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August 1, 2018

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DEP FILE E04-369
Falcon Ethane Pipeline System
Response to Technical Deficiency Letter — Beaver County

Dear Mr. Snyder:

On behalf of Shell Pipeline Company LP (SPLC), AECOM Technical Services, Inc. (AECOM) has prepared the following responses to the PADEP comments dated June 1, 2018. AECOM is submitting two hard copies and two electronic copies of this comment/response letter and revised documents for the Falcon Ethane Pipeline System (Project) per the discussion held with PADEP, SPLC, and AECOM on June 1, 2018. Please add/replace these documents in your existing hard copies. Per previous discussion with Josh Shaffer at the Army Corps of Engineers (Corps) and with respect to the Corps' effort to reduce paper, the Corps' copy of this comment/response letter will be uploaded to the Corps' SAFE file upload site. The technical deficiency letter, as requested, is included with this submission as Attachment A.

1. *The answer to Question #4 on your General Information Form (GIF), in the Land Use Information section, indicates that the project does not meet the provision of the zoning ordinance or does not have zoning approval. Provide evidence that your project is consistent with local land use planning, pursuant to Sections 105.13(a) and 105.14(b)(8), of the Department's Chapter 105 rules and regulations.*

   The Independence Township zoning ordinance states that there should be a 100-foot setback from residences and a 500-foot setback from "places of congregation." The pipeline is proposed to be within those setback distances in some instances, such as at the Beaver County Conservation District—which would be considered a place of congregation. This is the reason Question #4 was checked "No." SPLC held several discussions with Independence Township and learned that a waiver for structure setback distances would be required for five locations. <u>NOTE:</u> The Township solicitor indicated during the discussions that Independence Township is in the process of reviewing and updating the Ordinance; however, SPLC has initiated the waiver request process under the current Ordinance conditions and will continue to work with the Township throughout the process.

The Falcon Project Team (Team) also contacted Township and County Planning and Zoning authorities over the entire PA route to determine if there were any specific ordinances or permits relevant to land use zoning and/or planning within their jurisdictions—See table below.

Entity	Grading Permit	Timber Cutting/ Logging Permit	General Pipeline	Signage	Mowing/Tree Cutting Maintenance	Other
Greene Township, Beaver County	yes	yes	no	no	no	no
Potter Township, Beaver County	yes	yes	no	no	no	no
Raccoon Township, Beaver County	no	no	no	yes	no	no
Independence Township, Beaver County	no	no	yes*	no	no	no
Findlay Township, Allegheny County	no	no	no	no	no	Construction Trailer Occupancy Permit
North Fayette Township, Allegheny County	no	no	no	no	no	no
Robinson Township, Washington County	no	yes	no	no	no	no
Mt Pleasant Township, Washington County	yes	yes	no	no	no	New Address Permit
Chartiers Township, Washington County	yes	no	no	no	no	no
Beaver County Planning and Zoning	no	no	no	no	no	*county defaults to local municipality for ordinances
Washington County Planning and Zoning	no	no	no	no	no	*county defaults to local municipality for ordinances
Allegheny County Planning and Zoning	no	no	no	no	no	*county defaults to local municipality for ordinances

*will be removed during August meeting

In those jurisdictions where it was determined that permits are required, the Team ascertained with each jurisdiction what type of permit was required and obtained the necessary applications. SPLC has obtained, or is the process of obtaining, the required permits from those specific zoning and planning authorities. The type of permits that are required from a land use perspective in a few of the jurisdictions include: minor grading, timber cutting, and road use permits.

Through SPLC's discussions with Independence Township, they learned that the township had a pipeline ordinance and process that is quite extensive and includes several data points that need to be provided including: Excess Maintenance Agreement (EMA), Highway Occupancy Permits (HOPs) for pipeline crossings of roads/highways, temporary driveway permits, and obtaining 911 addresses as needed, which are assigned by Beaver County EMA and includes a list of construction and emergency contacts. <u>NOTE</u>: This will change August 8, 2018 as Independence Township is going to officially remove the pipeline ordinance from their records and no variances or permits will be required. SPLC is continuing to work with the Township to ensure that all necessary approvals are obtained.

Municipal notifications were also sent to all the townships within the Project Area and neither the PADEP nor AECOM received comments regarding zoning ordinances or any other issues. Additionally, all landowners have approved and signed lease agreements for the pipeline.

2. *The answer to Question No. 5.3, on your GIF, in the Coordination Information section, indicates that this project involves a discharge of stormwater or wastewater from an industrial activity. Identify and describe this industrial discharge, pursuant to Sections 105.14(b)(6) and 105.24(a), of the Department's Chapter 105 rules and regulations. Please be aware that additional permits may be required from the Department, pending your response to this item.*

The "yes" answer was in response to water that would be discharged due to hydrostatic testing. SPLC and AECOM are aware that a PAG-10 will be required for this activity. As a result, a PAG-10 was submitted on July 27, 2018 to Mr. Mike Fifth at the PADEP, and it identifies and describes the discharges associated with hydrostatic testing.

3. *The answer to Question No. 6.0, on your GIF, in the Coordination Information section, indicates that this project involves a floodplain project by the Commonwealth, a political subdivision of the commonwealth or a public utility. Identify and describe the floodplain project and the entity that is conducting this activity, pursuant to Sections 106.3 and 106.l l(a), of the Department's Chapter 106 rules and regulations. Additional information may be required, pending your response to this item.*

This item was checked "yes" because SPLC thought it was required to be checked "yes" since the pipeline was going through a floodway. However, this Project is not a floodplain project by the Commonwealth, a political subdivision of the Commonwealth, or a public utility so Question No. 6.0 is not applicable to this Project. As a result, the answer was changed to "No." The revised page 5 of the GIF form is included as Attachment B. However, it should be noted that this refers to question 5.3, not question 6.0 as the comment states.

4. *To facilitate the determination of whether any additional permits may be required for your proposed project, and to the extent possible, describe the structures and activities that will be constructed within the junction sites (refer to Plan View Map Sheets 18 and 29 of 54), pursuant to Sections 105.13(e)(l)(iii), 105.14(b)(6) and 105.24(a).*

The Junction Custody Transfer Meter Station will be constructed inside the junction site. SPLC sent Request for Determination (RFD) letters to the PADEP on June 20, 2018. Coordination with PADEP is ongoing. No compressor stations will be constructed within this junction site or anywhere along the Project route. This is because the chemical properties of ethane do not require compressor stations. All the pressure necessary will be provided at the source by the already permitted fractionation facilities. The Erosion and Sediment Control Plan (E&SCP) drawings have been revised to depict what is occurring at the junction site, specifically drawing sheet numbers ES139, ES140, and ES202; the revised E&SCP is provided as part of this response to comments package. Additionally, the Plan View Map Sheets 18 and 29 of 54 have been revised and are included in Attachment C.

5. *Regarding your wetland investigation, revise your delineation report to include the results of your investigation to determine the presence of wetlands within your project area that are identified by the US Fish & Wildlife Service's National Wetlands Inventory (NWI) data system (Wetlands Mapper), and provide supporting data sheets, pursuant to Section 105.13(e)(l)(x), of the Department's Chapter 105 rules and regulations.*

There was one NWI wetland within Beaver County, however no data was obtained for this wetland because it was located between Raccoon Creek and on a very steep cliff. Wetland scientists were not able to access the area due to safety concerns for the delineation staff.

At the time of delineation, a visual inspection of the area from across Raccoon Creek did not indicate that the area is a wetland. However, wetland scientists returned to the area and it appeared as if the area might be wet. Given that the area could not be reached due to safety concerns, it was decided to call this area a wetland and to use the NWI boundary as the wetland boundary. This area was called NWI-1 and the Plan View Map has been revised to reflect the additional resource (Sheet 27 of 54, Attachment C). This resource will be crossed as part of HDD HOU-12. Additionally, the impact table has been revised and is included as Attachment D.

6. *Regarding your wetland investigation, provide a means to match the off-line wetland data sheets with the sampling point locations that are shown on the study area maps in your environmental assessment, pursuant to Section 105.13(e)(l)(x), of the Department's Chapter 105 rules and regulations.*

   The offline data sheets have now been placed in the order that they are in on Tables 3 (Wetlands) and 4 (Watercourses) in the Wetland and Watercourse Delineation Report instead of by date. These data sheets are provided in Attachments E (Wetlands) and F (Watercourses).

7. *Pursuant to Sections 105.13(a) and 105.13(e)(l)(x) of the Department's Chapter 105 rules and regulations, revise Module S2, Section D.1.iv, to discuss the riverine resource type(s) and condition(s) as they relate to the inherent functions including, but not limited to, those associated with hydrological, biogeochemical and habitat attributes. Include any recreational uses when applicable. Currently, this section provides a general discussion on project effects (which is also discussed in a Section in Module S3), rather than a discussion of the inherent functions of the identified riverine resources that is requested in this section of Module S2*.

   The Pennsylvania Function Based Aquatic Resource Compensation Protocol Draft Version 1.0 was utilized in the Joint Permit Application. This protocol combines hydrogeomorphic (HGM) functions into four function groups for wetlands: Hydrologic, Biogeochemical, and Habitat, which is what was discussed in the functional assessment for the Application. However, this was determined, as stated in the DEP comment above, not to be a sufficient analysis. Additionally, in contrast to prior instruction, DEP is requiring that all impacts to streams be addressed, not just permanent impacts. As a result, all the impacted streams will be discussed.

   As described in SPLC's permit application, including its Project-Wide Comprehensive Environmental Report (CEA) for Pennsylvania, all stream impacts will be temporary and no permanent stream fills are proposed. SPLC has determined that all the stream crossings will be conducted utilizing either HDD, conventional bore, dam and pump or flume. The dam and pump or flume method divert the flow around the construction area during construction so that flow is not interrupted, and construction can be completed in dry conditions, thus limiting the amount of sediment downstream. A list of these streams is provided in the Impact Table included as Attachment D. As Pennsylvania has no approved functions and values assessment method for streams, each of the four function groups discussed in the Function Based Aquatic Resource Compensation Protocol Draft Version 1.0 will be expanded to discuss all the individual functions that each group comprises. This results in:

   - **The Hydrologic Function Group includes the floodplain storage capacity, energy dissipating characteristics, geomorphic channel stability, sediment transport processes, and maintaining characteristic watershed hydrologic dynamics such as seasonal and storm flow patterns. These functions are driven by channel characteristics and accessibility to the floodplain, along with contributory watershed conditions.**

- **The Biogeochemical Function Group includes the biogeochemical processes, which consist of temperature regulation, and nutrient and organic matter cycling. These functions are typically driven by the type and quality of riparian vegetation and the root system's interaction with groundwater.**

- **The Habitat Function Group includes instream habitat including providing for the life requirements of vertebrates, invertebrates, and plants that are located within or on the banks of a watercourse. Chapter 93 protected uses are used to categorize general habitat types.**

- **The Recreation or Resource Support Function Group is a dual function group that is driven by either public recreational opportunities (fishing, boating, swimming, etc.) or the chemical, physical, and biological attributes that contribute to maintaining downstream water quality designation and uses. These water quality designations and uses should be categorized using Chapter 93's protected uses and special protection waters.**

The streams will first be categorized by classification and then by Chapter 93 designated use, since there are no Chapter 93 existing uses for streams in the Project Area, or special protection water status. Perennial streams are those stream reaches that contain year-round flow and a diverse benthic macroinvertebrate community, with long aquatic life stages (mayflies, stoneflies, or caddisflies) or with permanent aquatic life stages (freshwater mussels), that dominate the stream. Intermittent streams are streams possessing seasonal flows and benthic macroinvertebrate communities with short aquatic life stages such as midges. Ephemeral streams are streams that flow only in response to precipitation events or snow melt. They do not have a benthic macroinvertebrate community.

Sixty-six of the 82 streams within the Beaver County portion of the Project have Chapter 93 Designated Use of Warm Water Fishes (WWF). This means that the stream maintains and propagates flora and fauna indigenous to warm water habitat, such as catfish, bluegill, and other sunfish. The Project also contains some streams that are high quality (HQ) Cold Water Fishes (CWF). HQ Waters are surface waters that have the quality which exceeds the levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water. CWF waters maintain and propagate flora and fauna indigenous to a cold water habitat such as trout, perch, and smaller darters. Within the Project Area, the UNTs to Service Creek from the J.C. Bacon Dam downstream to the mouth have Chapter 93 Designated Aquatic Life Uses of WWF and Service Creek and its UNTs from the source downstream to the J.C. Bacon Dam have Chapter 93 Designated Protected Aquatic Life Uses of HQ-CWF.

Additionally, 11 streams within the Project have Chapter 93 Designated Aquatic Life Use of Trout Stocking (TSF). This entails the maintenance of stocked trout from February 15 to July 31 and the maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat. The Pennsylvania Fish and Boat Commission (PFBC) lists Mill Creek as Stocked Trout Waters. The upper stocking limit is Old LR04052 Bridge at Hookstown, which is approximately 0.57 miles north (upstream) of the proposed pipeline crossing location.

<u>Perennial Streams</u>

<u>Hydrologic and Biogeochemical:</u> The perennial streams within the Project Area are typically wider streams with a larger floodplain storage capacity. The floodplains are well vegetated, often containing wetlands, which enables the floodplains to dissipate the energy associated with flooding events. Given that they are larger streams with continuous flow and typically a more stable channel, they have the capability to maintain both seasonal and storm flow patterns, as well as to transport of any sediment that may be washed into them because of storm events. They receive flow and runoff from tributaries and the surrounding landscape and within their

watershed, which helps to maintain the balance within the overall watershed. As stated above, they typically have thick vegetation in the floodplain and many of the flora have deep root systems (like skunk cabbage) that interact with the groundwater system and contribute to biogeochemical processes. The constant flow allows for nutrients and organic matter like fallen leaves to be recycled and broken down for further use in the food chain.

Habitat: These perennial streams can support their Chapter 93 designations because they are large enough and possess enough flow to maintain the proper temperature to support the vertebrates that live within them. As stated above, most of the streams have been designated as WWF. Given that they are larger streams with year-round flow, they have the capability to maintain a constant temperature and support fish species such as catfish and bluegill. Warm water fishes are more tolerant than their cold-water counterparts and as a result, WWF streams typically have a more stable habitat type and can tolerate temperature fluctuations and changes in turbidity easier than CWF streams.

Three perennial streams have been designated as HQ-CWF due to the presence of the southern redbelly dace. This is a PFBC-listed threatened fish that requires cold, clean waters. The presence of this fish means that these streams are maintaining the proper habitat needed to support them. Two of the three HQ-CWF perennial streams within the Project Area have proposed crossings at locations with multiple other pipeline or overhead electric line crossings and do not appear to be impaired. This is because during the delineation no evidence of impairment was noted; there were no differences between substrate composition or bank stability between the area where the ROWs crossed the watercourse and the areas that were not crossed. The third stream has a pipeline crossing further upstream from the proposed crossing and also did not appear to be impaired during the field delineation.

The perennial stream floodplains are wide enough to support a wide diversity of botanical species which provide food, resting, escape cover, and habitat to a variety of birds and mammals.

Recreation: Raccoon Creek is heavily silted; however, it still provides recreational opportunities such as fishing and small boating activities such as canoeing or kayaking in areas where the watercourse is accessible to the public, such as within the Beaver County Conservation District and a yacht club near the northern Raccoon Creek crossing. All other streams are slightly smaller and most likely would not provide opportunity for boating; however, some fishing opportunities, especially the ones with the TSF designation, may be available to individual landowners as these streams are located on private property. Although WWF streams typically do not contain trout, several game species occur within them, making WWF streams suitable for fishing. Landowners will not be able to access the stream during construction due to safety concerns; however, following channel restoration, landowners will be able to resume fishing activities. As perennial streams, they have the ability to maintain downstream water quality due to their large sizes and continual flow, which will enable them to maintain their Chapter 93 designated uses throughout their reach. This is true even during construction given that flow will be maintained throughout construction.

A list of the Project's perennial streams and their Chapter 93 designations is below.

Resource Crossing	Feature ID	Stream Name	Ch. 93 Designation
1	S-PA-151013-JLK-002	UNT to North Fork Tomlinson Run	WWF
5	S-PA-151015-JLK-001	UNT to Mill Creek	TSF
7	S-PA-160316-CBA-001 Crossing #1	UNT to Mill Creek	Floodway Only

Resource Crossing	Feature ID	Stream Name	Ch. 93 Designation
8	S-PA-160316-CBA-001 Crossing #2	UNT to Mill Creek	TSF
9	S-PA-160316-CBA-002	Mill Creek	TSF
15	S-PA-160317-MRK-003	UNT to Mill Creek	TSF
16	S-PA-160316-MRK-002	Peggs Run	WWF
18	S-PA-170413-JLK-001	UNT to Peggs Run	WWF
19	S-PA-161122-CMS-005	UNT to Peggs Run	WWF
22	S-PA-161220-MRK-002	UNT to Haden Run	WWF
	S-PA-161202-MRK-001		WWF
	S-PA-161202-MRK-002		WWF
26	S-PA-151104-MRK-002	UNT to Service Creek	HQ-CWF
27	S-PA-160111-JLK-002	UNT to Service Creek	Floodway Only
28	S-PA-160111-JLK-001	UNT to Service Creek	Floodway Only
29	S-PA-151104-MRK-005	UNT to Service Creek	HQ-CWF
31	S-PA-151104-MRK-008C	UNT to Service Creek	HQ-CWF
33	S-PA-151105-MRK-002	UNT to Raccoon Creek	WWF
34	S-PA-151105-MRK-002	UNT to Raccoon Creek	Floodway Only
35	S-PA-151120-JLK-001	Gums Run	WWF
47	S-PA-160408-MRK-002	Fishpot Run	WWF
48	S-PA-160411-CBA-002	UNT to Fishpot Run	Floodway Only
50	S-PA-160411-CBA-002	UNT to Fishpot Run	WWF
56	S-PA-160418-MRK-002	UNT to Raccoon Creek	WWF
	S-PA-160418-MRK-002	UNT to Raccoon Creek	WWF
57	S-PA-160418-MRK-003	UNT to Raccoon Creek	WWF
63	S-PA-151015-MRK-005	Raccoon Creek	WWF
65	S-PA-151118-JLK-001	UNT to Raredon Run	WWF
69	S-PA-151124-JLK-005	UNT to Raredon Run	WWF
73	S-PA-151013-MRK-001	Raccoon Creek	WWF
74	S-PA-151013-MRK-002	UNT to Raccoon Creek	WWF
79	S-PA-160322-MRK-004	UNT to Raccoon Creek	WWF
86	S-PA-151204-MRK-003	Service Creek	WWF
87	S-PA-151204-MRK-004	UNT to Service Creek	Floodway Only
99	S-PA-151124-MRK-014	UNT to Gums Run	WWF
103	S-PA-151123-MRK-006	Gums Run	WWF
104	S-PA-151123-MRK-005	UNT to Gums Run	WWF

***Floodway Only designations apply to crossings where the impact occurs only in the floodway; no portion of the actual channel is impacted.**

Intermittent Streams

Hydrologic and Biogeochemical: The intermittent streams within the Project Area are small-to-medium-sized streams with some floodplain storage capacity. The floodplains are typically well

vegetated, which enables the floodplains to dissipate energy associated with flooding events. They have seasonal flow and typically stable channels; therefore, they have the capability of maintaining both seasonal and storm flow patterns and can transport sediment that may be washed into them due to storm events. However, they do not have as high of a capability as perennial streams due to the lack of year-round flow. As stated above, they can have thick vegetation in the floodplain and many of the flora have deep root systems (like skunk cabbage) that interact with the groundwater system and contribute to biogeochemical processes. During periods of flow, nutrients and organic matter like fallen leaves can be recycled and broken down for further use in the food chain.

Habitat: Intermittent streams may be capable of supporting their Chapter 93 designations during periods of flow if they possess enough flow to maintain the proper temperature to support the vertebrates that live within them. As discussed above, WWF are typically more stable streams capable of maintaining habitat for a variety of fish species. One UNT to Service Creek is classified as a HQ-CWF intermittent stream within this Project Area. That UNT was only a few inches deep and had significant amounts of leaf litter present at the time of delineation so there is a possibility that the southern redbelly dace does not occur in this particular stream given that streams with heavy leaf litter and low flow are not preferable habitat for fish, especially darters as the heavy leaf litter reduces mobility. Depending on where in the watershed the intermittent stream is, such as if it is close to a confluence with a perennial stream, the floodplains can be wide enough to support a wide diversity of botanical species which provide food, resting, escape cover, and nesting opportunities to a variety of birds and mammals.

