EDGE ENGINEERING & SCIENCE | 16285 Park Ten Place, Suite 400 | Houston, Texas 77084 | 832.772.3000 edge-es.com

May 8, 2020

Ms. Elizabeth A. Hamilton
Project Manager
U.S. Army Corps of Engineers, Mobile District
P.O. Box 2288
Mobile, Alabama 36628
CESAM-RD@sam.usace.army.mil

Subject: NextEra Energy Pipeline Holdings (Lowman), Inc.
Lowman Pipeline Project
Pre-Construction Notification - File #SAM-2019-00914-ES

Dear Ms. Hamilton,

NextEra Energy Pipeline Holdings (Lowman), Inc. proposes to construct a new 53.75-mile-long, 16-inch diameter, intrastate natural gas pipeline in Choctaw and Washington Counties, Alabama, referred to as the Lowman Pipeline Project (Project). Construction of the Project will have temporary impacts on wetlands and waterbodies within the project corridor and will also result in the permanent conversion of various scrub shrub and forested wetlands that are considered potential jurisdictional waters (PJWs) of the U.S. As such, the PJWs impacted by the Project are subject to regulation by the U.S. Army Corps of Engineers, Mobile District (USACE-SAM), under Section 404 of the Clean Water Act.

In addition, the Project poses the potential to affect historic properties and protected species within areas considered to be USACE-jurisdictional and therefore warrants federal review pursuant to Section 106 of the National Historic Preservation Act (NHPA), Appendix C of 33 Code of Federal Regulations [CFR] Part 325, and Section 7 of the Endangered Species Act (ESA). Pursuant to the requirements for notification to the USACE-SAM District Engineer, a Pre-Construction Notification (PCN) is required. Therefore, at the request of Lowman, and acting as its authorized agent, Edge Engineering and Science, LLC (EDGE) has prepared a permit application, provided as Attachment 1. Following a pre-application meeting with the USACE-SAM on December 17, 2019, the Project was assigned File # SAM-2019-00914-ES.

In general, the enclosed PCN includes a brief description of the Project, including succinct descriptions of the proposed construction methodologies, summaries of each of the environmental studies and proposed unavoidable resource impacts. EDGE has also prepared a detailed Alternatives Analysis describing the various route iterations that that were reviewed, including the “No Action Alternative”. Each route alternative was assessed against their ability to meet the purpose of the Project, while minimizing environmental impacts. All PCN attachments are listed below:

- Attachment 1: ENG Form 4345;
- Attachment 2: Project Vicinity Map;
- Attachment 3: Aerial Photo-based Impacts Maps;
- Attachment 4: USGS Topographic Impacts Maps;
- Attachment 5: HDD Plans/Profiles;
- Attachment 6: HDD Contingency Plan;
- Attachment 7: Construction Typical Drawings;
- Attachment 8: Wetland and Waterbody Impacts Tables (Impacts Tables);
- Attachment 9: *A Wetland Delineation and Waterbody Survey Report* (included on CD only);
- Attachment 10: U.S. Fish and Wildlife Service Consultation;
- Attachment 11: Landowner Address Labels (Privileged and Confidential); and
- Attachment 12: Route Alternatives.

Based on the information provided herein, Lowman and EDGE request authorization to proceed from your office. Should you need additional information to assist with your review, please contact me at (303) 594-5617 or wagrammer@edge-es.com. You may also contact Lowman's Environmental Project Manager Raymond Loving at (346) 234-5636 or by email at Raymond.Loving@nexteraenergy.com.

Sincerely,

Andrew Grammer
Sr. Environmental Consultant
Edge Engineering and Science, LLC
Authorized Project Agent of NextEra Energy Pipeline Holdings (Lowman), Inc.

