ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

and

DOMINION TRANSMISSION, INC.
SUPPLY HEADER PROJECT

Supplemental Filing
March 24, 2017

APPENDIX F

State Sensitive Species and Species-Specific Conservation Measures

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
WV	Mammal	West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*)	SGCN, State Sensitive, MNF RFSS	Suitable habitat found in the MNF.	Potential loss of suitable habitat.	Adjustment of access road to minimize impacts on habitat. Relocation of spruce seedlings prior to construction. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
WV	Mammal	Eastern red bat (*Lasiurus borealis*)	SGCN, No longer listed	Species was identified in one location during 2016 mist net surveys. Presence/absence survey ongoing in areas previously inaccessible.	Impacts on suitable forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats.
WV	Mammal	Hoary bat (*Lasiurus cinereus*)	SGCN, No longer listed	Species has not been identified during surveys to date. Presence/absence survey ongoing in areas previously inaccessible.	Impacts on suitable forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats.
WV	Mammal	Eastern small-footed bat (*Myotis leibii*)	SGCN, State Sensitive, MNF RFSS	Field surveys for eastern small-footed bat consisted of pedestrian surveys to identify potential roost habitat and presence/absence within the MNF. Two suitable roosting locations consisting of rock faces receiving adequate solar exposure and crevices were found downslope of the Project area.	Direct impacts not anticipated. Indirect impacts to eastern small-footed bat from general construction noise could displace bats and disrupt normal activities.	A West Virginia Myotid Conservation Plan, which could also benefit eastern small-footed bat foraging habitat, is being developed for the FWS and will be applied throughout the Project area in West Virginia, including the MNF. Potential impacts to eastern small-footed bats and potential habitat will be minimized and mitigated through the implementation of the conservation measures in the Upland Erosion Control Plan, Karst Plan, Timber Removal Plan, Restoration and Rehabilitation Plan, and Visual Resources Plan, and on the MNF other conservation measures as specified in the COM Plan. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
WV	Mammal	Little brown bat (*Myotis lucifugus*)	SGCN, State Sensitive, MNF RFSS	No RFSS bats were caught during mist net surveys, and no suitable hibernacula were found in the survey area.	Potential little brown bat roosting and foraging forest habitat would be affected by the Project. However, since no occupied habitat was found during field surveys, the likelihood of the presence of substantial numbers of little brown bats in the Project area is low.	A West Virginia Myotid Conservation Plan, which could also benefit little brown bats, is being developed for the FWS and will be applied throughout the Project area in West Virginia, including the MNF. Potential impacts to little brown bats will be minimized through the implementation of the conservation measures in the Upland Erosion Control Plan, Karst Plan, Timber Removal Plan; Restoration and Rehabilitation Plan, and Visual Resources Plan, and on the MNF other conservation measures as specified in the COM Plan. The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats. For additional details see the Biological Evaluation filed with FERC March 10, 2017.