Recreation: There are six intermittent streams with the Chapter 93 designation of TSF; however, it is unlikely that trout are present in these streams given their smaller sizes and lack of year-round flow. There may be some opportunity for fishing in the larger intermittent streams if fish were present during periods of flow; however, given the streams' characteristics, it is unlikely residents would fish these streams. During periods of sufficient flow, the streams would have ability to maintain downstream water quality, which would enable them to maintain their Chapter 93 designated uses throughout their reach. As stated above, this is because flow during construction will not be impeded. During periods of low or no flow, the stream would not be capable of maintaining constant temperatures suitable to maintain their Chapter 93 designation.

A list of the Project's intermittent streams and their Chapter 93 designations is provided below.

Resource Crossing	Feature ID	Stream Name	Ch. 93 Designation*
2	S-PA-151014-JLK-002	UNT to North Fork Tomlinson Run	WWF
5	S-PA-151015-JLK-002	UNT to Mill Creek	TSF
7	S-PA-160526-MRK-001	UNT to Mill Creek	TSF
10	S-PA-160426-MRK-003	UNT to Mill Creek	TSF
11	S-PA-170222-MRK-001	UNT to Mill Creek	TSF
12	S-PA-170222-MRK-002	UNT to Mill Creek	TSF
21	S-PA-161221-MRK-001	UNT to Haden Run	TSF
22	S-PA-161221-MRK-001	UNT to Haden Run	Floodway Only
23	S-PA-151106-MRK-003	UNT to Haden Run	WWF
30	S-PA-151104-MRK-006	UNT to Service Creek	HQ-CWF
32	S-PA-170510-CBA-001	UNT to Service Creek	Floodway Only
36	S-PA-151120-JLK-004	UNT to Gums Run	WWF
43	S-PA-151123-JLK-003	UNT to Raccoon Creek	WWF

Resource Crossing	Feature ID	Stream Name	Ch. 93 Designation*
47	S-PA-160408-MRK-001	UNT to Fishpot Run	WWF
	S-PA-160408-MRK-006		Floodway Only
56	S-PA-160425-MRK-001	UNT to Raccoon Creek	WWF
58	S-PA-160426-MRK-001	UNT to Raccoon Creek	WWF
64	S-PA-160504-CBA-001	UNT to Ohio River	WWF
66	S-PA-170413-JLK-002	UNT to Raredon Run	Floodway Only
68	S-PA-151124-JLK-008	UNT to Raredon Run	WWF
77	S-PA-160104-MRK-003	UNT to Raccoon Creek	WWF
78	S-PA-160104-MRK-004	UNT to Raccoon Creek	WWF
78C	S-PA-160314-MRK-004	UNT to Raccoon Creek	WWF
81	S-PA-160322-MRK-002	UNT to Raccoon Creek	WWF
82	S-PA-160322-MRK-001	UNT to Raccoon Creek	WWF
83	S-PA-170306-MRK-001	UNT to Service Creek	Floodway Only
84	S-PA-151204-MRK-001	UNT to Service Creek	Floodway Only
86	S-PA-151204-MRK-004	UNT to Service Creek	Floodway Only
88	S-PA-151216-MRK-004	UNT to Frames Run	WWF
	S-PA-151216-MRK-003		WWF
89	S-PA-151216-MRK-005	UNT to Frames Run	WWF
90	S-PA-151216-MRK-006	UNT to Frames Run	WWF
92	S-PA-151216-MRK-007	UNT to Frames Run	WWF
93	S-PA-151216-MRK-008	UNT to Frames Run	WWF
94	S-PA-151209-MRK-006	UNT to Frames Run	WWF
95	S-PA-151209-MRK-005	UNT to Frames Run	Floodway Only
96	S-PA-151209-MRK-002	UNT to Frames Run	WWF
98	S-PA-151215-MRK-001 Crossing #1	UNT to Frames Run	WWF
	S-PA-151215-MRK-001 Crossing #2		WWF
	S-PA-170322-CBA-001		Floodway Only
100	S-PA-151124-MRK-011	UNT to Gums Run	WWF
102	S-PA-151124-MRK-006	UNT to Gums Run	WWF
	S-PA-151124-MRK-004		WWF

***Floodway Only designations apply to crossings where the impact occurs only in the floodway; no portion of the actual channel is impacted.**

Ephemeral Streams

Hydrologic and Biogeochemical: The ephemeral streams within the Project Area are small streams with little floodplain storage capacity. They are typically located high within the watershed within steep valleys. Often the side slopes are steep and not well-vegetated. As a result, they do not have a high opportunity to dissipate energy associated with flooding events. Depending on where the streams are located, they can have highly erodible channels, such as in pastures, or have very steep rocky channels, such as within headwater forest systems. They

do have some capability to maintain and receive seasonal and storm flow patterns and can transport sediment that may be washed into them due to storm events. However, they do not have as high of a capability to transport sediment as perennial or intermittent streams due to the lack of year-round flow. As stated above, they have narrow floodplains with little vegetation to interact with groundwater systems or to provide support to the food chain. However, during periods of high precipitation events, flushing flows can take organic matter and nutrients to larger streams to be recycled and broken down for further use in the food chain.

Habitat: Ephemeral streams typically are not capable of supporting their Chapter 93 designations given that they are dry throughout most of the year. They are generally assigned the same Chapter 93 designation as the main channel they are associated with, provided stream is assigned a "basin" designation in Chapter 93. There is one HQ-CWF ephemeral stream within this Project Area, a UNT to Service Creek. It was dry at the time of delineation, so it is unlikely that the southern redbelly dace, or any other fish, occurs in this stream. Given that the ephemeral floodplains are minimal and ephemeral streams are typically steep with little vegetation adjacent to the channel, there is not a good opportunity to provide food, resting, escape cover, and nesting opportunities to animals. Additionally, given that no benthic macroinvertebrates occur within ephemeral streams, there is little opportunity for food chain production within the ephemeral channel itself.

Recreation: There are two ephemeral streams with the Chapter 93 designation of TSF; however, it is highly unlikely that trout, or any fish for that matter, are present in an ephemeral stream. There would be no opportunity for fishing for any type of fish in an ephemeral stream. During periods of rain or snow melt, water would flow from them into intermittent streams, which would then enable them to maintain downstream water quality, thus helping them to maintain their Chapter 93 designated uses

A list of the Project's ephemeral streams and their Chapter 93 designations is provided below.

Resource Crossing	Feature ID	Stream Name	Ch. 93 Designation
1	S-PA-151013-JLK-004	UNT to North Fork Tomlinson Run	WWF
3	S-PA-151014-JLK-001	UNT to North Fork Tomlinson Run	Floodway Only
4	S-PA-151014-JLK-003	UNT to North Fork Tomlinson Run	Floodway Only
6	S-PA-160606-CBA-001	UNT to Mill Creek	TSF
	S-PA-160606-CBA-002		TSF
17	S-PA-161122-CMS-001	UNT to Peggs Run	Floodway Only
23	S-PA-151106-MRK-001	UNT to Haden Run	WWF
25	S-PA-151104-MRK-001	UNT to Service Creek	HQ-CWF
35	S-PA-151120-JLK-002	UNT to Gums Run	WWF
37	S-PA-151120-JLK-005	UNT to Gums Run	Floodway Only
42	S-PA-151123-JLK-001	UNT to Raccoon Creek	Floodway Only
45	S-PA-151123-JLK-004	UNT to Raccoon Creek	WWF
46	S-PA-160408-MRK-003	UNT to Fishpot Run	WWF
49	S-PA-160411-CBA-003	UNT to Fishpot Run	Floodway Only
70	S-PA-151014-MRK-002	UNT to Raccoon Creek	WWF
72	S-PA-151014-MRK-003	UNT to Raccoon Creek	Floodway Only

Resource Crossing	Feature ID	Stream Name	Ch. 93 Designation
75	S-PA-160426-MRK-002	UNT to Raccoon Creek	Floodway Only
80	S-PA-160322-MRK-003	UNT to Raccoon Creek	WWF
85	S-PA-151204-MRK-002	UNT to Service Creek	WWF
91	S-PA-151216-MRK-009	UNT to Frames Run	Floodway Only
96	S-PA-151209-MRK-004	UNT to Frames Run	WWF
99	S-PA-151124-MRK-015	UNT to Gums Run	WWF
100	S-PA-151124-MRK-012	UNT to Gums Run	WWF
101	S-PA-151124-MRK-009	UNT to Gums Run	WWF
	S-PA-151124-MRK-008		WWF
102	S-PA-151124-MRK-005	UNT to Gums Run	WWF
105	S-PA-151123-MRK-001	UNT to Raccoon Creek	WWF

***Floodway Only designations apply to crossings where the impact occurs only in the floodway; no portion of the actual channel is impacted.**

Stream Impact Overview

Dry-crossing methods via the dam and pump or flume method will be utilized on all watercourse crossings, except for the streams crossed via HDD. Restoration and cleanup will commence as soon as practicable following construction completion. These activities include replacing grade cuts to original contours, seeding, fertilizing, and mulching to restore groundcover and minimize erosion. Temporary workspaces are stabilized to promote natural reversion toward their previous state. Completed stream crossings will be stabilized prior to returning flow to the channel from the dam/pump or flume diversion. Environmental Inspectors (EIs) will be on site during construction and restoration to ensure that the approved Best Management Practices (BMPs) are being followed according to the E&SCP.

This work can typically be conducted in two to three days and flow will be diverted around the work area during construction. As a result, the impact to hydrologic and biogeochemical stream functions is expected to be minimal and temporary. Construction will not be conducted during flooding events so impact to flood flow stabilization should not occur. Temporary increased sediment and turbidity may occur within the watercourses due to construction activities. However, appropriate BMPs, such as silt sock/fence as outlined in the ESCGP-2 Permit, will be implemented and utilized as necessary to minimize any temporary effect on water quality and resources during construction.

Habitat and food chain production will be temporarily impacted given that a 50-to-75-foot-wide construction ROW will be cleared. However, this impact should not be longer than one growing season while vegetation is recolonizing the ROW. Given that habitat and food chain production will be temporarily impacted, any impact to in-stream habitat will also be temporary given that the streambed will be returned to pre-construction conditions as discussed above.

Recreation will be temporarily impacted as residents will not be able to access streams if there is active construction due to safety reasons. Additionally, due to noise and construction vehicle traffic, passive recreational activities such as hunting, hiking, and wildlife observation may not be suitable until restoration activities have been completed. Given that all stream crossing construction work is temporary, and restoration will commence a soon as possible following construction completion, the impact to recreation will also be minor and temporary.

8. *Pursuant to Sections 105.13(a) and 105.13(e)(l)(x) of the Department's Chapter 105 rules and regulations, revise Module S2, Section D.2.vi, to discuss the wetland HGM type(s) and condition(s) as they relate to the inherent functions including, but not limited to, those associated with hydrological, biogeochemical and habitat attributes. Include any recreational uses when applicable. Currently, this section provides a general discussion on project effects (which is also discussed in a Section in Module S3), rather than a discussion of the inherent functions of the identified wetland resources that is requested in this section of Module S2*.

The Pennsylvania Function Based Aquatic Resource Compensation Protocol Draft Version 1.0 was utilized in the Joint Permit Application. This protocol combines hydrogeomorphic (HGM) functions into function groups for wetlands: Hydrologic, Biogeochemical, and Habitat, which is what was discussed in the functional assessment for the Application. However, this analysis was determined, as stated in the comment above, to be insufficient. Additionally, pursuant to DEP instruction, the JPA only addressed wetlands that will be permanently impacted. DEP is presently requesting that all impacted wetlands be addressed in this analysis. As Pennsylvania has no approved functions and values assessment method, the US Army Corps of Engineers New England District's The Highway Methodology Workbook Supplement, "Wetland Functions and Values a Descriptive Approach" (the "Highway Methodology") was utilized below to analyze wetland functions and values as this is an approved methodology used often in relation to mitigation work and has been found to be generally acceptable to PADEP and the US Army Corps of Engineers. The Highway Methodology addresses the following eight wetland functions:

- **Groundwater recharge/discharge;**
- **Floodflow alteration;**
- **Fish and shellfish habitat;**
- **Sediment/toxicant/pathogen retention;**
- **Nutrient removal/retention/transformation;**
- **Production export;**
- **Sediment/shoreline stabilization; and**
- **Wildlife habitat.**

The Highway Method also analyzes the following five values:

- **Recreation;**
- **Education/scientific value;**
- **Uniqueness/heritage;**
- **Visual quality/aesthetics; and**
- **Threatened/endangered species habitat.**

The following provides a summary of each HGM classification and those specific wetlands that fall within that classification. A list of all impacted wetlands is in the Impact Table provided as Attachment D. Additional information may also be found in the CEA. In short, as explained below, there will be no permanent impacts to PEM/PUB wetlands. PFO and PSS wetlands will incur some permanent conversion impacts in the form of a change of cover.

Function/Values Relative to all HGM Classifications

Regardless of the classification types detailed in further detail below, and relative to each specific wetland, there are functions and values that are inherent and similar to all HGM classifications as explained here.

Regarding wetland functions, the vegetation within these wetland HGM classifications may produce seeds which would serve as food for birds or small mammals. Additionally, deer will eat skunk cabbage and many waterfowl and other mammal species will eat cattail roots. Therefore, all wetland types may serve in a food production/ export function. The thick vegetation present in wetlands may also provide habitat (nesting, spawning, rearing–essentially where the species prefers to be), resting (during migration), or escape cover for various small mammals and birds. For those wetlands located adjacent or along streams, they have the capability to stabilize sediment and the streambank.

Regarding wetland values, all the wetlands along the alignment are located on private land, except for the wetland located in the Beaver County Conservation District Property, so there is not an opportunity for public recreation; however, individual landowners may use the area for small game hunting. It is very unlikely that fish are present in any of these wetlands given their locations. Additionally, no fish were observed during delineation. It is unlikely that any of these wetlands provide educational, uniqueness, or aesthetics values due to the small sizes and common vegetation. It is also unlikely that these wetlands provide habitat for threatened and endangered species such as the Indiana or the northern long-eared bat (which were determined to be potentially located within the project vicinity) in the PEM or PUB wetlands because the there are no trees located within these wetlands. There is the potential for a bat to feed over a wetland/stream complex if there was an open corridor such as a utility line ROW. The ability for PSS or PFO wetlands to provide potential roosting habitat for bats is discussed further below.

<u>HGM Stratigraphic slope (SLs)</u>
The HGM classification Stratigraphic slope (SLs) includes wetlands with a hydrology source derived from structural geological groundwater discharge from a distinct point(s) on a slope. This classification is further classified based on whether the soil is of mineral (n) or organic soil (g). In this Project, the wetland soils are of mineral origin, making the HGM classification SLsn.

The PEM wetlands within the Project area possessing HGM classification SLsn have palustrine communities ranging from mixed forb-graminoid wet meadow, floodplain meadow, bluejoint-reed canary-grass marsh, mixed forb marsh, and cattail marsh. A summary of these wetlands is presented below.

RC #	Resource
RC-6	W-PA-160623-NLS-001
RC-20	W-PA-161202-MRK-002
RC-24	W-PA-151105-MRK-002
RC-26	W-PA-160111-JLK-001
RC-33	W-PA-161109-MRK-002
RC-41	W-PA-160503-MRK-001
RC-47	W-PA-160408-MRK-002
RC-50	W-PA-160425-MRK-001
RC-93	W-PA-151216-MRK-002
	W-PA-151216-MRK-003

Given that these wetlands are classified SLsn, they are connected to groundwater. As a result, they may serve as groundwater recharge or discharge areas. This characteristic also allows the wetlands to serve as floodflow storage and desynchronization areas during prolonged precipitation events.

The thick vegetation present within the mixed wet meadow and skunk cabbage systems helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system. Wetlands W-PA-161202-MRK-002 and W-PA-160503-MRK-001 are isolated and as a result they do not have the opportunity to remove, retain or transform nutrients entering streams. The remaining wetlands, however, are located along or adjacent to streams and as a result are capable of removing, retaining, or transforming nutrients entering the stream.

HGM Topographic slope (SLt)

The HGM classification Topographic slope (SLt) includes wetlands that have water accumulating at the toe of a slope before discharging. This is then further broken down into soils of either organic (g) or mineral (n) origin. Again, these wetlands contain soils of mineral origin; therefore, the HGM classification is SLtn.

The PEM wetlands within HGM classification SLtn have palustrine communities ranging from mixed forb-graminoid wet meadow, mixed forb marsh, and sunk-cabbage - golden saxifrage seep. A summary of these wetlands is presented below.

RC #	Resource
RC-5	W-PA-151015-JLK-001
RC-10	W-PA-160517-MRK-002
RC-15	W-PA-160317-MRK-005
RC-29	W-PA-151104-MRK-003
RC-44	W-PA-151123-JLK-001
RC-50	W-PA-160411-CBA-002
	W-PA-160411-CBA-004
RC-61	W-PA-160412-CBA-002
RC-62	W-PA-160504-CBA-001
RC-71	W-PA-151014-MRK-001
RC-74	W-PA-151013-MRK-003
RC-76	W-PA-151013-MRK-005
RC-97	W-PA-151215-MRK-001

These wetlands are located at the toe of a slope; as a result, they may serve as groundwater recharge areas. Some of them may intercept groundwater and would also serve as groundwater discharge areas. Their location at the toe of a slope also allows the wetlands to serve as floodflow storage and desynchronization areas during prolonged precipitation events. W-PA-151013-MRK-003 is located on Beaver County Conservation District property. This is open to the public and might provide an opportunity for recreation such as bird watching. The work will be coordinated with the Conservation District to ensure that outdoor classroom exercises are not impeded by construction activities.

The thick vegetation present within the mixed wet meadow and cattail systems helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system. Wetlands W-PA-151123-JLK-001, W-PA-160412-CBA-002, W-PA-160504-CBA-001, W-PA-151013-MRK-005, and W-PA-151215-MRK-001 are isolated and as a result they do not have the opportunity to remove, retain or transform nutrients entering streams. The remaining wetlands,

however, are located along or adjacent to streams and as a result are capable of removing, retaining or transforming any nutrients entering the stream.

HGM Depression temporary (DFA)

The HGM classification Depression temporary (DFA) includes wetlands with no surface outlet, often because of being perched above the water table. The PEM wetlands within this HGM classification have a palustrine community of mixed forb-graminoid wet meadow. A summary of these wetlands is presented below.

RC #	Resource
RC-14	W-PA-170222-MRK-002
RC-51	W-PA-160728-NLS-001A
RC-52	W-PA-160728-NLS-001B
RC-53	W-PA-160728-NLS-001C
RC-54	W-PA-160728-NLS-001D
RC-55	W-PA-160728-NLS-001E

These are depressional wetlands and most likely do not have a connection to groundwater. Resource Crossings 51 through 55 were all located on the same logging road. These wetlands most likely formed over time due to poor grading on the road and logging equipment compaction. Resource Crossing 14 was an isolated wetland in an active cow pasture. Given their lack of groundwater connection, these resources most likely do not have the opportunity to serve as groundwater recharge or discharge areas. Their depressional nature would allow them to serve as floodflow storage and desynchronization areas during prolonged precipitation events.

The thick vegetation present within the mixed wet meadow system and the depressional wetland shape helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system. All the wetlands are isolated and as a result they do not have the opportunity to remove, retain or transform nutrients entering streams.

Specific to this wetland type, muskrats, beaver, and waterfowl will eat cattail roots. Therefore, these wetlands may serve in this specific production/export function. Additionally, if the depressions contained enough water in the spring, they may also serve as amphibian breeding habitat as some frog species will even lay eggs in tire ruts with water.

HGM Depression seasonal (DFC)

The HGM classification Depression seasonal (DFC) includes wetlands with infrequent surface water connections conveying channelized flow. Mixed Forb-Graminoid Wet Meadow was the palustrine community present at all these wetlands. A summary of these wetlands is presented below.

RC #	Resource
RC-8	W-PA-160503-MRK-006
	W-PA-160517-MRK-001
RC-38	W-PA-160503-MRK-005
RC-39	W-PA-160503-MRK-004
RC-40	W-PA-160503-MRK-002

Resource Crossing 8 is located within a hay field between a road and a perennial stream but has no direct connection to the stream. They both had water in their test pits during the delineation so there is some connection to groundwater present. As a result, they may serve as groundwater recharge/discharge areas. Resource Crossings 38 through 40 are located on an old logging road and most likely formed over time due to improper grading and vehicle compression. They likely do not have connection to groundwater and as a result do not serve as groundwater recharge/discharge areas.

