WETLAND STATEMENT OF FINDINGS FOR TEXAS EASTERN TRANSMISSION, LP ARTICULATING GROUT MATTING OF THE LINE 14, 18, AND 31 PIPELINES AT LINDSEY CREEK NATCHEZ TRACE PARKWAY

February 2024

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WETLAND STATEMENT OF FINDINGS

NATCHEZ TRACE PARKWAY

February 2024

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ATTACHMENT C	Texas Eastern's Erosion and Sediment Control Plan
ATTACHMENT D	Texas Eastern's Spill Prevention, Control, and Countermeasure Plan



ACRONYMS AND ABBREVIATIONS

C.F.R.	Code of Federal Regulations
DO 77-1	Director's Order #77-1: Wetland Protection
E&SCP	Texas Eastern's Erosion and Sediment Control Plan
EDGE	Edge Engineering and Science, LLC
El	Environmental Inspector
FERC	Federal Energy Regulatory Commission
FERC Plan	FERC's Upland Erosion Control, Revegetation and Maintenance Plan
FERC Procedures	FERC's Wetland and Waterbody Construction and Mitigation Procedures
MP	milepost
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
Parkway	Natchez Trace Parkway
PEM	palustrine emergent
PFO	palustrine forested
PHMSA	Pipeline and Hazardous Material Safety Administration
ROW	right-of-way
SPCC Plan	Texas Eastern's Spill Prevention, Control, and Countermeasure Plan
SSURGO	Soil Survey Geographic Database
Texas Eastern	Texas Eastern Transmission, LP
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Society
VMI	Vegetation Mapping Inventory
WSOF	Wetland Statement of Findings



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INTRODUCTION

This Wetland Statement of Findings (WSOF) evaluates a proposed revetment project along the existing Line 14, 18, and 31 natural gas pipelines which are located partially within the Natchez Trace Parkway (Parkway). The three existing pipelines cross Lindsey Creek and have become exposed due to erosion resulting from high flow precipitation events over time. The existing pipelines are currently exposed and are subject to potential damage from flood debris during high flow events and corrosion due to exposure to the elements. Preparation of this WSOF will provide the National Park Service (NPS) decision-makers within the Parkway with sufficient information to decide, in accordance with the 36 Code of Federal Regulations (C.F.R.) 5.3 permitting process, whether a special use permit should be issued to Texas Eastern Transmission, LP (Texas Eastern) for the proposed revetment activities within the Parkway.

This WSOF has been prepared in accordance with NPS Director's Order #77-1: Wetland Protection (DO 77-1; NPS 2016a) and its accompanying Procedural Manual (NPS 2016b). The purpose of this WSOF is to define the wetland impacts resulting from the proposed action and inform the public of the project impacts and compensation required. The objective of DO 77-1 is to avoid, to the extent possible, adverse impacts associated with the occupancy, modification, or permanent loss of wetlands, and to avoid indirect development and new construction within sensitive wetland features, where practicable.

PURPOSE AND NEED FOR THE ACTION

As a result of routine inspections of Line 14, 18, and 31, Texas Eastern identified a location where the pipelines have become exposed as a result of erosive forces (between milepost [MP] 309.71 and MP 307.71). These exposed pipelines warrant attention due to concerns of corrosion and potential impacts from flood debris. Pipeline corrosion is a safety concern as it may weaken pipe walls. Additionally, the three exposed pipelines could be impacted by large flood debris during high flow events. Therefore, in order to continue safe operation of Line 14, 18, and 31, Texas Eastern is requesting a special use permit from the NPS to conduct the proposed revetment activities (see Attachment A). If exposure is not addressed, it is likely that the extent of pipeline exposure, and the risk of corrosion and impacts on the pipeline, will worsen.

