

*Atlantic Sunrise Project – PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Luzerne County*

APPENDIX P -1
RESOURCE-SPECIFIC AVOIDANCE AND MINIMIZATION
MEASURES

Revised April 2017

**Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|------------------------------|--|------------------------|---|--|---|-----------------------------------|--|--|
| Stream | Marsh Run | WW-T02-15016 | 5.07 | CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T02-15016. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T02-15017 | 5.10 | EV | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T02-15017. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this narrow, linear wetland. Please also note that the pipeline just east of this crossing was shifted north during field routing to entirely avoid a significant wetland complex (W-T02-15018). |
| Wetland | N/A | W-T02-15019A/ W-T02-15019B/ W-T02-15019C | 5.96 | EV | N/A | N/A | PEM, PSS, PFO | LOD has been reduced to 75' in portions of the crossing. Full LOD reduction to 75' was not possible due to the saturated nature of the wetland with unconsolidated soils and presence of two complex stream crossings adjacent to the wetland. The stream crossings will require a minimum of 5 foot of cover over the proposed pipeline and will result in a larger and deeper trench excavation. The additional workspace will provide storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. | The pipeline was routed in this location to parallel existing ROW and crosses the wetland at one of its narrowest points. Changes to improve this crossing were not considered as any modification would increase wetland impacts, tree clearing, and overall habitat fragmentation. |
| Stream | Maple Run | WW-T02-15017/ WW-T02-15017A | 6.00 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD reduction not possible at this crossing (per justification provided for wetland W-T02-15019 crossing) | The pipeline was routed in this location to parallel existing ROW and cross the meandering stream at a roughly perpendicular angle. |
| Wetland | N/A | W-T02-15020C | 6.43 | None | N/A | N/A | PFO | LOD has been reduced to 75' to minimize impacts to W-T02-15020C. | The pipeline route was adjusted in this location to deviate from existing ROW in order to minimize impacts to this wetland system. The proposed route crosses closer to the margin of the wetland and reduces the crossing distance by approximately 300'. A more significant realignment to the south was considered but was not implemented due to increased habitat fragmentation and increased impacts to upland forest. |
| Wetland | N/A | W-T02-15022A/ W-T02-15022C | 6.95 | None | N/A | N/A | PEM, PFO | LOD has been reduced to 75' to minimize impacts to W-T02-15022. | The pipeline was routed in this location to parallel existing ROW and allows the forested portion of this wetland to be crossed at a 90 degree angle at one of the narrowest points. |
| Wetland | N/A | W-T02-15023A/ W-T02-15023C | M-0163 0.09 | None | N/A | N/A | PEM, PFO | W-T02-15023A/W-T02-15023C is being crossed via HDD. | The pipeline was routed in this location to facilitate an HDD crossing. |
| Stream | Kitchen Creek (WW-T02-15018) | WW-T02-15018 | M-0163 0.2 | HQ-CWF, MF | Perennial | Approved Trout Water; Class A Wild Trout Waters | R3 | WW-T02-15018 is being crossed via HDD. | The pipeline was routed in this location to facilitate an HDD crossing. |
| Stream | Crooked Creek | WW-T24-15001 | M-0163 0.38 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | WW-T24-15001 is being crossed via HDD. | The pipeline was routed in this location to facilitate an HDD crossing. |
| Wetland | N/A | W-T24-15001 | 7.47 | EV | N/A | N/A | PEM | The LOD has been modified to eliminate impacts to W-T24-15001. | This feature is no longer impacted based on LOD reductions. |

