

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: saua408
State: Virginia		County: Augusta	Company: NRG - ERM	Crew Member Initials: GB, SH
Tract Number(s): 07-001-F002		Nearest Milepost: 107.2		Associated Wetland ID(s): none
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes <input checked="" type="checkbox"/>				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 15.0 ft. Height: 0.50 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: 20.0 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 6.0 ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> 4.0 ft.	Depth of Water: (Approx.) N/A <input type="checkbox"/> 0.15 ft.	
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: (Approx.) 0.33 fps N/A <input type="checkbox"/>	Bank height Right: 10.0 ft. Left: 7.0 ft.	Bank slope Right: 60 degrees Left: 60 degrees	
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: _____ % 15 % 35 % 20 % 15 % 5 % 10 % _____ %				
Width of Riparian Zone: N/A <input checked="" type="checkbox"/> _____ ft.	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: (approx.) 12.0 in. 1.0 in.			
Dominant Bank Vegetation (list): Chestnut oak, white pine, sweet birch, white ash, red oak, sugar maple, striped maple, spicebush, mountain laurel, Virginia creeper, greenbrier, poison ivy, meadow rue, twisted stalk, mayapple				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Leaf packs, woody debris				
Aquatic Organisms Observed (list): invertebrates				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None apparent				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

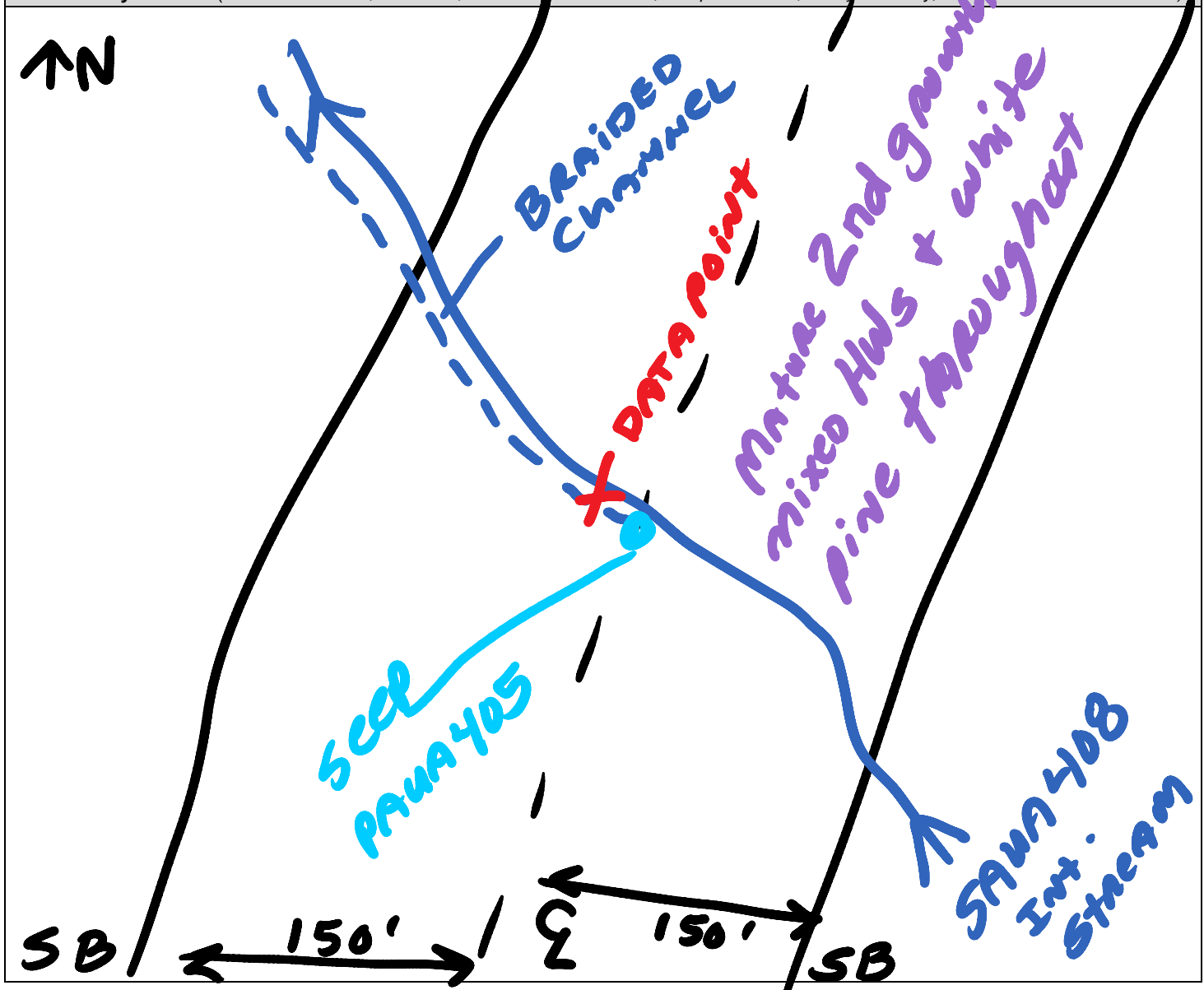
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Stream continues out of corridor in both directions; channel is braided downstream of centerline; seep paua405 supplies water to channel braid at centerline; mature second growth mixed hardwoods with white pine element throughout survey corridor.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and U.S. of associated features)





Waterbody sau408 facing south upstream



Waterbody sau408 facing north downstream



Waterbody sau408 facing west across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: sauz016
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS
Tract Number(s): 07-001-F002		Nearest Milepost: 107		Photos: 1-3
Associated Wetland ID(s): wauz013s				
Survey Type: (check one) <input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input checked="" type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 3 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 4 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 4 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 3 ft.		Width of Waterbody - Water Edge to Water Edge: 2 ft.
Depth of Water: (Approx.) 0.3 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 0.5 fps		Bank height Right: 0.5 ft. Left: 0.5 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 60 degrees Left: 60 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % _____ % 10 % 80 % _____ % 10 % _____ % _____ %				
Width of Riparian Zone: 250+ ft.		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.) 10 in. 2 in.		
Dominant Bank Vegetation (list): Liriodendron tulipifera, Pinus strobes, Parthenocissus quinquefolia				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz016

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

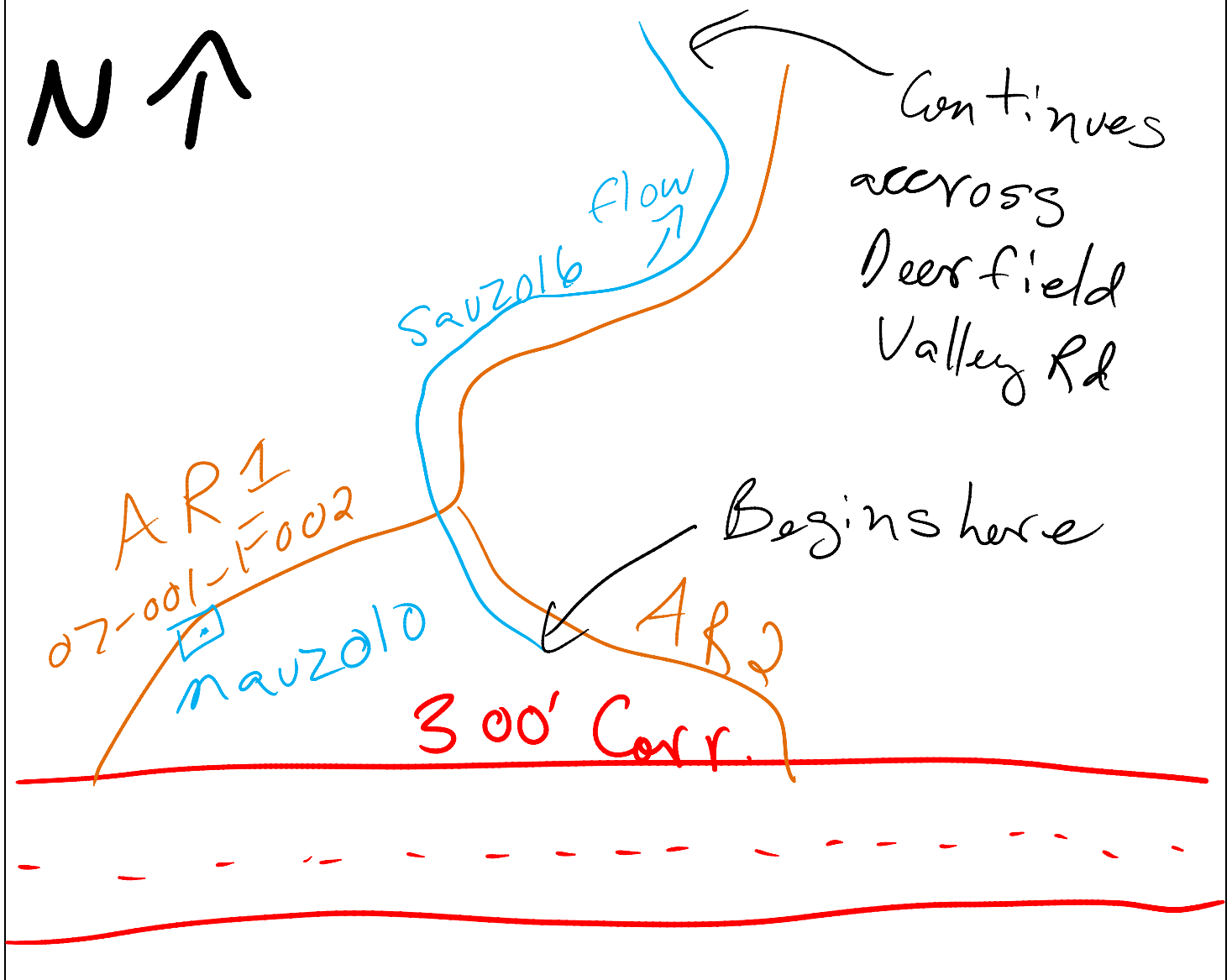
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

This stream follows the access road and eventually crosses Deerfield Valley Road after passing through a pond.

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





Waterbody sauz016 facing east across



Waterbody sauz016 facing north downstream



Waterbody sauz016 facing south upstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: sauz015
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS
Tract Number(s): 07-001-F004		Nearest Milepost: 107.3		Photos: 1-3
Associated Wetland ID(s): None				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 1 ft. Height: 0.5 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: 2 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 1 ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/>	Depth of Water: (Approx.) N/A <input checked="" type="checkbox"/>	
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: (Approx.) N/A <input checked="" type="checkbox"/>	Bank height Right: 1 ft. Left: 1 ft.	Bank slope Right: 45 degrees Left: 45 degrees	
Qualitative Attributes				
Water Appearance: (check one) <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: _____% _____% _____% _____% _____% 100% _____% _____%				
Width of Riparian Zone: 250+ ft. N/A <input type="checkbox"/>	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: (approx.) 8 in. 1 in.			
Dominant Bank Vegetation (list): Pinus strobes, Acer pennsylvanicum				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz015

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

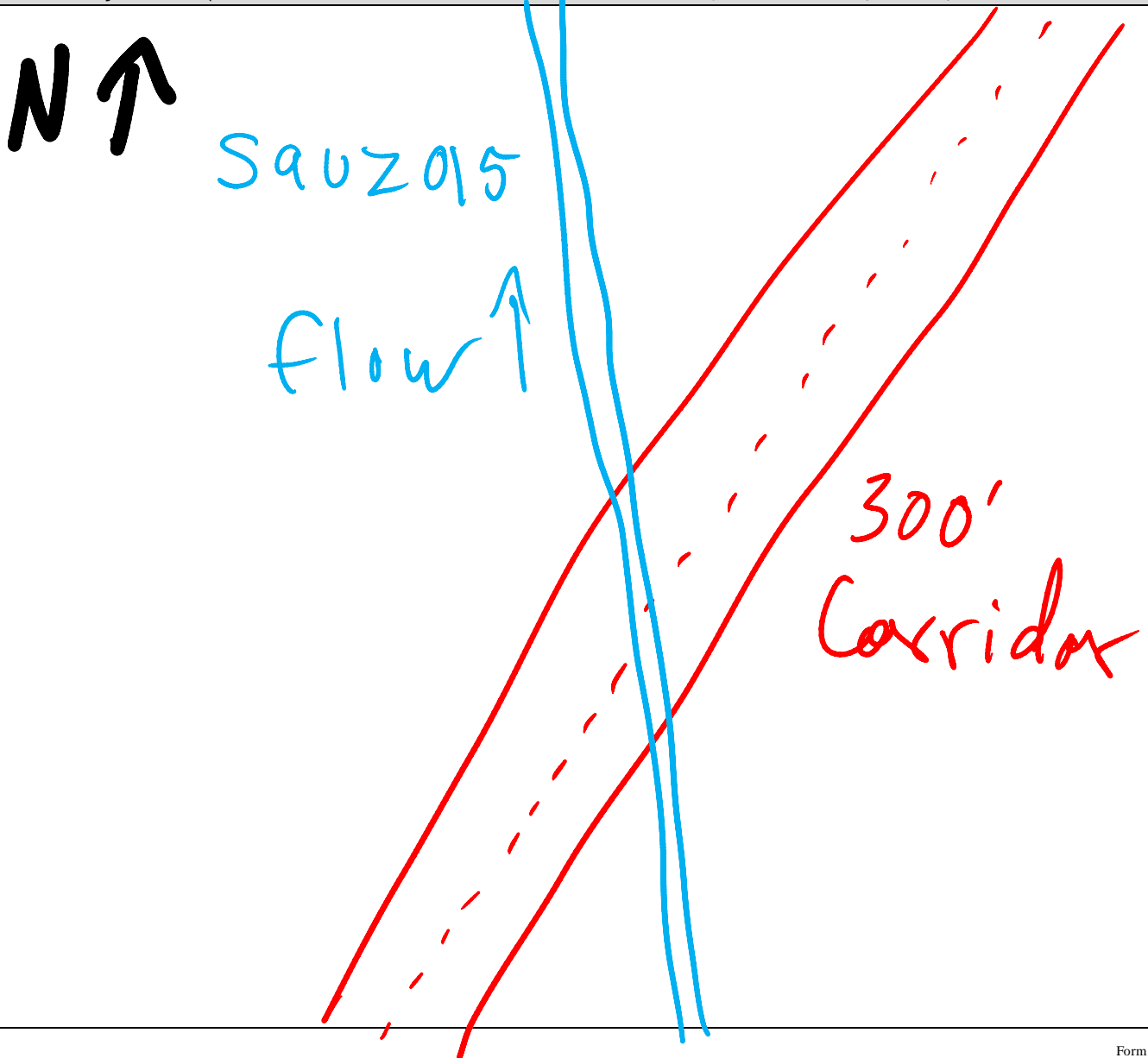
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

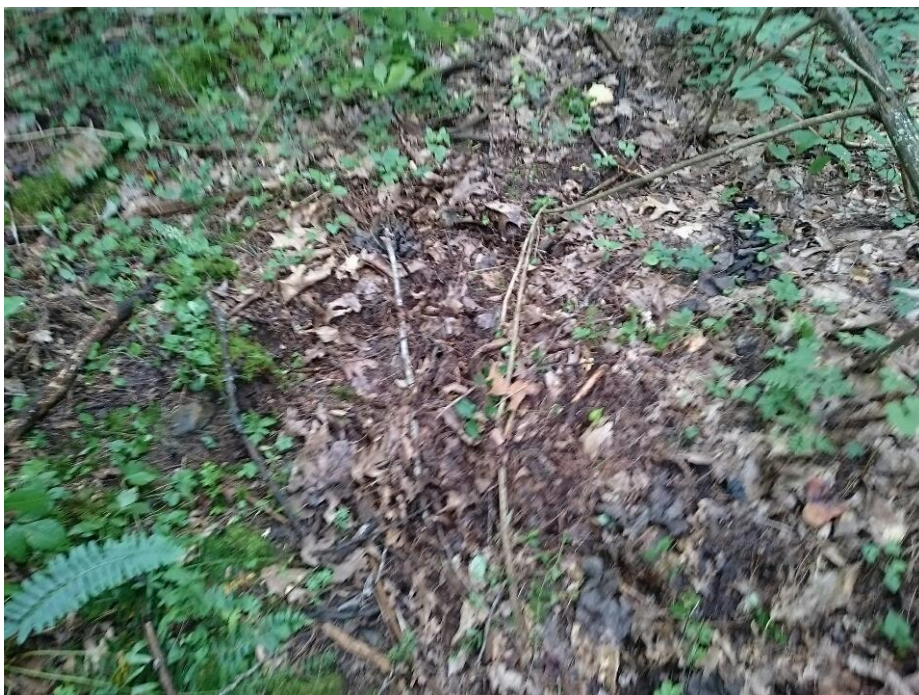
This is a small ephemeral stream that starts at a knickpoint.

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





Waterbody SAUZ015 facing southeast upstream



Waterbody SAUZ015 facing northwest downstream



Waterbody SAUZ015 facing northeast across

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Saur 02D</u>	Date: <u>3-29-16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>KM, WV</u>	Photos: <u>S, N, E</u>	
Tract Number(s): <u>07-001-F007, F008</u>		Nearest Milepost: <u>107.5</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 6 ft.

Height: 0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☒ Scouring ☐ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

9 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

4 ft.

Width of Waterbody - Water Edge to Water Edge:

6 ft.

N/A ☐

Depth of Water: (Approx.)

0.1 ft.

N/A ☐

Sinuosity:

(check one) ☐ Straight ☒ Meandering

Water velocity:

(Approx.)

1 fps

N/A ☐

Bank height

Right: 1 ft.

Left: 1 ft.

Bank slope

Right: 30 degrees

Left: 45 degrees

Qualitative Attributes

Water Appearance:

(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☒ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____ % 5 % 20 % 35 % 10 % 30 % _____ % _____ %

Width of Riparian Zone:

100 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees: 13 in. ☒ Saplings/Shrubs: 4 in. ☒ Herbs: NA in.

Avg. DBH of Dominants: (approx.)

Dominant Bank Vegetation (list):

Carpinus caroliniana, Platanus occidentalis, Rosa mult. flora

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

overhanging banks, leaf packs, riffles, deep pools

Aquatic Organisms Observed (list):

salamander, caddis fly

T&E Species Observed (list):

none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

none

Tributary is:

(check one) ☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality:

(check one) ☒ High ☐ Moderate ☐ Low

Waterbody ID:

Saur 020

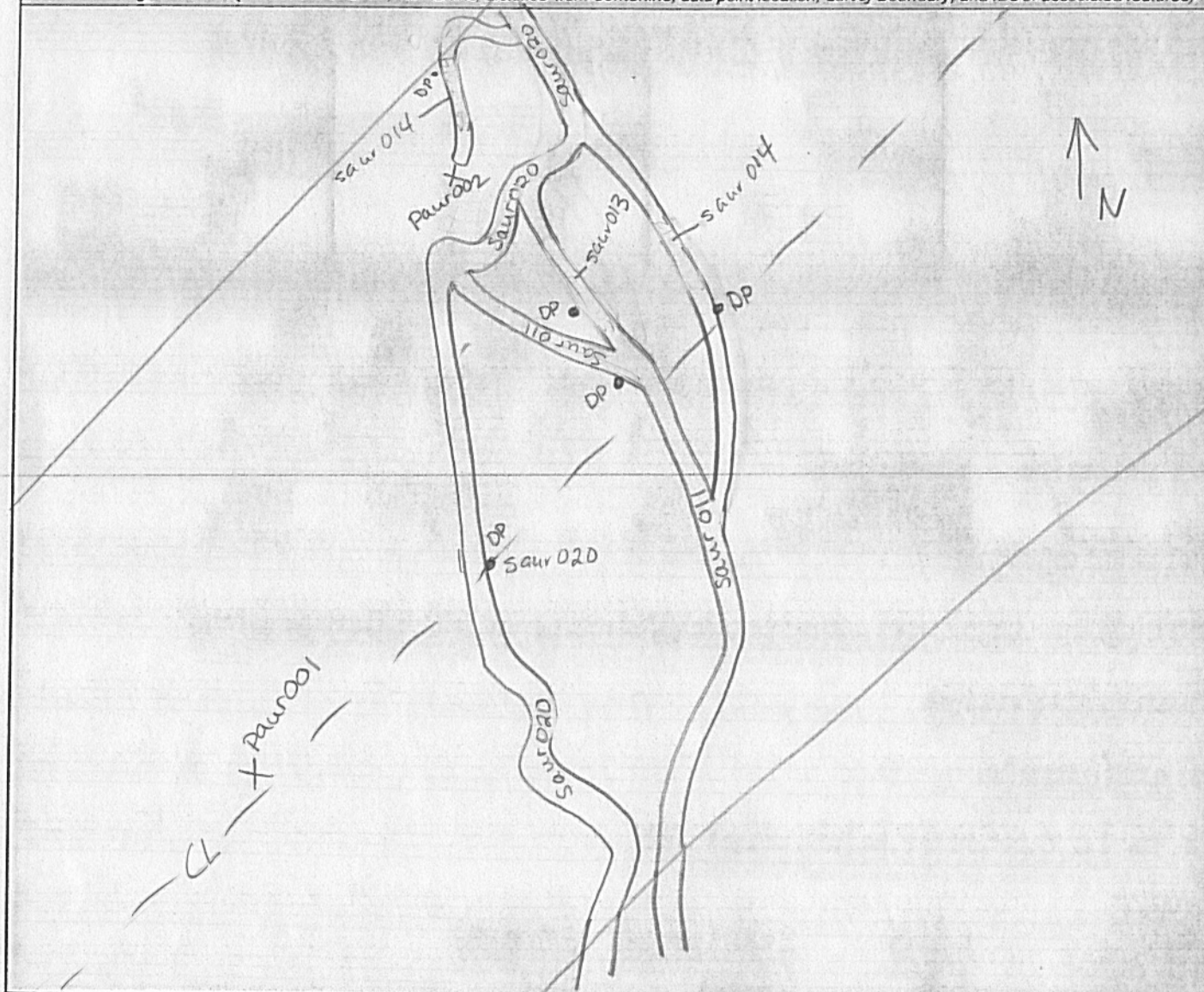
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur020 facing south upstream.



Waterbody data point saur020 facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur020 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: ACP		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: Saur 011	Date: 3-29-16
State: VA	County/Parish: Augusta	Company: EST	Crew Member Initials: KM-WV	Photos: SE, NW, NE	
Tract Number(s): 07-001-F007		Nearest Milepost: 107.5		Associated Wetland ID(s): None	

Survey Type:

(check one)

☒ Centerline

☐ Re-Route

☐ Access Road

☐ Other:

Physical Attributes

Stream Classification:

(check one)

☐ Ephemeral

☐ Intermittent

☒ Perennial

Waterbody Type:

(check one)

☐ River

☒ Stream

☐ Ditch

☐ Canal

☐ Other:

OHWM

Width:

3 ft.

