

Baseline Assessment – Stream Attributes

****During the initial site visit on 8/10/2021 data could not be collected due to limited stream access. Past agricultural use piled large rock within the stream. For this streams, professional judgment was used to assign proxy values based on comparable streams in proximity.***

Reach S-PP3 (Pipeline ROW) Perennial Spread G Craig County, Virginia

Data	Included
Photos	✓
USM Form (Virginia Only)	✓
SWVM Form	Proxy Stream Information Utilized; Refer to Master Stream Summary Table
FCI Calculator and HGM Form	
RBP Physical Characteristics Form	
Water Quality Data	
RBP Habitat Form	
RBP Benthic Form	
Benthic Identification Sheet	
Wolman Pebble Count	
RiverMorph Data Sheet	
Longitudinal Profile and Cross Sections	✓

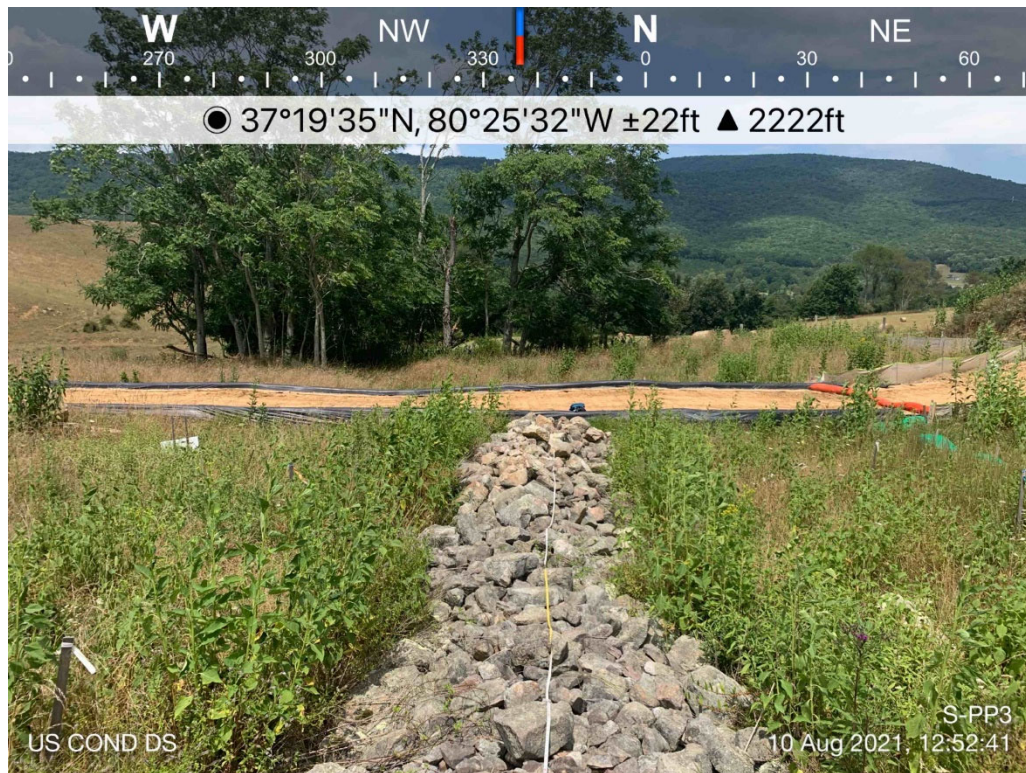


Photo Type: DS VIEW

Location, Orientation, Photographer Initials: Downstream view of ROW looking NW, SB



Photo Type: US VIEW

Location, Orientation, Photographer Initials: Upstream view of ROW looking SE, SB