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
WV	Mammal	Tri-colored bat (*Perimyotis subflavus*)	SGCN, State Sensitive, MNF RFSS	No RFSS bats were caught during mist net surveys, and no suitable hibernacula were found in the survey area.	Potential tri-colored bat roosting and foraging forest habitat would be affected by the Project. However, since no occupied habitat was found during field surveys, the likelihood of the presence of substantial numbers of tri-colored bats in the Project area is low.	A West Virginia Myotid Conservation Plan which could also benefit tri-colored bats, is being developed for the FWS and will be applied throughout the Project area in West Virginia, including the MNF. Potential impacts to little brown bats will be minimized through the implementation of the conservation measures in the Upland Erosion Control Plan, Karst Plan, Timber Removal Plan; Restoration and Rehabilitation Plan, and Visual Resources Plan, and on the MNF other conservation measures as specified in the COM Plan. The ACP Project will conduct tree clearing activities outside of the active summer roosting season, and fall swarming periods for bats. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
WV	Mammal	Allegheny woodrat (*Neotoma magister*)	SGCN, State Sensitive, MNF RFSS	Survey completed. Signs of Allegheny woodrats were documented along two rock formations within the vicinity of the Project in the MNF.	Temporary disturbance from construction activities. Potential injury of individuals from construction activities.	Atlantic has committed to avoiding direct damage to or loss of Allegheny woodrat occupied habitat on the MNF found adjacent to FR 1026 by not widening the road, minimizing road usage to avoid dawn and dusk high activity periods, avoiding blasting or other construction along the road, and having a biological monitor on site during road improvement. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
WV	Plant	Roan Mountain sedge (*Carex roanensis*)	SGCN, State Sensitive, MNF RFSS	Species identified in Project area within the MNF during 2015 botany surveys, and in the MNF and on private land during 2016 surveys.	Loss of suitable forest habitat, potential loss of 89 percent of the three populations of this species present in the construction area.	Relocation of identified populations into adjacent suitable forest habitat on MNF land. No herbicides will be used within 60 feet of adjacent populations, adjacent populations will be visibly marked to avoid impacts, an EI will provide oversight, and associated plant species will be included in the revegetation plan, if commercially available. Erosion control devices will be put in place to reduce runoff velocity and minimize sediment and erosion impacts to the adjacent population. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
WV	Plant	Appalachian oak fern (*Gymnocarpium appalachianum*)	SGCN, State Sensitive, MNF RFSS	Surveys complete. Field surveys confirmed a population of Appalachian oak in the MNF.	Indirect impacts to the microclimate, including light and moisture regimes, from the reduction in shade, or potential changes to surface water hydrology.	The small portion of the Appalachian oak fern population present in the construction footprint on the MNF will be avoided by necking down the adjacent construction right-of-way. No herbicides will be used within 60 feet of the Appalachian oak fern population: only hand-pulling of non-native invasive plant species will be used as a control method within this area. Erosion control devices will be put in place to reduce runoff velocity and minimize sediment and erosion impacts to the adjacent population. See the Biological Evaluation filed with FERC on March 10, 2017 for additional details.

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WV	Plant	White alumroot (*Heuchera alba*)	SGCN, State Sensitive, MNF RFSS	Field survey confirmed two occurrences of white alumroot: one stem was located on a sandstone rock outcrop outside of MNF property, the second was a population of approximately 75 stems covering approximately 0.58 acre on a ridge in an oak-hickory forest on MNF property.	Loss of suitable forest habitat, potential loss of 77 percent of the population on MNF property; loss of individual plant found outside of MNF property.	Relocation of identified population on MNF property into suitable forest habitat on MNF property. No herbicides will be used within 60 feet of adjacent populations, adjacent populations will be visibly marked to avoid impacts, an Environmental Inspector will provide oversight, and associated plant species will be included in the revegetation plan, if commercially available. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
WV	Plant	Bristly black currant (*Ribes lacustre*)	SGCN, State Sensitive, MNF RFSS	One plant was found upslope approximately 25 feet upslope of the temporary construction workspace in the MNF.	No direct or indirect impacts are anticipated.	No herbicides will be used within 60 feet of adjacent populations, adjacent populations will be visibly marked to avoid impacts, an Environmental Inspector will provide oversight, and associated plant species will be included in the revegetation plan, if commercially available. Other conservation measures include implementation of the COM Plan for the MNF. For additional details see the Biological Evaluation filed with FERC March 10, 2017.
VA	Mammal	Eastern (Rafinesque's) big-eared bat (*Corynorhinus rafinesquii macrotis*)	State Endangered, SGCN	Species identified and tracked to a bridge roost during 2016 surveys. Surveys at previously inaccessible sites are ongoing in 2017.	Impacts on occupied forested habitat from construction activities. Indirect impacts from general construction noise could disrupt normal activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats.
VA	Mammal	Southeastern myotis (*Myotis austroriparius*)	State Sensitive, SGCN	No southeastern myotis have been identified during surveys to date. Surveys at previously inaccessible sites are ongoing in 2017.	Impacts on suitable forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats.
VA	Mammal	Eastern small-footed bat (*Myotis leibii*)	State Sensitive, SGCN, GWNF OAR	No eastern small-footed bats were captured and no suitable roost locations or hibernacula were found. Surveys at previously un-surveyed sites are ongoing in 2017.	Impacts on suitable forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season, and fall swarming periods for bats.