Height:

0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank

☐ Shelving

☐ Wrested vegetation

☐ Scouring

☐ Water staining

☒ Bent, matted, or missing vegetation

☒ Wrack line

☒ Litter and debris

☐ Abrupt plant community change

☐ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

6 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

2 ft.

Width of Waterbody - Water Edge to Water Edge:

3 ft.

N/A ☐

Depth of Water:

(Approx.)

0.1 ft.

N/A ☐

Sinuosity:

(check one)

☐ Straight

☒ Meandering

Water velocity:

(Approx.)

1 fps

N/A ☐

Bank height

Right: 1 ft.

Left: 2 ft.

Bank slope

Right: 20 degrees

Left: 35 degrees

Qualitative Attributes

Water Appearance:

(check one)

☐ No water

☒ Clear

☐ Turbid

☐ Sheen on surface

☐ Surface scum

☐ Algal mats

☐ Other:

Substrate:

(check all that apply)

☐ Bedrock

☐ Boulder

☒ Cobble

☒ Gravel

☒ Sand

☒ Silt/clay

☐ Organic

☐ Other:

% of Substrate:

0%

0%

10%

30%

30%

30%

0%

0%

Width of Riparian Zone:

(check one)

100 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees:

14 in.

☒ Saplings/Shrubs:

3 in.

☒ Herbs

NA in.

Dominant Bank Vegetation (list):

Carya tomentosa, Carpinus caroliniana

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

leaf packs, submerged wood, riffles, deep pools

Aquatic Organisms Observed (list):

Salmonids, mayfly, caddisfly

T&E Species Observed (list):

None observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None

Tributary is:

(check one)

☒ Natural

☐ Artificial, man-made

☐ Manipulated

Stream Quality*:

(check one)

☐ High

☒ Moderate

☐ Low

Waterbody ID:

Saur011

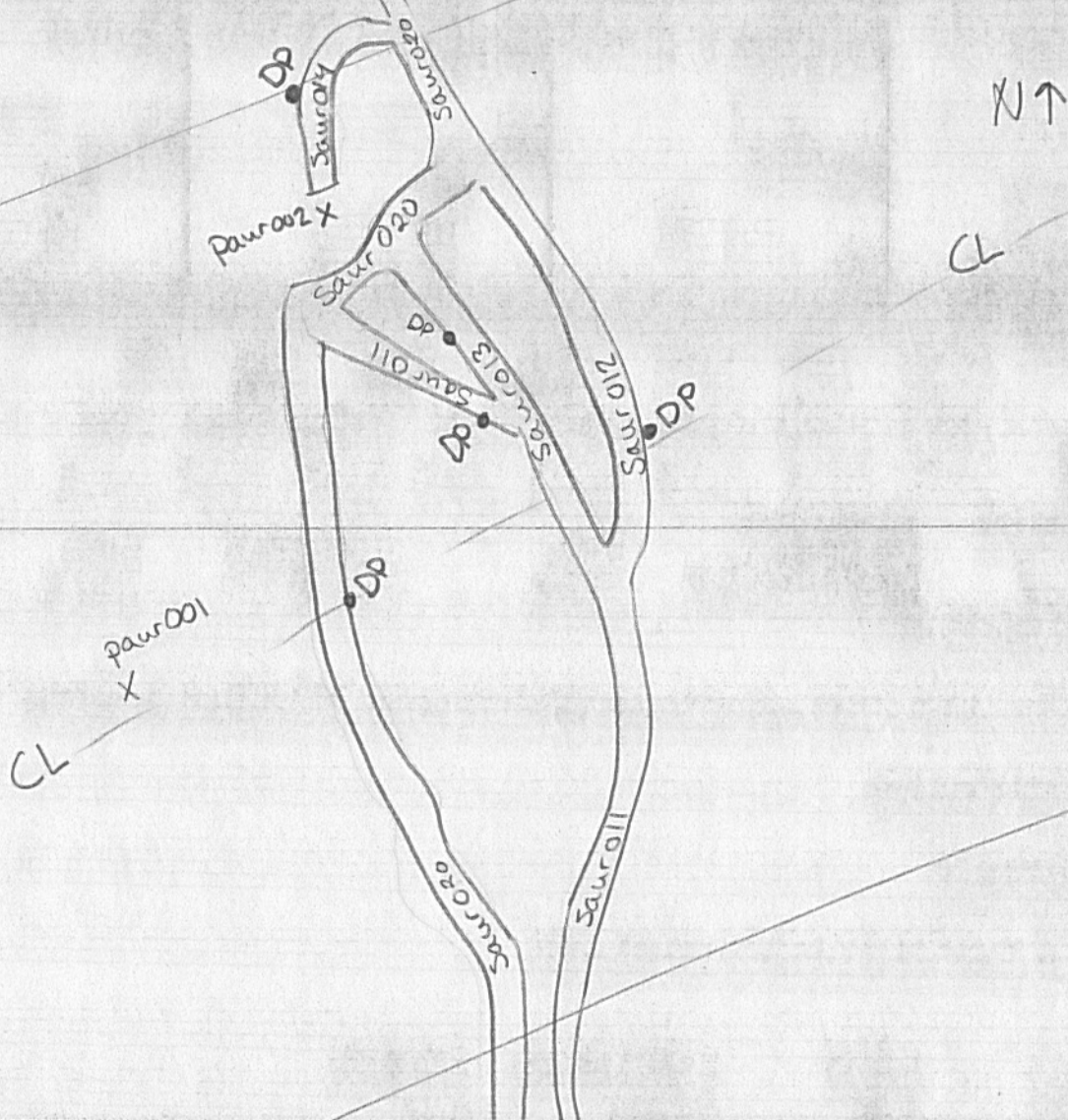
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur011 facing southeast upstream.



Waterbody data point saur011 facing northwest downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur011 facing northeast across bank.

Linear Waterbody Data Sheet

Survey Description		Waterbody Name:		Waterbody ID:	Date:
Project Name: ACP		UNT to Hamilton Branch		Saur 013	3-29-16
State:	County/Parish:	Company:	Crew Member Initials:	Photos:	
VA	Augusta	ESI	KM, WV	S, N, E	
Tract Number(s):		Nearest Milepost:		Associated Wetland ID(s):	
07-001-F007		107.5		none	
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:					
Physical Attributes					
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial					
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:					
OHWM Width: 2 ft. Height: 0.1 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change			
Width of Waterbody - Top of Bank to Top of Bank: 6 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.		Width of Waterbody - Water Edge to Water Edge: 2 ft.	
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: (Approx.) 1 fps N/A <input type="checkbox"/>		Bank height Right: 1 ft. Left: 2 ft.	
				Bank slope Right: 30 degrees Left: 45 degrees	
Qualitative Attributes					
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:					
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:					
% of Substrate: _____% _____% 10% 70% 5% 15% _____% _____%					
Width of Riparian Zone: 100 ft. N/A <input type="checkbox"/>		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: 18 in. <input checked="" type="checkbox"/> Saplings/Shrubs: 3 in. <input checked="" type="checkbox"/> Herbs: NA in. Avg. DBH of Dominants: (approx.)			
Dominant Bank Vegetation (list): Platanus occidentalis, Cornus florida, Carpinus caroliniana					
Aquatic Habitats (ex submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): overhanging banks, riffles, deep pools					
Aquatic Organisms Observed (list): Caddisfly					
T&E Species Observed (list): none					
Disturbances (ex livestock access, manure in waterbody, waste discharge pipes): none					
Tributary Is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated					
Stream Quality*: (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low					

Waterbody ID:

Saur013

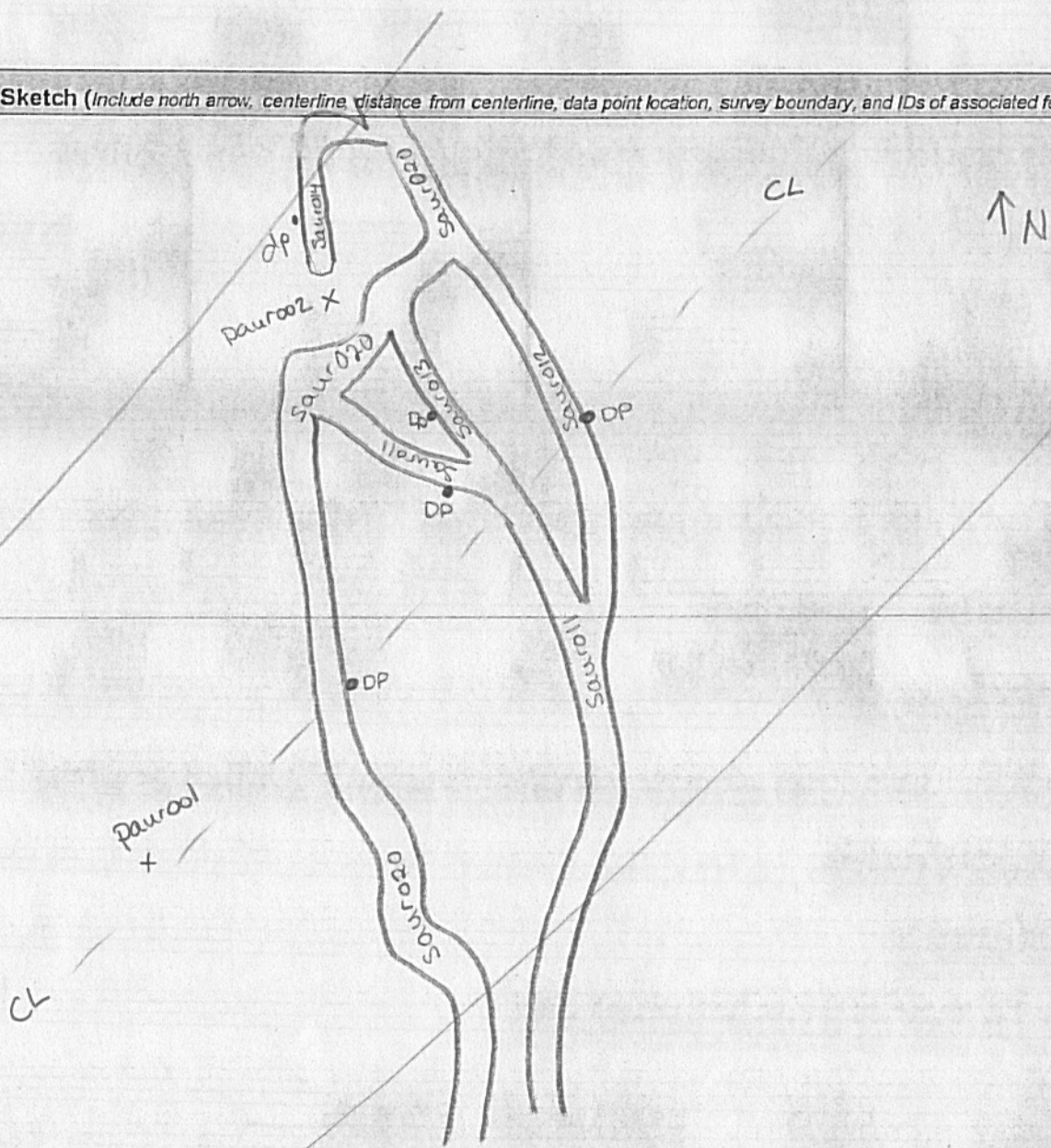
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur013 facing south upstream.



Waterbody data point saur013 facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur013 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Saur 012</u>	Date: <u>3-29-16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>KM, WV</u>	Photos: <u>S, N, E</u>	
Tract Number(s): <u>07-001 - F007</u>		Nearest Milepost: <u>107.5</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 2 ft.

Height: 0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☐ Water staining
☒ Bent, matted, or missing vegetation ☐ Wrack line ☒ Litter and debris ☐ Abrupt plant community change ☐ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

4 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

1 ft.

Width of Waterbody - Water Edge to Water Edge:

2 ft.

N/A ☐

Depth of Water:

(Approx.)

0.1 ft.

N/A ☐

Sinuosity:

(check one)

☐ Straight

☒ Meandering

Water velocity:

(Approx.)

1 fps

N/A ☐

Bank height

Right:

1 ft.

Left:

1 ft.

Bank slope

Right:

20 degrees

Left:

30 degrees

Qualitative Attributes

Water Appearance:

(check one)

☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☒ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate:

5 % 30 % 50 % 5 % 10 % % %

Width of Riparian Zone:

100 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees:

16 in.

☒ Saplings/Shrubs:

3 in.

☒ Herbs

NA in.

Dominant Bank Vegetation (list):

Carpinus caroliniana, Liriodendron tulipifera

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Submerged aquatic vegetation, overhanging roots, leaf packs, riffles, deep pools

Aquatic Organisms Observed (list):

Stonefly, mayfly, caddisfly

T&E Species Observed (list):

None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None

Tributary is:

(check one)

☒ Natural

☐ Artificial, man-made

☐ Manipulated

Stream Quality *:

(check one)

☒ High

☐ Moderate

☐ Low

Waterbody ID:

Saur 012

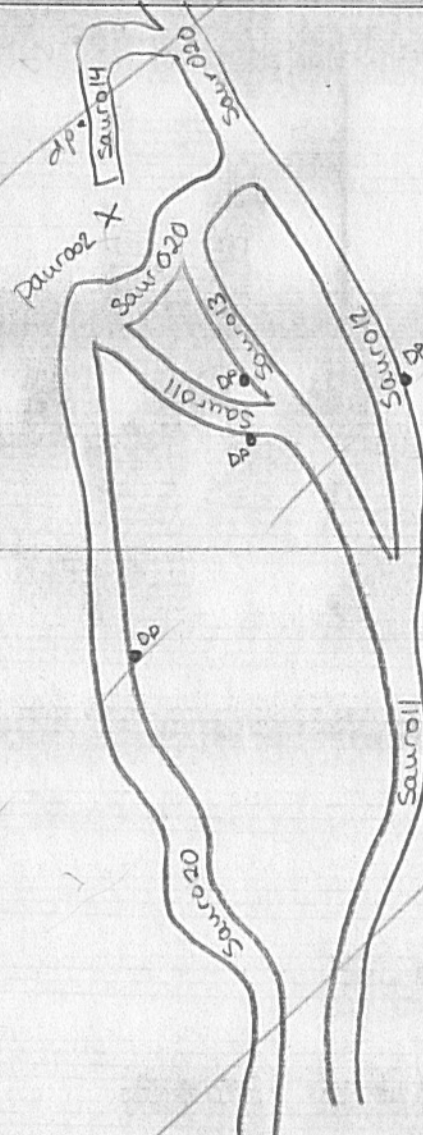
▪ **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur012 facing south upstream.



Waterbody data point saur012 facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur012 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>saur 014</u>	Date: <u>3-29</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>WV KM</u>	Photos: <u>SWN, SE</u>	
Tract Number(s): <u>07-001-007</u>		Nearest Milepost: <u>107.5</u>		Associated Wetland ID(s): <u>none</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 1 ft.

Height: 0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☐ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☒ Water staining
☒ Bent, matted, or missing vegetation ☐ Wrack line ☒ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

3 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

1 ft.

Width of Waterbody - Water Edge to Water Edge:

1 ft.
N/A ☐

Depth of Water:

(Approx.)

0.1 ft.
N/A ☐

Sinuosity:

(check one)

☐ Straight

☒ Meandering

Water velocity:

(Approx.)

< 1 fps

N/A ☐

Bank height

Right: 0.1 ft.

Left: 0.1 ft.

Bank slope

Right: 30 degrees

Left: 15 degrees

Qualitative Attributes

Water Appearance:

(check one)

☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/clay ☐ Organic ☐ Other:

% of Substrate:

50 % 40 % 10 % % %

Width of Riparian Zone:

100 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

Avg. DBH of Dominants:

(approx.)

☒ Trees:

14 in.

☒ Saplings/Shrubs:

3 in.

☒ Herbs

 in.

Dominant Bank Vegetation (list):

Rosa multiflora

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

aquatic vegetation, leaf packs, riffles

Aquatic Organisms Observed (list):

Caddisfly

T&E Species Observed (list):

None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None

Tributary Is:

(check one)

☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality *:

(check one)

☐ High ☒ Moderate ☐ Low

Waterbody ID:

Saur014

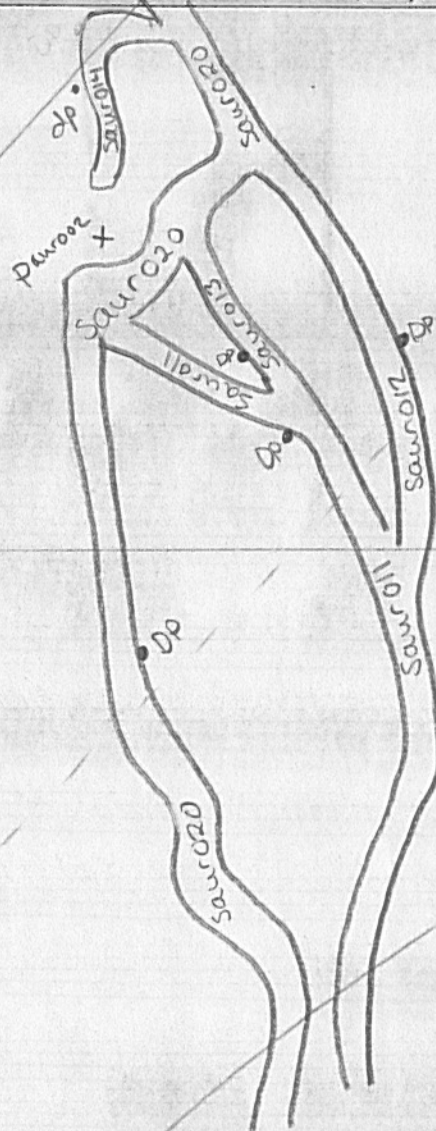
▪ **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur014 facing southwest upstream.



Waterbody data point saur014 facing northeast downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur014 facing southeast across bank.

Linear Waterbody Data Sheet

Survey Description		Waterbody Name:		Waterbody ID:	Date:
Project Name: ACP		UNT to Hamilton Branch		Saur015-i	3-29-16
State: VA	County/Parish: Augusta	Company: ESI	Crew Member Initials: KM, WV	Photos: SE, NW, NE	
Tract Number(s): 07-001-007		Nearest Milepost: 107.5		Associated Wetland ID(s): none	
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:					
Physical Attributes					
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial					
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:					
OHWM Width: 2 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining			
Height: 0.1 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input checked="" type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change			
N/A <input type="checkbox"/>					
Width of Waterbody - Top of Bank to Top of Bank: 3 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.		Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> NA ft.	
Depth of Water: (Approx.) N/A <input checked="" type="checkbox"/>					
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) N/A <input checked="" type="checkbox"/>		Bank height Right: 2 ft. Left: 2 ft.	
				Bank slope Right: 60 degrees Left: 80 degrees	
Qualitative Attributes					
Water Appearance: (check one) <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:					
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:					
% of Substrate: _____% _____% 60% 25% 15% _____% _____% _____%					
Width of Riparian Zone: 100 ft.		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: 12 in. <input checked="" type="checkbox"/> Saplings/Shrubs: 3 in. <input type="checkbox"/> Herbs _____ in.			
N/A <input type="checkbox"/>					
Dominant Bank Vegetation (list): Quercus velutina, Rosa multiflora, Allium canadense, Prunus serotina					
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Intermittent waters					
Aquatic Organisms Observed (list): none					
T&E Species Observed (list): none					
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): none					
Tributary Is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated					
Stream Quality: (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low					

Waterbody ID:

5aur015-i

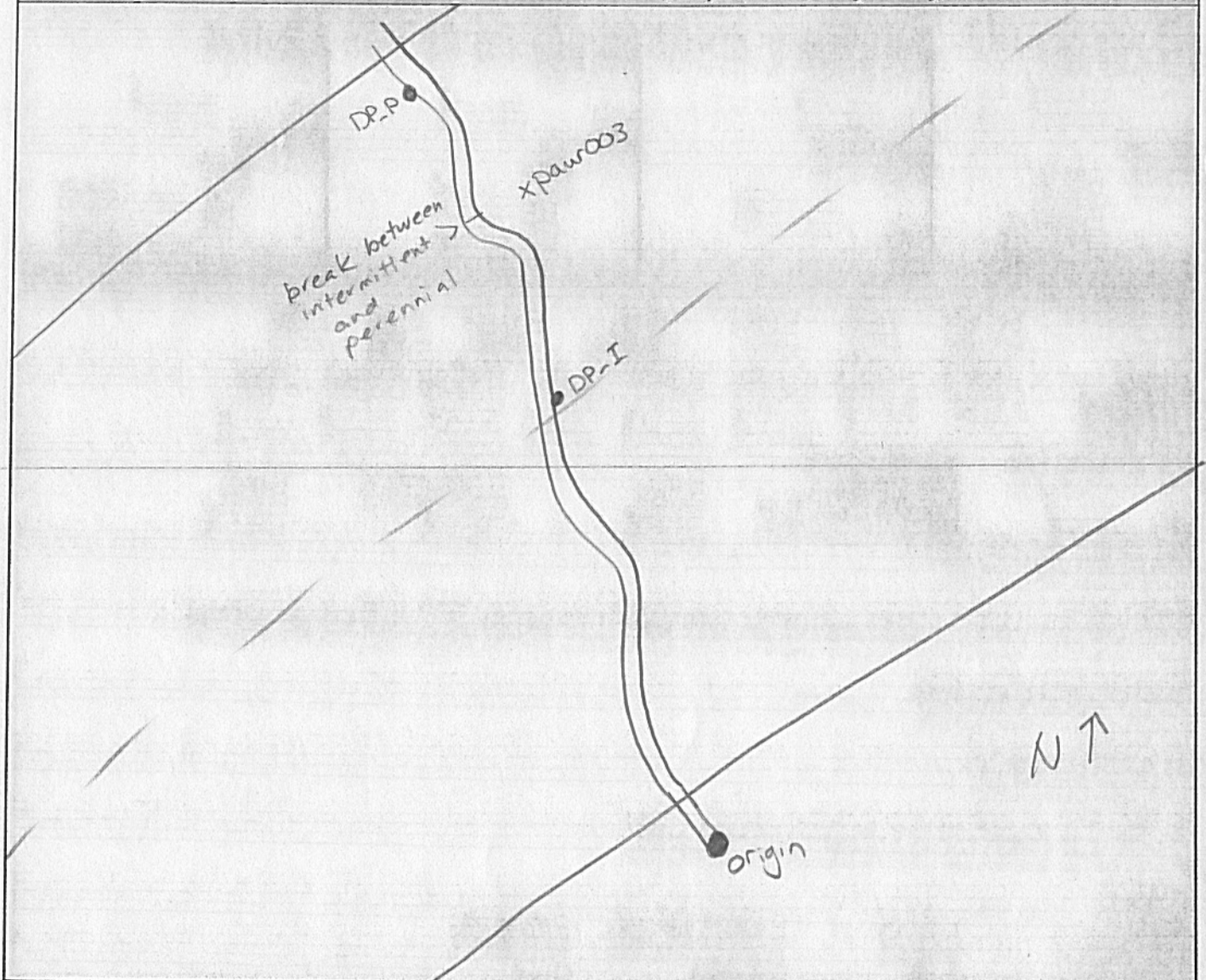
• **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid, obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015i facing southeast upstream.