STUDY AREA DESCRIPTION

The project area is partially within the property boundary of the Parkway within Texas Eastern's existing right-of-way (ROW) in Hinds County, Mississippi (see Figure 1). The Parkway is a recreational and scenic roadway extending across Alabama, Mississippi, and Tennessee. The 444-mile-long roadway generally follows a historic travel corridor used by American Indians, European settlers, slave traders, soldiers, and future presidents known as the "Old Natchez Trace" (NPS 2023a). The NPS manages adjacent federal lands in addition to the roadway itself as part of the Parkway. Attractions along and adjacent to the Parkway include hiking, biking, horseback riding, and camping. The Parkway is open 365 days a year, 24-hours a day, although washouts and fallen trees



from severe weather can result in closures of specific segments of the roadway (NPS 2023b). Operational hours for recreational areas and attractions along the Parkway vary.

No project-related activities such as ground disturbance or access will occur within the Parkway motor road itself. Construction personnel will access work areas via Texas Eastern's existing 75-foot ROW from the I-20 Frontage Road, outside NPS lands. Revetment activities at one location, approximately 270 feet north-northwest from the roadway near MP 85.1 in Hinds County (along the banks of Lindsey Creek) will occur within the property boundary of the Parkway. Revetment activities will generally be limited to the existing 75-foot ROW and vehicles will be limited to the full 75-foot-wide existing ROW, between MP 309 and MP 307, as an access corridor for heavy equipment to travel to the revetment site. No ground disturbance except for equipment travel is proposed within the access corridor. As needed, Texas Eastern will install mats or temporary bridges to cross wetland and waterbody features within the access corridor.



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ALTERNATIVES CONSIDERED

Access to the project area under each of the alternatives would be from the north along the existing ROW; Texas Eastern would access its ROW via I-20 Frontage Road; therefore, no project-related activities such as ground disturbance or access will occur within the Parkway motor road itself.

Three action alternatives (Alternative A, Alternative B, and Alternative C – the Preferred Alternative) were evaluated as well as a No Action Alternative under which Texas Eastern would not conduct the proposed Line 14, 18, and 31 revetment activities with the Parkway.

Alternative A – Remove and Replace:

Under the Remove and Replace Alternative, the three pipeline segments that have become exposed would be removed, and replacement segments of pipe installed at a depth below the current alignment. If feasible, the segments would be removed using the pull technique, during which the pipes would be cut on either side of the Lindsey Creek and would then be pulled from one side using a bulldozer and pushed from the other side with an excavator. However, if the pull technique is unsuccessful, open-cut trenching would be required to remove the pipe segments. Once removed, three new segments would be installed via a trenchless method (i.e., bore or horizontal directional drill).

If the pull technique were successful, this alternative would avoid work within Lindsey Creek associated with the Preferred Alternative, therefore avoiding impacts on the waterbody and the wetlands along the banks of the creek. However, this alternative would require greater workspace to accommodate the heavy equipment needed for pipeline removal and installation. Workspace would likely require removal of mature forested trees outside of the Texas Eastern ROW and the additional 25 feet within the Federal Energy Regulatory Commission (FERC)-certificated workspace originally used to install the pipes. Trees would be allowed to naturally revegetate following completion of the project. Work to implement the Remove and Replace Alternative would require a longer timeframe than the proposed alternative, resulting in the greater potential disturbance of the noise environment and viewshed along the Parkway. Further, the pipeline systems would have to be taken out of service, which would disrupt natural gas service for end users. Finally, in the event Texas Eastern is unable to implement the pull technique and must use open-cut trenching to remove the pipe segments, wetland and waterbody disturbance would be greater than that proposed for the Preferred Alternative. For these reasons, Alternative A is not preferred.

Alternative B – Backfill and Recontour:

Under the Backfill and Recontour Alternative, Texas Eastern would avoid impacts from the articulating grout mat and rip-rap to the stream banks along the creek where pipes have become exposed. To restore cover, imported fill would be used to re-cover the exposed pipelines and re-establish the minimum cover of 3 feet within a waterbody as established by the Pipeline and Hazardous Material Safety Administration (PHMSA) under 49 C.F.R. 192.327. This volume of fill would impact not only the stream bed, but



the surrounding wetlands along the bank and within the riparian corridor of the stream as well. The imported fill would remain in place to maintain the pipeline cover requirement, would require recontouring of the bank upstream of the pipelines, and would likely require removal of mature forested trees located upstream of the workspace that are outside of the Texas Eastern ROW and the additional 25 feet within the FERC-certificated workspace originally used to install the pipes to accommodate recontouring. Trees would be allowed to naturally revegetate following completion of the project.