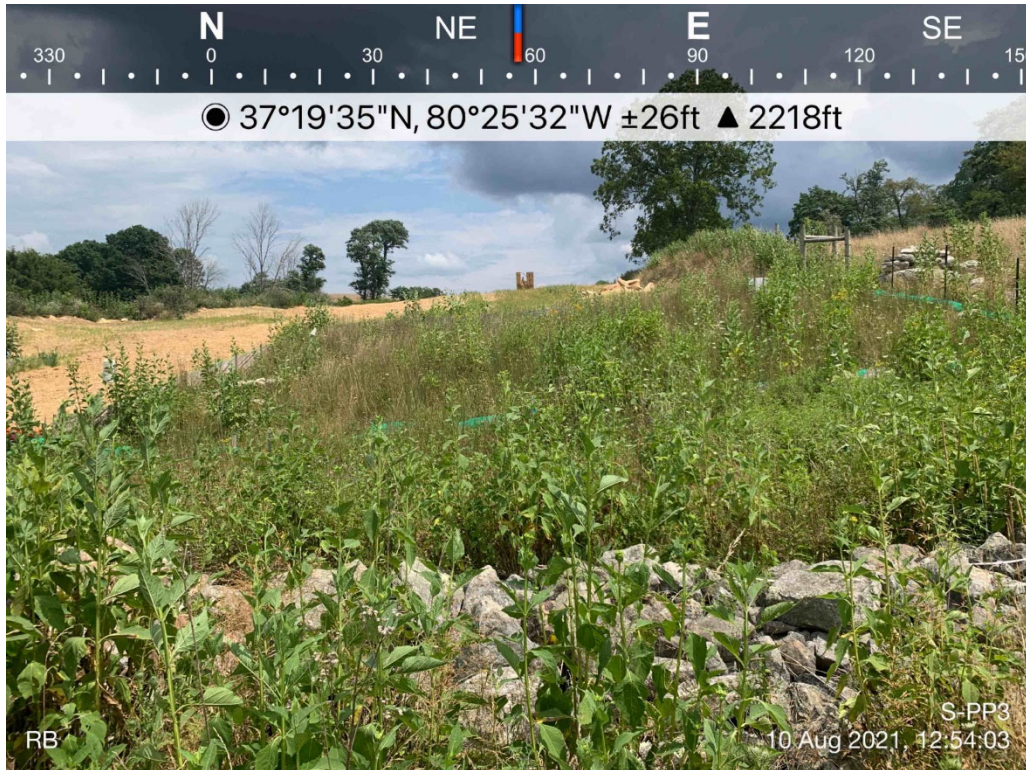


Photo Type: LB CL

Location, Orientation, Photographer Initials: Standing on LB looking at RB along pipe centerline looking NE, SB