Waterbody data point saur015i facing northwest downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015i facing northeast across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Saur 015-P</u>	Date: <u>3-29-16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>WV KM</u>	Photos: <u>S, N, E</u>	
Tract Number(s): <u>07-001-007</u>		Nearest Milepost: <u>107.5</u>		Associated Wetland ID(s): <u>none</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 1 ft.

Height: 0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☒ Wrested vegetation ☐ Scouring ☐ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☐ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

3 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

1 ft.

Width of Waterbody - Water Edge to Water Edge:

1 ft.

N/A ☐

Depth of Water: (Approx.)

0.1 ft.

N/A ☐

Sinuosity:

(check one) ☐ Straight ☒ Meandering

Water velocity:

(Approx.)

<1 fps

N/A ☐

Bank height

Right: 1 ft.

Left: 1 ft.

Bank slope

Right: 45 degrees

Left: 45 degrees

Qualitative Attributes

Water Appearance:

(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☐ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____% _____% 20% 10% 10% 60% _____% _____%

Width of Riparian Zone:

50 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees: 14 in. ☒ Saplings/Shrubs: 4 in. ☐ Herbs: _____ in.

Avg. DBH of Dominants: (approx.)

Dominant Bank Vegetation (list):

Rosa multiflora Acer rubrum Prunus serotina Liriodendron tulipifera

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

overhanging banks, leaf packs, riffles

Aquatic Organisms Observed (list):

caddisfly

T&E Species Observed (list):

none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None

Tributary Is:

(check one)

☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality *:

(check one)

☐ High ☒ Moderate ☐ Low

Waterbody ID:

saur015-P

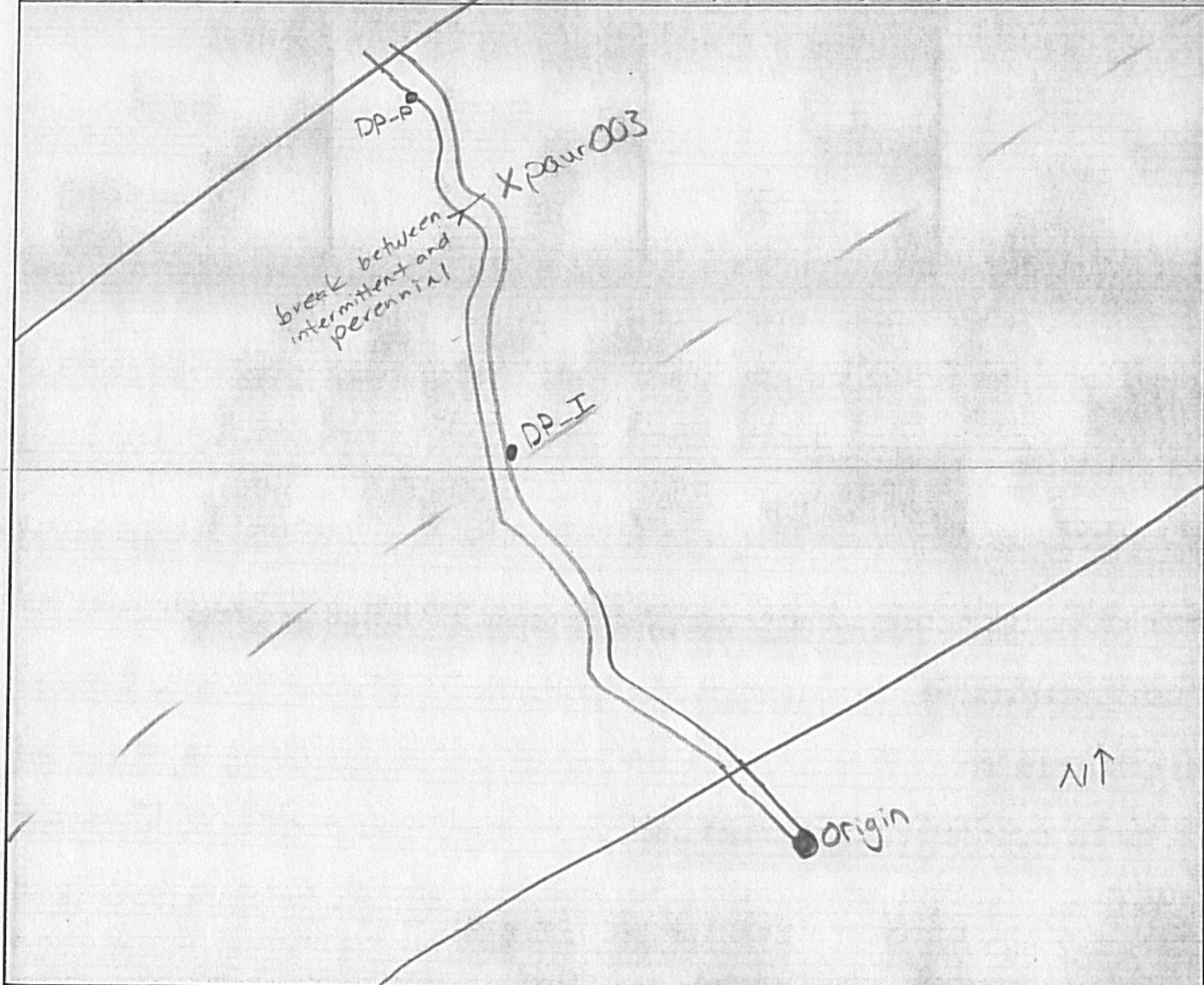
• **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015p facing south upstream.



Waterbody data point saur015p facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015p facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Saur015-i</u>	Date: <u>3-29-16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>KM, WV</u>	Photos: <u>SE, NW, NE</u>	
Tract Number(s): <u>07-001-007</u>		Nearest Milepost: <u>107.5</u>		Associated Wetland ID(s): <u>none</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☒ Intermittent ☐ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 2 ft.

Height: 0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☐ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☒ Litter and debris ☐ Abrupt plant community change ☐ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

3 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

2 ft.

Width of Waterbody - Water Edge to Water Edge:

N/A ☐ NA ft.

Depth of Water: (Approx.)

N/A ☒ NA ft.

Sinuosity:

(check one) ☒ Straight ☐ Meandering

Water velocity:

(Approx.)

NA ☒ NA fps

Bank height

Right: 2 ft.
Left: 2 ft.

Bank slope

Right: 60 degrees
Left: 80 degrees

Qualitative Attributes

Water Appearance:

(check one) ☒ No water ☐ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☐ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☐ Silt/clay ☐ Organic ☐ Other:

% of Substrate: 60 % 25 % 15 % 0 % 0 % 0 %

Width of Riparian Zone:

100 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees: 12 in. ☒ Saplings/Shrubs: 3 in. ☐ Herbs: 0 in.

Dominant Bank Vegetation (list):

Quercus velutina, Rosa multiflora, Allium canadense, Prunus serotina

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Intermittent waters

Aquatic Organisms Observed (list):

none

T&E Species Observed (list):

none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

none

Tributary Is:

(check one)

☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality:

(check one)

☐ High ☐ Moderate ☒ Low

Waterbody ID:

5aur015-i

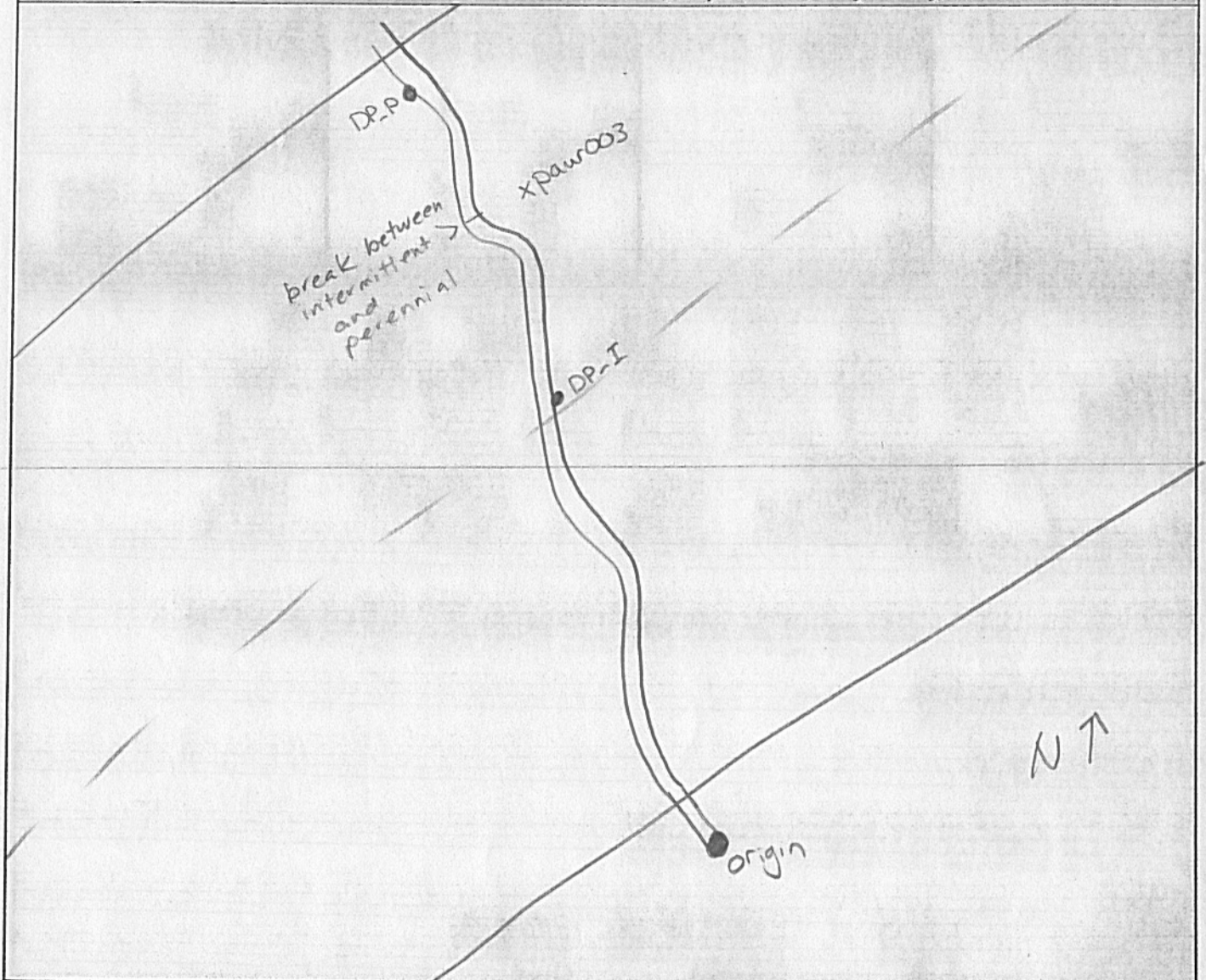
• **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid, obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015i facing southeast upstream.



Waterbody data point saur015i facing northwest downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015i facing northeast across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Saur 015-P</u>	Date: <u>3-29-16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>WV KM</u>	Photos: <u>S, N, E</u>	
Tract Number(s): <u>07-001-007</u>		Nearest Milepost: <u>107.5</u>		Associated Wetland ID(s): <u>none</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 1 ft.

Height: 0.1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☒ Wrested vegetation ☐ Scouring ☐ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☐ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:
3 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:
1 ft.

Width of Waterbody - Water Edge to Water Edge:
1 ft.

N/A ☐

Depth of Water:
(Approx.)

0.1 ft.

N/A ☐

Sinuosity:

(check one) ☐ Straight ☒ Meandering

Water velocity:

(Approx.)

<1 fps

N/A ☐

Bank height

Right: 1 ft.
Left: 1 ft.

Bank slope

Right: 45 degrees
Left: 45 degrees

Qualitative Attributes

Water Appearance:

(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☐ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____% _____% 20% 10% 10% 60% _____% _____%

Width of Riparian Zone:

50 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees: 14 in. ☒ Saplings/Shrubs: 4 in. ☐ Herbs: _____ in.

Avg. DBH of Dominants:
(approx.)

Dominant Bank Vegetation (list):

Rosa multiflora Acer rubrum Prunus serotina Liriodendron tulipifera

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

overhanging banks, leaf packs, riffles

Aquatic Organisms Observed (list):

caddisfly

T&E Species Observed (list):

none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None

Tributary Is:

(check one)

☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality *:

(check one)

☐ High ☒ Moderate ☐ Low

Waterbody ID:

saur015-P

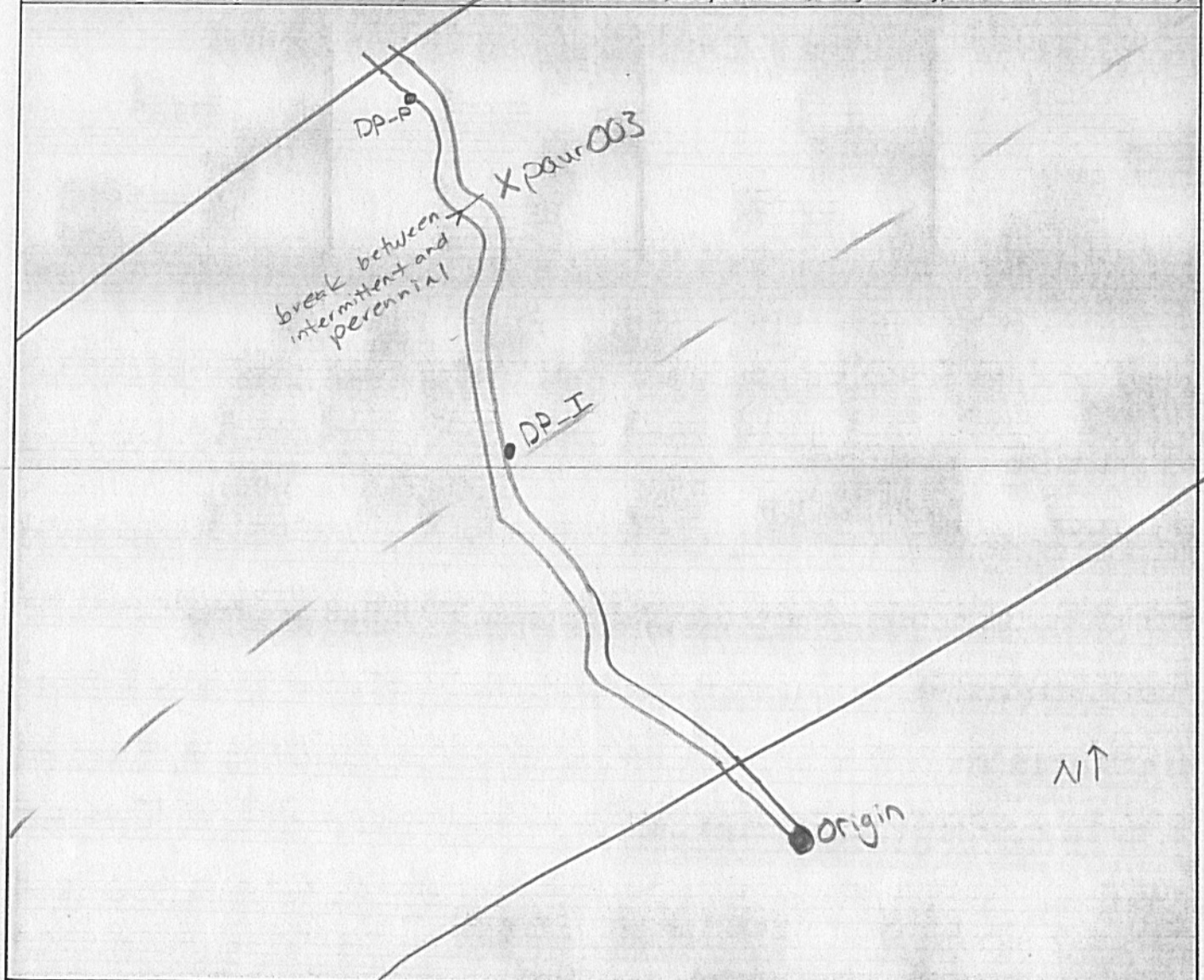
• **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015p facing south upstream.



Waterbody data point saur015p facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur015p facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Saw016</u>	Date: <u>3-29-16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>KM, WV</u>	Photos: <u>SE, N, E</u>	
Tract Number(s): <u>07-001 - F009, 07-001 - F009.ARI</u>		Nearest Milepost: <u>107.7</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:
(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:
(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:
(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>	OHWM Indicator: (check all that apply)					
	<input checked="" type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation	<input type="checkbox"/> Scouring	<input type="checkbox"/> Water staining	
	<input type="checkbox"/> Bent, matted, or missing vegetation	<input checked="" type="checkbox"/> Wrack line	<input checked="" type="checkbox"/> Litter and debris	<input type="checkbox"/> Abrupt plant community change	<input type="checkbox"/> Soil characteristic change	

Width of Waterbody - Top of Bank to Top of Bank: <u>5</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>1</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>2</u> ft.	Depth of Water: (Approx.) <u>0.3</u> ft. N/A <input type="checkbox"/>
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: (Approx.) <u>1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>1</u> ft. Left: <u>2</u> ft.	Bank slope Right: <u>30</u> degrees Left: <u>45</u> degrees

Qualitative Attributes

Water Appearance:
(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:
(check all that apply) ☐ Bedrock ☒ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☐ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____ % 5 % 5 % 20 % 60 % 10 % _____ % _____ %

Width of Riparian Zone: <u>36</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: (check all that apply)		
	<input checked="" type="checkbox"/> Trees: Avg. DBH of Dominants: <u>13</u> in. (approx.)	<input type="checkbox"/> Saplings/Shrubs: _____ in.	<input checked="" type="checkbox"/> Herbs <u>NA</u> in.

Dominant Bank Vegetation (list):

Acer rubrum, Festuca rubra, Rosa multiflora

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

pools, riffles, leaf packs, rocks

Aquatic Organisms Observed (list):

may flies, caddis flies

T&E Species Observed (list):

None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

pasture

Tributary is:
(check one) ☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality*:
(check one) ☐ High ☒ Moderate ☐ Low

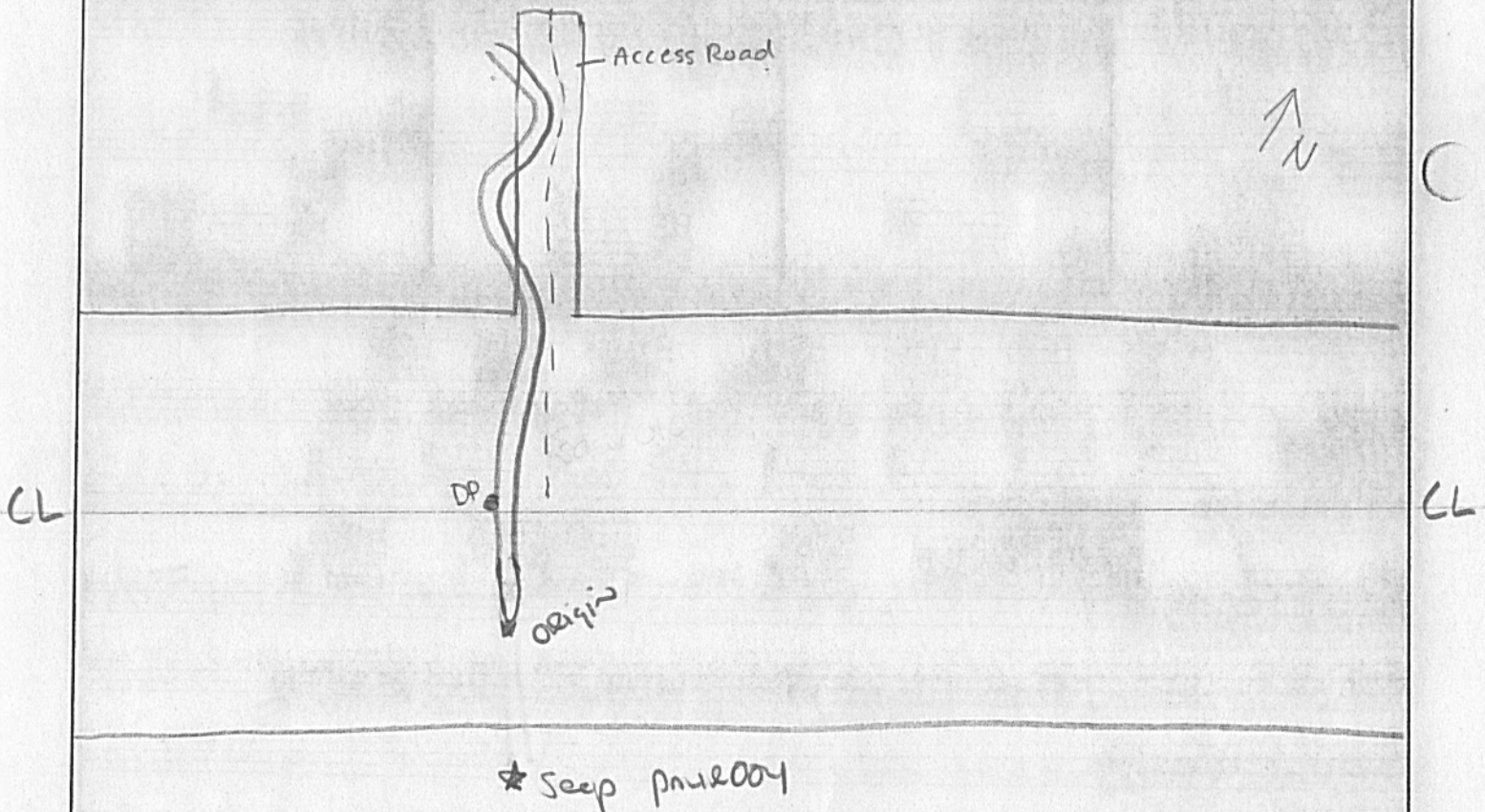
▪ **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement, little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur016 facing southeast upstream.



Waterbody data point saur016 facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur016 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Hamilton Branch</u>		Waterbody ID: <u>Sau017</u>	Date: <u>3/29/16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>WV, KM</u>	Photos: <u>S, N, E</u>	
Tract Number(s): <u>07-001-F010, 07-001-F011</u>		Nearest Milepost: <u>107.9</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:

(check one) ☒ Centerline ☐ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☒ Intermittent ☐ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 4 ft.

Height: 0.2 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☐ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

6 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

2 ft.

Width of Waterbody - Water Edge to Water Edge:

NA ft.
N/A ☐

Depth of Water: (Approx.)

