## Reach S-G39 (Pipeline ROW) Intermittent Spread H Montgomery County, Virginia

Data	Included
Photos	$\checkmark$
SWVM Form	$\checkmark$
FCI Calculator and HGM Form	$\checkmark$
RBP Physical Characteristics Form	$\checkmark$
Water Quality Data	$\checkmark$
RBP Habitat Form	$\checkmark$
RBP Benthic Form	$\checkmark$
Benthic Identification Sheet	N/A – Low flow
Wolman Pebble Count	$\checkmark$
RiverMorph Data Sheet	$\checkmark$
USM Form (Virginia Only)	$\checkmark$
Longitudinal Profile and Cross Sections	$\checkmark$

### Stream S-G39 (ROW) Montgomery County



Photo Type: DS VIEW Location, Orientation, Photographer Initials: Downstream view of ROW looking N, AO



Photo Type: US VIEW Location, Orientation, Photographer Initials: Upstream view of ROW looking S, AO

## Stream S-G39 (ROW) Montgomery County

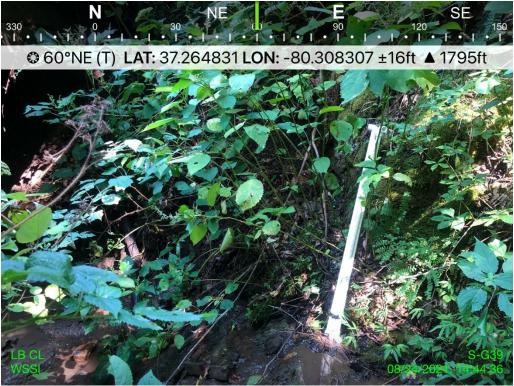


Photo Type: LB CL Location, Orientation, Photographer Initials: Standing on LB looking at RB along pipe centerline looking NE, AO



Photo Type: RB CL Location, Orientation, Photographer Initials: Standing on RB looking at LB along pipe centerline looking W, AO

## **DEQ Permit #21-0416**

## Spread H

## Stream S-G39 (ROW) Montgomery County



Photo Type: DS COND Location, Orientation, Photographer Initials: Downstream conditions outside of ROW looking N, AO

L:\22000s\22800\22865.06\Admin\05-ENVR\Field Data\Spread H\Field Forms\S-G39\0\_Potesta Submission\Docs\Photo Document\_S-G39.docx

#### West Virginia Stream and Wetland Valuation Metric (SWVM) Version 2.1, September 2017

USACE FILE NO./ Project Name: (v2.1, Sept 2015)	Mountain	Valley Pipeline	IMPACT COORDINATES: (in Decimal Degrees)	Lat.	37.264817	Lon.	-80.308486	WEATHER:	Sunny	DATE:	August 24, 2021
IMPACT STREAM/SITE ID AN (watershed size (acreage), una		S-4	G39		MITIGATION STREAM CLAS (watershed size {acre	S./SITE ID AND SI sage), unaltered or impai				Comments:	
STREAM IMPACT LENGTH:	82 FORM OF MITIGATION:	RESTORATION (Levels I-III)	MIT COORDINATES: (in Decimal Degrees)	Lat.		Lon.		PRECIPITATION PAST 48 HRS:	None	Mitigation Length:	
Column No. 1- Impact Existing Co	ondition (Debit)	Column No. 2- Mitigation Existing C	ondition - Baseline (Credit)		Column No. 3- Mitigation Post Comple	Projected at Five Y tion (Credit)	ears	Column No. 4- Mitigation Projec Post Completion (Cr	ted at Ten Years edit)	Column No. 5- Mitigation Proje	cted at Maturity (Credit)
Stream Classification:	Intermittent	Stream Classification:			Stream Classification:		0	Stream Classification:	0	Stream Classification:	0
Percent Stream Channel Slope		Percent Stream Channel Sic	ppe		Percent Stream Channel	I Slope	0	Percent Stream Channel Slop	oe O	Percent Stream Channel	Slope 0
HGM Score (attach data	forms):	HGM Score (attach o	iata forms):		HGM Score (atta	ich data forms):		HGM Score (attach data	a forms):	HGM Score (attach	data forms):
	Average		Average				Average		Average		Average
Hydrology Biogeochemical Cycling	0.64 0.70333333	Hydrology Biogeochemical Cycling	0		Hydrology Biogeochemical Cycling		0	Hydrology Biogeochemical Cycling	0	Hydrology Biogeochemical Cycling	0
Habitat PART I - Physical, Chemical and Bio	0.63 Diogical Indicators	Habitat PART I - Physical, Chemical and	Biological Indicators		PART I - Physical, Chemica	I and Biological Ind	icators	Habitat PART I - Physical, Chemical and Bi	ological Indicators	Habitat PART I - Physical, Chemical an	d Biological Indicators
Pu	ints Scale Range Site Score		Points Scale Range Site Score			Points Scale Range	Site Score	1	Pointa Scale Range Site Score		Points Scale Range Site Score
PHYSICAL INDICATOR (Applies to all streams class	ssifications)	PHYSICAL INDICATOR (Applies to all streams of	classifications)		PHYSICAL INDICATOR (Applies to all stres	ams classifications)		PHYSICAL INDICATOR (Applies to all streams of	assifications)	PHYSICAL INDICATOR (Applies to all stream	ns classifications)
E Embeddedness Valocity DepR Regime I. Sediment Deposition 5. Channel Flow Status 6. Channel Alteration 7. Frequency of Riffles (or bends) B. ank Stabilly (L& 8. RB) 10. Registin Vegetative Zone Widh (L& 8. RB)	0.20         17           0.20         15           0.20         15           0.20         17           0.20         9           0.20         16           0.20         16           0.20         15           0.20         16           0.20         17           0.20         17           0.20         0.69           vd Premid Steams         138	Epfurani Substrati-Available Cover 2 Pool Substratio Characterization 3 Pool Variability 5 Sediment Deposition 5 Channel Flow Status 6 Channel Simusofity 8 amk Subsity (U.B. 8 RB) 10 April 2 Sector (U.B. 8 RB) CHEMICAL INDICATOR (Applies to Intermittent			USEPA REP (High Gradient Data Sheet 1: Epfanal Statuted/Available Cover 2: Embeddedness 3: Velocity/Depth Regime 4: Sediment Deposition 5: Channel Flore Statut 5: Channel Alerration 5: Channel Alerration 5: Earch Statutiny (L& & RB) 9: More Statute (L& & RB) 9: More Statute (L& & RB) 1: Call RBP Score Sub-Total CHEMICAL INDICATOR (Applies to Interm	0-20 0-20	0 0 0 sams)	2. Embeddeness 3. Velocity/ Depth Regime 4. Sadiment Deposition 5. Channel Flow Status 6. Channel Aleration 7. Frequency of Rifles (or bends) 8. Bank Stability (LB & RB) 9. Vegetative Protection (LB & RB)	0-20 0-20 0-20 0-20 0-20 0-20 0-20 0-20	Epifaunal Substrate/Available Cover     Embeddeness     Velocity/Depth Regime     Sedmert Beposition     Channel Flow Status     Channel Flow Status     Channel Alteration     Z. Frequency of Rifles (or bends)     Bank Statuly (LB & RB)     Veostative Protection (LB & RB)     Todal RBP Score     Sub-Total     CHEMICAL INDICATOR (Apples to Internal	0.20         0.4           0.20         0.4
400-499 - 60 points pH 6.0-8.0 = 80 points DO	423.3 0.60 0.1 7.58 7.42 0.85	WVDEP Water Quality Indicators (General) Specific Conductivity pH DO Sub-Total	0-90 5-80 10-30 0		WVDEP Water Quality Indicators (Gene Specific Conductivity pH DO Sub-Total	0-90 0-90 0-90 0-1 0-1 0-1 0-1	0	WVDEP Water Quality Indicators (General) Specific Conductivity pH DO Sub-Total	0-90 5-90 10-30 <b>0</b>	WVDEP Water Cuality Indicators (Gener Specific Conductivity PH DO Sub-Total	a) 0.90 5.90 10.30 0
BIOLOGICAL INDICATOR (Applies to Intermittent	and Perennial Streams)	BIOLOGICAL INDICATOR (Applies to Intermitte	nt and Perennial Streams)		BIOLOGICAL INDICATOR (Applies to Int	termittent and Perenni	al Streams)	BIOLOGICAL INDICATOR (Applies to Intermit	tent and Perennial Streams)	BIOLOGICAL INDICATOR (Applies to Inte	mittent and Perennial Streams)
WV Stream Condition Index (WVSCI) 0 Sub-Total	0-100 0-1 0	WV Stream Condition Index (WVSCI) Sub-Total	0-100 0-1		WV Stream Condition Index (WVSCI) Sub-Total	0-100 0-1	0	WV Stream Condition Index (WVSCI) Sub-Total	0-100 0-1 <b>0</b>	WV Stream Condition Index (WVSCI) Sub-Total	0-100 0-1 0
PART II - Index and Unit		PART II - Index and I			PART II - Index a			PART II - Index and Uni		PART II - Index and	
	Linear Feet Unit Score	Index	Linear Feet Unit Score		Index	Linear Feet	Unit Score		Linear Feet Unit Score	Index	Linear Feet Unit Score
0.737	82 60.4066667	0	0 0		0	0	0	0	0 0	0	0 0

### FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the <u>UPPERMOST STRATUM</u> of the plant community is determined based on the calculated value for V<sub>CCANOPY</sub> (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

 Project Name: Mountain Valley Pipeline

 Location: Montgomery County

 Sampling Date: 8/24/2021

 Project Site

 Before Project

 Subclass for this SAR:

 Intermittent Stream

 Uppermost stratum present at this SAR:

 Shrub/Herb Strata

Functional Results Summary:

Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.84
Biogeochemical Cycling	0.64
Habitat	0.63

#### Variable Measure and Subindex Summary:

Variable	Variable Name		Subindex
VCCANOPY	Percent canpoy over channel.	Not Used, <20%	Not Used
V <sub>EMBED</sub>	Average embeddedness of channel.	3.88	1.00
V <sub>SUBSTRATE</sub>	Median stream channel substrate particle size.	3.45	1.00
V <sub>BERO</sub>	Total percent of eroded stream channel bank.	54.55	0.78
V <sub>LWD</sub>	Number of down woody stems per 100 feet of stream.	4.55	0.57
V <sub>TDBH</sub>	Average dbh of trees.	Not Used	Not Used
V <sub>SNAG</sub>	Number of snags per 100 feet of stream.	0.00	0.10
V <sub>SSD</sub>	Number of saplings and shrubs per 100 feet of stream.	181.82	1.00
V <sub>SRICH</sub>	Riparian vegetation species richness.	0.41	0.20
VDETRITUS	Average percent cover of leaves, sticks, etc.	27.50	0.34
V <sub>HERB</sub>	Average percent cover of herbaceous vegetation.	55.00	0.73
V <sub>WLUSE</sub>	Weighted Average of Runoff Score for Catchment.	1.00	1.00

			High-G	Gradient	Headwa	ter Strea	ms in A	ppalachi	a	VEISI	on 10-20-
			5			et and C					
	Team:	AO, MM						Latitude/UT	M Northing:	37.264817	
Pro			alley Pipelir	ne			l	•	-	-80.308486	i
	Location:	Montgome	ry County					San	npling Date:	8/24/2021	
SA	R Number:	S-G39	Reach	Length (ft):	22	Stream Ty	/pe: Inte	rmittent Strea	m		_
	Top Strata:	Sh	rub/Herb Sti	ata	(determine	d from perce	ent calculate	ed in V <sub>CCANO</sub>	PY)		
Site	and Timing:	Project Site				•	Before Proje	ect			•
mple		1-4 in strea								<u> </u>	
1	V <sub>CCANOPY</sub>	equidistant 20%, enter	points alone at least one	the stream value betw	een 0 and 1	nd sapling ca only if tree/s 9 to trigger	apling cove	r is at least		0,	Not Use <20%
	List the per	rcent cover r	neasuremer	nts at each p	point below:						1
	0										
2	V <sub>EMBED</sub>	Average er	nbeddednes	s of the stre	am channe	I. Measure	at no fewer	than 30 rou	ahly equidis	tant points	
_	EMDED					d. Before n					3.9
		surface and	d area surro	unding the p	article that	is covered b	y fine sedin	nent, and en	ter the ratin	g according	
								f fine sedim	ents, use a	rating score	
						rating score					1
		Embedded Minshall 19	0	or gravel, c	obble and b	oulder partic	cles (rescale	ed from Plat	s, Megahar	n, and	Measu
		-	,								at leas 30 poin
		Rating 5	Rating Des		overed cur	rounded, or	buried by fi	ne sediment	(or bedrock		30 poir
		4				, surrounded	,			()	
		3				d, surrounde					
		2				d, surrounde					
					covered, su	irrounded, o	r buried by	fine sedimer	nt (or artificia	al surface)	l
			point below	:							1
	5	4									
	1 5	4									
	- 5 - 4	4									
	4	4									
	or concrete 99.00 1.90	e as 0.0 in, s 4.80 2.40	and or finer			point below					
	99.00	0.40									
	0.80	4.50									
4	V	Total perce	ent of eroder	stream chr	nnel bank	Enter the to	tal number	of feet of er	oded bank o	n each	
4	V <sub>BERO</sub>	•	e total perce			If both bar					55 %
		ind) 50 dp	Left Bank:	6	ft		Right Bank:	6	ft		
mple	Variables	5-9 within t	he entire ri	parian/buff	er zone adj	acent to the	e stream ch	annel (25 f	eet from ea	ich bank).	
5	V <sub>LWD</sub>	Number of	down wood	/ stems (at	east 4 inche	es in diamete	er and 36 in	ches in lend	th) per 100	feet of	
-	- LWD					e 50'-wide b					4.5
		per 100 fee	et of stream	will be calcu							
0						f downed wo			1		-
6	V <sub>TDBH</sub>		cm) in diam			<sub>Y</sub> tree/saplin	g cover is a	t least 20%)	. Trees are	at least 4	Not Use
			,				) within the	huffor on or	ob aida af		
		the stream			iuuai tiees (	(at least 4 in	) wiu iiri u ie		ICT SILLE OF		
			Left Side					Right Side			
								Ŭ			
7	V <sub>SNAG</sub>					per 100 feet		Enter numb	er of snags	on each	
		side of the	stream, and	the amount	per 100 fee	et will be cal	culated.				0.0
			Left Side:		0		Right Side:		0		
8	V <sub>SSD</sub>	Number of				up to 4 inch			-	asure only if	
-	220					and shrubs					181.8
			of stream wil						-		
			Left Side:	4	0		Right Side:				