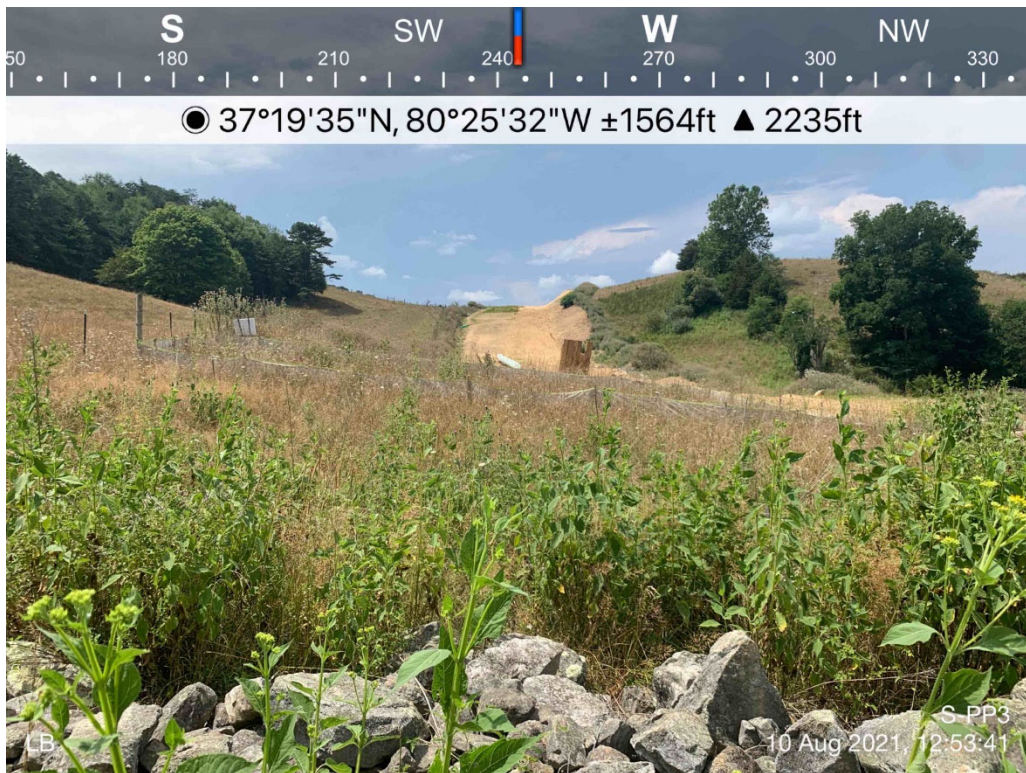


Photo Type: RB CL

Location, Orientation, Photographer Initials: Standing on RB looking at LB along pipe centerline looking SW, SB



Photo Type: DS COND

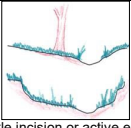
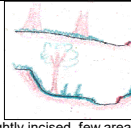
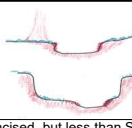
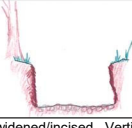
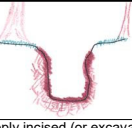
Location, Orientation, Photographer Initials: Downstream conditions outside of ROW looking NW, SB

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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 (Applicant)	Locality	Cowardin Class.	HUC	Date	SAR #	Impact Length	Impact Factor		
22865.06	Mountain Valley Pipeline (Mountain Valley Pipeline, LLC)	Craig County	R3	05050002	8/10/21	S-PP3	82	1		
Name(s) of Evaluator(s)		Stream Name and Information					SAR Length			
SB/EL/ES		UNT to Sinking Creek					82			
1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)										
Conditional Category										
Channel Condition	Optimal	Suboptimal	Marginal	Poor	Severe					
	 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.	 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 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% Sediment may be temporary / transient, contribute instability. 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-banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. 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 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. More than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.					
Scores	3	2.4	2	1.6	1	CI				
NOTES>>										
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										
Riparian Buffers	Optimal	Suboptimal	Marginal	Poor	NOTES>>					
	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Wetlands located within the riparian 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% to 60% 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.			
Scores	1.5	1.2	1.1	0.85	0.75	0.6	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>	85%	15%				100%			
	Score >	0.75	0.5							
								CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	85%	15%				100%			
	Score >	0.75	0.5							
								Rt Bank CI >	0.71	CI
								Lt Bank CI >	0.71	0.71
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/pool complexes, stable features.										
Conditional Category										
Instream Habitat/ Available Cover	Optimal	Suboptimal	Marginal	Poor	NOTES>>					
	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.						
Scores	1.5	1.2	0.9	0.5	Stream Gradient				CI	
					High				0.50	

Stream Impact Assessment Form Page 2

Project #	Project Name (Applicant)	Locality	Cowardin Class.	HUC	Date	SAR #	Impact Length	Impact Factor
22865.06	Mountain Valley Pipeline (Mountain Valley Pipeline, LLC)	Craig County	R3	05050002	8/10/21	S-PP3	82	1

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

Channel Alteration	Conditional Category						NOTES>>
	Negligible	Minor		Moderate		Severe	
	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.	
Scores	1.5	1.3	1.1	0.9	0.7	0.5	

CI

0.50

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) >>

0.54

RCI = (Sum of all CI's)/5, except if stream is ephemeral RCI = (Riparian CI/2)

