Stream Biological Conditions EA Report

Project Name	H-600 Pipeline Spread A	**AFE**	124300129	**Spread**	H-600 Pipeline Spread A
Contractor	Precision			**Report #**	447
Environmental Auditor	Jeffrey Arbogast			**Date/Time**	12/19/2023 7:54 AM

Stream ID	S-B35	**Crossing Start Date**	12/20/2023	**Crossing Completion Date**	1/2/2024
Milepost	97.85	**Pre-Con Assessment Date**	12/18/2023	**Post-Con Assessment Date**	1/3/2024
Station	5166+62	**Bankfull Width (ft.)**	2.0	**Riffle:Pool Complexes Present?**	No
State	WV	**Stream Classification**	Intermittent		
County	Webster	**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 X 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?	See Below
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	Mud/Silt/Clay	Mud/Silt/Clay
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	1
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

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

Stream S- B35 is in close proximity to multiple other resource crossings. The overlapping buffer areas that intertwine the stream channels and wetland boundaries caused traditional trench breaker placement and the immediate restoration of the buffer zone to be impractical.

Expanded notes for question 9: Bentonite trench breakers were built 7’ from the coming in side (CIS) and at 85’ from the going away side (GAS) of the ordinary high water marks. The onsite civil survey crew verified the trench breaker locations.

Expanded notes for question 17: The disturbed portion of the 50’ riparian zones were restored to pre-construction elevations, seeded, and protected with erosion control devices.

12/20/2023: Topsoil from the 10’ stream buffer zone was stripped and segregated on plastic sheeting in an upland area. Afterward the stream substrate was placed in super sacks and stored in an upland area. Native stream subsoil was separated so it could be used as backfill material.

12/21/2023: The ditch excavation was extended enough for another pipe section to be lowered in and welded in place. Backfilling was completed through stream S-B34.

12/22/2023: The major stream crossing (S-B34) that runs parallel to S-B35 was completely restored and a flume pipe was installed at the end of the day for water conveyance on S-B35 during Christmas Break.

12/232023-12/26/2023: Christmas Break.

12/27/2023: Rain out.

12/28/2023: The next section of pipe was welded, while site preparation for ditch excavation for the following day was conducted.

12/29/2023: The next section of the ditch was excavated, which extended through the remaining features in the area to be crossed.

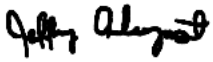
12/30/2023: With ditching completed, the next section of pipe was lowered in and welded in place.

12/31/2023: The trench was backfilled from CIS of S-B35 through to the GAS of S-B39B. The subsoil was brought back to pre-construction elevation in preparation to restore multiple resources after the New Year holiday break.

1/1/2024: Holiday break.

1/2/2024: The stream substrate was replaced and brought back to pre-construction elevation. The stream banks were reconstructed through the 10’ buffer, and all contours, elevations, and other significant points were verified by civil survey. The stream banks were properly seeded prior to installing erosion control blankets, straw mulch, and silt fence. The dam and pump around conveyance system was removed and natural flow was re-established.

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	1/3/2024

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Required Photos

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

GPS Location	See Caption in Photo
Description	Downstream view of unimpacted area during pre-construction assessment. S-B35 enters S-B34 under the timber mat bridge and leaves the LOD as S-B34.

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

GPS Location	See Caption in Photo
Description	Downstream view of unimpacted area during post-construction assessment. S-B35 enters S-B34 under the timber mat bridge and leaves the LOD as S-B34.

GPS Location	See Caption in Photo
Description	Subsoil being removed and placed in a super sack.

GPS Location	See Caption in Photo
Description	Topsoil being removed from stream buffer.

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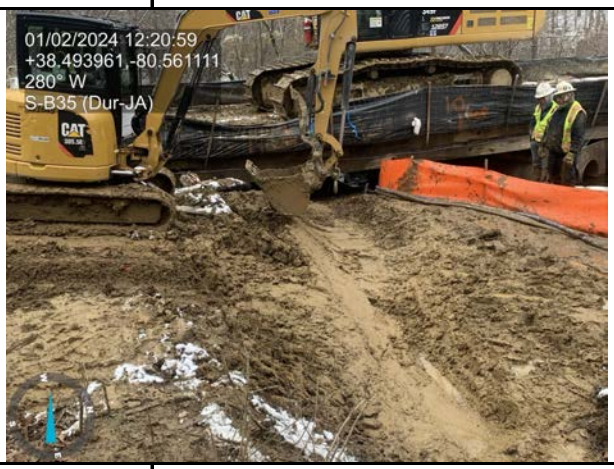
Optional Photos

GPS Location	See Caption in Photo
Description	Hammering rock out of the bottom of the ditch.

GPS Location	See Caption in Photo
Description	Bentonite trench breaker on the CIS.

GPS Location	See Caption in Photo
Description	Survey checking subsoil elevation.



GPS Location	See Caption in Photo
Description	Stream channel being reformed.

GPS Location	See Caption in Photo
Description	Stream substrate being replace.

GPS Location	See Caption in Photo
Description	10’ buffer topsoil being returned.