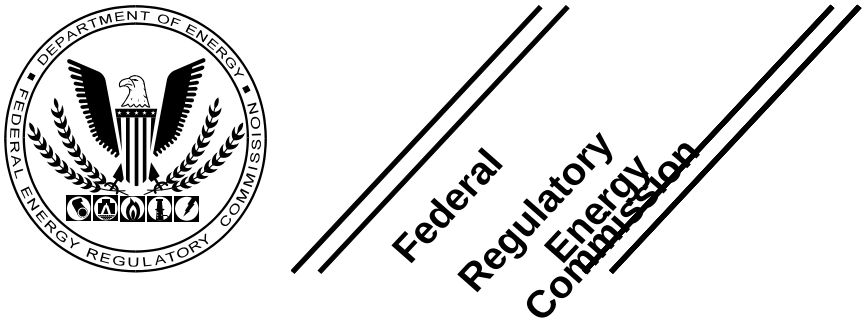

Office of Energy Projects

MAY 2016

Columbia Gas Transmission, LLC **Docket No. CP15-549-000**

SM-80 MAOP Restoration Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas Branch 3
Columbia Gas Transmission, LLC
SM-80 MAOP Restoration Project
Docket No. CP15-549-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this Environmental Assessment (EA) of the SM-80 MAOP Restoration Project (Project) proposed by Columbia Gas Transmission, LLC (Columbia) in the above-referenced docket. Columbia requests authorization to abandon, construct, operate, and maintain natural gas pipeline facilities in Wayne County, West Virginia.

The proposed SM-80 MAOP Restoration Project involves abandoning approximately 3.3-mile-long segment of the existing Line SM-80 that has experienced increased residential growth. Columbia also proposes to replace the segment by constructing and operating approximately 3.9 miles of 30-inch-diameter pipeline that would be tied in with the existing Line SM-80 pipeline. The replacement pipeline would allow that segment of Line SM-80 to operate at its original maximum allowable operating pressure.

This EA assesses the potential environmental effects of the Project in accordance with the requirements of the National Environmental Policy Act of 1969. The FERC staff concludes that approval of the proposed Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The FERC staff mailed copies of this EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the Project area. In addition, the EA is available for public viewing on the FERC's website (www.ferc.gov) using the eLibrary link.

A limited number of copies of the EA are also available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street, NE, Room 2A
Washington, DC 20426
(202) 502-8371

Any person wishing to comment on the EA may do so. Your comments should focus on the potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that your comments are properly recorded and considered prior to a Commission decision on the proposal, it is important that the FERC receives your comments in Washington, DC on or before **June 17, 2016.**

For your convenience, there are three methods you can use to submit your comments to the Commission. In all instances, please reference the project docket number (CP15-549-000) with your submission. The Commission encourages electronic filing of comments and has dedicated eFiling expert staff available to assist you at 202- 502-8258 or efiling@ferc.gov.

(1) You may file your comments electronically by using the eComment feature, which is located on the Commission's website at www.ferc.gov under the link to Documents and Filings. An eComment is an easy method for interested persons to submit text-only comments on a project;

(2) You may file your comments electronically by using the eFiling feature, which is located on the Commission's website at www.ferc.gov under the link to Documents and Filings. With eFiling you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You will be asked to select the type of filing you are making. A comment on a particular project is considered a "Comment on a Filing"; or

(3) You may file a paper copy of your comments at the following address:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

Although your comments will be considered by the Commission, simply filing comments will not serve to make the commentor a party to the proceeding. Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (Title 18 Code of Federal Regulations Part 385.214).[1] Only intervenors have the right to seek rehearing of the Commission's decision. Affected landowners and parties with environmental concerns may be granted intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding that would not be adequately represented by any other parties. **You do not need intervenor status to have your comments considered.**

Additional information about the Project is available from the Commission's Office of External Affairs, at **1-866-208-FERC (3372)** or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP15-549). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, contact 1-202-502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription, which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

[1] Interventions may also be filed electronically via the Internet in lieu of paper. See the previous discussion on filing comments electronically.

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TECHNICAL ACRONYMS AND ABBREVIATIONS	
APE	Area of Potential Effect
AQCRS	Air Quality Control Regions
ATWS	Additional Temporary Work Space
BCC	Birds of Conservation Concern
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
Columbia	Columbia Gas Transmission, LLC
Commission	Federal Energy Regulatory Commission
DOT	United States Department of Transportation
EA	environmental assessment
ECD	Erosion Control Device
ECS	Environmental Construction Standards
EI	environmental inspector
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gas
GWP	Global Warming Potential
HAPs	Hazardous Air Pollutants
HCA	High Consequence Area
HUC	Hydrologic Unit Code
IPaC	Information Planning and Conservation System
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MP	Milepost
MSHCP	Multi-species Habitat Conservation Plan
NAAQS	National Ambient Air Quality Standards

TECHNICAL ACRONYMS AND ABBREVIATIONS	
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NO_x	Oxides of Nitrogen
NO_2	Nitrogen dioxide
NOI	Notice of Intent to Prepare an Environmental Assessment for the SM-80 MAOP Restoration Project and Request for Comments on Environmental Issues
NPS	National Park Service
NWP	Nation-wide Permit
O_3	Ozone
OEP	Office of Energy Projects
Pb	Lead
PCB	Polychlorinated biphenyls
$PM_{2.5}$	Particulate matter with a diameter of 2.5 microns or less
PM_{10}	Particulate matter with a diameter of 10 microns or less
Project	SM-80 MAOP Restoration Project
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SPCC Plan	Spill Prevention, Containment, and Countermeasure Plan
Tpy	Tons per year
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geologic Survey
VOCs	Volatile Organic Compounds
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Department of Natural Resources

A. PROPOSED ACTION

1. INTRODUCTION

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the abandonment, construction, and operation of certain natural gas pipeline and associated facilities proposed by Columbia Gas Transmission, LLC (Columbia). We[2] prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), Title 40 of the Code of Federal Regulations (CFR), Parts 1500-1508 (40 CFR 1500-1508), and FERC's implementing regulations at (18 CFR Part 380).

On September 15, 2015, Columbia filed an application for a Certificate of Public Convenience and Necessity (Certificate) in Docket No. CP15-549-000 under Sections 7(c) and 7(b) of the Natural Gas Act (NGA) and Part 157 of FERC's regulations. Columbia's SM-80 MAOP Restoration (Project), as detailed below, consists of abandoning and constructing natural gas transmission pipeline facilities in Wayne County, West Virginia. Columbia would abandon in-place approximately 3.3 miles of Class 3, 30-inch-diameter pipeline and associated above ground appurtenances. Columbia would also construct approximately 3.9 miles of Class 1 and 2, 30-inch-diameter pipe to replace the abandoned pipeline. This new pipeline would operate at a maximum allowable operating pressure of 935 pounds per square inch gauge (psig).

This EA is an important part of the Commission's decision on whether to issue Columbia a Certificate to construct and abandon the proposed Project. The purposes for preparing this EA are to:

- identify and assess potential impacts on the natural and human environment which could result from the proposed action;
- identify and recommend alternatives and specific mitigation measures, as necessary, to avoid and minimize project related environmental impacts; and
- facilitate public involvement in the environmental review process.

[2] "We", "us," and "our" refer to environmental staff of the Office of Energy Projects

2. PURPOSE AND NEED

According to Columbia, the purpose of the Project is to improve reliability, flexibility, and safety for existing customers and landowners. The Project is necessary to address issues related to the age and condition of the existing pipeline and to satisfy U.S. Department of Transportation (DOT) requirements (40 CFR Part 192) regarding population density near the pipeline.

Under section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project. Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment will not negatively affect the present or future public convenience and necessity.

3. PROPOSED FACILITIES

Columbia proposes to abandon in-place approximately 3.3 miles of 30-inch-diameter pipeline between mileposts 0.67 and milepost 4.0 of the existing SM-80 pipeline; and convert 6 "farm" taps to local distribution taps. Abandoning this pipe would involve cutting and capping the pipeline at 16 locations.

Columbia also proposes to construct approximately 3.9 mile of 30-inch-diameter pipeline that would be tied-in to the existing SM-80 pipeline at mileposts 0.67 and 4.53; and modify the existing aboveground SM-80/BM-109 Jumper ancillary facility by replacing approximately 20 feet of aboveground crossover piping and enclosing facilities within a new fence.

The general location of the project facilities is shown in Figure 1 below. We did not identify any non-jurisdictional facilities associated with Columbia's Project.

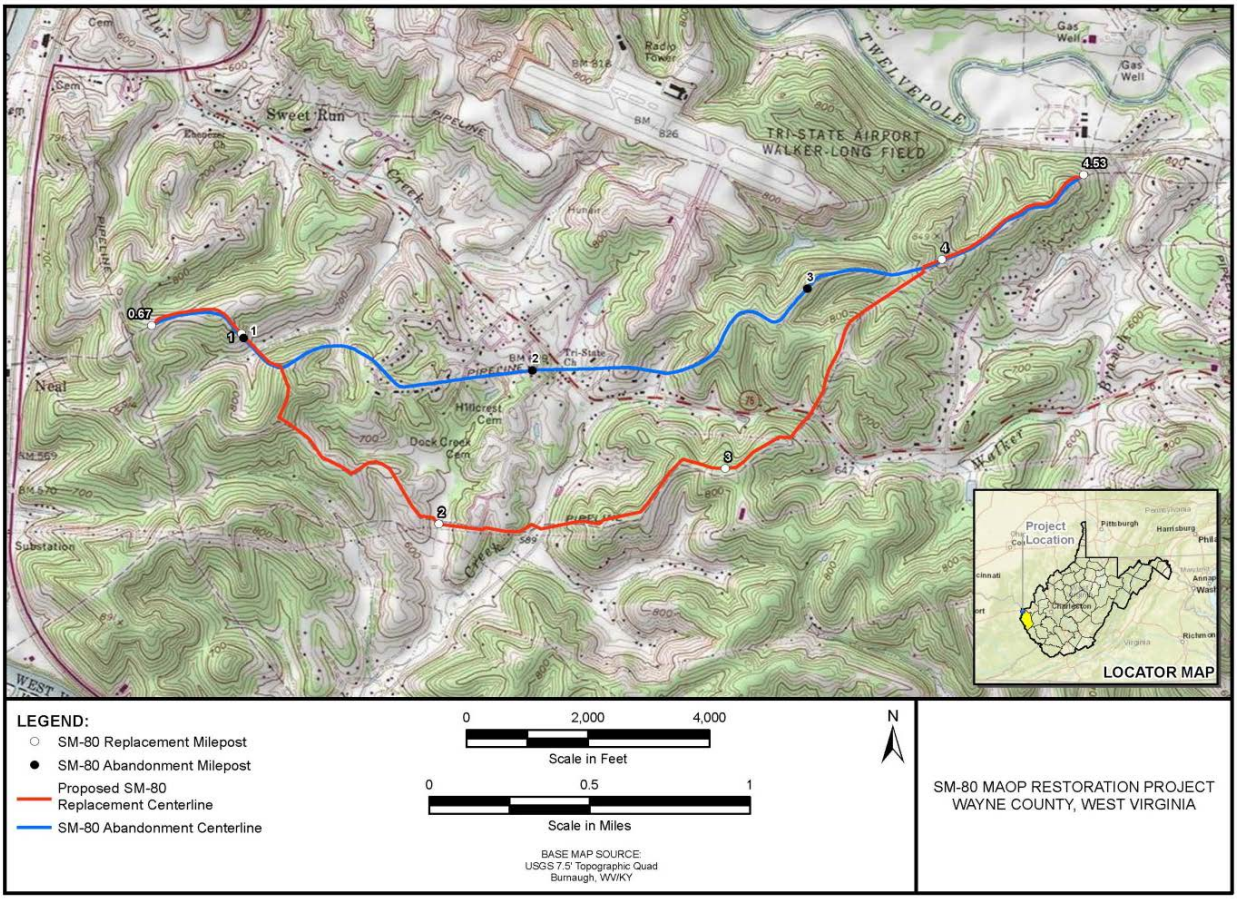

FIGURE 1: General Site Location

4. LAND REQUIREMENTS

Abandoning the pipeline would require the use of existing easement. Constructing the new pipeline would require the use of a 100-foot-wide construction corridor. Following construction a permanent easement centered on the pipeline would be retained. However, this permanent easement would overlap with Columbia Gas' existing easement by approximately 25 feet resulting in an increase of the existing permanent easement of only 25 feet. The pipeline replacement would be co-located with existing easements for 3.8 of 3.9 miles. It should be noted that where the pipeline replacement is not co-located with existing easements, no right-of-way overlap would occur. As such the permanent easement would be 50 feet in this location. Table 1 below summarizes the land requirements for the project.