NA ft.
N/A ☒

Sinuosity:

(check one)

☒ Straight

☐ Meandering

Water velocity:

(Approx.)

 fps

N/A ☒

Bank height

Right: 1 ft.

Left: 1 ft.

Bank slope

Right: 80 degrees

Left: 60 degrees

Qualitative Attributes

Water Appearance:

(check one)

☒ No water ☐ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☒ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☐ Silt/clay ☐ Organic ☐ Other:

% of Substrate:

 % 10 % 20 % 60 % 10 % % % %

Width of Riparian Zone:

30 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

Avg. DBH of Dominants:

(approx.)

☒ Trees:

12 in.

☒ Saplings/Shrubs:

3 in.

☒ Herbs

NA in.

Dominant Bank Vegetation (list):

Liriodendron tulipifera, Quercus prinus, Rosa multiflora

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Overhanging banks, leaf packs, riffles, deep pools

Aquatic Organisms Observed (list):

None

T&E Species Observed (list):

None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None

Tributary Is:

(check one)

☒ Natural

☐ Artificial, man-made

☐ Manipulated

Stream Quality *:

(check one)

☐ High

☒ Moderate

☐ Low

Waterbody ID:

Saur017

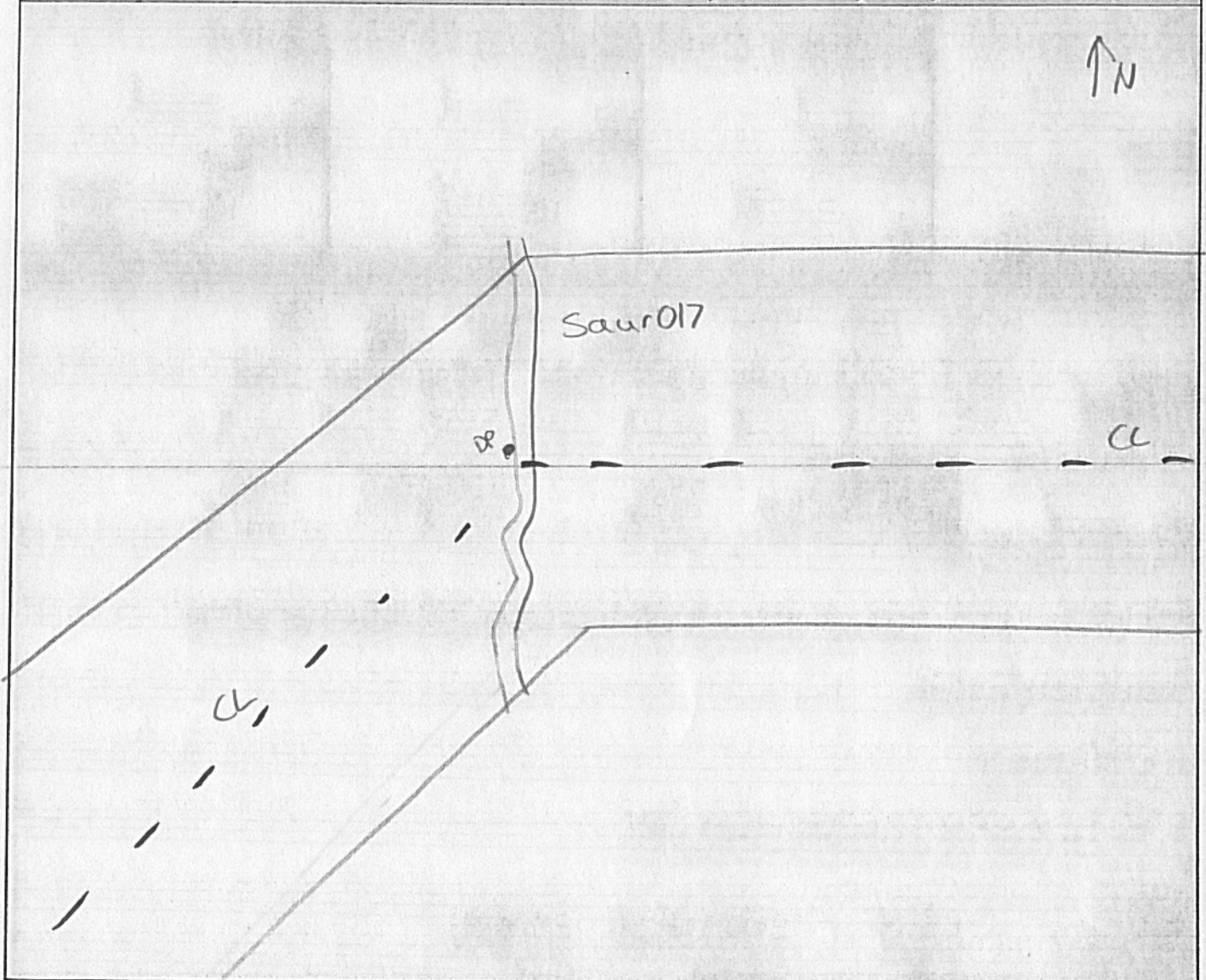
▪ **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur017 facing south upstream.



Waterbody data point saur017 facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur017 facing east across bank.

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: saua412
State: Virginia		County: Augusta	Company: NRG - ERM	Crew Member Initials: GB, KO
Tract Number(s): 07-001-F012		Nearest Milepost: 108.05		Photos: 3 photos
Associated Wetland ID(s): none				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes <input checked="" type="checkbox"/>				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 4.0 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.50 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 7.0 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 3.0 ft.		Width of Waterbody - Water Edge to Water Edge: 3.0 ft.
Depth of Water: (Approx.) 0.25 ft.		N/A <input type="checkbox"/>		
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 0.50 fps		Bank height Right: 1.5 ft. Left: 2.0 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 40 degrees Left: 45 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % 5 % 40 % 25 % 25 % 5 % 5 % _____ %				
Width of Riparian Zone: _____ ft.		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.) 11.0 in. 1.5 in.		
Dominant Bank Vegetation (list): Yellow poplar, black gum, black cherry, white pine, white oak, spicebush, flowering dogwood, witch hazel, multiflora rose, northern Rd oak, Christmas fern, wind stem, beggars lice, wood rush, woodland sedge, wild rye, panic grass, violet				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): coarse woody debris, leaf packs				
Aquatic Organisms Observed (list): caddisfly				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None apparent				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

saua412

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

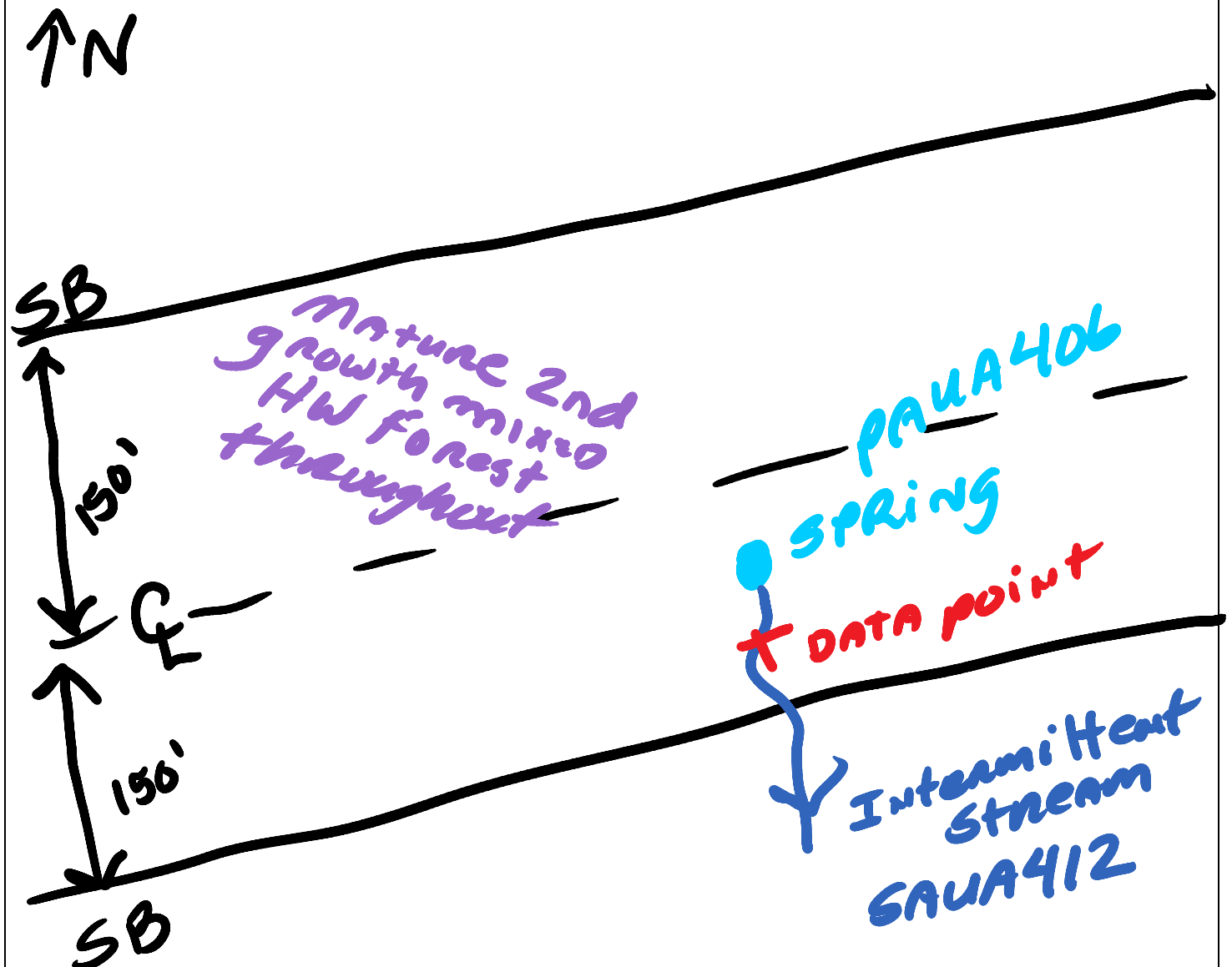
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Stream begins at spring paua406 at head cut in draw within corridor; downstream continues out of corridor; mature second growth mixed hardwood forest.

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





Waterbody SAUA412 facing southeast upstream



Waterbody SAUA412 facing northwest downstream



Waterbody SAUA412 facing southwest across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: saua411
State: Virginia		County: Augusta	Company: NRG - ERM	Crew Member Initials: GB, KO
Tract Number(s): 07-001-F013		Nearest Milepost: 108.1		Photos: 3 photos
Associated Wetland ID(s): none				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes <input checked="" type="checkbox"/>				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: _____ ft. Height: _____ ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input checked="" type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: _____ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _____ ft.	Width of Waterbody - Water Edge to Water Edge: _____ ft. N/A <input checked="" type="checkbox"/>	Depth of Water: (Approx.) _____ ft. N/A <input checked="" type="checkbox"/>	
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: (Approx.) _____ fps N/A <input checked="" type="checkbox"/>	Bank height Right: _____ ft. Left: _____ ft.	Bank slope Right: _____ degrees Left: _____ degrees	
Qualitative Attributes				
Water Appearance: (check one) <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: _____ % _____ 10 % _____ 45 % _____ 25 % _____ 10 % _____ 5 % _____ 5 % _____ %				
Width of Riparian Zone: _____ ft. N/A <input checked="" type="checkbox"/>	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: _____ <input checked="" type="checkbox"/> Saplings/Shrubs: _____ <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: (approx.) _____ 11.0 in. _____ 1.5 in.			
Dominant Bank Vegetation (list): Yellow poplar, black gum, black cherry, white pine, shagbark hickory, black locust, flowering dogwood, witch hazel, multiflora rose, Japanese Barberry, Christmas fern, wing stem, beggars lice, wood rush, woodland sedge, greenbrier				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): coarse woody debris, wrack piles, leaf packs				
Aquatic Organisms Observed (list): none				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Active logging on adjacent tract 100 feet to the east				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

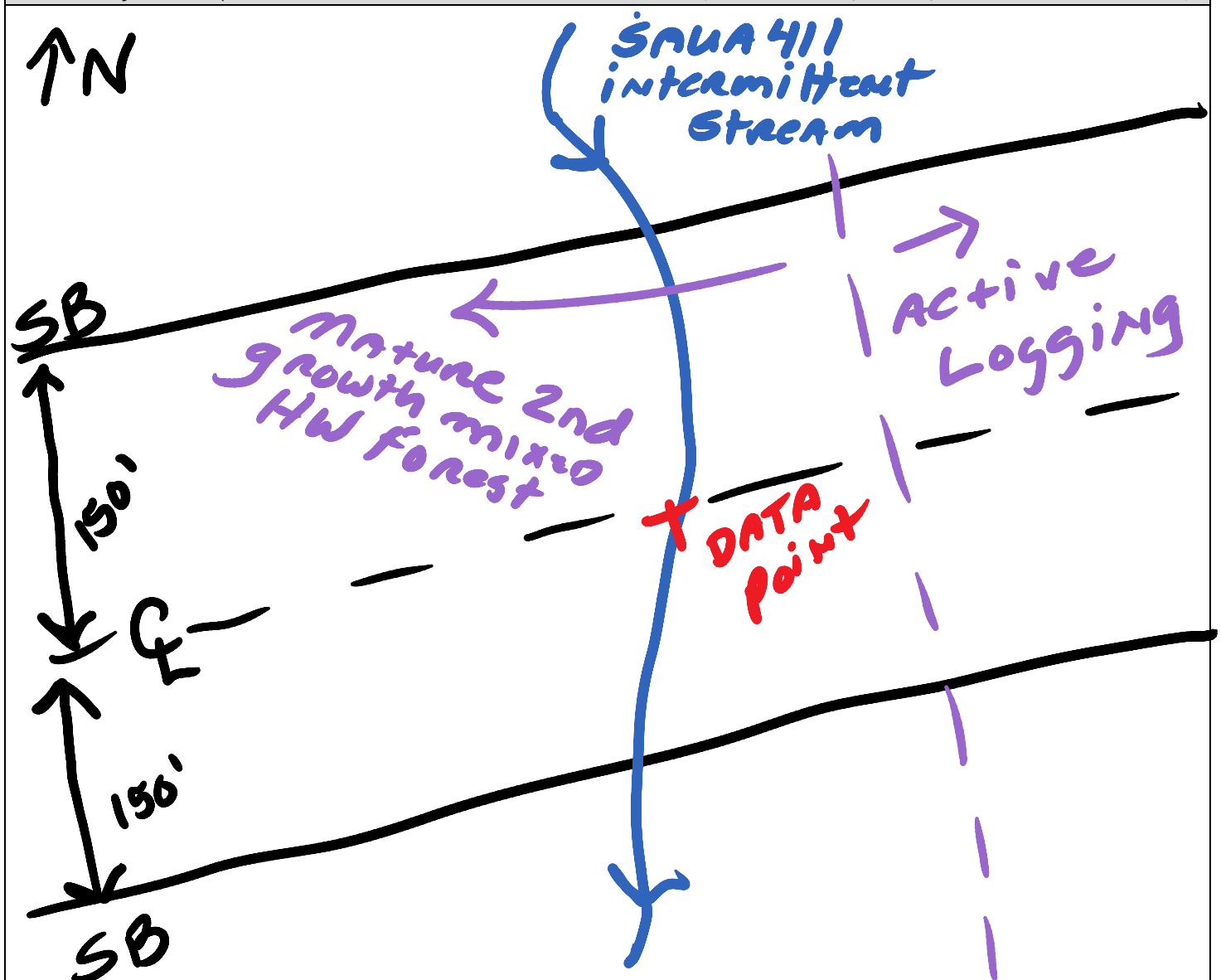
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Stream continues out of corridor in both directions, stream is weakly intermittent; mature second growth mixed hardwood forest.

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





Waterbody SAUA411 facing southeast upstream



Waterbody SAUA411 facing northwest downstream



Waterbody SAUA411 facing southwest across

Linear Waterbody Data Sheet

Survey Description				
Project Name: ACP		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: SAUR 019
State: VA		County/Parish: Augusta	Company: ESI	Crew Member Initials: WV, KM
Tract Number(s): 07-001-F015		Nearest Milepost: 108.3		Photos: SW NE NW
Associated Wetland ID(s): Waurool				
Survey Type: (check one) <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 2 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining		
Height: 0.2 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 3 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 1 ft.		Width of Waterbody - Water Edge to Water Edge: 2 ft.
Depth of Water: (Approx.) 0.2 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: (Approx.) <1 fps		Bank height: Right: 0.5 ft. Left: 0.5 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope: Right: 30 degrees Left: 30 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% _____% _____% 100% _____% _____%				
Width of Riparian Zone: 15 ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: _____ in. <input checked="" type="checkbox"/> Saplings/Shrubs: 1 in. <input checked="" type="checkbox"/> Herbs: NA in.		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.)		
Dominant Bank Vegetation (list): Salix nigra				
Aquatic Habitats (ex: submerged or emergent aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Submerged vegetation, leaf packs				
Aquatic Organisms Observed (list): diving beetle				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): road crossing				
Tributary Is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality *: (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

Saur019

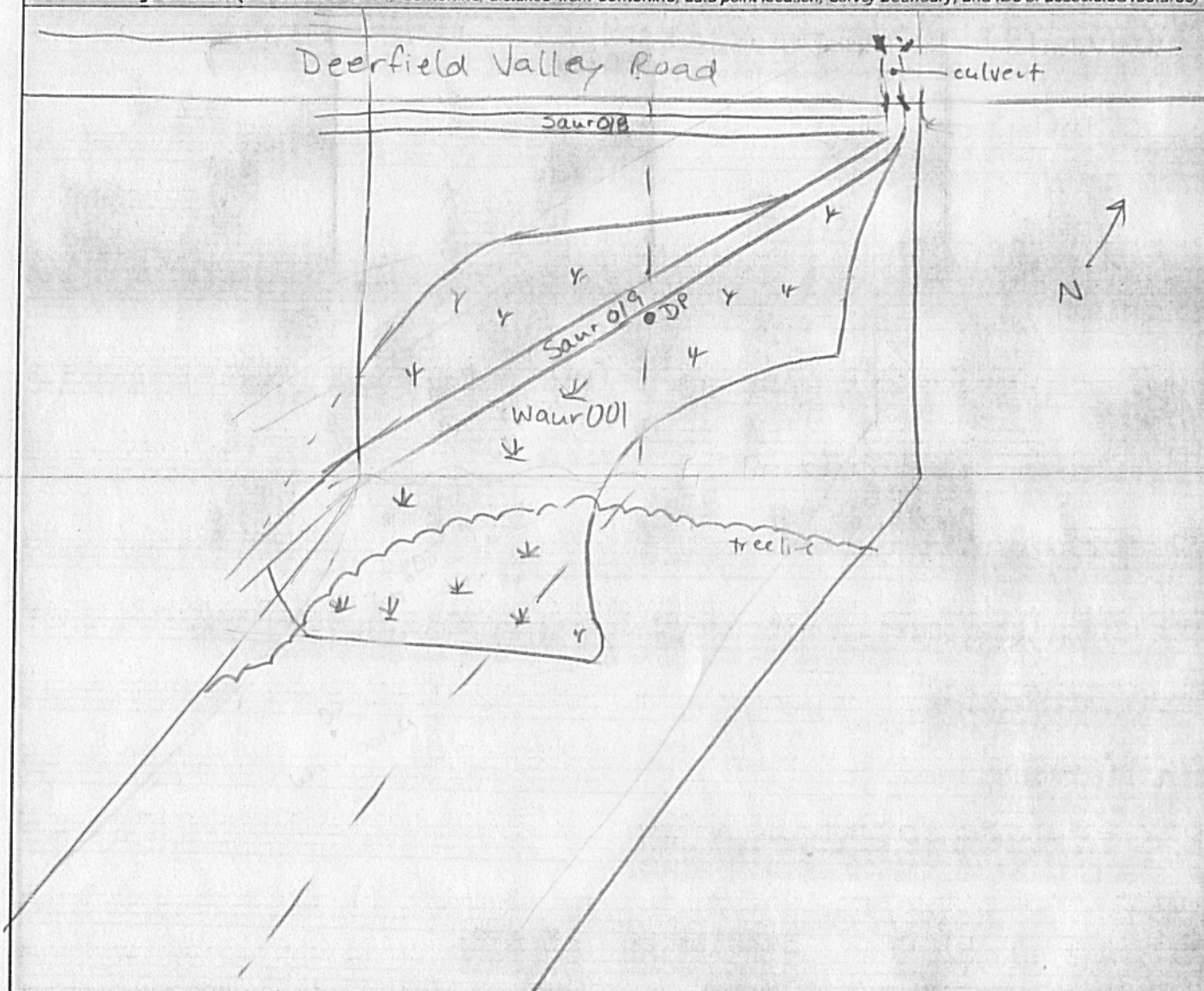
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid, obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur019 facing southwest upstream.



Waterbody data point saur019 facing northeast downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur019 facing northwest across bank.