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|-----------------------------------|-----------------------|--|----------------|---|--|---|-----------------------------------|---|---|
| Wetland | N/A | W-T02-16001 | 8.36 | EV | N/A | N/A | PEM | W-T24-16001 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 in this location to parallel existing ROW; avoidance of this feature was not practicable as it is located entirely within the existing ROW. |
| Wetland | N/A | W-T02-16003A / W-T02-16003A-1 | M-0056 0.39 | EV | N/A | N/A | PEM | W-T02-16003 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. However, the portion of the LOD within this wetland was reduced by 5' to minimize impacts. | The pipeline was routed in this location to deviate from existing ROW to avoid a known population of Northeastern Bulrush (T&E species) that was identified during environmental surveys in W-T02-16003C. The realignment to avoid northeastern bulrush shifted the pipeline ~400' south avoiding nearly all of the W-T02-16003 complex. The proposed route crosses the margin of the complex in previously disturbed area (old logging roads) and avoids the Northeastern Bulrush habitat. |
| Stream | UNT to Phillips Creek | WW-T02-16001 | 9.14 | HQ-CWF, MF | Intermittent | Class A Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to WW-T02-16001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T02-16002 | 9.16 | EV | N/A | N/A | PEM | W-T02-16002 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 in this location to parallel existing ROW; avoidance of this feature was not practicable as it is located entirely within the existing ROW. |
| Stream | Phillips Creek | WW-T02-16002 | 9.28 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T02-16002. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T05-16004 | 10.20 | EV | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T05-16004. | The pipeline was routed in this location to parallel existing ROW, and the route crosses the wetland in an area where there are several upland islands, reducing overall wetland impacts. |
| Stream | Lick Branch | WW-T05-16003 | 10.23 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 75' to minimize impacts to WW-T05-16003. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T05-16005 | 10.72 | None | N/A | N/A | PEM | W-T05-16005 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 in this location to parallel existing ROW, and the route crosses only a small section of the wetland along its margin. |
| Wetland | N/A | W-T11-16001A/ W-T11-16001B/ W-T11-16001C-1 | 10.94 | None | N/A | N/A | PEM, PSS, PFO | LOD has been reduced to 75' to minimize impacts to W-T11-16001. | The pipeline was routed in this location to parallel existing ROW, and the route crosses the wetland along its northern margin. |
| Stream | UNT to Arnold Creek | WW-T11-16001D | 11.19 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T11-16001D. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |

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|-----------------------------------|------------------------------------|-------------------------------|-------|---|--|---|-----------------------------------|---|---|
| Stream | Arnold Creek | WW-T11-16001 | 11.22 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T11-16001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | UNT to Arnold Creek | WW-T11-16001B | 11.24 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T11-16001B. | The pipeline was routed in this location to parallel existing ROW. This is a small feeder stream to WW-T11-16001. Although this crossing occurs at an oblique angle, a route change was not considered in order to maintain collocation and perpendicular crossing angles for WW-T11-16001D and WW-T11-16001. |
| Wetland | N/A | W-T11-16002A/ | 11.20 | EV | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T11-16002A. | The pipeline was routed in this location to parallel existing ROW; avoidance of this feature was not practicable as it is located entirely within the existing ROW. |
| Wetland | N/A | W-T13-16002A/ W-T13-16002C | 11.52 | None | N/A | N/A | PEM, PFO | LOD has been reduced to 75' to minimize impacts to W-T13-16002C. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this wetland. |
| Pond | N/A | WB-T13-16002 | 11.52 | None | N/A | N/A | PUB | This feature is part of a larger wetland complex and the LOD has been reduced to 75' to minimize impacts to the entire complex. | The pipeline was routed in this location to parallel existing ROW. Only the fringe of this ponded area portion of wetland W-T13-16002 is crossed. |
| Stream | UNT to Shingle Run (WW-T13-16002) | WW-T13-16002 | 11.82 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T13-16002. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T13-16001 | 11.83 | EV | N/A | N/A | PEM | W-T13-16001 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 in this location to parallel existing ROW and crosses the wetland at a perpendicular angle along its northern margin. |
| Stream | Shingle Run (WW-T13-16001) | WW-T13-16001 | 12.17 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T13-16001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | UNT to Mitchler Run (WW-T05-16002) | WW-T05-16002 | 12.92 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T05-16002. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | UNT to Mitchler Run (WW-T90-16002) | WW-T90-16002 | 13.06 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD was not reduced as the stream does not cross the full width of the LOD, and an LOD reduction at this location would only be possible in the adjacent upland area and would not result in minimization of stream impacts. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | Mitchler Run (WW-T05-16001) | WW-T05-16001 | 13.09 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T05-16001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |

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|-----------------------------------|-------------------------------------|------------------------------|-------|---|--|---|-----------------------------------|---|---|
| Stream | UNT to Mitchler Run (WW-T05-16001A) | WW-T05-16001A | 13.09 | HQ-CWF, MF | Ephemeral | Class A Wild Trout Waters | R6 | LOD has been reduced to 80' to minimize impacts to WW-T05-16001A. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | UNT to Mitchler Run (WW-T90-16001) | WW-T90-16001 | 13.11 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD was not reduced as the stream does not cross the full width of the LOD, and an LOD reduction at this location would only be possible in the adjacent upland area and would not result in minimization of stream impacts. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T05-16003 / W-T05-16003 -2 | 13.13 | EV | N/A | N/A | PEM | LOD has been reduced to 75' for the portion of W-T05-16003 that crosses the full width of the LOD. Additional LOD reduction for the portion of the wetland encroaching on the southern end of the LOD would only be possible in the adjacent upland area and would not result in additional minimization of wetland impacts. | The pipeline was routed in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |
| Wetland | N/A | W-T05-16002 | 13.65 | None | N/A | N/A | PEM | W-T05-16002 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 in this location to parallel existing ROW, and the impacted area is confined to the existing cleared ROW. |
| Wetland | N/A | W-T05-16001 | 13.70 | None | N/A | N/A | PEM | W-T05-16001 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 in this location to parallel existing ROW, and the impacted area is confined to the existing cleared ROW. |
| Wetland | N/A | W-T03-16005 / W-T03-16005-1 | 13.85 | EV | N/A | N/A | PEM | LOD has been reduced to 75' for the portion of W-T03-16005 that crosses the full width of the LOD. Additional LOD reduction for the portion of the wetland encroaching on the southern end of the LOD would only be possible in the adjacent upland area and would not result in additional minimization of wetland impacts. | The pipeline was routed in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |
| Stream | UNT to Huntington Creek | WW-T03-16003C | 13.90 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T03-16003C. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | UNT to Huntington Creek | WW-T03-16004 | 13.93 | HQ-CWF, MF | Intermittent | Wild Trout Waters | R4 | The LOD has been modified to eliminate impacts to WW-T03-16004. | This feature is no longer impacted based on LOD reductions. |
| Wetland | N/A | W-T03-16004 | 13.94 | EV | N/A | N/A | PEM | W-T03-16004 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 in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |

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|-----------------------------------|--|--|--------------------|---|--|---|-----------------------------------|--|---|
| Wetland | N/A | W-T03-16003 | 14.11 | None | N/A | N/A | PEM | W-T03-16003 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 in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |
| Stream | UNT to Huntington Creek | WW-T03-16003F | 14.44 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters; Wild Trout Waters | R3 | The LOD has been modified to eliminate impacts to WW-T03-16003F. | This feature is no longer impacted based on LOD reductions. |
| Stream | UNT to Huntington Creek (WW-T65-16001) | WW-T65-16001 | M-0164 0.12 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | WW-T65-16001 is being crossed via HDD. | The pipeline was routed in this location to facilitate an HDD crossing. |
| Stream | Huntington Creek (WW-T03-16003B) | WW-T03-16003B | M-0164 0.13 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | WW-T03-16003B is being crossed via HDD. | The pipeline was routed in this location to facilitate an HDD crossing. |
| Stream | UNT to Huntington Creek | WW-T03-16003 | M-0164 0.17 | HQ-CWF, MF | Ephemeral | Class A Wild Trout Waters | R6 | WW-T03-16003 is being crossed via HDD. | The pipeline was routed in this location to facilitate an HDD crossing. |
| Stream | UNT to Huntington Creek | WW-T03-16002A | 14.95 | HQ-CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to WW-T03-16003A. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T03-16002A / W-T03-16002A-1 / W-T03-16002A-2 W-T03-16002B W-T03-16002B-1 | 14.97 | EV | N/A | N/A | PEM, PSS | LOD has been reduced to 75' for the portion of W-T03-16002 that crosses the full width of the LOD. Additional LOD reduction for the portion of the wetland encroaching on the southern end of the LOD would only be possible in the adjacent upland area and would not result in additional minimization of wetland impacts. | The pipeline was routed in this location to parallel existing ROW and to avoid paralleling stream WW-T03-16002. An alternative alignment to avoiding this wetland complex would either break collocation or cause parallel impacts to WW-T03-16002. |
| Stream | UNT to Huntington Creek | WW-T03-16002 | 15.02 | HQ-CWF, MF | Ephemeral | Wild Trout Waters | R6 | LOD has been reduced to 80' to minimize impacts to WW-T03-16002. | The pipeline was routed in this location to parallel existing ROW. The stream is crossed at a slightly oblique angle. Correcting this crossing angle would require a break in collocation and cause increased habitat fragmentation and forest clearing, and was therefore not adopted. |
| Stream | Fades Creek | WW-T03-16001 | 15.78 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD has been reduced to 75' to minimize impacts to WW-T03-16001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T03-16001 | 15.79 | EV | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T03-16001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this wetland. |
| Stream | Pikes Creek | WW-T03-17008 | 16.59 | HQ-CWF, MF | Perennial | Class A Wild Trout Waters | R3 | LOD reduction not possible at this crossing (per justification provided for wetland W-T03-17012 crossing). | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this wetland. |
| Wetland | N/A | W-T03-17012 | 16.60 | EV | N/A | N/A | PEM | LOD reduction to 75' was not possible in order to accommodate spoils resulting from the installation of a bore pit associated with the nearby HWY 29 crossing. HWY 29 and adjacent stream (WW-T03-17008) will be crossed utilizing a bore method. The full LOD is needed to provide access for equipment to enter the workspace to execute the bore. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this wetland. |
| Wetland | N/A | W-T03-17011 | 16.64 | EV | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T03-17001. | The pipeline was routed in this location to parallel existing ROW, and the impacted area is along the southern margin of the wetland. |
| Stream | UNT to Pikes Creek | WW-T03-17007 | 16.65 | HQ-CWF, MF | Ephemeral | Class A Wild Trout Waters | R6 | LOD has been reduced to 75' to minimize impacts to WW-T03-17007. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |

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| Wetland | N/A | W-T03-17010/ WB-T03-17002 (pond) | 17.20 | EV | N/A | N/A | PEM, PUB | W-T03-17010 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. | The pipeline was routed in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. The ponded portion of this wetland is unavoidable as it falls within the existing ROW. |
| Stream | UNT to Paint Spring Run | WW-T03-17006 | 17.20 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD reduction not possible following the significant PI and due to adjacent wetland. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Stream | Paint Spring Run | WW-T03-17005 | 17.61 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 75' to minimize impacts to WW-T03-17005. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T03-17009-1 | 17.62 | EV | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T03-17009-1. | The pipeline was routed in this location to parallel existing ROW, and the impacted area is along the southern margin of the wetland. |
| Wetland | N/A | W-T03-17008A/ W-T03-17008C | 18.08 | EV | N/A | N/A | PEM, PFO | LOD reduction to 75' was not possible due to the adjacent stream crossing (WW-T03-17004). The stream will be crossed using a dam and pump method within a very saturated surrounding wetland. The additional workspace will aid in safe construction activities within this area and provide storage for spoil within the wetland. Without the additional workspace, the spoil from the large wetland complex will have to be transported to an upland area, which may result in greater impacts to the wetlands. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this wetland. This is a large system in a valley extending well north and south of the pipeline; therefore, no additional minimization measures were available. |
| Stream | Harveys Creek (WW-T03-17004) | WW-T03-17004 | 18.10 | HQ-CWF, MF | Perennial | Approved Trout Waters; Wild Trout Waters | R3 | LOD has been reduced to 75' to minimize impacts to WW-T03-17004. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T03-17007A/ W-T03-17007C | 18.78 | EV | N/A | N/A | PEM, PFO | LOD has been reduced to 75' for the portion of W-T03-16002 that crosses the full width of the LOD. Additional LOD reduction for the portion of the wetland encroaching on the southern end of the LOD would only be possible in the adjacent upland area and would not result in additional minimization of wetland impacts. | The pipeline was routed in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |
| Stream | UNT to Harveys Creek (WW-T03-17003) | WW-T03-17003 | 18.78 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 75' to minimize impacts to WW-T03-17003. | The pipeline was routed in this location to parallel existing ROW. Although this crossing occurs at an oblique angle, a route change was not considered in order to maintain collocation. |
| Wetland | N/A | W-T03-17006 | 19.06 | None | N/A | N/A | PEM | W-T03-17006 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 in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |
| Stream | UNT to Harveys Creek | WW-T03-17001 | 19.39 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T03-17001. | The pipeline was routed in this location to parallel existing ROW and provides a perpendicular crossing of this stream. |
| Wetland | N/A | W-T03-17005A | 19.53 | None | N/A | N/A | PEM | W-T03-17005 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 in this location to parallel existing ROW, and the impacted area is along the northern margin of the wetland. |

**Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|-------------------------------------|-------------------------------|-------|---|--|---|-----------------------------------|---|--|
| Stream | UNT to Harveys Creek | WW-T03-17002 | 19.81 | HQ-CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to WW-T03-17002. | This crossing was adjusted during field routing to crossover the existing pipeline at MP 19.6 to collocate on the south side of the existing ROW. The crossover and southern collocation does not improve the crossing angle of this stream (which occurs at an oblique angle along either alignment), but the realignment reduces impacts to the adjacent wetland (W-T05-17001) and stream system overall. In addition, this crossover entirely avoids a system of seeps feeding the stream - WB-T05-17001; WB-T49-17002; WB-T49-17003; and WB-T49-17004. This is a large system that cannot be avoided without adding significant distance/disturbance and habitat fragmentation to the route. |
| Stream | UNT to Harveys Creek | WW-T03-17002A | 19.82 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T03-17002A. | Refer to notes for WW-T03-17002. |
| Stream | UNT to Harveys Creek | WW-T03-17002B | 19.84 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 75' to minimize impacts to WW-T03-17002B. | Refer to notes for WW-T03-17002. |
| Wetland | W-T05-17001A | W-T05-17001A/ W-T05-17001B | 19.86 | EV | N/A | N/A | PEM, PSS | LOD has been reduced to 75' for the portion of W-T05-17001 that crosses the full width of the LOD. Additional LOD reduction for the portion of the wetland encroaching on the northern end of the LOD would only be possible in the adjacent upland area and would not result in additional minimization of wetland impacts. | This crossing was adjusted during field routing to crossover the existing pipeline to collocate on the south side of the existing ROW. The crossover and southern collocation reduces impacts to this wetland by crossing along its southern margin. This is a large system that cannot be avoided without adding significant distance/disturbance and habitat fragmentation to the route. |
| Stream | UNT to Harveys Creek (WW-T49-17003) | WW-T49-17003 | 19.93 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T49-17003. | This crossing was adjusted during field routing to crossover the existing pipeline at MP 19.6 to collocate on the south side of the existing ROW. The crossover and southern collocation improves this stream crossing by eliminating parallel impacts along 100' of the stream reach and avoiding a 60' wide ponded area. |
| Wetland | N/A | W-T03-17003 | 20.99 | None | N/A | N/A | PEM | W-T03-17003 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 in this location to parallel existing ROW, and the impacted area is along the southern margin of the wetland. |
| Wetland | N/A | W-T03-17001 | 21.18 | None | N/A | N/A | PEM | W-T03-17001 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. | This crossing was adjusted during field routing to crossover the existing pipeline at MP 19.6 to collocate on the south side of the existing ROW. The realignment increases the impact to this wetland; however, this impact is negligible compared to the overall reduction in impacts to wetland systems between MP 19.6 and 21.15. This is a small PEM entirely contained within the existing pipeline ROW. W-T03-17002 in this area is avoided entirely by the crossover. |
| Stream | UNT to Huntsville Creek | WW-T93-17001 | 21.38 | CWF, MF | Perennial | Wild Trout Waters | R3 | LOD reduction not possible at this crossing (per justification provided for wetland W-T07-17001 crossing). In addition, the stream only encroaches within a portion of the LOD. | The original alignment crossed this stream 250' northwest of the current location. This crossing location was adjusted to increase the distance from a residence and to avoid impacting stream WW-T07-17001. There is little difference in the stream crossing from the original alignment to the current- both alignments cross this stream at a roughly perpendicular angle in similar locations. |

**Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|--|--|-------|---|--|---|-----------------------------------|---|--|
| Stream | UNT to Huntsville Creek | WW-T93-16001 | 21.39 | CWF, MF | Perennial | Wild Trout Waters | R3 | LOD reduction not possible at this crossing (per justification provided for wetland W-T07-17001 crossing) | The original alignment crossed this stream 250' northwest of the current location. This crossing location was adjusted to increase the distance from a residence and to avoid impacting stream WW-T07-17001. There is little difference in the stream crossing from the original alignment to the current - both alignments cross this stream at a roughly perpendicular angle in similar locations. |
| Wetland | N/A | W-T07-17001 | 21.45 | EV | N/A | N/A | PFO | LOD reduction to 75' was not possible due to the saturated nature of the wetland complex, unconsolidated soils in area, and adjacent streams. The additional workspace will provide storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. | The original alignment crossed this wetland 250' northwest of the current location. The crossing location was adjusted to increase distance from a residence and to avoid impacting stream WW-T07-17001. The wetland is also crossed at a roughly 90 degree angle along the current alignment. |
| Wetland | N/A | W-T49-17001 | 21.74 | None | N/A | N/A | PEM | LOD reduction not possible at this crossing in order to safely enter and exit onto public road from ROW. In addition, the wetland only encroaches within a portion of the LOD. | The pipeline was routed in this location to cross the wetland at a perpendicular angle along its southern margin and at its narrowest point. |
| Wetland | N/A | W-T49-17002 | 21.79 | EV | N/A | N/A | PEM | LOD has been modified to eliminate impacts to W-T49-17002 | This feature is no longer impacted based on LOD reductions. |
| Stream | UNT to Huntsville Creek (WW-T49-17001) | WW-T49-17001 | 21.80 | CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T49-17001. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. Note that the pipeline was specifically routed in this area from MP 21.8 to 22.0 to entirely avoid a large wetland and stream system located east of the current LOD (W-T07-17002 and WW-T07-17002). |
| Stream | UNT to Huntsville Creek (WW-T51-17001) | WW-T51-17001 | 22.06 | CWF, MF | Ephemeral | Wild Trout Waters | R6 | LOD has been reduced to 85' to minimize impacts to WW-T51-17001. | This crossing was not significantly changed during field routing. The pipeline only clips this feature, crossing the stream at its origin in an area where it is poorly defined. |
| Wetland | N/A | W-T07-17003A/ W-T07-17003B-1/ W-T07-17003C/ W-T07-17003C-1/ W-T07-17003C-2 | 22.08 | EV | N/A | N/A | PEM, PSS, PFO | LOD has been reduced to 75' for the portions of W-T07-17003 that crosses the full width of the LOD. Additional LOD reduction for the portion of the wetland complex encroaching on portions of the LOD would only be possible in the adjacent upland area and would not result in additional minimization of wetland impacts. | This crossing was adjusted during field routing to avoid an RV sales lot and several residences both east and west of the LOD. Impacts to the wetland complex were minimized by crossing the margins of the wetland wherever possible, and crossing all portions of the wetland at 90 degree angles. |
| Stream | UNT to Huntsville Creek | WW-T52-17002 | 22.10 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 85' to minimize impacts to WW-T51-17002. | This crossing was not significantly changed during field routing. Avoidance of this crossing was not possible due to several residences located immediately east and west of the LOD. |
| Stream | UNT to Huntsville Creek | WW-T52-17001 | 22.15 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 75' to minimize impacts to WW-T51-17001. | This crossing was not significantly changed during field routing. Avoidance of this crossing was not possible due to several residences located immediately east and west of the LOD. |

**Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|---|---------------|------------------|---|--|---|-----------------------------------|---|---|
| Stream | UNT to Huntsville Creek (WW-T07-17002C) | WW-T07-17002C | MOC-0060 0.15 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to WW-T07-17002C. | This crossing was not significantly changed during field routing. Avoidance of this crossing was not possible due to several residences located immediately east and west of the LOD. |
| Stream | UNT to Huntsville Creek (WW-T08-17001) | WW-T08-17001 | MOC 0060 0.41 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to WW-T08-17001. | The alignment in this area was changed during field routing to place the pipeline at the western edge of parcels LU-217.000 and LU-222.000 to avoid a large NWI and NHD wetland and stream system. The change improves this stream crossing by crossing at a perpendicular angle west of a small meander in the channel. The realignment in this area also avoids wetland W-T08-17001 entirely. |
| Wetland | N/A | W-T51-17001C | M-0060 0.48 | None | N/A | N/A | PFO | LOD has been reduced to 75' to minimize impacts to W-T51-17001C | The alignment in this area was changed during field routing to place the pipeline at the western edge of parcels LU-217.000 and LU-222.000 to avoid a large NWI and NHD wetland and stream system. The pipeline was also routed to only impact the eastern portion of the wetland and to cross the wetland at a 90 degree angle. |
| Stream | UNT to Huntsville Creek (WW-T53-17002) | WW-T53-17002 | M-0060 0.87 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to WW-T53-17002 | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Stream | UNT to Huntsville Creek | WW-T53-17002A | M-0060 0.87 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been modified to eliminate impacts to WW-T53-17002A | This feature is no longer impacted based on LOD reductions. |
| Stream | UNT to Huntsville Creek (WW-T53-17003) | WW-T53-17003 | M-0060 0.89 | CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to W-T53-17003. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Stream | UNT to Huntsville Creek (WW-T53-17003B) | WW-T53-17003B | M-0060 0.90 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 80' to minimize impacts to W-T53-17003B. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Stream | UNT to Huntsville Creek | WW-T53-17003A | M-0060 0.91 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been modified to eliminate impacts to WW-T53-17003A | This feature is no longer impacted based on LOD reductions. |
| Stream | UNT to Huntsville Creek (WW-T53-17004) | WW-T53-17004 | M-0060 0.94 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 85' to minimize impacts to WW-T53-17004. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Stream | UNT to Huntsville Creek (WW-T90-17002) | WW-T90-17002 | MOC-0060 0.98 | CWF, MF | Intermittent | Wild Trout Waters | R4 | LOD has been reduced to 85' to minimize impacts to WW-T90-17002. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Wetland | N/A | W-T51-17002 | M-0060 0.99 | EV | N/A | N/A | PFO | W-T51-17002 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 in this location to only impact the southern margin of the wetland. |
| Wetland | N/A | W-T07-17005 | 24.39 | None | N/A | N/A | PEM | LOD has been modified to eliminate impacts to WW-T07-17005 | This feature is no longer impacted based on LOD reductions. |

**Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|-------------------------------------|----------------|------------------------|---|--|---|-----------------------------------|--|--|
| Wetland | N/A | W-T24-17001A-1 | M-0161 0.0 | None | N/A | N/A | PEM | LOD reduction is not possible at this location due to the adjacent road crossing and PI. | The alignment in this area was modified during field routing to shift the pipeline roughly 400' to the west. This change allows overall habitat fragmentation to be reduced by collocating the pipeline with Lake Street for roughly 0.4 miles. In order to achieve collocation and to cross Lake Street at a perpendicular angle, a PI was placed within this wetland. The PI is located in an area of the wetland where it is relatively narrow, regularly disturbed and situated in an agricultural field. By placing the PI in this area of the wetland, overall habitat fragmentation is reduced through collocation and wetland impacts are limited to disturbed and relatively narrow areas near the southern boundary. |
| Stream | UNT to Leonard Creek (WW-T07-17003) | WW-T07-17003 | M-0150 0.03 | HQ-CWF, MF | Intermittent | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T07-17003. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Wetland | N/A | W-T71-18002B-1 | M-0150-0.5 | EV | N/A | N/A | PSS | LOD has been reduced to 75' to minimize impacts to W-T71-18002B-1 | The pipeline was routed in this location to cross the wetland at a 90 degree angle along its southern margin. The route was also placed in this location to avoid impacting several other nearby wetlands, including W-T71-18002B-2; W-T71-18002A-2; W-T71-18002A-1; W-T71-18001A and W-T71-18001B. |
| Stream | UNT to Leonard Creek (WW-T07-17004) | WW-T07-17004 | M-0141-0.48 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T07-17004. | The pipeline was routed in this location to provide a perpendicular crossing of this stream. |
| Wetland | N/A | W-T07-17006 | 25.37 | None | N/A | N/A | PEM | LOD has been reduced to 75' to minimize impacts to W-T07-17006. | This crossing was not significantly changed during field routing. The wetland is crossed at a roughly perpendicular angle near its northern margin. |
| Stream | UNT to Leonard Creek (WW-T17-18001) | WW-T17-18001 | 25.55 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | Full ROW width needed at this crossing to complete a safe and efficient road crossing (HWY 309). | This crossing was not significantly changed during field routing. The stream is crossed at a roughly perpendicular angle. |
| Wetland | N/A | W-T17-18001 | 25.74 | None | N/A | N/A | PEM | LOD has been modified to eliminate impacts to W-T17-18001. | This feature is no longer impacted based on LOD reductions. |
| Stream | UNT to Leonard Creek (WW-T65-18001) | WW-T65-18001 | M-0166 0.20 | HQ-CWF, MF | Ephemeral | Wild Trout Waters | R6 | LOD has been reduced to 80' to minimize impacts to WW-T65-18001. | The pipeline route across LU-250.000 and LU-256.000 was changed to move the pipeline to the east to avoid wetlands and improve a stream crossing angle. During field routing, the angle of this stream crossing was improved to a roughly perpendicular crossing angle roughly 100' west of the original crossing location. |
| Wetland | N/A | W-T65-18002 | M-0142 0.26 | EV | N/A | N/A | PFO | N/A | This feature is no longer impacted based on incorporation of MOC-166. |
| Wetland | N/A | W-T65-18003 | M-0142 0.30 | None | N/A | N/A | PEM | N/A | This feature is no longer impacted based on incorporation of MOC-166. |

Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|-------------------------------------|--|----------------|---|--|---|-----------------------------------|--|---|
| Stream | UNT to Leonard Creek (WW-T76-18009) | WW-T76-18009 | M-0179 0.26 | HQ-CWF, MF | Perennial | Wild Trout Waters | R3 | LOD has been reduced to 80' to minimize impacts to WW-T76-18009. | The pipeline was field routed at this location to cross stream WW-T76-18009 and riparian wetland W-T76-18021-3 at a roughly perpendicular angle. Utilizing this crossing location and orientation avoids additional tree clearing associated with side slope construction in a forested area. This crossing location also allows several small wetlands, seeps, and feeder streams located to the east of the crossing to be avoided entirely. A large manmade pond located west of the crossing is also avoided. |
| Wetland | N/A | W-T76-18021-3 | M-0179 0.26 | EV | N/A | N/A | PEM | W-T76-18021-3 is a small PEM wetland contained entirely within the middle portion of the LOD. Therefore, LOD reduction to avoid or minimize impacts to this feature is not possible. | The pipeline was field routed at this location to cross stream WW-T76-18009 and riparian wetland W-T76-18021-3 at a roughly perpendicular angle. Utilizing this crossing location and orientation avoids additional tree clearing associated with side slope construction in a forested area. This crossing location also allows several small wetlands, seeps, and feeder streams located to the east of the crossing to be avoided entirely. A large manmade pond located west of the crossing is also avoided. |
| Stream | UNT to Leonard Creek (WW-T61-18001) | WW-T61-18001 | 26.66 | HQ-CWF, MF | Intermittent | Wild Trout Waters | R4 | N/A | This feature is no longer impacted based on incorporation of CPL North Alternative 13. |
| Wetland | N/A | W-T61-18001 | 27.06 | EV | N/A | N/A | PEM | N/A | This feature is no longer impacted based on incorporation of CPL North Alternative 13. |
| Wetland | N/A | W-T56-18001C-2 / W-T56-18001C-3 / W-T56-18001C-5 / W-T56-18001C-6 / W-T56-18001C-8 | M-0088 1.08 | EV | N/A | N/A | PFO | N/A | This feature is no longer impacted based on incorporation of CPL North Alternative 13. |
| Stream | UNT to Leonard Creek (WW-T56-18002) | WW-T56-18002 | M-0088 1.11 | HQ-CWF, MF | Ephemeral | Wild Trout Waters | R6 | N/A | This feature is no longer impacted based on incorporation of CPL North Alternative 13. |
| Wetland | N/A | W-T56-18002 | M-0088 1.57 | None | N/A | N/A | PEM | N/A | This feature is no longer impacted based on incorporation of CPL North Alternative 13. |
| Wetland | N/A | W-T56-18004 | M-0088 1.67 | None | N/A | N/A | PEM | N/A | This feature is no longer impacted based on incorporation of CPL North Alternative 13. |

**Attachment P-1, Appendix P-1
Resource-Specific Avoidance and Minimization Measures
Luzerne 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) | Wetland (Cowardin Classification) | Limits of Disturbance (LOD) Adjustments | Field Routing Adjustments within 600-foot Wide Corridor* |
|-----------------------------------|-------------------------------------|--------------------|------------------------|---|--|---|-----------------------------------|---|---|
| Stream | UNT to Leonard Creek (WW-T56-18004) | WW-T56-18004 | M-0088 1.75 | HQ-CWF, MF | Intermittent | Wild Trout Waters | R4 | N/A | <i>This feature is no longer impacted based on incorporation of CPL North Alternative 13.</i> |
| Wetland | N/A | W-T56-18003B | M-0088 1.75 | EV | N/A | N/A | PSS | N/A | <i>This feature is no longer impacted based on incorporation of CPL North Alternative 13.</i> |
| Wetland | N/A | W-T56-18005 | M-0088 1.81 | None | N/A | N/A | PEM | N/A | <i>This feature is no longer impacted based on incorporation of CPL North Alternative 13.</i> |

Note:
*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.