These are depressional wetlands and as a result they would have the opportunity to serve as floodflow storage and desynchronization areas during prolonged precipitation events.
The thick vegetation present within the mixed wet meadow system and the depressional wetland shape helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system. Resource Crossing 8 is located between a road and a perennial stream. This location within the landscape provides the opportunity to remove, retain or transform nutrients entering the stream. Resource Crossings 38 through 40 are isolated, however, and do not have this opportunity.

HGM classification Impounded depressions/excavations (Dp)
Impounded depressions or excavations, the (Dp) HGM classification is further broken down into wetlands that are impounded by humans (h), excavated by humans (x), or impounded by beavers (b). The wetlands within the Project Area have been excavated. Therefore, the HGM classification is DPx. The palustrine communities included sparsely vegetated vernal pool community and cattail marsh. A summary of these wetlands is presented below.

RC #	Resource
RC-27	W-PA-151104-MRK-002
RC-13	W-PA-170222-MRK-001
RC-67	W-PA-151124-JLK-003

W-PA-151104-MRK-002 was formed when an access road was filled, and an intermittent stream backed up. There was no water in the test pit during the delineation. This wetland likely does not have connection to groundwater and as a result does not serve as a groundwater recharge/discharge area. W-PA-170222-MRK-001 is located within a hayfield and is influenced by a spring house and drains into a stream. Water was at the surface in the test pit. W-PA-151124-JLK-003 also drains into a stream and water was present at the surface of the test pit. These two wetlands (as evident by water within the test pit) do have a connection to groundwater and as a result would serve as groundwater recharge/discharge areas.

These are depressional wetlands and, as result, they would have the opportunity to serve as floodflow storage and desynchronization areas during prolonged precipitation events. The depressional wetland shape helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system. Their location within the landscape near streams provides them the opportunity to remove, retain or transform nutrients entering the streams.

W-PA-170222-MRK-001 is a cattail marsh and cattail leaves and roots provide food for a variety of birds and mammals. Therefore, this wetland would serve in a production/export function. The thick cattail and may also provide habitat, resting, or escape cover for various small mammals and birds. Additionally, some birds like the red winged-blackbird nest in cattail stands. The

remaining two wetlands are sparsely vegetated and would have low opportunity to provide food, resting, or escape cover. However, the open water may serve as amphibian breeding areas.

PEM/PUB Wetland Impact Conclusion

All the wetlands discussed above in each of the HGM classifications are either PEM or PUB wetlands that will be temporarily impacted. Following construction, each of the wetlands will be returned to their original contours as discussed in the original permit application and additional documents prepared in response to the PADEP Technical Deficiency Letters. As a result, there will be no permanent impact to their functions or values. There may be some temporary impact to the functions while the seed mixes are germinating; however, that impact should not last more than one growing season.

Forested and Scrub Shrub Wetlands Discussion

Forested and scrub shrub wetlands traversed by the Project will have similar impacts as herbaceous wetlands; however, given that the vegetation in the permanent ROW will be maintained as herbaceous, conversion impacts will occur in the form of a change in cover. As a result, PSS and PFO wetlands are discussed separately from PEM; each of the PSS/PFO wetlands is discussed below as it relates to their specific conversion impact.

Given that all these wetlands contain trees or shrubs, they provide food, nesting/breeding areas, resting, and escape cover functions. No fish were present at any of these wetlands and it is very unlikely that fish would be present given the wetlands' location in the landscape. It is unlikely that any of these wetlands provide educational, uniqueness, or aesthetics values due to the small sizes and common vegetation. These wetlands are all located on private land, so they are not public sources for recreation, although the landowner may use the area for small game hunting. It is unlikely PSS wetlands would be desirable to any threatened or endangered species such as the northern long-eared bat due to either the type or tree diameter present and the fact that bats do not utilize shrubs as roosting habitat.

Converting PFO and PSS habitat types to PEM will result in minor and insignificant changes to function and values relative to all PFO and PSS wetlands. Groundwater recharge and discharge will not be altered because the wetlands will be restored to original contours following construction. If the wetland had a connection to groundwater prior to construction, such as with the Slsn HGM classification, it will still have that connection following construction, regardless of vegetation type. For wetlands located near streams, flood flow alteration, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, as well sediment/shoreline stabilization will increase. This is because forested and scrub/shrub systems will be replaced with dense herbaceous cover, which has a greater surface area to trap sediments or nutrients and stabilize the shoreline and protect land from floodwaters.

The vegetation stratum will change from forest or scrub/shrub to herbaceous, so there will be a change in the food production/export; however, the sedges that will replace the shrubs and trees provide food for a variety of wildlife. As a result, there will be a similar food production/transport function, and that function will not be lost when changing vegetation cover. Open corridors over stream/wetland complexes provide suitable bat feeding areas. This is because bats prefer to fly through open corridors over open water where insect activity is prevalent. Additionally, thick vegetation provides resting and escape cover for a variety of small mammals and birds; therefore, that function will not be lost when the vegetation cover type changes.

The SLtn and Slsn HGM classification types allow the wetland to serve as floodflow storage and desynchronization areas during prolonged precipitation events. The root system of the trees and shrubs present helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system groundwater recharge/discharge, floodflow storage

and desynchronization will only be temporarily impacted during construction given that the wetland will be returned to original pre-construction contours. However, as stated above, replacement with thick herbaceous vegetation will have a similar and perhaps increased function. Replacing a forested or scrub/shrub system with a thick herbaceous layer will also provide better erosion control.

W-PA-151013-JLK-005 (PFO) has HGM classification topographic slope of mineral origin (SLtn). The primary source of hydrology is groundwater. Water was present at the surface which allows this wetland to serve as a groundwater recharge or discharge area. It is located along a stream and as a result the wetland is capable of nutrient removal, retention, or transformation for nutrients entering the adjacent stream. It also serves to stabilize sediment and the streambank for the adjacent stream. A 50-foot-wide permanent ROW will be maintained as PEM (approximately 33 percent of the total wetland) in perpetuity through this wetland. As a result, there will be a minor and insignificant decrease in the production export and habitat function; however, sediment and streambank stabilization may increase due to the presence of thick herbaceous vegetation.

W-PA-161202-MRK-001 (PFO) has HGM classification stratigraphic slope of mineral origin (SLsn). The primary source of hydrology is a high groundwater table. Water was present at the surface which allows this wetland to serve as a groundwater recharge or discharge area. Multiple streams flow through this wetland and as a result the wetland is capable of nutrient removal, retention, or transformation for nutrients entering the adjacent streams. It also serves to stabilize sediment and the streambank for the adjacent streams. It *may* provide habitat for threatened and endangered species such the northern long-eared bat because there were some green ash trees present which, if they were dead or declining, could provide roosting habitat. However, no roost trees were found during the bat mist net studies and given that the ash trees were still alive, it is unlikely that any northern long-ear bats are roosting within this wetland.

Only a portion of the 50-foot-wide permanent ROW that will be maintained as PEM is located within this wetland. Only 4,624 ft^2 of the 35,840 ft^2 wetland, approximately 13 percent, will be impacted. As a result, little impact to function or values are expected. As a result, there will be a minor and insignificant decrease in the production export and habitat function; however, sediment and streambank stabilization may increase due to the presence of thick herbaceous vegetation.

W-PA-160404-MRK-001 (PSS) has HGM Slsn. The primary source of hydrology is spring/seeps and overland flow from the stream that bisects it. The root system of the trees and shrubs present helps to reduce or prevent water quality degradation by allowing sediments or toxicants to be trapped within the system. It is located along multiple streams and as a result the wetland is capable of nutrient removal, retention, or transformation for nutrients entering the adjacent streams. It also serves to stabilize sediment and the streambank for the adjacent streams. It *may* provide habitat for threatened and engendered species such the northern long-eared bat because there were some green ash trees present which, if they were dead or declining, could provide roosting habitat.

Groundwater recharge/discharge, floodflow storage and desynchronization will only be temporarily impacted during construction given that the wetland will be returned to original pre-construction contours. A 50-foot-wide permanent ROW (approximately 60 percent of the wetland) will be maintained as PEM in perpetuity through this wetland. As a result, there will be a minor and insignificant decrease in the production export and habitat function; however, sediment and streambank stabilization may increase due to the presence of thick herbaceous vegetation.

W-PA-160412-CBA-004 (PSS) has HGM classification DFA. This wetland was a small isolated wetland located along an old logging road. The primary source of water was surface water collection. The soils were heavily compacted due to ATV/small vehicle use. The wetland has a very low capacity to serve as groundwater recharge/discharge, floodflow alteration, fish habitat, sediment or toxicant retention, nutrient removal retention or transformation, sediment or shoreline stabilization because it is a logging road wetland. There were tire ruts through the wetland that were filled with water and contained tadpoles.

A small portion of this wetland (37ft^2 of 810 ft^2) will be matted for a temporary access road. Once construction is completed, shrubs will be permitted to regrow in the 37ft^2 area. As a result, there may be a slight decrease in the production export and habitat functions while willows are revegetating; however, there will be no permanent impact to any of this wetland's functions and values.

W-PA-160412-CBA-001 (PSS) has HGM SLsn. This wetland was a small isolated wetland located between a road and a maintained field. The primary source of water was hillside seep and surface water collection. The wetland has a very low capacity to serve as groundwater recharge/discharge, floodflow alteration, fish habitat, sediment or toxicant retention, nutrient removal retention or transformation, sediment or shoreline stabilization due to its isolated position on the landscape and that it receives flow upslope from a hillside seep.

Only 89 ft^2 of the 2,335 ft^2 wetland (approximately four percent) will be impacted. This area is located entirely within the permanent ROW and as a result will be maintained as PEM in perpetuity.

9. *Provide anevaluation of the impact that open cut installation methods could have on wetlands that rely on perched water tables, confining layer, and/or fragipans to maintain hydrology. This evaluation should include a discussion of how your proposed activities, and, if applicable, proposed mitigation will maintain wetland hydrology in these types of areas. 25 Pa. Code §105.13(e)(l)(x)*.

The concern with perched water tables is that if a confining layer like clay is open cut, the hydrology will be lost because there is no longer a confining layer to keep it in place. It is sometimes difficult to predict this prior to actual construction. Often, scientists cannot dig the full 20 inches in a wetland test pit due to rocks or roots, not a confining layer. However, the HGM classifications were determined for each impacted wetland to determine which ones may have perched water tables. The wetlands with classification Depression temporary (DFA) could have perched water tables because they are wetlands with no surface outlet, which is often a result of being perched above the water table. Six wetlands were determined to potentially have perched water tables. Five of these wetlands were located on HOU-TAR-53; per PADEP comment 32.j, this access road has been removed from the Project and as a result these five wetlands will not be impacted. W-PA-170222-MRK-002 is proposed to be open cut. If it is perched, or if a perched wetland is encountered, the associated clay layer that maintains that portion of the perched wetland hydrology will be segregated and then replaced along the same horizon during pipeline backfilling, and then compacted so that hydrology may be maintained. Additionally, trench plugs are placed on either side of the wetland on the ROW to prevent water from migrating out on the sides. A detail depicting this is provided as Attachment G.

10. *Evaluate and discuss your project's potential to impact any public water systems and their sources that are located within 1-mile of your proposed pipeline system, pursuant to Sections 105.13(e)(l)(ii) and 105.14(b)(5), of the Department's Chapter 105 rules and regulations*.

Although the water systems are considered public systems, any information identifying the sources or locations is not made public. As a result, SPLC was not aware these locations existed until the PADEP provided the Falcon team with a list of the water system name and a contact person and telephone number so that the entity could be reached for further information. The PADEP identified these systems as being located within one mile of the Falcon Ethane Pipeline System. To protect the location of these wells, each of these locations was given a letter code and the system will be discussed below using that letter. For PADEP reference, the letter code is located next to the System Name on the list, provided as Attachment H. All the entities were contacted regarding their wells multiple times. Details of the coordination is also provided in Attachment H. Additionally, screenshots from the Google Earth analysis are provided as part of the attachment. PLEASE NOTE: The items in Attachment H should be considered PRIVILEGED AND CONFIDENTIAL – DO NOT MAKE AVAILABLE TO PUBLIC. This is to protect public safety.

Public Water Supplies B through K are located within Beaver County. Please note that the Ambridge Reservoir and its associated raw waterline are discussed in *comment*/response #12 since that comment is specific to Ambridge.

Basic information on each water supply is provided below, followed by an impact discussion. Impacts might include an Inadvertent Return (IR) causing a bentonite slurry mix to enter the supply, which would contaminate the supply for any wells that are located near an HDD site or construction equipment/activities physically damaging the water supply.

<u>Public Water Supply B</u> is a groundwater well located approximately 0.1 mile from the Project. The well serves office buildings and a classroom. The landowner is not aware of a protection zone set up around the well and he stated that he is not concerned about the Project impacting the well. Per the landowner, there is a different well located closer to the Project Area, but it is not utilized due to poor water quality.

<u>Public Water Supply C</u> is a groundwater well approximately 0.6 mile away from the Project that services a school. The person contacted stated that they were not aware of any protection zone or plan regarding the well.

<u>Public Water Supply D</u> is a groundwater well located approximately 0.6 mile away from the Project. The township owns this well and it services a volunteer fire department. It is tested every month. The contact was unaware of any specifications on the well. An AECOM representative sent the contact a shapefile.

<u>Public Water Supply E</u> is a groundwater well that is located approximately 0.87 mile from the Project Area. The well services a market building and the water is used in a bakery and cider business. The owner had no knowledge of a protection zone around the well and has no issues with the Project.

<u>Public Water Supply F</u> is a groundwater well located approximately 0.40 mile from the Project Area. This well serves a church and a church representative showed the well to the Land team and it directly abuts the building. The church was unaware of any protection plans for the well. A review of the USGS topographic map shows that the well is located within a separate drainage than the Project, therefore, the Project could not impact it.

Public Water Supply G is a groundwater well located approximately 0.16 mile from the Project. It is tested every month from April through October, which is the main time when this location is open to the public as this is a fairground. They have a main fair for a week in August that can host up to 30,000 people. On a typical day, they can have around 50 people. The owner was unaware of any protection plan for the wells.

Public Water Supply H is a groundwater well located approximately 0.20 mile from the Project. It is tested monthly and has the same owner as Public Water Supply G. There are four wells at this location, two that run all year that service the hall, office trailer, and outside spigot. The other two operate seasonally for events on the property. The owner was unaware of any protection plans.

Public Water Supply I is a groundwater well located approximately 0.46 mile from the Project Area. It is a public meeting place that has a bar and an event hall that can service up to 500 people at a time. They are not aware of any protection plans for their well.

Public Water Supply J is a groundwater well located approximately 0.73 mile from the Project. It is a small restaurant. A representative from the restaurant showed the Land personnel where the well was located. She did not have any issues with the Project and was not aware of any protection plans for the well.

Public Water Supply K is a surface water withdrawal on the Ohio River located approximately 0.6 mile north of the Project Area. It serves two industrial facilities that are located along the river. Some water is used for janitorial services such as bathrooms and laundry. The water is predominantly used for industrial operations at both facilities. There is a pump house located at the Ohio River that serves as the intake. They have no knowledge of a protection zone.

Impacts to Water Supplies

All the water supplies, except for Water Supply K, are groundwater wells. Based on the geology of the area, these wells are most likely deeply embedded within bedrock, as this is standard practice in this geographic region. These public wells are located a minimum of 1,000 feet outside of the construction LOD and will not be directly impacted by construction equipment. The bedrock is thick, which minimizes the threat of any contamination or sediment migration into these wells. In the event of an IR, it is unlikely that a bentonite slurry mixture would be able to penetrate the thick bedrock layer and contaminate a well. Given the distance of the wells from construction activity and the fact that the wells are deeply imbedded in thick bedrock, it is unlikely that the Project will impact any of these public water sources. However, in the unlikely event that a well is contaminated, SPLC will mitigate the impact, as discussed in *comment*/response #11.

Water Supply K receives its water from the Ohio River and the Project does not cross the Ohio River in Pennsylvania, it is unlikely that this water source will be impacted. The intake is located upstream of the proposed West Virginia HDD crossing. The Montgomery Dam system, located near the pump house, also separates the HDD crossing and the pump house. Therefore, if an IR were to occur at the WV crossing, the intake would not be impacted since the river does not flow towards the intake.

In addition to the above contacts, the Beaver County Health Department was called on June 12, 2018, a message was left on voicemail and never returned. Additionally, per PADEP request,

the Better Business Bureau was contacted, and AECOM was told that they do not deal with water supply issues.

11. *Related to the preceding item, and as needed, discuss efforts to avoid and minimize impacts to these public water systems, and measures that will be implemented to mitigate for any unavoidable impacts, pursuant to Sections 105.13(e)(l)(viii & ix) and 105.14(b)(5), of the Department's Chapter 105 rules and regulations. These efforts might include, but are not limited to, considering alternative locations, routings or design for the proposed pipeline; providing provisions for shut-off in the event of break or rupture; etc*.

    The Project has been routed to avoid all direct impact to the groundwater wells and surface water intake identified in the PADEP list. The revised alternatives analysis and anti-degradation analysis are provided in the Comprehensive Environmental Assessment included with this package. Given that the Project does not directly cross any of the public water systems, construction activities will not impact any of the wells.

    In the event that an IR were to occur during construction and the bentonite slurry were to impact a well, which, as discussed in the previous comment, is unlikely due to the fact that the wells are deeply embedded in bedrock, SPLC will respond by providing water buffalos to the affected entity and if it is necessary, drill another well to replace the damaged one. Depending on how many people each well services, and the usage of the well, multiple buffalos may be needed. One example would be that the restaurant serves up to 200 people per day so besides basic plumbing needs, they also need water for washing dishes and cooking. Additional measures that would be taken to avoid, minimize, or mitigate any risks to groundwater wells and surface water intakes can be found in the CEA and SPLC's Inadvertent Returns from HDD: Assessment, Preparedness, Prevention, and Response Plan.

    Due to the wells' locations deep within bedrock, it is unlikely that an event with the pipeline would impact the wells. However, *if* an event like a leak were to occur, the pipeline is monitored 24 hours per day by a monitoring center. There are mainline valves spaced approximately every seven to seven-and-a-half miles apart. These valves can be shutoff automatically from a state-of-the-art monitoring center immediately if an issue is detected. This allows SPLC to be able to quickly respond and isolate a section of pipe. Additionally, there will be permanent staff living within the Project Area following construction and their proximity to the Project Area will enable them to be able to quickly respond to any issue. If it is shown that the Project caused impact to a well, SPLC will provide water buffalos to the affected entity and if it is necessary, drill another well to replace the damaged one.

    If the river water quality were to be impacted, which is highly unlikely as discussed in *comment*/response #10, they would be looking for assistance with filtration or purification.

    More information regarding response to water well supplies is provided in the Water Supply Plan, which is included as part of the "Inadvertent Returns from HDD: Assessment, Preparedness, Prevention and Response Plan" as discussed in *comment*/response #29.

12. *Related to the preceding item, the Department has received multiple public comments, with concerns about your project's potential to affect the Ambridge Reservoir and the associated raw water service pipeline. Accordingly, evaluate and discuss your project's potential to affect the Ambridge Reservoir and to interrupt public water supply service, pursuant to Section 105.l 4(b)(5), of the Department's Chapter 105 rules and regulations. Based upon this evaluation,*

discuss efforts to avoid and minimize impacts to this reservoir and/or public water system, and measures that will be implemented to mitigate for any unavoidable impacts, pursuant to Sections 105.13(e)(l)(viii & ix) and 105.14(b)(5), of the Department's Chapter 105 rules and regulations. You should to contact the Ambridge Water Authority to facilitate your response to this item.