Linear Waterbody Data Sheet

Survey Description		Waterbody Name:		Waterbody ID:	Date:
Project Name: ACP		UNT to Hamilton Branch		Saur 018	4-1-16
State:	County/Parish:	Company:	Crew Member Initials:	Photos:	
VA	Augusta	ESI	KM, WV	W, E, N	
Tract Number(s):		Nearest Milepost:		Associated Wetland ID(s):	
07-001-FO15		108.3		None	
Survey Type: (check one) <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:					
Physical Attributes					
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial					
Waterbody Type: (check one) <input type="checkbox"/> River <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:					
OHWM Width: 2 ft. Height: 0.1 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change			
Width of Waterbody - Top of Bank to Top of Bank: 5 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 1 ft.		Width of Waterbody - Water Edge to Water Edge: 2 ft.	
Depth of Water: (Approx.) 0.1 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) < 1 fps N/A <input type="checkbox"/>		Bank height Right: 1 ft. Left: 1 ft.	
Bank slope Right: 45 degrees Left: 45 degrees					
Qualitative Attributes					
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:					
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:					
% of Substrate: _____% _____% _____% _____% _____% 100% _____% _____%					
Width of Riparian Zone: 10 ft. N/A <input type="checkbox"/>		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: _____ in. <input type="checkbox"/> Saplings/Shrubs: _____ in. <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: _____ in. (approx.)			
Dominant Bank Vegetation (list): Festuca rubra, Rosa multiflora					
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Submerged aquatic vegetation					
Aquatic Organisms Observed (list): none observed					
T&E Species Observed (list): none observed					
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): roadside ditch					
Tributary Is: (check one) <input type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input checked="" type="checkbox"/> Manipulated					
Stream Quality*: (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low					

Waterbody ID:

Saur 018

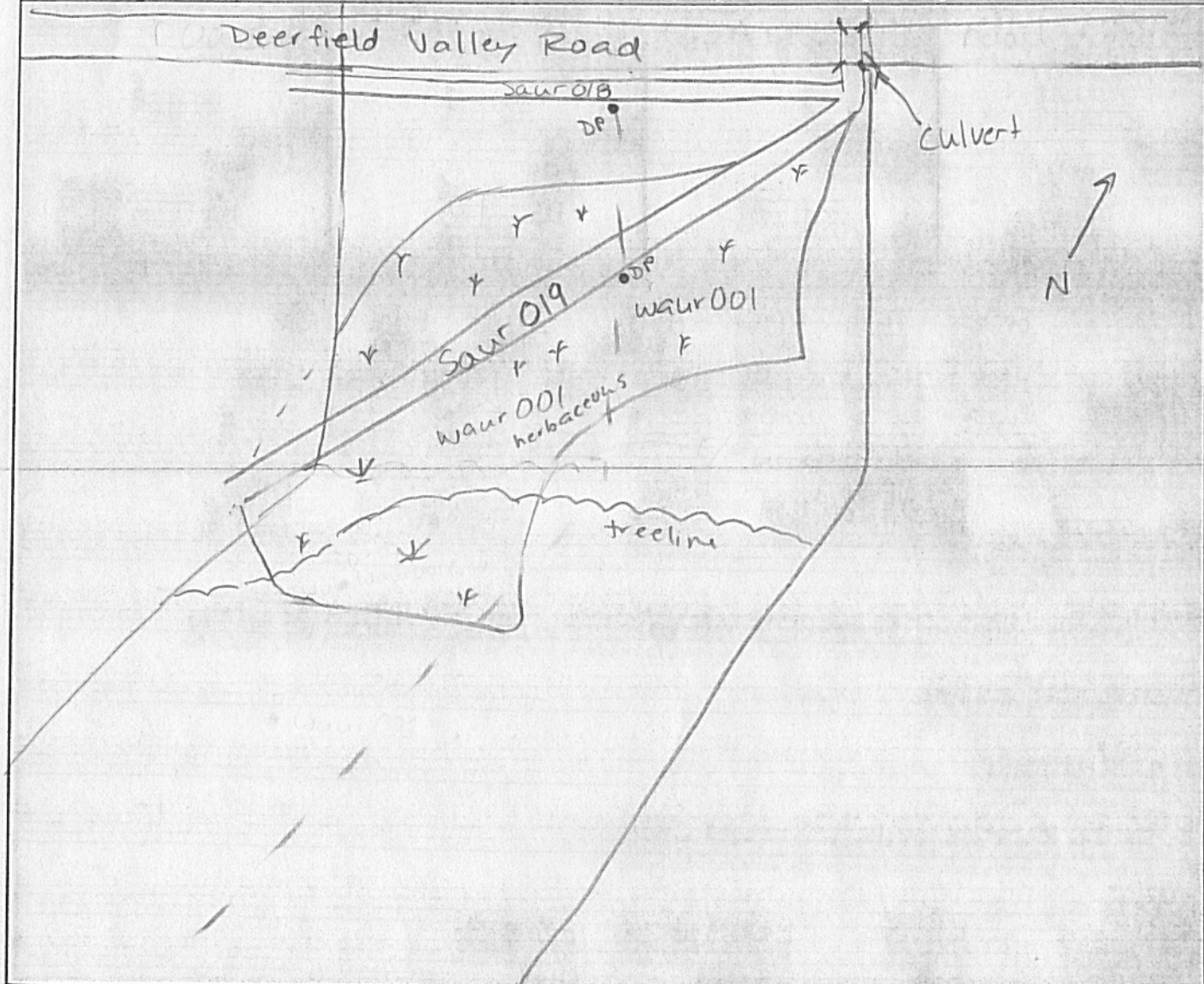
• **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur018 facing west upstream.



Waterbody data point saur018 facing east downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur018 facing north across bank.

Linear Waterbody Data Sheet

Survey Description				
Project Name: ACP		Waterbody Name: Hamilton Branch		Waterbody ID: Sauf003
State: Virginia		County: Bath	Company: NRG	Crew Member Initials: SH, SA
Tract Number(s): 07-001-F044, 07-001-F045		Nearest Milepost: 108		Associated Wetland ID(s): None
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 20 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 2 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input checked="" type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 30 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 12 ft.		Width of Waterbody - Water Edge to Water Edge: 15 ft.
Depth of Water: (Approx.) 0.5 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: (Approx.) 3 fps		Bank height Right: 7 ft. Left: 4 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 90 degrees Left: 30 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % 5 % 75 % 20 % _____ % _____ % _____ %				
Width of Riparian Zone: 200 ft.		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input checked="" type="checkbox"/>		Avg. DBH of Dominants: (approx.) 10 in. 2 in.		
Dominant Bank Vegetation (list): Autumn olive, Rose, Carex spp. black cherry, sycamore				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Riffles, pools, large woody debris				
Aquatic Organisms Observed (list): Fish, minnows				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Bank failures, large rip rap in one meandering section near home				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

Sauf003

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

High quality stream. Large riparian forest on both sides, no wetlands appears to be relict flood plain

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



Waterbody SAUF003 facing west upstream



Waterbody SAUF003 facing east downstream



Waterbody SAUF003 facing south across

Linear Waterbody Data Sheet

Survey Description				
Project Name: ACP		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: Sauf002
State: Virginia		County: Bath	Company: NRG	Crew Member Initials: SH, SA
Tract Number(s): 07-001-F046, 07-001-F049, 07-001-F047		Nearest Milepost: 108		Associated Wetland ID(s): None
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 4 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.5 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 8 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 3 ft.		Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> ft.
Depth of Water: (Approx.) N/A <input checked="" type="checkbox"/> ft.				
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) N/A <input checked="" type="checkbox"/> fps		Bank height Right: 2 ft. Left: 2 ft.
Bank slope Right: 70 degrees Left: 80 degrees				
Qualitative Attributes				
Water Appearance: (check one) <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % _____ % 10 % 85 % 5 % _____ % _____ %				
Width of Riparian Zone: N/A <input checked="" type="checkbox"/> ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
Avg. DBH of Dominants: (approx.) _____ in.		1 in.		
Dominant Bank Vegetation (list): Autumn olive, Rubus sp. grass spp. black locust, red cedar				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

Sauf002

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Moderate quality, stream is an unnamed tributary to Hamilton Branch.

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



Waterbody SAUF002 facing west upstream



Waterbody SAUF002 facing east downstream



Waterbody SAUF002 facing north across

Linear Waterbody Data Sheet

Survey Description				
Project Name: ACP		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: Sauf001
State: Virginia		County: Bath	Company: NRG	Crew Member Initials: SH, SA
Tract Number(s): 07-001-F049		Nearest Milepost: 108		Associated Wetland ID(s): None
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 6 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: .75 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 16 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.		Width of Waterbody - Water Edge to Water Edge: 3 ft.
Depth of Water: (Approx.) 25 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 1.25 fps		Bank height Right: 4 ft. Left: 3.5 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 50 degrees Left: 30 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % _____ % 70 % 25 % _____ % 5 % _____ % _____ %				
Width of Riparian Zone: _____ ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input checked="" type="checkbox"/>		Avg. DBH of Dominants: (approx.) _____ in. 1 in.		
Dominant Bank Vegetation (list): Autumn olive, Rubus sp. Grass spp. Carex spp.				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Riffles, Pools				
Aquatic Organisms Observed (list): Fish, minnows, snails, amphibians (toads – calls and egg masses in pools)				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Driveway to trailer goes through stream no bridge/culvert				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

Sauf001

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Moderate quality, stream is an unnamed tributary to Hamilton Branch.

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



Waterbody SAUF001 facing northwest upstream



Waterbody SAUF001 facing southeast downstream



Waterbody SAUF001 facing southwest across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: Hamilton Branch		Waterbody ID: sauz004
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS
Tract Number(s): 07-001-A049		Nearest Milepost: 108.5		Photos: 1-3
Associated Wetland ID(s): None				
Survey Type: (check one) <input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input checked="" type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 25 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 1 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 27 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 24 ft.		Width of Waterbody - Water Edge to Water Edge: 25 ft.
Depth of Water: (Approx.) 1 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 1 fps		Bank height Right: 5 ft. Left: 6 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 45 degrees Left: 45 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% 40 % 60 % _____% _____% _____% _____%				
Width of Riparian Zone: 50 ft.		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.) 6 in. 1 in.		
Dominant Bank Vegetation (list): American sycamore, Black locust, Rosa multiflora				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Overhanging bank roots.				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz004

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

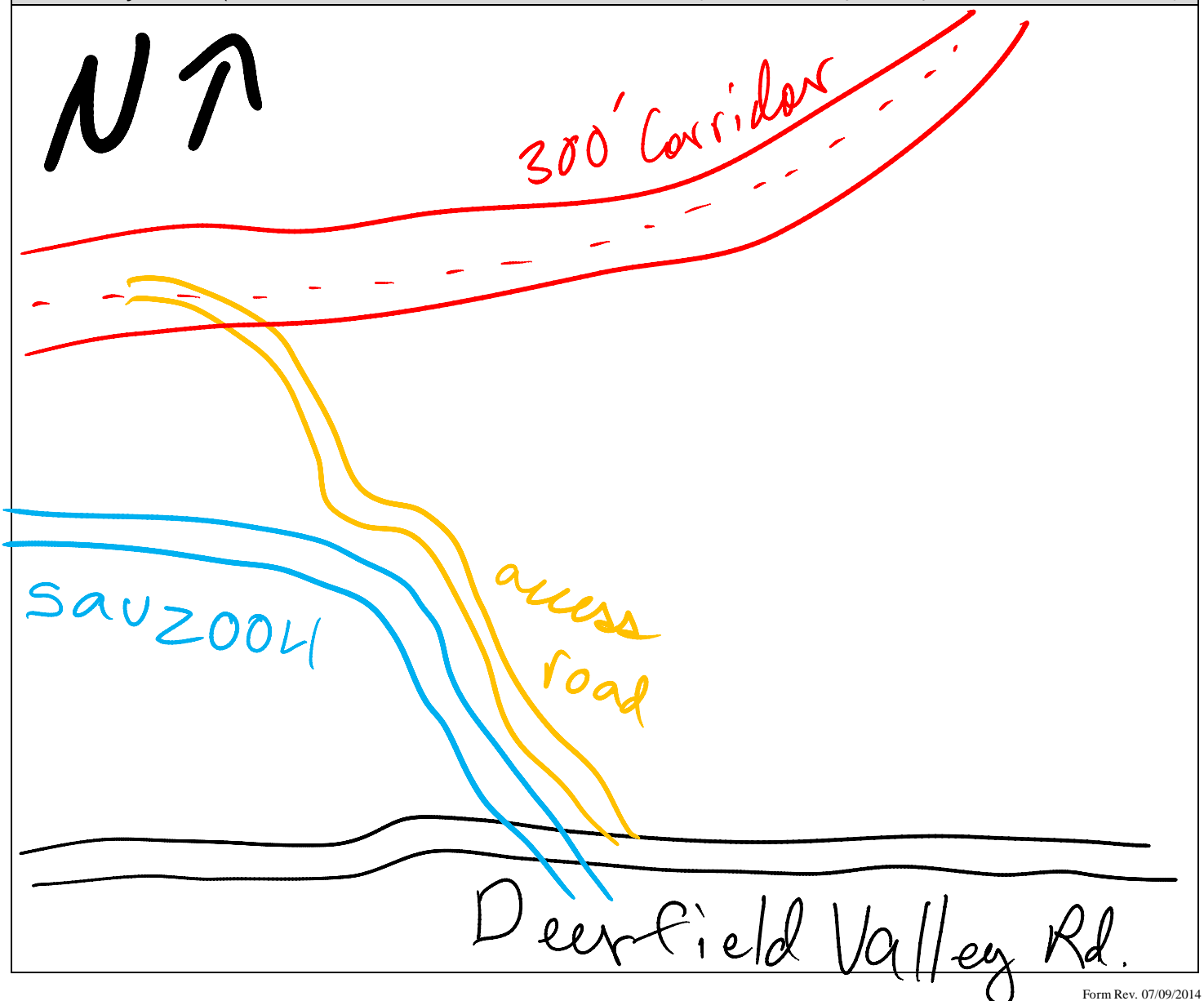
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

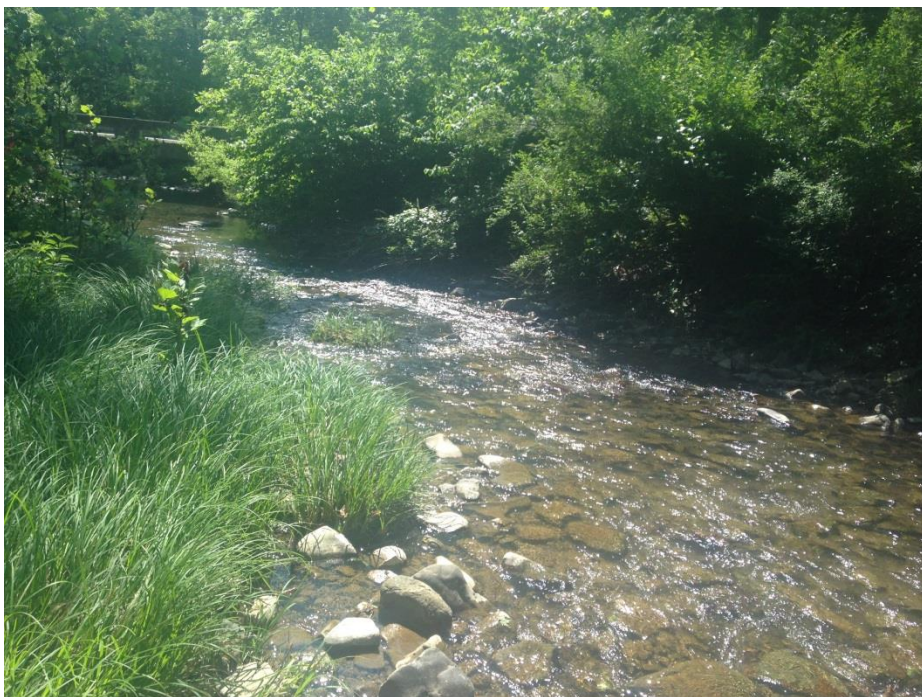
This is Hamilton Creek, a moderately sized perennial stream.

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





Waterbody sauz004 facing west upstream



Waterbody sauz004 facing east downstream



Waterbody sauz004 facing south across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: Hughart Run		Waterbody ID: saua414
State: Virginia		County: Augusta	Company: NRG/ERM	Crew Member Initials: GB, SS
Tract Number(s): 07-001-F050; 07-001-F051		Nearest Milepost: 108.8		Photos: 3 photos
Associated Wetland ID(s): none				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 18.0 ft. Height: 2.0 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input checked="" type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: 35.0 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 15.0 ft.	Width of Waterbody - Water Edge to Water Edge: 15.0 ft. N/A <input type="checkbox"/>	Depth of Water: (Approx.) 0.50 ft. N/A <input type="checkbox"/>	
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: (Approx.) 1.0 fps N/A <input type="checkbox"/>	Bank height Right: 15.0 ft. Left: 7.0 ft.	Bank slope Right: 75 degrees Left: 60 degrees	
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: _____ % 15 % 40 % 25 % 10 % 5 % 5 % _____ %				
Width of Riparian Zone: ____ ft. N/A <input checked="" type="checkbox"/>	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: (approx.) 9.0 in. 1.5 in. .			
Dominant Bank Vegetation (list): White pine, sweet birch, yellow poplar, shagbark hickory, jumpseed, fescue, orchard grass, multiflora rose, queen Anne's lace, moth mullien, spiny thistle				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Wrack piles, coarse woody debris, scattered emergent vegetation, leaf packs				
Aquatic Organisms Observed (list): Minnows, crayfish, water striders, pocket snails				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Gravel road crossing east of CL – no culvert or bridge; livestock access; highly entrenched due to bank damage from cattle				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

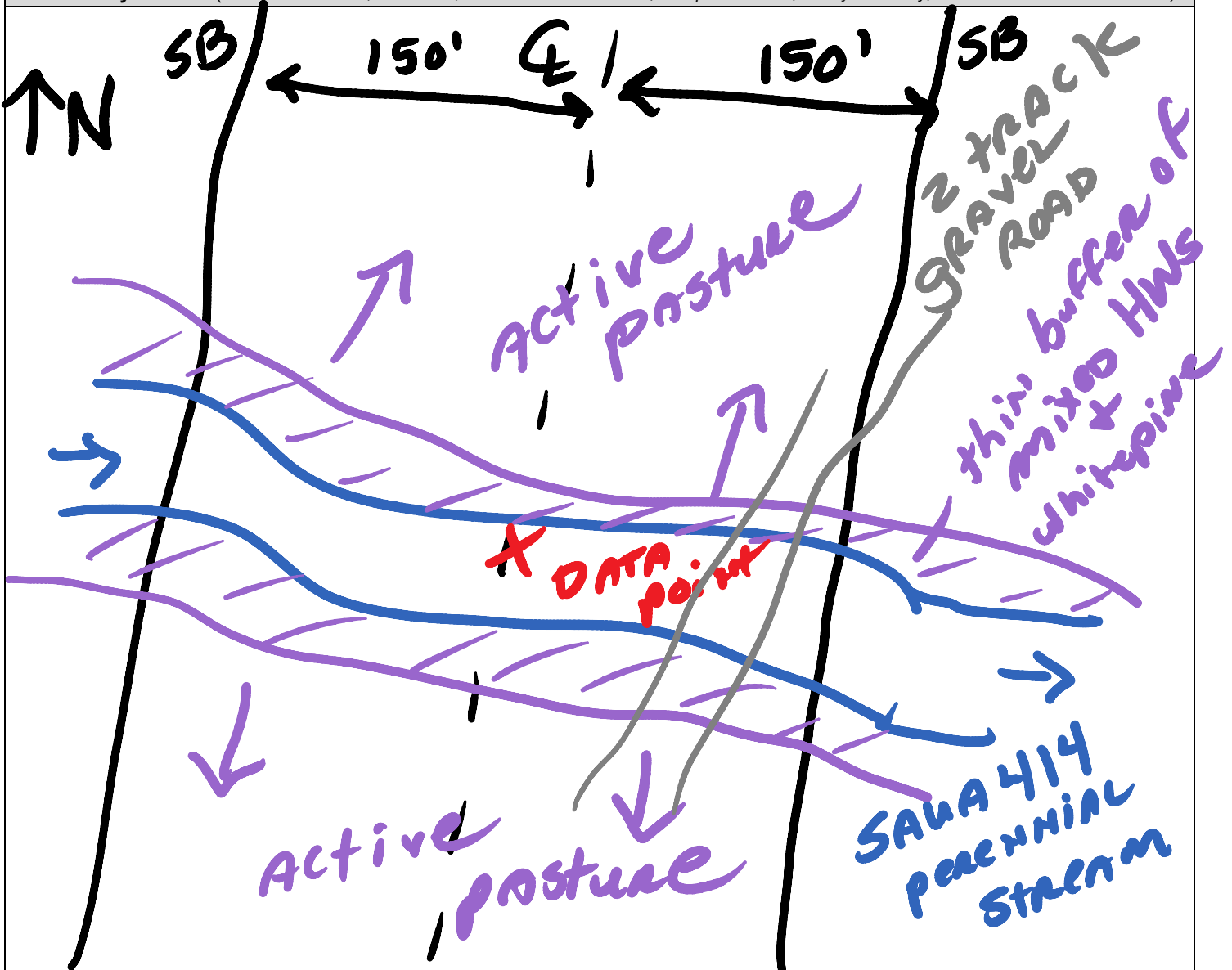
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Perennial stream – Hughart Run; continues out of corridor in both directions; only a very thin buffer of trees along stream course; flows through active livestock pasture; high algal load due to manure; highly entrenched.

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





Waterbody sau414 facing northwest upstream



Waterbody sau414 facing southeast downstream



Waterbody sau414 facing north across

Open Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: Unnamed Pond		Waterbody ID: oaua400
Date: 7/18/2016				
State: Virginia	County: Augusta	Company: NRG/ERM	Crew Member Initials: GB, SS	Photos: One photo
Tract Number(s): 07-001-F051		Nearest Milepost: 108.8		Associated Wetland ID(s): none
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Waterbody Type: (check one) <input checked="" type="checkbox"/> Stock Pond <input type="checkbox"/> Natural Pond <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> Impoundment <input type="checkbox"/> Oxbow <input type="checkbox"/> Other:				
Hydrologic Regime: <input type="checkbox"/> Permanently Flooded <input checked="" type="checkbox"/> Semipermanently Flooded <input type="checkbox"/> Seasonally Flooded <input type="checkbox"/> Temporarily Flooded				
OHWM Height: <u>3.0</u> ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Depth of Water: <u>1.5</u> ft. N/A <input type="checkbox"/>		Bank height (average): <u>5.0</u> ft.		Bank slope (average): <u>70</u> degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input checked="" type="checkbox"/> Surface scum <input checked="" type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% <u>10</u> % <u>10</u> % _____% _____% <u>80</u> % _____%				
Width of Riparian Zone: _____ ft. N/A <input checked="" type="checkbox"/>		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <u>7.0</u> in. <u>1.0</u> in. <u> </u> in. (approx.)		
Dominant Bank Vegetation (list): White pine, multiflora rose, spiny thistle, ox eye daisy, fescue, orchard grass, foxtail, jumpseed, plantain, ragweed				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): Pool, some emergent vegetation				
Aquatic Organisms Observed (list): Frogs, water striders, adult dragonflies				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Livestock access				
Waterbody is: (check one) <input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Waterbody Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

oaua400

^a **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.

