



Transcontinental Gas Pipe Line Company, LLC

PA DEP Section 401 Water Quality Certification Application

Module S4 – Mitigation Plan

Leidy South Project

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MODULE S4

MITIGATION PLAN

S4.A.1-2 Resource Impact Avoidance and Minimization Measures

Transco has sited the Project to avoid and minimize effects to wetland and watercourse to the greatest extent practicable while maintaining constructability and safety, as described in greater detail in the Section S3.F of Module 3. Given the linear nature of the pipeline component of the Project, total avoidance of wetlands, streams, and floodways is not feasible and therefore installation of the proposed pipelines will result in temporary and permanent impacts to wetlands and watercourses. The locations of the compressor stations were identified to meet the required volume at the aggregated receipt points, as defined in Transco's purpose and need. Transco was able to avoid wetlands, streams and floodway impacts at Compressor Stations 605, 610, and 620. Following the siting process outlined in Module 3, Appendix S3-6, Transco identified two potential sites for Compressor Station 607. Ultimately, the proposed Compressor Station 607 was selected to avoid and minimize impacts when compared to the other option. Due to the location of existing resources at the proposed Compressor Station 607, the required area for construction and operation impacts are considered unavoidable.

S4.B.1 Repair, Rehabilitation, and Restoration of Impacted Resources

Watercourses, Floodway and Riparian Areas

Construction of the Project will result in the temporary crossings of 33 watercourses and/or floodways, consisting of 24 pipeline crossings and 9 crossing associated with existing bridged or culverted watercourses or associated floodways within the Project's Limit of Disturbance. No modifications to the existing bridges and culverts are being proposed. No watercourse crossings are proposed for compressor stations.

To minimize adverse effects at stream crossings, Transco proposes to implement the Transco Project-Specific Wetland and Waterbody Construction and Mitigation Procedures (Procedures) provided in Appendix S4-1 during the construction, post-construction restoration, and operation of the Project. Construction activities at stream crossings will be performed in accordance with applicable federal and applicable state permit requirements. Transco developed the Procedures to address temporary waterbody effects associated with construction of the Project. The Procedures are intended to satisfy the waterbody restoration requirements of applicable resource protection agencies with jurisdiction over areas affected by the Project.

In-stream construction will be conducted during normal or low flow conditions, to the extent practicable. Construction during this period will minimize sedimentation and turbidity, minimize streambed and bank disturbances, and limit the time it takes to complete in-stream construction. Selected trees may be preserved along the edge of the pipeline corridor to help minimize impacts, if possible. Stumps and root systems will be left intact when feasible by cutting them at or slightly above ground level. Preserving tree/shrub stumps and root systems will facilitate re-sprouting during the restoration period.

Upon completion of in-stream construction, Transco will stabilize the stream banks and streambed to pre-construction contours. Riparian areas will be revegetated with the Ernst Riparian Buffer Mix (ERNMX-178), or an alternative riparian seed mix that contains similar species. This seed mix will be used to revegetate riparian areas where slopes are less than 10%. For slopes greater than 10%, a standard upland ROW seed mix will be used. Erosion control blankets will be placed on restored stream banks at the ordinary water line and should extend 100 feet beyond the top of bank unless wetlands are encountered. Streams that have existing bank protection measures installed (Young Womans Creek – rock bank protection) and (Little Muncy Creek – articulating concrete mat) should be restored to match the pre-existing conditions of the stream banks in those locations. Native streambed material shall be placed within the streambed over top the pipeline, without additional stone added. No significant changes in the streambed grade and thalweg alignment should occur at any crossing location.

Transco will replant native tree and shrubs within the impacted forested riparian buffers, as outlined in Appendix S4-2 Onsite Wetland and Riparian Reforestation Plan. A 10-foot-wide herbaceous corridor will be maintained over the center of the pipeline within the riparian buffer area. Trees and other woody vegetation will also be allowed to reestablish naturally within the construction ROWs that were cleared for construction of the pipeline. However, trees within 15 feet of the centerline and between existing pipelines will be removed to maintain the integrity of the pipeline. The use of erosion control BMP's will avoid and/or minimize erosion and runoff that could potentially affect surface water quality.

Wetlands

Construction of the Project will result in the temporary impacts to 34 wetlands with permanent impacts to 4 wetlands. Of the total proposed permanent wetland impacts, only three PEM wetlands totaling 0.20 acres will be impacted by Compressor Station 607 and one PEM

wetland on the Big Ridge Trail totaling 0.02 acres will result from the Project. Compressor Station 605, 610, and 620 do not have and wetland impacts proposed. Functional conversion impacts (PFO/PSS to PEM) of wetlands located within the proposed maintained pipeline ROW will occur to 10 wetlands, for a total of 0.11 acres.