Table 1: Land Requirements of the Project		
Facility	**Land Affected During Construction (acres)** [a]	**Land Affected During Operation (acres)** [b]
Pipeline Facilities		
SM-80 Replacement		
Pipeline	46.6	12.6
Additional Temporary Workspace	13.6	0
Access Roads	9.2	0
Staging Areas	6.2	0
Contractor Yards	5.1	0
Cathodic Protection[c]	-	-
Subtotal	**80.7**	**12.6**
SM-80 Abandonment		
Pipeline[d]	2.3	0
Access Roads	1.2	0
Subtotal	**3.5**	**0**
PIPELINE FACILITIES SUBTOTAL	**84.2**	**12.6**
Aboveground Facilities		
Ancillary Facilities	0.25	0.02
ABOVEGROUND FACILITIES	**0.25**	0.02
PROJECT TOTAL	**84.4**	**12.6**

[a] Land affected during construction is inclusive of operation impacts (permanent).

[b] Land affected during operation consists only of new permanent impacts.

[c] Located below ground within the existing easement and proposed workspace.

[d] Temporary workspace is included with the pipeline acreage as all workspaces are within the existing right-of-way

The total anticipated temporary impact for the Project is approximately 77.9 acres. The new permanent impact as a result of the replacement pipeline would be 12.6 acres. These numbers exclude overlap of the proposed right-of-way and the existing right-of-way with which it would be collocated.

5. PUBLIC REVIEW AND COMMENT

On October 23, 2015, FERC issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed SM-80 MAOP Restoration Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to interested parties; including federal, state and local officials; agency representatives;

Native American tribes; and potentially affected property owners. Environmental comments were received in response to the NOI and the Commission's Notice of Application from two property owners. The primary issues raised by the commentors are soil and water contamination due to the presence of polychlorinated biphenyls (PCBs), impacts to wildlife, air and noise impacts, safety concerns, and cumulative impacts. One potentially affected landowner stated that she was concerned regarding "seepage" of contamination from the proposed abandoned pipeline. Columbia stated that the proposed abandonment segment of the Project would be disconnected from all sources and supplies of gas. The pipeline would also be purged of gas and residual natural gas liquids with nitrogen and pressure would be left on the abandoned pipeline to prevent internal corrosion. Abandoned road crossings would also be capped and filled with grout and cathodic protection would remain functional to prevent corrosion. Columbia would not relinquish its rights under its existing right-of-way easement agreements as other pipelines are located within the same right-of-way. Columbia would continue to operate these pipelines and maintain the right-of-way. These comments are further addressed in Section B of the EA below.

6. PERMITS, APPROVALS, AND REGULATORY REQUIREMENTS

Columbia would obtain all necessary federal, state, and local permits, licenses, and clearances related to the abandonment and construction of the Project. Table 2 identifies the federal and state agencies that have relevant permitting requirements for the project.

Table 2: Environmental Permits and Approvals for the SM-80 MAOP Restoration Project			
Agency	**Permit**	**Submittal Date (Anticipated)**	**Receipt**
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity	September 2, 2015	Pending
U.S. Army Corps of Engineers (USACE) Huntington district	Clean Water Act Section 404 Nationwide Permit (NWP) 12	October 7, 2015	Pending
U.S. Fish and Wildlife Service - West Virginia Field Office	Section 7 Threatened and Endangered Species Consultation; Migratory Bird Treaty Act	September 29, 2015	February 22, 2016
Tribal			
Tribal Consultations	Section 106 of the National Historic Preservation Act	July 20, 2015	August 19, 2015
State - West Virginia			
West Virginia Division of Culture and History	Section 106 of the National Historic Preservation Act	September 4, 2015	October 5, 2015
West Virginia Department of Environmental Protection	General Water Pollution Control Permit, Stormwater Associated with Oil & Gas Construction Activities	(May 20, 2016)	
	West Virginia 401 Certification – automatic with USACE NWP 12	October 7, 2015	
	General National Pollutant Discharge Elimination System Water Pollution Control Permit - Hydrostatic Testing Water	(June 1, 2016)	
West Virginia Division of Natural Resources Office of Land and Streams	Stream Activity Application	October 7, 2015	November 24, 2015
West Virginia Division of Natural Resources Natural Heritage Program	State Threatened and Endangered Species Consultation and Clearance	October 7, 2014	October 23, 2014

7. CONSTRUCTION PROCEDURES

Columbia would adhere to the terms and conditions of applicable federal and state permits obtained for the Project. Abandonment, construction, and restoration activities would be conducted in accordance with the measures contained in Columbia's Environmental Construction Standards (ECS). Columbia's ECS incorporates the requirements of the Commission's *Upland Erosion Control, Revegetation and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures). Columbia requested 11 site-specific deviations from the Procedures which are presented in Appendix A. We find these acceptable. Columbia's ECS also includes an acceptable Spill Prevention Control and Countermeasures (SPCC) Plan. Appendix B contains a table of the location, size, and justification for the additional temporary work spaces (ATWS) Columbia proposes for the Project. We find these temporary work spaces acceptable.

7.1 Abandonment

Abandoning the pipeline in-place would be completed by cutting the pipe and capping it with weld caps or a steel plate. The pipeline would be cleared of gas or natural gas liquids using nitrogen. Pressure would be left on the abandoned pipeline to prevent internal corrosion and cathodic protection would remain functional. Following the capping, excavated areas would be backfilled and graded to their original elevations and revegetated according to the ECS. In addition, abandoned road crossings would be capped and filled with grout. The total amount of land affected by ground disturbing abandonment activities would be about 2.3 acres. Ground disturbing activities would take place at 16 discrete sites; therefore, there would be an average of 0.14 acre of ground disturbed per site. Columbia reported that verbal conversations with landowners have not yielded issues with abandoning the pipeline in-place.

7.2 Construction

Typical pipeline construction consists of specific activities that make up a linear construction sequence. Prior to construction, Columbia would clear and grade the construction right-of-way. Large obstacles, such as trees, rocks, brush, and logs would be removed. Fences, erosion control devices (ECDs) and other environmental and safety measures would be installed (and maintained) in accordance with the ECS, all applicable permits, and landowner agreements. As necessary in agricultural and residential areas, segregated topsoil would be stockpiled, usually along one side of the construction corridor.

After clearing and grading the construction right-of-way, a trench would be excavated to a depth allowing for a minimum of three feet of soil cover above the top of the pipeline. Additional cover may be required at foreign utility line crossings to allow at least 12 inches of clearance between the proposed pipe and the foreign line. If necessary, trench dewatering would be performed. Pipeline joints would then be strung alongside the trench on skids, bent as necessary, welded together, inspected, coated and lowered into the trench.

Once the pipeline is lowered in, the trench would be backfilled using previously excavated materials and if necessary, clean fill. Excess excavated materials or materials unsuitable for backfill would be spread evenly over the construction corridor or transported offsite and properly disposed. The trench would be backfilled to grade or a small crown of material would be left over the trench line to account for potential soil settling. The area would then be rough graded and all debris removed and properly disposed.

After backfilling the trench, the pipeline would be hydrostatically tested to ensure its integrity. The test would be performed in accordance with the requirements of DOT pipeline safety regulations, 49 CFR 192, Columbia's testing specifications, and applicable permits.

Hydrostatic test water would be withdrawn and discharged in accordance with the applicable permits and West Virginia Department of Environmental Protection (WVDEP) regulations. Appropriate energy dissipating devices, containment structures and/or other measures would be implemented as necessary to minimize erosion and sedimentation at the discharge point. Following the pipeline installation and hydrostatic testing, disturbed areas would be restored and graded to pre-construction contours as closely as possible. Permanent ECDs would be installed as appropriated and revegetation measures would be implemented. Columbia would monitor disturbed areas for successful revegetation.

During operation, maintenance of the permanent pipeline right-of-way would be necessary to allow for visibility and access for pipeline monitoring and maintenance activities. In upland areas, the permanent right-of-way would be 50 feet wide. The entire right-of-way would be mowed every 3 years, and a 10-foot-wide corridor centered on the pipeline could be mowed at a frequency necessary to allow for periodic pipeline surveys. In wetlands, maintenance of the permanent right-of-way would be limited to a 10-foot-wide corridor that may be cleared at a frequency necessary to allow for periodic pipeline surveys. In addition, trees that are located within 15 feet of the pipeline that have roots

that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way.

7.3 Special Pipeline Construction Procedures

Residential Areas

In areas where residences are located in close proximity to the construction corridor, Columbia would reduce the corridor as much as practicable to minimize inconvenience to property owners. Following completion of major construction activities the property would be restored in compliance with FERC and other federal and state regulations unless the landowner has requests that are incompatible with existing regulations and with Columbia's standards regarding right-of-way restoration and maintenance. Columbia has prepared site-specific Residential Construction Plans (Appendix C) for residences or structures located within 50 feet of workspaces. We have reviewed these plans and find them acceptable. Lastly, it should be noted that the residences located within 50 feet of the Project workspaces are only associated with pipeline abandonment activities.

Waterbody Crossings

As described below, Columbia proposes to use conventional open-cut crossings (wet crossings) and damp and pump or flume crossings (dry crossings) during construction of the Project.

Conventional Open-Cut Method

The conventional open-cut method is similar to the typical pipeline construction procedures described above. This method includes excavating the pipeline trench across the waterbody, installing a prefabricated segment of pipeline, and backfilling the trench with native material. Dependent on the width of the crossing and how far excavating equipment can reach, the excavation and backfill of the trench would be accomplished from one or both banks of the waterbody. As required in the ECS, Columbia would maintain flow at all times. The pipe segment would be weighted as necessary. Columbia would meet typical backfill requirements, restore contours, and stabilize the banks via seeding and/or the installation of erosion control matting. The trench would be excavated immediately before pipeline installation. Waterbody crossings of 10 feet or less would be completed within 24 hours. Waterbody crossings greater than 10 feet would be crossed within 48 hours.

Dam and Pump and Flume Crossing Methods

The dam and pump crossing method, involves installing in-stream dams. One dam is placed upstream of the construction work area, the other dam is installed downstream of the construction work area. Dams are typically constructed of sandbags covered with plastic sheeting. Stream flow is diverted by pumping water through hoses over or around the construction work area. Intake screens would be installed at the pump inlets to prevent aquatic life from entering and energy-dissipating devices would be installed at the discharge point to minimize erosion and streambed scour. Trench excavation would commence through the dewatered portion of the waterbody channel. Following the pipeline installation, backfill of the trench, and stream bank restoration, the dams would be removed and flow would be restored.

The flume crossing method involves temporarily directing water flow through one or more flume pipes placed over the excavation area. The trench excavation and pipeline installation activities would then be conducted in accordance with the damp and pump crossing method described above.

Wetland Crossings

As mentioned in the table in Appendix A, the right-of-way width in the vicinity of the wetland crossing would be 100-feet. The specific crossing procedures used to install the pipeline across wetlands would depend on the level of soil stability and saturation encountered during construction. Construction across unsaturated wetlands that can support the weight of equipment would be conducted in a manner similar to the upland construction procedures. In areas that are proposed for conventional open trench construction, but where soil conditions may not support the weight of equipment, timber mats would be used to minimize disturbance to wetland hydrology and maintain soil structure.

Wetland boundaries would be delineated and marked in the field prior to construction. Woody vegetation would be cut at ground level and removed, leaving the root systems intact. The pulling of tree stumps and grading activities would be limited to the area directly over the trench line unless it is determined that safety-related construction constraints require grading or the removal of stumps from the working side of the right-of-way. Temporary ECDs would be installed as necessary after initial disturbance of wetlands or adjacent upland areas to prevent sediment flow into wetlands. Trench plugs would be installed as necessary to maintain wetland hydrology. Construction equipment operating in wetlands would be limited to that needed to clear

the right-of-way, dig the trench, install the pipeline, backfill the trench, and restore affected lands.

Materials such as timber mats placed in wetlands during construction would be removed during rough grading and final clean-up, and the preconstruction contours of the wetland would be restored. Permanent erosion control measures would be installed. Columbia would consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. Wetlands would then be allowed to return to preconstruction conditions using the original seed stock contained in the conserved topsoil layer.

Agricultural Areas

Columbia would conserve at least 12 inches of topsoil in actively cultivated and rotated cropland and improved pastures. Topsoil would also be segregated in other areas at the specific request of a landowner. The topsoil and subsoil would be stored in separate soil piles on the construction right-of-way and would not be allowed to mix. If the topsoil is less than 12 inches deep the entire topsoil layer would be segregated. Upon completing construction, Columbia would coordinate with landowners to allow continued agricultural use of the property while minimizing impacts on pipeline operations.

Road Crossings

Paved roads encountered along the Project route would be crossed via the use of open-cut or subsurface bores. Safe and accessible conditions would be maintained at road crossings. The open-cut method typically would be used for crossings of driveways, local roads, and small state roads with low traffic densities.

Subsurface bores would be used to cross several roads and would generally be performed by excavating entry and exit bore pits on either side of the crossing. The boring machine would then be lowered into one pit and a horizontal hole would be bored to a diameter slightly larger than the diameter of the pipe at the depth of the pipeline installation. The pipeline section would then be pushed through the bore to the opposite pit. If additional sections are required to span the length of the bore they would be welded to the first section of pipeline in the bore pit before being pushed through. ATWS would be required on both sides of the crossing to complete the bore.