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VA	Mammal	Little brown bat (*Myotis lucifugus*)	State Sensitive, SGCN	Species was captured at one mist net site in 2016. Surveys at previously un-surveyed sites are ongoing in 2017.	Impacts on occupied forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats. Atlantic plans to adhere to the Best Management Practices for Conservation of Little Brown Bats and Tri-Colored bats. Atlantic is not currently aware of any little brown or tri-color bat hibernacula within 0.25 mile of the Project workspace or of any roost trees in the Project area containing more than 50 individuals (per the 2016 VDGIF guidance document).
VA	Mammal	Tri-colored bat (*Perimyotis subflavus*)	State Sensitive, SGCN	Species was captured at two mist net sites in 2016. Surveys at previously un-surveyed sites are ongoing in 2017.	Impacts on occupied forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats. Atlantic plans to adhere to the Best Management Practices for Conservation of Little Brown Bats and Tri-Colored bats. Atlantic is not currently aware of any little brown or tri-color bat hibernacula within 0.25 mile of the Project workspace or of any roost trees in the project area containing more than 50 individuals (per the 2016 VDGIF guidance document).
VA	Mammal	Allegheny woodrat (*Neotoma magister*)	State Sensitive, SGCN, GWNF LR	Surveys in the GWNF completed, surveys on private land are ongoing in 2017. Allegheny woodrat presence was confirmed at two rock outcrops within the Project workspace.	Allegheny woodrats will be temporarily displaced during construction. Temporary alteration of habitat from construction activities. Potential injury of individuals from construction activities.	One of the two occupied rock outcrops will be avoided completely because it falls within the drill path of the HDD will be utilized to cross both the Appalachian National Scenic Trail and Blue Ridge Parkway. Erosion control devices will be put in place to reduce runoff velocity and minimize sediment and erosion impacts to the adjacent population. On the GWNF rock may be windrowed on the edge of the right-of-way and could be used to create wildlife habitat.
VA	Mammal	American water shrew (*Sorex palustris*) / Southern water shrew (S.p. *punctulatus*)	State Endangered, SGCN, GWNF OAR	Surveys in the GWNF completed. Surveys on private land are ongoing in 2017. Suitable habitat has been found in four locations.	Temporary alteration of habitat from construction activities.	A dry stream crossing method will be used for pipeline construction across waterbodies which will help reduce the introduction of sediment and turbidity into potential southern water shrew habitat during construction. The outermost portions of the construction right-of-way—including 20 feet on the working side and 13 feet on the spoil side—will be replanted with a combination of indigenous tree and shrub seedlings on USFS property. For additional conservation measures and details see the Biological Evaluation filed with FERC March 10, 2017.
VA	Amphibian	Eastern tiger salamander (*Ambystoma tigrinum*)	State Endangered, SGCN, GWNF LR	Surveys completed in 2015 and 2016. Surveys continuing in 2017 based on recommendations from the GWNF and VDGIF.	Temporary alteration of habitat from construction activities.	Conservation measures include adoption of a route adjustment to avoid a wetland where a larval tiger salamander was found. Other measures could include ATWS wetland/waterbody buffer of 50 feet and compensatory mitigation for wetland impacts.

