Stream Biological Conditions EA Report

Project Name	H-600 Pipeline Spread C	**AFE**	124300131	**Spread**	H-600 Pipeline Spread C
Contractor	Precision			**Report #**	249
Environmental Auditor	Jeffrey Arbogast			**Date/Time**	9/22/2023 3:19 PM

Stream ID	S-H104	**Crossing Start Date**	9/22/2023	**Crossing Completion Date**	9/27/2023
Milepost	93.29	**Pre-Con Assessment Date**	9/11/2023	**Post-Con Assessment Date**	9/27/2023
Station	4925+68	**Bankfull Width (ft.)**	14.8	**Riffle:Pool Complexes Present?**	Yes
State	WV	**Stream Classification**	Perennial		
County	Webster	**303(d) Impairment Listing**	No		

	Resource Post-Crossing Conditions	
1	Were all applicable resource specific crossing conditions satisfied?	Yes
	Time of Year Restrictions (TOYR)? Yes 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?	Yes
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	Bedrock, Boulder (>10")	Cobble (2-10")
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	1	2
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	3

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	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)	1	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	2

Additional Notes

Expanded notes for question 1: This crossing has a time of year restriction (TOYR) from September 15th to March 31st for a trout stream and a waiver has been obtained.
Expanded notes for question 17: The 50' buffer on the going away side (GAS) was scheduled to be completed on 9/28. The 50' buffer on the coming in side (CIS) cannot be completed until the next section of pipe is welded in and backfilled.

The alignment sheets show stream S-H104 being crossed by the pipeline at station nos. 4925+68 to 4925+83.

A dam and pump around was built prior to any disturbance within the 10' stream buffer. A ditch dewatering system was set up and will be used as needed throughout stream crossing.

9/22/2023: The topsoil was stripped from the 10' stream buffer and segregated in an upland area. The streambed is predominantly bedrock with a few smaller boulders, sand and gravel, which were removed and segregated. A few stones were determined to be significant to stream flow and were surveyed so they could be replaced at the completion of crossing. Afterward the blasting crew drilled, set charges and shot the ditch line through the stream. Operators then began removing ditch spoils from the ditch and bedrock from the streambed. The top 12 inches of the busted-up stream substrate bedrock was segregated on geotech in an upland area (Ref. Appendix B: Restoration Work Plan-MVP Section 3.4).

9/23/2023: A rock hammer was needed to reach the proper trench depth during excavation of the ditch. The stream subsoil was composed of solid rock, requiring it to be hammered out and segregated on geotech in an upland area.

9/25/2023: The ditch was extended until the stream section of pipe could be lowered in. A weld was made on the GAS of the stream, while an excavator mounted rock crusher made padding material from the large stone removed during the stream sub-layer excavation.

9/26/2023: The CIS weld was completed, and X-ray tested. Crews finished coating and rock shielding the pipe in the ditch before the GAS bentonite breaker was built at a distance of 15' from the top of the bank, as per survey. The pipe was padded using the rock from the channel that was processed through the rock crusher and then sifted through a padding bucket. This reduced the rock into a fine sand and gravel.

9/27/2023: The CIS bentonite breaker was built at a distance of 6' from the top of the bank, as per survey. The processed stone material was brought up to within 12" of the streambed elevation and the stream banks were reconstructed up to the 10' buffer. Operators replaced the large substrate stone that came out of the stream bed and filled in gaps with smaller substrate stone. The significant stones that were removed prior to construction were returned to their place in the stream. The stream contours, elevations and other significant points were verified by the survey crew that was on site for the entire stream rebuild to ensure proper restoration of riffle-pool complexes (Ref. Appendix B: Restoration Work Plan-MVP Section 3.5). Stream banks were permanently seeded then stabilized with erosion control blankets and straw mulch (Ref. MVP Restoration and Rehabilitation Plan Sections 2.1 and 3.5).

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
Jeffrey Arbogast		SWCA	9/27/2023

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Required Photos

GPS Location	See caption in photo
Description	Downstream view of permitted impact area during pre-construction assessment. Standing with back against the timber mat bridge.

GPS Location	See caption in photo
Description	Downstream view of unimpacted area during pre-construction assessment. Taken from edge of the LOD.

GPS Location	See caption in photo
Description	Downstream view of permitted impact area during post-construction assessment. Standing with back against the timber mat bridge.

GPS Location	See caption in photo
Description	Downstream view of unimpacted area during post-construction assessment. Taken from edge of LOD

GPS Location	See caption in photo
Description	Pre-construction cross stream view from the coming in side.

GPS Location	See caption in photo
Description	Pre-construction cross stream view from the going away side.

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Optional Photos

GPS Location	See caption in photo
Description	Post-construction cross stream view from the coming in side.

GPS Location	See caption in photo
Description	Post-construction cross stream view from the going away side.

GPS Location	See caption in photo
Description	Stream bottom was bedrock and had to be hammered out.

GPS Location	See caption in photo
Description	Crew building a bentonite trench breaker on GAS side of the stream.

GPS Location	See caption in photo
Description	Backfilling subsoil through the stream up to the CIS bentonite trench breaker.

GPS Location	See caption in photo
Description	Operator carefully rebuilding stream bank and 10’ buffer back to pre construction contours based on survey data and photos.