A construction entrance would be installed where the construction corridor or access intersects public paved roads. Trenches would be fenced or covered with steel

plates during non-working hours. In addition, temporary and permanent ECDs would be installed to prevent sediment from being washed onto roads during a rain event.

Cemetery Crossing

A conventional bore would be used to cross the Maple Hill Cemetery at a location adjacent to existing pipes. This cemetery is also historically referred to as the Docks Creek Cemetery. The technique that would be used is similar to the subsurface bore discussed in the Road Crossings section above.

Blasting

Columbia does not expect blasting to be necessary for the Project as shallow bedrock is anticipated to be rippable based on prior experience in the area. Columbia would attempt to use hydraulic hammers in attempts to break up the rock if shallow bedrock is encountered. If the use of hydraulic hammers is not effective blasting may be required. In these instances Columbia would implement appropriate pre and post blasting surveys, coordinate with appropriate local authorities, and develop a project-specific blasting program if required. Blasting activities would adhere to local, state, and federal regulations and appropriate notifications and permits would be obtained prior to blasting operations.

8. ENVIRONMENTAL INSPECTION AND MONITORING

Columbia has committed to training company and contractor personnel to familiarize them with environmental requirements, and would provide at least one Environmental Inspector (EI), with additional EIs as necessary, to monitor compliance during construction. Columbia would also require the contractor to provide an environmental foreman who would be responsible for the successful installation and maintenance of the erosion control devices by the contractor and for construction in environmentally sensitive areas. Additionally, Columbia would provide copies of permits and related drawings to all personnel prior to construction and would ensure that all entities understand the proper procedures for construction, stabilization, and restoration.

Columbia's EI would have peer status with other inspectors and would report directly to the Environmental Project Manager and Chief Inspector. The EI's responsibilities would be as specified in the ECS, and would include ensuring compliance with environmental conditions in the FERC Certificate, Columbia's designs and specifications, and other permits or authorizations.

Columbia would conduct post-construction monitoring to document restoration and revegetation of the right-of-way and other disturbed areas. Columbia would monitor wetlands for a period of 3 years or until revegetation is successful in accordance with its ECS. Columbia would also monitor most upland areas after the first and second growing seasons following restoration or until revegetation is successful in accordance with its ECS.

9. OPERATION AND MAINTANCE

The project facilities would be designed, constructed, tested, operated, and maintained in accordance with DOT Minimum Federal Safety Standards presented in 49 CFR Part 192. The DOT's regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

10. FUTURE PLANS AND ABANDONMENT

If additional demand for natural gas requires future expansion of the SM-80 line, Columbia would seek the appropriate authorizations. Additionally, Columbia would need to file an application to request abandonment of its facilities. If and when a future application would be filed, the environmental impact of the proposal would be examined at that time.

B. ENVIONMENTAL ANALYSIS

1. GEOLOGY AND SOILS

1.1 Geology

Geologic Setting

Abandoning the pipeline in-place requires a minimal amount of ground-disturbing activities; therefore, this discussion focuses primarily on the proposed replacement.

The Project would be located in the Kanawha Section of the Appalachian Plateau Physiographic Province. This area is underlain by sandstone, shale, clay, coal, and limestone as well as alluvial deposits of sand, gravel, silt and clay (WVGES, 2011). The majority of the Project would be located in mountainous terrain with elevations ranging from 571 to 882 feet above mean sea level and slopes ranging from 2 to 50%.

Existing Mineral Resources

Non-fuel minerals in West Virginia include crushed stone, Portland cement, lime, industrial sand and gravel, and masonry cement. None of these products are mined or quarried in Wayne County, West Virginia. The nearest nonfuel mineral operation is located approximately 1.2 miles southwest of the Project area in Boyd County, Kentucky. There are three active coal mines within 5 miles of the Project, the nearest of which is about 1.9 miles away. No mines extend beneath the proposed pipeline route.

There are 105 oil and gas wells permitted within 5 miles of the Project area. Of these wells, only 32 are active. The remaining wells are abandoned, ordered for abandonment, plugged, or were never completed. Eight wells are located within 1 mile of the project, the nearest of which is located 0.4 miles away.

Based on the known locations of mineral resources in the Project area, we conclude that the Project would not significantly affect or be affected by oil and gas exploitation or non-fuel mineral production.

Geologic Hazards

We evaluated the potential for geological hazards in the Project area, including seismic related hazards (e.g. earthquakes, surface faulting, and soil liquefaction); landslides; and ground subsidence due to karst and underground mining activities. Terracon Consultants, Inc. (Terracon), a sub-contractor for Columbia, conducted a visual geotechnical survey for the Project and prepared a Geotechnical Survey Data Report

(Report) (Terracon, 2016). Terracon stated that the Report presents the findings of the visual field survey, information collected, discussion of probable causes of topographical features associated with potential geological hazards along the project pipeline alignment, and recommendations for remedial construction. Terracon also stated that the visual survey presented in the Report is cursory and provides a "snap-shot" of conditions observed at the time of the survey.

The U. S. Geological Survey (USGS) Earthquake Hazards Program's, 2014 Seismic Hazard Map for West Virginia (USGS, 2014a, b) shows earthquake ground motions for various probability levels across the United States. This report indicates that the Project facilities would be located in an area with a low seismic hazard class rating. Therefore, we conclude that the probability of major earth movement or damage to the Project facilities as a result of seismic activity is low and the conditions required to pose a risk of soil liquefaction are not generally present. A landslide is the downslope movement of earth materials under the force of gravity due to natural or manmade causes.

The Project is located in a region that has a high susceptibility and moderate to high incidence of landslides (Radbrunch-Hall, et. al., 1982). Most slopes in West Virginia are vulnerable to mass movement. Columbia states that slopes within the study area are expected to be susceptible to slow, creep-type movement as well as more rapid landslides. Creep is imperceptibly slow downward movement of soil on slopes. This occurs under the influence of gravity when shear stresses cause permanent deformation without causing a failure. Creep movement can be seasonal, continuous, and/or progressive. Seasonal creep can be activated during periods of increased rain with movement slowing or ceasing during drier summer months. Columbia also states that creep susceptible slopes can progress into slope failures following long periods of soaking rains. Terracon's Report identified areas where slope instability conditions were observed within the vicinity of the pipeline right-of-way near MPs 0.70, 0.98, 2.37, 2.45 to 2.55, 2.68, 2.93, and 3.20.

According to Columbia, slope instability conditions were observed within the vicinity of the pipeline right-of-way. Steep side slopes, where gradients exceed 15% and are oriented primarily perpendicular to the pipeline alignment, are a common occurrence and an area of concern as long term stability can be difficult. The Report suggests that most slips of pipeline rights-of-way on side slopes occur within surficial soils. The Report identified areas where steep side slope conditions were observed in the vicinity of the pipeline right-of-way near MPs 0.17, 1.23 to 1.32, 1.39 to 1.45, 1.64 to 1.72, 1.74 to 1.80, 2.02 to 2.06, 2.33 to 2.37, 2.65 to 2.69, 3.17 to 3.22, and 3.26 to 3.30

The Report stated that water infiltration into subsurface soils is a major contributor to slope instability which can affect pipeline integrity. Several areas were identified along the pipeline right-of-way that lie between and collect water from higher elevations from both sides and discharge it perpendicular to the right-of-way. Overburden soils can become saturated in these areas. This negatively affects trench stability as well as long-term stability. Significant natural drainage features below these areas indicate the potential for long-term erosion and sudden washout of saturated soils if subsurface water is not controlled. The Report recommended that these areas be closely monitored during clearing and construction and suggested the possibility of the use of French drains to dewater the pipeline trench. The Report identified areas of probable or observed water infiltration and saturated soils at MPs 0.5, 1.22, 1.90, 3.12, and 3.36.

Ground subsidence due to natural conditions and underground mining activities is a potential geologic hazard that could occur in the Project area. Karst features such as sinkholes, caves, and caverns can form as a result of the long-term action of groundwater on soluble carbonate rocks (e.g., limestone [calcium carbonate] and dolostone [calcium magnesium carbonate]). According to Columbia, no signs of subsidence were observed. However, fractured sandstone outcroppings were observed in several locations, notably in the vicinity of MPs 0.72, 2.71 and 2.72 on both sides of the proposed right-of-way. A void was observed beneath the fractured sandstone outcropping near MP 2.72. According to the Report this may be the entrance to a personal scale coal mine. The Report stated that commercial scale mining or karst features are unlikely in the Project area. Fractured sandstone outcroppings can serve as water infiltration conduits to dissolve underground carbonate deposits which may underlie the Project right-of-way.

Columbia stated that it would file a Landslide Mitigation Plan with the Report. However, no such mitigation plan was filed.

Based on the information presented above, the Report made the following recommendations relating to slop instability:

- All areas of observed slope instability should be re-evaluated at the time of clearing for right-of-way construction.
- Wherever possible, new pipeline in side-slope areas should be fully embedded into bedrock to ensure long-term stability. Pipe embedded into rock should be installed on and backfilled to at least 6” above the top of the pipe with compacted sand.
- Areas that lie between areas of higher elevations from both sides, collect water, and discharge it perpendicular to the right-of-way should be closely monitored

during clearing and construction. The Report also suggested the possibility of the use of French drains to dewater the pipeline trench.

- A qualified representative should assess areas where probable or observed water infiltration and statured soils were observed near MP 0.5, 1.22, 1.90, 3.12, and 3.36 during construction. Recommendations for mitigation structures, if any are needed, should be then made at that time.

Based on the lack of a filed Landslide Mitigation Plan, **we recommend that:**

- **Prior to construction, Columbia should file with the Secretary of the Commission (Secretary) for review and approval of the Director of the Office of Energy Projects (OEP), a landslide mitigation plan to adopt the recommendations contained in Terracon Consultants, Inc.'s Geotechnical Survey Data Report relating to slope instability, or provide justifications for why the recommendations are not appropriate.**

Columbia states it does not expect that blasting would be necessary for Project construction because shallow bedrock is anticipated to be rippable based on prior experience in the area. As indicated in section A of this EA, if shallow bedrock is encountered during Project construction, Columbia would use hydraulic hammers in attempts to break up the rock and prepare a blasting plan, if blasting is necessary.

1.2 Soils

The soils in the Project area generally consist of deep to very deep, somewhat poorly drained to well drained silts and loams. The Project would disturb a total of about 7.6 acres of agricultural land, which represents about 9.0 percent of total land disturbance. The U.S. Department of Agriculture defines prime farmland soils as those that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. Prime farmland soils can include either actively cultivated land or land that is potentially available for cultivation. Urbanized land and open water are excluded from prime farmland. Prime farmland typically contains few or no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods, and is not subject to frequent, prolonged flooding during the growing season.

Farmland that does not meet the criteria for prime farmland may still be considered farmland of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the local conservation districts. Generally, this land

includes soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

A total of about 1.7 acres of prime farmland soils and about 53.2 acres of farmland of statewide importance would be affected by the Project. It should be noted that only a portion of this land is currently being used for agricultural purposes. During construction, Columbia would segregate topsoil unless the landowner or land management agency requests otherwise. Topsoil would be stripped from over the pipeline trench and the adjacent subsoil storage area. Columbia would remove the topsoil layer to a depth of at least 12 inches in deep soils of cultivated or rotated croplands and managed pastures, hayfields, residential areas and other areas at the landowner's or land managing agency's request. Segregated topsoil would be returned following backfilling of the pipeline trench with subsoil, ensuring preservation of topsoil within the construction area. With implementation of Columbia's ESC measures, long-term impacts on prime farmland soils and farmland of statewide importance would be minimized. Further, a landowner would not be precluded from using the pipeline easement for agricultural use in the future. The majority of affected soils (about 84%) are considered to be moderately- to well-drained. This means the soils have a moderate to high risk of droughtiness, and have a poor to fair revegetation potential.

Successful restoration and revegetation is important for maintaining soil productivity and to protect the underlying soil from potential damage and erosion. In accordance with the ECS, Columbia would be expected to apply soil amendments, as necessary, to create a favorable environment for the re-establishment of vegetation. Columbia would also obtain written recommendations from the local soil conservation authority, land management agencies, or the landowner. Erosion is a continuing natural process that can be accelerated by human disturbance. Factors that influence the degree of erosion include soil texture, structure, length and percent of slope, vegetative cover, and rainfall or wind intensity. Soils most susceptible to erosion by water are typified by bare or sparse vegetative cover, non-cohesive soil particles with low infiltration rates and moderate to steep slopes. Topsoil removal, clearing, grading, and equipment movement could accelerate the erosion process and, without adequate protection, result in discharge of sediment to waterbodies and wetlands. Soil loss due to erosion could also reduce soil fertility and impair revegetation.

