Stream Biological Conditions EA Report

Project Name	H-600 Pipeline Spread C	**AFE**	124300130	**Spread**	H-600 Pipeline Spread C
Contractor	Precision			**Report #**	193
Environmental Auditor	Mathew Huber			**Date/Time**	8/20/2023 8:17 AM

Stream ID	S-VV2	**Crossing Start Date**	8/20/2023	**Crossing Completion Date**	8/26/2023
Milepost	65.62	**Pre-Con Assessment Date**	8/20/2023	**Post-Con Assessment Date**	8/26/2023
Station	3464+68	**Bankfull Width (ft.)**	20.0	**Riffle:Pool Complexes Present?**	No
State	WV	**Stream Classification**	Perennial		
County	Braxton	**303(d) Impairment Listing**	No		

	Resource Post-Crossing Conditions	
1	Were all applicable resource specific crossing conditions satisfied?	N/A
	Time of Year Restrictions (TOYR)? N/A Mussel Relocation? N/A	
2	This question is not applicable in WV.	
3	Which crossing methods were utilized during the stream crossing? (If so select one or more) Dam & Pump X Flume Cofferdam Conventional Bore Horizontal Directional Drill (HDD) Bore	
4	Was the top 1-foot (12-inches) of streambed substrate segregated and stockpiled separate from trench spoils?	Yes
5	Was excess material not needed for backfill removed and disposed of in an upland area?	N/A
6	Was the top 12-inches of backfill made with clean native stream substrate?	Yes
7	Was the pre-construction survey data utilized during restoration in attempt to re-establish pre-construction contours?	See Below
8	Were any field modifications to the stream implemented by project or regulatory personnel to address potential drainage or bank restoration limitations?	No
9	Were impervious trench breakers/plugs properly installed within 25-feet of top-of-bank to prevent subsurface erosion to or from the resource area?	Yes
10	Was permanent seed and stabilization material (straw or matting) applied to riparian areas and stream banks prior to re-establishing flow to the impact area of the channel?	Yes
11	Was the time of disturbance minimized by conducting resource work continuously to completion?	Yes
12	Have civil surveys been scheduled to verify as-built conditions meet pre-construction conditions in accordance with the project Mitigation Framework and federal/state permit requirements?	Yes
13	Are bareroot saplings required and/or scheduled to be planted for the dormant season (10/1 - 4/30)?	N/A
14	Did any unauthorized discharges to unpermitted resources occur during the crossing? If so, explain the corrective actions implemented in the Comments section and include additional photos.	No

	Biological Conditions	**Pre-Con**	**Post-Con**
15	**Predominant Substrate Type (select one):** Bedrock, Boulder (>10"), Cobble (2-10"), Gravel (0.1-2"), Sand (<0.1"), Mud/Silt/Clay	Gravel (0.1-2")	Gravel (0.1-2")
16	**Channel Conditions:Rating:** 1-Optimal (80-100% stable banks), 2-Sub-optimal (60-80% stable banks), 3-Marginal (40-60% stable banks), 4-Poor (20-40% stable banks), 5-Severe (0-20% stable banks, highly eroded or unvegetated banks	3	5
17	**Riparian Buffer Zone within ROW and ≤50 ft. from Stream Top-of-Bank: Rating:** 1-Optimal (60-100% heavy vegetative cover), 2-Sub-optimal (30-60% mixed vegetated coverage), 3-Marginal (<30% vegetative coverage), 4-Poor (Mowed/maintained area or farmland, impervious area, sparsely vegetated coverage, etc.)	1	4

AFE	124300130	Date/Time	8/20/2023 8:17 AM	Report #	193

	Biological Conditions Continued	Pre-Con	Post-Con
18	**Instream Habitat Conditions:** Examples: Varied substrate sizes, varied combination of water velocities & depths, presence of woody/leafy debris, stable substrate with low amount of mobile particles, low embeddedness, shade protection, undercut banks, root mats, Varied combination of water velocities, submerged aquatic vegetation Rating: 1-Optimal (Habitat conditions present in >50% of resource), 2-Suboptimal (Habitat conditions in 30-50% of resource), 3-Marginal (Habitat conditions in 10-30% of resource), 4-Poor (Habitat conditions in 0-10% of resource)	2	2
19	**Channel Alterations:** Examples: Straightened channel, non-MVP stream crossings, non-native riprap/rock along banks, concrete/gabions/concrete block, manmade embankments, constrictions w/in channel, livestock or agricultural impacts Rating: 1-Negligible (unaltered/natural stream), 2-Minor (20-40% of resource disrupted by channel alterations), 3-Moderate (40-80% of resource disrupted), 4-Severe (>80% of resource disrupted)	1	1