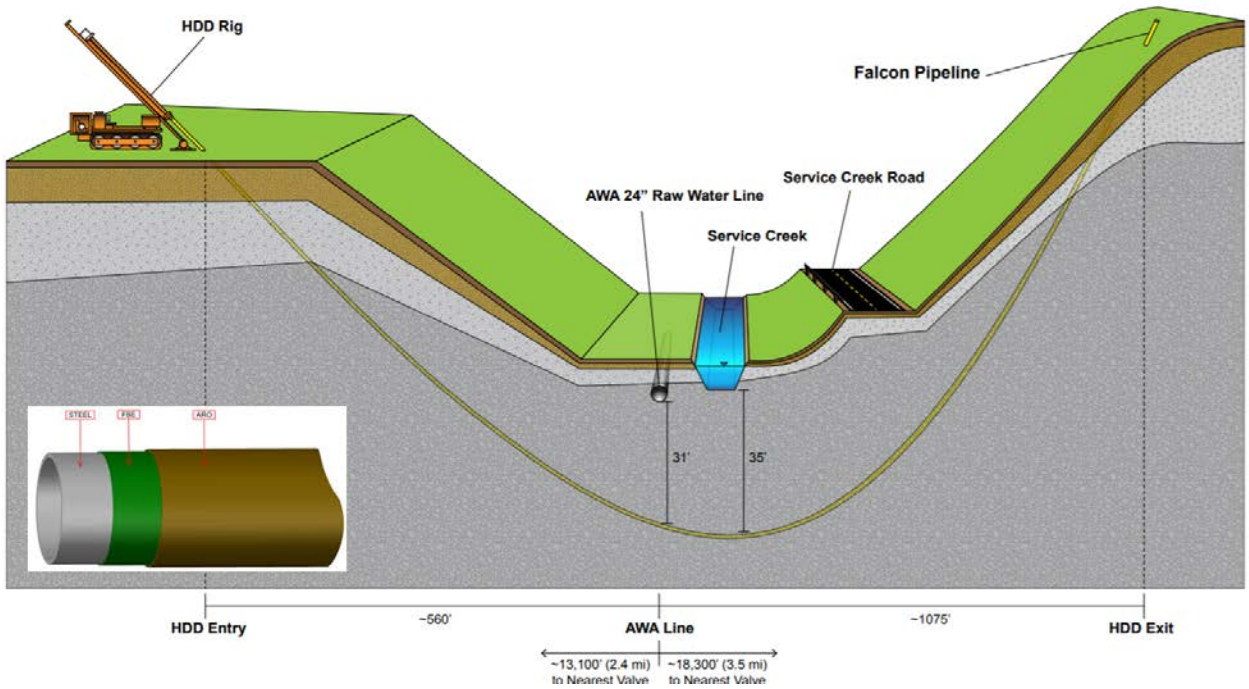
Meetings were held between the Ambridge Water Authority (AWA) and the SPLC Falcon Team February 12, 2018, February 20, June 22, 2018, and July 13, 2018. Additionally, several email correspondences transpired, and a member of the Falcon team attended the monthly Ambridge Reservoir public board meetings.

The Ambridge Reservoir provides water to approximately 30,000 residents. A raw water line, comprised of pre-stressed concrete, is the only water supply from the reservoir. Several pipelines currently cross either the reservoir itself or the raw water line, as depicted in the figure in Attachment I. SPLC approached AWA to determine if SPLC could incorporate AWA's emergency response plan into the Falcon emergency response. Through discussions, it was discovered that AWA did not have an emergency response plan for the raw water line and the emergency response plan for the reservoir was related to flooding events and when to evacuate residents in the event of a major flood at the reservoir. The AWA was not concerned about the Project impacting the reservoir itself being that the Project was not crossing it. AWA was concerned about two issues with respect to the Project crossing the raw water line: (1) what could happen during construction and (2) what could happen following construction. AWA was most concerned about what could happen following construction.

<u>During Construction</u>: The HDD was designed to be 31 feet below the raw water line, as shown in the detail below. This is significantly deeper than the other adjacent pipelines. Geotechnical investigations which included soil borings were conducted within this area. SPLC retained a geotechnical expert to review the soil boring information and concluded that the silt and sand characteristics present around the raw water line will dampen any vibrations during construction, thus protecting the concrete water pipe during construction. The drill will be through competent bedrock, which should eliminate any settling issues.

Pre-stressed concrete is not typically utilized in pipeline construction any longer because it is difficult to work with and cannot be field-retrofit. The closest place that makes this pipe is in Cleveland, Ohio. Each piece must be laid in place and if cracked, it is broken and cannot be mended in the field. It typically takes AWA six weeks to receive a pipe joint after it is ordered as it takes that long to make and cure the concrete pipe. As a result, AWA typically keeps two joints on standby in the event that there is a break. There have been approximately 12 times in the last 24 years where repair joints have been needed.

Given the geology and the depth of the HDD below the raw water line, it is very unlikely that construction activities will impact the water line. However, SPLC will have a crew on standby in the unlikely event that a break were to occur. Additionally, SPLC will provide AWA with additional pipe joints from the manufacturer in Cleveland to have on hand in the event of a break.



<u>Following Construction</u>: AWA expressed concern about a "catastrophic event" occurring during operation of the pipeline that would cause the water line to rupture. However, SPLC has never had a recorded release from a pipeline containing "highly volatile liquids" or "HVLs" since record keeping began in 1986 and SPLC currently operates 630 miles of propylene and ethylene lines, which are considered "HVLs." There will be two coatings on the HDD portion of the pipe that will protect the pipe from damage and corrosion—Fusion Bond Epoxy (FBE) and Abrasive Resistance Overlay (ARO). Additionally, there will be cathodic protection, which will utilize AC current to prevent pipe corrosion. The pipe will be steel and is designed to withstand three times the normal operating pressure. This robust pipe design ensures that the pipe is safe. The chemical properties of liquid ethane also do not allow it to expand while in a pipe underground because it is in liquid form, meaning that it will not explode.

As stated in *comment*response #10 mainline valves will be placed along the pipeline route that are monitored 24 hours a day, seven days per week in a state-of-the art monitoring facility. These valves can be remotely shut off if any problem is indicated. As noted in the graphic above, a valve will be located approximately 2.4 miles on one side of the raw water line and approximately 3.5 miles on the other.

Given SPLC's high safety standards and protocols, safety record with respect to HLVs, pipe design, and liquid ethane's chemical properties, it is highly unlikely that the Project will impact the raw water line. However, SPLC will continue to work with AWA to address its concerns.

13. *Due to the presence of public water systems in or near your project area, re-evaluate and discuss whether your project will impact Exceptional Value (EV) wetlands, which were not previously identified as EV wetlands, pursuant to Sections 105.13(e)(l)(x)(B), of the Department's Chapter 105 rules and regulations. If your project will impact EV wetlands, identify these wetlands, and demonstrate compliance with Sections 105.18a(a)(l-7), of the*

Department's Chapter 105 rules and regulations, regarding the permitting of structures and activities in EV wetlands.

The same list as discussed in *comment* response 10 was used for this evaluation. Again, the same cautions were used to keep information regarding these wells private. Screenshots from the Google Earth analysis are provided as part of the attachment. PLEASE NOTE: The items in Attachment H should be considered PRIVILEGED AND CONFIDENTIAL – DO NOT MAKE AVAILABLE TO PUBLIC.

25 Pa. Code §105.17(1)(iv) states that wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply are EV wetlands. As a result, AECOM conducted an anaylsis of the wetlands located within the vicinity of these areas needs to determine if the wetlands maintain quality or quanity of the drinking water supply.

Public Water Supply B is a groundwater-fed well. There are small wetlands (0.08 acre and less) located approximately 0.4 mile away at elevations several hundred feet higher than the well. It is unlikely that these wetlands would have any influence on the well given this elevation difference. The well is also located next to a large man-made wetland. The well is most likely embedded in bedrock while the wetland is shallow in comparison. The wetland will be shallower now that an outlet was recently installed to make it function more as a PEM wetland (which is what it was originally designed to be) and less of a pond. Due to the geology in this area, the groundwater has an upward flow component to it, which makes the groundwater flow toward the surface in these wells. As a result, this wetland should not have any influence on the well and should not be considered EV.

Public Water Supply C and Public Water Supply D are located close to each other and share almost the exact same buffer and they share all of the same delineated wetlands. The wells are both groundwater-fed and located at least 0.6 mile away from the proposed LOD. These are also the same wetlands located within the Public Water Supply B buffer, including the man-made mitigation wetland. Several of the wetlands are located at a much higher elevation than the wells and between 0.5 and 0.8 mile away from the wells. As a result, they should not have any hydrologic connection to the wells. The large man-made wetland also should not have a hydrologic influence on these two wells as it is over 0.5 mile from the wells and shallow in comparison to the deeper bedrock-embedded wells. As a result, these wetlands should not be considered to be EV because the wells are deeply embedded in bedrock which causes them not to have a hydrologic connection to the shallower wetlands.

Public Water Supply E is located approximately 0.8 mile from the Project Area. Approximately 0.5 mile of the Project LOD is located within the one-mile buffer and no wetlands were delineated within this area. As a result, there are no wetlands to consider as EV.

Public Water Supply F is located approximately 0.40 mile from the Project Area. A review of the USGS topographic map shows that the well is in a separate drainage than the Project in this location. State Route 168 appears to be the boundary. As a result, none of the wetlands within this area are hydrologically connected to Public Water Supply F and should not be considered EV.

<u>Public Water Supplies G, H, I, and J</u> all overlap the same portion of the Project Area and encompass all of the same wetlands. They also encompass most of the same portion of the Project Area as Water Supply F; however, they are located in different drainages from F. All four wells are groundwater wells located adjacent to Mill Creek. As with the other groundwater wells in this area, these are most likely embedded in bedrock and receiving base flow from the aquifer and in this case also from adjacent Mill Creek. Mill Creek likely minimizes the size of the pumping area of influence (for the wells) because the groundwater that feeds the wells is also able to be recharged when groundwater pressures beneath the wells are lowered. Given that it is unlikely the wetlands within the buffer are hydrologically connect to the wells, the wetlands should not be considered EV.

<u>Public Water Supply K</u> is located on the Ohio River approximately 0.6 mile from the Project Area. Although there is a large wetland within the one-mile buffer, it is located within a depressional area that is separated from the Ohio River by steep slopes. It is highly unlikely that this wetland, or any other smaller wetland within the area, would have any effect on the Ohio River as a water source, given the obvious large size and depth of the Ohio River. Therefore, none of the wetlands within this buffer area should be considered EV.

14. *Module S3 of your EA indicates that the proposed pipeline centerline is located within previously mined areas (see pages 31-32). Provide a map overlay drawing of your project with these mining areas, and GIS shape files with this information, pursuant to Section 105.14(b)(6) and 105.24(a) 105.301(10), of the Department's Chapter 105 rules and regulations*.

    Figures depicting previously mined areas are located within the Mining Summary Report included with this permit submission. Shapefiles are included on the enclosed CD.

15. *Related to the preceding item, revise your profile drawings to show the limits of the previously mined areas. In addition, provide the depth of cover over the mine workings that will be crossed by the proposed pipeline, and the distance between the mine workings and the proposed pipeline. Use this information to evaluate and discuss the potential for a subsidence event compromising the utility line, and the potential to create a mine water discharge, pursuant to Section 105.301(10), of the Department's Chapter 105 rules and regulations*.

    The profile drawings for resources located in previously mined areas have been revised and are included in the "*HDD Subsurface Investigation Reports*" document that is included with this package. Each HDD location is also discussed within this report. Additionally, subsidence is discussed in the Mining Summary Report and the HDD Alternatives Analysis, which is an Appendix to the "Inadvertent Returns from HDD: Assessment, Preparedness, Prevention and Response Plan".

16. *To facilitate coordination between DEP's Waterways and Wetlands Program and DEP's Mining Program, identify all areas where the proposed pipeline will cross active mining permit boundaries, pursuant to Sections 105.14(b)(6) and 105.24(a), of the Department's Chapter 105 rules and regulations*.

    The locations where the Project will cross active mining permit boundaries is included in the Mining Summary Report included with this response to comment package submission.

17. *The current alternatives analysis provides general information about the route development*

process; however, revise this narrative to provide a detailed analysis of the alternative locations and routes that were considered to avoid or minimize adverse environmental impacts, pursuant to Section 105.13(e)(l)(viii), of the Department's Chapter 105 rules and regulations.

A revised alternatives analysis is provided as Section 9 of the Comprehensive Environmental Assessment, which is a stand-alone document provided as part of this submission.

18. *Related to the preceding item, Module S3 indicates that approximately 18.5 of the 45 miles (41%) of the proposed pipeline (in Beaver County 11 of 23 miles) are parallel to or adjacent to existing right-of-ways (ROWs) (see page 27). Evaluate and discuss whether there might be additional opportunities to co-locate the proposed pipeline within existing ROWs, to potentially reduce the proposed adverse environmental impacts, pursuant to Sections 105.13(e)(1)(viii), 105.16(a) and 105.18a, of the Department's Chapter 105 rules and regulations*.

When the first desktop routing analysis was established, the Project was routed along existing ROWs, both above- and below-ground, to the highest extent practicable to attain the Project goal of extending pipe from existing facilities to the proposed Shell Pennsylvania Petrochemical Plant (Plant) in Monaca. Paralleling existing ROWs would reduce tree clearing and habitat fragmentation. The Mariner West line, which Sunoco leases from MarkWest, was originally investigated because it runs generally north from the Houston fractionation facility to a river crossing west of the NOVA Chemical plant. The Mariner West route does deviate slightly to the west at the southern end and then routes back to the east around the Pittsburgh International Airport before tracking in a northerly route towards the Plant. The Mariner West route was determined to vary more westerly than what was ultimately proposed and would net in approximately six more miles of pipeline to reach Monaca from Houston and would be significantly costlier to construct than the selected route by approximately 20 percent. However, as discussed below, SPLC routed the line along Mariner West, whenever feasible.

Once this initial route was proposed, the utilities were contacted to determine if it was feasible to share ROWs and topographic surveys were conducted to determine if it was physically feasible to install an additional pipeline in that location. Additionally, all landowners were contacted to ask permission to locate the Project on their property.

There were several occasions where there was no longer enough room to safely construct another pipeline within the same corridor. Often, pipelines are constructed on ridgetops. Constructing another pipeline within a narrow ridgetop could risk exposing the existing pipeline. Additionally, constructing in these types of areas puts contractors at serious safety risks.

The Project was proposed to follow the Mariner West for as much as practicable. The Project follows Mariner West from approximately Houston MP28.7 to Junction to Monaca MP1.7 at Mowry Road, which is approximately four miles. This includes the crossing at Service Creek, adjacent to the Ambridge Water Authority raw water line. The crossing at Mowry Road was difficult due to site distance and there were sites of cultural significance identified between Mowry Road and Raccoon Creek that needed to be avoided or HDDed. Additionally, following Mariner West closer to the Petrochemical Plant put the Project closer to the known bald eagle nest and would have required a very difficult HDD across Raccoon Creek. As a result, the Project needed to deviate after Mowry Road.

SPLC attempted to route the Project along several FirstEnergy and Duquesne Light overhead electric line ROWs. This was done whenever practicable. However, FirstEnergy stated that the pipeline was too close to their towers and had to be shifted in several locations. Additionally, proper safety measures need to be taken when constructing near overhead electrical lines and certain setback distances must be maintained.

Additional information concerning SPLC's routing analysis can be found in Section 9.1 of the CEA.

19. *The Beaver County Natural Heritage Inventory, available from the PA Natural Heritage Program website, identifies the following Natural Heritage Areas (NHA) in or near your project area: Ambridge Reservoir Valleys NHA, Lower Raccoon Creek NHA and Raccoon Creek Valley and Wildflower Reserve NHA. Evaluate and discuss the potential for your project to affect these natural heritage areas, pursuant to Sections 105.14(b)(4 and 12), of the Department's Chapter 105 rules and regulations*.

Under §105.14(b)(4) the Department must use the effect of the dam, water obstruction or encroachment on regimen and ecology of the watercourse or other body of water, water quality, stream flow, fish and wildlife, aquatic habitat, instream and downstream use and other significant environmental factors. Under §105.14(b)(12) the Department must review secondary impacts associated with, but not the direct result of, the construction or substantial modification of the dam or reservoir, water obstruction or encroachment in the area of the project and in areas adjacent thereto and future impacts associated with dams, water obstructions or encroachments, the construction of which would result in the need for additional dams, water obstructions or encroachments to fulfill the project purpose.

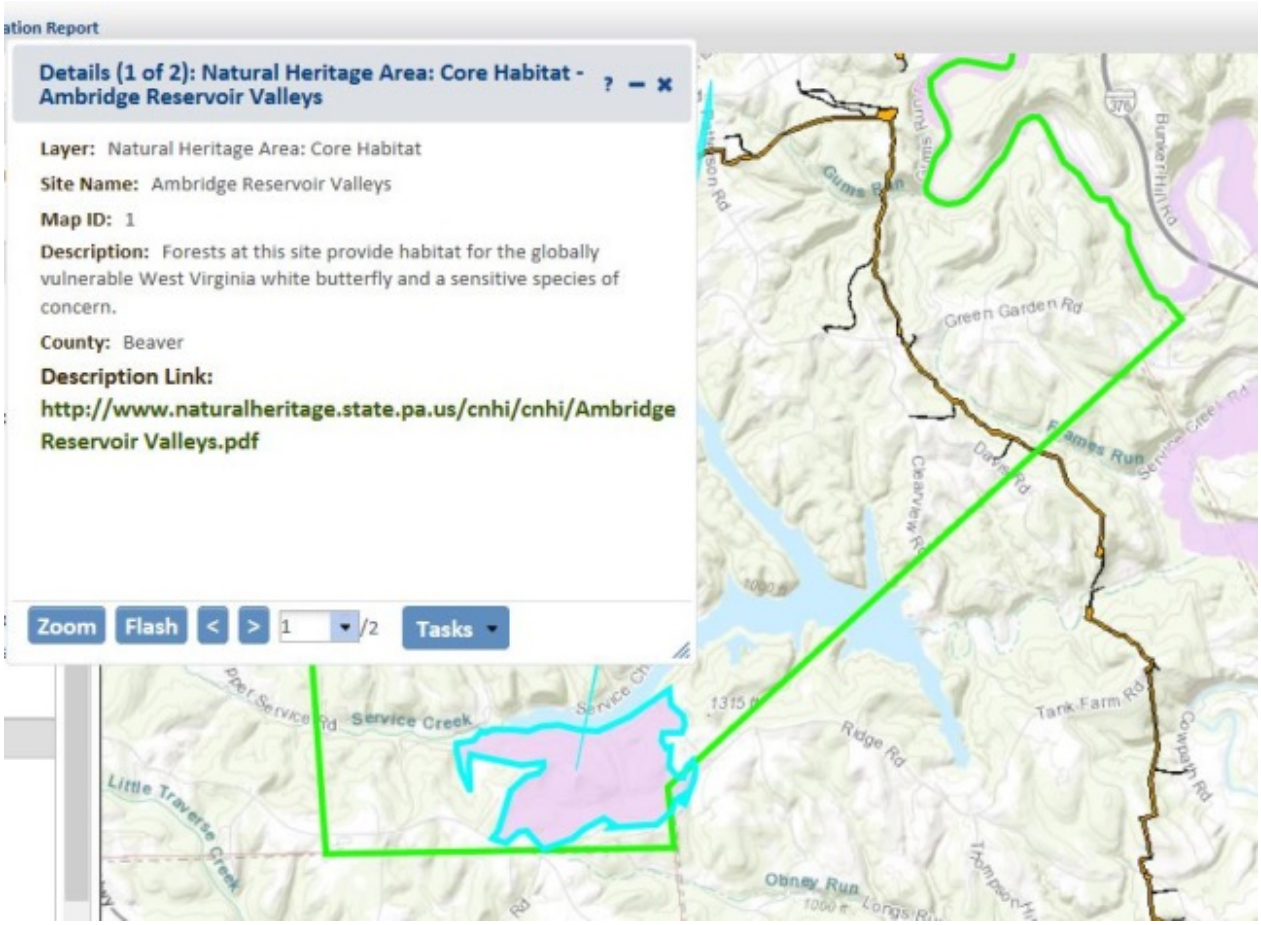
There will be no dams associated with this Project. All the water obstructions/encroachments will be temporary in nature as each resource will be restored to original contours following construction. No above-ground permanent watercourse or wetland fills are proposed for this Project. Other than what is discussed in the Cumulative Impact Assessment, SPLC is not aware of any future impacts to any of these Natural Heritage Areas (NHA); however, per the PADEP, future potential projects must be considered.