This alternative involves temporary impacts for bank recontouring within wetland features while avoiding the installation of an articulating grout mat; however, the likelihood of future erosion of the banks and future exposure of the pipeline would be high. Therefore, Texas Eastern could be required to conduct additional maintenance activities to address a repeated exposure of the pipelines, which would result in repeated impacts on the waterbody and the wetlands along the banks of the creek. Therefore, considering the impacts on wetlands within the Texas Eastern ROW, impacts on mature forested habitat outside of the Texas Eastern ROW, as well as likely future impacts, Alternative B is not preferred.

Alternative C – Backfill and Revetment (Preferred Alternative):

The project requires the installation of fill, rip-rap, and an articulating grout mat for recovering and armoring of the pipeline within Lindsey Creek. The creek banks will be graded and recontoured to stabilize soils and prevent high water flows from causing future erosion of the banks and subsequent pipeline damage. All work activities will occur in the existing Texas Eastern ROW and no clearing of trees will be required. It is anticipated that the articulating grout mats and fill will be installed using traditional pipeline installation methods via backhoes, bobcats, excavators, or similar equipment. Timber or poly mats will be placed in all wetland areas where equipment operates and revetment activities are not required, to minimize erosion and compaction of wetland soils. Following completion of the project, all mats will be removed, and all wetlands will be allowed to naturally revegetate. All upland areas will be re-seeded using an NPS-approved seed mix of native grasses or wildflowers. This alternative minimizes ground disturbance to only those areas required for installation of armoring and recovering materials and also does not require any off-ROW workspace or tree clearing. The design approach is based on preliminary engineering data as well as observed field conditions; however, total permanent impacts will not exceed 0.135 acre.

Implementation of an articulating grout mat and rip-rap in combination with imported backfill (as explored in Alternative B) would reduce the velocity of water and erosive forces on the banks and subsequently the pipelines during high flow events. The use of these materials will prevent the need for frequent revetment projects required due to exposed pipelines. This alternative meets the project purpose and need while minimizing repeated and long-term impacts on wetland and aquatic resources.

The Preferred Alternative was designed to minimize wetland impacts and will result in 0.135 acre of permanent wetland impacts and 0.216 acre of temporary wetland impacts



to support revetment activities within the Parkway. Temporary impacts on wetlands will be minimized due to the placement of mats required for construction access along Texas Eastern's ROW. Wetland impact avoidance and minimization measures further detailed in the Wetland Impacts section below would be implemented during revetment activities to avoid and minimize adverse wetland impacts to the extent practicable.

No Action Alternative:

In the "No Action" Alternative, Texas Eastern would not conduct the proposed Line 14, 18, and 31 revetment activities. These existing pipelines would remain in service; however, they would be at risk for increased corrosion or damage from flood debris during high precipitation and high flow events within Lindsey Creek. Further, the exposed pipes within the waterbody would remain as such and therefore would be an avenue for scour and ongoing alteration of the streams' original contours. If the proposed revetment were not conducted, no short-term impacts from the revetment activities would occur; however, the pipeline would continue to erode and/or corrode, which eventually could compromise the integrity of the pipelines and disrupt service for Texas Eastern customers.

Summary:

Alternative A would require service interruptions on three of Texas Eastern's pipeline systems. Further, both Alternatives A and B would be more impactful designs, including the clearing of mature trees, requiring more workspace. Alternative B would also have greater potential for additional, future impacts on wetlands. The No Action Alternative would not meet Texas Eastern's project need as it would leave the pipelines exposed, which would continue to corrode and eventually compromising the integrity of the pipelines, which could result in a disruption of service for Texas Eastern customers. Texas Eastern is required to maintain a minimum of 3 feet of pipeline cover to ensure safe operations in accordance with PHMSA regulations. Therefore, Alternative A, Alternative B, and the No Action Alternative are not carried forward for further analysis.