PROJECT DESCRIPTION

Lowman proposes to construct, operate, and maintain a new 16-inch-diameter, 53.75-mile-long natural gas pipeline in Choctaw and Washington Counties, Alabama (see Attachments 2, 3, and 4). In addition to the pipeline, the Project will include the construction of one new compressor station, three meter stations, and a launcher/receiver facility. The purpose of the Lowman Pipeline Project will be to receive natural gas at interconnects with Mid-continent Express and GulfSouth pipelines and will deliver gas to the PowerSouth Lowman Power Plant. The Project will support the natural gas conversion of the existing coal-fired PowerSouth Lowman Power Plant.

Lowman proposes to utilize an 85-foot-wide temporary construction right-of-way (ROW) with some additional temporary workspace (ATWS) at road crossings, stream crossings, and other areas where needed. Following construction, Lowman will maintain a 30-foot-wide permanent easement except in areas between workspaces associated with horizontal directional drill (HDD) entry and exit points. Construction is currently scheduled to begin on March 1, 2021 with an anticipated in-service date of December 2021.

General Pipeline Construction Methods

In general, the proposed pipeline will be constructed in accordance with applicable federal, state, and local regulations, permits, and approvals. During typical pipeline construction, the construction spread (crew and equipment) will proceed along the temporary construction ROW in one continuous operation. Construction will employ a combination of methods including the open-cut, HDD, and conventional bore techniques using bulldozers, track-hoes, conventional bore, and HDD equipment. Typically, within streams, the pipeline will be buried with a minimum of 3 feet of cover. Once the pipeline has been installed, the trench will be backfilled using spoils excavated from the trench (Attachment 7). Following construction, Lowman will restore land surface contours as closely as is practicable to pre-construction conditions, restoring site hydrology. Temporary construction ROW will be allowed to revegetate to pre-existing conditions. The entire process will be coordinated in a manner intended to minimize total time a given tract of land is disturbed, exposed to erosion, and temporarily precluded from normal use.

Standard locations for ATWS will include HDD crossings, conventional bore crossings (e.g., minor roads), some stream crossings, and abrupt points of intersect. Access roads necessary to construct the Project will consist of a combination of existing public and private roads. Existing roads and the maintained permanent easement will be used for routine operations and maintenance of the pipeline.

Following construction, Lowman will restore land surface contours to pre-construction conditions, restoring site hydrology. Fifteen feet of the permanent easement will be maintained yearly in an herbaceous state with the remaining fifteen feet maintained every 3 years except in HDDs where no line of sight is cleared. The temporary construction ROW will be allowed to revegetate to pre-existing conditions. The entire process will be coordinated in a manner intended to minimize the total time a given tract of land is disturbed, exposed to erosion, and temporarily precluded from normal use.

ENVIRONMENTAL RESOURCE ASSESSMENTS

Between November 2019 and April 2020, on behalf of Lowman, EDGE's professional subcontractor Environmental Solutions & Innovations, Inc. (ESI) completed the required biological surveys, including wetland delineation and waterbody surveys and a general habitat assessment for federally protected

species. In addition, EDGE contracted with professional cultural resources management firm, SEARCH, Inc. (SEARCH), to complete the required cultural resources field surveys and reporting. Descriptions of the completed studies are provided below.

Wetlands and Waterbodies

The wetland delineation and waterbody surveys were completed within a 300-foot-wide survey corridor along the proposed pipeline route. All fieldwork was conducted in accordance with the methods described in the USACE's 1987 *Wetlands Delineation Manual* (USACE 1987) and the USACE*'s Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (Version 2.0) (USACE 2010). The results of the surveys are provided in the enclosed report titled *A Wetland Delineation and Waterbody Survey Report* provided as Attachment 9.

