

Baseline Assessment – Stream Attributes

Reach S-EF41 (Pipeline ROW) Intermittent Spread E Nicholas County, West Virginia

Data	Included
Photos	✓
SWVM Form	✓
FCI Calculator and HGM Form	N/A – Intermittent stream (slope <4%)
RBP Physical Characteristics Form	✓
Water Quality Data	N/A – Low flow
RBP Habitat Form*	✓
RBP Benthic Form	✓
Benthic Identification Sheet	N/A – Low flow
Wolman Pebble Count	✓
Reference Reach Software Pebble Count Data	✓
Longitudinal Profile and Cross Sections	✓

*Modified RBP – Low flow

38.107549° N, -80.726284° W



Photo Type: DS, US View

Location, Orientation, Photographer Initials: Downstream Edge of Right of Way, Upstream View, ABK/WP

38.107549° N, -80.726284° W



Photo Type: DS Edge ROW, DS View

Location, Orientation, Photographer Initials: Downstream Edge of ROW, Downstream View, ABK/WP

38.107549° N, -80.726284° W



Photo Type: C ROW, US View

Location, Orientation, Photographer Initials: Center Right of Way, Upstream View, ABK/WP

38.107549° N, -80.726284° W



Photo Type: C ROW, DS View

Location, Orientation, Photographer Initials: Center of Right of Way, Downstream View, ABK/WP

38.107549° N, -80.726284° W



Photo Type: US, US View

Location, Orientation, Photographer Initials: Upstream Edge of Right of Way, Upstream View, ABK/WP

38.107549° N, -80.726284° W



Photo Type: US, DS View

Location, Orientation, Photographer Initials: Upstream Edge of Right of Way, Downstream View, ABK/WP

"Q:\Charleston\2021 Projects\21-0244- MVP- STREAM AND WETLAND CONDITIONS ASSESSMENT AND SURVEY PLAN\002 - Pre-Crossing Monitoring\Spread E\S-EF41"