Columbia stated it would implement measures specified in its ECS to avoid and minimize potential impacts due to soil erosion and sedimentation. During construction, erosion and sediment control measures would be installed and maintained. At the end of

construction, Columbia would be required to reestablish vegetation as soon as possible following final grading. Disturbed areas would be reseeded with seed mixtures developed in consultation with the local soil conservation authority or existing landowners. The potential for soil compaction during Project activities is derived from multiple characteristics such as soil drainage, hydrology, texture, permeability, seasonal flooding, and high water table. The Project's compaction potential ranges from low to high, though most of the Project area is in the low range. In accordance with its ECS, Columbia would minimize compaction.

All soils on affected croplands, pastures, and residential areas for the pipeline installation and temporary work areas would be restored to prior conditions and returned to prior use. Columbia would undertake mitigation to reduce impacts on soils that would include topsoil segregation, replacement of soils in proper sequence after construction, re-establishment of pre-construction contours as practicable, implementation of erosion control measures, plowing to break up construction-related compaction, and re-establishment of vegetation as soon as possible in areas that are not annually cultivated cropland. Therefore, we conclude that the Project would not have a significant effect on soils during construction and operation.

2. WATER RESOURCES

2.1 Groundwater

The Project would be underlain by the principle Pennsylvania aquifer system. This aquifer consists of layers of consolidated sedimentary rock of which sandstone formations are the primary water producing units. A principal aquifer is defined as a regionally extensive aquifer or aquifer system with the potential to be used as a potable water source. The Project would not be underlain by any Environmental Protection Agency (EPA) -designated Sole Source Aquifers. No springs were identified within 150 feet of the Project area. In addition, the Project would not be located in a wellhead protection area.

As identified in table 3, two active private, domestic wells were identified within 150 feet of the Project.

Table 2: Private Water Supply Wells within 150 feet of the Project			
Approximate Milepost	Status	Use	Approximate Distance from Project (feet)
SM-80 Replacement			
3.3	Active	Domestic	89.4[a]
SM-80 Abandonment			
1.9	Active	Domestic	17.0[a]
[a] Distance from access road workspace			

To ensure well integrity, Columbia would offer landowners pre- and post-construction testing of the wells within 150 feet of the construction workspaces and would test for both quality and quantity parameters. If the results of the sampling events indicated any significant differences in the well quality between the pre- and post-construction sampling events Columbia would compensate the landowner for the repair of the well, installation of a new well, or otherwise arrange for suitable water supplies to be provided.

Impacts to groundwater could occur during construction of the Project. Trenches would generally be within the upper 10 feet or less of the existing ground surface and as such, impacts on the aquifer underlying the Project are not anticipated. Dewatering of the trench may be necessary due to an unexpected high water table. However, these impacts are not expected to be significant as they would be minor and temporary disturbances in a localized area. Surface hydrology and water table elevations may be affected by excavation activities if proper soil segregation techniques are not used. In addition, water tables may be affected due to soil compaction from heavy equipment. To minimize these impacts, Columbia would return soil grades to near their natural state. Columbia would also de-compact soil during restoration.

Inadvertent fuel and hazardous materials spills could potentially impact groundwater. However, Columbia would implement measures contained in its SPCC Plan to avoid and minimize these impacts.

We conclude that with implementation of Columbia's proposed construction procedures and mitigation measures, the Project would not have a significant impact on existing groundwater resources.

2.2 Surface Water

The Project would be located within the Big Sandy River and Twelvepole Creek watersheds. According to correspondence between Columbia and the West

Virginia Department of Health and Human Resources a three-mile buffer area established around the Project captures a public drinking water intake and the Project footprint crosses a small portion of the Zone of Critical Concern and the Zone of Peripheral Concern for Kenova Municipal water.

Abandoning and replacing the project would require 16 waterbody crossings. These include five ephemeral streams, eight intermittent streams, and three perennial streams. Fifteen waterbody crossings are associated with the replacement and one waterbody crossing is associated with the pipeline abandonment. The waterbody crossings are identified in Table 4 below.

Use of temporary and permanent access roads and equipment crossings would require six waterbody crossings. Three of these waterbody crossings have existing culverts. The remaining crossings would be completed by installing temporary equipment crossings including using culverts and stone or equipment mats.

The West Virginia Code of State Regulations (WVCSR) Section 47-2-4 outlines three classes for all waters of the state. Tier 1 Protection indicates that existing water uses and the level of water quality necessary to protect the existing uses should be maintained and protected. Tier 2 Protection indicates that existing high quality waters of the State must be maintained at their existing high quality. Tier 3 Protection includes outstanding national resource waters that have been placed on the highest tier of the State classification to provide greater protection. No Tier 3 Protection waters are proposed to be crossed as part of the Project. One Tier 1 Protection water, Miller Creek, is proposed to be crossed. The remaining waterbodies associated with the project are classified as Tier 2 Protection.

The WVCSR Section 47-2-6 further outlines general Water Use Categories including Public Water Supply (Category A); Propagation and Maintenance of Fish and Other Aquatic Life (Category B); Water Recreation (Category C); Agricultural and Wildlife Uses (Category D); and Water Supply Industrial, Water Transport, Cooling and Power (Category E). Under the WVCSR all waters of the state are designated at a minimum as Category B and C, unless otherwise designated. As such, all 16 waterbodies crossed by the Project are designated Category B and C. According to the WVCSR, additional subcategories may be assigned to further differentiate use designations including Warm Water Fishery Streams (Category B-1) and Trout Waters (B-2). None of the proposed crossed waterbodies are identified as Category B-2 Trout waters.

Table 3: Waterbodies Cross by the Project						
Description	**Nearest MP**	**Length (ft) within Footprint**	**Pipeline Centerline Crossing Width (ft)**	**Flow Regime**	**State Designated Uses[1]**	**TIER Protection[2]**
SM-80 Replacement						
Miller Creek	MP 1.1	50	2	Intermittent	B, C	TIER 1 -303(d) List
UNT Dock Creek	MP 2.0	160	5	Perennial	B, C	TIER 2
UNT Dock Creek	MP 2.2	126	2	Ephemeral	B, C	TIER 2
Dock Creek	MP 2.3	106	8	Perennial	B, C	TIER 2
Walker Branch	MP 3.3	149	5	Intermittent	B, C	TIER 2
UNT Walker Branch	MP 3.3	89	4	Intermittent	B, C	TIER 2
UNT Walker Branch	MP 3.8	117	6	Intermittent	B, C	TIER 2
UNT Walker Branch	MP 3.8	541	23	Perennial	B, C	TIER 2
UNT Twelvepole Creek	MP 4.2	53	N/A	Ephemeral	B, C	TIER 2
UNT Twelvepole Creek	MP 4.5	71	N/A	Ephemeral	B, C	TIER 2
UNT Miller Creek	MP 1.0	32	N/A	Intermittent	B, C	TIER 2
UNT Dock Creek	MP 2.0	45	N/A	Intermittent	B, C	TIER 2
UNT Dock Creek	MP 2.4	103	2	Ephemeral	B, C	TIER 2
UNT Dock Creek	MP 2.8	28	N/A	Intermittent	B, C	TIER 2

Table 3: Waterbodies Cross by the Project

Description	Nearest MP	Length (ft) within Footprint	Pipeline Centerline Crossing Width (ft)	Flow Regime	State Designated Uses[1]	TIER Protection[2]
UNT Twelvepole Creek	MP 4.5	38	N/A	Ephemeral	B, C	TIER 2
SM-80 Abandonment						
UNT Miller Creek	MP 1.4	25	N/A	Intermittent	B, C	Tier 2

ID-Identification; MP-milepost; OHW-Ordinary High Water Mark; UN-Unnamed Tributary; TAR-Temporary Access Road; STA-Staging Area; ABD TAR-Abandonment Temporary Access Road; N/A- Not Applicable

1 State Designated Uses: Category B - Propagation and Maintenance of Fish and Other Aquatic Life, Category C - Water Contact Recreation (West Virginia Code of State Regulations §47-2-6)

2 Tier 1 Protection: existing water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Existing uses are those uses actually attained in a water on or after November 28, 1975, whether or not they are included as designated uses within the State code, water quality standards.

Tier 2 Protection: existing high quality waters of the State must be maintained at their existing high quality. High quality waters are defined in the State code as those waters whose quality is equal or better than the minimum levels necessary to achieve the national water quality goal uses. Tier 2 is the default assignment for a waterbody not listed as impaired on the states 303(d) list.

Miller Creek is listed as a Tier 1 waterbody for Conditions Not Allowable (CNA)-Biological and Fecal Coliform. This contamination is from an unknown source for the entire length of the stream. In addition, Twelvepole Creek, which is located north of the Credo Compressor Station, is listed for CNA-Biological Fecal Coliform and Iron. Columbia would implement best management practices outlined in its ECS in the vicinity of all waterbodies. It is not anticipated that Project activities would contribute to further degradation of water quality standards at any of the waterbody crossings.

Construction of the pipeline facilities would result in temporary impacts on the waterbodies crossed. The West Virginia Department of Natural Resources (WVDNR) stated in a Right of Entry letter dated November 24, 2015 and in correspondence with

Columbia dated February 2, 2016 that no in-stream work may occur at the 11 waterbody crossings that are proposed to use and maintain timber mat bridge crossings from April 1 to June 30. In addition, directional boring is the only method permitted for crossing high quality streams during the fish spawning season. However, the WVDNR acknowledged that none of the waterbodies crossed by the Project are considered high quality streams. The WVDNR also states that non-high quality streams may be crossed via directional boring or other dry ditch methods at all times during fish spawning systems from April 1st through June 30th. In addition, it is stated that crossing methods other than directional boring must be completed in one work day and that only ephemeral or intermittent streams that are dry can be trenched.

Columbia would cross all streams that are flowing at the time of construction between the dates of April1st and June 30th via a dry-crossing method to adhere to fish spawning season restrictions (see Section A.7.3 for a description of the dry crossing). Upland construction techniques may be used by Columbia for intermittent waterbody crossings without perceptible flow at the time of crossing provided that a culvert is installed to carry stormwater flow across the trench and that ECDs are installed. The wet ditch crossing method may be used to cross intermittent waterbody crossings without perceptible flow under certain conditions.

Impacts on waterbodies that may occur include modification of aquatic habitat, stream bank erosion, increased sedimentation and turbidity, decreased dissolved oxygen concentrations, inadvertent release of chemical and nutrient pollutants from sediments, and introduction of chemical contaminants.

To minimize these impacts Columbia would avoid stripping vegetation from along the stream banks until the time of crossing and would utilize equipment bridges, mats, and pads when necessary and possible. Upon completion, vegetated areas would be restored to pre-construction conditions to the extent possible and temporary erosion control devices would be installed to minimize erosion until the crossing is stabilized and the stream bank vegetation has re-established. In addition, permanent erosion control devices may be installed to prevent further erosion at the crossing location.

To reduce turbidity and sedimentation impacts Columbia would install temporary equipment bridges for access along the construction corridor. Timber mats or portable prefabricated bridges may be used and will be maintained to prevent restriction of water flow during construction. Columbia would also use erosion and sediment control devices to prevent soil from entering the waterbody and trench breakers would be installed following the pipe installation to prevent water from flowing along the trench after

construction. The in-stream construction activities would typically be limited to 24 to 48 hours to minimize impacts and stream banks and riparian areas would be revegetated in accordance with the ECS. Trench dewatering may be used to pump accumulated water from the trench into vegetated upland areas away from waterbodies. The water pumped would be discharged through dewatering structures and/or filter bags as detailed in the ECS.

Inadvertent spills of fuel, lubricants, or solvents could result in surface water contamination. Columbia would use proper storage, containment, and handling procedures in accordance with the ECS. No hazardous materials, chemicals, lubricating oils, and fuels used during construction would be stored less than 100 feet from surface waterbodies or wetlands. In addition, whenever practicable no heavy equipment would be parked or refueled within 100 feet of surface waterbodies or wetlands. If refueling should occur within 100 feet, precautions such as continual fuel transfer monitoring, secondary containment structures, and spill kit readiness would be instituted. In the event of a spill, Columbia would employ measures outlined in the ECS.

Impacts on aquatic resources from construction and operation of the Project would be temporary and Columbia would limit impacts on aquatic resources by dry-ditch waterbody crossing methods, adherence to the WVDNR timing restrictions, and implementing the ECS. Therefore, we conclude that impacts on surface water resources from the Project would not be significant.

2.3 Hydrostatic Testing

In accordance with DOT regulations, Columbia would conduct hydrostatic testing of the pipelines prior to placing them into service. Hydrostatic testing is a method by which water is introduced to segments of pipe and then pressurized to verify the integrity of the pipeline. Columbia would obtain hydrostatic test water for new pipe from a municipal source to avoid impacts on surface waters. The withdrawal would occur at a municipal fire hydrant located and the discharge would occur at approximately at a well-vegetated upland location within the same watershed. The rate of discharge would be the lowest possible rate to minimize any potential erosion or impact on aquatic life and would be determined through permitting for water withdrawal. The approximate volume needed for testing would be 754,800 gallons. Test water would contact only new pipe, and no chemicals would be added.

Following the pipeline installation and hydrostatic testing, disturbed areas would be restored and graded to pre-construction contours as closely as possible. Therefore,

impacts from withdrawal and discharge of hydrostatic test water are expected to be temporary and minimal.