Group 1 = 1.0       Group 2 (-1.0)         Acer rubrum       Magnolia tripetala       Allanthus attitissima       Lonicera japonic.         Acer saccharum       Nyssa sylvatica       Albizia julibrissin       Lonicera tatarica         Aesculus flava       Oxydendrum arboreum       Alliantia petiolata       Loticera tatarica         Assimia triloba       Prunus serofina       Alternanthera       Lythrum salicatia         Betula alleghaniensis       Quercus alba       Aster tataricus       Paulownia tomer         Carya glabra       Quercus prinus       Coronilla varia       Pueraria montan         Carya ovalis       Quercus rubra       Lespedeza cuneata       Verbena brasilier         Carya ovalis       Quercus velutina       Lespedeza cuneata       Verbena brasilier         Carya ovalis       Quercus velutina       Lespedeza cuneata       Verbena brasilier         Frazinus americana       Tilia americana       Ligustrum sinense       Ligustrum sinense         11       Vertena       Species in Group 1       2       Species in Group 2         11       Verena       Acera due nod 30° tal.       Group 2       27.4         11       Verena       Lest Side       Right Side       27.4         12       Verena       Average percent cover		Group 1 in	the tallest s	ecies richness per 100 f tratum. Check all exotio nd the subindex will be	and invas	ive species p	resent in all			0.41
Acer sacchanm       Mysa syvetice       Abbia jubinism       Lonicer transce         Astrina tributa       Orgenome account account       Alliers petiolete       Lobas consultation         Astrina tributa       Ourcus subia       Alliers petiolete       Lobas consultation         Betula alignamionals       Ourcus subia       Alliers petiolete       Lobas consultation         Betula alignamionals       Ourcus subia       Alliers petiolete       Lobas consultation         Carya oraits       Ourcus subia       Aster tatacius       Mecnangement consultation         Carya oraits       Ourcus subia       Consultation       Pelavione toucos         Carya oraits       Ourcus subia       Consultation       Pelavione toucos         Carya oraits       Ourcus subia       Lipendeza biolor       Songhim halpee         Carya oraits       Ourcus subia       Lipendeza biolor       Songhim halpee         Carya oraits       Ourcus subjobs       Sessaftra aliokation       Lipendeza biolor       Songhim halpee         Carya oraits       Species in Group 1       2       Species in Group 2       Transaccons         Transaccons       Taga consider       Magnola acconnintation       Lipendeza biolot       Corinito with 25 feet from acconnintation         10       Vactua       Aster sta					1			2 (-1.0)		
Aesculus flava       Orystendrum arkonem       Altiaria petiolata       Lotus corniculata         Aestimine tribole       Prunus secretina       Atternantifiera       Lythrum salicata         Betuk aleginerinesis       Quercus alea       Atternantifiera       Petukaleginerinesis       Carya alba         Carya alba       Quercus inholcaria       Cerastium fontarum       Peturan cuspido         Carya alba       Quercus inholcaria       Cerastium fontarum       Peturan anotan         Carya ovalis       Quercus velicia       Caronale aria       Pueraria montan         Carya ovalis       Quercus velicia       Caronale aria       Pueraria montan         Carya ovalis       Quercus velicia       Lespedeza cuneata       Rosa multifora         Paging grandfolia       Titia americana       Lespedeza cuneata       Verbena brasilie         Fracting americana       Ulmus americana       Lespedeza cuneata       Verbena brasilie         Megnolia acuminata       Ulmus americana       Lespedeza cuneata       Verbena brasilie         Megnolia acuminata       Ulmus americana       Lespedeza forma acupto       Internanticana         Megnolia acuminata       Ulmus americana       Lespedeza forma acupto       Internanticana       Internanticana         Megnolia acuninata       Ulmus americana	Acer rub	um		Magnolia tripetala	1	Ailanthus a	ltissima		Lonicera ja	oonica
Aesculus flava       Opdendrum arknevan Parurus serdina       Alteria petiolata       Lotus corriculatu Alteriamins thioba         Betula selgebanensas       Quercus abba       Alteriaminera       Lythirun salicaba         Gerya abba       Quercus abba       Parurus serdina       Quercus abba         Carya abba       Quercus arbina       Ceronali varia       Peurals anotan         Carya ovalis       Quercus arbina       Ceronali varia       Peurals anotan         Carya ovalis       Quercus velinia       Ceronali varia       Peurals anotan         Carya ovalis       Quercus velinia       Ceronali varia       Peurals anotan         Carya ovalis       Quercus velinia       Lespedeza cureata       Verbena brasille         Frasina samicane       Titig americana       Liguistrum alionation       Essegues unneste         Negolis acuminate       Ulimus anacadonis       Liguistrum alionation       27.4         Torus subplots shubplots fully squidistantly along sach skido of the straam.       10       Vectors file       15       Alionation and core         10       Vectors       Average prenet Coreor of Haws aliskas.       15       Alionation and core       27.4         11       Vectors       Average prenet Coreor of Haws aliskas.       Torus tripin alionationor       27.4 <t< td=""><td>Acer sac</td><td>charum</td><td></td><td>Nyssa sylvatica</td><td></td><td>Albizia julib</td><td>rissin</td><td></td><td>Lonicera ta</td><td>tarica</td></t<>	Acer sac	charum		Nyssa sylvatica		Albizia julib	rissin		Lonicera ta	tarica
Asimina triloba       Prunus serotina       Alternaturera       Lythrum salicaria         Betula alteghaniensis       Quercus accoline       Alternaturera       Lythrum salicaria         Carya alta       Quercus accoline       Alternaturera       Philosenciose       Alternaturera         Carya alta       Quercus accoline       Caronalis varia       Peturerain montan       Peturerain montan         Carya ovais       Quercus pruns       Caronalis varia       Peturerain montan       Peturerain montan         Carya ovais       Quercus veluina       Lespedeza cureatis       Verterain montan       Peturerain montan         Carya ovais       Quercus veluina       Lespedeza cureatis       Verterain montan       Sophium hatepe         Corrus florida       3 Species in Group 1       2 Species in Group 2       Immus americana       Liguitrum sinense       22         Imple Vertables 10-11 welfare       1       2       Species in Group 1       2 Species in Group 2       22         Imple Vertables 10-11 welfare       1       1       2       Species in Group 2       22         Imple Vertables 10-11 welfare       1       1       2       Species in Group 2       27         Imple Vertables 10-11 welfare       1       1       1       1       2       Species in	Aesculus	flava				Alliaria peti	olata		Lotus corni	culatus
Betula aleghanemais       Quercus alba       philozeroldes       Accostagium vinit         Betula aleghanemais       Quercus alba       philozeroldes       Accostagium vinit         Carya glabra       Quercus prinus       Coronilla varia       Pediovnia torrei         Carya ovalia       Quercus prinus       Coronilla varia       Pediovnia torrei         Carya ovalia       Quercus prinus       Coronilla varia       Pederati montan         Carya ovalia       Quercus prinus       Coronilla varia       Pederati montan         Carya ovalia       Quercus prinus       Coronilla varia       Pederati montan         Carya ovalia       Quercus alba       Staga andensis       Lipaston obtaintium       Pederati montan         Fasus grandflolia       Tila americana       Suga andensis       Lipaston obtaintium       Staga andensis         Lindoxidon tuiplena       Ulmus americana       Species in Group 1       2       Species in Group 2         main       Average procentage cover of hechaceous vegalation (measure only if the cover is <20%). Do not include woody stema at least 4 toba objoid.				-						
Betala lenda       Ouercus concente       Aster tataricus       Partingant         Carya alba       Ouercus principara       Carsatum fortanum       Program cusida         Carya alba       Ouercus principara       Carsatum fortanum       Program cusida         Carya alba       Ouercus principara       Carsatum fortanum       Program cusida         Carya ovais       Ouercus principara       Carsatum fortanum       Program cusida         Carya ovais       Ouercus principara       Esseagnus umbetata       Rosa multiflore         Carya ovais       Ouercus principara       Legedeze cusidas       Verten b Assilient         Fragus grandifola       Tile amenicana       Ligustrum obtantibum       Legedeze blockor       Sorghum halepe         Corrus fiorida       Sspecies in Group 1       2       Species in Group 2       mole Variables 10-11 within 14 test 5 subplots (40" x 40", or 1m x 1m) in the riparabuffer zone within 25 feet from asc         Magnolia acuminata       Image anadensis       Image anadensis       27.2         Invited test test period cover of leaves, sticks, or other organic material.       Woody debits 4-f diameter and <30" 27.3	_									
Carya alba       Quercus imbricaria       Cerasitum fontanum       Polygonum cuspids         Carya glabra       Quercus prints       Coronila varia       Polygonum cuspids         Carya ovata       Quercus prints       Coronila varia       Polygonum cuspids         Carya ovata       Quercus velutina       Carga ovata       Polygonum cuspids         Carya ovata       Quercus velutina       Lespedeza bloclor       Sorghum halepe         Coronila auxinata       Tillia americana       I'lia americana       Lugustrum obtaination         Praxinus americana       Tillia americana       Lugustrum dutation       Ligustrum sinense         Magnodia acurinata       Umus amaricana       Ligustrum sinense       27.1         mple Variables 10-11 within at least 5 subplots (40° x 40°, or 1m x 1m) in the riparia/buffer zone within 25 feet from each not subplot.       27.1         Magnodia acurinata       Left Bide       15       16.0         10       Versites       Average portext cover of Heaves atlices or of the restance layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at least of thin and 250° 27.1         11       Versite       Average portext cover of laws. Bidice of the stream.       1         12       Versite       Kinfe four subplots       1       1000       1		-				Δster tatarii	2115		-	
Carya glabra       Quercus prinus       Coronilla varia       Pueraria montan         Carya ovalis       Quercus vubria       Eleagnus unbelidas       Rosa mutilitos         Carya ovalis       Quercus vubria       Lespedeza cuneata       Verbena brasilier         Fautuse mericana       Tilia americana       Ligustrum cuneation       Verbena brasilier         Fautuse mericana       Ulmus amarcana       Ligustrum cuneation       Verbena brasilier         Magnola accuminata       Ulmus amarcana       Ligustrum converting       Care 20%         Notes:       Notes:       Care 1       2       Species in Group 2         Tili       Average percent cover of the detrial layer at each subplot.       13       Iab       Ia										
Carya ovalis       Quercus rubra       Eiseagnus umbeliata       Rosa multiflora         Carya ovatis       Quercus velutina       Lespedeza bicolor       Sorghum halepe         Carua storica       Sassafras abidum       Lespedeza bicolor       Sorghum halepe         Fagus granifolis       Tilis americana       Lupustin obusinium       Lespedeza bicolor       Sorghum halepe         Magnolis a cuminata       Tuga canadensis       Lipustin obusinium       Lipustin obusinium       Lipustin obusinium         Magnolis a cuminata       Overnas       Nerale poend concervation of levelse, schools, or other organic material.       Workens       Carua velation of the set schools, or other organic material.       Workens       Zr.4         10       Vorticitis       Average poend concerve of levelse, schools, or other organic material.       Workens       Zr.4         11       Vistina       Average poend cover of levelse, schools, or other organic material.       Workens       Ros of levelse, schools, or other organic material.       Workens       Image concervation procenses with and Sr tail.       Lipustin obusinium       Image concervation procenses with and Sr tail.       Ros of levelse, schools, or other organic material.       Workens       Zr.4         10       Vermains       Average poend cover of levelse, schools, or other organic material.       Ros of levelse, schools, or other organic material.       Ros o										
Carya ovata       Quercus velutina       Lespedeza bicolor       Sorghum halepe         Carva tionida       Sassafras abidum       Lespedeza cureata       Verbena brasiler         Frazinus americana       Tile americana       Liguatum obianibium       Upatum obianibium         Frazinus americana       3 Species in Group 1       2 Species in Group 2         mple Variables 10-11 within at least 8 subplots (40° x 40° cor 1m x 1m) in the riperian/buffer zone within 25 feet from eac       74         Magnolia acuminata       2 Species in Group 1       2 Species in Group 2         mple Variables 10-11 within at least 8 subplots (40° x 40° cor 1m x 1m) in the riperian/buffer zone within 25 feet from eac       74         Magnolia acuminata       1       2 Species in Group 2       74         Magnolia acuminata       1       2 Species in Group 2       74         Magnolia acuminata       1       2 Species in Group 2       74         Magnolia acuminata       1       2 Species in Group 1       2 Species in Group 2         mple Variables 10.1 within at least 8 subplots (40° x 40° cor 1m x 1m) in the riperian/buffer zone within 25 feet from eac       74         Magnolia acuminata       1       1       1       1         Magnolia acuminata       1       1       1       1       1         Magnolia acuminata	_ , ,									
Convastforida       Sassafias albidum       Legedeza cuneata       Verbena brasiler         Fraxinus americana       Tsuga canadensis       Lipatrum obusifolium       Lipatrum obusifolium         Praxinus americana       Tsuga canadensis       Lipatrum obusifolium       Lipatrum obusifolium         Magnolia acuminata       Ultrus americana       Lipatrum sinense       Lipatrum sinense         10       Species in Group 1       2       Species in Group 2         mple Variables 10-11 within at Less 15 subplots (40° x 40°; or 1m x 1m) In the riparian/buffer zone within 25 feet from each k. The four subplots should be placed roughly equidistantly along each subplot.       27.4         10       Vormus       Average percent cover of leaves, subck, or of the dential layer at each subplot.       15       17.4         11       Verse       Average percentage cover of herbaceous vegatation (measure only if thes cover is 420%). Do not include woody stems at least 41 with all 36 tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at subplot.       1         11       Verse       Weighted Average of Runoff Score for watershed.       1         12       Verse       Land Use (Choose From Drop List)       Runoff Score for meaths at each dub there supplementary dtasets.       1         100       1       100       1       100       1 <td></td> <td></td> <td></td> <td></td> <td colspan="3"></td> <td></td> <td></td> <td></td>										
Fagus grandfolia       Tile americana       Ligustum obusibilum         Frazinus americana       Tsuga canadensis       Ligustum sinense         Linodendon tulprera       Ulmus americana       Ligustum sinense         Magnolia acuminata       3       Species in Group 1       2       Species in Group 2         mple Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each k. The four subplots should be placed roughly equidistantly along ach side of the stream.       27.1         10       Vortenera       Average prenct oncore of leaves, sticks, or other organic Model of bets 44" dameter and <36" 27.4										
Fraxinus americana       Tsuga canadensis       Lipustrum sinense         Magnolia accuminata       Jimus americana       Lipustrum sinense         3       Species in Group 1       2       Species in Group 2         mple Variables 10-11 within at least 8 subplots (40° x 40°, or fm x 1m) in the riparian/buffer zone within 25 feet from each x.       77.4         Normal       Average percent cover of hechsaceous vegatation (measure only fifthe cover lis <20%). Do not related to the stream.	_								Verbena br	asiliensis
Lindendron tulipitera       Ultrus americana         Megnolie acuminata       3       Species in Group 1       2       Species in Group 2         mple Variables 10-11 within at least 8 aubplots (40° x 40° or 1m x 1m) in the riparian/buffer zone within 25 feet from each x. The four subplots should be placed to capity equiditative along each side of the stream.       27.3         0       Vocrems       Vorrems       Verage percent cover of leaves subclots.       77.4         40       15       16       16       17.4         40       15       16       17.4       17.4         40       15       16       16.5       17.4         40       15       16       16.5       17.4         40       15       16       16.5       17.4         40       15       16       16.5       17.4         40       15       16       16.5       17.4         41       Verage percentage cover of herbaceous vegatation (measure only five cover is cover) cover regetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.       1         mple Variable 12 within the entire catchment of the stream.       1       1       100       1         yeach subplot       Left Side       Runoff Sicore form Drop List)       Runoff Sicore form			~			-				
Magnolia acuminata         3       Species in Group 1       2       Species in Group 2         mple Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the ripartan/buffer zone within 25 feet from each k. The four subplots should be placed roughly equidistantly along each side of the stream.       27.4         0       Vocmma       Average percentage cover of herbaceous vegetation (measure only if thes cover is <20%). Do not include woody alons at least 4" dbh and 36" tail. Because there may be several layers of ground vegetation at the stream.	Fraxinus	americana		Tsuga canadensis		Ligustrum s	sinense			