THE AFFECTED ENVIRONMENT

The NPS classifies wetlands based on the United States Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States (also known as the Cowardin classification system [Cowardin et al. 1979]). Based on this classification system, a wetland must have one or more of the following attributes (NPS 2016b):

- At least periodically, the land supports predominantly hydrophytes (wetland vegetation);
- The substrate is predominantly undrained hydric soil; and/or
- The substrate is non-soil and is saturated with water or covered by shallow water during the growing season of each year.



Alternatively, naturally unvegetated sites (such as riverine wetlands, i.e., stream channels) demonstrating wetland hydrology are also subject to protection as wetlands (NPS 2016b).

Existing Natural Resources Conservation Service (NRCS) soil survey data, vegetation identification, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) map data, available aerial photography, and field surveys were used to assess the potential presence of wetland habitat. The field surveys were conducted by Edge Engineering and Science's (EDGE) professional biologists. All delineated features were assumed to be potentially jurisdictional under NPS review. Based on the field data and proposed project plan, the project will potentially result in permanent impacts on approximately 0.130 acre of riverine emergent wetlands and 0.005 acre of forested wetland. No tree clearing will be required to support maintenance activities for this project.

Vegetation and Habitat

The following habitats and species associations predominate the project area as reported by the NPS Vegetation Mapping Inventory (VMI) Program in conjunction with the U.S. Geological Survey (USGS) Upper Midwest Environmental Sciences Center, NatureServe, and NPS Gulf Coast Inventory & Monitoring Network for the Natchez Trace Parkway Vegetation Mapping Project. Mixed Hardwood Floodplain Forest and Ruderal Mixed Grassland are the map-classes found within the project area as identified by the NPS VMI Program (Hop et al. 2016).

Descriptions per NPS Vegetation Mapping Program (2016):

Mixed Hardwood and Floodplain Forest – This map-class primarily represents nonsuccessional mixed-species floodplain forests dominated by a mix of ash species (*Fraxinus* ssp.), elm species (*Ulmus* ssp.), sugarberry (*Celtis laevigata*), and boxelder (*Acer negundo*). The dominant vegetation within this map-class category, observed during field surveys, is listed below in Table 1.

Table 1: Wetland Vegetation Located in the Project Area		
Map-Class Category ^a	Dominant Vegetation ^b	
PFO	American elm (Ulmus americana), sweetgum (Liquidambar styraciflua), boxelder (Acer negundo)	
PEM	Alligatorweed (Alternanthera philoxeroides), barnyardgrass (Echinochloa crusgalli)	
PEM = palustrine emergent; PFO = palustrine forested		
^a Hop et al. 2016		
^b Based on the wetland delineation report, see Attachment B. Riverine wetlands are predominantly within an unvegetated channel.		

Ruderal Mixed Grassland – This map-class represents lands dominated by managed graminoids and forbs and is defined by lands managed to maintain herbaceous vegetation including road edges, pastures, and power and pipeline ROWs. This is the



most abundant vegetation association within the project area. The dominant vegetation within this map-class category, observed during field surveys, is listed above in Table 1.

Within these mapped vegetation units, available NWI data (see Figure 2), as verified by field surveys, identified wetlands within the project area as palustrine. The dominant wetland vegetation observed in the project area is described in Table 1 above, as well as the wetland delineation report (see Attachment B¹). Additionally, maps depicting the field delineated wetlands within the project area are provided in Figure 3.

Functions and Values

Biotic Functions

The palustrine wetlands within the project area provide important habitat for mammals, birds, reptiles, amphibians, fishes, and invertebrates, and they sustain complex trophic interactions. A variety of wildlife require wetlands during substantial parts of their lives. Wetland functions support biodiversity by providing nutrients and filtration, soil loss reduction, and refuge during high flow events. Similarly, the riverine wetland aquatic system provides wildlife habitat (including moving water and, where vegetation is present, structure that may serve as refugia for some species) and improve water quality for aquatic species.