<u>Ambridge Reservoir Valleys Natural Heritage Area</u>

This is mapped as a Regional Core Habitat in lower Raccoon Township. The Project is located approximately 2.5 miles northeast from this NHA. Therefore, this NHA will not be impacted by the Project. Falcon is a common carrier pipeline; however, SPLC is unaware at this time if other pipelines or projects will traverse through this NHA to connect to the Project. Nevertheless, per the cumulative impacts analysis, future potential projects must be considered. The NHA has at least one existing ROW through it and some maintained land (based on aerial mapping). If a new project were to occur through this NHA, and it were to be co-located with existing ROWs/maintained land, and the most up-to-date BMPs were utilized, it is unlikely that any permanent adverse impacts would occur.

The screenshot below is taken from the Pennsylvania Natural Heritage Program (PNHP) mapper. The Project LOD was uploaded to the mapper and the NHA was selected (outlined in blue) to

show its location in relation to the Project. The green line represents the Raccoon Township boundary.

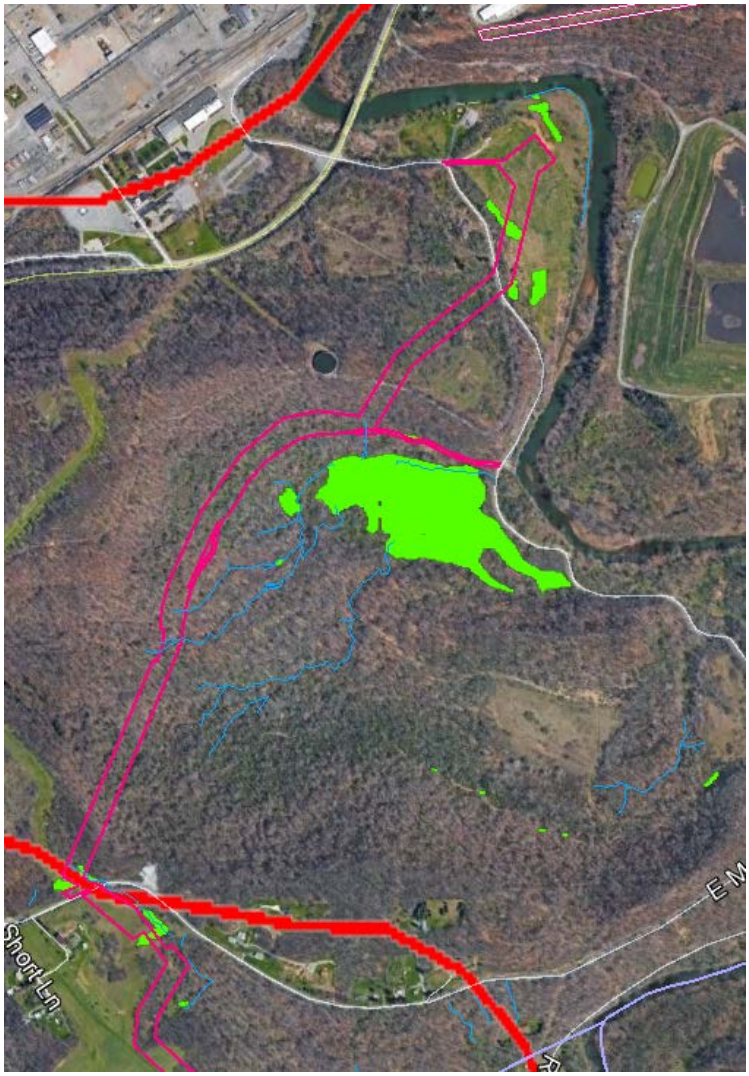


Lower Raccoon Creek Natural Heritage Site

The Lower Raccoon Creek NHA fact sheet, which was downloaded from the PNHP site (http://www.naturalheritage.state.pa.us/cnhi/cnhi/Lower%20Raccoon%20Creek.pdf), describes the area as generally recovering from past disturbances. The ecologically significant areas as defined in the fact sheet include steep slopes and valleys that are relatively inaccessible. The fact sheet discusses a large wetland complex approximately two and a half miles from the mouth of Raccoon Creek. The Beaver County Natural Heritage Inventory 2014 Update states that this area supports the blue-tipped dancer damselfly (no legal status in PA), bluebreast darter (PA Threatened), and one sensitive species of concern. The sensitive species of concern could be a bat or mussel species, as it is sometimes common practice not to list either species on a Pennsylvania Natural Diversity Inventory (PNDI) receipt. However, it is impossible to know what the species is the fact sheet would be referring to without coordinating with the jurisdictional agencies.

Approximately 1.6 miles of the Project near the Petrochemical Plant in Potter Township is located within this NHA. These data were obtained by downloading the shapefile from the

PHNP's Interactive Map Site (http://www.gis.dcnr.state.pa.us/maps/index.html?nha=true). The screenshot below shows the Project with respect to the NHA; the red line depicts the southern and northern boundary for the Lower Raccoon Creek NHA with respect to the Project Area (pink polygon). The green polygons are the delineated wetlands and the blue lines are the delineated streams.



A large PFO/PSS/PEM wetland complex was delineated approximately one and a half miles from the Raccoon Creek mouth (the large green polygon in the above screenshot); however, Raccoon Creek Road separates it from the floodplain. There were also several streams draining into this wetland. The wetland complex and most of the streams were avoided through a reroute. Additionally, the very steep slopes that are considered to be ecologically significant per the fact sheet were avoided or crossed via Horizontal Directional Drill (HDD) because they are not desirable from a constructability standpoint. Some portions of the Project in this NHA occur in mixed deciduous forest; however, a majority of this area is regenerating forest from pasture, or open field/disturbed land.

Many insects spend their larval stages in water. The NHA sheet places emphasis on the blue-tipped dancer damselfly, which also spend their larval stage in water. If a stream or wetland were to be open cut during an insect's larval stage, there is the chance that the benthic macroinvertebrate could be impacted. Some larvae are mobile however and may be able to avoid impact. Stream crossings are conducted "in the dry" and flow is diverted during construction so there is the possibility that even larvae within the construction limit of disturbance will not be impacted. Given the small impact area with respect to the overall stream length, impacts to entire benthic macroinvertebrate populations should not occur. Each crossing is completed as quickly as practicable so that only minimal impact to the aquatic system occurs. Following pipe installation, the substrate (where the larvae can be found) is returned to original conditions and habitat is restored. Adult forms can fly; therefore, if construction was being conducted, the adult would be capable of avoiding construction areas.

SPLC and AECOM coordinated with the PA Fish and Boat Commission (PFBC) between 2015 and 2017. The PFBC did not list the bluebreast darter as being a species of concern within the Project Area; therefore, it is unlikely to occur within the Project Area. Nevertheless, the construction methods and BMPs utilized ensure minimal and temporary impact to all aquatic species. Additionally, when water withdrawal occurs for hydrostatic testing, proper BMPs such as utilizing screens will be followed to protect aquatic species from impingement and entrainment.

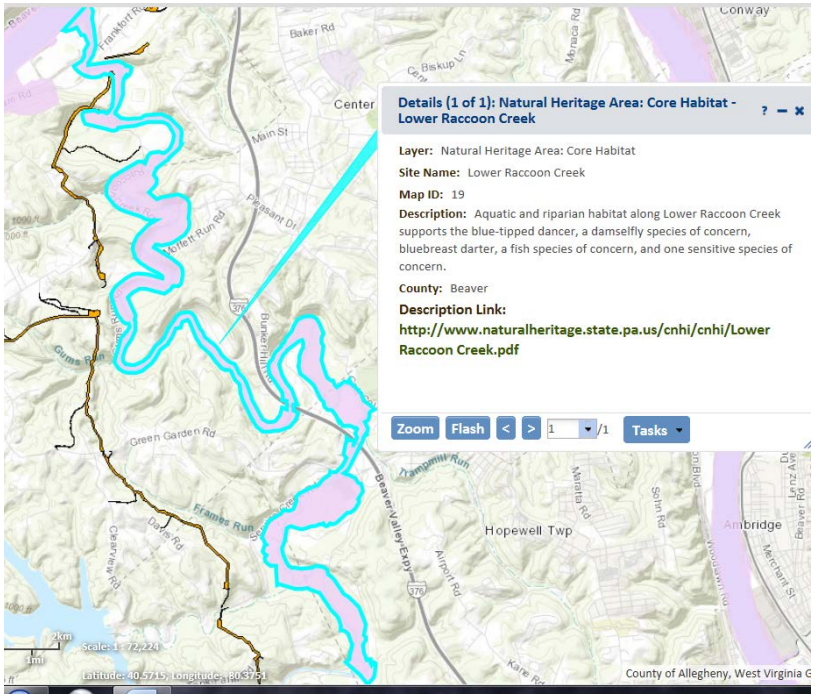
Coordination with the USFWS State College field office revealed that due to its proximity to the Ohio River, Raccoon Creek may be habitat to several listed mussel species including the northern riffleshell, the clubshell, the rayed bean, the snuffbox, and the rabbitsfoot. Raccoon Creek will be crossed via HDD which will result in no surface impacts, thus not disturbing the stream substrate. As such, any mussel species present in Raccoon Creek would not be impacted. The USFWS stated that provided this stream was crossed via bore/HDD (which both crossings will be), no additional coordination was necessary, and clearance was granted. Additionally, proper erosion and sedimentation controls will be installed along the Project during construction. This will prevent sediment from leaving the Project Area and entering streams, thus protecting against upstream and downstream impacts from the crossing.

As stated above, if water withdrawal occurs in this stream, proper BMPs will be utilized to protect species from impingement and entrainment. Documentation regarding coordination with the USFWS on mussel species can be found in the original permit application.

Mist net bat surveys were conducted throughout the Project Area as discussed in the permit application. Mist net surveys were conducted within this NHA. No Indiana bats were captured. Although northern long-ear bats were captured during the project, no roost trees were observed within the Project area or within one-quarter mile of the Project vicinity; therefore, USFWS granted clearance for the Project. As a result, it is unlikely that any bats located within this NHA will be adversely affected.

As depicted in the screenshot below, taken from the PHNP mapper, the Lower Raccoon Creek NHA (highlighted in blue) encompasses a significant area. It would not be surprising if another project were to cross through this NHA to either connect to the Project or to the Petrochemical Plant. Based on aerial mapping viewed on the PHNP site, there are several rights-of-ways and

disturbed areas throughout this NHA. If a new project was to occur through this NHA, and it was to be co-located with existing ROWs/maintained land, and the most up-to-date BMPs were utilized, it is unlikely that any permanent adverse impacts would occur.



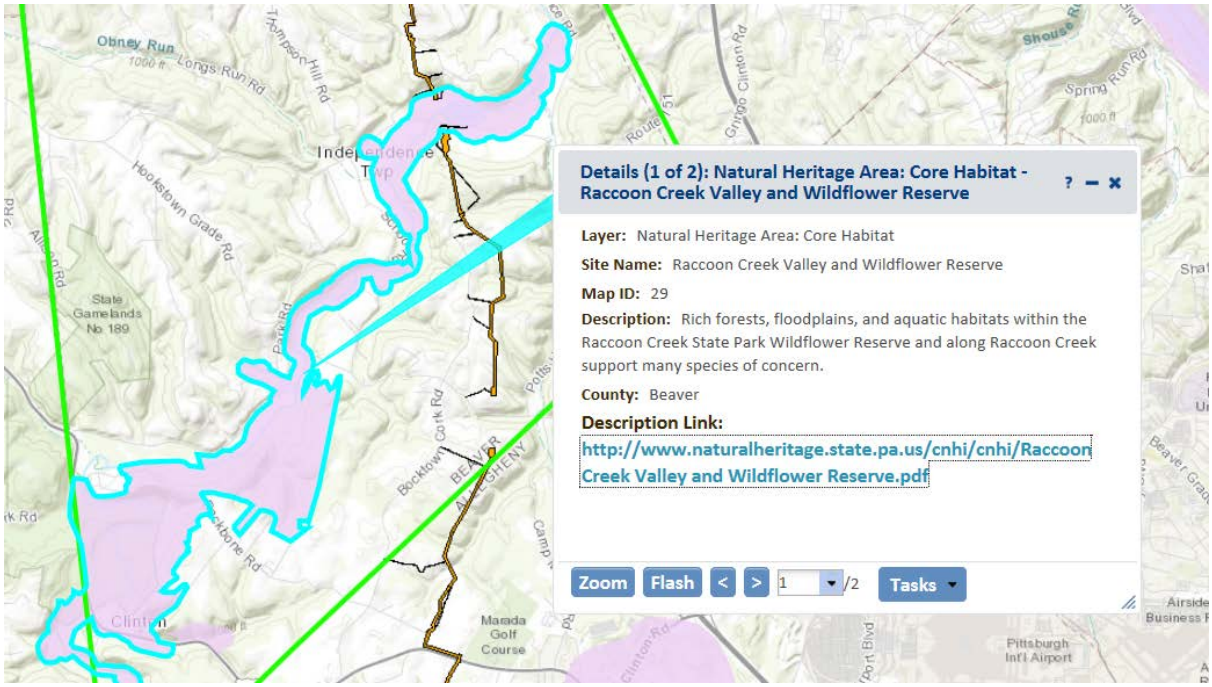
Given the temporary nature of pipeline projects, HDD utilization when practicable, proper BMP utilization, and the three years of coordination with the jurisdictional federal and state agencies that are tasked with protecting threatened and endangered species and their habitats, it is not expected that this Project will have any permanent adverse impact on the Lower Raccoon Creek Natural Heritage Site.

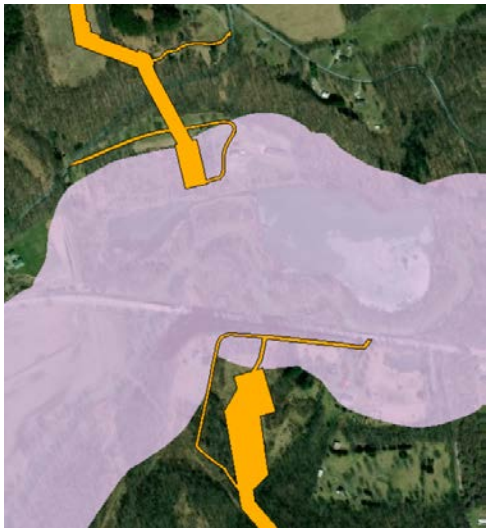
<u>Raccoon Creek Valley and Wildflower Reserve NHA</u>

The Wildflower Reserve NHA includes a 314-acre site adjacent to Raccoon Creek State Park as well as a portion of Raccoon Creek and its adjacent floodplain. The area is known for its diverse species; there are several PA rare, threatened, and endangered plant species known to this area, which is why the DCNR required a botanical survey, as outlined in the original permit application. Several bird species are known to nest within this NHA. The NHA fact sheet specifically calls out the pied grebe as nesting in the area; however, it is afforded no current legal status within Pennsylvania, which is why the PA Game Commission did not require a survey. Several insect species are known to this area and they are also not afforded any legal protection within Pennsylvania. Four "sensitive species of concern" are known from the area. As discussed above, these species could potentially be bats or mussels; however, the exact species referred to in the fact sheet are unknown without direct coordination with the jurisdictional agencies.

As seen in the screenshots below taken from the PNHP mapper, the Project crosses a small portion of the NHA. The first screen shot depicts shows the Project LOD (orange) uploaded to

the PNHP mapper. The NHA is selected and outlined in blue and the boundary for Independence Township is in green. The second screen shot depicts the a zoomed in view of the NHA mapped against the LOD on Google Earth. There is no LOD shown in either screen shot between the entry and exit points for the HDD across Raccoon Creek. The majority of the NHA will be crossed via HDD; therefore, there will be little above-ground disturbance. As a result, the flow regime, habitat, aquatic organisms, or water quality for the streams within the NHA will not be altered either at the crossing location or downstream or upstream of the crossing location.





The PA plant species of special concern populations within the Project LOD, *Erigenia bulbosa,* will be undisturbed by utilizing HDD through this area. No bat mist net surveys were conducted directly within the NHA; however, mist nets were set up both north and south of the NHA. No Indiana bats were captured. Although northern long-eared bats were captured during the project, no roost trees occur within the Project area or within one-quarter mile of the Project vicinity; therefore, USFWS granted clearance for the Project. As a result, it is unlikely that any bats located within this NHA will be adversely affected. Coordination with the USFWS State College field office revealed that due to its proximity to the Ohio River, Raccoon Creek may be habitat to several listed mussel species including the northern riffleshell, the clubshell, the rayed bean, the snuffbox, and the rabbitsfoot. The USFWS stated that provided this stream was crossed via bore/HDD (which it will be), no additional coordination was necessary, and clearance was granted. If water withdrawal occurs in this stream, proper BMPs such as screens will be utilized to protect all aquatic species, including mussels, from impingement and entrainment. Documentation regarding coordination with the USFWS on mussel species can be found in the original permit application.

The HDD bore pit will be located on Beaver County Conservation District property. Many people use the property in spring and summer so, as a result, SPLC agreed to coordinate construction activities with the Conservation District.

Although the HDD crossing method will be utilized at Raccoon Creek, the stream and surrounding wetlands will be protected from sediment during construction north and south of the HDD through proper erosion and sedimentation controls. The construction methods used in the wetland located on the Beaver County Conservation District property are described in more detail in *Comment*/Response 32m. This wetland will also be monitored following construction per Army Corps of Engineers PASPGP-5 Regional Conditions, which will ensure that it is properly restored to pre-construction conditions and that functions and values are restored.

It is unlikely given the steep terrain, location of SR151, existing structures, and utilities, and an HDD (which would make a connection here difficult) that a future project would connect to Falcon at this location because it would not be very constructible. However, it is possible that a future pipeline might traverse somewhere through this NHA and connect to this Project in a different location. There is open land and other utility line crossings within this NHA and if those disturbed areas were to be utilized in conjunction with proper BMPs, it is unlikely that future projects would permanently impact this NHA.

Given the temporary nature of pipeline projects, HDD utilization when practicable, proper BMP utilization, and the three years of coordination with the jurisdictional federal and state agencies, it is unlikely that this Project will have an adverse impact on the Raccoon Creek Valley and Wildflower Reserve NHA.

20. *The proposed project is located within the Raccoon Creek Valley & State Park Important Bird Area (IBA). Evaluate and discuss the potential for your project to affect this IBA (see the National Audubon Society website for more information about this IBA), pursuant to Sections 105.14(b)(4 and 12), of the Department's Chapter 105 rules and regulations*.

Section105.14(b) states what the Department must consider when reviewing

applications and subsection (b)(4) considers the effect of the dam, water obstruction or encroachment on regimen and ecology of the watercourse or other body of water, water quality, stream flow, fish and wildlife, aquatic habitat, instream and downstream uses and other significant environmental factors. Subsection (b)(12) is concerned with the secondary impacts associated with but not the direct result of the construction or substantial modification of the dam or reservoir, water obstruction or encroachment in the area of the project and in areas adjacent thereto and future impacts associated with dams, water obstructions or encroachments, the construction of which would result in the need for additional dams, water obstructions or encroachments to fulfill the project purpose.

According to the National Audubon's website the Raccoon Creek Valley and State Park Important Bird Area (IBA) encompasses 108,341 acres within Beaver, Allegheny, and Washington counties. Raccoon Creek State Park is 7,323 acres and is located within this IBA. Approximately 23 miles of the Project is located within the IBA, which is approximately 303 acres of construction workspace, less than 4% of the total IBA acreage which will come down to 140 acres (approximately 2%) upon completion of the Project tied to the permanent ROW.

PADEP advised SPLC and AECOM on June 1, 2018 to call the Audubon Society regarding the IBA. AECOM called the Southwestern Pennsylvania office on June 12, 2018 and left a voicemail message with the person responsible for the IBAs. A return call was not received, and another voicemail message was left on June 18, 2018 and to date a return call has not been received. AECOM conducted an analysis of the IBA utilizing what data is available on the Audubon's website.

Per the IBA data, several waterfowl species have been documented at Raccoon Creek State Park; however, the Project is not traversing this state park. The only waterbody large enough within the Project area to support these types of waterfowl is potentially the open water at the Beaver County Conservation District property; however, an outlet has been installed at the far end of the lake to restore the property to a wetland as opposed to a lake, as it was originally designed. Ducks were observed during one of the field visits to the District property; however, they appeared to be domesticated ducks that likely were introduced to the property and were not native waterfowl.

Per the Audubon Society, the Raccoon Creek Valley acts to funnel migratory birds north and south. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), which as stated in the permit application, was discussed in the Bald Eagle report. Additionally, when practicable, SPLC co-located the Project with other utilities in existing ROWs to minimize tree clearing and further reduce impacts to birds. The bald eagle is currently protected under the Bald and Golden Eagle Protection Act (Eagle Act or BGEPA) and the MBTA from activities and habitat modifications that constitute "disturbances" under these acts, when and where such disturbances interfere with the ability of eagles to breed, nest, roost, and forage.

