

**SJ16a**

# Ephemeral Stream Assessment Form (Form 1a)

Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	Mountain Valley Pipeline	Giles	R6	05050002	8/23/2017		45	1
Name(s) of Evaluator(s)		Stream Name and Information						
James Cook, Emily Foster		S-IJ16-a						

**2. RIPARIAN BUFFERS:** Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Riparian Buffers	Conditional Category							NOTES-> Majority of the impact area is outside of the permanent road, though it does cross perpendicular to the asset. Bed was dry during the early spring. At area of impact, the majority of the canopy is low suboptimal to high marginal, with the right riparian buffer extends into an impermeable road surface.
	Optimal	Suboptimal		Marginal		Poor		
Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	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.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	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.	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.	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.		
Condition Scores	1.5	High 1.2	Low 1.1	High 0.85	Low 0.75	High 0.6	Low 0.5	
1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. 3. Enter the % Riparian Area and Score for each riparian category in the blocks below.							Ensure the sums of % Riparian Blocks equal 100	
Right Bank	% Riparian Area >	80%	20%				100%	
	Score >	1.2	0.5					
Left Bank	% Riparian Area >	70%	30%				100%	
	Score >	1.1	0.85					
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH							CI= (Sum % RA * Scores*0.01)/2	CI
							Rt Bank CI >	1.06
							Lt Bank CI >	1.03
							THE REACH CONDITION INDEX (RCI) >>	0.52
							RCI= (Riparian CI)/2	
							COMPENSATION REQUIREMENT (CR) >>	23
							CR = RCI X LF X IF	

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

INSERT PHOTOS:



**DESCRIBE PROPOSED IMPACT:**

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**S-H42**

# Stream Assessment Form (Form 1)

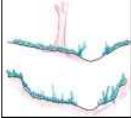
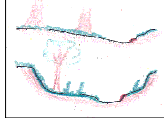
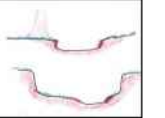
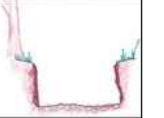

Unified Stream Methodology for use in Virginia

For use in Wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	Mountain Valley Pipeline	Pittsylvania		030101050104	11/16/2016		15	1

Name(s) of Evaluator(s)	Stream Name and Information
J.Cook, E.Foster	S-H42, Permanent Easement (Transco), Perennial

## 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

	Conditional Category					
	Optimal	Suboptimal	Marginal	Poor	Severe	
<b>Channel Condition</b>						
	Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/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.	Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute to stability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	<b>CI</b>
<b>Score</b>	<b>3</b>	<b>2.4</b>	<b>2</b>	<b>1.6</b>	<b>1</b>	<b>2.4</b>
<b>NOTES&gt;&gt;</b>	Immature forest, some pine saplings, Dense invasive vegetation, tree of heaven and microstegium vimineum					

## 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category							
	Optimal	Suboptimal	Marginal	Poor				
<b>Riparian Buffers</b>	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	<b>High Suboptimal:</b> 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.	<b>Low Suboptimal:</b> Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	<b>High Marginal:</b> Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	<b>Low Marginal:</b> 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.	<b>High Poor:</b> 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.	<b>Low Poor:</b> Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	<b>NOTES&gt;&gt;</b>
<b>Condition Scores</b>	<b>1.5</b>	<b>High</b> <b>1.2</b>	<b>Low</b> <b>1.1</b>	<b>High</b> <b>0.85</b>	<b>Low</b> <b>0.75</b>	<b>High</b> <b>0.6</b>	<b>Low</b> <b>0.5</b>	
1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. 3. Enter the % Riparian Area and Score for each riparian category in the blocks below.							Ensure the sums of % Riparian Blocks equal 100	
<b>Right Bank</b>	% Riparian Area>	<b>100%</b>					<b>100%</b>	
	Score >	<b>1.5</b>						
<b>Left Bank</b>	% Riparian Area>	<b>100%</b>					<b>100%</b>	CI= (Sum % RA * Scores*0.01)/2
	Score >	<b>1.5</b>						<b>Rt Bank CI &gt; 1.50</b> <b>Lt Bank CI &gt; 1.50</b>

## 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddedness; shade; undercut banks; root mats; SAV; riffle pools complexes, stable features.

	Conditional Category				
	Optimal	Suboptimal	Marginal	Poor	
<b>Instream Habitat/ Available Cover</b>	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	<b>Undercut banks and roots, stable. Varied water velocity and depths. Riffle-pool complexes.</b>
<b>Score</b>	<b>1.5</b>	<b>1.2</b>	<b>0.9</b>	<b>0.5</b>	<b>CI</b> <b>1.50</b>

## Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
							500	1

**4. CHANNEL ALTERATION:** Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

**No current channel alterations.**

	Conditional Category					
	Negligible	Minor	Moderate	Severe		
<b>Channel Alteration</b>	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.
<b>SCORE</b>	<b>1.5</b>	<b>1.3</b>	<b>1.1</b>	<b>0.9</b>	<b>0.7</b>	<b>0.5</b>

**1.50**

**REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH**

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

**THE REACH CONDITION INDEX (RCI) >>** **1.38**

RCI= (Sum of all CI's)/5

**COMPENSATION REQUIREMENT (CR) >>** **21**

CR = RCI X LF X IF

**INSERT PHOTOS:**



**DESCRIBE PROPOSED IMPACT:**