Wetland Impacts

Maps of proposed wetland impacts are provided in Attachments 3 and 4 and are quantified in the enclosed Impacts Table provided as Attachment 8a. The Project will result in conversion of palustrine forested (PFO) and palustrine shrub-scrub (PSS) wetlands to palustrine emergent (PEM) wetlands. In addition, PEM wetlands will be temporarily impacted during construction. One PFO wetland will be permanently impacted due to the need for a new permanent access road (AR-01.4) to the proposed compressor station. The construction corridor will be reduced to 75 feet wide through all wetlands to reduce impacts (Attachments 3 and 4). Lowman proposes the use of the HDD crossing method to avoid approximately 5.07-acres of wetland impacts along the proposed route.

Wetland Mitigation

Federal mitigation requirements are outlined in the *Compensatory Mitigation for Losses of Aquatic Resources* that were jointly developed and issued by the USACE (33 CFR Part 332) and the U.S. Environmental Protection Agency (40 CFR Part 230) on April 10, 2008. Lowman proposes to purchase credits from the Alabama River Mitigation Bank (ARMB) for unavoidable impacts of PFO wetlands. Upon approval by the USACE, Mobile District, Lowman will execute a contract and purchase the requisite credits from the ARMB (see Attachment 8a).

Waterbody Impacts

Maps of the proposed waterbody impacts are provided in Attachments 4 and 5 and quantified in the enclosed Impacts Table provided as Attachment 8b. Following construction, Lowman will restore contours as closely as practicable to pre-construction conditions and reseed the stream banks with a native seed mix similar to the surrounding species. Lowman proposes to avoid direct impacts to large perennial streams by using the HDD construction method at larger stream crossings, including Okatuppa Creek, Souwilpa Creek, Turkey Creek, Santa Bogue Creek, Elias Creek, Tauler Creek, and Bogueloosa Creek. Plans and profiles for the proposed HDDs are provided as Attachment 5. An HDD Continency Plan is provided as Attachment 6.

Waterbody Mitigation

Lowman proposes no formal compensatory mitigation for impacts to waterbodies. However, following construction, Lowman will stabilize and restore all waterbodies, to the extent possible, to pre-construction contours. Routine operational maintenance at waterbodies will be limited to annual clearing of vegetation within a 15-foot-wide corridor centered along the pipeline. Lowman will conduct routine inspections of waterbody crossings to ensure restoration and revegetation are progressing as planned.

Avoidance and Minimization Measures

This section describes the avoidance and minimization measures Lowman will implement during construction and operation of the Project. The temporary construction ROW has been reduced to 75 feet within wetlands, and the use of the HDD construction method will be used to avoid seven major streams and approximately 5.07 acres of wetland impacts. By adhering to proper avoidance and minimization measures, the least damaging and most practicable alternative is being permitted. To minimize wetland impacts during pipeline construction, Lowman will utilize the following measures where possible:

- Where feasible, Lowman has designed the route to avoid PFO wetlands.
- Construction equipment operating within the temporary construction ROW will be limited to that necessary for clearing, excavation, pipe installation, backfilling, and restoration. All non-essential equipment will use upland access roads to the extent practicable.
- Equipment operating within saturated wetlands will operate from construction mats.
- Temporary erosion and sediment control measures will be installed in accordance with applicable state laws.
- In some areas of temporary impacts, wetland vegetation may be cut at ground level, leaving existing root systems in place to promote re-growth. Where conditions allow, these areas will be graded and top soiled. Stumps will be removed from the trench line and the working side of the temporary construction ROW if stump retention presents a safety concern.
- Trenches through wetlands will not be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect).

In addition, Lowman will develop a Construction Best Management Practices Plan (CBMPP) for the entire Project. The CBMPP will comply with the Alabama Department of Environmental Management's (ADEM) requirement for a General Permit in accordance with the National Pollutant Discharge Elimination System. The plan will be submitted for approval by the ADEM prior to construction.

Project Areas Pending Wetland and Waterbody Survey Completion

Table 1 below provides a list of locations along the proposed pipeline route where surveys have not yet been completed due to pending landowner permissions. Once available, these areas will be surveyed and all PJW impacts and mitigation calculations will be evaluated, then EDGE will submit an amendment to the PCN on behalf of Lowman.