3     Species in Group 1     2     Species in Group 2       mple Variables 10-11 within at least 8 subplots (40° x 40°, or fm x 1m) in the riparian/buffer zone within 25 feet from eac k. The four subplots should be placed roughly equidistantly along each side of the stream.     27.1       0     Vienness     Average percent cover of herder and cover of the difficult layer at each subplot.     27.1       1     Vienness     Average percentage cover of herbaceous veglation (measure only if the cover is <20%). Do not include woody stems at least 4 doh and 96° tall. Because there may be servar layers of ground cover veglation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.     56       1     Viennes     Average percent cover of herbaceous veglation (measure only if the cover is <20%). Do not include woody stems at least 4 doh and 96° tall. Because there may be servar layers of ground cover veglation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.     56       1     Viennes     Viennes     Kight Side     1.       1     Land Use (Choose From Drop List)     Runoff     Score     % in Catch ment       1     Land Use (Choose From Drop List)     Viennes     Viennes     1       1     Viennes     Vienne     Viennes     2       2     Viennes     Viennes     Viennes     2       2     Viennes     Viennes     Viennes     2       2	Liriodendr	on tulipifera		Ulmus americana						
mple Variables 10-11 within at least 3 subplots (40" x 40°, or fm x 1m) in the riparlan/buffer zone within 25 feet from eac k.       10     Vectorus       Notes     Average percent cover of leaves, sloks, or other organic material. Woody debris <4" diameter and <30" [27.4]	Magnolia	acuminata								
mple Variables 10-11 within at least 3 subplots (40" x 40°, or fm x 1m) in the riparlan/buffer zone within 25 feet from eac k.       10     Vectorus       Notes     Average percent cover of leaves, sloks, or other organic material. Woody debris <4" diameter and <30" [27.4]		3	Snecies in	Group 1			2	Species in	Group 2	
torg are include. Enter the percent cover of the detrital layer at each subplot.       27.4         40       15       Right Side         40       15       15         11       Vnerse       Average percentage cover of herbaceous vegetation (measure only if tree cover is <20%). Do not include woody stems at least 4' dbh and 30' tail. Because there may be several layers of ground vegetation at each subplot.       55         Image: several several layers of ground vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.       56         Image: several several layers of ground vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.       1         Image: several several several several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.       1         Image: several	nk. The four s	ubplots shou	uld be place	ed roughly equidistant	ly along e	ach side of t	he stream.			n each
Left Side       Right Side         40       15       100 nd         1       Vecase       Average percentage cover of herbaceous vegetation (measure only fit tee cover is <20%). Do not include woody stems at least 4" dbh and 36" tail. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.	0 V <sub>DETRITUS</sub>							<4" diamete	er and <36"	27.50 %
40       15       0				•					ר ו	
1       Vision       Average percentage cover of herbaceous vegetation (measure only if the cover is <20%). Do not include woody stems at least 4" db and 30" tall. Because there may be several layers of ground cover vegetation percentages up through 200% are accepted. Enter the percent cover of ground vegetation at each subplot.		40	Eon		15	Right	oluc			
Include woody stems at least 4' dbh and 36' tall. Because there may be several layers of ground cover each subplot.     Intervent cover of ground vegetation at each subplot.       Intervent Side     Right Side       Intervent Side     Intervent Side       Vwuse     Weighted Average of Runoff Score for watershed:     Intervent Score     Intervent Score       Image: Side     Land Use (Choose From Drop List)     Intervent Score										
B65         45           mple Variable 12 within the entire catchment of the stream.         1           2         Vwcuse         Weighted Average of Runoff Score for watershed:         1.           Image: Score for watershed:         Image: Score for watershed:         1           Forest and native range (>75% ground cover)         Image: Score for watershed:         Image: Score for watershed:         Image: Score for watershed:           Variable         Value         VSI         Land Use (Choose From Drop List)         Image: Score for watershed:         Image: Score for waters	1 V <sub>HERB</sub>	include wo	ody stems a percentages	t least 4" dbh and 36" ta	all. Because	e there may b	e several la	yers of grou	und cover	55 %
S-G39         Notes:           Variable         Value         VSI           Variable         Value         VSI           Variable         Value         VSI           Korange         Value         VSI           Variable         Value         VSI           Korange         Value         VSI           Variable         Value         VSI           Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data (NLCC), from Landsat satellite imagery and other supplementary datasets. Watershed boundaries are based off of field delineated stream impacts.           Verseco         3.9         1.00           Vsubstrate         3.45 in         1.00           Value         VSI         Astiment values have been rounded to the nearest full numb           Variable         Not Used         Not Used           VLWD         4.5         0.57           VTBBH         Not Used         Not Used           Variable         0.41         0.20 <t< td=""><td></td><td></td><td>Left</td><td>Side</td><td></td><td>Right</td><td>Side</td><td></td><td></td><td></td></t<>			Left	Side		Right	Side			
Image: Second System         Value         Vsi Mathematical System         Vsi Mathematical System         Vsi Mathematical System         Vsi Mathematical System         Mathematical System <td></td> <td>65</td> <td></td> <td></td> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td>		65			45					
Forest and native range (>75% ground cover)         1         100         1           Forest and native range (>75% ground cover)         1         100         1           Image: Image (>75% ground cover)         Image (>75% ground			Land	Use (Choose From Dro	p List)				_	Running Percent
S-G39       Notes:         Variable       Value       VSI         Variable       VSI       Land Cover Analysis was completed using the 2019 National Land Cover Data (NLCD), from Landsat satellite imagery and other supplementary datasets.         VEMBED       3.9       1.00         Vsubstrate       3.45 in       1.00         Varibh       4.5       0.57         VDBH       Not Used       Not Used         Varibh       0.0       0.10         Vsiso       181.8       1.00         Vsiso       181.8       1.00         Varibh       0.41       0.20         Varibi       0.34       1.00	Formation 1		750/				-			(not >100
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           VemBeD         3.9         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         0.78         Not Used         Not Used           Vsmag         0.0         Not Used         Not Used         Not Used           Vssb         181.8         1.00         Sinch         0.21           VsrkcH         0.41         0.20         Sinch         0.34	Forest and	native range (	>75% ground	cover)			•	1	100	100
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           VemBeD         3.9         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         0.78         Not Used         Not Used           Vsmag         0.0         Not Used         Not Used         Not Used           Vssb         181.8         1.00         Sinch         0.21           VsrkcH         0.41         0.20         Sinch         0.34	-									
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           VemBeD         3.9         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         0.78         Not Used         Not Used           Vsmag         0.0         Not Used         Not Used         Not Used           Vssb         181.8         1.00         Sinch         0.21           VsrkcH         0.41         0.20         Sinch         0.34							•			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           Vember         3.9         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         3.45 in         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         4.5         0.57         0.78           Vtwo         4.5         0.57         0.57           Vsnag         0.0         0.10         Store           Vssch         181.8         1.00         Store           Vsrad         0.41         0.20         Store           Vbetrritus         27.5 %         0.34         Store							<b>•</b>			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           Vember         3.9         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         3.45 in         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         4.5         0.57         0.78           Vtwo         4.5         0.57         0.57           Vsnag         0.0         0.10         Store           Vssch         181.8         1.00         Store           Vsrad         0.41         0.20         Store           Vbetrritus         27.5 %         0.34         Store							▼ ▼ ▼			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           VemBeD         3.9         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         1.00         "Percentages in catchment values have been rounded to the nearest full numb           VsuBstRate         3.45 in         0.78         Not Used         Not Used           Vsmag         0.0         Not Used         Not Used         Not Used           Vssb         181.8         1.00         Sinch         0.21           VsrkcH         0.41         0.20         Sinch         0.34	-						• • •			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           Vember         3.9         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         3.45 in         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         4.5         0.57         0.78           Vtwo         4.5         0.57         0.57           Vsnag         0.0         0.10         Store           Vssch         181.8         1.00         Store           Vsrad         0.41         0.20         Store           Vbetrritus         27.5 %         0.34         Store	-						* * *			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           Vember         3.9         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         3.45 in         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         4.5         0.57         0.78           Vtwo         4.5         0.57         0.57           Vsnag         0.0         0.10         Store           Vssch         181.8         1.00         Store           Vsrad         0.41         0.20         Store           Vbetrritus         27.5 %         0.34         Store							* * * *			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           VemBeD         3.9         1.00         Percentages in catchment values have been rounded to the nearest full numb           VsuBstrate         3.45 in         1.00         Percentages in catchment values have been rounded to the nearest full numb           VsuBstrate         3.45 in         0.78         O.77           ViWD         4.5         0.57         O.78           VsnAg         0.0         0.10         O.10           VssD         181.8         1.00         O.10           VsrRcH         0.41         0.20         O.34	-						• • • •			
Variable         Value         VSI         Land Cover Analysis was completed using the 2019 National Land Cover Data           VccANOPY         Not Used, <20%         Not Used         (NLCD), from Landsat satellite imagery and other supplementary datasets.           Vember         3.9         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         3.45 in         1.00         Percentages in catchment values have been rounded to the nearest full numb           Vsubstrare         4.5         0.57         0.78           Vtwo         4.5         0.57         0.57           Vsnag         0.0         0.10         Store           Vssch         181.8         1.00         Store           Vsrad         0.41         0.20         Store           Vbetrritus         27.5 %         0.34         Store	-						• • • • •			
Vol Used <20%       Not Used <20%       Not Used <20%       Not Used       (NLCD), from Landsat satellite imagery and other supplementary datasets.         VEMBED       3.9       1.00       "Percentages in catchment values have been rounded to the nearest full numb         VSUBSTRATE       3.45 in       1.00       "Percentages in catchment values have been rounded to the nearest full numb         VBERO       55 %       0.78       "Percentages in catchment values have been rounded to the nearest full numb         VLWD       4.5       0.57       "Percentages in catchment values have been rounded to the nearest full numb         VSNAG       0.0       0.10       Not Used         VssD       181.8       1.00         VSRICH       0.41       0.20         VDETRITUS       27.5 %       0.34	-	S-G39				No	▼ ▼ ▼ ▼ ▼			
VccANOPY     c20%     Not Used     Watershed boundaries are based off of field delineated stream impacts.       VEMBED     3.9     1.00     *Percentages in catchment values have been rounded to the nearest full numb       VSUBSTRATE     3.45 in     1.00       VBERO     55 %     0.78       VLWD     4.5     0.57       VTDBH     Not Used     Not Used       VSSD     181.8     1.00       VSRGH     0.41     0.20       VDETRITUS     27.5 %     0.34	Variable	-	1/01	Land Cover Analysis	s was com			National I	and Cover	Databas
VEMBED         3.3         1.00           VSUBSTRATE         3.45 in         1.00           VBRO         55 %         0.78           VLWD         4.5         0.57           VTDBH         Not Used         Not Used           VSNAG         0.0         0.10           VSRO         181.8         1.00           VSRICH         0.41         0.20           VDETRITUS         27.5%         0.34		Value				pleted using	the 2019			
VBERO         355%         0.78           VLWD         4.5         0.57           VTDBH         Not Used         Not Used           VsNAG         0.0         0.10           VssD         181.8         1.00           VsRICH         0.41         0.20           Vbetritus         27.5%         0.34		Value Not Used,		(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
VBERO         55 %         0.78           VLWD         4.5         0.57           VTDBH         Not Used         Not Used           VsNAG         0.0         0.10           VssD         181.8         1.00           VsRICH         0.41         0.20           VDETRITUS         27.5%         0.34	V <sub>CCANOPY</sub>	Value Not Used, <20%	Not Used	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
V <sub>LWD</sub> 4.50.57V <sub>TDBH</sub> Not UsedV <sub>SNAG</sub> 0.00.00.10V <sub>SSD</sub> 181.81.00V <sub>SRICH</sub> 0.410.20V <sub>DETRITUS</sub> 27.5%0.34	V <sub>CCANOPY</sub> V <sub>EMBED</sub>	Value Not Used, <20% 3.9	Not Used	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
Y <sub>TDBH</sub> Not Used           V <sub>SNAG</sub> 0.0           V <sub>SSD</sub> 101           V <sub>SRICH</sub> 0.41           V <sub>STTITUS</sub> 27.59	V <sub>ccanopy</sub> V <sub>embed</sub> V <sub>substrate</sub>	Value Not Used, <20% 3.9 3.45 in	Not Used 1.00 1.00	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
V <sub>SNAG</sub> 0.0         0.10           V <sub>SSD</sub> 181.8         1.00           V <sub>SRICH</sub> 0.41         0.20           V <sub>DETRITUS</sub> 27.5%         0.34	V <sub>ccanopy</sub> V <sub>embed</sub> V <sub>substrate</sub>	Value Not Used, <20% 3.9 3.45 in	Not Used 1.00 1.00	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
V <sub>SNAG</sub> 0.0         0.10           V <sub>SSD</sub> 181.8         1.00           V <sub>SRICH</sub> 0.41         0.20           V <sub>DETRITUS</sub> 27.5%         0.34	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub>	Value Not Used, <20% 3.9 3.45 in 55 %	Not Used 1.00 1.00 0.78	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
V <sub>SSD</sub> 181.8         1.00           V <sub>SRICH</sub> 0.41         0.20           V <sub>DETRITUS</sub> 27.5%         0.34	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub>	Value Not Used, <20% 3.9 3.45 in 55 % 4.5	Not Used 1.00 1.00 0.78 0.57	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
V <sub>SRICH</sub> 0.41         0.20           V <sub>DETRITUS</sub> 27.5 %         0.34	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub> V <sub>TDBH</sub>	Value           Not Used,           <20%	Not Used 1.00 1.00 0.78 0.57 Not Used	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
V <sub>DETRITUS</sub> 27.5 % 0.34	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub> V <sub>TDBH</sub> V <sub>SNAG</sub>	Value Not Used, <20% 3.9 3.45 in 55 % 4.5 Not Used 0.0	Not Used 1.00 1.00 0.78 0.57 Not Used 0.10	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub> V <sub>TDBH</sub> V <sub>SNAG</sub>	Value Not Used, <20% 3.9 3.45 in 55 % 4.5 Not Used 0.0	Not Used 1.00 1.00 0.78 0.57 Not Used 0.10	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub> V <sub>TDBH</sub> V <sub>SNAG</sub> V <sub>SSD</sub>	Value           Not Used, <20%	Not Used 1.00 1.00 0.78 0.57 Not Used 0.10 1.00	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub> V <sub>TDBH</sub> V <sub>SNAG</sub> V <sub>SSD</sub> V <sub>SRICH</sub>	Value           Not Used, <20%	Not Used 1.00 1.00 0.78 0.57 Not Used 0.10 1.00 0.20	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	
<b>V</b> <sub>WLUSE</sub> 1 1.00	V <sub>CCANOPY</sub> V <sub>EMBED</sub> V <sub>SUBSTRATE</sub> V <sub>BERO</sub> V <sub>LWD</sub> V <sub>TDBH</sub> V <sub>SNAG</sub> V <sub>SSD</sub> V <sub>SRICH</sub> V <sub>DETRITUS</sub>	Value           Not Used, <20%	Not Used 1.00 1.00 0.78 0.57 Not Used 0.10 1.00 0.20 0.34	(NLCD), from Lands Watershed boundari	at satellite es are bas	pleted using imagery an sed off of fie	the 2019 d other su ld delineat	pplementa ed stream	ary datasets impacts.	

# PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME S-G39		LOCATION Montgomery County				
STATION # 1231+51 R	IVERMILE	STREAM CLASS Intermittent				
LAT 37.264817 LO	ONG -80.308486	RIVER BASIN Upper Roanoke				
STORET #		AGENCY VADEQ				
INVESTIGATORS MM, AG						
FORM COMPLETED BY	MM, AO	DATE 8/24/2021 TIME 1:00 PM	REASON FOR SURVEY Baseline Assessment			
		т	Les there have a heavy rain in the last 7 days?			
WEATHER CONDITIONS	Now	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes ✔No			
	storm	(hoover rain)	Air Temperature <sup>33</sup> <sup>0</sup> C			
	shower:	s (intermittent)	)ther			
		loud cover <u>30</u> %				
SITE LOCATION/MAP	Draw a map of the sit	e and indicate the areas sample	d (or attach a photograph)			
			· · · · · · · · · · · · · · · · · · ·			
		Ì	US			
		ROW	2-630			
	1-0		L PLOO			
	VEG. AKE	A	K Exposed STEEP AREA			
		RB /	badrock STEEP AREA Barrik			
	(		TLB WAXY			
	5					
	5	- Railmad	X			
			Netting A Veg			
	1		the starting the s			
	Corning	and a real of the second s	G.			
	in	· 1 6.	t Going			
		Equipment Br	inde the			
			t i			
		- ROW				
	<i>.</i> .	55	Ħ '			
		17	Ladder			
		•••• ••• •••				
STREAM	Stroom Subsystem		Streem Type			
CHARACTERIZATION	Stream Subsystem	ermittent 🗖 Tidal	S <b>tream Type</b> ☐Coldwater ☐Warmwater			
	Stream Origin □Glacial	Spring-fed	Catchment Area_0.23 km <sup>2</sup>			
	Non-glacial montane	Mixture of origins				