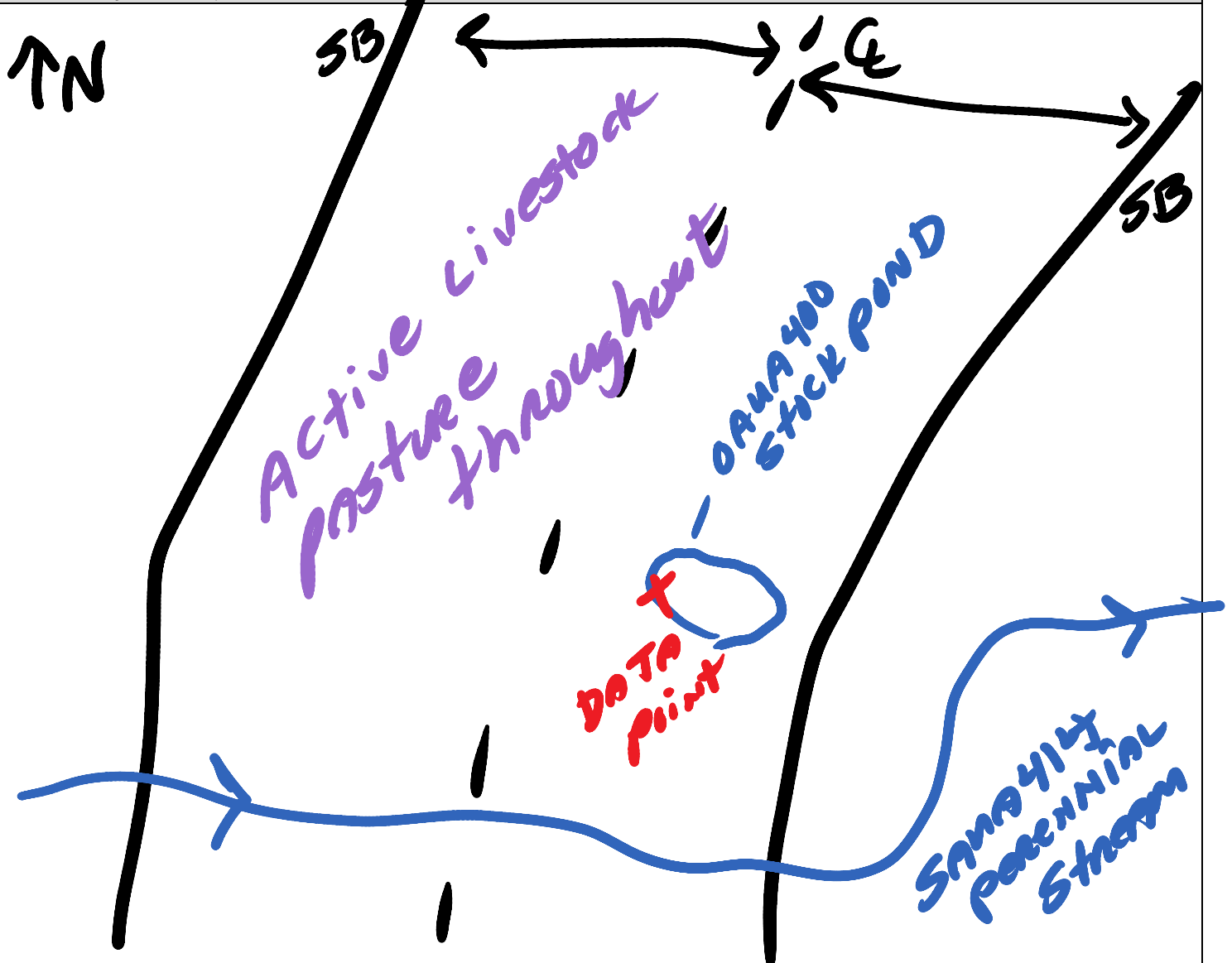
Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers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

Semi-permanently flooded stock pond in an active cattle pasture; artificial – excavated, no inlet or outlet.

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





Open waterbody oaua400 facing southeast

Linear Waterbody Data Sheet

Survey Description				
Project Name: Southeast Reliability		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: saua415
State: Virginia		County: Augusta	Company: NRG/ERM	Crew Member Initials: GB, SS
Tract Number(s): 07-001-F051		Nearest Milepost: 108.85		Associated Wetland ID(s): none
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 6.0 ft. Height: 0.75 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input checked="" type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: 12.0 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 5.0 ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/>	Depth of Water: (Approx.) N/A <input type="checkbox"/>	
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: (Approx.) N/A <input checked="" type="checkbox"/>	Bank height Right: 3.0 ft. Left: 8.0 ft.	Bank slope Right: 60 degrees Left: 90 degrees	
Qualitative Attributes				
Water Appearance: (check one) <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: _____% _____% 40% 35% 20% _____% 5% _____%				
Width of Riparian Zone: 100 ft. N/A <input type="checkbox"/>	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: (approx.) 9.0 in. 1.5 in. .			
Dominant Bank Vegetation (list): White pine, sweet birch, white oak, ironwood, hickory, ash, sycamore, hawthorne, serviceberry, multiflora rose, black walnut, Japanese stilt grass, white snakeroot, raspberry, wild rye, violet				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Wrack piles, coarse woody debris, leaf packs				
Aquatic Organisms Observed (list): none				
T&E Species Observed (list): none				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Gravel road crossing east of CL – no culvert or bridge; livestock access				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

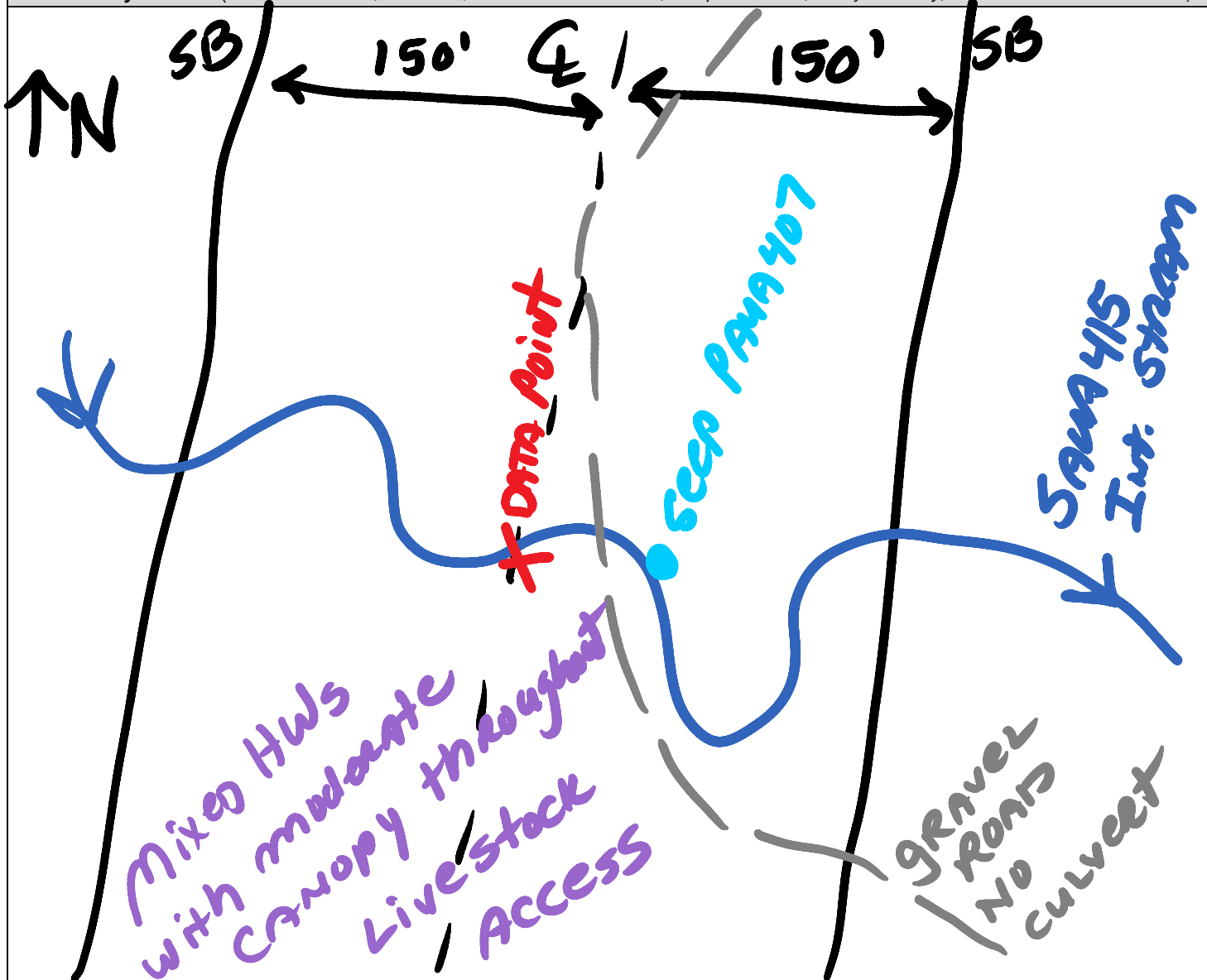
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Continues out of corridor in both directions; overflow scour common on floodplain; gravel road crossing east of CL with no culvert in place; receives output from intermittent seep paua407 adjacent to stream.

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





Waterbody sau415 facing north upstream



Waterbody sau415 facing south downstream



Waterbody sau415 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>VT to Guy Hollow</u>		Waterbody ID: <u>saurool</u>	Date: <u>3/17/16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>J Benton</u>	Photos: <u>W, E, N</u>	
Tract Number(s): <u>07-001-F029</u>		Nearest Milepost: <u>109</u>		Associated Wetland ID(s): <u>N/A</u>	

Survey Type:

(check one) ☐ Centerline ☒ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 9 ft.

Height: 0.5 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☒ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☒ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

11 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

8.5 ft.

Width of Waterbody - Water Edge to Water Edge:

8 ft.

N/A ☐

Depth of Water: (Approx.)

0.2 ft.

N/A ☐

Sinuosity:

(check one)

☐ Straight
☒ Meandering

Water velocity:

(Approx.)

1.2 fps

N/A ☐

Bank height

Right: 1.5 ft.
Left: 1.5 ft.

Bank slope

Right: 75 degrees
Left: 75 degrees

Qualitative Attributes

Water Appearance:

(check one)

☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply)

☐ Bedrock ☐ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☐ Silt/clay ☐ Organic ☐ Other:

% of Substrate:

15 % 40 % 35 % % % %

Width of Riparian Zone:

7100 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

Avg. DBH of Dominants: 8 in. (approx.)

☒ Trees: 8 in.

☒ Saplings/Shrubs: 2 in.

☐ Herbs in.

Dominant Bank Vegetation (list):

Pinus strobus, Quercus alba, Kalmia latifolia

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

submerged wood, leaf packs, riffles

Aquatic Organisms Observed (list):

Caddisflies, mayflies, snails

T&E Species Observed (list):

None observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

None observed

Tributary is:

(check one)

☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality*:

(check one)

☐ High ☒ Moderate ☐ Low

Waterbody ID:

saur 001

▪ **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

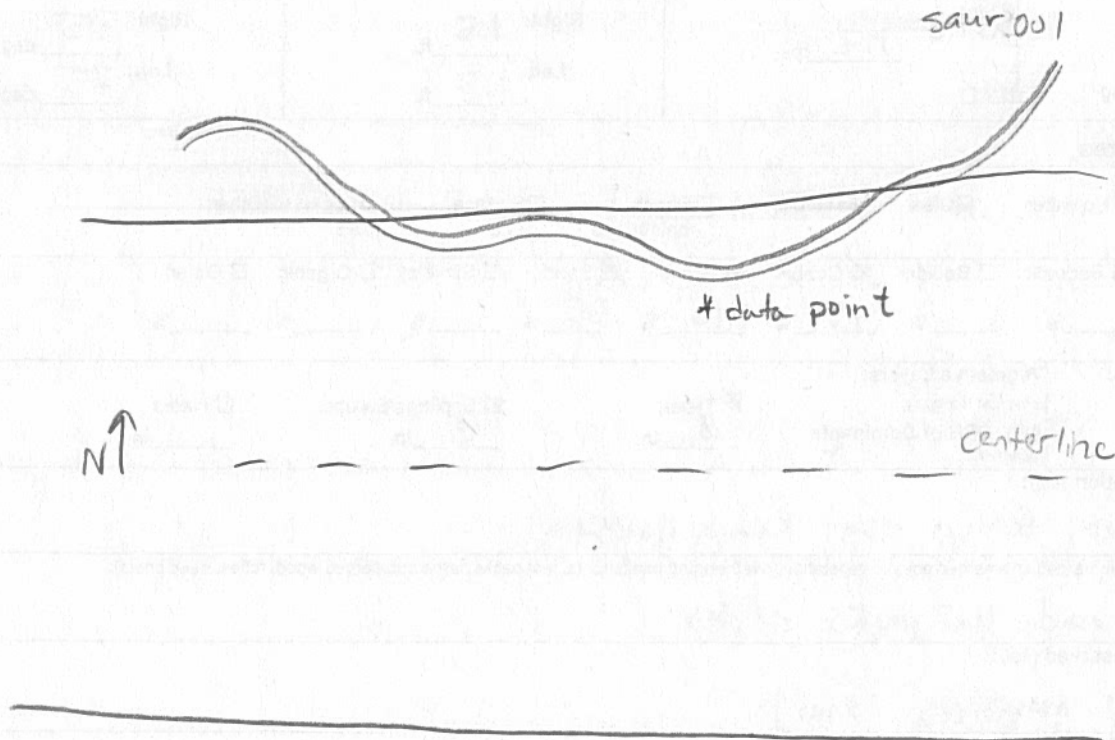
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Perennial channel, stable

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur001 facing west upstream.



Waterbody data point saur001 facing east downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur001 facing north across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>VT to Guy Hollow</u>		Waterbody ID: <u>Saur002</u>	Date: <u>3/17/16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>JBenton</u>	Photos: <u>NW, SE, NE</u>	
Tract Number(s): <u>07-001 - F029</u>		Nearest Milepost: <u>109</u>	Associated Wetland ID(s): <u>None</u>		

Survey Type: (check one) ☐ Centerline ☒ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification: (check one) ☐ Ephemeral ☒ Intermittent ☐ Perennial

Waterbody Type: (check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM Width: <u>6</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>	OHWM Indicator: (check all that apply)					
	<input checked="" type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation	<input type="checkbox"/> Scouring	<input checked="" type="checkbox"/> Water staining	
	<input checked="" type="checkbox"/> Bent, matted, or missing vegetation	<input checked="" type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris	<input type="checkbox"/> Abrupt plant community change	<input checked="" type="checkbox"/> Soil characteristic change	

Width of Waterbody - Top of Bank to Top of Bank: <u>7</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>5</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>5</u> ft. N/A <input type="checkbox"/>	Depth of Water: (Approx.) <u>0.2</u> ft. N/A <input type="checkbox"/>
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: (Approx.) <u>0.5</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>1</u> ft. Left: <u>1</u> ft.	Bank slope Right: <u>60</u> degrees Left: <u>60</u> degrees

Qualitative Attributes

Water Appearance: (check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate: (check all that apply) ☐ Bedrock ☐ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____% _____% 15% 25% 50% 10% _____% _____%

Width of Riparian Zone: <u>10</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: (check all that apply)		
	<input checked="" type="checkbox"/> Trees: Avg. DBH of Dominants: <u>6</u> in. (approx.)	<input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in.	<input checked="" type="checkbox"/> Herbs _____ in.

Dominant Bank Vegetation (list):
Rhus strobus, Kalmia latifolia, Festuca sp

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Submerged wood, leaf packs, riffles

Aquatic Organisms Observed (list):
Aquatic worms, no EPT

T&E Species Observed (list):
None observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
livestock access

Tributary is: (check one) ☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality *: (check one) ☐ High ☒ Moderate ☐ Low

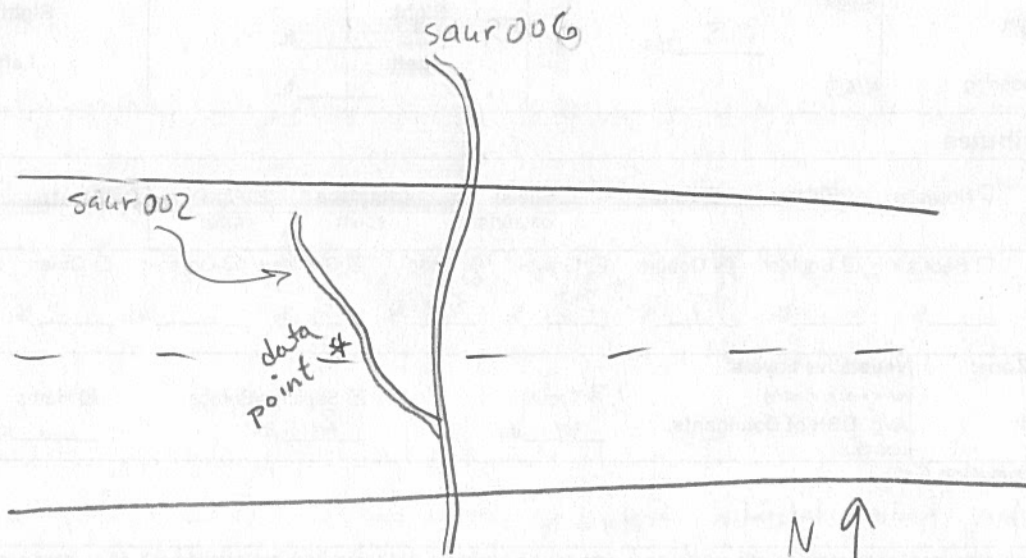
- **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Intermittent channel, impacted by livestock,
trib to saur006

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

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur002 facing northwest upstream.



Waterbody data point saur002 facing southeast downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur002 facing northeast across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>Guy Hollow</u>		Waterbody ID: <u>Saur006</u>	Date: <u>3/17/16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>J Benton</u>	Photos: <u>N, S, E</u>	
Tract Number(s): <u>07-001-F029</u>		Nearest Milepost: <u>109</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:

(check one)

☐ Centerline

☒ Re-Route

☐ Access Road

☐ Other:

Physical Attributes

Stream Classification:

(check one)

☐ Ephemeral

☐ Intermittent

☒ Perennial

Waterbody Type:

(check one)

☐ River

☒ Stream

☐ Ditch

☐ Canal

☐ Other:

OHWM

Width: 10 ft.

Height: 0.5 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank

☐ Shelving

☐ Wrested vegetation

☐ Scouring

☒ Water staining

☒ Bent, matted, or missing vegetation

☒ Wrack line

☒ Litter and debris

☐ Abrupt plant community change

☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

12 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

9 ft.

Width of Waterbody - Water Edge to Water Edge:

N/A ☐ 9 ft.

Depth of Water: (Approx.)

N/A ☐ 0.3 ft.

Sinuosity:

(check one)

☐ Straight

☒ Meandering

Water velocity:

(Approx.)

1.2 fps

N/A ☐

Bank height

Right: 1.5 ft.

Left: 1.5 ft.

Bank slope

Right: 70 degrees

Left: 70 degrees

Qualitative Attributes

Water Appearance:

(check one)

☐ No water

☒ Clear

☐ Turbid

☐ Sheen on surface

☐ Surface scum

☐ Algal mats

☐ Other:

Substrate:

(check all that apply)

☐ Bedrock

☐ Boulder

☒ Cobble

☒ Gravel

☒ Sand

☐ Silt/clay

☐ Organic

☐ Other:

% of Substrate:

_____ %

_____ %

25 %

40 %

35 %

_____ %

_____ %

_____ %

Width of Riparian Zone:

50 ft.

N/A ☐

Vegetative Layers:

(check all that apply)

☒ Trees:

8 in.

☒ Saplings/Shrubs:

2 in.

☐ Herbs

_____ in.

Dominant Bank Vegetation (list):

Pinus strobus, Pinus echinata, Liquidambar styraciflua

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Submerged wood, leaf packs, riffles

Aquatic Organisms Observed (list):

caddisflies, mayflies

T&E Species Observed (list):

None observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

livestock access

Tributary is:

(check one)

☒ Natural

☐ Artificial, man-made

☐ Manipulated

Stream Quality *:

(check one)

☐ High

☒ Moderate

☐ Low

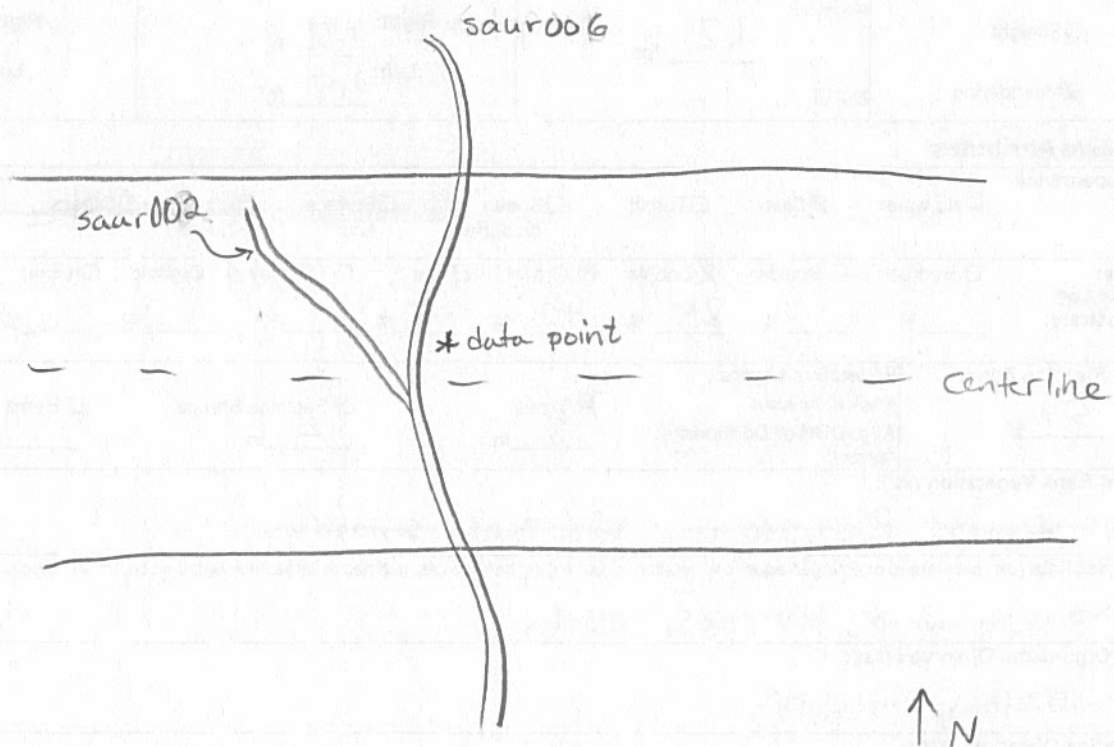
- **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Perennial channel, impacted by livestock

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

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur006 facing north upstream.



Waterbody data point saur006 facing south downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur006 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>VT to Hamilton Beach</u>		Waterbody ID: <u>SAUR003</u>	Date: <u>3/17/16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>ESI</u>	Crew Member Initials: <u>J Benton</u>	Photos: <u>N, S, E</u>	
Tract Number(s): <u>07-001 - F029</u>		Nearest Milepost: <u>109</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:

(check one) ☐ Centerline ☒ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 4 ft.

Height: 1 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☒ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

5 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

3 ft.

Width of Waterbody - Water Edge to Water Edge:

N/A ☐ 3.5 ft.

Depth of Water:

(Approx.) 0.3 ft.

Sinuosity:

(check one) ☐ Straight ☒ Meandering

Water velocity:

(Approx.) 1 fps
N/A ☐

Bank height

Right: 2 ft.
Left: 2.5 ft.

Bank slope

Right: 80 degrees
Left: 80 degrees

Qualitative Attributes

Water Appearance:

(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply) ☐ Bedrock ☐ Boulder ☒ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:
 % of Substrate: _____ % _____ % 5 % 20 % 45 % 30 % _____ % _____ %

Width of Riparian Zone:

0 ft.
N/A ☐ pasture

Vegetative Layers:

(check all that apply)

Avg. DBH of Dominants: _____ in. ☒ Trees: 8 in. ☒ Saplings/Shrubs: 2 in. ☒ Herbs: N/A in.