A range of wildlife species utilize and depend on wetland habitat along the Parkway. Reptiles including alligators, turtles, and snakes are known to occur within wetland habitat in Mississippi. Amphibians such as frogs, newts, and other salamanders rely on wetland habitats for breeding and development. Bird species such as wading birds also depend on wetland habitat for foraging and breeding. Wetlands, and particularly forested wetlands, along the Parkway may also be utilized by migratory bird species during migration for breeding and refuge.

Hydrologic and Biogeochemical Functions

Some functions of wetlands are interdependent with the surrounding landscape. For example, wetlands dampen the effects of storms by providing flood storage and reducing flow rates, thereby reducing erosion, the release of sediment, and the velocity of flood waters. The effectiveness of wetlands for flood abatement varies, based on the size of the wetland, type and condition of vegetation, slope, the location of the wetland in the flood path, and the saturation of wetland soils before a flood event (EPA 2006).

¹ Note a portion of wetland ID 005 is noted as PEM in the delineation report; however, in accordance with NPS' review and as presented in photos, this feature is within a unvegetated channel and addressed as riverine herein.



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Wetlands within the project area contain rooted vegetation which reduces the potential for erosion and stabilizes soil in place. Wetlands and rooted wetland vegetation also improve water quality by filtering out pollutants from the water. Microorganisms within wetlands utilize nutrients filtered by wetlands and break down organic matter, further improving water quality. Additionally, wetlands aid in nutrient trapping and groundwater recharge and discharge.

<u>Geology</u>

The project is located within the East Gulf Plain physiographic province, which is characterized as a coastal plain, gently sloping seaward from the inland highlands in a series of terraces (NPS 2017, 2018). The topography of the East Gulf Plain of Mississippi contains low hills, low cuesta ridges, and gentle lowlands (Renken 1998). One geologic unit is mapped for the project area:

 Ov (Vicksburg group and Chickasawhay limestone, Oligocene) – Chickasawhay limestone, sandy limestone, and sand, present only in eastern Mississippi (mapped with it is the overlying Paynes Hammock sand of Miocene age); Vicksburg group, predominantly limestone and marl, but contains some bentonite and near the top, chocolate-colored clay and some sand (Moore 1969).

<u>Soils</u>

According to the Soil Survey Geographic Database (SSURGO), one soil unit occurs within the survey area: Oaklimeter silt loam, 0 to 2 percent slopes, occasionally flooded, north (Oa). Oaklimeter silt loam is generally described as a non-hydric, level, moderately well drained, floodplain soil that is primarily used for pastureland and cultivation (NRCS 1979).

The project area is located in the Mississippi Valley Loess Plains ecoregion level III and the Loess Plains ecoregion level IV. The Loess Plains ecoregion was once a highly productive agricultural area, although many areas are now in pine plantations or have reverted to mixed forest landscape. Streams and rivers tend to be low gradient and murky with silty and sandy substrates. Severe erosion in earlier years contributed heavy sediment loads to downstream reaches (Chapman et al. 2004).

WETLAND IMPACTS

The proposed revetment activities within the Parkway would result in direct impacts on approximately 0.135 acre of wetlands (0.130 acre of riverine emergent wetland and 0.005 acre of forested wetland). Wetland species assemblages are described in the Vegetation and Habitat section of this report, above. Existing wetland soils along the project will be disturbed in preparation for and during revetment activities at Lindsey Creek between MP 309.71 and MP 307.71, and in the event of compaction or rutting due to use of heavy equipment traveling on Texas Eastern's existing ROW to the work site. Impacts within the Parkway will also include placement of fill and rip-rap; grading and recontouring Lindsey Creek and adjacent wetlands to stabilize soils; and installation of an articulating



grout mat within the creek to re-cover and armor the pipelines (between MP 309.71 and MP 307.71). Access to the project area will occur via Texas Eastern's existing ROW via the I-20 Frontage Road and will not cross the Parkway motor road. No other work is proposed within the Parkway boundary.