USACE FILE NO./ Project Name: <small>(v2.1, Sept 2015)</small>			Mountain Valley Pipeline			IMPACT COORDINATES: (in Decimal Degrees)		Lat.	38.107549		Lon.	-80.726284		WEATHER:		Clear/Sunny 75 °F		DATE:		8/23/21											
IMPACT STREAM/SITE ID AND SITE DESCRIPTION: <small>(watershed size (acreage), unaltered or impairments)</small>					S-EF41 UNT to Hominy Creek					MITIGATION STREAM CLASS./SITE ID AND SITE DESCRIPTION: <small>(watershed size (acreage), unaltered or impairments)</small>										Comments:											
STREAM IMPACT LENGTH:			82		FORM OF MITIGATION:		RESTORATION (Levels I-III)		MIT COORDINATES: (in Decimal Degrees)		Lat.			Lon.			PRECIPITATION PAST 48 HRS:				Mitigation Length:										
Column No. 1- Impact Existing Condition (Debit)					Column No. 2- Mitigation Existing Condition - Baseline (Credit)					Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)					Column No. 4- Mitigation Projected at Ten Years Post Completion (Credit)					Column No. 5- Mitigation Projected at Maturity (Credit)											
Stream Classification:			Intermittent		Stream Classification:					Stream Classification:			0		Stream Classification:			0		Stream Classification:			0								
Percent Stream Channel Slope			3.7		Percent Stream Channel Slope					Percent Stream Channel Slope			0		Percent Stream Channel Slope			0		Percent Stream Channel Slope			0								
HGM Score (attach data forms):					HGM Score (attach data forms):					HGM Score (attach data forms):					HGM Score (attach data forms):					HGM Score (attach data forms):											
				Average					Average					Average					Average												
Hydrology					Hydrology					Hydrology					Hydrology					Hydrology											
Biogeochemical Cycling					Biogeochemical Cycling					Biogeochemical Cycling					Biogeochemical Cycling					Biogeochemical Cycling											
Habitat					Habitat					Habitat					Habitat					Habitat											
PART I - Physical, Chemical and Biological Indicators					PART I - Physical, Chemical and Biological Indicators					PART I - Physical, Chemical and Biological Indicators					PART I - Physical, Chemical and Biological Indicators					PART I - Physical, Chemical and Biological Indicators											
				Points Scale	Range	Site Score						Points Scale	Range	Site Score						Points Scale	Range	Site Score									
PHYSICAL INDICATOR (Applies to all streams classifications)					PHYSICAL INDICATOR (Applies to all streams classifications)					PHYSICAL INDICATOR (Applies to all streams classifications)					PHYSICAL INDICATOR (Applies to all streams classifications)					PHYSICAL INDICATOR (Applies to all streams classifications)											
USEPA RBP (High Gradient Data Sheet)					USEPA RBP (Low Gradient Data Sheet)					USEPA RBP (High Gradient Data Sheet)					USEPA RBP (High Gradient Data Sheet)					USEPA RBP (High Gradient Data Sheet)											
1. Epifaunal Substrate/Available Cover			0-20	0-1	4		1. Epifaunal Substrate/Available Cover			0-20	0-1			1. Epifaunal Substrate/Available Cover			0-20	0-1			1. Epifaunal Substrate/Available Cover			0-20	0-1						
2. Embeddedness			0-20		13		2. Embeddedness			0-20				2. Embeddedness			0-20				2. Embeddedness			0-20							
3. Velocity/ Depth Regime			0-20		0		3. Velocity/ Depth Regime			0-20				3. Velocity/ Depth Regime			0-20				3. Velocity/ Depth Regime			0-20							
4. Sediment Deposition			0-20		3		4. Sediment Deposition			0-20				4. Sediment Deposition			0-20				4. Sediment Deposition			0-20							
5. Channel Flow Status			0-20		0		5. Channel Flow Status			0-20				5. Channel Flow Status			0-20				5. Channel Flow Status			0-20							
6. Channel Alteration			0-20		16		6. Channel Alteration			0-20				6. Channel Alteration			0-20				6. Channel Alteration			0-20							
7. Frequency of Riffles (or bends)			0-20		0		7. Frequency of Riffles (or bends)			0-20				7. Frequency of Riffles (or bends)			0-20				7. Frequency of Riffles (or bends)			0-20							
8. Bank Stability (LB & RB)			0-20		18		8. Bank Stability (LB & RB)			0-20				8. Bank Stability (LB & RB)			0-20				8. Bank Stability (LB & RB)			0-20							
9. Vegetative Protection (LB & RB)			0-20		18		9. Vegetative Protection (LB & RB)			0-20				9. Vegetative Protection (LB & RB)			0-20				9. Vegetative Protection (LB & RB)			0-20							
10. Riparian Vegetative Zone Width (LB & RB)			0-20		6		10. Riparian Vegetative Zone Width (LB & RB)			0-20				10. Riparian Vegetative Zone Width (LB & RB)			0-20				10. Riparian Vegetative Zone Width (LB & RB)			0-20							
Total RBP Score			Marginal		78		Total RBP Score			Poor		0		Total RBP Score			Poor		0		Total RBP Score			Poor		0					
Sub-Total					0.39		Sub-Total					0		Sub-Total					0		Sub-Total					0					
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)					CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)					CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)					CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)					CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)											
WVDEP Water Quality Indicators (General)					WVDEP Water Quality Indicators (General)					WVDEP Water Quality Indicators (General)					WVDEP Water Quality Indicators (General)					WVDEP Water Quality Indicators (General)											
Specific Conductivity								Specific Conductivity								Specific Conductivity								Specific Conductivity							
100-199 - 85 points			0-90	0-1			100-199 - 85 points			0-90	0-1			100-199 - 85 points			0-90	0-1			100-199 - 85 points			0-90	0-1						
pH					pH					pH					pH						pH										
5.6-5.9 = 45 points			0-80				5.6-5.9 = 45 points			5-90				5.6-5.9 = 45 points			5-90				5.6-5.9 = 45 points			5-90							
DO					DO					DO					DO						DO										
10-30								10-30								10-30								10-30							
Sub-Total							Sub-Total					0		Sub-Total					0		Sub-Total					0					
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)					BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)					BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)					BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)					BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)											
WV Stream Condition Index (WVSCI)					WV Stream Condition Index (WVSCI)					WV Stream Condition Index (WVSCI)					WV Stream Condition Index (WVSCI)					WV Stream Condition Index (WVSCI)											
0			0-100	0-1			0			0-100	0-1			0			0-100	0-1			0			0-100	0-1						
Sub-Total					0		Sub-Total					0		Sub-Total					0		Sub-Total					0					
PART II - Index and Unit Score					PART II - Index and Unit Score					PART II - Index and Unit Score					PART II - Index and Unit Score					PART II - Index and Unit Score											
Index			Linear Feet		Unit Score		Index			Linear Feet		Unit Score		Index			Linear Feet		Unit Score		Index			Linear Feet		Unit Score					
0.595			82		48.79		0			0		0		0			0		0		0			0		0					

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME <u>UNT Hominy Creek</u>		LOCATION <u>S-EF41</u>
STATION # _____ RIVERMILE _____		STREAM CLASS <u>Intermittent</u>
LAT <u>38.107549</u> LONG <u>-80.726284</u>		COUNTY <u>Nicholas</u>
STORET # _____		AGENCY <u>Potesta</u>
INVESTIGATORS <u>AK/AG/EW/WP</u>		
FORM COMPLETED BY AG		DATE <u>8-23-2021</u> TIME <u>11:40 AM</u>
REASON FOR SURVEY <u>Preliminary Assessment</u>		