Threatened and endangered species consultations were conducted with all applicable agencies during the Falcon permitting period. This includes the USFWS and the PGC, which are tasked with regulating activities that may affect federal and state-listed bird species, respectively. This also includes the DCNR, which besides botanical species and terrestrial insects, is also responsible for unique habitats. All threatened and

endangered species clearances have been obtained, as documented in the permit application. The USFWS clearance includes the Montgomery Dam bald eagle nest that is located within the IBA, but outside of the Project Area. PGC clearance includes the state-listed northern harrier and short-eared owl; however, their identified habitat is not located within the IBA.

Although there will be tree removal for the Project, less than 2% of the IBA will be permanently disturbed due to pipeline construction and installation. As stated throughout the permit application and this response to comment package, there will be no permanent fill impact to wetlands or waterbodies; however, there will be some conversion impact to PSS and PFO wetlands. All aquatic resources will be returned to pre-construction contours following construction. For the minimal conversion of forested and shrub wetlands to herbaceous within the limits of the permanent ROW, SPLC will complete compensatory mitigation offsite to mitigate for this habitat change. During construction, SPLC will employ BMPs as described in the ESCGP-2 permit. In addition, EIs will be on site during construction to provide assurance that all permit conditions are being followed and all BMPs are property installed and maintained until restoration of the construction workspace is complete. The four-acre and 101-acre lakes located within the IBA and discussed on the Audubon's website, are not being crossed by the proposed Project and every effort was made to co-locate the Project alongside existing utilities.

Given the temporary nature of construction during pipeline projects, the proper use and implementation of BMPs to keep sediment from leaving the Project site or entering wetlands or watercourses, the effort to co-locate the pipeline where practicable, and the fact that all jurisdictional agencies related to the management of rare, threatened, and endangered species and sensitive habitats have been consulted and have provided clearances, SPLC believes the Project will not negatively impact the IBA.

21. *Since Harbinger-of-spring (PA-threatened plant) and Purple Rocket (PA-endangered plant) were located within the Raccoon Creek floodplain, re-evaluate whether any of the identified wetlands within the project area are Exceptional Value (EV), pursuant to Sections 105.13(e)(l)(x)(B) and 105.I 7(1)(i and ii), of the Departments Chapter 105 rules and regulations. If any EV wetlands are identified within your project area, identify and quantify any impacts to these EV wetlands, and demonstrate compliance with the requirements in Section 105.18a(a)(l-7), of the Department's rules and regulations, regarding the permitting of structures and activities in EV wetlands*.

Section105.17(1)(i) states that wetlands are exceptional value (EV) if they serve as habitat for fauna or flora listed as threatened or endangered under the Endangered Species Act of 1973, the Wild Resource Conservation Act, 30 PA.C.S. (relating to the Fish and Boat Code), or 34 PA.C.S. (relating to the Game and Wildlife Code). Under §105.17(1)(ii), wetlands are EV if they are hydrologically connected to or located within one half of a mile of wetlands identified in §105.17(1)(i) and that maintain the habitat of the threatened or endangered species within the wetland identified under subparagraph (i).

Request for information letters regarding threatened and endangered species and their habitat were sent to the Pennsylvania Game Commission (PGC), Pennsylvania Department of Conservation and Natural Resources (DCNR), Pennsylvania Fish and Boat Commission (PFBC), and the United States Fish and Wildlife Service (USFWS) in 2015 and coordination with each agency regarding Project changes was ongoing throughout the Project.

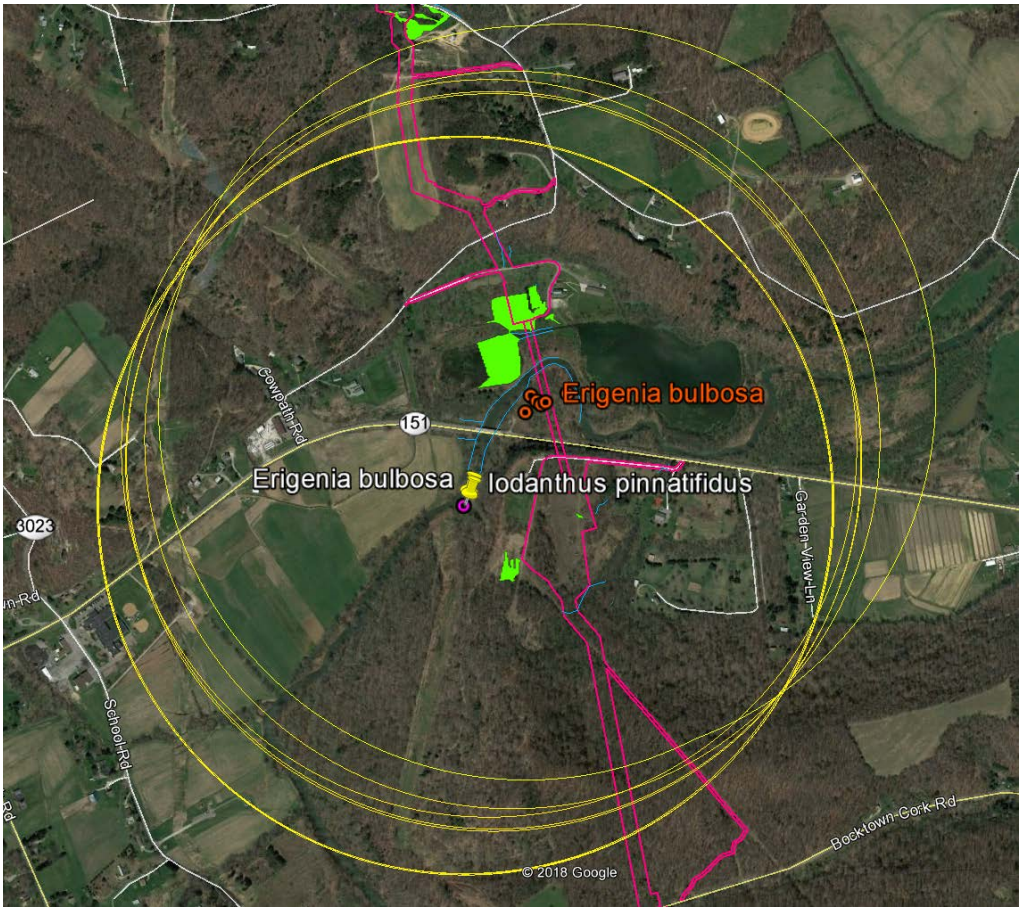
DCNR required a botanical survey for six species of special concern that may be found within the Project Area. Of these six, two were found during the surveys: *Erigenia bulbosa* (harbinger-of-spring) and *Iodanthus pinnatifidus* (purple rocket).

To properly identify EV wetlands, a one-half-mile buffer was drawn around each of the identified plant populations. Four PEM wetlands (W-PA-151014-MRK-001, W-PA-151013-MRK-002, 003, and 004), one PEM/PSS (W-PA-170407-JLK-001), and a PEM/PSS/PFO wetland complex (W-PA-151013-MRK-001) were all delineated within the 300-foot-wide study area located within the half-mile buffer. Additionally, it should be noted that the wetland complex delineated within the Beaver County Conservation District property is part of a larger complex that can be seen on aerial mapping. It was not completely delineated as it was outside of the 300-foot-wide study corridor.

To be considered an EV wetland, the wetland must serve as habitat for any threatened or endangered species. *Erigenia bulbosa* is not listed on the Eastern Mountains and Piedmont or on the National Wetland Plant List, which means it is considered an upland (UPL) plant species and not dependent on wetland habitat for survival. The populations observed in 2016 were in an upland area where *Fallopia sachalinensis* (giant knotweed, UPL) is the dominant species throughout most of the year. The population observed in 2017 was located within a disturbed upland area comprised of a mixture of UPL and facultative upland and wetland plants. Given *E. bulbosa's* UPL status, and its occurrence within upland habitats not dependent upon or hydrologically connected to any wetlands, SPLC, through AECOM, has determined that its presence does not cause any of the wetlands within its vicinity to be EV. This is because *E. bulbosa* does not rely on wetlands for habitat, as understood by its classification as UPL.

***Iodanthus pinnatifidus* is listed as FACW in the Eastern Mountains and Piedmont Regional Plant List; however, The Plants of Pennsylvania lists the habitat for this plant as "moist alluvial woods and wooded slopes." Although it is FACW, this plant is not one that occurs in wetlands. The population observed in 2017 occurred within the same location as the 2017 *E. bulbosa* population, which was a disturbed upland area, comprised of a mixture of UPL and facultative upland and wetland plants. Given *I. pinnatifidus'* typical occurrence in uplands, and its occurrence within upland habitats not hydrologically connected to any wetlands in this Project, AECOM has determined that its presence does not cause any of the wetlands within its vicinity to be EV.**

Please refer to the screenshot below for a pictorial representation of the analysis. The yellow circles represent the buffers around each of the observed plant locations, the green polygons are wetlands, blue lines are streams, and the pink line is the Falcon LOD.



22. *The Comprehensive Environmental Assessment (CEA) in Module SI of your Environmental Assessment makes references to various, other sections of your environmental assessment. Revise your CEA to pull all of this information together, into a comprehensive assessment that analyzes alternatives, impacts, mitigation and antidegradation for all structures and activities associated with the project, in accordance with 25 Pa. Code Chapters 93, 95, 102 and 105, since the proposed project involves water obstructions or encroachments that are located in multiple counties*.

    The items relating to alternatives, impacts, and mitigation from the modules in the Environmental Assessment have been pulled out of their respective modules and sections as required in the EA instructions and combined into a stand-alone Comprehensive Environmental Assessment for all three counties and is included with this response to comment package. Additionally, an anti-degradation analysis has been prepared as an appendix to the CEA.

23. *Related to the preceding item, for projects proposing to impact wetlands, the applicant must assess the cumulative impact of the project and other existing and potential projects, including direct and secondary impacts that are permanent in nature, as required by 25 Pa. Code§§ 105.13(e)(l)(x), 105.18a(a)(6) and 105.18a(b)(6). To address the Chapter 105 cumulative impacts requirements, consider identifying and evaluating other existing and potential projects permanently impacting each wetland resource as follows:*
    a. *Other Existing Permanent Project Impacts - Existing permanent wetland impacts in, along,*

across or projecting into the wetland resource. **A Cumulative Impact Assessment has been prepared for all three counties and is included as an Appendix to the CEA. These impacts are discussed in the document and Tables B-1 and B-2 summarize these impacts**.

b. *Other Potential Projects Proposing Permanent Impacts- Future anticipated permanent wetland impacts in, and along, across or projecting into the wetland resource including:*
   (i) Proposed but not yet built permanent wetland impacts proposed by the applicant; or
   (ii) Other permanent wetland impacts from projects proposed by other entities authorized by valid DEP Chapter 105 Water Obstruction and Encroachment Permits (issued in the last five years, i.e. not expired), but not constructed.

   These items are also discussed in the CIA document. Tables 4.1 and 4.2 summarize potential cumulative impacts from the proposed Project and other projects within the Project Area.

24. *While your project summary indicates that disturbed areas will be seeded and mulched upon placement of the proposed pipeline, revise your mitigation plan to describe, in detail, how you will restore wetlands and streams that are disturbed during construction, pursuant to Section 105.13(e)(l)(ix), of the Department's rules and regulations. This narrative should include details about seed mixes, shrubs and trees that will be used to restore wetland areas, stream banks and riparian corridors. The selected vegetation should be native species, or provide a justification as to why a non-native species is selected*.

Appendix F in the Resource Environmental Solutions (RES) "*Permittee-Responsible Mitigation Plan for the Falcon Ethane Pipeline Project Neshannock Creek Restoration Site"* that was submitted in the original permit application contains the planting plan and wetland enhancement seed mix. Trees and shrubs proposed for planting within the mitigation areas include: black willow, silky dogwood, box elder, common elderberry, buttonbush, winterberry, ninebark, sycamore, swamp white oak, silver maple, and red elm. These are all species that will do well at the restoration site and would be seen in wetlands located in southwestern Pennsylvania. The RES mitigation plan is only for the conversion wetland impacts.

Herbaceous wetland and stream restoration is discussed in detail in the Chapter 102 ESCGP-2 documents. Detail DET01 in the E&S package contains tables listing the species to be planted in both uplands and wetlands. They are native mixes. Ernst Seed's Wetland/Stream Crossing Mix (ERNMX#154) will be utilized at wetland and stream crossings and includes PA Ecotype forbs. Seed mixtures are also listed in Table 2 of the ESCGP-2 permit application.

To facilitate native vegetation restoration, any grading and stump removal conducted within wetlands will be limited to the trench line, except as where required to create a safe and level workspace. Woody stems and trees within the temporary workspace will be cut to no further than ground level and the stumps will be left in place for regrowth.

Wetland topsoil will be stripped and segregated in effort to retain the seed stock and hydric soils. As described in the permit application, all stream crossings will be conducted "in the dry." Substrate will be removed and segregated during construction. Topsoil stockpiles shall be stabilized with temporary seed and mulch as specified in the seed mix tables located within the E&SCP.

Following construction, the segregated material will be returned, and the ground will be returned to its original grade. If it is not the growing season, a temporary seed mix and mulch—as

specified within the E&S plan—will be applied to the site. If winter stabilization is required, permanent stabilization, with the seed mixes listed in the E&S plan, will commence at the beginning of the next growing period. Permanent stabilization may occur after October 15, provided weather conditions are favorable. Fertilizer and lime will not be used in stream or wetland areas. In wetland areas, erosion control blankets will be installed within 50 feet of the wetland, 100 feet if it is an EV wetland. No erosion control blankets will be installed within the wetland boundary.

Following construction, routine vegetation mowing or clearing will be limited to within the permanent 50-foot ROW. No routine vegetation maintenance will be conducted over the centerline between HDD entry and exit points.

25. *Provide a copy of the Mitigation Bank Credit Availability letter from First Pennsylvania Resource, LLC (FPR), which has been signed by a person who has been designated to sign documents, on behalf of FPR, pursuant to Sections 105.l 8a(b)(7) and 105;20a, of the Department's Chapter 105 rules and regulations.*

The permanent wetland and stream impacts have been removed (see discussion in Comment/Response 32c and 32n). As a result, mitigation bank credits are no longer necessary.

26. *To facilitate the Department's review of your mitigation plan, provide a table that lists, describes and quantifies all permanent impacts to wetlands and watercourses, other than those that are associated with utility line stream crossings, pursuant to Section 105.13(e)(l)(ix), of the Department's Chapter 105 rules and regulations. Regarding the proposed utility line stream crossings, include in this table all permanent impacts to wetlands that will result in a permanent conversion of the wetland type*.

There are no permanent fills associated with this project; there will only be permanent conversion impacts. A table listing each of these wetlands separately is located below. Please note that when 37ft^2 and 89ft^2 are converted to acres, it is less than 0.00, which is why the numbers are 0.00 in the table.

Resource	Classification	Impact (ft^2)	Impact (ac)
W-PA-151013-JLK-005	**PFO**	**2,528**	**0.06**
W-PA-161202-MRK-001	**PFO**	**4,624**	**0.11**
W-PA-160404-MRK-001	**PSS**	**3,583**	**0.08**
W-PA-160412-CBA-004	**PSS**	**37**	**0.00**
W-PA-160412-CBA-001	**PSS**	**89**	**0.00**
	TOTALS	**10,862**	**0.25**

27. *Pursuant to Section 105.13(e)(l)(ix), of the Department's Chapter 105 rules and regulations, provide the following information, regarding the proposed Permittee-Responsible Mitigation Plan for the Falcon Ethane Pipeline Project Neshannock Creek Restoration Site:*
    a. *Since the Neshannock Creek Restoration Site includes other existing Permittee-Responsible Mitigation (PRM) sites, modify Figure 2 in Appendix A of your mitigation plan, or provide a table or some other means, to identify these other existing PRM sites and any associated Water Obstruction and Encroachment Permits from DEP*. **Figure 2 in Appendix A has been revised and is included in the revised <u>Permittee-Responsible Mitigation Plan for the Falcon</u>**

<u>Ethane Pipeline Project Neshannock Creek Restoration Site</u> (Plan) included as Attachment J.

b. *Related to the preceding item, provide a master restoration plan for the entire Neshannock Creek Restoration Site and describe how your currently proposed PRM site fits into this master plan. Figures 9 and 10 depict the proposed wetland restoration area with respect to the entire Neshannock Creek Restoration Site*. **The proposed Falcon site will be situated along a ditched watercourse, an existing PRM site, and a wetland enhancement area; existing wetlands will surround the entire Falcon site**.

c. *Demonstrate how your proposed PRM site will replace the functions and values of the wetlands that will be affected by the proposed pipeline project*. **The functions and values are discussed on pages 8 and 9 of the Plan included in Attachment J.**

***Please note that only pages 8 through 17 and Figures 2, and 10 have been revised and are included in this attachment. Please replace the original submitted documents with these revised documents. ***

28. *To facilitate the Department's review of the "Shell Pipeline HDD Procedure" document, dated September 2017, provide the location and resource crossing number for the "List of HDDs," in PA, that are listed on page 1 of this document, or provide some way to cross reference this list with the aquatic resource impacts tables, pursuant to Section 105.14(b)(6) and 105.301(10) of the Departments Chapter 105 rules andregulations.*

Beaver County has nine HDDs, SCIO-05, 06, and 08 and HOU-08 through HOU-13. HDD HOU-13 does not impact any resources. A table showing Resource Crossing Number, Resource Name, and HDD Number is provided below.

RC #	Resource Name	HDD Number
5	S-PA-151015-JLK-001	SCIO-08
	W-PA-180618-MRK-001	
9	S-PA-160316-CBA-002	SCIO-04
24	W-PA-151105-MRK-002	SCIO-05
43	S-PA-151123-JLK-003	HOU-11
62	W-PA-160504-CBA-001	HOU-12
63	NWI-1	
64	S-PA-151015-MRK-005	
66	S-PA-151118-JLK-001	HOU-08
74	S-PA-151013-MRK-001	HOU-09
75	S-PA-151013-MRK-002	
	W-PA-151013-MRK-003*	
90	S-PA-151204-MRK-003	HOU-10

***partially located within HDD**

29. *Related to the preceding item, revise your "Shell Pipeline HDD Procedure" document to include*

such items as an HDD site feasibility analysis, inadvertent return risk assessment, water supply protection, agency contact information, etc., pursuant to Sections 105.14(b)(6) and 105.301(10) of the Departments Chapter 105 rules and regulations. The preceding list is not all inclusive, but lists some of the items that should be addressed in your document. The Department is available to meet with you, to discuss the content of your document.

The "Shell Pipeline HDD Procedure" has been revised to include a feasibility analysis and risk assessment. It also includes a letter of professional opinion, an alternative construction method analysis, water supply monitoring plan, geotechnical investigation reports, notification and drilling resumption protocol, and tactical response plans. It is now titled "Inadvertent Returns from HDD: Assessment, Preparedness, Prevention and Response Plan." It has been included as part of this submission.

30. *Related to the preceding item, a stand-alone attachment should be created to address the pre-boring geologic evaluation of the existence and potential to impact local drinking water supplies or aquifers around the boring location, pursuant to Sections 105.13(e)(l)(x), 105.14(b)(5) and 105.301(10)of the Department's Chapter 105 rules and regulations. The plan needs to include what measures will be employed to verify that no supplies or aquifer are impacted (i.e. pre- and post-water quality quantity analysis). The plan should specify what notifications and remediation measures will be employed if there are impacts*.

    A Water Supply Plan is included as an Appendix to the "Inadvertent Returns from HDD: Assessment, Preparedness, Prevention and Response Plan" provide as part of this submission.

31. *Evaluate and discuss the potential for your proposed project to encounter areas underlain by a) carbonate bedrock (i.e. areas susceptible to sinkhole formation) and b) landslide prone areas, during construction. Evaluate and discuss precautions and construction methods that will be utilized during construction, where these areas will be encountered, pursuant to Section 105.14(b)(l 1) of the Department's Chapter 105 rules and regulations*.

    The "Slope Stability Investigation and Mitigation Plan" and the "Carbonate Rock Analysis" have been prepared as stand-alone documents and are included with this response to comments package.