TABLE 1.
Outstanding Wetland and Waterbody Survey Areas

Begin Milepost	End Milepost	Total Mileage
1.83	2.27	0.43
3.47	3.72	0.25
21.52	21.66	0.14
25.00	25.27	0.27
26.28	27.38	1.10
27.77	28.72	0.95
29.36	29.59	0.23
30.30	30.57	0.27
	Total	**3.64 miles**

Protected Species

In accordance with Section 7 of the ESA, EDGE's professional biologists completed a desktop review of the Project area to determine if the proposed pipeline construction activities might jeopardize the continued existence of federally protected species or adversely modify designated critical habitats. EDGE initiated this work by submitting an online request using the U.S. Fish and Wildlife Service's (USFWS's) online Information for Planning and Consultation (IPaC) System. The IPaC Resource List generated for the Project area included 6 federally protected species (USFWS 2019a). Table 2 identifies the federally protected species in Choctaw and Washington Counties including the common and scientific names, federal status, and recommended effect determinations. Federally designated critical habitat locations were also reviewed, and no designated critical habitat occurs in areas affected by the Project. In addition, a general habitat assessment was performed, concurrent with the wetland delineation and waterbody surveys described above.

Birds

The wood stork (*Mycteria americana*) is federally listed as a threatened species and is known to inhabit the lower Tombigbee River drainage. EDGE plans to survey for wood stork habitat (nesting) and potential occupancy coinciding with wetland/waterbody and mussel habitat surveys (see discussion, below).

Reptiles

The gopher tortoise (*Gopherus polyphemus*) is known to occur in Washington and Choctaw counties, Alabama. The species is designated as federally threatened under ESA within this portion of their range and are protected under state regulation. Based upon a desktop review of the Project area, EDGE anticipates that potential suitable habitat for the tortoise may be crossed and plans to conduct pedestrian surveys to evaluate suitable habitat and presence/probable absence of burrows. If burrows are found during surveys, measurements of the width, height, and condition of the burrow will be recorded and mapped, and a subsequent occupancy survey will be conducted to estimate population size and density to determine if translocation or implementation of on-site construction Best Management Practices are necessary.

The southern black pinesnake (*Pituophis melanoleucus lodingi*; SBP) is federally threatened and occupies similar upland habitats as the gopher tortoise. Based on EDGE's experience, we do not anticipate targeted species efforts for SBP, rather it will be evaluated in conjunction with gopher tortoise field survey efforts. Surveys will be conducted in land cover types and soil associations that are known to support the life history requirements of the SBP and gopher tortoise. Surveys will occur during the active season for tortoises, generally from March to October.

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surveys to evaluate suitable habitat and presence/probable absence of burrows. If burrows are found during surveys, measurements of the width, height, and condition of the burrow will be recorded and mapped, and a subsequent occupancy survey will be conducted to estimate population size and density to determine if translocation or implementation of on-site construction Best Management Practices are necessary.

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TABLE 2.
Federally Listed Species in Choctaw and Washington Counties, Alabama