WEATHER CONDITIONS	<div style="display: flex; justify-content: space-between;"> <div> <p>Now</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> </div> <div> <p>storm (heavy rain) rain (steady rain) showers (intermittent) %cloud cover _____ clear/sunny</p> </div> </div> </div> <div> <p>Past 24 hours</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> </div> <div> <p>_____ %</p> </div> </div> </div> <div> <p>Has there been a heavy rain in the last 7 days?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Air Temperature <u>75 F</u> °C</p> <p>Other _____</p> </div> </div>	
SITE LOCATION/MAP	<p>Draw a map of the site and indicate the areas sampled (or attach a photograph)</p>	
STREAM CHARACTERIZATION	<div style="display: flex; justify-content: space-between;"> <div> <p>Stream Subsystem</p> <p><input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Tidal</p> <p>Stream Origin</p> <p><input type="checkbox"/> Glacial <input type="checkbox"/> Spring-fed <input type="checkbox"/> Non-glacial montane <input checked="" type="checkbox"/> Mixture of origins <input type="checkbox"/> Swamp and bog <input type="checkbox"/> Other _____</p> </div> <div> <p>Stream Type</p> <p><input checked="" type="checkbox"/> Coldwater <input type="checkbox"/> Warmwater</p> <p>Catchment Area _____ km²</p> </div> </div>	

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	Predominant Surrounding Landuse <input checked="" type="checkbox"/> Forest <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Field/Pasture <input type="checkbox"/> Industrial <input type="checkbox"/> Agricultural <input type="checkbox"/> Other _____ <input type="checkbox"/> Residential	Local Watershed NPS Pollution <input checked="" type="checkbox"/> No evidence <input type="checkbox"/> Some potential sources <input type="checkbox"/> Obvious sources Local Watershed Erosion <input type="checkbox"/> None <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant species present <input type="checkbox"/> Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input checked="" type="checkbox"/> Herbaceous Dominant species present <u>goldenrod, carex</u>	
INSTREAM FEATURES	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Estimated Reach Length <u>70</u> ft <u>m</u> Estimated Stream Width <u>0.5</u> ft <u>m</u> Sampling Reach Area _____ m² Area in km² (m²x1000) _____ km² Estimated Stream Depth <u>0.05</u> ft <u>m</u> Surface Velocity _____ m/sec (at thalweg) Stream Dry <input type="checkbox"/> </div> <div style="width: 45%;"> Canopy Cover <input checked="" type="checkbox"/> Partly open <input type="checkbox"/> Partly shaded <input type="checkbox"/> Shaded High Water Mark <u>0.5</u> ft <u>m</u> Proportion of Reach Represented by Stream Morphology Types Riffle _____ % Run _____ % Pool _____ % Channelized <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Dam Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div> </div>	
LARGE WOODY DEBRIS	LWD <u>-</u> m ² Density of LWD <u>-</u> m ² /km ² (LWD/ reach area)	
AQUATIC VEGETATION	Indicate the dominant type and record the dominant species present <input type="checkbox"/> Rooted emergent <input type="checkbox"/> Rooted submergent <input type="checkbox"/> Rooted floating <input type="checkbox"/> Free floating <input type="checkbox"/> Floating Algae <input type="checkbox"/> Attached Algae Dominant species present _____ Portion of the reach with aquatic vegetation <u>0</u> %	
WATER QUALITY unable to collect due to limited water in channel	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Temperature _____ °C Specific Conductance _____ Dissolved Oxygen _____ pH _____ Turbidity _____ WQ Instrument Used _____ </div> <div style="width: 45%;"> Water Odors <input checked="" type="checkbox"/> Normal/None <input type="checkbox"/> Sewage <input type="checkbox"/> Petroleum <input type="checkbox"/> Chemical <input type="checkbox"/> Fishy <input type="checkbox"/> Other _____ Water Surface Oils <input type="checkbox"/> Slick <input type="checkbox"/> Sheen <input type="checkbox"/> Globs <input type="checkbox"/> Flecks <input checked="" type="checkbox"/> None <input type="checkbox"/> Other _____ Turbidity (if not measured) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Turbid <input type="checkbox"/> Opaque <input type="checkbox"/> Stained <input type="checkbox"/> Other _____ </div> </div>	
SEDIMENT/SUBSTRATE	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Odors <input type="checkbox"/> Normal <input type="checkbox"/> Sewage <input type="checkbox"/> Petroleum <input type="checkbox"/> Chemical <input type="checkbox"/> Anaerobic <input checked="" type="checkbox"/> None <input type="checkbox"/> Other _____ Oils <input checked="" type="checkbox"/> Absent <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Profuse </div> <div style="width: 45%;"> Deposits <input type="checkbox"/> Sludge <input type="checkbox"/> Sawdust <input type="checkbox"/> Paper fiber <input type="checkbox"/> Sand <input type="checkbox"/> Relict shells <input type="checkbox"/> Other _____ Looking at stones which are not deeply embedded, are the undersides black in color? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div> </div>	

standing water

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		0	Detritus	sticks, wood, coarse plant materials (CPOM)	-
Boulder	> 256 mm (10")	0			
Cobble	64-256 mm (2.5"-10")	5			
Gravel	2-64 mm (0.1"-2.5")	5	Muck-Mud	black, very fine organic (FPOM)	-
Sand	0.06-2mm (gritty)	10			
Silt	0.004-0.06 mm	20			
Clay	< 0.004 mm (slick)	60	Marl	grey, shell fragments	-