32. *Pursuant to Sections 105.13(e) and 105.13(e)(l)(i, iii, viii & x), of the Department's rules and regulations, provide the requested information or evaluate and discuss the feasibility of*:

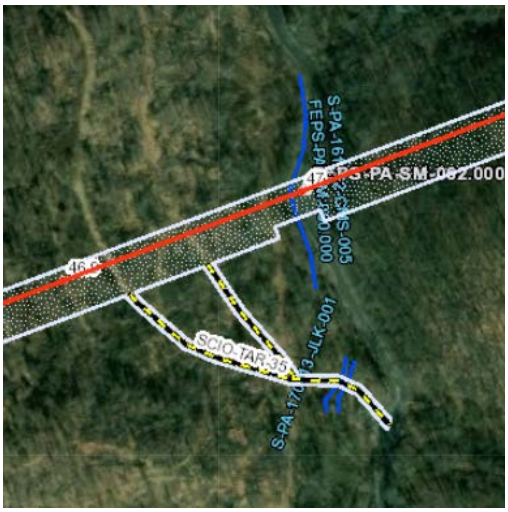
    a. *Avoiding impacts to W-PA-160517-MRK-002 at RC-10.*
    The Project was routed in this location for several reasons. There was a large PFO/PSS wetland complex (the orange, green, and purple polygon in the screenshot below) to the north of the township road west of SR-168. This road is labeled as SCIO-TAR-33 in the screenshot below; however, this is an existing public road that leads to several residences. Additionally, another pipeline is located parallel to the road (red and yellow dashed line in the screenshot). Per PennDOT requirements, the Project needs to cross SR-168 at a location with a good sight distance and at as close to 90 degrees as possible; extra workspace is required at the road for the equipment. To the south of the proposed alignment is the Hookstown Grange and several overhead electric lines (yellow lines in the screenshot below).

To shift the centerline at the Route 30 crossing north to minimize impact to W-PA-160517-MRK-002, the overhead electric lines will need to be moved and the two affected landowners and PennDOT will need to agree to the change. SPLC Land has initiated discussions with all parties involved and coordination is still ongoing. If this change can be made, it will be submitted as a permit amendment.

b. *Relocating SCIO-TAR-35 to avoid impacts at RC-18.*

SCIO-TAR-35 follows an existing logging road that originates off of Pole Cat Hollow Road, then it splits into two separate roads, as seen by the aerial signature in the screenshot below. This access road was chosen because a truck could drive up one side, turn around within the LOD, and drive back down the other road, not requiring additional workspace; therefore, tree and land clearing would be reduced.

The existing access road crosses the stream at an existing ford, as seen in the two photographs below. The stream will be matted to allow vehicles to cross during construction and the mats will be removed following construction. The pipeline does cross Pole Cat Hollow Road further north; however, this crossing is not safe for large equipment as the road is very narrow in steep at this location. Given the condition of the stream at the proposed access road crossing, and the fact that existing access roads will be utilized, this is the best location for this access road.



c. *Moving valve site outside of wetland boundaries at RC-20. If able to demonstrate that this is not feasible, revise site plan drawing to show cross section. Demonstrate that sufficient hydrology will remain to sustain the restored wetland area(s).*
Per discussions in the field with PADEP and USACE on May 15, 2018 and subsequent discussions with landowners, the mainline valve site has been moved out of the wetland and across the road to a location outside of aquatic resources. The revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.

d. *Revise Plan View Map, Sheet 13 of 54 to include W-PA-161220-MRK-007 at/near RC- 22*.
Sheet 13 of 54 has been revised to include W-PA-161220-MRK-007. The revised Plan View Map is included as Attachment C.

e. *Provide cross section for RC-27; if pond, evaluate and discuss potential impacts to this resource.*
W-PA-151104-MRK-002 at RC-27 was delineated as a PUB due to the presence of open water approximately two feet deep and lack of vegetation. It was formed when an access road was constructed causing an intermittent stream to back up and forming a small pond. The wetland will be open cut and the wetland will be temporarily dewatered; however, the pipe will be placed five feet below the bottom of the wetland so that the wetland will not be permanently dewatered. The pond will be refilled following construction. The site-specific drawing has been revised to include a cross section and is included as Attachment K.

f. *Adjusting route away from confluence of streams at RC-35*.
The Project is paralleling an existing Peoples Gas line throughout this area. The Peoples Gas line is represented by the red and yellow dashed line in the screenshot below. The line cannot shift southeast to move away from the confluence because it is cannot be any closer to or crisscross the Peoples Gas line. This is due to Peoples' requirements and the risk of exposing the line on the steep side slope during construction. The slope is very steep along this portion of the route; the civil-surveyed contours are displayed in the screenshot below. The Project cannot shift northwest because it would be more difficult to construct based on the topography. The LOD was reduced however to lessen impact to the two streams. The revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.

g. *Eliminating HOU-TAR-50 and impacts at RC-38 to 42, due to proximity of SCIO-PAR-09*.

HOU-TAR-50 was originally added to the permit because the majority of SCIO-PAR-09 is the landowner's driveway and the landowner did not want heavy equipment on his driveway because it would damage the driveway. SCIO-PAR-09 was to be utilized to take small equipment/trucks to the junction site while HOU-TAR-50 was to take large equipment to the Project area.

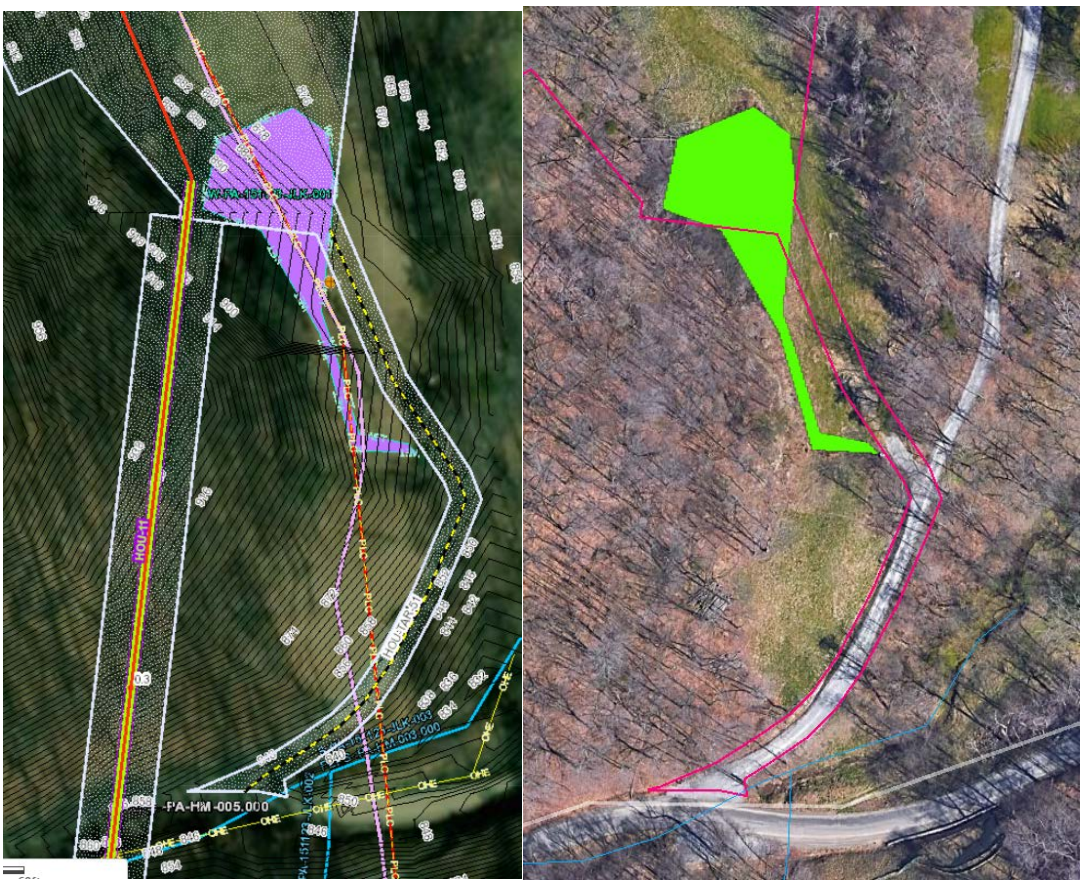
After receiving this comment, the SPLC Land group went to the landowner to negotiate removing HOU-TAR-50. The landowner agreed, however, SPLC has added a small access road (SCIO-TAR-39) that follows an existing logging road from SCIO-PAR-09 to the LOD around Scio MP 51.2, as seen in the screenshot below.

This new access road was located within an area that had been previously delineated and contained no resources. Additional cultural resources work needed to be done however to clear the area. The revised plan view mapping is provided in Attachment C and the ESCGP-2 drawings have also been revised to reflect this change and are included with this response to comment package.

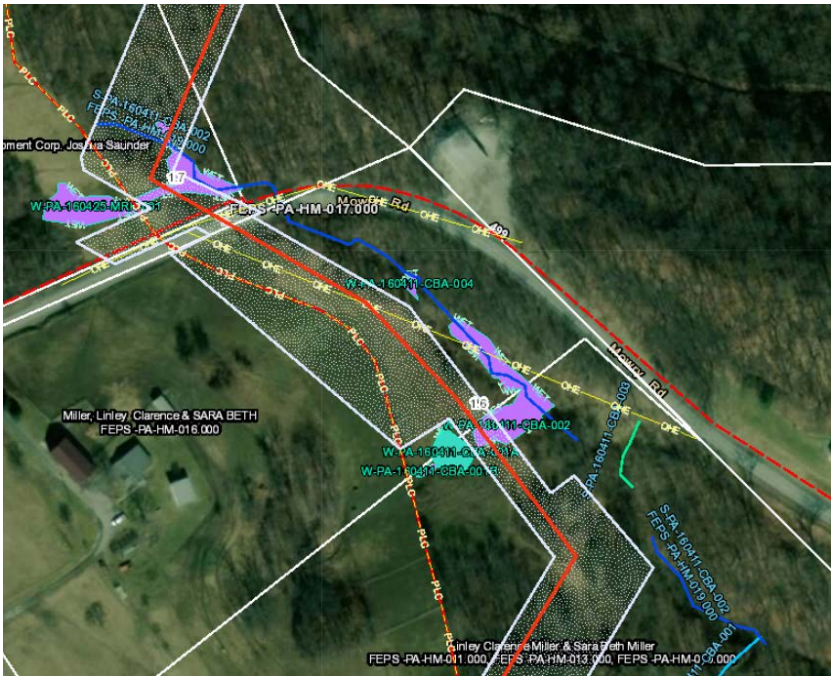
h. *Eliminating HOU-TAR-51 and associated impacts at RC-43 and 44*.

This is an access road that MarkWest utilized while constructing Mariner West (the pink line in the first screenshot). The northern most part of it had been restored during the ROW restoration. The road is more easily seen in the second screenshot taken from Google Earth. This road is necessary to access the HDD entry point from Moffett Mill Road. By utilizing an existing road, less earth disturbance and tree clearing is required. There is a road approximately 0.4 mile to the north of this workspace; however, it would not be ideal to track HDD equipment from there due to the narrow access point and the steep terrain between the two points. Utilizing HOU-TAR-51 is the best option to access this HDD entry point. Additionally, given the location of the Mariner West line and a Sunoco pipeline (red and

yellow dashed line in second screenshot) and that the Project is paralleling this ROW, this is the best place for the HDD entry location and as a result, that cannot be moved.

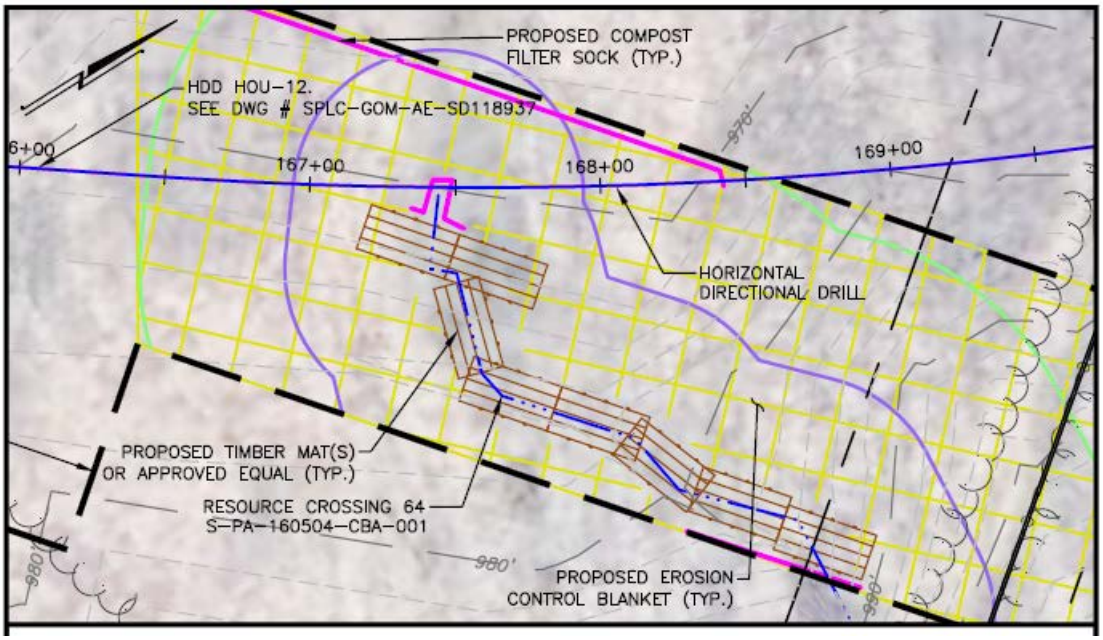


i. *Adjusting route to avoid or minimize impacts at RC-48 to -50*.
The LOD was narrowed along the route here to reduce the impact. A "three-joint drag section" method will be utilized for constructing in such a narrow corridor. This is not a desirable construction method because it is essentially a travel lane and not a full construction corridor. The centerline could not be shifted further away from the stream due to the location of the Sunoco pipeline (red and yellow dashed line in screen shot below). Also, an overhead electric line (yellow line) was present and electric companies have specific stipulations as to where a pipeline can be located with respect to their ROW and their power poles. The revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.



j. *Eliminating HOU-TAR-53 & impacts at RC-51 to -55, due to proximity of HOU-TAR- 52 & 54*.
HOU-TAR-53 has been removed from the Project. However, it was necessary to create a small turn-around area for construction vehicles given the narrow travel lane associated with HOU-TAR-54. The turn-around area was located within the original delineation survey area and no resources were present. Additional cultural resources surveys needed to be conducted; no resources were found. Revised ESCGP-2 drawings are provided with this response to comment package and a revised Plan View Map is included in Attachment C.

k. *Reducing impacts to S-PA-160504-CBA-001at RC-64*.
S-PA-160504-CBA-001 is located within the pullback area for HDD HOU-12 (see first screenshot below), which is the HDD across Raccoon Creek. Given the very steep slope and location of HDD HOU-13 (which is the entrance to the Plant) this was the only feasible location for this HDD. The stream will not be open-trenched in this area. The impact will be due to the timber mats placed on top of the stream to prevent equipment from entering the stream. The large floodway impact is due to the erosion control blanket that is placed in the upland area within this workspace. These impacts can be seen on the site-specific drawing for RC-64. A screenshot of this drawing is also provided below. Impacts to the S-PA-160504-CBA-001 and its floodway are already minimized to the greatest extent practicable by covering the watercourse with timber matting and minimizing erosion in the floodway area.



l. *Provide cross section & evaluate and discuss potential impacts to this pond at RC-67.*
W-PA-151124-JLK-003 was delineated as a PUB based on the presence of open water approximately three feet deep and lack of vegetation. This is a man-made, excavated pond that drained to a stream outside of the study area. The wetland will be open cut; however, the pipe will be placed five feet below the bottom of the wetland so that the wetland will not be permanently dewatered. The pond will be refilled following construction. The site specific has been revised to include a cross section and is included as Attachment K.

m. *Moving HDD entry out of W-PA-15013-MRK-003 at RC-74.*
This HDD entry location was discussed at length with the PADEP and USACE during the May 15, 2018 field view. This HDD section was planned due to the need to cross Raccoon Creek, Bocktown Road (State Route 151), an extremely steep slope south of Bocktown Road, an unnamed tributary to Raccoon Creek and a large PEM wetland in the Beaver County Conservation District. Raccoon Creek is known to have threatened and endangered mussel species. The USFWS required Raccoon Creek to be crossed via a trenchless method to avoid impact to any listed mussel species. Due to that, the USFWS's requirement, and the sheer grade south of Bocktown Road, any combination of other construction methods would be infeasible at this location.

The total length of this crossing is planned to be approximately 1,351 feet. The Entry point is planned to be approximately 880 feet Northwest of State Route 151, in a flat-lying wetland area adjacent to the Beaver County Conservation District (at the nearest practical location to the wetland area for HDD operations) at an elevation of approximately 811 feet. The Exit point is planned to be approximately 400 feet Southeast of State Route 151 (at the nearest practical location on the ridgetop based on the required curvature radius and slope cover) at an elevation of approximately 876 feet. Both the entry and exit angles are planned to be 15 degrees. The planned bore profile begins with a 40-foot entry tangent before reaching the 1,200-foot curved radius, the curved radius passes approximately 32 feet beneath a portion

of Raccoon Creek before meeting the bottom tangent. The bottom tangent is planned to be 416 feet long and passes beneath Raccoon Creek at approximately 41 feet. The second bend is also planned for a radius of 1,200 feet and passes beneath State Route 151 at an approximate depth of 40 feet before reaching the 89-foot exit tangent and reaching the surface at the exit point.

Three Geotechnical borings were drilled for this crossing. HOU9-01 was located approximately 150 feet Southeast of the entry point in front of Raccoon Creek, HOU9-02 was located on the other side of Raccoon Creek near State Route 151, and HOU9-03 was located on the other side of State Route 151 approximately 250 feet Northeast of the exit point. HOU9-01 encountered only alluvial and residual soils. HOU9-02 encountered soils of fill, alluvial, and residual origin. HOU9-03 encountered only fill and residual soils. Depth of bedrock ranged from 16.1 to 22.4 feet. Bedrock consisted primarily of interbedded sandstone, siltstone, shale, and claystone with very minor amounts of conglomerate. Total Recovery for the rock encountered was 97% from HOU9-01, 99% from HOU9-02, and 99% from HOU9-03. Rock Quality Designation (RQD) values were 57% for HOU9-01, 32% for HOU9-02, and 47% for HOU9-03. Tested compressive strength values do not appear to require mitigation measures for abnormally hard rock.

The boring samples revealed non-plastic nature of one of the five soil samples collected. The non-plastic nature of the soils encountered can pose difficulties to the success of an HDD bore by creating potential for caving or inadvertent returns. Mitigative measures may include the use of casing to stabilize the non-plastic soils areas until the drill path enters more substantial subsurface material.

The proposed bore profile may encounter cohesionless, alluvial soils from the entry point to approximately 100 feet south into the profile. These soils may have difficulty providing fluid return. The use of conductor casing in this area should be considered, particularly due to the environmentally sensitive nature of the entry area and the proximity to the Beaver County Conservation District. This geotechnical soil data will be reviewed with the HDD contractor, and the mitigative measures will be reviewed with the HDD contractor prior to the construction of the HDD. For more information on the Geotechnical bore results, see the HOU-09 Subsurface Investigation Letter Report, included as Appendix D of the "Inadvertent Return from HDD: Preparedness, Prevention and Response Plan".

The geotechnical investigation revealed the entry point is located directly above a steep road cut and rock outcrop. The entry point is relatively flat lying and no landslide hazards are imminent in the immediate area. This area may be susceptible to rock fall, however, there is no hazard to an HDD operation in this immediate area.

Two private water wells were identified within 450 feet of this HDD alignment. Well 1389N was located 58 feet away and an unnamed well was located 402 feet away from this HDD alignment. In accordance with the Water Supply Monitoring Plan, both wells will be monitored and mitigated if damaged. The location of the well is identified in the Water Supply Monitoring Plan, included as Appendix C of the "Inadvertent Return from HDD: Preparedness, Prevention and Response Plan".