2.4 Wetlands

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987). We define wetlands as any area that is not actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands. Wetlands generally include swamps, marshes, bogs, and similar areas.

One palustrine emergent wetland would be crossed by the Project. This wetland is identified as wetland W002 and is located in the vicinity of milepost 2.2. Construction and operation of the Project would temporarily affect about 0.01 acre of this wetland. It should be noted that the impacts to W002 only include spoil storage as the crossing is limited to the existing SM-80 Loop right-of-way.

Temporary construction impacts on wetlands could include the loss of herbaceous vegetation; wildlife habitat disruption; soil disturbance associated with grading, trenching, and stump removal; sedimentation and turbidity increases; and hydrological profile changes.

Impacts on wetlands from construction and operation of the Project would be temporary and Columbia would limit these by adhering to applicable state and federal permit requirements and by implementing the ECS. In addition, Columbia would segregate the topsoil up to one food in depth where hydrologic conditions permit. Therefore, we conclude that impacts on wetlands would not be significant.

3. FISH, WILDLIFE, AND VEGETATION

3.1 Vegetation

Construction and operation of the Project would affect the following general vegetative cover types: agricultural, open land, wetlands, developed land, and forested. No sensitive vegetation species would be affected by the Project.

Agricultural land in West Virginia is predominantly dedicated to growing hay and cultivated crops such as corn, soybeans, and wheat (USDA 2015). The replacement

pipeline would disturb about 7.6 acres of agricultural land, of which 2.4 acres would be in the maintained right-of-way. The dominant vegetative species of agricultural land, excluding crops, include Kentucky bluegrass, tall fescue, red clover, broomsedge bluestem, and white clover.

The pipeline, staging areas, and aboveground facilities would disturb about 38.0 acres of open land, of which 12.3 acres would be maintained as permanent easement. This open land consists of uncultivated cleared lands, pastures, scrub-shrub land, and maintained lands (right-of-ways and residential lawns). Dominant vegetative species in open land include Allegheny blackberry, Japanese honeysuckle, common milkweed, common mullein, Kentucky bluegrass, red clover, switch grass, broomsedge bluestem, tall fescue, and multiflora rose.

A total of 0.01 acre of wetlands would be temporarily affected by construction of pipeline facilities. The dominant vegetative species for wetlands and waterbodies include reed canarygrass, common rush, straw-colored flatsedge, woolgrass, broadleaf cattail, and sensitive fern.

The replacement pipeline would temporarily impact 32.7 acres of forested land and permanently impact 8.8 of these acres. The abandonment project would temporarily impact 0.34 acres of forested/woodland land and staging areas would temporarily impact 0.55 acres. This forested land generally consists of deciduous upland wooded hedgerows or woodlots that are dominated by white oak, red oak, black oak, hickory, and other associated upland hardwoods. Other species may include American sycamore, red maple, eastern hemlock, American beech, boxelder, scarlet oak, chestnut oak, scattered with Virginia pine, shortleaf pine, and white pine located on dry ridges of shallower soils.

Construction and abandonment of the pipeline facilities would temporarily impact 6.32 acres of developed land. Operation of the aboveground facilities would impact 0.21 acres of developed land. Developed land includes existing industrial facilities, paved roads, a cemetery, and residential areas and is typically sparsely vegetated or lacks vegetation due to impervious structures like cement foundations, pavement, gravel pads, or compacted land. Vegetation species within these areas include Kentucky bluegrass, multiflora rose, and white clover.

Abandonment and replacement activities would result in the temporary loss of vegetation and the permanent conversion of vegetation from one type to another. The loss and conversion of vegetation would affect soils and wildlife. To avoid and minimize these affects, Columbia would implement measures described in its ECS and

restore/revegetate affected lands. Revegetation would be considered successful when native vegetation cover and diversity within the disturbed areas are similar to adjacent, undisturbed lands. Based on the types and amounts of vegetation affected by the Project and Columbia's proposed avoidance, minimization, and mitigation measures to limit Project impacts, we conclude that impacts on vegetation from the proposed Project would not be significant.

3.2 Wildlife

Five general habitat types exist in the Project area: agricultural, open land, wetlands/waterbodies, developed land, and forested. Agricultural land may provide habitat for various animals including coyote, white tailed deer, red fox, Canada goose, mourning doves, and American crows. Open lands support herbaceous and low-level woody vegetation which may provide habitats for mammals, reptiles, and amphibians. In addition these habitats support multiple bird species. Open lands bordered by forested habitats or hedgerows are particularly valuable to birds and other wildlife as they provide nesting, foraging, and refuge opportunities. Forested land within the project area generally consists of deciduous upland wooded hedgerows or woodlots. Shrubs and saplings and other secondary canopy features also provide cover for small to medium mammals. Developed land may provide habitat for a variety of common, human-commensal wildlife species, such as raccoon, squirrel, striped skunk, mourning dove, house sparrow, brown snake and common eastern garter snake. Lastly wetlands/waterbodies may provide habitat for aquatic and semiaquatic wildlife including species such as muskrat and beaver, various reptiles and amphibians, waterfowl, and fish.

Construction and operation of the Project would result in short- and long-term impacts on wildlife. Potential short-term impacts on wildlife include the displacement of individuals from construction areas and adjacent habitats and the direct mortality of small, less mobile mammals, reptiles and amphibians that are unable to leave the construction area. Long-term impacts would include permanent conversion of forested or scrub-shrub habitats to cleared and maintained right-of-way, and periodic disturbance of wildlife during operation and maintenance.

Fragmentation of forested areas results in changes in vegetation (for example, invasion of shrubs along the forest edge) which may limit the movement of species between adjacent forest blocks, increase predation, and decrease reproductive success for some species (Rosenberg et al. 1999). Thus, a potential long-term impact on wildlife could result from the clearing of forest vegetation for the operational lifetime of the Project. Columbia has collocated the replacement pipeline with existing utility rights-of-

way to minimize habitat fragmentation.

Based on the collocation of the replacement with existing rights-of-way, the presence of similar habitats adjacent to and in the vicinity of construction activities, and the implementation of impact avoidance and minimization measures, we conclude that construction and operation of the Project would not significantly impact wildlife.

3.2.1 Migratory Birds

Migratory birds are species that nest in the United States and Canada during the summer and then migrate to and from the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 U.S. Code 703-711), and bald and golden eagles are additionally protected under the Bald and Golden Eagle Act (16 U.S. Code 668-668d). The MBTA, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Executive Order 13186 (66 FR 3853) was enacted in 2001 to, among other things; ensure that environmental analyses of federal actions evaluate the impacts of actions on migratory birds. Executive Order 13186 directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the USFWS. The environmental analysis should further emphasize species of concern, priority habitats, and key risk factors, and that particular focus should be given to population-level impacts. On March 30, 2011, the USFWS and the Commission entered into a Memorandum of Understanding (MOU) that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the Commission and the USFWS. This voluntary MOU does not waive legal requirements under the MBTA, the Endangered Species Act (ESA), the National Gas Act (NGA), or any other statutes and does not authorize the take of migratory birds.

The entire Project would be within Region 28 (Appalachian Mountains) of the North American Bird Conservation Initiative. In total, 234 migratory bird species occur within Region 28 (Appalachian Mountains Bird Conservation Region Partnership 2005).

The USFWS established Birds of Conservation Concern (BCC) lists for various regions in the country in response to the 1988 amendment to the Fish and Wildlife Conservation Act, which mandated USFWS to identify migratory nongame birds that, without additional conservation actions, were likely to become candidates for listing

under the Endangered Species Act (ESA). The BCC lists were last updated in 2008. BCC located within Bird Conservation Region 28 are listed in Table 5 below.

Table 4: Birds of Conservation Concern within Bird Conservation Region 28			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Land Birds			
Bald eagle	*Haliaeetus leucocephalus*	Peregrine falcon	*Falco peregrinus*
Bewick's wren	*Thryomanes bewickii*	Prairie warbler	*Dendroica discolor*
Black-capped	*Poecile atricapillus*	Red Crossbill	*Loxia curvirostra*
Blue-winged warbler	*Vermivora pinus*	Red-headed woodpecker	*Melanerpes erythrocephalus*
Canada warbler	*Wilsonia Canadensis*	Rusty blackbird	*Euphagus carolinus*
Cerulean warbler	*Dendroica cerulean*	Sedge wren	*Cistothorus platensis*
Golden-winged	*Vermivora chrysoptera*	Swainson's warbler	*Limnothlypis swainsonii*
Henslow's sparrow	*Ammodramus henslowii*	Upland sandpiper	*Bartramia longicauda*
Kentucky Warbler	*Oporornis formosus*	Whip-poor-will	*Caprimulgus vociferus*
Loggerhead shrike	*Lanius ludovicianus*	Wood thrush	*Hylocichla mustelina*
Louisiana waterthrush	*Seiurus motacilla*	Worm-eating warbler	*Helmitheros vermivorus*
Northern Saw-whet	*Aegolius acadicus*	Yellow-bellied sapsucker	*Sphyrapicus varius*
Olive-sided Flycatcher	*Contopus cooperi*		
(USFWS, 2008)			

The primary concern for impacts on migratory birds is mortality of eggs and/or young as mature birds could avoid active construction. Tree clearing and ground disturbing activities could cause disturbance during critical breeding and nesting periods, resulting in the loss of nests, eggs, or young. In addition, forest fragmentation could increase predation, competition, and reduce nesting and mating habitat for migratory and ground-nesting birds (Faaborg et al. 1995).

To minimize disturbance during migratory bird critical nesting periods, Columbia would fell trees prior to the nesting season (prior to April 1 and after August 30). Additionally, the collocation of the replacement pipeline would minimize impacts on migratory birds.

Based on the characteristics and habitat requirements of wildlife and migratory birds known to occur in the proposed Project area, the amount of similar habitat adjacent to and in the vicinity of the Project, and Columbia's implementation of the measures in its ECS, including timing restrictions for clearing of vegetation, we have determined that abandoning, installing, and operating the pipeline would not result in population-level

impacts or significant measureable negative impacts on birds of conservation concern or migratory birds.

3.2.2 Federally and State Listed Species

Section 7 of the ESA requires the Commission to ensure that any action it authorizes does not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. The agency is required to consult with the USFWS to determine whether any federally listed endangered or threatened species of their designated critical habitats are located in the vicinity of the project, and to determine the proposed action's potential effects on those species or critical habitat. In a letter dated October 23, 2014 the WVDNR confirmed that no state rare, threatened, or endangered species occurrences are known within the Project area.

Habitat Conservation Plan

Columbia has developed a Multi-Species Habitat Conservation Plan (MSHCP) in coordination with the USFWS, which identifies common pipeline activities that may take place within potential federally listed species habitat. The MSHCP outlines detailed monitoring, reporting, and management protocols for multiple ESA listed species known to occur in the project area including the Indiana bat and the northern long-eared bat. The MSHCP applies to the project because Columbia's facilities were reviewed in the MSHCP Biological Opinion, and associated concurrence letters. An inter-agency effort issued this plan on September 13, 2013. Through the MSHCP, Columbia and the USFWS have developed standard mitigation measures that would reduce impacts on listed species to less than significant levels. Columbia provided the Interagency ESA Consultation Checklist for the MSHCP for FERC review and approval. This checklist is included in Appendix D of this EA. Columbia, acting as the project non-federal representative for the FERC, initiated informal consultation with the USFWS in December 29, 2014. The USFWS identified six federal-listed species (two mammals, one bird, and three mussels) as potentially occurring within Wayne County. Four of these species including the red knot (*Calidris canutus rufa*), the pink mucket (*Lampsilis abrupta*), the sheepnose mussel (*Plethobasus cyphyus*), and the fanshell (*Cyprogenia stegaria*) were determined to not be effected by the Project as their habitats were not present in the Project area. However, the Project is within the range and may contain suitable habitat for the federally endangered Indiana bat (*Myotis sodalist*) and northern long-eared bat (*Myotis septentrionalis*). A discussion on these two species is provided below.

Indiana Bat

Indiana bats hibernate in caves and abandoned mines during the winter months. Population declines have been primarily due to the loss and degradation of suitable hibernacula, human disturbance during hibernation, and loss and degradation of forested habitat (USFWS, 2015). More recently, white-nose syndrome, a fungal pathogen, has caused serious declines in bat populations, including Indiana bats. Indiana bats roost in dead or live trees and snags with peeling or exfoliating bark, split trunks, or cavities and in live trees with exfoliating bark that are 5 inches in diameter. Indiana bats use stream corridors, riparian areas, and upland woodlots for roosting, foraging, and travel corridors. This species is covered by the MSHCP. Because potential suitable summer habitat was identified during Columbia's pedestrian surveys of the Project site, it would implement the avoidance and minimization measures required in the MSHCP for the Indiana bat. Some examples of these minimization methods include:

- no clearing of suitable summer habitat from June 1 to August 1;
- educating operators, employees, and contractors on the biology of the Indiana bat, activities that may affect bat behavior, and ways to avoid and minimize these effects;
- strictly controlling contaminants, including but not limited to oils, solvents, and smoke from brush piles, so the quality, quantity, and timing of prey resources are not affected;
- implementing the ECS;
- servicing and maintaining equipment at least 300 feet from streambeds, sinkholes, fissures, or areas draining into sinkholes, fissures, or other karst features;
- eliminate clearing of suitable summer habitat more than 10 miles from a Priority 1, 2, 3 and 4 hibernacula within the covered lands of the MSHCP from August 2 to October 15 to avoid direct effects to post-lactating females and volant juveniles and minimize direct effects to Indiana bats in summer habitat;
- not applying aerial herbicide on rights-of-way from April 15 to August 15 to protect maternity colonies in summer habitat; and
- avoiding conducting construction activities after sunset in known or suitable summer habitat to avoid harassment of foraging Indiana bats.