Notes: Low flow.

## PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES RIPARIAN VEGETATION (18 meter buffer)	Predominant Surrounding Landuse         Forest       Commercial         Field/Pasture       Industrial         Agricultural       Other         Residential       Other    Indicate the dominant type and record the domined the providence of the domined the second the second the domined the second the second the second the domined the second t	Local Watershed NPS Pollution         ☑ No evidence       □ Some potential sources         □ Obvious sources         Local Watershed Erosion         ☑ None       □ Moderate         □ Moderate       □ Heavy         tant species present       □ Herbaceous				
INSTREAM FEATURES	Estimated Reach Length       6.71       m         Estimated Stream Width       1.83       m         Sampling Reach Area       1228       m²         Area in km² (m²x1000)       km²         Estimated Stream Depth       .025       m         Surface Velocity (at thalweg)       NA       m/sec	Canopy Cover       Partly shaded □Shaded         I Partly open       Partly shaded □Shaded         High Water Mark       0.25 m         Proportion of Reach Represented by Stream         Morphology Types         Riffle 15       %         Pool 45       %         Run 50       %         Channelized       Yes         Dam Present       Yes				
LARGE WOODY DEBRIS AQUATIC VEGETATION	LWD       MA       m <sup>2</sup> Density of LWD      m <sup>2</sup> /km <sup>2</sup> (LWD/ reach area)         Indicate the dominant type and record the dominant species present         Rooted emergent      Rooted submergent         Floating Algae      Rooted Algae         Dominant species present      Rooted Algae					
WATER QUALITY (DS, US)	Portion of the reach with aquatic vegetation <u>o</u> Temperature <u>19.3, 19.3</u> <sup>0</sup> C Specific Conductance <u>423.3,425.0 uS/cm</u> Dissolved Oxygen <u>7.42,6.40 mg/L</u> pH <u>7.58,7.57</u> Turbidity <u>NA</u> WQ Instrument Used <u>VA-1</u>	_% Water Odors Normal/None Sewage Petroleum Fishy Globs Slick Slick Slick CNone Other MA  Turbidity (if not measured) Clear Slightly turbid Opaque Stained Globs Flecks Clear				
SEDIMENT/ SUBSTRATE	Odors       □         □       Normal       □         □       Chemical       □         □       Other       None         Oils       □       Noderate       □	Deposits         □Sludge       □Sawdust       □Paper fiber       ✓Sand         □Relict shells       ✓Other Fine sediment				

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)			
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock		50	Detritus	sticks, wood, coarse plant	E	
Boulder	> 256 mm (10")	1		materials (CPOM)	5	
Cobble	64-256 mm (2.5"-10")	9	Muck-Mud	black, very fine organic	F	
Gravel	2-64 mm (0.1"-2.5")	15		(FPOM)	C	
Sand	0.06-2mm (gritty)	5	Marl	grey, shell fragments	0	
Silt	0.004-0.06 mm	10	]		0	
Clay	< 0.004 mm (slick)	10	]			

Notes: Low flow, could not sample flow velocity.

### HABITAT ASSESSMENT FIELD DATA SHEET - HG - USE ON ALL STREAMS (FRONT)

STREAM NAME S-G39	LOCATION Montgomery County			
STATION #_1231+51 RIVERMILE	STREAM CLASS Intermittent			
LAT <u>37.264817</u> LONG <u>-80.308486</u>	RIVER BASIN Upper Roanoke			
STORET #	AGENCY VADEQ			
INVESTIGATORS MM, AO				
FORM COMPLETED BY MM, AO	DATE     8/24/2021     REASON FOR SURVEY       TIME     1:00 PM     AM     PM       Baseline Assessment			

	Habitat		Category		
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	<sub>SCORE</sub> 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ted in	score 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is $< 0.3$ m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
ıram	<sub>score</sub> 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Pa	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	<sub>SCORE</sub> 7	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	score 9	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Notes: Low flow.

### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	H-h:4-4		Conditio	n Category	itegory				
	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor				
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.				
	<sub>score</sub> 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
ling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.				
ampl	<sub>score</sub> 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.				
e evs	SCORE 6	Left Bank 10 9	8 7 6	5 4 3	2 1 0				
to b	SCORE 6	Right Bank 10 9	8 7 6	5 4 3	2 1 0				
Parameter	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
	SCORE 7	Left Bank 10 9	8 7 6	5 4 3	2 1 0				
	SCORE 8	Right Bank 10 9	8 7 6	5 4 3	2 1 0				
	<b>10. Riparian</b> Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.				
	SCORE 8	Left Bank 10 9	8 7 6	5 4 3	2 1 0				
	SCORE 9	Right Bank 10 9	8 7 6	5 4 3	2 1 0				

λ Notes: Low flow.

Total Score 138

### BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME S-G	39	LOCATION Montgomery Co	unty
STATION # 1231+51	RIVERMILE	STREAM CLASS Intermittent	
LAT37.264817	LONG80.308486	RIVER BASIN Upper Roand	ke
STORET #		AGENCY VADEQ	
INVESTIGATORS M	M, AO		LOT NUMBER
FORM COMPLETED	<sup>BY</sup> MM, AO	DATE 8/24/2021 TIME 1:00 PM	REASON FOR SURVEY Baseline Assessment
HABITAT TYPES		ceach habitat type present         ags%       □Vegetated B        %       □Other (	
SAMPLE COLLECTION	Gear used D-frame	lected? □wading □fi	rom bank 🗌 from boat
		bs/kicks taken in each habitat ty ags Vegetated B Other (	
GENERAL COMMENTS	Not sampled due visually observed		. Crayfish and caddisfly larvae

### QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

### FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

### WOLMAN PEBBLE COUNT FORM

County:Montgomery CountyStream ID:S-G39Stream Name:UNT to North Fork Roanoke RiverHUC Code:03010101Basin:Upper RoanokeSurvey Date:8/24/202140, MMFor PointFor PointFor PointSurvey:AO, MMFor PointFor PointFor PointFor PointType:RepresentativeFor PointFor PointFor Point

		PEBBI	LE COUNT				
Inches	PARTICLE	Millimeters		Particle Count	Total #	Item %	% Cum
	Silt/Clay	< .062	S/C	▲ ▼	22	22.00	22.00
	Very Fine	.062125		▲ ▼	0	0.00	22.00
	Fine	.12525		▲ ▼	0	0.00	22.00
	Medium	.255	S A N D	▲ ▼	1	1.00	23.00
	Coarse	.50-1.0		▲ ▼	0	0.00	23.00
.0408	Very Coarse	1.0-2		▲ ▼	1	1.00	24.00
.0816	Very Fine	2 -4		▲ ▼	1	1.00	25.00
.1622	Fine	4 -5.7		▲ ▼	2	2.00	27.00
.2231	Fine	5.7 - 8		▲ ▼	3	3.00	30.00
.3144	Medium	8 -11.3		▲ ▼	4	4.00	34.00
.4463	Medium	11.3 - 16	G R A V E L	▲ ▼	5	5.00	39.00
.6389	Coarse	16 -22.6	GRAVEL	▲ ▼	5	5.00	44.00
.89 - 1.26	Coarse	22.6 - 32		▲ ▼	7	7.00	51.00
1.26 - 1.77	Vry Coarse	32 - 45		▲ ▼	2	2.00	53.00
1.77 -2.5	Vry Coarse	45 - 64		▲ ▼	4	4.00	57.00
2.5 - 3.5	Small	64 - 90		▲ ▼	1	1.00	58.00
3.5 - 5.0	Small	90 - 128	COPPLE	▲ ▼	5	5.00	63.00
5.0 - 7.1	Large	128 - 180	SAND	▲ ▼	4	4.00	67.00
7.1 - 10.1	Large	180 - 256		▲ ▼	0	0.00	67.00
10.1 - 14.3	Small	256 - 362		▲ ▼	0	0.00	67.00
14.3 - 20	Small	362 - 512		▲ ▼	0	0.00	67.00
20 - 40	Medium	512 - 1024	BOULDER	▲ ▼	0	0.00	67.00
40 - 80	Large	1024 -2048		▲ ▼	0	0.00	67.00
80 - 160	Vry Large	2048 -4096		▲ ▼	0	0.00	67.00
	Bedrock		BDRK	▲ ▼	33	33.00	100.00
	<b>T</b> . 1 <b>T</b> 1			Totals	100		
	Total Tally:						