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VA	Invertebrate	Yellow lance (*Elliptio lanceolata*)	SGCN, State Sensitive, GWNF OAR, Federal Under Review	This species has not been identified to date. Presence is assumed in Mayo Creek, two Unnamed Tributaries to the James River and Nottoway River (AP-1 and AP-3) in Virginia as well as several waterbodies in North Carolina. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates.	Use HDD crossing method at Mayo Creek, Nottoway River (AP-3), Swift Creek, Tar River, and Little River to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussels will be relocated prior to construction at dry crossings. Time of year restrictions for in-stream work (May 15 to July 31) include the Cowpasture River, six UNTs to the Cowpasture River, Mayo Creek, the James River, two UNTs to the James River, and the Nottoway River . See the Biological Assessment filed with FERC on January 27, 2017 and the Biological Evaluation filed with FERC on February 10, 2017 for additional details.
VA	Invertebrate	Atlantic pigtoe (*Fusconaia masoni*)	SGCN, State Threatened, GWNF OAR, Federal Under Review	Field surveys found this species in six waterbodies (VA and NC), including the Nottoway River, Sturgeon Creek, Fishing Creek, Swift Creek, Tar River, and Contentnea Creek. Surveys at previously inaccessible waterbodies are ongoing in 2017. Presence is assumed in the Appomattox River in Virginia.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Fishing Creek, Swift Creek, Tar River, and Contentnea Creek to avoid in-stream impacts. Time of year restrictions for in-stream work (May 15 to July 31) will be followed for the Nottoway River, Sturgeon Creek, the Appomattox River, and four UNTs to the Appomattox River. Mussels will be relocated prior to construction at dry crossings. Additional erosion and sediment control measures at sensitive waterbodies will be implemented. See the Biological Assessment filed with FERC on January 27, 2017 and the Biological Evaluation filed with FERC on February 10, 2017 for additional details.
VA	Invertebrate	Yellow lampmussel (*Lampsilis cariosa*)	SGCN, State Sensitive, GWNF LR	Species has not been identified in surveys to date. Surveys are ongoing in in previously inaccessible areas.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates.	Mussels will be relocated prior to construction at dry crossings. Atlantic would implement erosion controls, which includes implementation of the VDEQ Virginia Erosion and Sediment Control Handbook.
VA	Invertebrate	Green floater (*Lasmigona subviridis*)	SGCN, State Threatened, GWNF OAR, Federal Under Review	This species has not been identified to date. Presence is assumed in the James River and Meherrin River in Virginia. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates.	Use HDD crossing method at James River and Mayo Creek to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussels will be relocated prior to construction at dry crossings. Time of year restrictions for in-stream work in and an UNT to the James River, the Meherrin River (April 15 to June 15 and August 15 to September 30). See the Biological Assessment filed with FERC on January 27, 2017 and the Biological Evaluation filed with FERC on March 10, 2017 for additional details.
VA	Invertebrate	Chowanoke crayfish (*Orconectes virginiensis*)	SGCN, State Sensitive, Federal Under Review	Virginia VDGIF and FWS confirmed no surveys are requested for this species in Virginia.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates.	Implement additional erosion and sediment control measures at sensitive waterbodies. Aquatic species relocation prior to construction at dry crossings. See the Biological Assessment filed with FERC on January 27, 2017 for additional details.

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VA	Invertebrate	Madison Cave amphipod (*Stygobromus stegerorum*)	SGCN, State Threatened	No species specific surveys requested or completed.	Potential for alteration of suitable habitat, increased sedimentation to underground habitats, and water quality degradation.	Implementation of the Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan, and Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan).
VA	Plant	Red milkweed (*Asclepias rubra*)	State Sensitive	Species identified during surveys in a Coastal Plain/Piedmont Seepage Bog community group within the Handsom-Gum Powerline Bog Conservation Site in 2015 and 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum Conservation Site to evaluate potential effect of the Project on hydrologic conditions.
VA	Plant	Pine Barren sandreed (*Calamovilfa brevipilis*)	State Sensitive	Species identified during surveys on Emporia Powerline Bog Conservation Site in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Route adjustment in Rev 11b at the Emporia Powerline Conservation Site to avoid species occurrences. General measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Emporia Powerline Conservation Site to evaluate potential effect of the Project on hydrologic conditions.
VA	Plant	Large spreading pogonia (*Cleistesiopsis divaricata*)	State Sensitive	Species identified in the Handsom-Gum Powerline Bog Conservation site during 2015 botany surveys.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum Conservation Sites to evaluate potential effect of the Project on hydrologic conditions.