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

STREAM NAME UNT Hominy Creek		LOCATION S-EF41	
STATION # _____ RIVERMILE _____		STREAM CLASS Intermittent	
LAT 38.107549 LONG -80.726284		COUNTY Nicholas	
STORET # _____		AGENCY Potesta	
INVESTIGATORS AK/AG/EW/WP			
FORM COMPLETED BY AG		DATE 8-23-2021 TIME 11:40 AM AM PM	REASON FOR SURVEY Preliminary Assessment

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
Parameters to be evaluated in sampling reach	1. Epifaunal Substrate/ Available Cover <input type="checkbox"/> N/A SCORE 4	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.
		20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	2. Embeddedness SCORE 13	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.
		20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	3. Velocity/Depth Regime <input checked="" type="checkbox"/> N/A SCORE 0	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).
		20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	4. Sediment Deposition SCORE 3	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.
		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 <input checked="" type="checkbox"/> N/A SCORE 0	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.
		20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

low flow - modified RBP

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

Habitat Parameter	Condition Category			
	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.	
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends) <input checked="" type="checkbox"/> N/A	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.
SCORE 0	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
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.
SCORE 9 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
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 9 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
10. Riparian 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 3 Left Bank	10 9	8 7 6	5 4 3	2 1 0
SCORE 3 Right Bank	10 9	8 7 6	5 4 3	2 1 0

Parameters to be evaluated broader than sampling reach

Total Score 78 low flow - modified RBP

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME <u>UNT Hominy Creek</u>		LOCATION <u>S-EF41</u>
STATION # <u> </u> RIVERMILE <u> </u>		STREAM CLASS <u>Intermittent</u>
LAT <u>38.107549</u> LONG <u>-80.726284</u>		COUNTY <u>Nicholas</u>
STORET # <u> </u>		AGENCY <u>Potesta</u>
INVESTIGATORS <u>AK/AG/EW/WP</u>		LOT NUMBER <u> </u>
FORM COMPLETED BY AG		DATE <u>8-23-2021</u> TIME <u>11:40 AM</u>
		REASON FOR SURVEY <u>Preliminary Assessment</u>

HABITAT TYPES	Indicate the percentage of each habitat type present <input type="checkbox"/> Cobble <u> </u> % <input type="checkbox"/> Snags <u> </u> % <input type="checkbox"/> Vegetated Banks <u> </u> % <input type="checkbox"/> Sand <u> </u> % <input type="checkbox"/> Submerged Macrophytes <u> </u> % <input type="checkbox"/> Other (<u> </u>) <u> </u> %
SAMPLE COLLECTION	Gear used <input type="checkbox"/> D-frame <input type="checkbox"/> kick-net <input type="checkbox"/> Other <u> </u> How were the samples collected? <input type="checkbox"/> wading <input type="checkbox"/> from bank <input type="checkbox"/> from boat Indicate the number of jabs/kicks taken in each habitat type. <input type="checkbox"/> Cobble <u> </u> <input type="checkbox"/> Snags <u> </u> <input type="checkbox"/> Vegetated Banks <u> </u> <input type="checkbox"/> Sand <u> </u> <input type="checkbox"/> Submerged Macrophytes <u> </u> <input type="checkbox"/> Other (<u> </u>) <u> </u>
GENERAL COMMENTS	unable to collect benthics due to low flow

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						

SITE ID: 9-EF41 Spread E
 DATE: 23 August 2021 / 1140
 COLLECTOR(S): AKIAG/EW/WP

Wolman Pebble Count (Reach Wide)										NOTES:
280	260	260	260	75	75	45	<.062	<.062	<.062	
35	<.062	<.062	<.062	<.062	35	<.062	<.062	<.062	35	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	
<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	<.062	

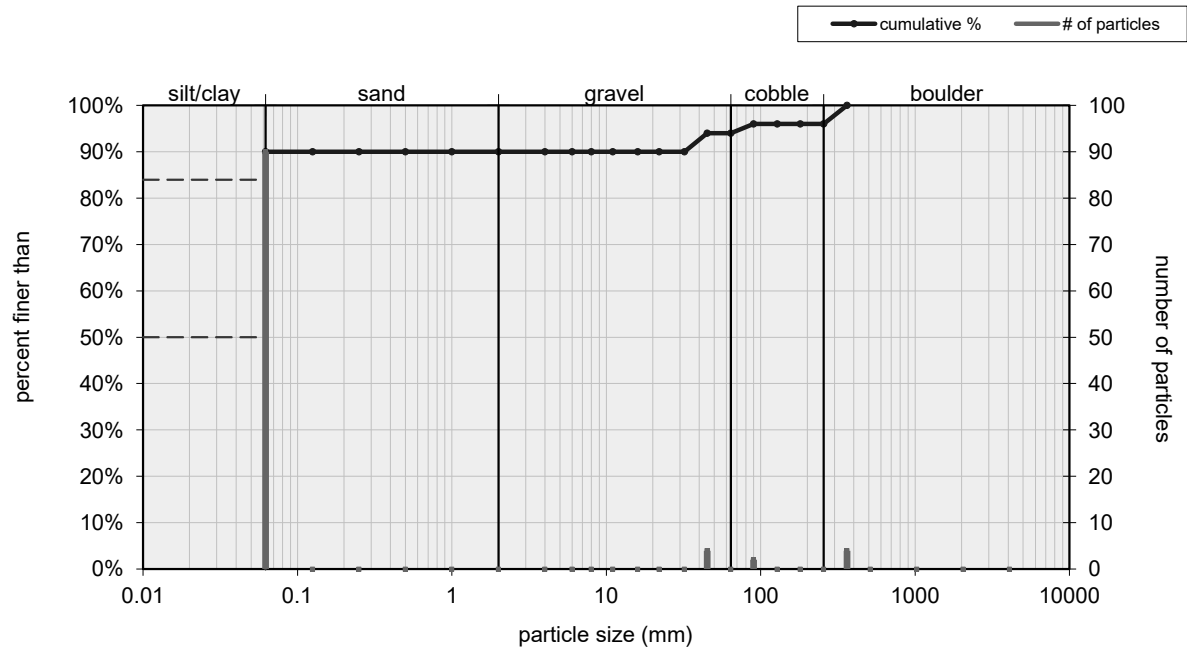
Riffle Pebble Count										NOTES:

										NOTES:

Inches	PARTICLE	Millimeters	S/C
	Silt / Clay	< .062	
	Very Fine	.062 - .125	SAND
	Fine	.125 - .25	
	Medium	.25 - .50	
	Coarse	.50 - 1.0	
.04 - .08	Very Coarse	1.0 - 2	GRAVEL
.08 - .16	Very Fine	2 - 4	
.16 - .22	Fine	4 - 5.7	
.22 - .31	Fine	5.7 - 8	
.31 - .44	Medium	8 - 11.3	
.44 - .63	Medium	11.3 - 16	
.63 - .89	Coarse	16 - 22.6	COBBLES
.89 - 1.3	Coarse	22.6 - 32	
1.3 - 1.8	Very Coarse	32 - 45	
1.8 - 2.5	Very Coarse	45 - 64	
2.5 - 3.5	Small	64 - 90	BEDROCK
3.5 - 5.0	Small	90 - 128	
5.0 - 7.1	Large	128 - 180	
7.1 - 10.1	Large	180 - 256	
10.1 - 14.3	Small	256 - 362	BEDROCK
14.3 - 20	Small	362 - 512	
20 - 40	Medium	512 - 1024	
40 - 60	Large-Vry Large	1024 - 2048	
	Bedrock		BDRK