\_\_\_\_\_

\_\_\_\_\_

Reach Name: S- Sample Name: Re	NT to North F -G39 epresentative 8/24/2021		e River	
Size (mm)	тот #	ITEM %	CUM %	
0 - 0.062 0.062 - 0.125 0.125 - 0.25 0.25 - 0.50 0.50 - 1.0 1.0 - 2.0 2.0 - 4.0 4.0 - 5.7 5.7 - 8.0 8.0 - 11.3 11.3 - 16.0 16.0 - 22.6 22.6 - 32.0 32 - 45 45 - 64 64 - 90 90 - 128 128 - 180 180 - 256 256 - 362 362 - 512 512 - 1024 1024 - 2048 Bedrock	22 0 0 1 0 1 1 2 3 4 5 5 5 7 2 4 1 5 4 0 0 0 0 0 0 3 3	$\begin{array}{c} 22.00\\ 0.00\\ 0.00\\ 1.00\\ 1.00\\ 1.00\\ 1.00\\ 2.00\\ 3.00\\ 4.00\\ 5.00\\ 5.00\\ 7.00\\ 2.00\\ 4.00\\ 1.00\\ 5.00\\ 4.00\\ 1.00\\ 5.00\\ 4.00\\ 0.00\\ 0.00\\ 0.00\\ 0.00\\ 0.00\\ 33.00 \end{array}$	22.00 22.00 22.00 23.00 23.00 24.00 25.00 27.00 30.00 34.00 39.00 44.00 51.00 53.00 57.00 58.00 67.00 67.00 67.00 67.00 67.00 100.00	
D16 (mm) D35 (mm) D50 (mm) D84 (mm) D95 (mm) D100 (mm) Silt/Clay (%) Sand (%) Gravel (%) Gravel (%) Boulder (%) Bedrock (%)	0.05 12.24 30.66 Bedrock Bedrock 22 2 33 10 0 33			

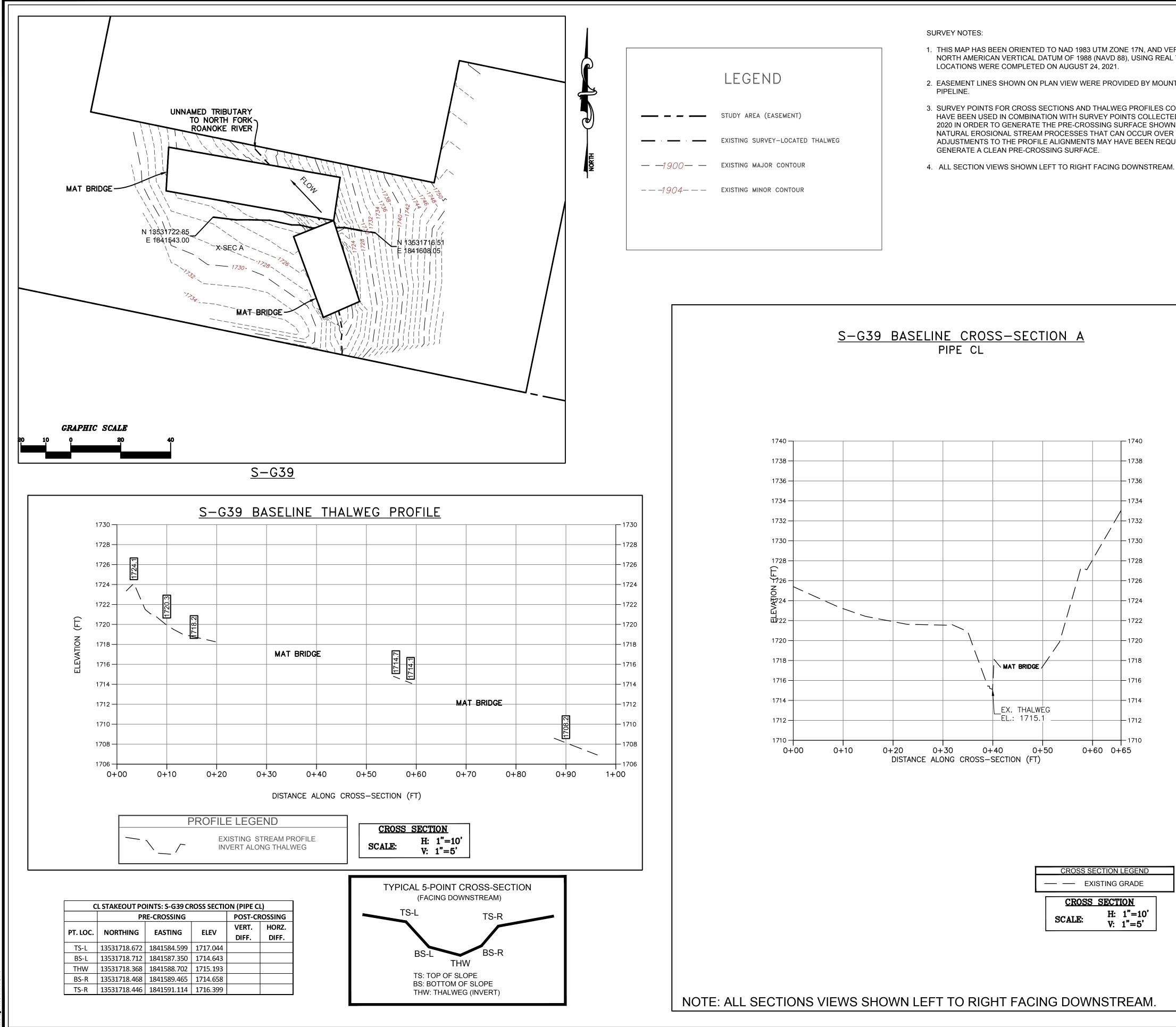
Total Particles = 100.