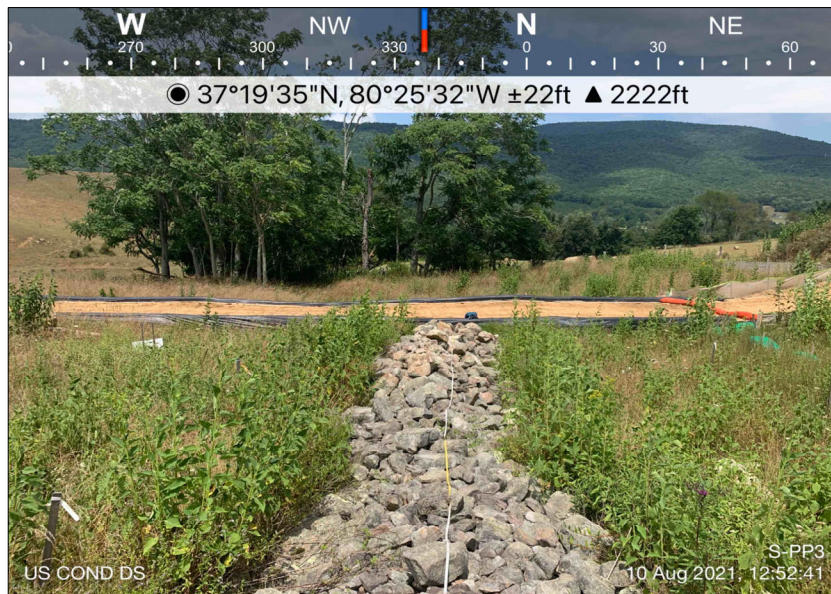
COMPENSATION REQUIREMENT (CR) >>

44

CR = RCI X L_r X IF

INSERT PHOTOS:

