determined (circle): GPS Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and Farm Rocal Upgradent, good burler 14. Proposed channel work (if any): North 15. Recent weather conditions: Normal	Aerial) Photo/GIS Other GIS Other
14. Proposed channel work (if any): None	
16. Site conditions at time of visit: Typical	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Outstanding Resource Waters	Nutrient Sensitive Waters Water Send My
To is there a poild of take located upstream of the evaluation po	bint? YES NO If yes, estimate the water surface area: Lorknow
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
40% Forested	23. Bank height (from bed to top of bank): 3/ Gentle (2 to 4%) Moderate (4 to 10%) Sterr (> 10%)
22. Bankfull width:	23. Bank height (from bed to top of bank): 31
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	
location, terrain, vegetation, stream classification, etc. Every cl to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should refle characteristic cannot be evaluated due to site or weather cond comment section. Where there are obvious changes in the char into a forest), the stream may be divided into smaller range at the	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points gion. Page 3 provides a brief description of how to review the eet an overall assessment of the stream reach under evaluation. If a itions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture 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): 72 You on up-gadent side of Form road Stark at culvert Grack Farm Road Evaluator's Signature_ 2

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

STREAM	QUALIT	Y ASSESSMENT	WORKSHEET
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	#	CHARACTERISTICS	ECOREC	GION POINT	F RANGE	
	<u>п</u>	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	5
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	3
	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	4
CAL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	3
PH	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	4
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0 - 3	4
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
L	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0 - 5	4
TAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0 - 3	0-4	0-5	3
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0 - 5	43
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	Z
HABITAT	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	
A	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	3
00	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
	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	
		TOTAL SCORE (also enter on fir	st page)			77

* These characteristics are not assessed in coastal streams.

5116011

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

Date: 7/22/14	Project/Site:	SEPP	Latitude: 36	°18'51 3
Evaluator: D+D	County: Hu	i kex	Longitude: 7	7°47'37 2
Total Points: Stream is at least intermittent $if \ge 19$ or perennial if $\ge 30^*$	Stream Determi Ephemeral Inte	nation (circle one) rmittent Perennial	Longitude: 7 Other (e.g. Quad Name:	INT to Fish
A. Geomorphology (Subtotal = 12)	Absent	Weak	Moderate	Ctuana
1 ^a Continuity of channel bed and bank	0	1	woderate	Strong
2. Sinuosity of channel along thalweg	0	1	Ó	3
3. In-channel structure: ex. riffle-pool, step-pool.			~	3
ripple-pool sequence	0	1	(2)	3
 Particle size of stream substrate 	0	1	Ø	3
5. Active/relict floodplain	0	(1)	2	3
Depositional bars or benches	0	(1)	2	3
. Recent alluvial deposits	(0)	1	2	3
. Headcuts	10	1	2	3
. Grade control	- C	(0.5)	1	
0. Natural valley	0	0.5	1	1.5
1. Second or greater order channel		= 0)	Yes =	1.5
artificial ditches are not rated; see discussions in manual		Ž	res =	- 3
. Hydrology (Subtotal = 10.5)				
2. Presence of Baseflow	0	4		
3. Iron oxidizing bacteria		1	2	(3)
Leaf litter		1	2	3
5. Sediment on plants or debris	(1.5)	1	0.5	0
. Organic debris lines or piles	0	0.5	1	1.5
. Soil-based evidence of high water table?	0		1	1.5
	No	= 0	(Yes =	3
Biology (Subtotal = 11.5)				2
3. Fibrous roots in streambed	(3)	2	1	0
9. Rooted upland plants in streambed	(3)	2	1	0
Macrobenthos (note diversity and abundance)	0	1	(2)	3
1. Aquatic Mollusks	0	(1)	2	3
2. Fish	Q	0.5	1	1.5
3. Crayfish	0	0.5	(1)	1.5
. Amphibians	0	0.5	65	
. Algae	0	(0.5)		1.5
. Wetland plants in streambed		FACW = 0.75; OBL =	-15 (0)	1.5
erennial streams may also be identified using other method	s See n 35 of manual	1 ACW - 0.73, OBL -	- 1.5 (Other = 0	/
ites:	e. eee p. ee of manual.			
etch:	shlg011			
	Y			