Common Name	Scientific Name	Listing Status	Habitat Description	Potential for Occurrence
Birds				
Wood stork	*Mycteria americana*	Threatened	Breeding occurs in fresh and brackish forested wetlands. Storks nest in trees above standing water in cypress swamps and oaks in flooded inpoundments. Storks forage in swamps, ponds, and marshes with water depths 4-12 inches.	Known to occur in the lower Tombigbee River drainage crossed by the Project.
Reptiles				
Gopher tortoise	*Gopherus polyphemus*	Threatened	Dry, deep sandy soils where the overhead canopy is open. Longleaf pine-scrub oak wiregrass sand hills that are fequently burned.	Suitable soils located within open longleaf pine-scrub oak wiregrass sand hills may exist in the vicinity of the Project area.
Black pine snake	*Pituophis melanoleucus lodingi*	Threatened	Xeric, fire-maintained longleaf pine forest with sandy, well-drained soils; usually on hilltops, ridges, and toward tops of slopes. Potential to occur in dry, periodically burned pine or mixed pine-scrub oak forest with abundant groundcover vegetation.	Suitable longleaf pine forest with suitable soils, which could provide habitat, are likely to exist in the vicinity of the Project area.
Fish				
Atlantic sturgeon	*Acipenser oxyrhynchus oxyrhynchus*	Endangered	Inhabits shallow waters of the continental shelf and coastal brackish waters; spawns in large river systems and hatches in freshwater systems. Preferred substrates consist of rock, coble, and gravel.	No suitable habitat exists within or immediately adjacent to the Project area.
Mollusks				

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Common Name	Scientific Name	Listing Status	Habitat Description	Potential for Occurrence
Inflated heelsplitter	*Potamilus inflatus*	Threatened	Sand, mud, silt, and sandy-gravel substrates in slow to moderate freshwater currents.	The Tombigbee River drainage in Alabama is know to support the species.
Southern clubshell	*Pleurobema decisum*	Endangered	Highly oxygenated streams with sand and gravel substrate in shoals of large rivers to small streams. May be found in sand and gravel in the center of a stream or in sand along the margins of the stream	The Tombigbee River drainage in Alabama is know to support the species.

Mollusks

The Tombigbee River drainage in Alabama is known to support multiple federally listed freshwater mussels. Those mussel species listed as potentially occurring in Choctaw and Washington counties, including the inflated heelsplitter (*Potamilus inflatus*) and southern clubshell (*Pleurobema decisum*) are predominantly based on known occurrences in the upper Tombigbee River drainage. EDGE anticipates conducting aquatic habitat assessment/surveys at nine perennial waterbodies/tributaries traversed by the Project in Choctaw (Bogueloosa Creek, Buck Creek, Okatuppa Creek, Souwilpa Creek, Black Creek, Turkey Creek) and Washington (Santa Bogue Creek, Elias Creek, Tauler Creek) Counties. Mussel habitat surveys can also evaluate/supplement other aquatic species concerns including fishes, invertebrates, snails, and herptofauna that may be raised during the Project review process.

Bald Eagles and Migratory Birds

Lowman also recognizes the Bald and Golden Eagle Protection Act as well as the Migratory Bird Treaty Act. No bald eagles or nests were observed during surveys. However, in the event that bald eagles or active nests are encountered, construction will comply with the guidelines set forth in the USFWS's 2007 *National Bald Eagle Management Guidelines*.

Lowman is familiar with the requirements under the MBTA. Lowman has designed the Project to minimize impacts on forested vegetation to the extent practicable; however, tree removal will be necessary for construction of the Project. To the extent practicable, tree removal will be conducted outside the migratory bird nesting season (April 15 through August 1).

Biological Assessment

During Lowman's pre-application meeting with the USACE-SAM on December 17, 2019, it was discussed that gopher tortoise, black pine snake, Alabama heelsplitter, and southern clubshell have the potential to occur within the proposed Project area. Because of known gopher tortoise burrows and the high potential for suitable habitat to occur along the proposed pipeline route, formal consultation with the USFWS for effects to species would be required. Lowman intends to file a draft applicant-prepared Biological Assessment (BA) in June 2020 with species evaluations.

Species-specific Surveys

On October 16, 2019, EDGE submitted the results generated by the USFWS IPaC System to the USFWS Alabama Ecological Services Field Office in a formal request for Project consultation (see Attachment 10). On December 5, 2019, the USFWS on December 5, 2019 verified the IPaC System results and supported EDGE's proposal to conduct species-specific surveys for gopher tortoise along the proposed pipeline route and for freshwater mussels at nine perennial waterbodies traversed by the Project; however, mussels were anecdotally observed in two additional streams during subsequent surveys (for wetlands). Thus, 11 streams will be surveyed. Species-specific surveys for gopher tortoise and mussels are anticipated to occur in May 2020. Results will be presented in the BA.