Texas Eastern will use certified clean fill. Revetment activities will be completed using traditional pipeline installation methods via backhoes, bobcats, excavators, or similar equipment. Vegetation clearing will be required within the FERC-certificated workspace and along the ROW to access the workspace; however, no tree clearing will be required. Texas Eastern will install temporary matting across waterbodies and wetlands crossed within the existing ROW to access the workspace where needed to prevent rutting, both within and outside the Parkway. Revetment activities are expected to last no more than 33 days or 5 weeks. Temporary mats would be completely removed upon the completion of construction.

The total area of existing ROW on federally owned property inside the Parkway is 2.120 acres. The total temporary wetland impacts to wetland in the park will be 0.096 and 0.120 acre of palustrine emergent (PEM) and palustrine forested (PFO), respectively, and the total permanent wetland impacts to wetland in the park will be 0.130 acre and 0.005 acre of riverine emergent wetland and PFO wetland, respectively.

Wetland Impact Avoidance and Minimization

Texas Eastern will install temporary matting across waterbodies and wetlands where needed to prevent rutting within the existing ROW to be used to access the revetment workspace. In addition, Texas Eastern will install erosion control devices to avoid any indirect impacts on waterbodies and wetlands during revetment activities.

Texas Eastern will employ a full-time Environmental Inspector (EI) during revetment activities. The EI will have stop work authority and the authority to order corrective action where activities violate or threaten to violate the conditions of the special use permit, other federal and state permits, or landowner requirements. The EI will report directly to the Chief Inspector and will have peer status with all other activity inspectors.

Environmental training will be given to Texas Eastern's personnel and to contractor personnel whose activities may impact the environment during the project. The training will cover the FERC *Upland Erosion Control, Revegetation and Maintenance Plan* (FERC Plan) and FERC *Wetland and Waterbody Construction and Mitigation Procedures* (FERC Procedures), job-specific permit conditions, company policies, cultural resource procedures, threatened and endangered species restrictions, as well as protocol and content outlined in Texas Eastern's Erosion and Sediment Control Plan (E&SCP), see Attachment C. The level of training, which will be given prior to the start of revetment activities and throughout the revetment process, as needed, will be commensurate with the type of duties required of the personnel.



Texas Eastern will comply with the conditions of Nationwide Permit (NWP) 12 and NWP 13, each of which contains conditions developed by the U.S. Army Corps of Engineers (USACE) to avoid, minimize, and mitigate impacts on wetlands and waterbodies.

The project is also subject to the conditions of Texas Eastern's Blanket Certificate for operation of the pipelines issued by the FERC, and will comply with the FERC Procedures, which include measures to minimize impacts and restore wetlands affected by natural gas pipeline activities. Texas Eastern's E&SCP is consistent with the FERC Procedures.

Minimization of Potential Surface and Subsurface Geologic Impacts

Imported clean soil will be free of noxious weeds or pests. Erosion and sediment controls will be installed in accordance with Texas Eastern's E&SCP to minimize the potential for disturbed soils to be transported outside construction workspaces. As described above, Texas Eastern will install temporary matting across waterbodies and wetlands where needed to prevent rutting within the existing ROW to be used to access workspace. In addition, Texas Eastern will install erosion control devices to avoid any indirect impacts on waterbodies and wetlands during revetment activities. Following the revetment activities, Texas Eastern will restore pre-construction contours within disturbed areas and the ROW will revegetate either naturally or via seeding.

Texas Eastern will implement best management practices regarding the storage of fuel and refueling equipment, including conducting refueling at least 100 feet from waterbodies, and whenever possible, hazardous materials will not be stored within 100 feet of waterbodies, in accordance with its Spill Prevention, Control, and Countermeasure Plan (SPCC Plan), see Attachment D. Given these measures, soil impacts from spills associated with the project will be avoided and minimized to the extent practicable.

The project will not involve blasting or excavation beyond that necessary to grade and restore the stream contours and pipeline cover. Therefore, the project will not cause subsurface geologic impacts.