Due to the sensitive nature of the location of the finalized HDD entry and exit location and bore path, a combination of alternative HDD and conventional bore alternatives were analyzed. The alternatives are provided in the Drawings section of this report; a depiction

of the three alternatives reviewed are depicted on Drawing 1 in Attachment M. A summary of these alternatives are as follows:

– **Alternative A**

- **This alternative reviewed the extension of the north/entry side of the HDD to be moved to the opposing ridge top (See Drawing 2). The issues arising from this alterative are:**
  - **Inaccessible Entry Site location that would be set on an extremely steep slope that has a high potential for landslides.**
  - **Impracticable entry angle of the HDD at 22 degrees.**
  - **Lack of pullback room on the exit site.**
  - **High potential IR location on the entry bore tangent**
  - **Due to these design issues, Alternative A is not feasible.**

– **Alternative B**

- **This alternative reviewed the potential of an HDD crossing of Raccoon Creek on (Alternative B1) and then crossing PA 151 via conventional bore and then traditional trench construction to milepost 25.6 (See Drawings 3 and 4). The issues arising from this alterative are:**
  - **The borepath for B1 would need to be shallow within the floodplain of Raccoon Creek. Boring HOU-09-01 indicates that the boring would need to be cased; anticipate needing to be cased the first 800 feet, which is infeasible.**
  - **The conventional bore B2 of 151 would need to be situated in the wetland area north of 151 (Drawing 4)**
  - **Would require an additional stream impact for trench crossing**
  - **Would require the trenched crossing of Cowpath Road which would impact local landowners and the BCCD operations.**
  - **Trenching would go through two portions of the emergent wetland situated on the upstream side of the BCCD site.**
  - **Would require trenching along approximately 700 feet of an approximately 50% slope that is landslide prone. Instability of this slope could cause potential closure of Cowpath Road.**
  - **Due to these design issues, Alternative B is not feasible.**

– **Alternative C**

- **This alternative reviewed was similar to Alternative B, but performance of the PA 151, wetland and Cowpath Road (See Drawings 5 and 6). The issues arising from this alterative are:**
  - **The borepath for C1, like the B1 alternative, would need to be shallow within the floodplain of Raccoon Creek. Boring HOU-09-01 indicates that the boring would need to be cased; anticipate needing to be cased the first 800 feet, which is infeasible. (Drawing 5)**

- **The entry site for C2 will also have to be cased for approximately 900 feet due to the same issues of potential IR in the wetland and floodplain areas.**
- **High mud pressure to complete the boring to the top of the ridge will greatly increase the potential of IR in the wetland and stream**
- **Pullback for the string will be located on a steep side slope that has a high potential for landslide**
- **Due to these design issues, Alternative C is not feasible.**

Based on the geotechnical report, the alternative routing review, and the drill profile and design, there is potential for inadvertent returns at this location. Given the design and implementation of mitigation measures, the threat of an inadvertent return has been reduced to the maximum extent practicable. Implementing this design along with mitigative strategies and adherence to SPLC's HDD IR Contingency Plan will ensure that inadvertent impacts, if they were to occur, are minimized to the maximum extent practicable.
In short, HDD is the most feasible and preferable method for HDD HOU-09 in light of:

(1) the infeasibility of the other methods,
(2) the presence of private and public roadways,
(3) the presence of sensitive waterways and wetlands habitats,
(4) the potential for landslides,
(5) the limitation of alternative routes, and
(6) the inability to perform a trenched crossing of Raccoon Creek

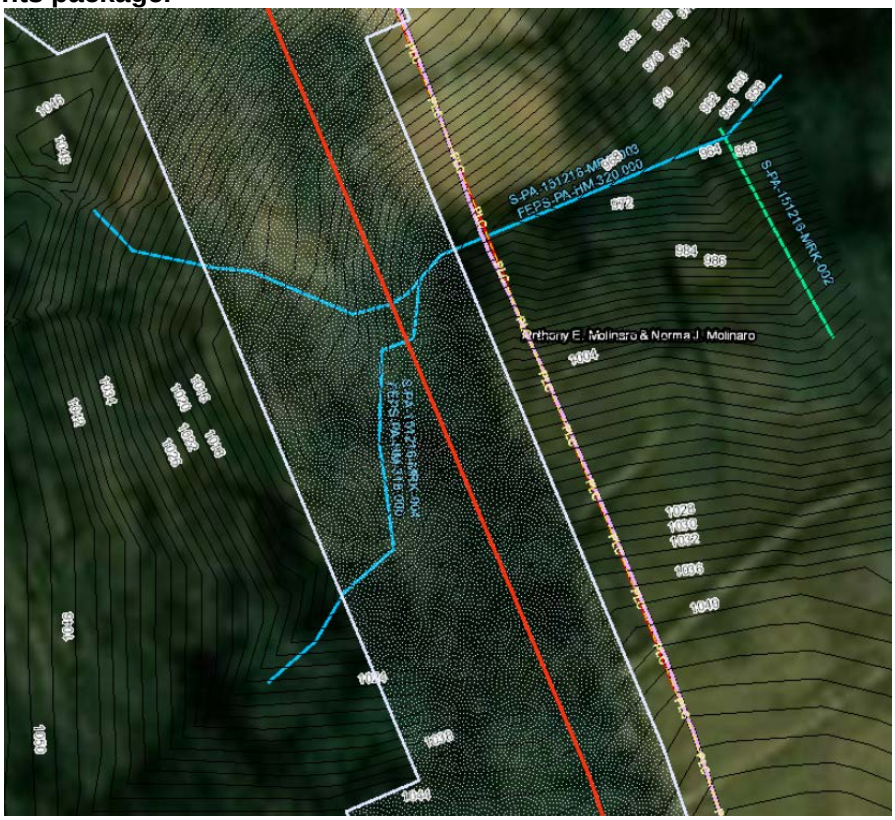
n. *Moving valve site from S-PA-151013-MRK-004 at RC-75.*
It has been determined that S-PA-151013-MRK-004 is no longer a watercourse because it no longer has a hydrology source. The watercourse was originally formed when a culvert became damaged along Cowpath Road, upslope of the Beaver County Conservation District BCCD property. Over time, runoff from the road flowed down the slope onto BCCD property because it could not flow down Cowpath Road due to the broken culvert. The water carved a drainage with sufficient bed and bank that the AECOM wetland scientists delineated it as an ephemeral watercourse.

The BCCD informed the PADEP, USACE, and Falcon team during the site visit on May 15, 2018 that the watercourse was not always there and had been formed because of the broken culvert. BCCD suggested that the team contact Independence Township for further information. The township was contacted, and the municipal clerk stated that on July 10, 2017 the Independence Township Road Department added 15 feet of 18-inch culvert to Cowpath Road to fix the drainage problem. As a result, this channel is no longer receiving hydrology. Given that, it was reclassified as an upland swale. As a result, the valve site does not need to be removed because it is no longer causing a fill. The revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.

o. *Increasing amount of timber mat over W-PA-151013-MRK-005 at RC-76.*
Additional timber mats have been added to protect W-PA-151013-MRK-005. The revised site-specific drawing is provided in Attachment L and revised E&S drawings are provided in the updated E&SCP included with this response to comments package.

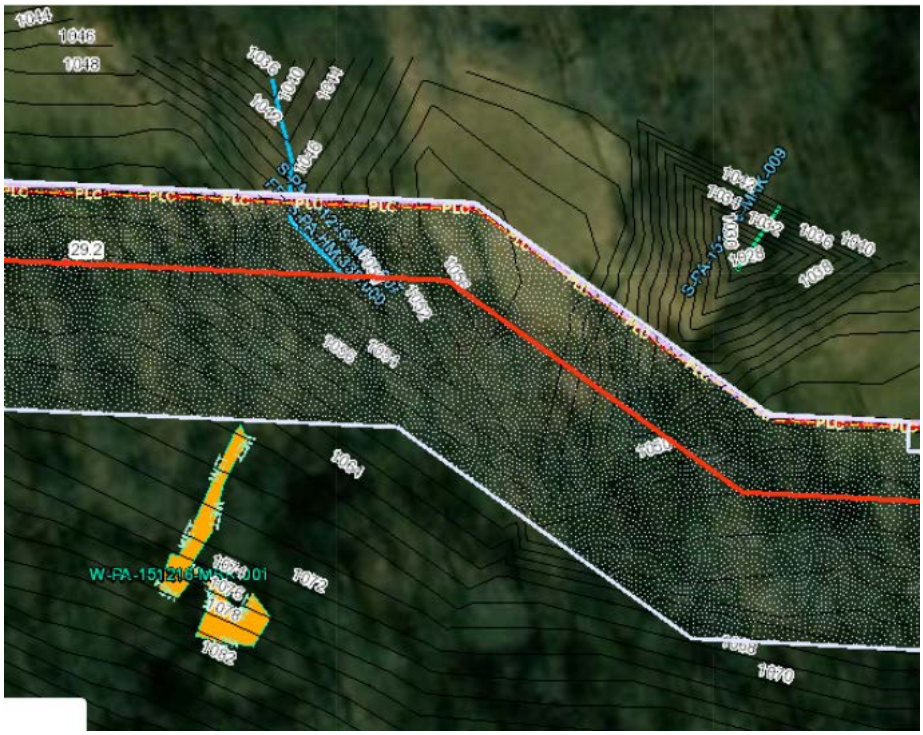
p. *Identify or provide additional info regarding the discharge to be relocated by others at RC-76*.
There is no discharge to be relocated by others at RC-76. It was determined that this was a typo and the letter should have read RC-75. The discharge to be relocated by others at RC-76 was in reference to the broken culvert on Cowpath Road causing water to be discharged over the hillside. Given that this culvert has been repaired, there is no longer a discharge and that note has been removed from all drawings.

q. *Adjusting route away from confluence of streams at RC-88*.
The Project is paralleling an existing ROW containing two Sunoco pipelines, including the Mariner West line (as seen in the screenshot below). As a result, it cannot shift any more to the east as it cannot crisscross the pipelines or risk exposing the other pipelines on a steep side slope. Shifting the line west would make for more difficult construction due to the steep side slopes associated with crossing two drainages that are located close together. As a result, the route could not be changed here; however, the LOD was necked down to reduce impact to both streams. The revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site- specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.



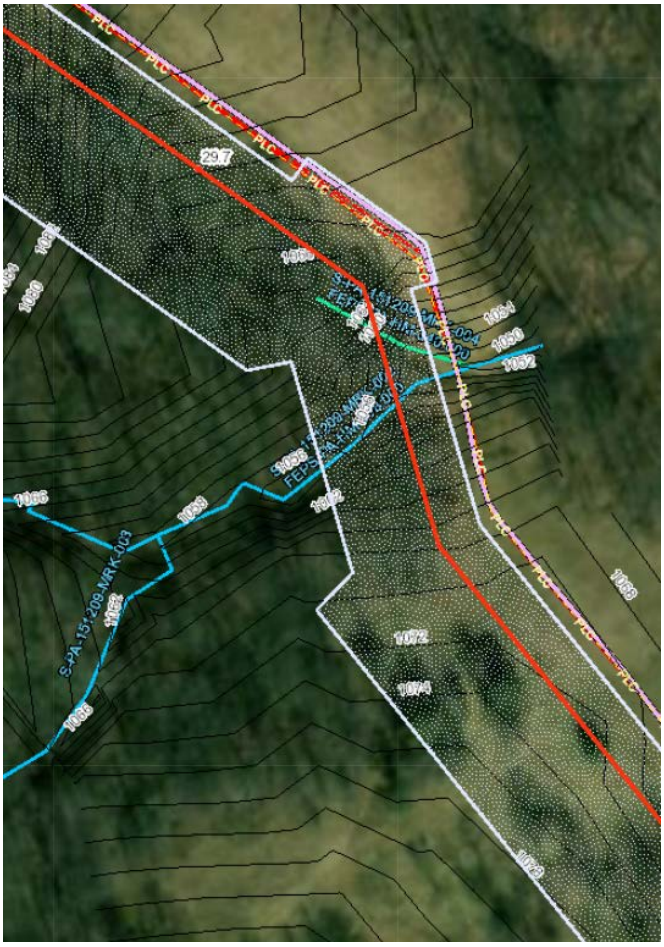
r. *Adjusting route to avoid impacts at RC-91 and-92*.
The Project is also paralleling the two Sunoco pipeline Sunoco and Mariner West ROW in this location (see screenshot below). As a result, the Project cannot shift further northeast due to the risk of exposing either line to side slope issues and to avoid

crisscrossing the pipelines. Shifting the line to the south would impact a PSS wetland. The LOD cannot be notched in to avoid 19ft^2 floodway impact to S-PA-151216-MRK-009 because that is the pipe side of the ROW and that workspace is necessary for construction.



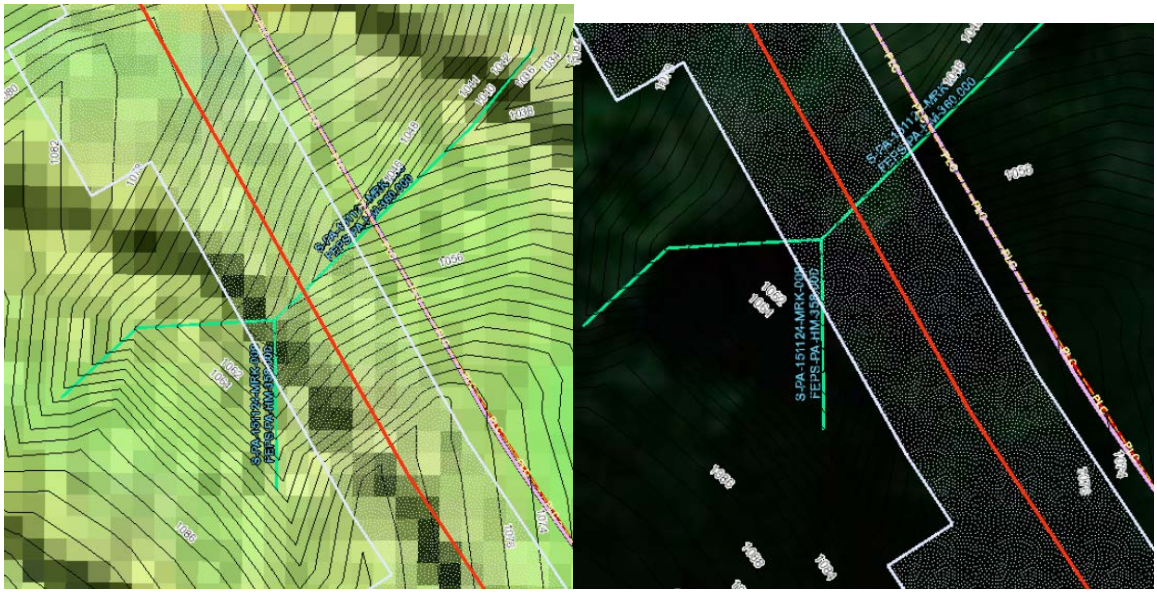
s. *If unable to adjust route at RC-91 & -92, adding trench plugs at one stream crossing location*.
The E&S drawing was incorrect; trench plugs have been added. The revised Site-Specific Drawing is included in Attachment L and the revised E&S drawing is provided in the enclosed E&SCP.

t. *Adjusting route away from confluence of streams at RC-96*.
The route again parallels the Sunoco and Mariner West ROW, as seen in the screenshot below; therefore, it cannot shift east. As it is shifted west, it becomes more steep and difficult to construct. Additionally, it pushes the line into another confluence area. As a result, this is the best location for the line. The LOD was necked down however to reduce impact to the intermittent stream. Given that the ephemeral stream is located on the pipe side of the LOD, it cannot be necked down any further.

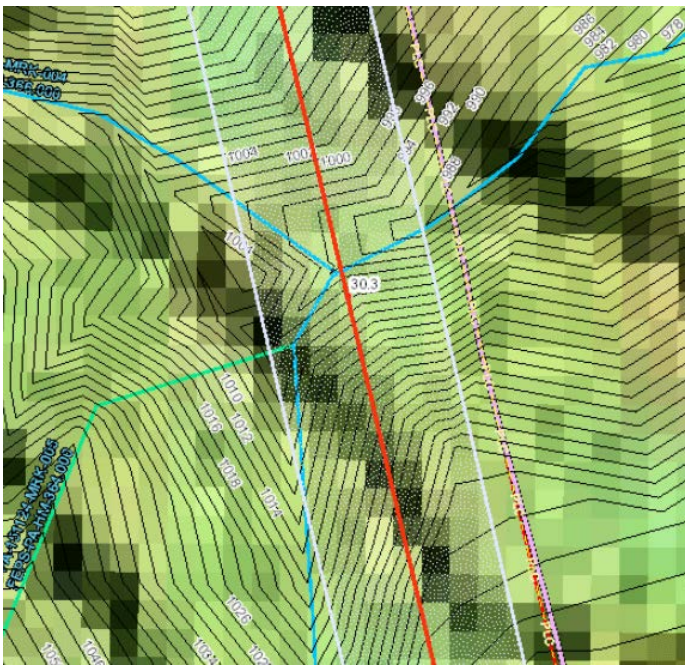


u. *Adjusting route away from confluence of streams at RC-101.*

Again, the Project is routed along the Mariner West and Sunoco line, as seen in the screenshots below. The route here however was not as steep in as in some of the previous locations so the LOD was able to be reduced to 50 feet and a four-joint drag section will be employed during construction. This is typically not ideal as it reduces the construction ROW to essentially a travel lane, however, in certain circumstances it can be accomplished safely. The revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.



v. *Adjusting route to avoid/minimize timber mat crossings at confluence of streams at RC-102.*
This is a similar situation to Comment/Response u. The route has been adjusted and the revised plan view mapping is provided in Attachment C, the revised impact table is included as Attachment D, and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.



w. *Revise LOD Line on Photo Location Map, Sheet 29 of 54 and Plan View Map, Sheet 29 of 54?*
The LOD at the meter site at the Plant connection point has been revised to the most current LOD. The revised Plan View Map is provided in Attachment C and Sheet 29 of 54

of the Photo Location Map is provided as Attachment N.

Additional LOD Changes

Between HOU-TAR-41 and TAR-42 there is about a 1.5-mile gap located within difficult terrain. As a result, another temporary access road needed to be added so that construction could better access the ROW. There is an existing dirt road that the landowner utilizes so that was chosen to be the new road, HOU-TAR-41.01. However, there are two PEM streams and an intermittent stream that cross the road and will be temporarily impacted with timber mats. Revised plan view mapping depicting the new road is provided in Attachment C, the revised impact table is included as Attachment D (crossings 78A, 78B, and 78C), and revised site-specific drawings are included as Attachment L. Revised E&S drawings are provided in the updated E&SCP included with this response to comments package.

All the changes that have occurred since the September 15, 2017 submission are highlighted in dark yellow on the Impact Table in Attachment D.

33. *As you are proposing to withdraw water from streams for hydrostatic testing, and then propose to discharge the water after use, please provide a detail or typical drawing of both the intake and the outfall measures, so DEP can determine whether these are temporary or require inclusion as impacts, pursuant to Sections 105.14(b)(6) and 105.24(a), of the Department's Chapter 105 rules and regulations. Also provide an approximate location of with withdraw and discharge locations. It should be noted that you will be required to obtain authorization from DEP's Clean Water Program for these discharges. Provide documentation that you have initiated this process. You may contact Mike Fifth, Environmental Engineering Manager, Clean Water Program at 412-442-4000 or mfifth@pa.gov.*

A detail of the intake and outfall is included as Attachment O. Water will be withdrawn from Raccoon Creek and the Ohio River in West Virginia. It is understood that a PAG-10 permit is required for hydrostatic test water discharge. A PAG-10 permit was submitted to Mr. Mike Fifth on July 27, 2018. The permit contains information on where the water will be withdrawn and discharged. Delivery confirmation can also be found in Attachment O.

34. *In addition to your "Shell Pipeline HDD Procedure" document, provide a copy of your Preparedness, Prevention and Contingency (PPC) Plan for your pipeline project, pursuant to Section 105.l4(b)(6) of the Department's Chapter 105 rules and regulations*.

The PPC plan is included with this comment/response package, and was originally submitted with the ESCGP-2 application.

35. *Changes or modifications to this application and supporting documentation will need to also be reflected in the narrative and drawings for the Chapter 103 permit application (DEP File No. ESG00007170003), pursuant to Section 105.14(b)(6) of the Department's Chapter 105 rules and regulations*.

The narrative and drawings for the ESCGP-2 package have been updated and are being submitted under separate cover. The drawings are being submitted as part of this response to

If you have any questions or need additional information, please do not hesitate to contact me at 412-503-4595 or natalie.shearer@aecom.com.

Yours sincerely,

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