Cultural Resources

In compliance with Section 106 of the NHPA, as amended, and Appendix C of 33 CFR Part 325, Lowman contracted EDGE to manage the requisite agency consultations and oversee field surveys to determine if the proposed Project activities would affect historic properties. EDGE subcontracted SEARCH to complete the required desktop research, field surveys, and reporting. A brief summary of the cultural resources investigations completed to date is provided below. A draft survey report will be submitted to the USACE-SAM upon completion.

On October 30, 2019, SEARCH initiated Section 106 consultation with the USACE-SAM and submitted its proposed scope of work for review. On November 8, 2020, USACE concurred with the proposed field methodologies. Copies of all agency consultations held to date will be included as an appendix to the draft survey report.

Between October 2019 and April 2020, SEARCH conducted Phase I cultural resources field surveys. The Phase I survey areas established for the Project were defined in consultation with the USACE-SAM to include 100-foot buffers of PJWs. Based on a desktop review of the study corridor, SEARCH identified 117 water crossings (WCs) survey areas that are considered encompass PJWs. EDGE subsequently provided SEARCH with the 800 PJWs identified by the environmental survey team. An additional 258 survey areas were created to encompass the water crossings defined by biologists (WCBs) that did not already fall within the previously defined WC survey areas. Of the 258 WCB survey areas, 74 were designated for field survey based on a consideration of slope, landform, topography, and soils. Lowman also directed SEARCH to identify and survey 52 additional high probability areas (HPAs) along the pipeline route that were considered likely to contain archaeological sites. Lowman further directed SEARCH to conduct pedestrian surveys of 45.29 miles of the temporary and permanent access roads established for the Project. The Phase I survey within each WC, WCB, and HPA was typically confined to a 300-foot-wide survey corridor. Where applicable, Lowman, as instructed by USACE-SAM, directed SEARCH to conduct survey outside the study corridor or other Project boundaries to provide preliminary archaeological site boundaries.

The scope of the Phase I survey covers a total of 501.51 acres within 117 WCs, 74 WCBs, and 52 HPAs, plus 45.29 mi of access roads, as summarized in Table 3 below. As result of work completed to date, SEARCH has documented 57 cultural resources, including 31 archaeological sites recommended as not eligible for inclusion in the NRHP, 25 archaeological sites whose NRHP status is indeterminate and that are recommended for avoidance or Phase II testing, and one historic cemetery that is not eligible for inclusion in the NRHP but will require avoidance. A draft survey report will be submitted to the USACE-SAM upon completion.

Project Areas Pending Cultural Resources Survey Completion

Table 3 below provides an overview of the completed survey coverage and planned surveys that have not yet been completed due to pending landowner permissions. Once available, all planned areas will be surveyed and the results will be presented in an addendum to the Phase I survey report, to be provided as an attachment to a future PCN amendment. The survey efforts are ongoing pending landowner permissions.

TABLE 3.
Overview of Cultural Resources Survey Completion Status

Survey Area Type	Survey Complete		Survey Incomplete		Survey Complete (excluded from Project; no longer planned)	
	Number	Size	Number	Size	Number	Size
WCs	104	180.96 ac	4	9.03 ac	9	10.59 ac
WCBs[1]	66	140.90 ac	8	11.91 ac	0	0.00 ac
HPAs[2]	46	143.51 ac	4	N/A	2	4.61 ac
Total	**216**	**465.37 ac**	**16**	**20.94 ac**	**11**	**15.20 ac**
Access Roads	62	36.34 mi	16	7.92 mi	4	1.03 mi

[1] The count and acreage of the water crossings identified during the environmental survey only include those that are not collocated with water crossings identified during desktop review or associated with excessive slope or inundation.