With Columbia's commitment to abide by the MSHCP, including the measures listed above, we conclude that the Project is not likely to adversely affect the Indiana

bat.

Northern Long-eared Bat

Northern long-eared bats overwinter in large caves and abandoned mines with stable temperatures and high humidity. During the summer, the northern long-eared bat is associated with forested habitat in proximity to wetlands and roost alone or in colonies. Dramatic population declines have occurred as a result of white-nose syndrome on this species. This species is covered by the MSHCP. Implementation of the mitigation measures listed in the MSHCP would impacts on the northern long-eared bat. Some of these mitigation measures include:

- No clearing of known maternity colony or suitable summer habitat within the covered lands of the MSHCP from April 1 to May 31 and August 2 to October 15 to avoid direct affects to females (pregnant, lactating, and post-lactating) and juveniles (non-volant and volant)
- Retain snags, dead/dying trees, and trees with exfoliating (loose) bark ≥ 3 inches diameter at breast height in areas identified as known maternity colony summer habitat and ≤ one mile from water.
- No clearing or "side-trimming" of known maternity colony or suitable summer habitat within the covered lands of the MSHCP from June 1 to August 1 to protect nonvolant NLEB pups.

Based on the measures above, we conclude that the Project is not likely to adversely affect the northern long-eared bat.

3.3 Fisheries

Fisheries classifications are broken into two categories in West Virginia: cold water aquatic habitat and warm water aquatic habitat. No streams within the Project are classified as cold water habitat. In West Virginia, warmwater fishery streams are defined as streams or stream segments containing only warmwater aquatic life. High quality warmwater fisheries are defined as those waters that meet or exceed the minimum requirements for national water quality goal uses (WVDEP 2014b). Twelvepole Creek has a two mile section of stocked trout located approximately 11 miles upstream of the Project area. Waterbodies supporting commercial fisheries are not known to be crossed by the Project. Additionally, no fisheries of special concern or designated essential fish habitat were identified within the proposed Project area.

As described previously, waterbody crossings would affect aquatic habitat and could result in temporary impediments, changes to behavior, loss of habitat, and/or the

alteration of water quality could increase the stress rates, injury, and/or mortality experienced by fish.

To minimize impacts on waterbodies and fisheries, Columbia would maintain a 25-foot-wide riparian strip for the full width of the permanent right-of-way and limit vegetative maintenance immediately adjacent to waterbodies to a 10-foot-wide strip centered over the pipeline with selective tree-clearing within 15 feet of the pipeline. Water withdrawals for hydrostatic testing would be from municipal sources and therefore would avoid impacts on fisheries during withdrawal.

Furthermore, Columbia would implement the following measures from the ECS, including:

- installing and maintaining erosion control devices;
- ensuring all flow downstream of crossings is appropriately maintained;
- adhering to in-stream construction requirements and/or time frames specified by state agencies;
- preventing and responding to equipment fluid spills by following the SPCC Plan included in the ECS;
- restoring streambeds and banks to pre-construction conditions; and
- regulating water discharges to prevent streambed scour.

Impacts on aquatic resources from construction and operation of the Project would be temporary and Columbia would limit impacts on aquatic resources by using dry-ditch waterbody crossing methods and implementing our Procedures and the ECS. Therefore, we conclude that impacts on aquatic resources from the Project would not be significant.

4. LAND USE and VISUAL RESUORCES

4.1 Existing Land Use

The proposed route would traverse a variety of land uses including agricultural, cemetery, open land, forested land, stream, paved road, residential, and industrial. It should be noted that no natural, recreational, scenic, sensitive or contaminated sites would be affected by the Project.

The Project would affect about 84.4 acres of land during construction. Of the 84.4 acres, approximately 60.3 would be restored to pre-construction uses. The remaining 24.1 acres would be maintained for operation of the proposed Project. Table

7 summarizes the Project's temporary and permanent impacts on land use.

Table 5: Summary of Land Use Impacts for the Project																
Facility	Agricultural		Cemetery		Forest		Industrial		Open Land		Paved Road		Residential		Stream	
	Const[1]	Op[2]	Const	Op	Const	Op	Const	Op	Const	Op	Const	Op	Const	Op	Const	Op
Pipeline Facilities																
SM-80 Replacement																
Pipeline (Permanent Easement)	2.4	2.4	0.22	0.22	8.7	8.8	-	-	12.0	12.0	0.03	0.03	0.15	0.15	0.05	0.05
Temporary Workspace	2.0	-	-	-	14.8	-	-	-	6.2	-	0.00	-	-	-	0.05	-
ATWS	1.3	-	-	-	7.76	-	0.07	-	4.5	-	0.00	-	0.12	-	0.03	-
Access Roads	1.2	-	-	-	0.67	-	0.39	-	5.3	0.29	1.4	-	0.26	-	0.02	-
Subtotal	**6.8**	**2.4**	**0.22**	**0.22**	**31.8**	**8.8**	**0.46**	**-**	**27.9**	**12.3**	**1.4**	**0.03**	**0.54**	**0.15**	**0.15**	**0.05**
SM-80 Abandonment																
Temporary Workspace	-	-	-	-	0.28	-	-	-	0.63	-	0.01	-	1.4	-	-	-
Access Roads		-	-	-	0.05	-	-	-	-	-	0.65	-	0.45	-	-	-
Subtotal	-	-	-	-	**0.34**	-	-	-	**0.63**	-	**0.66**	-	**1.9**	-	-	-
Pipeline Facilities Subtotal	**6.8**	**2.4**	**0.22**	**0.22**	**32.2**	**8.8**	**0.46**	**-**	**28.6**	**12.3**	**2.1**	**0.03**	**2.4**	**0.15**	**0.15**	**0.05**
Offline																
Staging Areas	0.75	-	-	-	0.01	-	0.62	-	4.79	-	-	-	-	-	0.00	-
Contractor Yard	-	-	-	-	0.54	-	-	-	4.59	-	-	-	-	-	-	-
Subtotal	**0.75**	**-**	**-**	**-**	**0.55**	**-**	**0.6**	**-**	**9.38**	**-**	**-**	**-**	**-**	**-**	**0.00**	**-**
Aboveground Facilities																
VS-8013; VS-8014	-	-	-	-	-	-	0.21	0.21	0.01	0.01	-	-	-	-	-	-
SM-80 / BM-109 JUMPER	-	-	-	-	-	-	-	-	0.03	0.03	-	-	-	-	-	-
Subtotal	**-**	**-**	**-**	**-**	**-**	**-**	**0.21**	**0.21**	**0.04**	**0.04**	**-**	**-**	**-**	**-**	**-**	**-**
PROJECT TOTAL	**7.6**	**2.4**	**0.22**	**0.22**	**32.7**	**8.8**	**1.3**	**0.21**	**38.0**	**12.3**	**2.1**	**0.03**	**2.4**	**0.15**	**0.15**	**0.05**

Notes:

[1] Land affected during construction (temporary impacts) is inclusive of operation impacts (permanent).

[2] Land affected during operation consists of existing and new permanent easements.

[3] Acreages with 0.0 values are <.005

Approximately 7.6 acres of agricultural land would be affected by construction, of which, 2.4 acres would be retained for operation of the Project right-of-way. However the 2.4 acres designated as the new permanent easement would be restored to its original use to the extent practical. Prime, unique, or local farmlands, as discussed in section B.1.2, would be affected by the proposed Project during construction. None of the prime farmland or farmland of statewide importance would be permanently affected. Columbia would protect active pasture land during construction by installing temporary fencing or identifying alternative locations for livestock to cross the corridor or to feed at. These measures would be negotiated with the landowner. Landowners of agricultural land would be compensated based on market prices for the loss of agricultural production in accordance with the terms of landowner agreements. Columbia would return agricultural land affected during to its original contours, to the extent practical. As such, impacts on agricultural lands would generally be short-term.

Approximately 32.7 acres of forest land would be affected by the Project, all of which would be cleared for temporary use during construction of both the abandonment and replacement portions of the Project as presented in Table 9. Of the 32.7 acres, 8.8 acres would be converted to open and developed land, all of which would be maintained as permanent right-of-way. Impacts on forested lands would be long-term or permanent, as it would take 10 years or more for mature trees to re-establish within the construction areas, and they would not be allowed to re-establish within the operational right-of-way.

Open land includes unimproved pastures and existing utility easements. Construction of the proposed Project would affect approximately 38.0 acres of open land as presented in Table 9. Approximately 25.7 acres would be temporarily disturbed and would be allowed to revert to original condition after construction. During operation of the Project, 12.3 acres would be within the new maintained right-of-way and 0.04 acres would be permanently converted to developed land for the aboveground facilities. As such, impacts on open land would be predominantly short term and minor.

Approximately 1.3 acres of industrial land and approximately 2.1 acres of paved roads would be affected during construction as presented in Table 9. Roads include maintained unpaved private roads and state highways. Potential temporary impacts associated with roadway crossings include disruption of traffic flows, disturbance of existing underground utilities such as water and sewer lines, and hindrance of emergency vehicle access. There are no anticipated permanent impacts on existing use of the roadways or utilities crossed by the Project. Approximately 0.03 acre of paved roads would be within the permanent easement. All affected industrial lands would be returned

to original conditions and uses after construction; therefore, impacts would be temporary and minor.

The Project replacement section would cross Maple Hill Cemetery at approximate milepost (MP) 2.1. The total distance across the cemetery would be less than 200 feet. Columbia Gas proposes to traverse the cemetery by boring the entire distance to avoid surface disturbance to the cemetery. In addition, the alignment of the bore would be adjacent to existing pipelines and a roadway; therefore impacts would be avoided.

Residential land

About 2.4 acres of residential land would be affected during construction, of which none would be within the pipeline permanent right-of-way or would be affected by permanent access roads. Columbia consulted with landowners and county planning departments regarding future planned developments within the Project area. No future planned developments in the Project area were identified.

Eight residences/residential properties and eleven other unoccupied structures are located within 50 feet of the Project construction workspace. These structures are depicted in Table 8 below. Eighteen of the structures are associated with the abandonment portion of the project and a commercial structure is within 50 feet of a staging area. No business, commercial, or retail buildings are located within 50 feet of the pipeline abandonment or replacement.

Table 6: Structures Occurring within 50 feet of the Project

Structure ID	Structure Type	Milepost	Distance from Pipeline (feet)	Distance from Edge of Construction
SM-80 Abandonment				
1	Swimming Pool	1.47	56	34
2	Garage	1.48	24	22
3	Shed	1.48	20	42
4	Residence	1.49	64	50
5	Residence	1.56	16	25
6	Shed	1.56	36	23
7	Residence	1.70	73	48
8	Residence	1.73	22	48
9	Swimming Pool	1.76	50	11
10	Residence	1.76	79	39
11	Garage	1.84	42	17

12	Residence	2.00	21	46
13	Residence	2.03	71	47
14	Residence	2.05	87	42
15	Shed	2.06	17	0
16	Barn	2.07	68	47
17	Building	2.08	5	29
18	Church	2.13	51	37
Staging Areas				
19	Commercial Structure (Highway Safety Inc.)	3.90	690	31
ID-identification; STA-staging area				

Abandonment of the pipeline facilities would be completed by cutting the pipe and capping it with weld caps or a steel plate. The pipeline would be cleared of gas or natural gas liquids using nitrogen. These activities could result in short-term impacts on adjacent residential areas, including the removal of existing vegetation and landscaping from the construction workspace and increased construction-related traffic on local roads. In addition, dust and noise would be generated during construction. Columbia would minimize these impacts through implementation of mitigation measures which include:

- conducting construction activities during daytime hours;
- installing safety fencing around the edge of the construction area adjacent to each residence for a distance of 100 feet on either side of the residence;
- minimizing vegetation clearing;
- restoring lawns and landscaping to pre-construction conditions;
- taking all measures necessary to ensure utilities are not disrupted;
- conducting cleanup and backfill immediately following installation of the pipeline;
- notifying affected landowners no later than 2 weeks prior to the start of construction;
- maintaining traffic flow and emergency vehicle access;
- fencing any section of the trench left open at the end of the workday; and
- periodically inspecting road surfaces near residences, and if necessary, cleaned of soil and other debris.