Additional Notes

Pre-construction assessment (8/20/2023)
Perennial stream flowing from east to west across LOD. Stream bed contains predominantly gravel and cobble substrate with some mud/silt. S-VV2 does not contain any riffle-pool complexes or large rocks affecting the flow of the stream. The majority of the stream banks are steep to vertical with some areas containing minor bank scouring, as is indicated in the photos where overhanging vegetation is present. #16 received a 3 due to clear evidence of scouring and erosion on the predominantly steep banks. Representative points were taken prior to the start of construction to determine if a new civil survey was needed. Of the points taken, it did not seem that an entirely new survey of the stream was warranted.

08/20/2023
Today's weather was sunny with a high of 86 degrees Fahrenheit. Crew set up dam and pump system to maintain stream flow. As water between the dams drained, minnows and crayfish were collected and relocated downstream. The stream was successfully open cut and the top 12" of stream bed was segregated onto its own timber mat with erosion sock barriers to prevent mixing with other segregated soils.
08/21/2023
Today's weather was sunny with a high of 89 degrees Fahrenheit. Crew continued to dig ditch for stream/wetland crossing.
08/22/2023
Weather sunny with a with a high of 82 degrees Fahrenheit. Crew finished digging the ditch and successfully installed the stream/wetland crossing section of pipe.
08/23/2023
Today's weather was sunny with a high of 87 degrees Fahrenheit. The ditch was backfilled, and the crew began backfilling to the original contours of the stream.
08/24/2023
Weather was sunny with a high of 86 degrees Fahrenheit. The survey crew came out and marked the original contours of the stream with stakes showing how much soil needed to be removed or added to the stream banks and bed to achieve pre-construction conditions. It was determined that the survey data collected in 2019 and current stream conditions had most likely changed over time as a result of natural processes (erosion, flooding, etc.). The decision was made amongst the MVP inspection team and the crew to restore the stream as close as possible to what was observed during the pre-construction assessment.
08/25/2023
Today's weather included thunderstorms with a high of 84 degrees Fahrenheit. Due to the rain, all restoration activities were suspended. The crew modified their pump around system to account for the increased volume of flowing water in the stream. They did so by utilizing their two large six-inch pumps in addition to the three-inch pump already in the stream.
08/26/2023
Today's weather was sunny with a high of 83 degrees Fahrenheit. The crew was able to successfully restore the stream today.

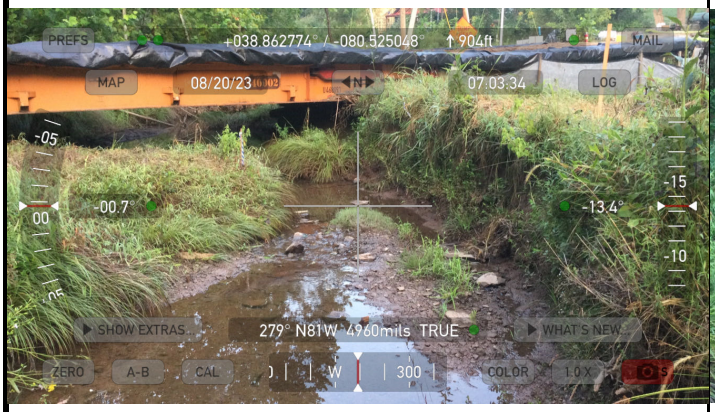
Post-construction assessment (08/26/2023)
Stream has been restored as close as possible to pre-construction contours. Vertical stream banks and areas with bank scour had to be restored with a slight slope in the bank to produce stabilized soil. Conditions 16 and 17 were given a rating of 5 and 4 respectively due to the lack of vegetation in disturbed permitted impact area following completion of the crossing and restoration. The stream banks have been properly stabilized and the disturbed area have been seeded with the appropriate permanent seed mix and/or planted with bare-root saplings (as required) in accordance with Appendix B: Restoration Work Plan of the Mountain Valley Pipeline Comprehensive Stream and Wetland Monitoring, Restoration and Mitigation Framework.