Minimization of Potential Hydrologic Impacts

The project will not change the hydrology of the creek or availability of water, so overall impacts will be the minimum needed to ensure continued safe pipeline operations while still allowing the Lindsey Creek to flow. Texas Eastern will continue to monitor this location annually, as a part of its "shallow cover" work plan, to determine the effectiveness of the revetment and to determine if any additional remediation is required.

Temporary effects to surface water and wetlands could occur from release of sediment from the construction area or spillage of fuel or other contaminants. As noted above, Texas Eastern will implement measures in its E&SCP focused on soil erosion and stabilization and its SPCC Plan for the prevention of contaminant releases during revetment activities.



Heavy equipment will traverse Texas Eastern's existing ROW and travel within project workspaces, which includes waterbody and wetland crossings. To minimize the potential for disturbance of waterbody banks and protect these features from sedimentation due to equipment transits, Texas Eastern will install mats at waterbody and wetland crossings. Texas Eastern will also install temporary erosion and sediment control devices in accordance with its E&SCP to protect waterbodies and wetlands within proposed workspaces and along the existing ROW used to access workspace, as needed to minimize the potential for erosion and sedimentation.

Potential spills or leaks of hazardous liquids, resulting from the refueling of construction vehicles or storage of fuel, oil, and other fluids during revetment activities, could contaminate surface water. Texas Eastern's SPCC Plan for construction addresses preventative measures to be used to minimize the potential impacts of a hazardous material spill. Further, whenever possible, hazardous materials will not be stored within 100 feet of the waterbodies. Spill reporting will be conducted in accordance with all federal, state, and local regulations.

The USACE permit and associated blanket water quality certification also requires that all activities associated with construction that could result in a discharge be at all times consistent with applicable water quality standards, effluent limitations, and standards of performance.

Minimization of Potential Vegetation Impacts

Texas Eastern will limit ground disturbance and vegetation clearing to the workspace needed to complete revetment activities, minimizing impacts on vegetated habitats to the extent possible. In the project workspace, impacts will be limited to excavation, in-water work, and the movement of equipment and personnel to support installation of fill and an articulating grout mat as described above. As needed, workspaces will be cleared of vegetation prior to revetment activities to provide a safe working area. The limits of clearing will be identified and flagged in the field prior to the start of clearing operations. A small amount of PFO within Texas Eastern's existing ROW was identified during field efforts; however, workspace is underneath the canopy of the PFO such that no tree clearing will be required. Some vegetation may be cleared along the portion of Texas Eastern's existing ROW to provide access to work areas. Where access routes traverse wetlands, temporary mats will be utilized in an effort to reduce soil compaction and overall vegetation disturbance. Texas Eastern will also install erosion control devices to avoid any indirect impacts on wetlands during revetment activities, in accordance its E&SCP.

All upland areas used during revetment activities will be seeded using native plant seed mixes in accordance with NPS requirements and Texas Eastern's E&SCP, as well as with landowner requirements for any portion of the access corridor that may require reseeding.



MITIGATION PLAN

Several types of impacts will occur within the Parkway boundaries:

- Riverine Fill and Channel Grading
- Articulating Grout Mat and Rip-Rap Installation
- Temporary Installation of Access Mats

Riverine Fill and Channel Grading – Imported fill will be added where the pipelines are exposed, grading and recontouring the stream banks will limit disturbance to a relatively small area within Texas Eastern's ROW. This construction approach will re-cover the pipelines, stabilize soils, and prevent high water flows from causing future erosion of the bank and exposure of and possible damage to the pipelines.

Articulating Grout Mat and Rip-Rap Installation – Installation of permanent articulating grout mats and rip-rap will limit disturbance to a relatively small area within Texas Eastern's ROW. This construction approach also limit total wetland impacts by avoiding further erosion of the stream banks.

Temporary Installation of Access Mats – Construction equipment will be operated from timber or poly mats when working in wetlands. Mats are used to limit soil compaction and rutting by evenly distributing the weight of construction equipment. Following removal, all areas where mats were placed will be returned to pre-construction contours.