Columbia submitted site-specific Residential Construction Plans for residences located within 50 feet of the Project workspace. If construction in proximity to residences requires the removal of private property features, such as gates or fences, Columbia

would notify the landowner prior to removal. No septic systems would be affected. Following the completion of construction activities within the residential property, Columbia would restore the property, including landscaping, in accordance with the ECS as well as any agreements in place with the landowner. We have reviewed the plans and determined that they are adequate. The site-specific Residential Construction Plans are included in Appendix C and we encourage the owners of each of the residences to provide comments on the plan for their property.

Given the measures outlined above, in conjunction with the site-specific plans, overall impacts on residences from construction of the Project would generally be short-term. Depending on the specific vegetation affected and its ability to be restored to pre-construction conditions, some residences would experience long-term impacts associated with the visual changes in the landscape. Compensation would be negotiated between individual landowners and Columbia during the easement process. Based on the mitigation measures outlined above, impacts on residences would be insignificant.

4.2 Access Roads

Columbia would use 17 access roads, which would require 9.6 acres of land. Eleven of the access roads would be required for the replace portion of the Project and the remaining six would be required for the abandonment portion. Access roads associated with the abandonment portion of the project would impact 0.02 acres of forested land, 0.15 acres of paved roads, and 0.20 acres of residential land during construction activities. Access roads associated with the replacement portion of the project would impact 1.17 acres of agricultural land, 0.67 acres of forested land, 0.39 acres of industrial land, and 4.97 acres of open land. Details regarding the access roads are provided in Appendix C below. Columbia would make minor improvements to nine of these access roads and mats would be used on five. The majority of modifications would include grading and the addition of gravel to stabilize the road and minor tree trimming. No new permanent access roads are proposed as part of the Project and temporary access roads would be restored to pre-construction conditions following Project completion. Based on the improvements, we do not anticipate significant impacts to access roads.

4.3 Visual Resources

No new aboveground activities are proposed for the Project. Most temporary visual and aesthetic impacts would occur during active construction when vegetation is removed, construction equipment is operating, and materials are being handled

and stockpiled. However, once pipeline construction is complete, disturbed areas would be re-contoured to pre-construction condition, as practicable and revegetated. Therefore, we conclude that due to the overall nature of the project visual impacts would be minimal.

5. CULTURAL RESOURCES

The National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 3001 et seq.) has been described as the linchpin piece of legislation in the federal government's historic preservation program. The NHPA set-up the Advisory Council on Historic Preservation (ACHP), created the National Register of Historic Places (NRHP), and established State Historic Preservation Offices (SHPO).

Section 101 of the NHPA requires the identification of religious and cultural properties in the area of potential effect (APE) that may be important to Indian tribes that historically occupied or used the project area, and may be eligible for listing on the NRHP. Indian tribes are defined in Title 36 CFR Part 800.16(m) as: "an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation, or Village Corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their special status as Indians." The FERC acknowledges that it has trust responsibilities to federally recognized Indian tribes; so on July 23, 2003 the Commission issued a "Policy Statement on Consultations with Indian Tribes in Commission Proceedings" in Order 635. It is the obligation of the FERC, on behalf of all of the federal cooperating agencies, to consult on a government-to-government basis with Indian tribes that may have an interest in the Project.

Section 106 of the NHPA requires that the FERC take into account the effects of its undertakings on historic properties, and afford the ACHP an opportunity to comment. Historic properties include prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance that are listed or eligible for listing on the NRHP. The steps in the process to comply with Section 106, outlined in the ACHP's implementing regulations at 36 CFR 800, include consultations, identification of historic properties, assessment of effects, and resolution of adverse effects. Columbia, as a non-federal applicant, assisted the FERC in meeting its obligations under Section 106 by providing data, analyses, and recommendations in accordance with

Part 800.2(a)(3) and the FERC's regulations at 18 CFR 380.12(f). The FERC remains responsible for all findings and determinations under the NHPA. As the lead federal agency for this Project, the FERC will address compliance with Section 106 on behalf of all the federal cooperating agencies in this EA.[3]

5.1 Consultations

We sent copies of our October 23, 2015 NOI for this Project to the ACHP, U.S. EPA, U.S. Department of the Interior National Park Service (NPS) and Bureau of Indian Affairs (BIA), the SHPO of West Virginia, and potentially interested Indian tribes. The NOI contained a paragraph about compliance with Section 106 of the NHPA, and stated that we use the NOI to solicit the views of the SHPO, other government agencies, Indian tribes, and the public on the Project's potential effects on historic properties. No federal government agencies filed comments with the FERC in response to our NOI.

In accordance with Section 101(d) (6) (B) of the NHPA and Part 800.2(c) (2) (ii), and the FERC's "Policy Statement on Consultations with Indian Tribes in Commission Proceedings" (Order 635), we consulted on a government-to-government basis with Indian tribes that may attach religious or cultural significance to historic properties in the APE. Copies of our NOI for this Project were sent to the tribes listed on Table 10. To date, no tribes have filed comments with the FERC in response to our NOI for this Project.

In addition to the FERC's consultation process, Columbia communicated with the West Virginia SHPO and potentially interested Indian tribes. On October 1, 2014, Columbia's contractor (Gray & Pape) informed the SHPO about the Project and its intent to conduct a Phase I cultural resources survey. A copy of the cultural resources survey report (Smith et al., 2015) was submitted to the SHPO on September 2, 2015. On October 5, 2015, the SHPO provided comments on the report.

[3] Pursuant to 36 CFR 800.2(a)(2), the EPAct, and the May 2002 Interagency Agreement on Early Coordination of Required Environmental and Historic Preservation Reviews.

Table 7: Indian Tribes Contacted	
Tribes Contacted by the FERC via October 23, 2015 NOI	**Tribal Responses**
Absentee Shawnee Tribe of Oklahoma, c/o Edwina Butler-Wolfe,, Governor, & Joseph Blanchard, THPO a/	No comments filed to date.
Catawba Indian Tribe, c/o William Harris, Chief, & Caitlin Totherow, THPO	No comments filed to date.
Cayuga Nation of New York, c/o Clint Halftown, Representative	No comments filed to date.
Cherokee Nation of Oklahoma c/o Bill John Baker, Chief	No comments filed to date.
Delaware Nation of Oklahoma, c/o Cleanan Watkins, President, & Jason Ross, Historic Preservation Department	No comments filed to date.
Delaware Tribe of Oklahoma, c/o Chester Briooks, Chief, & Brice Obermeyer, THPO	No comments filed to date.
Eastern Band of Cherokee Indians in North Carolina, c/o Michael Hicks, Chief, & Russell Townsend, THPO	No comments filed to date.
Eastern Shawnee Tribe of Oklahoma, c/o Glenna Wallace, Chief, & Robin Dushane, THPO	No comments filed to date.
Oneida Nation of New York, c/o Ray Halbritter, Representative,& Jesse Bergevin, Historian	No comments filed to date.
Oneida Tribe of Wisconsin c/o Christina Danford, Chair, & Corina Williams, THPO	No comments filed to date.
Onondaga Nation of New York, c/o Irving Powless, Chief, & Anthony Gonyea, Faithkeeper	No comments filed to date.
Seneca-Cayuga Tribe of Oklahoma, c/o William Fisher, Chief, & Paul Barton, THPO	No comments filed to date.
Seneca Nation of New York, c/o Barry Snyder, President, Melissa Bach, THPO, & Jay Toth, Archaeologist	No comments filed to date.
Shawnee Tribe of Oklahoma, c/o Ron Sparkman, Chair, & Kim Jumper, THPO	No comments filed to date.
St. Regis Mohawk Tribe of New York, c/o Paul Thompson, Chief, & Arnold Printup, THPO	No comment filed to date.
Stockbridge-Munsee Band of Mohican Nation in Wisconsin, c/o Wallace Miller,& Bonney Hartley, THPO	No comments filed to date.
Tonawanda Band of Seneca in New York, c/o Rodger Hill, Chief & Christina Abrams	No comments filed to date.
Tuscarora Nation of New York, c/o Leo Henry, Chief & Bryan Printup, THPO	No comments filed to date.
United Keetoowah Band of Cherokee Indians in Oklahoma, c/o George Wickliffe & , Chief, & Lisa Baker, THPOb/	August 19, 2015 email to Gray & Pape indicating no objections to the Project.
United South and Eastern Tribes, c/o Kitcki Carroll	No comments filed to date.
a/ THPO – Tribal Historic Preservation Officer b/United Keetoowah Band of Cherokee Indians in Oklahoma, c/o Lisa Baker, THPO	

On October 29, 2015, Gray & Pape, on behalf of Columbia, sent a letter to the United Keetoowah Band of Cherokee Indians in Oklahoma informing the tribe about the Project and requesting comments. In an August 19, 2015 email to Gray & Pape the Tribal Historic Preservation Office for the United Keetoowah Band of Cherokee Indians indicated that it would not object to the Project; however, the tribe should be informed of discoveries during construction.

5.2 Area of Potential Effect

In section 4.2 of Resource Report 4, Columbia defined the APE for direct effects as the permanent right-of-way easement (23.6 acres), temporary work spaces (39 acres), staging areas (11.3 acres), and access roads (104 acres). We define the APE for direct effects as the area that would be disturbed by construction of the Project, outlined in table 1.2-1 of Columbia's Resource Report 1, covering about 78 acres in total. Columbia defined the APE for historic architectural sites as the geographic area where visual impacts could disturb the setting. We define the APE for historic architectural sites as extending out 0.25 mile from the proposed facilities. Gray & Pape (Smith et al. 28 August 2015) defined the APE for direct effects as the permanent right-of-way easement for the SM-80 replacement pipeline (23. 4 acres), temporary and additional workspaces (35.9 acres), staging areas (6.6 acres), and access roads (7.7 acres). Combined, the APE covers about 49 acres. In its October 5, 2015 review of Columbia's survey report the SHPO did not object to Gray & Pape's definition of the APE.

5.3 Overview and Survey Results

Columbia had Gray & Pape conduct a literature review and file search of the West Virginia SHPO state database, and the NPS NRHP files. Gray & Pape stated that 12 previous archaeological surveys were conducted within 1.2 miles of the proposed facilities. One previous survey was within 330 feet of the SM80 pipeline, and another was within 50 feet of TAR-01.

There are 47 previously recorded archaeological sites within 1.2 miles of the proposed facilities. Two previously recorded archaeological sites (46WA231 and 46WA233) are located in proximity to TAR-10 (33 feet and 11 feet away, respectively). However, these two sites were not relocated during Gray & Pape's survey for the Project.

Additionally, there are nine previously recorded historic architectural sites within 1.2 miles of the proposed facilities. None of the historic sites are within the

indirect APE, and none were relocated by Gray & Pape.

Gray & Pape conducted a cultural resources inventory that covered the direct APE, with shovel testing, between February and July 2015. Gray & Pape stated that its survey covered a corridor 400 feet wide and 3.9 miles in length along the preferred alignment of the replacement pipeline. In addition, 2.5 miles along 12 access roads, and 244 acres at ancillary facilities (including 7 acres total at 8 staging areas and a total of 23 acres at five temporary work space locations, and a total of 13 acres at 17 additional temporary workspace locations) were inventoried.

No archaeological sites were identified in the APE during the survey. However two historic cemeteries were found (Dock's Creek and McKeand). Columbia would use a subsurface bore along an existing road to avoid and reduce impacts on the Dock's Creek Cemetery. The pipeline route was realigned to avoid or reduce impacts on the McKeand Cemetery. Gray & Pape evaluated both cemeteries to be not eligible for nomination to the NRHP (Smith et al. 28 August 2015).

5.4 Unanticipated Discovery Plan

Columbia has not yet filed with the FERC a project-specific Unanticipated Discovery Plan. Therefore, **we recommend that**:

- **Prior to construction, Columbia should file with the Secretary, for the review and written approval by the Director of OEP, a project-specific Unanticipated Discovery Plan, and documentation that the West Virginia SHPO reviewed and accepted the plan.**

5.5 Compliance with the National Historic Preservation Act

No traditional cultural properties or properties of religious or cultural importance to Indian tribes have been identified in the APE by Columbia, its consultants, the BIA, the NPS, the SHPO, or Indian tribes contacted. Therefore, we have complied with the intent of Section 101(d) (6) of the NHPA

In its October 5, 2015 letter of review of the Gray & Pape survey report, the West Virginia SHPO agreed that no cultural resources investigations were necessary for the 3.3 mile long existing SM-80 pipeline that would be abandoned, because this is a previously disturbed corridor with little potential to contain historic properties, and was covered by a Blanket Clearance Agreement between Columbia and the SHPO dated October 29, 2015.

Within the direct APE for the proposed replacement pipeline, the SHPO agreed that no archaeological sites were identified. In addition, the SHPO concurs that no architectural properties which are eligible for the NRHP would be affected by the Project. Two historic cemeteries were identified by Gray & Pape. The pipeline route would be rerouted to avoid the McKeand Cemetery. The SHPO agrees that the McKeand Cemetery is not eligible for the NRHP. Columbia would avoid impacts on the Dock's Creek Cemetery by using a bore. Although the eligibility of the cemetery is currently undetermined, because it has not been fully recorded and evaluated, the SHPO concurs that the Project would have no adverse effects on the Dock's Creek Cemetery.