shlg011



Waterbody shlg011 facing west upstream



Waterbody shlg011 facing east downstream

shlg011



Waterbody shlg011 facing south cross stream

OHL6002

Open Waterbody Data Sheet

	and a second						
Project Name:		Waterbody N			Waterbody ID:	Da	te:
Southeastern Re		Unnamed	d Pond to Fishing	g Creek	Ohlgooz		1/22/14
State:	County:		Company:	Crev	w Member Initials:	Photos:	100/11
pe	Mulitax		D+D		BSL	λ	
Tract Number(s):			Nearest Milepost:			D(s):	
17-1	10		325		INHL60	$211F - \alpha$	lown grad
Survey Type: (check one)	⊠Centerli					-111 0	Jun grad
Dhuming I Add th	······································		e-Route	Access Road	Other:		
Physical Attribu Waterbody Type:	utes						
	tock Pond 🛛 Natura	al Pond 🗌 Laki	e 🗆 Reservoir 🕅	mpoundment	Oxbow Other		
Hydrologic Regime	2						
онwм	Permanently	· · · · ·	Semipermanently Flo	oded 🗌 Sea	sonally Flooded	Temporarily FI	ooded
	OHWM Ind (check all that a		Clear line	Shelving			×_A.
Height: 41	ft.		on bank	Loneiving	□Wrested vegetation	Scouring	I XWater staining
	XiBen	t, matted, or mis		□Litter and	□Abrupt plant	Soil charge	Ũ
	vegeta	ation	line	debris	community cha	inge	nonanc onange
Depth of Water:	, 1	Bank height	(average):		Bank slope (avera	age): ,	
	ft.		ft.			degree	s
	□No water 🕅	Clear □Tur	bid □Sheen on surface	⊡ Surface scum	e ⊡Algal ⊡C mats	ther:	
heck all that apply)	Bedrock Bo	oulder 🗆 Cob	on surface ble □ Gravel ♀	scum ƘSand D∕XSi	mats lt/ clay ⊑XOrganic	ther:	
check all that apply) 6 of Substrate:	Bedrock Bo	oulder 🗌 Cob	on surface ble □ Gravel ♀	scum	mats	Other:	
theck all that apply) of Substrate: Jidth of Riparian Zo	Bedrock Bo	oulder □ Cob % Layers:	on surface ble	scum ƘSand D∕XSi	mats		
check all that apply) 6 of Substrate:	□ Bedrock □ Bo	oulder □ Cob % Layers:	on surface ble □ Gravel ♀	scum Sand XSi 40_% 40	mats	Other:	
where k all that apply) 6 of Substrate: Width of Riparian Zo 40° ft.	Bedrock Be	oulder □ Cob % Layers:	on surface ble Gravel _%% KTrees:	scum KSand ∑Si 40_% _40 ⊠ Sar	mats	Other: %	
1/4	Bedrock Be % Vegetative (check all that a Avg. DBH (approx.)	oulder □ Cob % Layers: apply)	on surface ble	scum KSand ∑Si 40_% _40 ⊠ Sar	mats	Other:	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40¹ ft</u> .	Bedrock Be % bne: Vegetative (check all that a Avg. DBH a (approx.) btation (lict):	Dulder □ Cob % Layers: apply) of Dominants:	on surface ble Gravel 9 _%% _% Trees: in.	scum Sand Si 40 % 40 San San 3	mats	Other: %	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40¹ ft</u> . Informat Bank Vege Uncodencede	Bedrock Bo % Vegetative (check all that a (check all that a Avg. DBH (approx.) etation (list): Called L, J	Dullder Cob % Layers: apply) of Dominants: Chulc. Nigna	on surface ble Gravel 9 _%%%%% Trees: fin	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3 (10) (10) (10) (10) (10) (10) (10) (10	mats	□ Other: % KHerbs in.	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40¹ ft</u> . Informat Bank Vege Uncodencede	Bedrock Bo % Vegetative (check all that a (check all that a Avg. DBH (approx.) etation (list): Called L, J	Dullder Cob % Layers: apply) of Dominants: Chulc. Nigna	on surface ble Gravel 9 _%%%%% Trees: fin	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3 (10) (10) (10) (10) (10) (10) (10) (10	mats	□ Other: % KHerbs in.	