Dominant Bank Vegetation (list):

Pinus taeda, Festuca sp.

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

leaf packs, submerged wood, riffles, pools

Aquatic Organisms Observed (list):

None observed

T&E Species Observed (list):

none observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

livestock access - heavily impacted

Tributary is:

(check one) ☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality *:

(check one) ☐ High ☐ Moderate ☒ Low

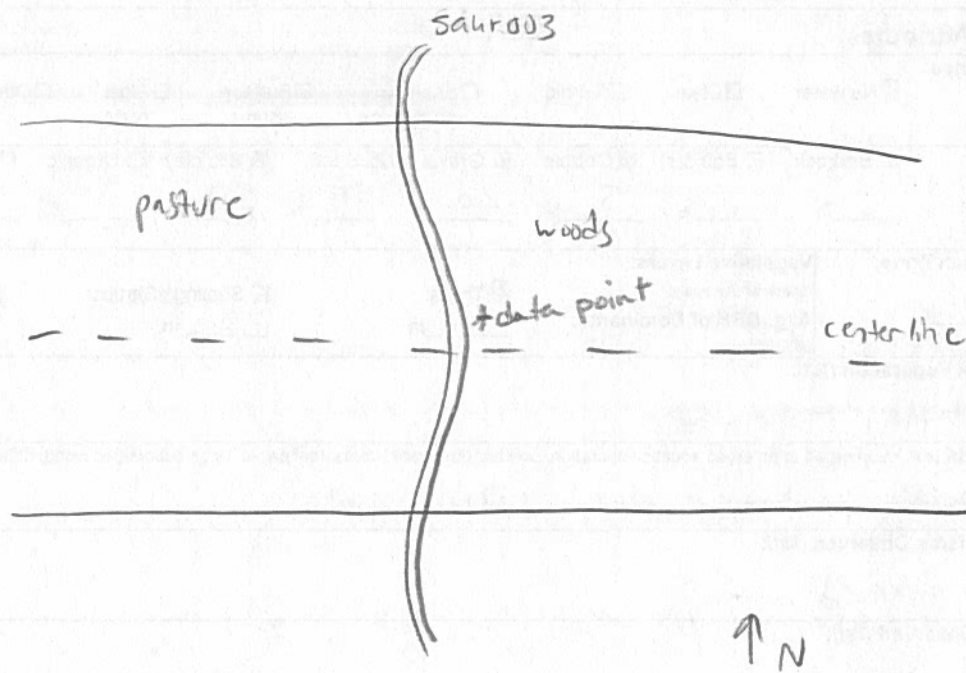
- **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Perennial channel, impacted by livestock

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

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur003 facing north upstream.



Waterbody data point saur003 facing south downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur003 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name: ACP		Waterbody Name: VT to Hamilton Branch		Waterbody ID: saur004	Date: 3/17/16
State: VA	County/Parish: Augusta	Company: ESI	Crew Member Initials: JBenton	Photos: NE, SW, SE	
Tract Number(s): 07-001 - F029		Nearest Milepost: 109		Associated Wetland ID(s): N/A	

Survey Type:

(check one) ☐ Centerline ☒ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☐ Intermittent ☒ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 4 ft.

Height: 0.5 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☒ Water staining
☒ Bent, matted, or missing vegetation ☒ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

6 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

2.5 ft.

Width of Waterbody - Water Edge to Water Edge:

N/A ☐ 2 ft.

Depth of Water: (Approx.)

N/A ☐ 0.2 ft.

Sinuosity:

(check one) ☐ Straight ☒ Meandering

Water velocity:

(Approx.) 0.5 fps
N/A ☐

Bank height

Right: 2 ft.
Left: 2 ft.

Bank slope

Right: 70 degrees
Left: 70 degrees

Qualitative Attributes

Water Appearance:

(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply) ☐ Bedrock ☐ Boulder ☐ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____ % _____ % _____ % 20 % 50 % 30 % _____ % _____ %

Width of Riparian Zone:

N/A ☐ 0 ft. pasture

Vegetative Layers:

(check all that apply)

Avg. DBH of Dominants: (approx.) ☒ Trees: 6 in. ☒ Saplings/Shrubs: 2 in. ☐ Herbs: _____ in.

Dominant Bank Vegetation (list):

Cornus florida, Pinus taeda, Festuca sp.

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

leaf packs, riffles, pools

Aquatic Organisms Observed (list):

Aquatic worms, large stonefly

T&E Species Observed (list):

None observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

livestock access - heavily impacted

Tributary is:

(check one) ☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality*:

(check one) ☐ High ☐ Moderate ☒ Low

Waterbody ID:

Saur004

- **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

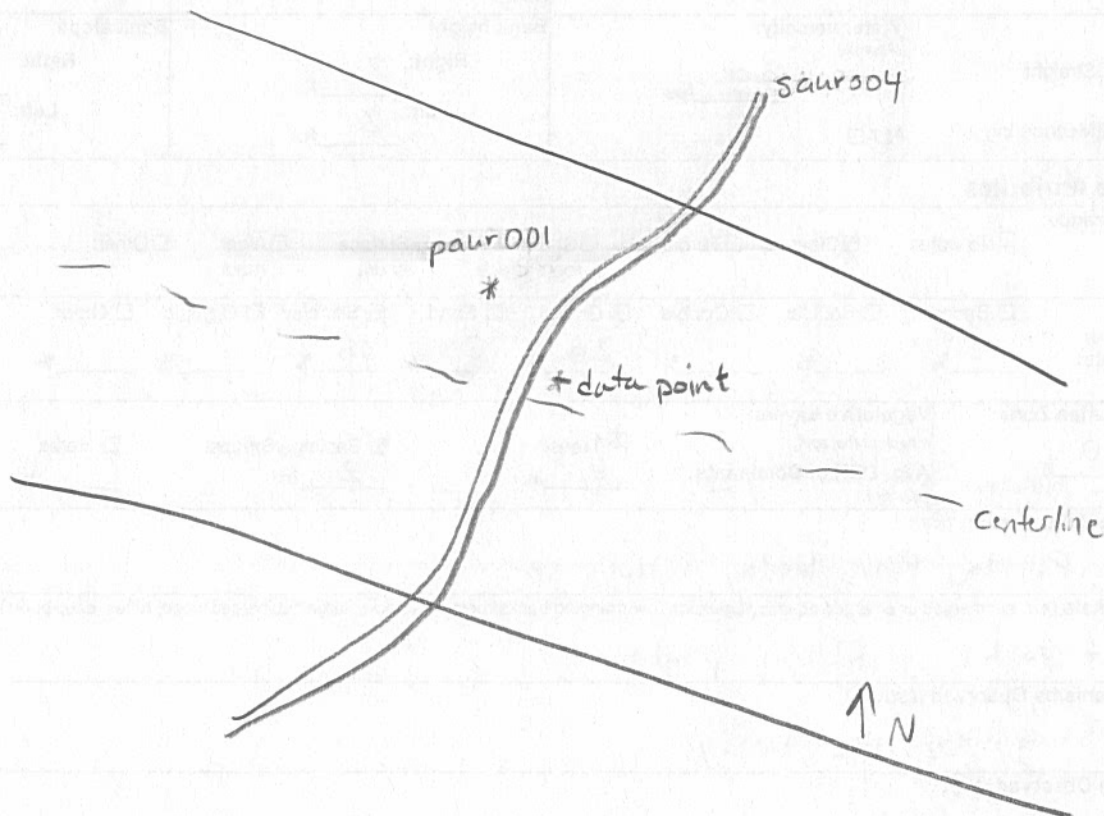
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Perennial Channel, severely impacted by livestock

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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur004 facing northeast upstream.



Waterbody data point saur004 facing southwest downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur004 facing southeast across bank.

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: Sauy002
State: Virginia		County: Augusta	Company: Dominion	Crew Member Initials: KO, AS
Tract Number(s): CY GWNF-6 Spr 04-A		Nearest Milepost: 109		Associated Wetland ID(s): Wauy003e_w
Survey Type: (check one) <input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input checked="" type="checkbox"/> Access Road <input type="checkbox"/> Other: contractor yard				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 5 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.1 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input checked="" type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 10 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 5 ft.		Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> ft.
Depth of Water: (Approx.) N/A <input checked="" type="checkbox"/> ft.				
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) N/A <input checked="" type="checkbox"/> fps		Bank height Right: 2 ft. Left: 2 ft.
				Bank slope Right: 25 degrees Left: 15 degrees
Qualitative Attributes				
Water Appearance: (check one) <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% 20 % 20 % _____% 60 % _____% _____%				
Width of Riparian Zone: N/A <input checked="" type="checkbox"/> ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: _____in. <input type="checkbox"/> Saplings/Shrubs: _____in. <input checked="" type="checkbox"/> Herbs		
		Avg. DBH of Dominants: (approx.)		
Dominant Bank Vegetation (list): Scirpus atrovirens, polygonum pennsylvanicum, persicaria hydropuperoides, barnyard grass, Festuca paradoxa				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):				
Aquatic Organisms Observed (list):				
T&E Species Observed (list):				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Livestock access, manure in waterbody				
Tributary is: (check one) <input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

Sauy002

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

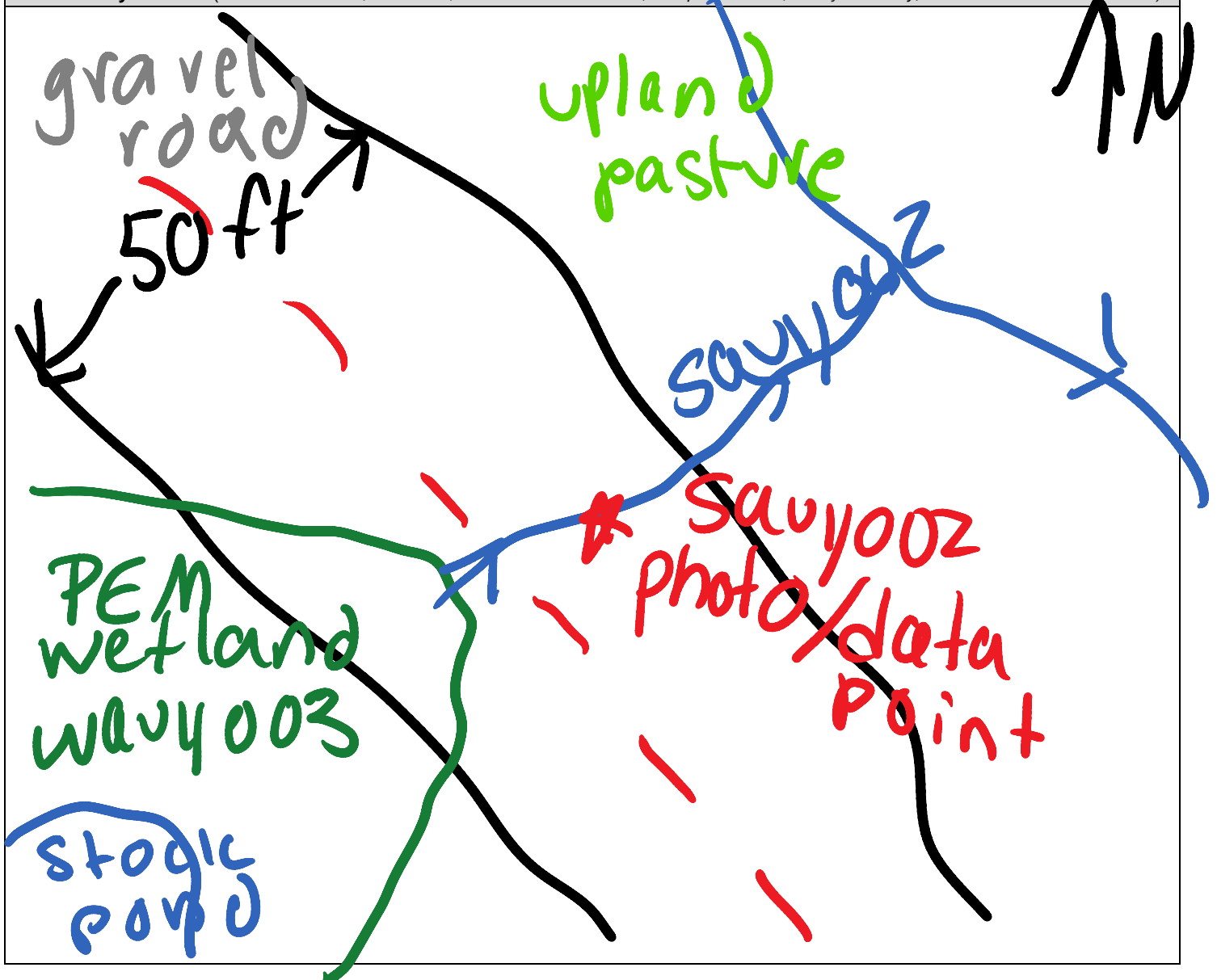
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Stream originates in wetland wauy003, it crosses the road without a culvert or bridge.

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





Waterbody sauy002 facing southwest upstream



Waterbody sauy002 facing northwest downstream



Waterbody sauy002 facing northwest across

Linear Waterbody Data Sheet

Survey Description

Project Name: <u>ACP</u>		Waterbody Name: <u>VT to Hamilton Branch</u>		Waterbody ID: <u>Saur005</u>	Date: <u>3/17/16</u>
State: <u>VA</u>	County/Parish: <u>Augusta</u>	Company: <u>EST</u>	Crew Member Initials: <u>J Benton</u>	Photos: <u>NW, SE, NE</u>	
Tract Number(s): <u>07-001-F029</u>		Nearest Milepost: <u>109</u>		Associated Wetland ID(s): <u>None</u>	

Survey Type:

(check one) ☐ Centerline ☒ Re-Route ☐ Access Road ☐ Other:

Physical Attributes

Stream Classification:

(check one) ☐ Ephemeral ☒ Intermittent ☐ Perennial

Waterbody Type:

(check one) ☐ River ☒ Stream ☐ Ditch ☐ Canal ☐ Other:

OHWM

Width: 6 ft.

Height: 0.5 ft.

N/A ☐

OHWM Indicator:

(check all that apply)

☒ Clear line on bank ☐ Shelving ☐ Wrested vegetation ☐ Scouring ☒ Water staining
☒ Bent, matted, or missing vegetation ☐ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:

10 ft.

Width of Waterbody - Toe of Slope to Toe of Slope:

5 ft.

Width of Waterbody - Water Edge to Water Edge:

4 ft.

N/A ☐

Depth of Water:
(Approx.)

0.2 ft.

N/A ☐

Sinuosity:

(check one) ☐ Straight ☒ Meandering

Water velocity:

(Approx.) 0.5 fps

N/A ☐

Bank height

Right: 2.5 ft.
Left: 2.5 ft.

Bank slope

Right: 50 degrees
Left: 50 degrees

Qualitative Attributes

Water Appearance:

(check one) ☐ No water ☒ Clear ☐ Turbid ☐ Sheen on surface ☐ Surface scum ☐ Algal mats ☐ Other:

Substrate:

(check all that apply) ☐ Bedrock ☐ Boulder ☐ Cobble ☒ Gravel ☒ Sand ☒ Silt/clay ☐ Organic ☐ Other:

% of Substrate: _____ % _____ % _____ % 5 % 35 % 60 % _____ % _____ %

Width of Riparian Zone:

0 ft.
pasture

N/A ☐

Vegetative Layers:

(check all that apply)

☐ Trees: _____ in. ☐ Saplings/Shrubs: _____ in. ☒ Herbs N/A in.
Avg. DBH of Dominants: _____ in. (approx.)

Dominant Bank Vegetation (list):

Festuca sp.

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Submerged veg., riffles

Aquatic Organisms Observed (list):

None observed

T&E Species Observed (list):

None observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):

livestock access, heavily impacted, poor condition

Tributary is:

(check one) ☒ Natural ☐ Artificial, man-made ☐ Manipulated

Stream Quality *:

(check one) ☐ High ☐ Moderate ☒ Low

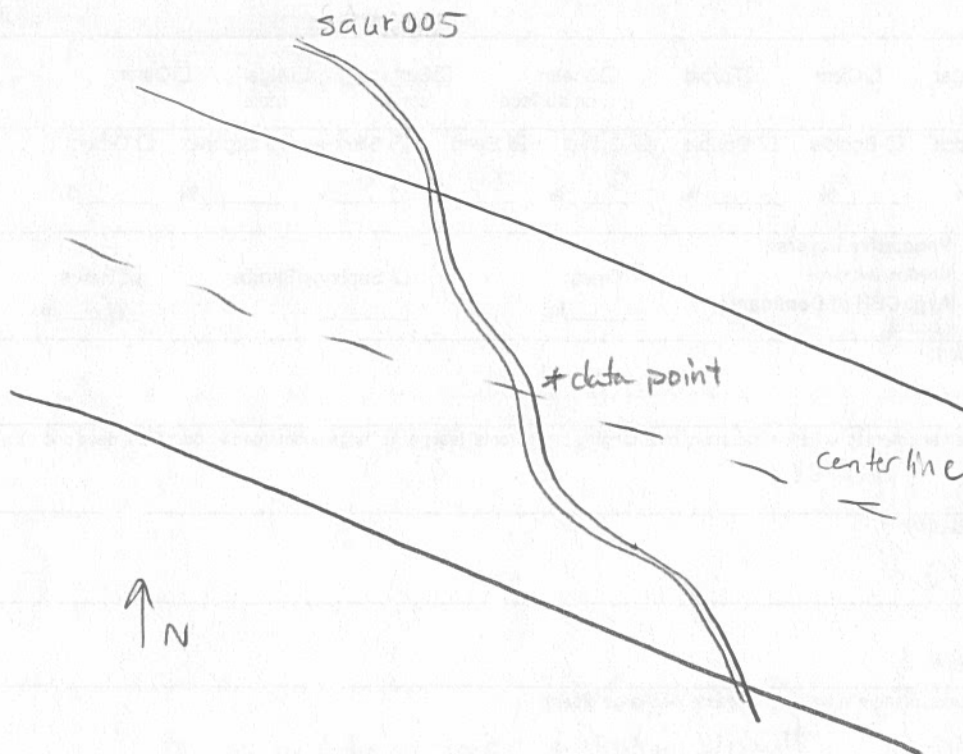
- **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Intermittent channel, severely impacted by livestock

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

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur005 facing northwest upstream.



Waterbody data point saur005 facing southeast downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point saur005 facing northeast across bank.

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: sauz003
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS, AS
Tract Number(s): 07-001-F029		Nearest Milepost: 109		Photos: 1 - 3
Associated Wetland ID(s): None				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 3 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.5 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 4 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.		Width of Waterbody - Water Edge to Water Edge: 3 ft.
Depth of Water: (Approx.) 0.5 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 0.5 fps		Bank height Right: 0.5 ft. Left: 0.5 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 45 degrees Left: 45 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input checked="" type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% _____% _____% 100% _____% _____%				
Width of Riparian Zone: 0 ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: _____in. <input type="checkbox"/> Saplings/Shrubs: _____in. <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.)		
Dominant Bank Vegetation (list): Poa pratense				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz003

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

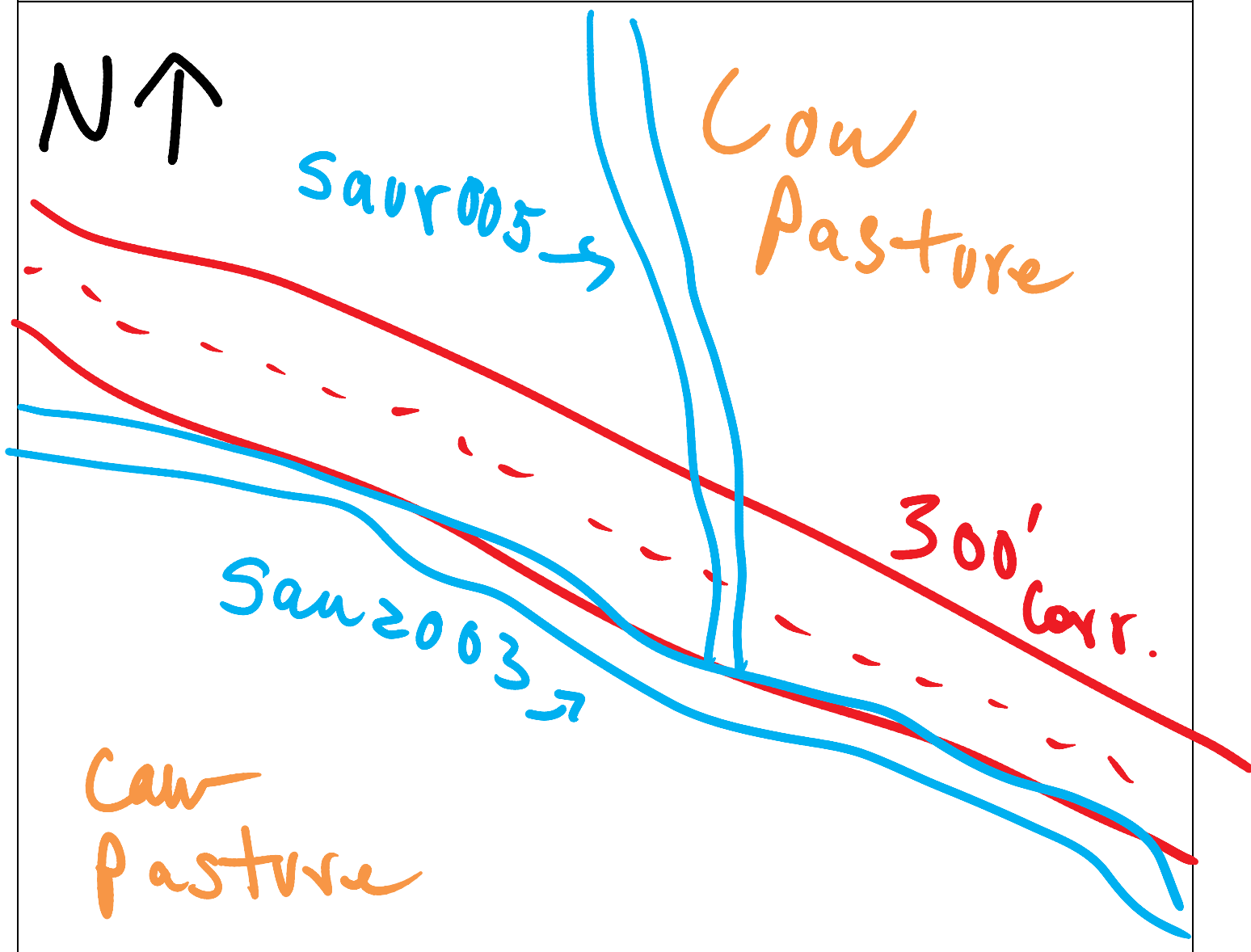
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

This is an incised intermittent stream in a cattle pasture.