[2] Original HPA count was 50. Four of the 50 were replaced by a walkover inspection of the abandoned ATN rail bed (which is 90% complete pending landowner permissions), and two HPAs were added at proposed compressor station sites for a total of 52.

ALTERNATIVES

The Project is designed to allow for natural gas conversion of the existing coal-fired PowerSouth Lowman Power Plant. Beginning in the early phases of route selection, Lowman evaluated alternatives to the final, proposed alignment of the pipeline. The alternatives were assessed against their ability to meet the purpose of the Project, while minimizing environmental impacts. Attachment 12 of this PCN includes a map showing the route alternatives considered in the following sections.

No Action Alternative

Under the No Action Alternative, Lowman would not construct the Project. The No Action Alternative would not provide infrastructure required to transport natural gas to PowerSouth's Lowman Power Plant. Without pipeline transportation capacity to the power plant, PowerSouth would not be able to power the electric generation units planned for conversion from coal to natural gas, resulting in sustained emissions from the coal-powered units. The No Action Alternative would retain the existing condition, would not result in any Project-related environmental impacts or benefits. It is speculative to predict the actions and potential effects that could be taken by another proponent in response to the No Action Alternative. Since the No Action Alternative would not achieve the Project purpose of providing natural gas transportation capacity to facilitate conversion of coal-fired electric generators at the PowerSouth Lowman Power Plant, the No Action Alternative was not carried forward for detailed evaluation.

Modification of Existing Infrastructure

No other natural gas pipeline infrastructure exists in the Project area that could be modified to supply the natural gas volumes necessary to meet future PowerSouth Lowman Power Plant needs. For this reason, an alternative to modify existing pipeline infrastructure was not carried forward for the detailed evaluations.

Route Alternatives

Lowman's route selection for the pipeline involved consideration of environmental, engineering, constructability, economic, and landowner factors. Once Lowman established the basic pipeline features (i.e., the beginning and end points) based on a feasible interconnect location Mid-continent Express and Gulf South delivery point at the PowerSouth Lowman Power Plant, Lowman began the process of route selection and refinement. Although this route alternatives analysis is specific to the pipeline placement within Waters of the United States, the crossings of which are regulated by the USACE-SAM, Lowman evaluated alternatives for the Project pipeline route as a whole.

During the initial Project constraints analysis and routing process, Lowman conducted a Geographic Information System (GIS)-based routing analysis to develop and assess pipeline routes based on multiple publicly available and purchased datasets. Datasets utilized during the Project routing analysis included various data comprising, but not limited to, engineering (e.g., existing pipelines, railroads, karst features, powerlines, etc.), environmental (e.g., critical habitat, fault lines, state parks, national forests, brownfields, national registry of historic places, etc.), and land use factors (e.g., fee owned federal lands, federal easements, dams, airports, cemeteries, schools, mining, tribal lands, and military installations, etc.). Existing infrastructure (e.g., utility lines and roadways) datasets were identified as preferred areas so that routing followed existing infrastructure to the extent possible to minimize creation of new rights-of-way. Public lands and resource management areas were avoided where feasible. The GIS-based routing analysis was meant to optimize engineering and construction considerations (e.g., provide the shortest distance between pipeline origin and terminus) while minimizing potential conflict with other features considered in the analysis. Attachment 12 depicts two route alternatives considered by Lowman during the route selection process.