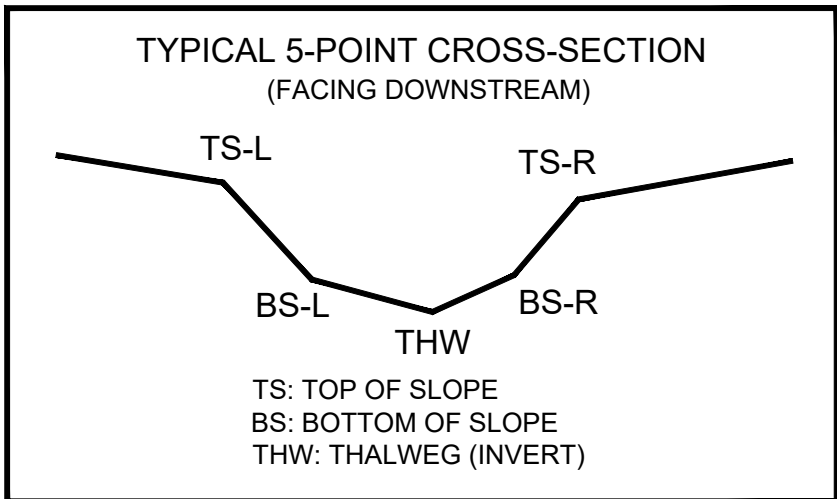
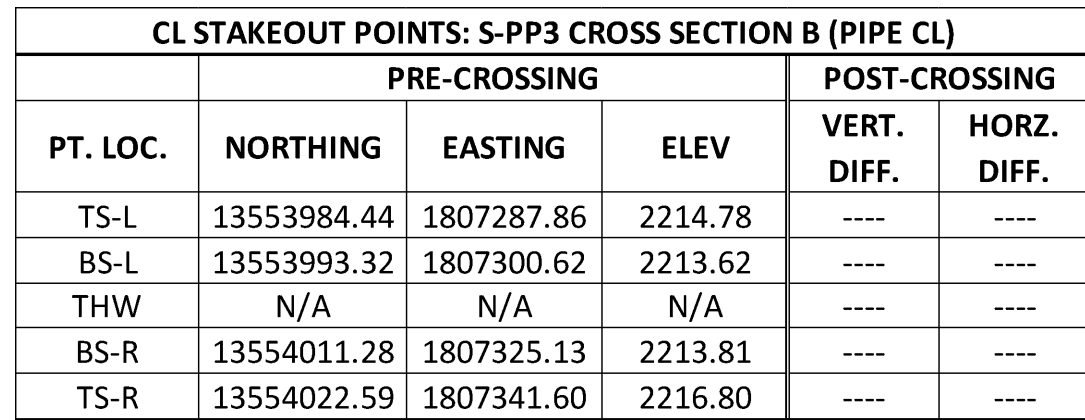
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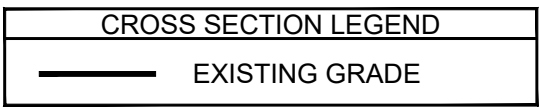