		S	Strean		essm tream Method		-	•••••	•		
			F	or use in wadea	ble channels cla	ssified as intern	nittent or perenni	al			
Project #	-	t Name (App	•	Locality	Cowardin Class.	нис	Date	SAR #	Impact Length	Impact Factor	
22865.06		alley Pipeline ey Pipeline, I		Montgomery County	R4	03010101	8/24/2021	S-G39	82	1	
Name(s) of Evaluator(s)		Stream Nam	e and Inform	ation				SAR Length			
	AO, MM		UNT to North	h Fork Roand	oke River				82		
Channel C	Condition: Asse	ess the cross-sec	tion of the stream								
	Opt	imal	Subo	ptimal	Conditional Catego	-	Po	or	Sev	ere	
Channel Condition	Very little incision or active erosion; 80 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid channel bars and transverse bars few. Transient sediment deposition covers less than 10% of bottom.		erosion or unprotec of banks are si Vegetative protect prominent (60) Depositional feat stability. The bar channels are wel likely has acc benches,or ne portions of the r sediment covers	boptimal         Marginal           Image: State S			laterally unstable further. Majority near vertical. Eros banks. Vegetative on 20-40% of insufficient to p the stream is cove Sediment is temp nature, and contril AND/OR V-shag vegetative protect 40% of the banks a	cised. Vertically / e. Likely to widen of both banks are cison present on 60- protection present banks, and is prevent erosion. ared by sediment. orary / transient in orary / transient in buting to instability. wed channels have ion is present on > mod stable sediment i s absent.	Deeply incised vertical/lateral in: incision, flow con banks. Streambe majority of banks Vegetative protecti than 20% of banks erosion. Obvious present. Erosion/ 100%. AND/OR A than 80% of stream deposition, contrib Multiple thread d subterran	CI	
Scores	3	2	2	.4		ability. <b>2</b>	1	.6	1	1	2.40
NOTES>>											
	N BUFFERS: / Opti		Con	n areas along the ditional Cate ptimal	gory	gh measurements <mark>ginal</mark> Low Marginal:	Pc	may be acceptab	NOTES>>		
		mal <sup>•</sup> 3 inches) present, • canopy cover. within the riparian	Con	ditional Cate	gory	ginal	1		-		
. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree Wetlands located are	mal 3 inches) present, canopy cover. within the riparian as.	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and understory. Recent cutover (dense	gory High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	-		
. RIPARIAN	Opti Tree stratum (dbh > with > 60% tree Wetlands located	mal 3 inches) present, canopy cover. within the riparian as.	Con Subop High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Gory High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	-		
Riparian Buffers Scores . Delineate ripa . Determine sq elow.	Opti Tree stratum (dbh > with > 60% tree Wetlands located are	imal • 3 inches) present, canopy cover. within the riparian as. 5 ach stream bank ach by measuring	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca	gory High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer of a tree layer (dh> 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors.	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure I of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	-		
Riparian Buffers Scores Delineate ripa Determine sq alow. Enter the % F	Opti Tree stratum (dbh > with > 60% tree Wetlands located are	imal • 3 inches) present, canopy cover. within the riparian as. 5 ach stream bank ach by measuring	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca	gory High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer of a tree layer (dh> 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors.	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure I of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	-		
Riparian Buffers Scores Delineate ripa Determine sq alow. Enter the % F	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Vetlands located are uare footage for ea Riparian Area and	imal '3 inches) present, canopy cover. within the riparian as. 5 5 ach stream bank ach by measuring Score for each rip	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Cat the blocks below.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with maintained understory. Low 0.75 g the descriptors.	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure I of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Scores Delineate ripa Determine sq alow. Enter the % F	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Wetlands located are Interpret of the strategy of the str	imal a inches) present, canopy cover. within the riparian as. 5 5 ach stream bank ach by measuring Score for each rip 60% 0.75	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng arian category in 20% 0.85	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca the blocks below. 10% 0.6	gory Marg High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer of a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. ided for you 5% 0.5	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure I of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
RIPARIAN Riparian Buffers Scores Delineate ripa Determine sq Jow. Enter the % F Right Bank	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Vetlands located are 1. Arian areas along e uare footage for ex- Riparian Area and 1 % Riparian Area>	imal ainches) present, canopy cover. within the riparian as. 5 5 ach stream bank ach by measuring Score for each rip 60% 0.75 40%	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng arian category in 20% 0.85	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca the blocks below. 10% 0.6	gory Marg High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer of a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. ided for you 5% 0.5	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>> CI= (Sum % RA * Sc Rt Bank CI >	0.78	<u>CI</u> 0.76
Riparian Buffers Scores Delineate ripa Determine sq bow. Enter the % F Right Bank Left Bank	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Wetlands located are Interpret of the strategy of the str	imal a inches) present, canopy cover. within the riparian as. 5 5 ach stream bank ach by measuring Score for each rip 60% 0.75 40% 0.75 aried substrate si	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng carian category in 20% 0.85	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbn > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca the blocks below. 10% 0.6 15% 1.1	gory Mary High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5 15% 0.6	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. rided for you 5% 0.5 10% 0.85	Pto High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure I of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lost, trails, or other comparable conditions. Low 0.5 Low 0.5 the sums Riparian equal 100 100%	NOTES>>	0.78 0.74	CI 0.76
RIPARIAN Riparian Buffers Scores Delineate ripa Determine sq slow. Enter the % F Right Bank Left Bank . INSTREAN	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Wetlands located are Interpret of the strategy Interpret of the strategy Riparian Area and I % Riparian Area > Score > % Riparian Area> Score > MHABITAT: Va	imal a inches) present, canopy cover. within the riparian as. 5 5 ach stream bank ach by measuring Score for each rip 60% 0.75 40% 0.75 aried substrate si	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng carian category in 20% 0.85	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca the blocks below. 10% 0.6	gory Mary High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5 15% 0.6	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. rided for you 5% 0.5 10% 0.85	Pto High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure I of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lost, trails, or other comparable conditions. Low 0.5 Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * Sc Rt Bank CI > Lt Bank CI >	0.78 0.74	
Riparian Buffers Scores Delineate ripe Determine sq elow. Enter the % F Right Bank Left Bank INSTREAI	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Wetlands located are Interpret of the strategy Interpret of the strategy Riparian Area and I % Riparian Area > Score > % Riparian Area> Score > MHABITAT: Va	imal ainches) present, canopy cover. within the riparian as. 5 5 5 5 5 5 5 5 5 5 5 5 5	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng arian category in 20% 0.85	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca the blocks below. 10% 0.6	gory Marg High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer of a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5 15% 0.6 bdy and leafy debr al Category	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. rided for you 5% 0.5 10% 0.85	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lost, trails, or other comparable conditions. Low 0.5 Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * Sc Rt Bank CI > Lt Bank CI > cut banks; root ma	0.78 0.74	
Riparian Buffers Scores Delineate ripe Determine sq elow. Enter the % F Right Bank Left Bank B. INSTREAI ffle/pool comple	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Wetlands located are Score > WHABITAT: Vi axes, stable feature	imal a inches) present, canopy cover. within the riparian as. 5 5 5 5 5 5 5 5 5 5 5 5 5	Con Suboy High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng arian category in 20% 0.85 20% 0.5 zes, water velocity Stable habitat elen present in 30-50% are adequate for	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbn > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Cat the blocks below. 10% 0.6 15% 1.1 y and depths; woo Conditiona ptimal ments are typically 6 of the reach and	gory Mary High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer of a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5 15% 0.6 bdy and leafy debr al Category Mary Stable habitat ele present in 10-30% are adequate for	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. ided for you 5% 0.5 10% 0.85 is; stable substrat ginal ments are typically 6 of the reach and	Pro High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100% support conditions conditio	NOTES>> CI= (Sum % RA * Sc Rt Bank CI > Lt Bank CI > rcut banks; root ma	0.78 0.74 tts; SAV;	
Riparian Buffers Scores Delineate ripe Delineate ri	Opti Tree stratum (dbh > with > 60% tree Wetlands located are Wetlands located are Methanian areas along e uare footage for ex- reaction areas along e uare footage for ex- score > % Riparian Area and 3 % Riparian Areas Score > % Riparian Areas Scor	imal i inches) present, canopy cover. within the riparian as. 5 5 5 5 60% 0.75 40% 0.75 aried substrate si as. imal re typically present 0% of the reach.	Con Subop High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating leng carian category in 20% 0.85 20% 0.5 zes, water velocity Stable habitat eler present in 30-50% are adequate for popula	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and understory. Recent cutover (dense vegetation). Low 1.1 tegories and Con gth and width. Ca the blocks below. 10% 0.6 15% 1.1 y and depths; woo Conditiona ptimal ments are typically 6 of the reach and	gory Marg High Marginal: Non-maintained, dense herbaccous vegetation with either a shrub layer (oth > 3 inches) present, with <30% tree canopy cover. High 0.85 dition Scores usin alculators are prov 5% 1.5 15% 0.6 bdy and leafy debr al Category Marg Stable habitat eler present in 10-309 are adequate fo popula	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 g the descriptors. rided for you 5% 0.5 10% 0.85 is; stable substrat ginal ments are typically 6 of the reach and	Pcc High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100% coor coor coor coor coor coor coor coo	NOTES>> CI= (Sum % RA * Sc Rt Bank CI > Lt Bank CI > cut banks; root ma	0.78 0.74 Its; SAV; Gradient	

Reach R4 File: L:\22000s\22800\22865.06\Admin\05-ENVR\Field Data\Spread H\Field Forms\S-G39\0\_Potesta Submission\Docs\S-G39\_USM\_MVP\_AO MM.xlsx

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2			
Project #	Project Name (Applicant)		icant) Locality		HUC	Date	SAR #	Impact Length	Impact Factor	
22865.06	Mountain Valley Pipeline (Mountain Valley Pipeline, LLC)		Montgomery County	R4	03010101	8/24/2021	S-G39	82	1	
I. CHANNE	LALTERATION: Stream cross	ings, riprap, conc	rete, gabions, or c	oncrete blocks, st	traightening of cha	annel, channelizat	ion, embankment	s, spoil piles, const	rictions, livestock	
			Conditiona	al Category				NOTES>>		
	Negligible	Mi	nor	Mode 40 - 60% of reach		Sev	/ere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel alterations listed in the parameter guidelines.	the channel alterations listed in the parameter guidelines.	the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	by any of the chanr in the parameter g 80% of banks sh riprap, or	r cement.			CI
Scores	1.5	1.3	1.1	0.9	0.7	0	.5			1.50
	REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR TH	IIS REACH			
OTE: The CIs a	and RCI should be rounded to 2 dec	cimal places. The	CR should be rou	nded to a whole n	umber.		THE REACH	CONDITION INI	DEX (RCI) >>	1.17
						RCI= (Sum of	all Cl's)/5, exce	pt if stream is ep	hemeral RCI = (	Riparian (
							COMPENSAT	ION REQUIREM	MENT (CR) >>	96
							CR = RC	X L <sub>I</sub> X IF		

PROVIDED UNDER SEPARATE COVER



- 1. THIS MAP HAS BEEN ORIENTED TO NAD 1983 UTM ZONE 17N, AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), USING REAL TIME DGPS. FIELD
- 2. EASEMENT LINES SHOWN ON PLAN VIEW WERE PROVIDED BY MOUNTAIN VALLEY

3. SURVEY POINTS FOR CROSS SECTIONS AND THALWEG PROFILES COLLECTED IN 2021 HAVE BEEN USED IN COMBINATION WITH SURVEY POINTS COLLECTED PREVIOUSLY IN 2020 IN ORDER TO GENERATE THE PRE-CROSSING SURFACE SHOWN IN PLAN. DUE TO NATURAL EROSIONAL STREAM PROCESSES THAT CAN OCCUR OVER TIME, MINOR ADJUSTMENTS TO THE PROFILE ALIGNMENTS MAY HAVE BEEN REQUIRED IN ORDER TO