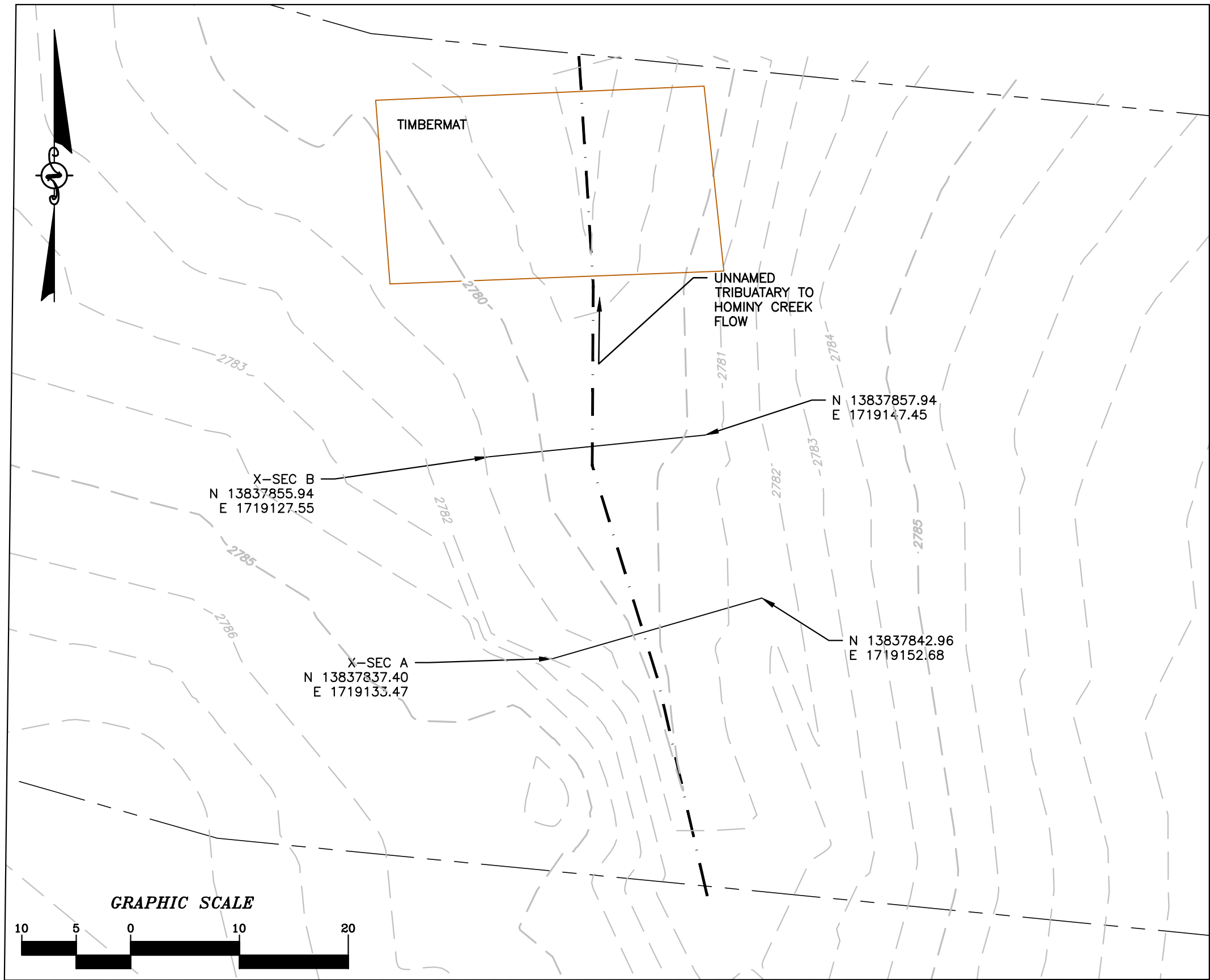
Bankfull Channel		
Material	Size Range (mm)	Count
silt/clay	0 - 0.062	90
very fine sand	0.062 - 0.125	0
fine sand	0.125 - 0.25	0
medium sand	0.25 - 0.5	0
coarse sand	0.5 - 1	0
very coarse sand	1 - 2	0
very fine gravel	2 - 4	0
fine gravel	4 - 6	0
fine gravel	6 - 8	0
medium gravel	8 - 11	0
medium gravel	11 - 16	0
coarse gravel	16 - 22	0
coarse gravel	22 - 32	0
very coarse gravel	32 - 45	4
very coarse gravel	45 - 64	0
small cobble	64 - 90	2
medium cobble	90 - 128	0
large cobble	128 - 180	0
very large cobble	180 - 256	0
small boulder	256 - 362	4
small boulder	362 - 512	0
medium boulder	512 - 1024	0
large boulder	1024 - 2048	0
very large boulder	2048 - 4096	0
total particle count:		100
bedrock -----		
clay hardpan -----		
detritus/wood -----		
artificial -----		
total count:		100
Note:		

Bankfull Channel Pebble Count, UNT to Hominy Creek (S-EF41)



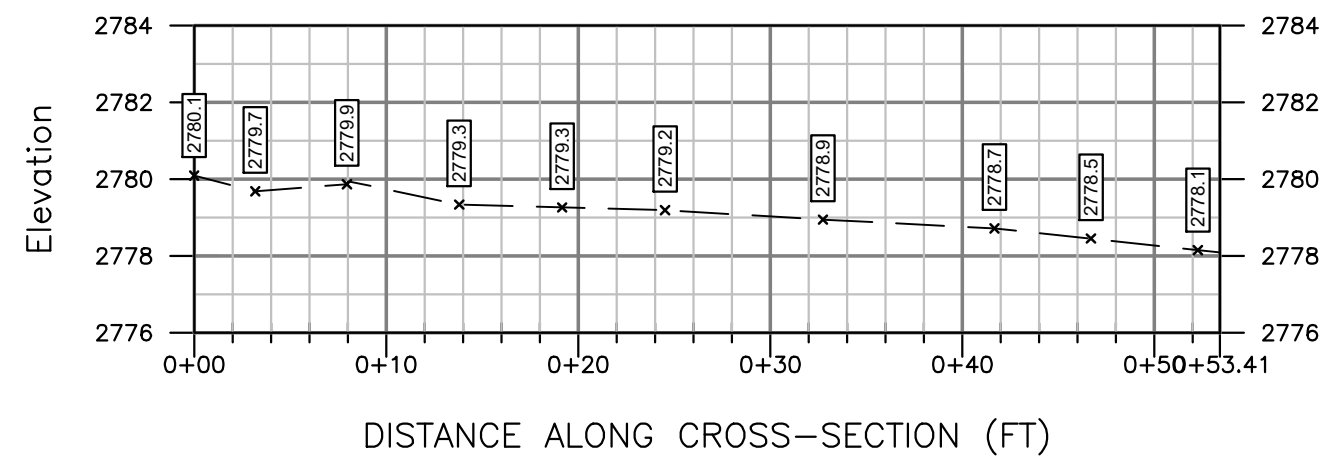
Size (mm)		Size Distribution		Type	
D16	0.062	mean	0.1	silt/clay	90%
D35	0.062	dispersion	1.0	sand	0%
D50	0.062	skewness	---	gravel	4%
D65	0.062			cobble	2%
D84	0.062			boulder	4%
D95	76				

File: S:\CSD-Proj-YR\2021\21-0244-MVP\21-0244-S-EF41.dwg
Date: 9/27/2021 10:00 AM
Plot by: MBS