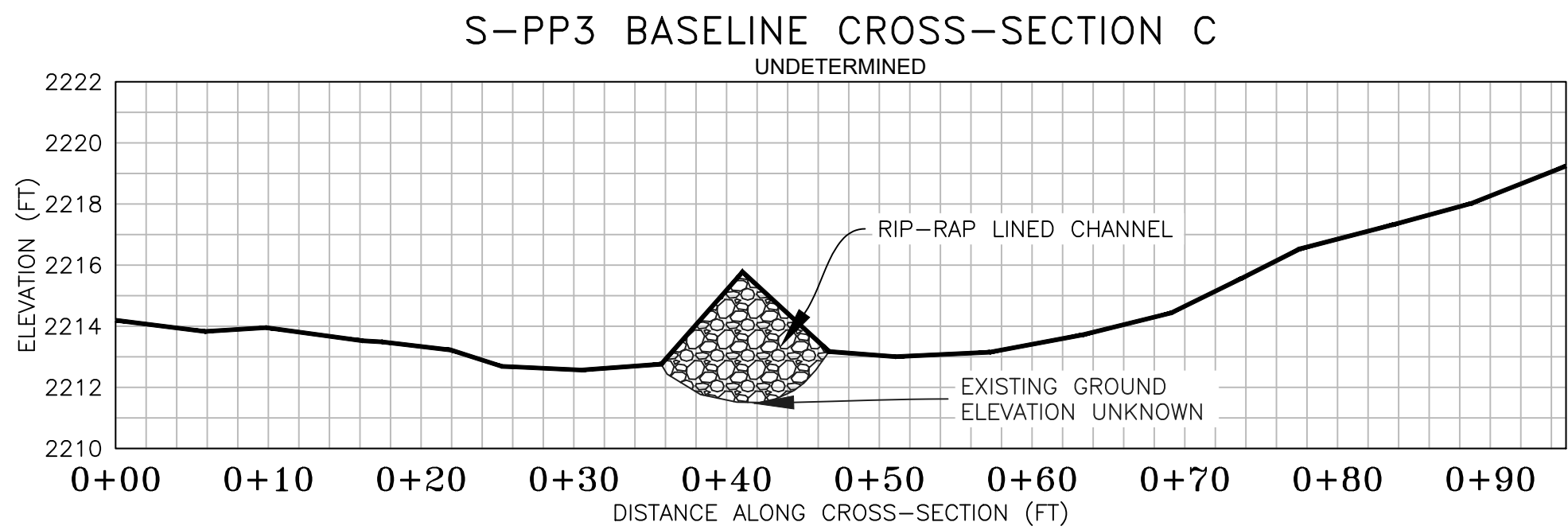
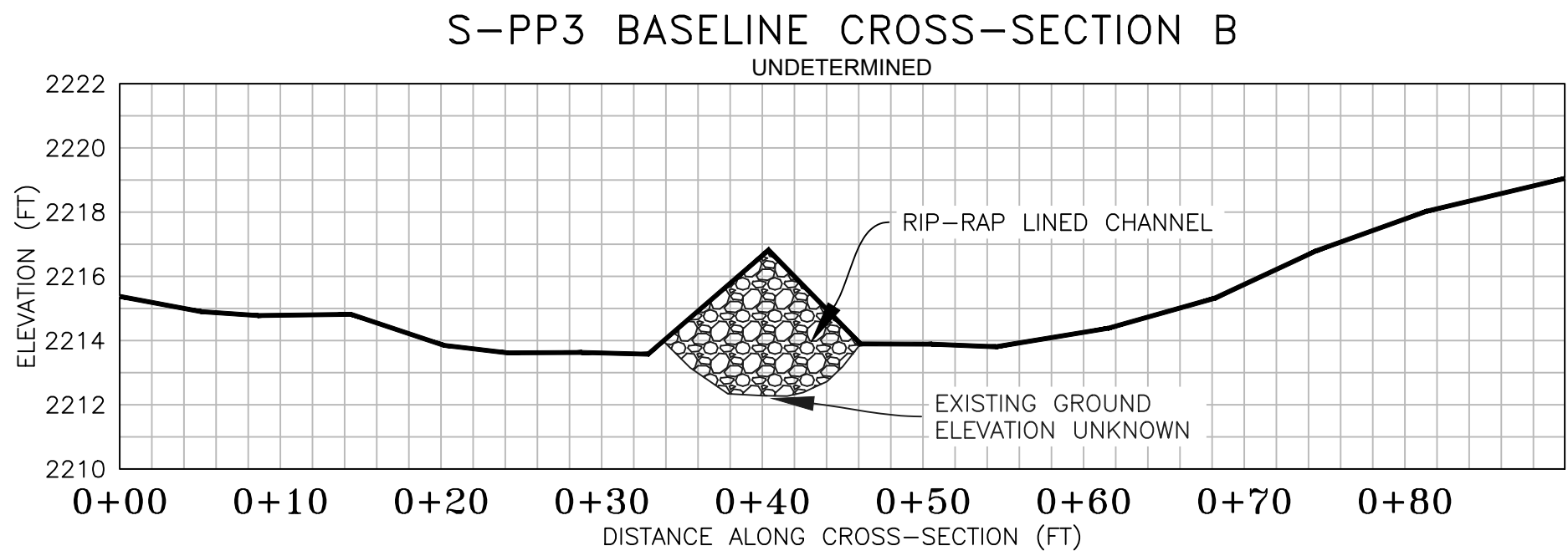
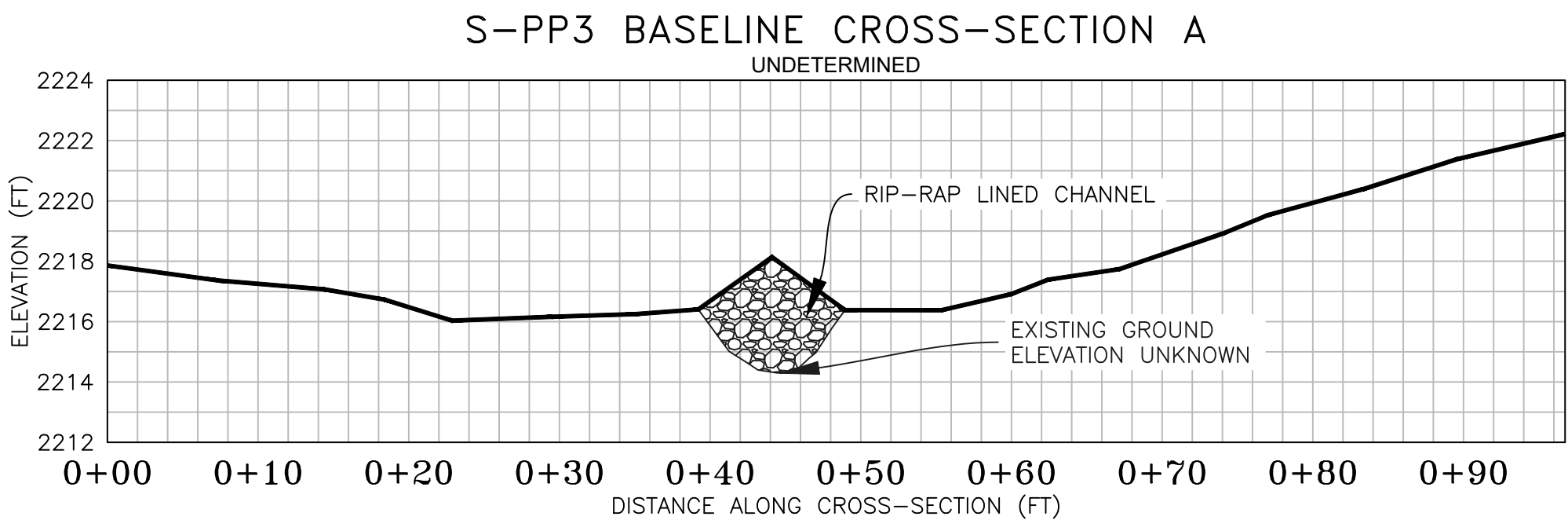
Looking downstream within the ROW. Assessment is limited to areas within the temporary ROW.