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





Waterbody sauz003 facing west upstream



Waterbody sauz003 facing east downstream



Waterbody sauz003 facing south across

Open Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: Unnamed Pond		Waterbody ID: oauz001
Date: 5/25/2016				
State: Virginia	County: Augusta	Company: ERM	Crew Member Initials: SS, AS	Photos: 1 - 3
Tract Number(s): 07-001-F031		Nearest Milepost: 110		Associated Wetland ID(s): None
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Waterbody Type: (check one) <input type="checkbox"/> Stock Pond <input type="checkbox"/> Natural Pond <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> Impoundment <input type="checkbox"/> Oxbow <input type="checkbox"/> Other:				
Hydrologic Regime: <input checked="" type="checkbox"/> Permanently Flooded <input type="checkbox"/> Semipermanently Flooded <input type="checkbox"/> Seasonally Flooded <input type="checkbox"/> Temporarily Flooded				
OHWM Height: <u>6</u> ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Depth of Water: <u>5</u> ft. N/A <input type="checkbox"/>		Bank height (average): <u>7</u> ft.		Bank slope (average): <u>70</u> degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% <u>60</u> % <u>40</u> % _____% _____% _____%				
Width of Riparian Zone: <u>250</u> ft. N/A <input type="checkbox"/>		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: <input type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: _____in. _____in. (approx.)		
Dominant Bank Vegetation (list): <i>Poa pratense</i>				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): <i>A few Typha latifolia at northern end.</i>				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Waterbody is: (check one) <input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Waterbody Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

oauz001

^a **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.

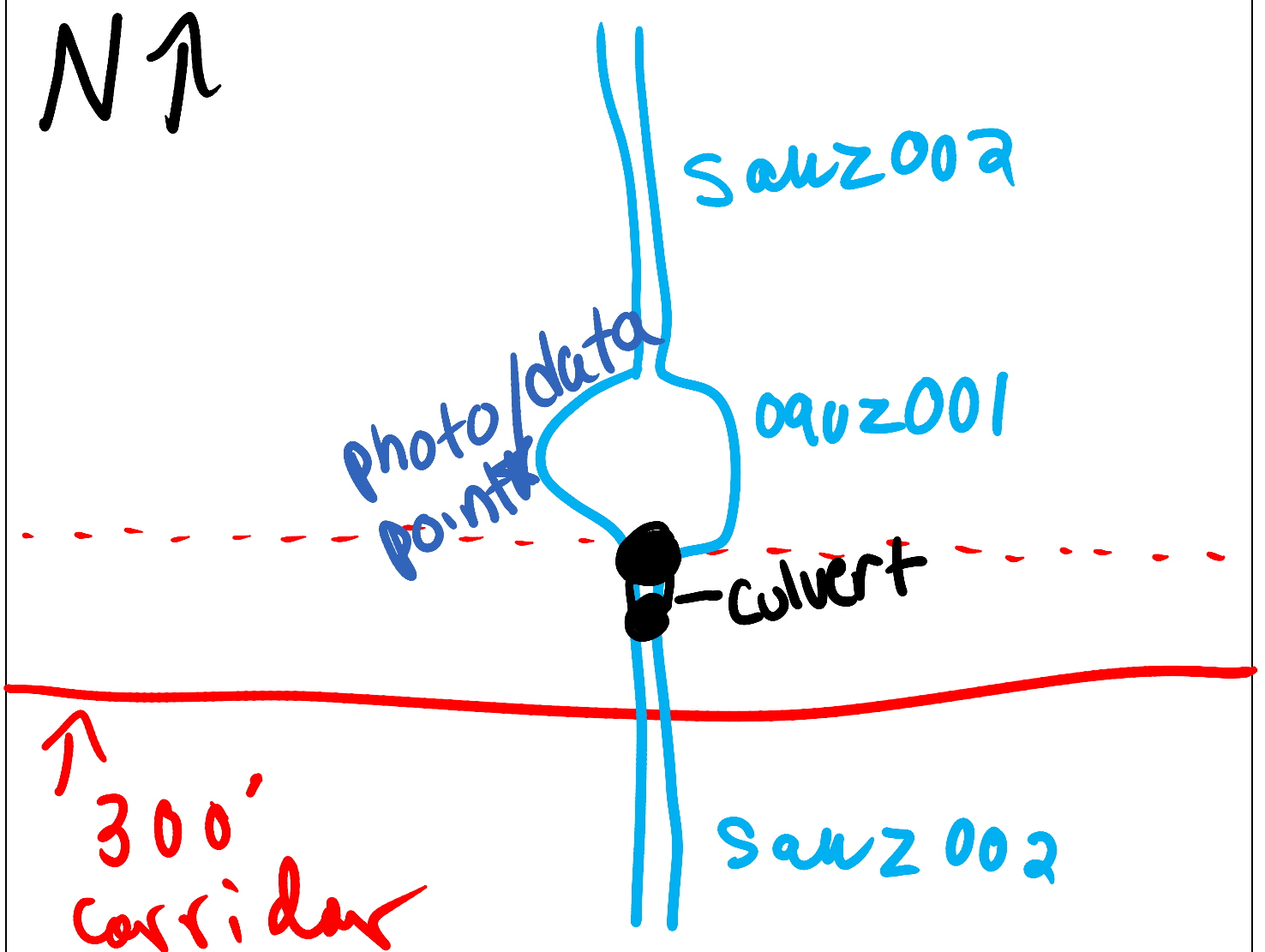
Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers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

This is a man-made impoundment within a stream corridor.

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





Open waterbody oauz001 facing north



Open waterbody oauz001 facing northeast



Open waterbody oauz001 facing east

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: sauz002
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS, AS
Tract Number(s): 07-001-F031		Nearest Milepost: 110		Photos: 1 - 3
Associated Wetland ID(s): None				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 2 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.5 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 3 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.		Width of Waterbody - Water Edge to Water Edge: 2 ft.
Depth of Water: (Approx.) 0.5 ft.		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 0.5 fps		Bank height Right: 1 ft. Left: 1 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 60 degrees Left: 60 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% 95 % 5 % _____% _____% _____%				
Width of Riparian Zone: 250 ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: _____in. <input type="checkbox"/> Saplings/Shrubs: _____in. <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.) _____in.		
Dominant Bank Vegetation (list): Poa pratense				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz002

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

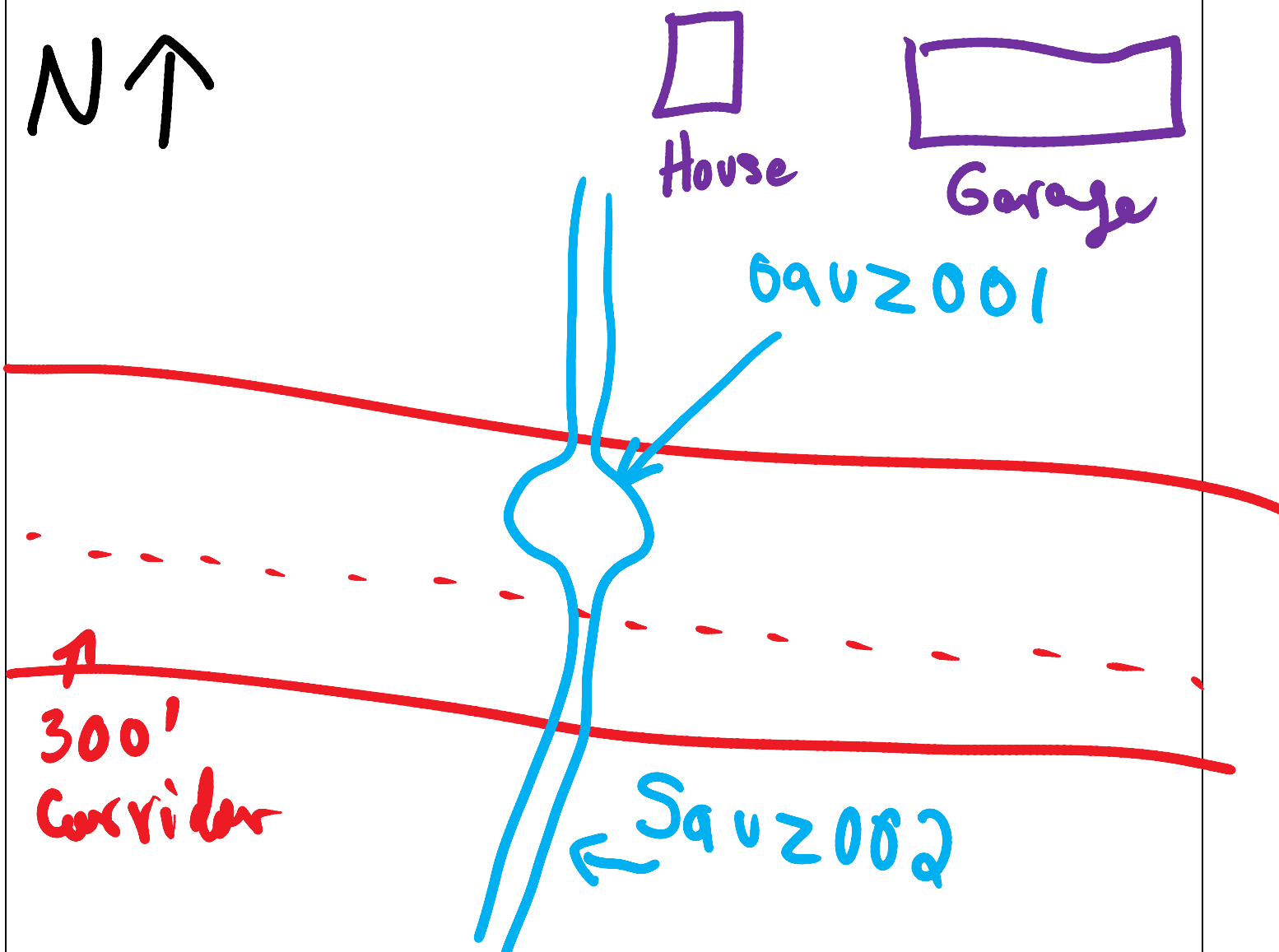
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

This is an incised perennial stream in a maintained lawn.

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





Waterbody sauz002 facing north upstream



Waterbody sauz002 facing south downstream



Waterbody sauz002 facing west across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: sauz001
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS, AS
Tract Number(s): 07-001-F035		Nearest Milepost: 110		Photos: 1 - 3
Associated Wetland ID(s): None				
Survey Type: (check one) <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 3 ft.		OHWM Indicator: (check all that apply) <input type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.5 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 6 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 4 ft.		Width of Waterbody - Water Edge to Water Edge: 2 ft.
Depth of Water: (Approx.) 0.2 ft.		N/A <input type="checkbox"/>		
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 1 fps		Bank height Right: 2 ft. Left: 4 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 45 degrees Left: 90 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% 5 % 95 % _____% _____% _____% _____%				
Width of Riparian Zone: 250 ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: _____in. <input type="checkbox"/> Saplings/Shrubs: _____in. <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.)		
Dominant Bank Vegetation (list): Poa pratense				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz001

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

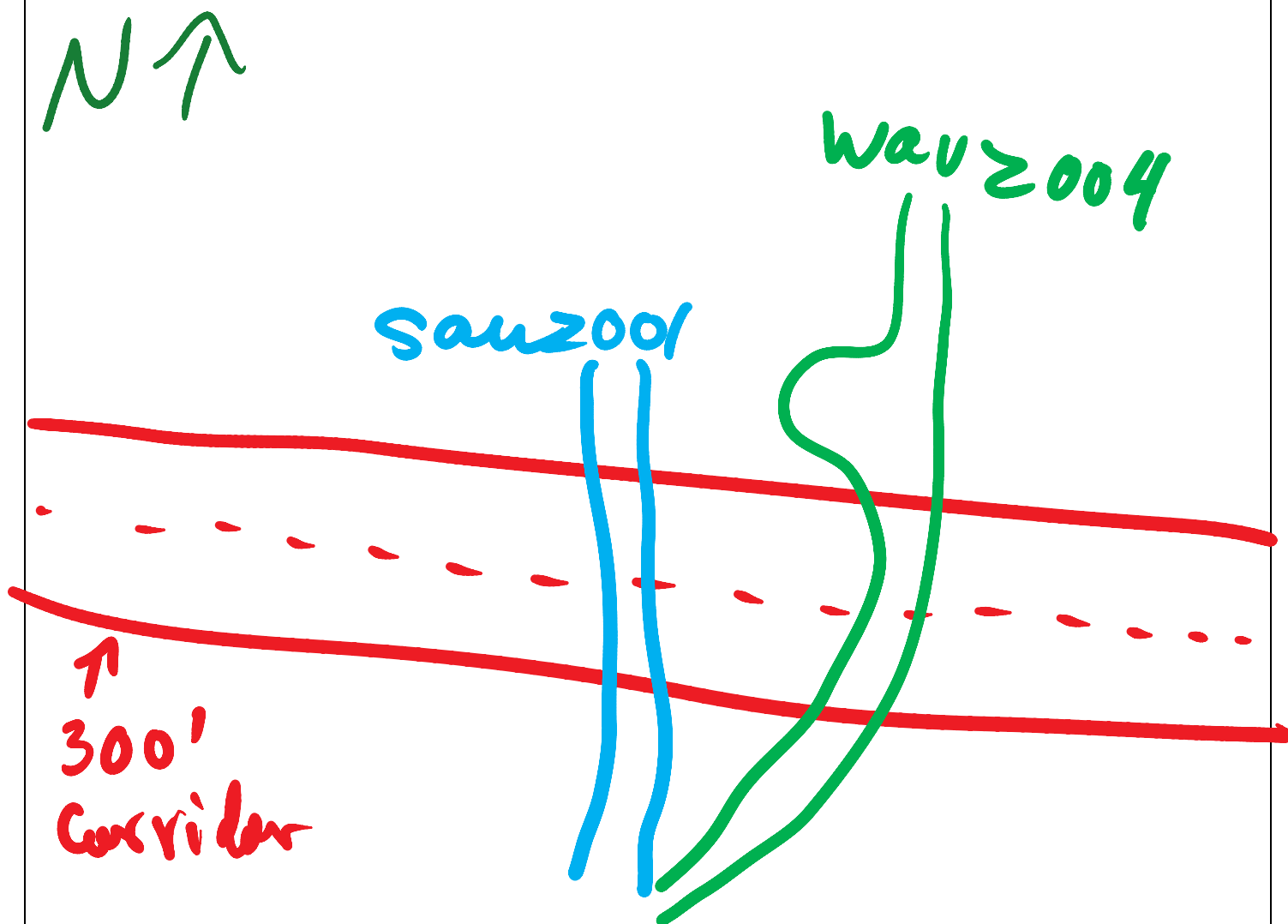
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

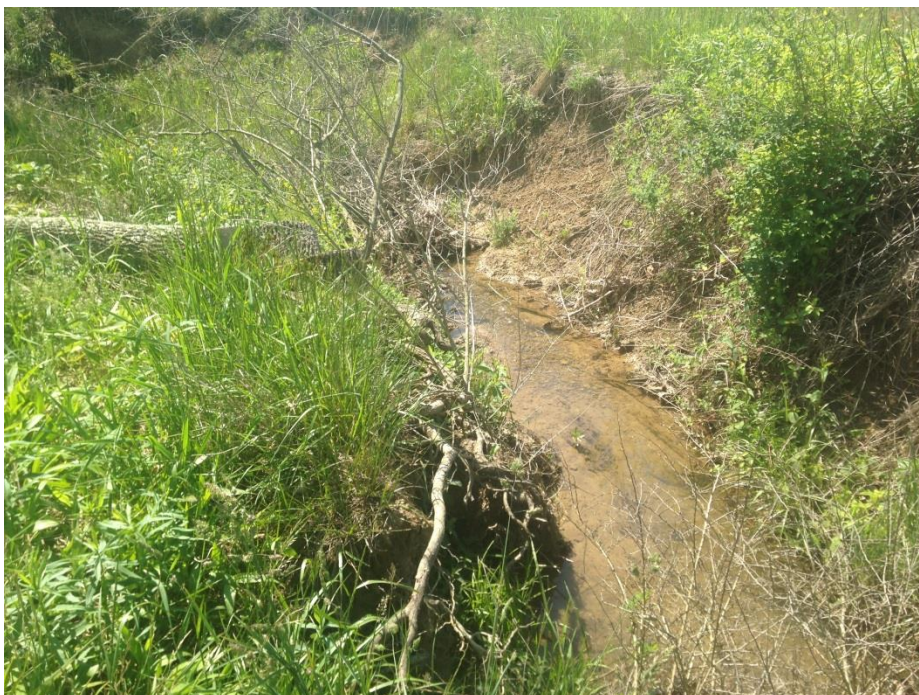
This is a well incised perennial stream in an agricultural field.

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





Waterbody sauz001 facing northwest upstream



Waterbody sauz001 facing southeast downstream



Waterbody sauz001facing southwest across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Hamilton Branch		Waterbody ID: sauz005
State: Virginia		County: Augusta	Company: ERM	Crew Member Initials: SS
Tract Number(s): 07-001-F037		Nearest Milepost: 109.8		Photos: 1-3
Associated Wetland ID(s): None				
Survey Type: (check one) <input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input checked="" type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 6 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 1 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 8 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 6 ft.		Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> 6 ft.
Depth of Water: (Approx.) 0.25 ft.		N/A <input type="checkbox"/>		
Sinuosity: (check one) <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: (Approx.) 0.5 fps		Bank height Right: 3 ft. Left: 3 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 85 degrees Left: 85 degrees
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % _____ % _____ % 100 % _____ % _____ % _____ %				
Width of Riparian Zone: 30 ft.		Vegetative Layers: (check all that apply) <input type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.) _____ in. _____ in.		
Dominant Bank Vegetation (list): Robinia pseudoacacia,				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

sauz005

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

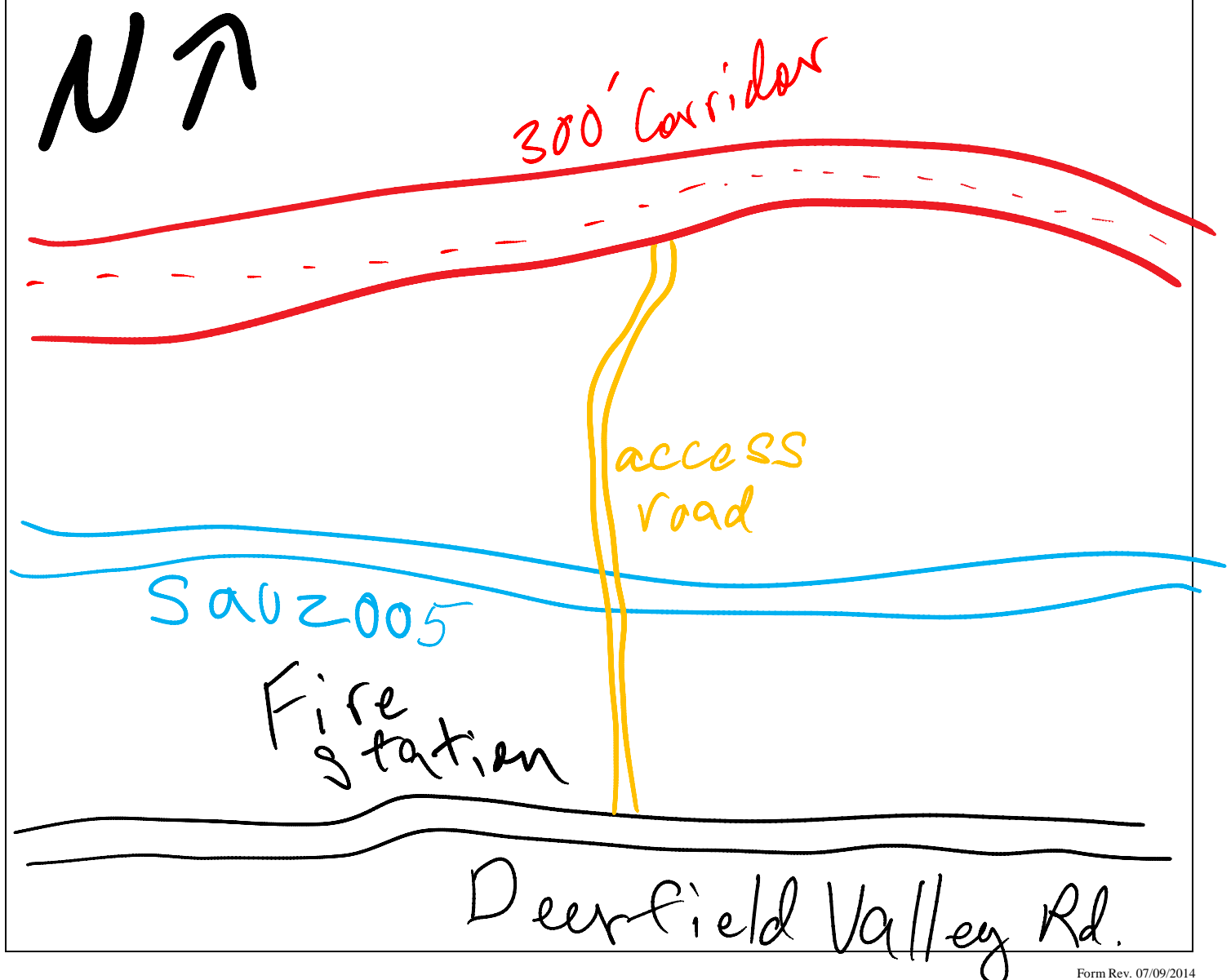
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

This is a small perennial stream.

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





Waterbody sauz005 facing west upstream



Waterbody sauz005 facing east downstream



Waterbody sauz005 facing south across

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Calfpasture River		Waterbody ID: Sauc128
State: Virginia		County: Augusta	Company: NRG	Crew Member Initials: CR, SA
Tract Number(s): 07-001-F039		Nearest Milepost: 110		Associated Wetland ID(s): None
Survey Type: (check one) <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: (check one) <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 2 ft.		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
Height: 0.5 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 5 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 1 ft.		Width of Waterbody - Water Edge to Water Edge: 1 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Depth of Water: (Approx.) 0.2 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: (Approx.) 0.5 fps		Bank height Right: 2 ft. Left: 2 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		Bank slope Right: 80 degrees Left: 80 degrees
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>
Qualitative Attributes				
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____ % _____ % 5 % 40 % 45 % 10 % _____ % _____ %				
Width of Riparian Zone: 20 ft.		Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: (approx.) 12 in. 2 in.		
Dominant Bank Vegetation (list): Red maple, sweet-gum, eastern red-cedar, multiflora rose, dropseed				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): None				
Aquatic Organisms Observed (list): None				
T&E Species Observed (list): None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

Sauc128

^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Wetland receives some water input from a PEM wetland located outside the study corridor

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