Compensatory Mitigation

Per NPS DO 77-1, all permanent and temporary impacts should be offset by wetland compensation. The proposed project will permanently impact 0.135 acre from the installation of articulating grout mats, soil, and rip-rap. Use of temporary mats for construction will impact 0.216 acre.

The following compensatory mitigation plan has been developed by Texas Eastern and NPS staff to mitigate for permanent and temporary wetland impacts associated with the revetment project along the existing Line 14, 18, and 31 natural gas pipelines. This project is required to ensure the continued safe operation of several natural gas pipelines that cross the Parkway. Texas Eastern proposes to provide assistance with restoring natural wetland functions by managing invasive species in degraded natural wetlands along the Parkway in the area of Beaver Pond and south to the powerline, as shown in Figure 4, at a 20:1 mitigation ratio.





Invasive species management will be conducted by a Parkway-approved vendor and consisting of the initial treatment of mechanically and chemically treating Chinese tallow (*Triadica sebifera*) via cut-stump and foliar spray methods on 7.02 acres of adjacent forested Parkway lands and subsequent re-treating any new Chinese tallow for three growing seasons. These activities, which will be completed by a Parkway-approved vendor, should assist with restoration of degraded wetlands in the proposed mitigation area described above and as depicted in Figure 4.

Chinese tallow removal will allow re-establishment of native wetland vegetation and promote restoration of wetland functions and values including providing habitat for fish and wildlife, water quality improvement, and biological productivity.

The initial treatment of Chinese tallow will be scheduled to occur late summer / early fall as recommended by NPS. Following the initial treatment, and in order to achieve and document the effectivity standards identified below, the mitigation area will be monitored at the beginning and end of each of the three growing seasons for signs of invasive species growth subsequent treatment and any resprouting observed will be re-treated. The monitoring effectivity standards are:

- 95 percent effectiveness of cut-stump treatment preventing resprouting vegetation; and
- 85 percent effectiveness in mortality from foliar spray of seedlings.

Removal rates will be confirmed by comparing pre- and post-construction densities and in coordination with NPS.

Source Funding

Compensatory mitigation commitments will be funded by Texas Eastern and will be consistent with restrictions listed in Section 5.2.3 of the NPS Procedural Manual # 77-1 Wetlands Protection for the initial treatment and a subsequent monitoring period of three years.

CONCLUSION

Texas Eastern has requested the issuance of a special use permit by the NPS to address three sections of exposed natural gas pipelines within Lindsey Creek. These exposed pipelines warrant attention due to safety concerns of corrosion (which may weaken pipe walls) and potential impacts from flood debris. To continue the safe operation of Line 14, 18, and 31, Texas Eastern proposes to install articulating grout mats and rip-rap within and along the banks of Lindsey Creek within their existing ROW at the Parkway.

This WSOF evaluated three action alternatives to achieve Texas Eastern's project goals. These alternatives included temporary and permanent impacts on wetlands; however, the Preferred Alternative has fewer impacts and limits the impacts to within Texas Eastern's ROW.



In the case that the No Action Alternative is selected, Texas Eastern would not be granted the special use permit for the proposed project, and the revetment activities within Lindsey Creek would not be accomplished. If the proposed revetment were not conducted, no short-term impacts from the revetment activities would occur; however, adjacent wetlands would continue to erode and the pipeline would continue to corrode, which eventually could compromise the integrity of the pipelines and disrupt service for Texas Eastern customers.

The NPS has determined that there are no practicable alternatives preventing permanent impacts on 0.135 acre of wetlands and 0.216 acre of temporary impacts within the project area. Wetland impacts will be minimized to best extent possible, and the project area will be returned to pre-construction contours following project completion. Wetland impacts will be compensated for by restoring degraded wetlands using a 20:1 ratio per NPS policy (see Section 5.2.3 of NPS Procedural Manual #77-1 Wetland Protection). Management of 7.02 acres of invasive Chinese tallow will be required for the initial treatment and monitoring over three growing seasons to meet the requirements of the no net loss of wetlands policy.



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