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VA	Plant	American willow-herb (*Epilobium ciliatum spp. ciliatum*)	GWNF LR	Species identified during surveys in the GWNF. Surveys on-going in areas where federally listed species may occur; individual surveys not required for species.	Although construction activities would not directly remove individuals, they may encourage the spread of invasive and noxious plants. Regular maintenance of the construction right-of-way would also cause regular disturbance to this species located adjacent to the construction workspace.	Atlantic would implement the COM Plan, which includes measures to control the spread of invasive and noxious weeds, and to control erosion and sedimentation. Atlantic would implement dust control as described in the Fugitive Dust Control and Mitigation Plan.
VA	Plant	Ten-angled pipewort (*Eriocaulon decangulare var. decangulare*)	State Sensitive	Species identified during surveys in a Coastal Plain/Piedmont Seepage Bog community group within the Handsom-Gum Powerline Bog Conservation Site in 2015 and 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan, and monitoring well installations at Handsom-Gum Conservation Site to evaluate potential effect of the Project on hydrologic conditions.
VA	Plant	Branched hedge-hyssop (*Gratiola ramosa*)	State Sensitive	Identified at Emporia Powerline Bog Conservation Site during surveys in 2015.	Potential loss of individual plants, temporary alteration of suitable habitat.	Route adjustment in Rev 11b at the Emporia Powerline Conservation Site to avoid species occurrences. General conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan, and monitoring well installations at Emporia Powerline Conservation Site to evaluate potential effect of the Project on hydrologic conditions.

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VA	Plant	Fraser's marsh St. John's-wort (*Hypericum fraseri*)	State Sensitive, GWNF LR	Species identified on privately owned land in Bath County, VA in a Mountain/ Piedmont Acidic Seepage Swamp during 2016 surveys. Species also identified in montane woodland sedge habitat, montane depressional wetland habitat, and successional modified habitat on Brown's Pond Conservation Site overlapping the GWNF.	Although construction activities would not directly remove individuals, access road use could contribute to increased dust cover on plants, erosion and sedimentation issues, and may also encourage the spread of invasive and noxious plants.	Where feasible, access road footprints will be adjusted or reduced to avoid mortality to individual plants during ground-disturbing activities. Within the GWNF, conservation measures include those listed in the COM Plan for the GWNF. No herbicides will be used within 60 feet of adjacent populations. Erosion control devices will be put in place to reduce runoff velocity and minimize sediment and erosion impacts to the adjacent population. Outside of the GWNF Conservation measures to reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Hairy St. John's-wort (*Hypericum setosum*)	State Sensitive	Species identified in a Coastal Plain/Piedmont Seepage Bog community group within the Handsom-Gum Powerline Bog Conservation Site during botany surveys in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum Conservation Site to evaluate hydrologic conditions.
VA	Plant	Big gallberry (*Ilex coriacea*)	State Sensitive	Species identified during surveys in City of Suffolk, within Coastal Plain non-alluvial flatwood/swamp community group with an approximate elevation of 70ft in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures to reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.

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VA	Plant	Rafinesque's seedbox (*Ludwigia hirtella*)	State Sensitive	Species identified during surveys on Emporia Powerline Bog Conservation Site in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Route adjustment in Rev 11b at the Emporia Powerline Conservation Site to avoid species occurrences. Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Emporia Powerline Conservation Site to evaluate potential effect of the Project on hydrologic conditions.
VA	Plant	Hairy seedbox (*Ludwigia pilosa*)	State Sensitive	Species identified in the Great Dismal Swamp (NW Section Conservation Site) during botany surveys in 2016. 2017 surveys are pending.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Raven's seedbox (*Ludwigia ravenii*)	State Sensitive	Species identified during surveys on private property in City of Suffolk, VA in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.