The majority of the information below addresses temporary impacts associated with the pipeline construction; however, the restoration of the PEM impacts at Compressor Station 607 will follow the same procedures.

To minimize adverse impacts at wetland crossings, Transco will implement its Procedures during the construction, post-construction restoration, and operation of the Project. Transco developed the Procedures to address temporary wetland effects associated with construction of the Project. The Procedures are intended to satisfy the wetland restoration requirements of applicable resource protection agencies with jurisdiction over areas affected by the Project.

Transco will use pipeline construction crossing methods based on site-specific conditions and resource sensitivity.; These methods are conventional open-cut or push-pull, and conventional bore (proposed at one location on Benton Loop due to proximity to a road crossing). Operation of construction equipment through wetlands will be limited to only that necessary for each stage of construction (e.g., clearing, trenching, staging). Transco will minimize compaction of topsoil within unsaturated wetlands by stripping, segregating, and stockpiling topsoil separately from subsoil during construction. Topsoil segregation techniques will be used in unsaturated wetlands to preserve the seed bank and to facilitate successful restoration. Construction workspaces have been minimized to the extent practicable within these resources. Pipeline construction will use the conventional open-cut method at most locations. Construction equipment will use timber mats to prevent soil rutting for construction access through the wetlands. Trench plugs will be installed at the entrance and exit of the pipeline through the wetland to ensure that the wetland is not drained along the pipeline. In forested and scrub-shrub wetlands, Transco will minimize clearing to the extent practicable while maintaining safe construction conditions.

Pipe stringing and fabrication may occur within saturated and unsaturated wetlands adjacent to the trench or adjacent to the wetland. Soil structure and the presence of standing water commonly found in wetlands along with the large surface loads of construction equipment and materials to construct large diameter pipelines contribute to the need for additional workspace adjacent to wetland crossings. Hydric soils typically are lower in strength and become weaker

when saturated. Handling weak material during the excavation/stockpile process further reduces the strength of the soil mass by disturbance/remolding/mixing, thus requiring a larger area to stockpile the soils. Additionally, buoyancy control (e.g., weights, concrete-coated pipe) may be necessary in wetland environments, which require the trench to be larger in both width and depth, resulting in additional stockpile material. Wetland crossing that require concrete coating are outlined in Appendix S3-1 Subfacility Details Table. Consequently, wetland soils crossed by pipelines have properties contributing to the need for increased workspace for both trenching and stockpiling.

Upon completion of construction within wetlands, Transco will promptly restore wetlands to their original configurations and contours and stabilize disturbed adjacent upland areas. Wetland areas will be revegetated with Ernst FACW Meadow Mix (ERNMX-122), or an alternative wetland seed mix that contains similar species, where standing water is not present, to stabilize disturbed soils. PEM wetlands, dominated primarily by low-growing sedges, rushes, and other herbaceous vegetation, will revert to emergent vegetation following construction, resulting in no permanent change to wetland type. PSS and PFO wetlands affected during construction will be seeded with the wetland seed mix and also replanted with native trees and shrubs outside of the proposed maintained ROW (See Appendix S4-2). Following construction, Transco will monitor disturbed wetlands and adjacent uplands until restoration and long-term stabilization is documented.

S4.B.2 Proposed Preservation and Maintenance Operations to Reduce or Eliminate Project Impacts

During operation and maintenance, the following actions will be taken to reduce or limit impacts of the ROW:

- Transco will limit routine vegetation mowing or clearing within wetlands and adjacent to waterbodies. A 10-foot-wide herbaceous corridor will be maintained over the center of the pipeline within the wetland and riparian buffer areas. Trees and other woody vegetation will also be allowed to reestablish naturally within the construction ROWs that were cleared for construction of the pipeline. However, trees within 15 feet of the centerline and between existing pipelines will be removed to maintain the integrity of the pipeline.

- Transco will not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.
- Transco will implement time of year restrictions for mowing as specified in in the Transco Plan found in Appendix S3-3. (April 15 - August 1 of any year is the typical restriction period which applies to routine mowing and clearing of riparian areas.

S4.C & D Compensatory Mitigation and Monitoring Plan

To mitigate for the wetland impacts, an offsite mitigation area has been designated to offset functional losses by providing a total of 0.51 acres of wetland mitigation consisting of 0.27 acres of wetland creation associated with permanent fill associated with impacts on the Big Ridge Trail and Compressor Station 607. Additionally, 0.24 acres of wetland enhancement is proposed, which is associated with functional conversion of PSS and PFO wetlands within the proposed maintained ROW. An Offsite Compensatory Wetland Mitigation Plan including performance standards and a monitoring plan has been prepared and is provided in Appendix S4-3.

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