DESCRIBE PROPOSED IMPACT:

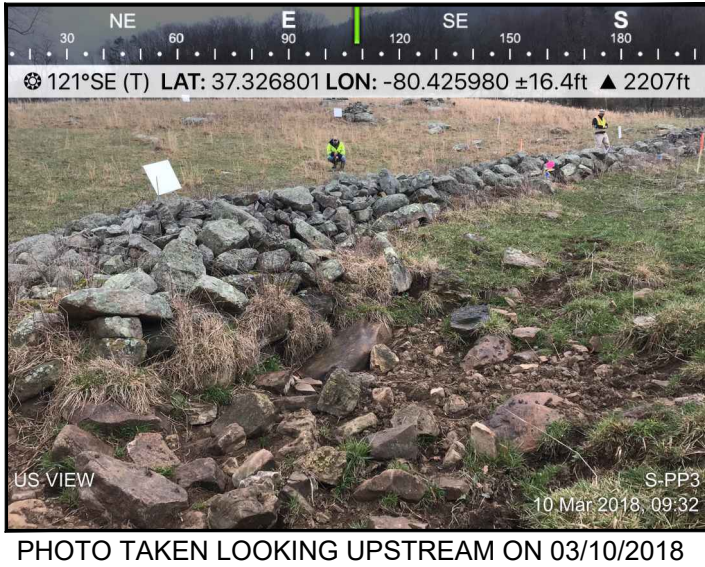
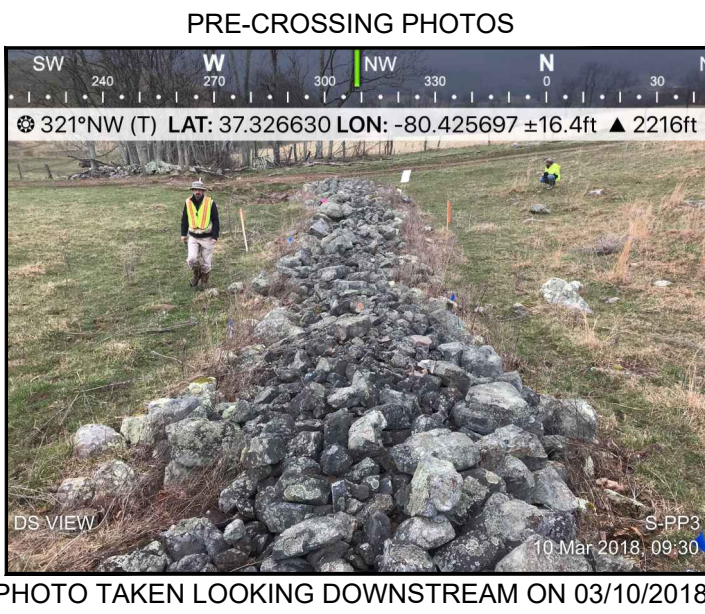
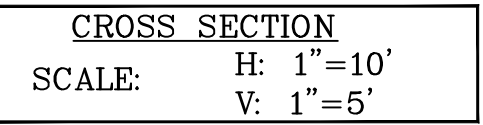
PROVIDED UNDER SEPARATE COVER