In accordance with the Mountain Valley Pipeline Comprehensive Stream and Wetland Monitoring, Restoration and Mitigation Framework, this independent report was completed to document the on-site monitoring of instream invertebrate and fisheries resources during all construction activity related to waterbody and wetland crossings, and document instream conditions and any impacts to the resources.

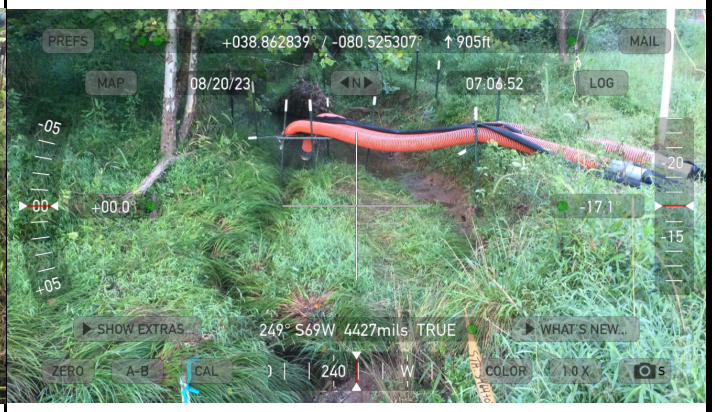
Name	Signature	Company	Date
Mathew Huber		ERM	8/26/2023

AFE	124300130	Date/Time	8/20/2023 8:17 AM	Report #	193

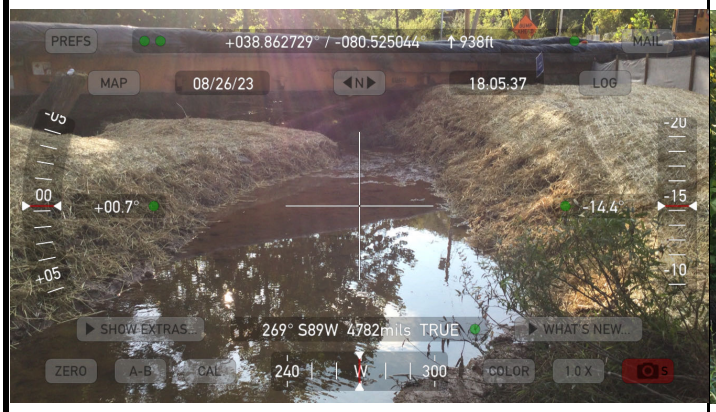
Required Photos



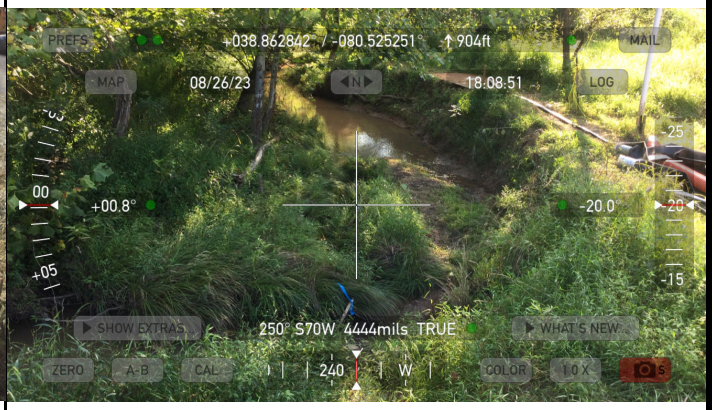
GPS Location	See Photo
Description	Downstream view of permitted impact area during pre-construction assessment.



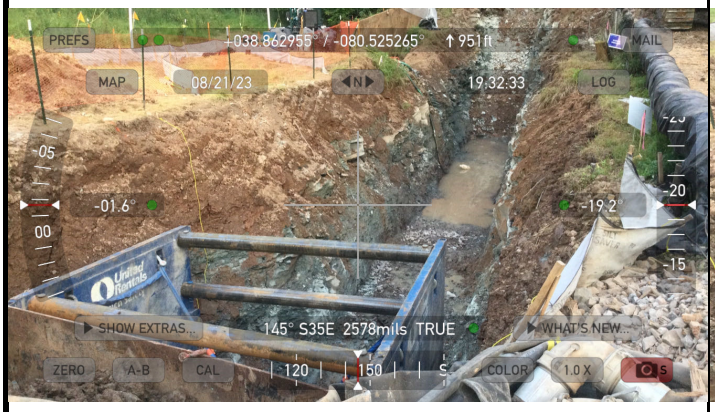
GPS Location	See Photo
Description	Downstream view of unimpacted area during pre-construction assessment.