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VA	Plant	American ginseng (*Panax quinquefolius*)	State Threatened, GWNF LR	Species has been identified during field surveys in 2015 and 2016.	Construction activities would directly remove individuals located within the construction right-of-way, remove or degrade suitable habitat for this species within and adjacent to the construction right-of-way, and disturb the seed bed. Construction activities may also encourage the spread of invasive and noxious plants. Regular maintenance of the construction right-of-way would also cause regular disturbance and potential mortality of this species.	Atlantic will implement a ginseng relocation plan, which will be provided to the USFS for review and approval in Spring 2017. This plan will specify how harvest and transplantation will occur where there are potential impacts to this species. Replanting will be done according to USFS best management practices and in coordination with the USFS.
VA	Plant	Walter's paspalum (*Paspalum dissectum*)	State Sensitive	Species identified during surveys within the Great Dismal Conservation Site within a successional/modified emergent herbaceous wetland in 2016. 2017 surveys are pending.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Water-plantain crowfoot (*Ranunculus ambigens*)	State Sensitive	Species identified during surveys on private property near the South River in a Piedmont / Mountain Swamp Forest community in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.

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VA	Plant	Fringed meadow beauty (*Rhexia petiolata*)	State Sensitive	The species has not been found in botany surveys to date. 2017 surveys are pending.	No impacts anticipated to date.	If unidentified populations occur in the Project area, conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Small bunched beaksedge (*Rhynchospora cephalantha var. attenuata*)	State Sensitive	Species identified during surveys in a Coastal Plain/Piedmont Seepage Bog community group within the Handsom-Gum Powerline Bog Conservation Site in 2015 and 2016. 2017 surveys are pending.	No impacts anticipated to date.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum Conservation Site to evaluate potential effect of the Project on hydrologic conditions.
VA	Plant	Southern bog goldenrod (*Solidago stricta*)	State Sensitive	Species identified during surveys in a Coastal Plain/Piedmont Seepage Bog community group within the Handsom-Gum Powerline Bog Conservation Site in 2015 and 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum Conservation Site to evaluate potential effect of the Project on hydrologic conditions.

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
VA	Plant	Yellow nodding ladies'-tresses (*Spiranthes ochroleuca*)	State Sensitive, GWNF LR	Project survey identified this species in mixed montane oak oak-hickory forest and Piedmont/Mountain Swamp Forest habitats near Access Road 36-014.AR2 and on parcel 06-001-C009 on the GWNF and private land during botany surveys in 2016.	Construction activities would directly remove individuals located within the access road, remove or degrade suitable habitat for this species within and adjacent to the access road, and disturb the seed bed. Access road use could contribute to increased dust cover on plants, erosion and sedimentation issues, and may also encourage the spread of invasive and noxious plants.	Where feasible, access road footprints will be adjusted or reduced to avoid mortality to individual plants during ground-disturbing activities. Within the GWNF conservation measures include those listed in the COM Plan for the GWNF. No herbicides will be used within 60 feet of adjacent populations. Erosion control devices will be put in place to reduce runoff velocity and minimize sediment and erosion impacts to the adjacent population. Outside of the GWNF Conservation measures to reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Gaping panic grass (*Steinchisma hians*)	State Sensitive	The species has not been found in botany surveys.	No impacts anticipated to date.	If unidentified populations occur in the Project area, conservation measures that would reduce potential impacts include the Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Dense-flowered camas (*Stenanthium densum*)	State Sensitive	Species identified in Coastal Plain/Piedmont Seepage Bog community groups within the Emporia and Handsom-Gum Powerline Bog Conservation Sites during 2015 and 2016 surveys. 2017 surveys are pending.	Potential loss of individual plants, temporary alteration of suitable habitat.	Route adjustment at the Emporia Conservation Site to avoid species occurrences. Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum and Emporia Powerline Conservation Sites to evaluate potential effect of the Project on hydrologic conditions.