6. Cross-section B shot at location of pipe centerline (based on best professional judgement).



NOTE: ALL SECTION VIEWS SHOWN LEFT TO RIGHT FACING DOWNSTREAM.



POST-CROSSING PHOTOS

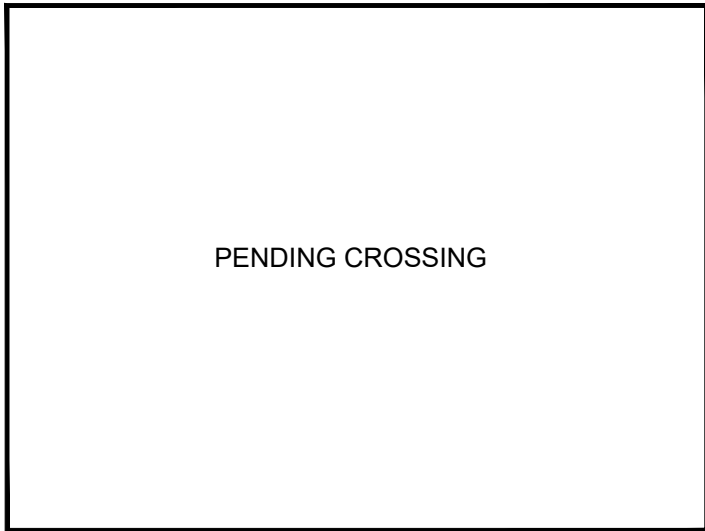


PHOTO TAKEN LOOKING

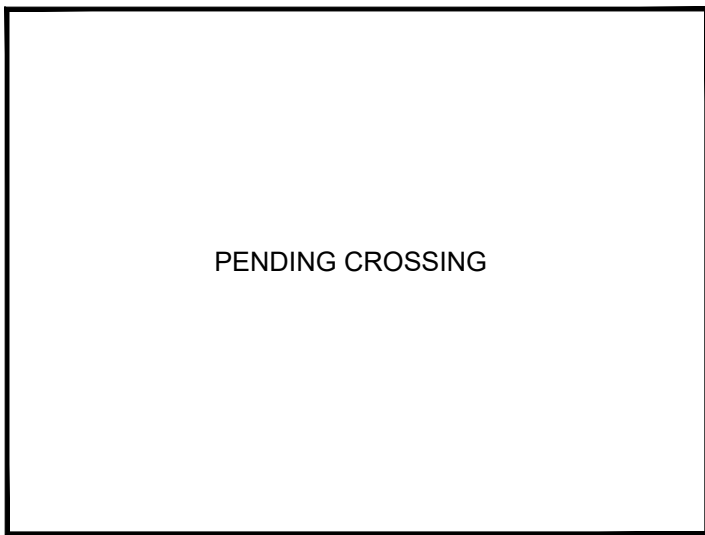


PHOTO TAKEN LOOKING

Profile and Cross-Sections Baseline Survey

Prepared For: MVP

Crossing S-PP3 - UNT to Sinking Creek (MP 217.8)

REVISIONS			
No.	Date	Description	App. By
DATE: September, 2021		SCALE: AS NOTED	

Horizontal Datum: NAD 1983 UTM ZONE 17N

Vertical Datum: NAVD 88

Boundary and Topo Source:

MVP
WSS12GLT000

Design	Draft	Approved
EJC	PMD	NAS

Sheet #
1 of 1

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