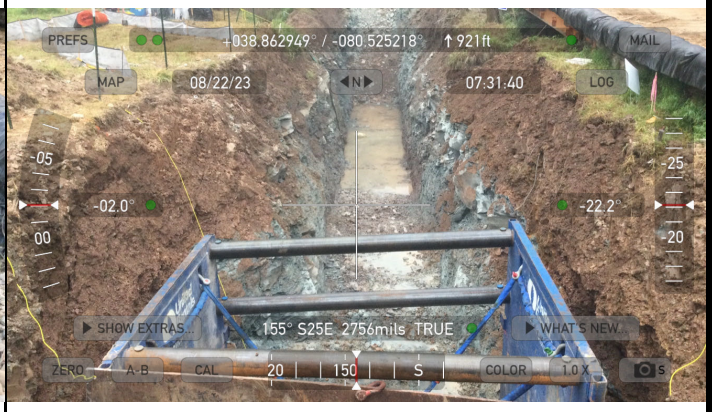
GPS Location	See Photo
Description	Downstream view of permitted impact area during post-construction assessment.



GPS Location	See Photo
Description	Downstream view of unimpacted area during post-construction assessment.



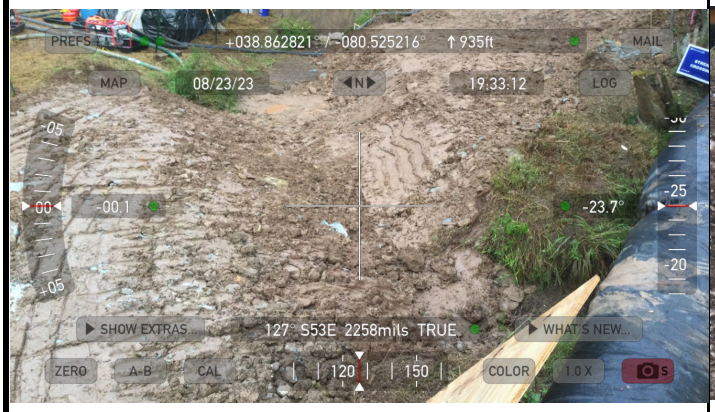
GPS Location	See Photo
Description	Stream crossing at end of workday 08/21/2023



GPS Location	See Photo
Description	Stream crossing at start of workday 08/22/2023

AFE	124300130	Date/Time	8/20/2023 8:17 AM	Report #	193

Optional Photos



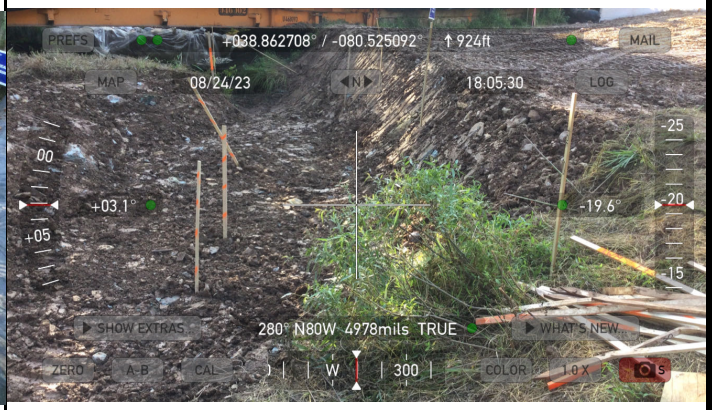
GPS Location	See Photo
Description	Stream crossing at end of workday 08/23/2023

Insert image here

GPS Location	
Description	

Insert image here

GPS Location	
Description	



GPS Location	See Photo
Description	Stream crossing at end of workday 08/24/2023

Insert image here

GPS Location	
Description	

Insert image here

GPS Location	
Description	