

**Attachment P-1
Resource-Specific Avoidance and Minimization Measures
Northumberland County**

Resource Type (Stream or Wetland)	Resource Name	Resource ID	MP	Chapter 93 Classification, Wetland Classification	Stream Type (Perennial, Intermittent, Ephemeral)	Stream Trout Status (Class A Wild Trout, Wild Trout, Trout Stocked)	Cowardin Classification	Limits of Disturbance (LOD) Adjustments (Supporting Information for Technical Deficiencies #29 and #51)	Field Routing Adjustments within 600-foot Wide Corridor (Supporting Information for Technical Deficiency #15)*
Stream	UNT to Mahanoy Creek (WW-T44-10002C)	WW-T44-10002C	83.37	WWF, MF	Perennial	None	R3	LOD has been reduced to 90' to minimize impacts to WW-T44-10002C.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T44-10002C, and to avoid residences east of the LOD.
Stream	Mahanoy Creek (WW-T01-10001)	WW-T01-10001	83.39	WWF, MF	Perennial	None	R3	Full construction ROW width is needed to safely and efficiently cross this wide stream.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T01-10001, and to avoid residences east of the LOD.
Wetland	N/A	W-T18-10001	83.42	None	N/A	N/A	PEM	LOD has been reduced to 75' to minimize impacts to W-T18-10001.	The pipeline was routed in this location to provide a perpendicular crossing of wetland W-T18-10001. Avoidance of this wetland was not feasible due to the linear nature of the wetland, extending east and west beyond the routing corridor.
Stream	UNT to Shamokin Creek (WW-T04-10002)	WW-T04-10002	85.45	WWF, MF	Intermittent	None	R4	LOD has been reduced to 90' to minimize impacts to WW-T04-10002.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T04-10002.
Stream	Shamokin Creek (WW-T04-10001)	WW-T04-10001	M-0240 0.20	WWF, MF	Perennial	None	R3	Full construction ROW width needed to accommodate PI's located on either side of this wide crossing, and due to adjacent steep topography and railroad crossing.	The pipeline was routed at this location to facilitate a crossing of the adjacent state highway and railroad, while avoiding a residence on the south side of the routing corridor.
Stream	Quaker Run (WW-T18-10002)	WW-T18-10002	86.60	CWF, MF	Perennial	None	R3	LOD has been reduced to 90' to minimize impacts to WW-T18-10002.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T18-10002 and the adjacent road.
Wetland	N/A	W-T56-10001A-1	M-0235 0.35	None	N/A	N/A	PEM	LOD has been modified to eliminate impacts to W-T56-10001A-1.	This feature is no longer impacted based on LOD reductions.
Stream	UNT to Quaker Run (WW-T68-11001B)	WW-T68-11001B	M-0372 0.11	CWF, MF	Ephemeral	None	R6	LOD has been reduced to 90' to minimize impacts to WW-T68-11001B.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T68-11001B.
Stream	UNT to Quaker Run (WW-T68-11001)	WW-T68-11001	M-0372 0.13	CWF, MF	Intermittent	None	R4	LOD has been reduced to 90' to minimize impacts to WW-T68-11001.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T68-11001.
Stream	UNT to Quaker Run (WW-T68-11001A)	WW-T68-11001A	M-0372 0.13	CWF, MF	Ephemeral	None	R6	LOD has been modified to eliminate impacts to W-T68-11001A.	This feature is no longer impacted based on LOD reductions.
Stream	Coal Run (WW-T58-11001)	WW-T58-11001	M-0235 1.15	CWF, MF	Intermittent	None	R4	LOD has been reduced to 90' to minimize impacts to WW-T58-11001.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T58-11001.
Wetland	N/A	W-T44-11001C	88.83	EV	N/A	N/A	PFO	LOD has been reduced to 75' to minimize impacts to W-T44-10001C.	The pipeline was routed at this location to cross the narrowest section of the wetland, and along the wetland margin.
Stream	UNT to South Branch Roaring Creek (WW-T44-11002)	WW-T44-11002	88.89	HQ-CWF, MF	Perennial	Approved Trout Waters, Wild Trout Waters	R3	LOD has been reduced to 90' to minimize impacts to WW-T44-11002.	The pipeline was routed at this location to avoid side slope construction.
Wetland	N/A	W-T44-11001A-2	89.08	EV	N/A	N/A	PEM	LOD has been reduced to 75' to minimize impacts to W-T44-10001A-2.	The pipeline was routed at this location to avoid side slope construction.

Wetland	N/A	W-T44-11001A	89.10	EV	N/A	N/A	PEM	This wetland encroaches within the western portion of the LOD only, and this portion of the LOD was reduced by 10' to minimize impacts to W-T44-11001A.	The pipeline was routed at this location to avoid side slope construction.
Stream	South Branch Roaring Creek (WW-T47-11002)	WW-T47-11002	91.76	HQ-CWF, MF	Perennial	Class A Wild Trout Waters	R3	Full construction ROW width needed due to steep terrain immediately north of crossing and adjacent stream/road crossing to the south.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T47-11002.
Wetland	N/A	W-T49-11001	91.77	EV	N/A	N/A	PEM	W-T49-11001 does not extend across the full width of the LOD. Since the wetland width within the LOD is less than 75', the FERC Procedures do not require LOD reduction. In addition, an LOD reduction at this location would only be possible in the adjacent upland area and would not result in minimization of wetland impacts.	The pipeline was routed at this location to cross the narrowest setion of the wetland, and along the wetland margin.
Stream	UNT to South Branch Roaring Creek (WW-T44-11001A)	WW-T44-11001A	M-0271 .03	HQ-CWF, MF	Intermittent	Class A Wild Trout Waters	R4	Full construction ROW width needed due to steep terrain immediately north of crossing and adjacent road/stream/wetland crossing.	The pipeline was routed at this location to provide a perpendicular crossing of stream WW-T44-11001A.
Wetland	N/A	W-T49-11003	M-0271 .05	EV	N/A	N/A	PEM	LOD reduced to 90' to minimize impacts to W-T49-11003. Further LOD reduction was not possible due to the adjacent stream adn road crossing, as well as steep terrain immediately east of the stream crossing. The additional workspace will be used for equipment crossing and spoil storage to accommodate a safe and efficient wetland crossing.	The pipeline was routed at this location to cross the narrowest setion of the wetland.

*The FERC Alignment Sheets provided in Attachment H-1 show field delineated streams and wetlands within the 300-foot wide environmental survey corridor, and surrounding land use features on an aerial base map.