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
VA	Plant	Three birds orchid (*Triphora trianthophora ssp. trianthophora*)	State Sensitive, GWNF LR	Surveys identified 26 individuals of this species within a mixed oak-hickory forest 1,000 feet downslope of a proposed access road associated with Brown's Pond Conservation Site, overlapping the GWNF during botany surveys in 2016.	Although construction activities would not directly remove individuals, access road use could contribute to increased dust cover on plants, erosion and sedimentation issues, and may also encourage the spread of invasive and noxious plants.	Conservation measures include those listed in the Construction, Operation, and Maintenance (COM) Plan for the GWNF. These measures include implementation of recommendations for weed control near sensitive features (e.g., state-listed plants) in consultation with the VA Natural Heritage Program; and other measures to manage and control invasive non-native plant species. Atlantic would implement dust control as described in the Fugitive Dust Control and Mitigation Plan. No herbicides will be used within 60 feet of adjacent populations. Erosion control devices will be put in place to reduce runoff velocity and minimize sediment and erosion impacts to the adjacent population.
VA	Plant	Southern bladderwort (*Utricularia juncea*)	State Sensitive	Species identified during surveys in a Coastal Plain/Piedmont Seepage Bog community group within the Handsom-Gum Powerline Bog Conservation Site in 2015 and 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; the Project Fugitive Dust Control and Mitigation Plan, and monitoring well installations at Handsom-Gum Powerline Conservation Site to evaluate hydrologic conditions.
VA	Plant	American vetch (*Vicia Americana ssp. americana*)	GWNF LR	Surveys completed in 2015 identified this species within the GWNF; however, it was not found during re-surveys in 2016.	Construction activities would directly remove individuals located within the construction right-of-way, remove or degrade suitable habitat for this species within and adjacent to the construction right-of-way, and disturb the seed bed. Construction activities may also encourage the spread of invasive and noxious plants. Regular maintenance of the construction right-of-way would also cause regular disturbance and potential mortality of this species.	Atlantic will implement the COM Plan, which includes measures to control the spread of invasive and noxious weeds, and to control erosion and sedimentation. Atlantic will implement dust control as described in the Fugitive Dust Control and Mitigation Plan.

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
VA	Plant	Fringed yellow-eyed grass (*Xyris fimbriata*)	State Sensitive	Species identified in Great Dismal Swamp and Great Dismal Swamp (NW Section) Conservation sites during botany surveys in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures to r educe potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
VA	Plant	Tall yellow-eyed grass (*Xyris platylepis*)	State Sensitive	Species identified during surveys within a successional/modified emergent herbaceous wetland in 2016.	Potential loss of individual plants, temporary alteration of suitable habitat.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.
NC	Mammal	Rafinesque's big-eared bat (*Corynorhinus rafinesquii macrotis*)	State Sensitive	Species identified during 2016 mist net surveys. Surveys ongoing in 2017.	Impacts on occupied forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats.
NC	Mammal	Southeastern myotis (*Myotis austroriparius*)	State Sensitive	Species identified during 2016 mist net surveys. Surveys ongoing in 2017.	Impacts on occupied forested habitat from construction activities.	The ACP Project will conduct tree clearing activities outside of the active summer roosting season and fall swarming periods for bats.
NC	Fish	Carolina madtom (*Noturus furiosus*)	State Threatened, Federal Under Review	23 waterbodies have been surveyed for Carolina madtom; five waterbodies remain to be surveyed in 2017 pending access permission. Carolina madtom were observed during survey in Swift Creek, Contentnea Creek, and Little River.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. In-stream blasting could injure fish in adjacent stream habitats.	Use HDD crossing method at Fishing Creek, Swift Creek, Tar River, Contentnea Creek, and Little River to avoid in-stream impacts. Use cofferdam in the Neuse River to minimize impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. At dry waterbody crossings, remove fish from crossing. See the Biological Assessment filed with FERC on January 27, 2017 for additional details.
NC	Invertebrate	Triangle floater (*Alasmidonta undulata*)	State Threatened	Species identified during 2016 surveys in Fishing Creek and Neuse River.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Fishing Creek to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction at the Neuse River.