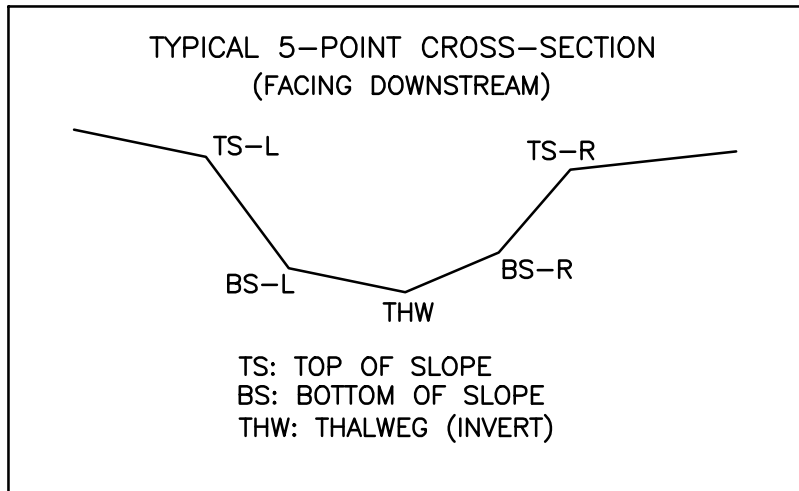
S-EF41

S-EF41 BASELINE THALWEG PROFILE



PROFILE
SCALE: H: 1"=10'
V: 1"=5'

AS-BUILT TABLE: S-EF41 CROSS SECTION B					
	PRE-CROSSING			AS-BUILT	
PT. LOC.	NORTHING	EASTING	ELEV.	VERT. DIFF.	HORZ. DIFF.
TS-L	13837856.76	1719135.60	2779.79		
BS-L	13837856.88	1719136.75	2778.83		
THW	13837856.87	1719136.91	2778.71		
BS-R	13837856.91	1719137.17	2778.79		
TS-R	13837857.00	1719138.13	2778.94		



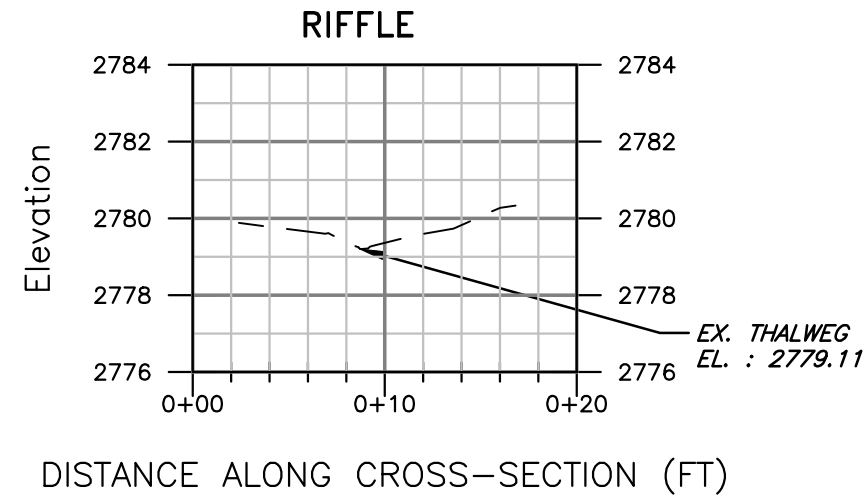
LEGEND

- STUDY AREA (EASEMENT)
- EXISTING SURVEY--LOCATED THALWEG
- 1176.87 + EXISTING SURVEYED GROUND SHOT ELEVATION

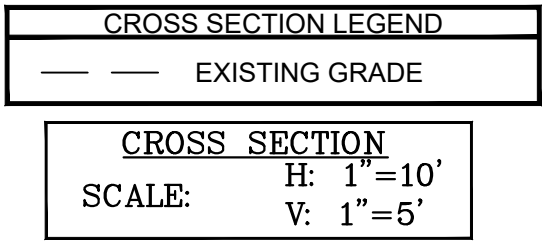
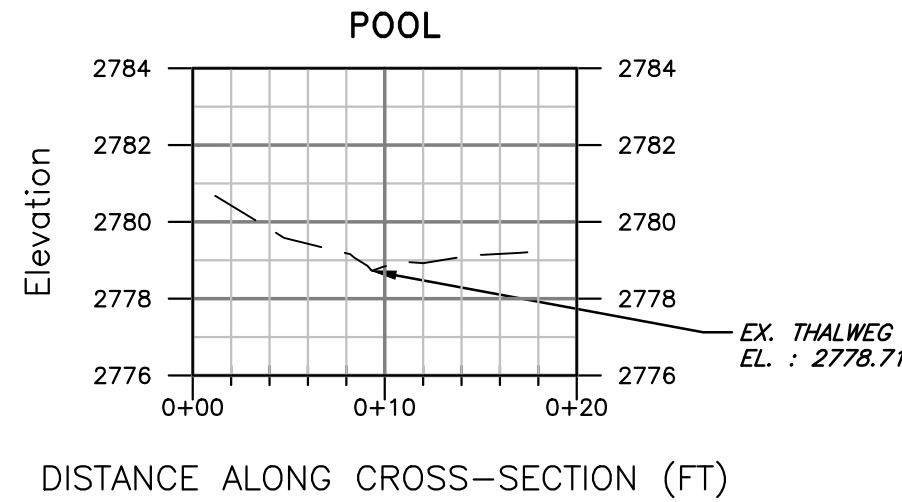
SURVEY NOTES:

- 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 LOCATIONS WERE COMPLETED ON 8-23-2021.
- EASEMENT LINES SHOWN ON PLAN VIEW WERE PROVIDED BY MOUNTAIN VALLEY PIPELINE.
- SURVEY POINTS FOR CROSS SECTIONS AND THALWEG PROFILES COLLECTED IN 2021 HAVE BEEN USED IN COMBINATION WITH SURVEY POINTS AND COLLECTED PREVIOUSLY IN 2020 IN ORDER TO GENERATE THE PRE-CROSSING SURFACE SHOWN IN PLAN. DUE TO NATURAL EROSIONAL STREAM PROCESSES THAT OCCUR OVER TIME, MINOR ADJUSTMENTS TO THE PROFILE ALIGNMENTS MAY HAVE BEEN REQUIRED IN ORDER TO GENERATE A CLEAN PRE-CROSSING SURFACE.
- ALL SECTION VIEWS SHOWN LEFT TO RIGHT FACING DOWNSTREAM.
- POST-CROSSING SURVEY INFORMATION SHOWN IN RED.
- POST-CROSSING SURVEY POINTS FOR CROSS SECTIONS AND THALWEG ARE PROJECTED ONTO PRE-CROSSING SECTION AND PROFILE VIEWS FOR COMPARISON.

S-EF41 BASELINE CROSS-SECTION A



S-EF41 BASELINE CROSS-SECTION B



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

PRE-CROSSING PHOTOS



PHOTO TAKEN LOOKING DOWNSTREAM FROM UPSTREAM IMPACT LIMITS



PHOTO TAKEN LOOKING UPSTREAM FROM DOWNSTREAM IMPACT LIMITS

POST-CROSSING PHOTOS

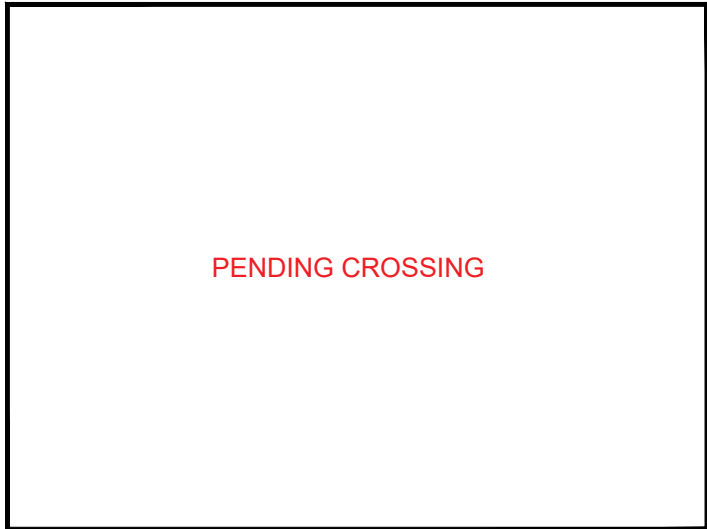


PHOTO TAKEN LOOKING DOWNSTREAM UPSTREAM FROM IMPACT LIMITS

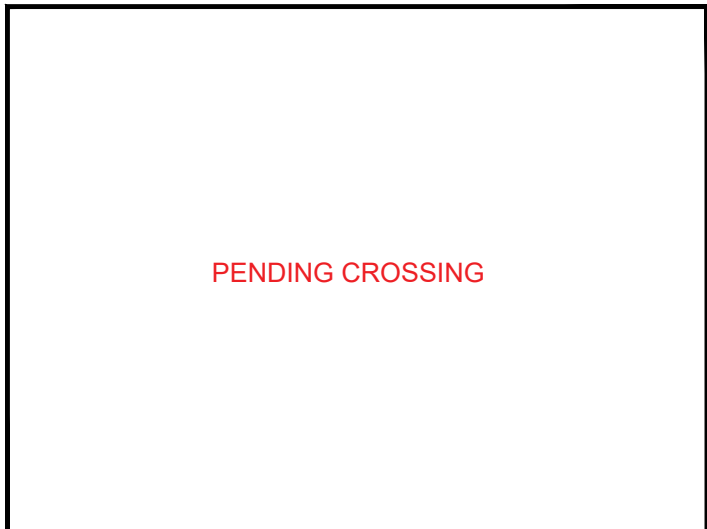


PHOTO TAKEN LOOKING UPSTREAM FROM UPSTREAM IMPACT LIMITS

PRE-CROSSING

DATE ISSUED 9/27/2021