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check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40^tft</u> . IA In the second second second second In Conducted descent second	Bedrock Bo	Dullder Cob % Layers: apply) of Dominants: Chulc. Nigna	on surface ble Gravel 9 _%%%%% Trees: fin	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3) (3 San	mats	□ Other: % KHerbs in.	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40 ¹ ft</u> . MAX Pominant Bank Vege <i>UCCALUAR</i> quatic Habitats (ex: quatic Organisms C	Bedrock Be % % % % % % % % % % % % % % % % % % %	Dullder Cob % Layers: apply) of Dominants: Chulc. Nigna	on surface ble Gravel 9 _%%%%% Trees: fin	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3) (3 San	mats	□ Other: % KHerbs in.	
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Check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40 [†]</u> ft. Mage Mominant Bank Vege Mccdwordd quatic Habitats (ex: quatic Organisms C &E Species Observe	Bedrock Be % % % % % % % % % % % % % % % % % % %	Dulder □ Cob % Layers: apply) of Dominants:	on surface	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3) (3 San	mats	□ Other: % KHerbs in.	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40 [†]</u> ft. Water Dominant Bank Vege <i>UCCAUER</i> Quatic Habitats (ex: quatic Organisms C &E Species Observe isturbances (ex: lives	Bedrock Be % % % % % % % % % % % % % % % % % % %	bulder Cob 	on surface ble Gravel _% _% _% _% _% ATrees: _6_in. , <i>Quicus phili</i> hanging banks/roots, leaf pa	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3) (3 San	mats	□ Other: % KHerbs in.	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40 [†]</u> ft. Water Dominant Bank Vege <i>UCCAUER</i> Quatic Habitats (ex: quatic Organisms C &E Species Observe isturbances (ex: lives	Bedrock Be % % % % % % % % % % % % % % % % % % %	bulder Cob 	on surface ble Gravel _% _% _% _% _% ATrees: _6_in. , <i>Quicus phili</i> hanging banks/roots, leaf pa	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3) (3 San	mats	□ Other: % KHerbs in.	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40¹</u> ft. Informinant Bank Vege Uncodimende quatic Habitats (ex: quatic Organisms C &E Species Observe isturbances (ex: lives Farm aterbody is:	Bedrock Be %	Dulder Cob %	on surface ble Gravel	SCUM	mats	□ Other: % KHerbs in.	
check all that apply) 6 of Substrate: Vidth of Riparian Zo <u>40^tft</u> . Dominant Bank Vege <i>Wccdwardu</i> quatic Habitats (ex: quatic Organisms C &E Species Observe isturbances (ex: lives <i>Farm</i>	Bedrock Be % % % % % % % % % % % % % % % % % % %	bulder Cob 	on surface ble Gravel	scum (Sand) (Sand) (40 % 40) (3 San 3 (10) (3 San 3) (3 San	mats	□ Other: % KHerbs in.	

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Waterbody ID:

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.

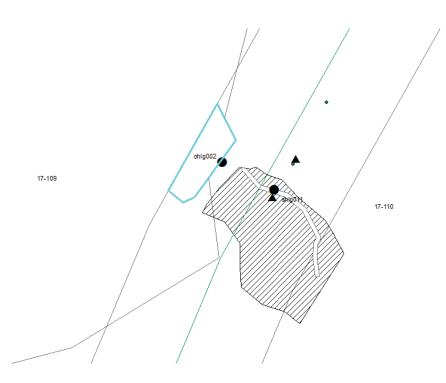
Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers 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:

ond - impainded by form Road

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point locations, survey boundary, and IDs of associated features)



ohlg002



Open water ohlg002 facing west



Open water ohlg002 facing north

ohlg002



Open water ohlg002 facing west



Open water ohlg002 facing north