Route Alternative 1

During the routing process, Lowman assessed route alignments connecting the Mid-continent Express and GulfSouth pipelines with the PowerSouth Lowman Power Plant. Lowman initially evaluated an alignment to the east of the Lowman's preferred route that traversed through Choctaw, Clarke, and Washington Counties, Alabama. This route, referred to as Alternative 1, was approximately 2.25 miles shorter than Lowman's preferred route; however, the alignment crossed the Tombigbee River at two locations. The Tombigbee River is considered a navigable waterway under Section 10 of the Rivers and Harbors Act of 1899, and as such is subject to additional regulation by the USACE-SAM for any work performed below the Ordinary High Water elevation. In addition, Alternative 1 crossed four (4) Resource Management Area (RMA) tracts managed by the Alabama Department of Conservation and Natural Resources. Lowman's evaluation criteria, as described above, identified the Tombigbee River as a feature to be avoided due to its Section 10 status. Since no sufficient route variations for Alternative 1 could be identified for avoidance of the Tombigbee River, this route was eliminated from further consideration.

Route Alternative 2

Route Alternative 2 was initially assessed due to Alternative 1 being eliminated due to multiple crossings of a Section 10 waterbody, and potential RMA impacts. The alignment was located west of Alternative 1,

and east of the Lowman's preferred route, in Choctaw and Washington Counties. Table 4, below, compares desktop data run for Alternative 2 and Lowman's preferred route alignment.

Route Alternative 2 is approximately 1.1 mile shorter than Lowman's preferred route; however, only approximately 6% of the overall route could be collocated with existing facilities. Lowman's preferred route has an overall corridor collocation of approximately 17%. Based upon National Wetlands Inventory data, Route Alternative 2 would cross approximately 3.3 miles of freshwater forested wetlands comprised of 33 individual wetlands, while the preferred route crosses approximately 2.6 miles of freshwater forested wetlands comprised of 32 individual wetlands. Based on National Hydrography Dataset data, Alternative 2 would cross 66 individual streams or rivers as compared to 48 streams/rivers crossed by Lowman's preferred route. Finally, Alternative 2 crosses one (1) RMA for a total crossing length of 0.01-mile as well as being routed through a residential neighborhood near Needham, Alabama in Choctaw County. Based upon Lowman's side-by-side evaluation of the two routes, the preferred route was selected due to: maximized collocation, less anticipated waterbody and forested wetland crossings, no impacts to RMAs, and no residential neighborhood crossings. For these reasons, Alternative 2 was eliminated from further consideration.

TABLE 4.
Desktop Comparison of Alternative 2 and Preferred Route

Resource/Constraint	Alternative 2	Preferred Route
Length (miles)	50.2	51.3
Streams/Rivers[1]	66	48
Freshwater Forested Wetlands[2]	33	32
Collocation	6%	17%
Resource Management Areas	1	0

[1] Based upon National Hydrography Dataset.
[2] Based upon National Wetlands Inventory dataset.

Route Alternative 2 is approximately 1.1 mile shorter than Lowman's preferred route; however, only approximately 6% of the overall route could be collocated with existing facilities. Lowman's preferred route has an overall corridor collocation of approximately 17%. Based upon National Wetlands Inventory data, Route Alternative 2 would cross approximately 3.3 miles of freshwater forested wetlands comprised of 33 individual wetlands, while the preferred route crosses approximately 2.6 miles of freshwater forested wetlands comprised of 32 individual wetlands. Based on National Hydrography Dataset data, Alternative 2 would cross 66 individual streams or rivers as compared to 48 streams/rivers crossed by Lowman's preferred route. Finally, Alternative 2 crosses one (1) RMA for a total crossing length of 0.01-mile as well as being routed through a residential neighborhood near Needham, Alabama in Choctaw County. Based upon Lowman's side-by-side evaluation of the two routes, the preferred route was selected due to: maximized collocation, less anticipated waterbody and forested wetland crossings, no impacts to RMAs, and no residential neighborhood crossings. For these reasons, Alternative 2 was eliminated from further consideration.

Minor Route Variations

Upon selection of the preferred Project route, Lowman conducted an in-depth evaluation of the alignment to refine it for constructability, workspace configurations, landowner concerns, and biological and cultural

survey results. The preferred route was modified based upon these considerations, and the result is the final route alignment included in this application.

LITERATURE CITED

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