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
NC	Invertebrate	Roanoke slabshell (*Elliptio roanokensis*)	State Threatened	Species identified during 2016 surveys in Fishing Creek and Neuse River.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Fishing Creek to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction at the Neuse River.
NC	Invertebrate	Atlantic pigtoe (*Fusconaia masoni*)	State Endangered, Federal Under Review	Surveys to date have identified Atlantic pigtoe in Fishing Creek, Swift Creek, Tar River, and Contentnea Creek. Presence is assumed in the Roanoke River, Little River, Neuse River, and Cape Fear River in North Carolina.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Nottoway River (AP-3), Roanoke River, Fishing Creek, Swift Creek, Tar River, Contentnea Creek, Little River, and Cape Fear River to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction. Time of year restrictions for in-stream work. See the Biological Assessment filed with FERC on January 27, 2017 for additional details.
NC	Invertebrate	Yellow lampmussel (*Lampsilis cariosa*)	State Endangered	In North Carolina, surveys to date have identified yellow lampmussel in Fishing Creek and Tar River. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Fishing Creek and Tar River to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies.
NC	Invertebrate	Carolina fatmucket (*Lampsilis radiata conspicua*)	State Threatened	In North Carolina, surveys to date have identified Carolina fatmucket in the Neuse River. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction at the Neuse River.
NC	Invertebrate	Eastern lampmussel (*Lampsilis radiata radiata*)	State Threatened	In North Carolina, surveys to date have identified eastern lampmussel in Contentnea Creek and Neuse River. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Contentnea Creek to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction at the Neuse River.

State	Type	Species	Listing Status	Surveys	Potential Impacts	Conservation Measures
NC	Invertebrate	Green floater (*Lasmigona subviridis*)	State Endangered, Federal Under Review	This species has not been identified to date. Presence is assumed in the Roanoke River, Swift Creek, Tar River, and Neuse River in North Carolina. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates.	Use HDD crossing method at Nottoway River (AP-3), Roanoke River, Fishing Creek, Swift Creek, Tar River, Contentnea Creek, Little River, and Cape Fear River to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction. Time of year restrictions for in-stream work. See the Biological Assessment filed with FERC on January 27, 2017 for additional details.
NC	Invertebrate	Creeper (*Strophitus undulatus*)	State Sensitive	In North Carolina, surveys to date have identified creeper in Contentnea Creek and the Neuse River. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing methods at Contentnea Creek to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Mussel relocation prior to construction at the Neuse River.
NC	Invertebrate	North Carolina spiny crayfish (*Orconectes carolinensis*)	State Sensitive	In North Carolina, surveys to date have identified North Carolina spiny crayfish in Fishing Creek, Swift Creek, Tar River, and Little River. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates. Potential for injury to mussels from in-stream trenching activities.	Use HDD crossing method at Fishing Creek, Swift Creek, Tar River, Contentnea Creek, and Little River to avoid in-stream impacts. Implement additional erosion and sediment control measures at sensitive waterbodies. Aquatic species relocation prior to construction in accordance with the project specific North Carolina Aquatic Species Relocation Plan.
NC	Invertebrate	Chowanoke crayfish (*Orconectes virginiensis*)	State Sensitive, Federal Under Review	To date, this species was not identified during survey. Presence is assumed in the Roanoke River in North Carolina. Surveys at previously inaccessible waterbodies are ongoing in 2017.	Potential in-stream impacts include temporary increases in turbidity, sediment suspension, and altering bottom substrates.	Use HDD crossing method at Roanoke River. Implement additional erosion and sediment control measures at sensitive waterbodies. Aquatic species relocation prior to construction. See the Biological Assessment filed with FERC on January 27, 2017 for additional details.
NC	Plant	Running oak (*Quercus elliottii*)	State Sensitive	Species identified in disturbed open pine flatwoods. during 2015 botany surveys	No impacts anticipated to date.	Conservation measures that would reduce potential impacts include a reduced construction width in wetlands (75 feet), ATWS wetland/waterbody buffer (50 feet); wetland habitat mitigation based on CWA Section 404 Permitting through the USACE; Wetland and Waterbody Construction and Mitigation Procedures; Restoration and Rehabilitation Plan; erosion control measures; the Spill Prevention, Control, and Countermeasures Plan (SPCC Plan); the Invasive Plant Species Management Plan; and the Project Fugitive Dust Control and Mitigation Plan.