We and the SHPO agree that construction and operation of the Project should have no adverse effects on historic properties. No additional investigations are necessary at the proposed facilities. We have completed the process of complying with Section 106 of the NHPA in accordance with 36 CFR Part 800. Because no historic properties would be adversely affected, we do not have to consult with the ACHP about this Project

6. AIR QUALITY AND NOISE

6.1 Air Quality

Impacts on air quality from the Project could result from the construction of the new pipeline and abandonment of the existing pipeline. During construction of the Project, short-term emissions would be generated by operation of equipment, land disturbance, and increased traffic from worker and delivery vehicles.

Ambient air quality is protected by federal and state regulations. The EPA established National Ambient Air Quality Standards (NAAQS) to protect human health and welfare.[4] Primary standards protect human health, including the health of sensitive subpopulations, such as children, the elderly, and those with chronic respiratory problems. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA has developed NAAQS for criteria pollutants such as sulfur dioxide (SO2), particulate matter with a diameter of 10 microns or less (PM_{10}), particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), nitrogen dioxide (NO_2),

[4] The current NAAQS are listed on EPA's website at http://www.epa.gov/air/criteria.html

carbon monoxide (CO), ozone (O_3) and Lead (Pb) which is not expected from Project activities. O3 is one of the primary pollutants of concern related to Project construction activities. It is not emitted directly from emission sources; it is created near ground level by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. As a result, NO_x and VOCs are referred to as "ozone precursors" and are regulated as a means to prevent O_x formation. NO_x is composed primarily of NO_2 and nitrogen oxide (NO). $PM_{2.5}$ is another pollutant of concern related to Project construction activities. It is both emitted directly from emissions sources (combustion units) and formed in the atmosphere from precursors (primarily SO_2 and NO_x). $PM_{2.5}$ is also generated as fugitive dust from on-site construction activities. Additionally, the EPA defines air pollution to include greenhouse gases (GHGs), finding that the presence of GHGs in the atmosphere may endanger public health and welfare through climate change. The Project would contribute GHG emissions. The principle GHG emissions are quantified and regulated in units of carbon dioxide equivalents (CO_{2e}). The CO_{2e} takes into account the global warming potential (GWP) of each GHG. The GWP is a ratio relative to carbon dioxide of a particular GHG's ability to absorb solar radiation as well its residence time within the atmosphere. Thus, carbon dioxide has a GWP of 1, methane has a GWP of 25, and nitrous oxide has a GWP of 298.[5] In compliance with EPA's definition of air pollution to include GHGs, we are providing estimates of GHG emissions for pipeline construction. The total contribution from the Project is 3,374 tons.

Existing Air Quality

The construction activities associated with the Project would occur in Wayne County, West Virginia near the point where the borders of West Virginia, Ohio, and Kentucky converge. This portion of western West Virginia is a humid subtropical zone, which is characterized by having no dry season and hot summers. However, the area is situated at the northern edge of the subtropical climate zone and is therefore cooler and drier than states to the south.

Air Quality Control Regions (AQCRs) are areas for which implementation plans describe how ambient air quality standards would be achieved and maintained. AQCRs are defined by the EPA and state agencies in accordance with the Clean Air

[5] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

Act of 1970 (CAA). The 1977 CAA Amendments in Section 107 require EPA and states to identify the category those AQCRs meeting and not meeting the NAAQS. Areas of the county in violation of NAAQS are designated as non-attainment areas and areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. New sources to be located in or near non-attainment or maintenance areas may be subject to more stringent air permitting requirements. The EPA and state and local agencies have established a network of ambient air quality monitoring stations to measure and track the background concentrations of criteria pollutants across the United States. The attainment status of the region, in addition to the projected emission rates, determines the regulatory review process for each project.

The Project area is in attainment/unclassifiable (considered attainment) for all criteria pollutants. Because the project area is in attainment, no additional General Conformity analysis is required.

Air emissions associated with pipeline construction would be from temporary activities and would be evaluated per the General Conformity rule in the CAA. There are other federal and state air quality standards in addition to the NAAQS; these are contained in Code of Federal Regulations (CFR) Parts 50 through 99. Stationary source permitting is not required for the proposed gas transmission pipeline. The following sections briefly discuss requirements that potentially apply to the Project.

Federal regulations at 40 CFR Parts 85, 86, and 89 specify emissions standards for engine exhaust from diesel and gasoline fueled construction equipment and vehicle engines. These federal design standards are imposed at the time of manufacture of the engines, and equipment used for Project construction would be in compliance with applicable requirements. Emissions also would be controlled by purchasing commercial gasoline and diesel fuel products, specifications of which are controlled by federal and state air pollution control regulations.

The conformity provisions apply in all criteria pollutant nonattainment and maintenance areas and apply to all federal actions, which must conform to an applicable implementation plan. Although Wayne County is considered attainment for all criteria pollutants, it is a maintenance area for the 1997 annual $PM_{2.5}$ NAAQS and the 1997 8-hour O3 NAAQS. Wayne County redesignated attainment for the 1997 annual $PM_{2.5}$ NAAQS on December 28, 2012 and for the 1997 8-hour O3 NAAQS on October 16, 2006.

Air Quality Impacts

There would be no operational emissions or impacts associated with the Project. Pipeline construction would result in intermittent and temporary emissions of criteria pollutants. These emissions generally include dust (PM_{10} and $PM_{2.5}$) generated from soil disturbing activities, such as earthmoving and wind erosion of disturbed areas, and vehicle traffic during construction. The amount of dust generated during construction would be a function of vehicle numbers and types, vehicle speeds and roadway characteristics and precipitation events. Dust emissions would be greater during dry periods and in areas of fine-textured soils. Sources whose activities generate fugitive dust from construction, demolition, or the clearing of land shall use water to control dust.

Pipeline construction would generally take place during daylight hours, which would allow equipment operators to assess the presence of fugitive emissions and to implement abatement measures, as needed.

Pipeline construction also results in combustion emissions from diesel and gasoline-fueled vehicles used in various construction activities. Combustion-related emissions would include NOx, CO, VOCs, SO2, PM and small amounts of hazardous air pollutants (HAPs). Proper maintenance of construction equipment and use of low-sulfur diesel fuel would minimize engine emissions during Project construction. To reduce remissions from internal combustion engines, idling of construction vehicles would be minimized.

Table 12 identifies a summary of the total construction emissions for the duration of the Project.

Table 8: Construction Related Emissions

Construction Activity	Emissions (tons)							
	NO_x	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**CO_{2e}**	**HAPs**
Construction Equipment	25.7	7.6	0.03	0.9	0.9	1.5	3,328	0.1
On-Road Vehicles	0.3	0.7	0.00	0.01	0.01	0.05	46	0.00
Fugitive Dust	---	---	---	18.5	2.9	---	---	---
Project Total	26.0	8.3	0.03	19.4	3.8	1.5	3,374	0.1

The pipeline construction schedule would determine the period of time during which construction related emissions would occur and also the total quantity of emissions. Construction is scheduled to being in October 2016 and be completed by April 2017.

Air Quality Mitigation

As described above, pipeline construction would generate potential air pollutant emissions of PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, GHG, and HAP emissions. These emissions would be temporary and of limited duration and would occur only as a result of construction activities in a rural area, and would not significantly increase ambient air pollutant concentrations. Potential impacts would be mitigated and minimized as described below.

During construction, efforts would be taken to prevent particulate matter emissions. These actions may include, but are not limited to, the following:

- use of water or chemicals for control of dust during construction operations, road grading or land clearing;
- application of asphalt, oil, water, or suitable dust suppressants on unpaved roads, material stockpiles, and other surfaces;
- paving and maintenance of roadways;
- street cleaning to remove soil or other material from paved streets;
- proper maintenance of equipment;
- covering open-bodies trucks while transporting materials; and
- minimizing soil disturbance.

Dust suppression measures would be proactively implemented as necessary to protect persons (general public and project workforce) and property from air pollution and nuisances caused by the generation of fugitive particulate matter (dust) emissions.

Pipeline construction emissions would result in short-term, localized impacts on air quality. However, these emissions would be further reduced with use of the fugitive dust best management practices listed above; therefore, we conclude that construction emissions would not have a significant impact on air quality or result in any violation of applicable air quality standard.

6.2 Noise

Noise quality can be affected both during construction and operation of projects. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover.

Noise would be generated during construction of the Project facilities. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and localized. The changing number and type of construction equipment at these sites would result in varying levels of noise. Construction activities associated with the Project would be performed with standard heavy equipment. The most prevalent sound source during construction would be the internal combustion engines used to power the construction equipment, such as backhoes, track-excavators, and cement trucks. Construction noise during the day may be periodically audible at nearby residential areas; however, long-term impacts are not anticipated and typical construction of the pipelines and aboveground facilities would be scheduled during daylight hours. Construction would not generally affect nighttime noise levels as it would be limited to daylight hours. We conclude that no significant noise impacts are anticipated during construction of the Project and that no noise quality impacts are anticipated during operation of the facilities.

7. RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an auto-ignition temperature of 1,000oF and is flammable at concentrations between 5.0 percent and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however it may ignite if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

As described previously, the Project must be designed, constructed, operated,

and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. These regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The DOT pipeline standards are published in Parts 190, 191, 192, and 199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, including emergency shutdowns and safety equipment (Sections 192.163-192.173). Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The DOT also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

- Class 1 - Location with 10 or fewer buildings intended for human occupancy.
- Class 2 - Location with more than 10 but less than 46 buildings intended for human occupancy.
- Class 3 - Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.
- Class 4 - Location where buildings with four or more stories aboveground are prevalent.

The majority of the Project, 2.2 miles, is located within Class 2 areas, with approximately 1.3 miles located in Class 1 areas. The installed pipe would be designed to meet the current class location. Columbia would monitor for changes in population density around the pipelines with a yearly aerial survey that would facilitate a comparison between the previous and current residence count. Table 13 provides the class locations by milepost along the pipeline routes.

Table 9: Class Locations Crossed by the Project			
Class	**Begin Milepost**	**End Milepost**	**Length (miles)**
SM-80 Replacement			
1	0.67	2.06	1.39
2	2.06	3.46	1.40
1	3.46	3.70	0.24
2	3.70	3.98	0.28
1	3.98	4.03	0.05
2	4.03	4.53	0.50

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossing, require a minimum cover of 36 inches in normal soils and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve. Pipe wall thickness and pipeline design pressures; hydrostatic test pressures; maximum allowable operating pressure; inspection and testing of welds; and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas.

The DOT Pipeline Safety Regulations require operators to develop and follow a written integrity management program that contain all the elements described in 49 CFR 192.911 and address the risks on each transmission pipeline segment. The rule establishes an integrity management program which applies to all high consequence areas (HCA). The DOT has published rules that define HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with DOT standards, including the provisions for written emergency plans and emergency shutdowns. Construction, and operation of

Columbia's proposed facilities would not increase the risk to the public and we conclude that, with implementation of the above safety requirements during construction and operation of Columbia's facilities, they would be constructed and operated safely.

Polychlorinated Biphenyls and Asbestos

Many older pipeline facilities had used oils in the compressor station operations containing PCBs. PCBs have been demonstrated to cause a variety of adverse health impacts. These types of oils are no longer allowed for use in pipeline facility operations, but because of past use at older pipeline facilities (i.e., compressor stations), these facilities and associated pipelines may still have levels of PCBs above regulatory limits. PCBs can also be absorbed by paint found on engines, walls, floors, and pipelines.

EPA's regulations found in 40 CFR 761 specifically address requirements for removal and abandonment of facilities containing PCBs. In accordance with 40 CFR 761, Subpart M procedures, Columbia would need to remove and sample free flowing liquids (if present) from the facilities to be removed to determine removed pipe facility disposal or resale options. Removed pipe and valves with wipe sampling results less than or equal to 10 micrograms per 100 square centimeters (10μg/100 cm2 or 50 parts per million) PCBs could be managed as scrap material. Pipe facilities with wipe sampling results greater than 10 μg/100 cm^2 PCBs with or without asbestos coating would need to be managed by:

- disposal at a Toxic Substances Control Act permitted landfill; or
- decontaminated and wipe sampled until PCBs results are less than or equal to 10 μg/100 cm^2.

Further, if contaminated soils are encountered during the abandonment activities, Columbia would need to comply with the applicable federal and state regulations and measures identified in the ECS. Columbia reported that according to historic records, the SM-80 pipeline is not considered to be a PCB impacted pipeline. Therefore, we do not anticipate the presence of PCBs in exceedance of any federal standards.

8. CUMULATIVE IMPACTS

In accordance with NEPA, we identified other actions located in the vicinity of the Project and evaluated the potential for a cumulative impact on the environment. As defined by Council on Environmental Quality (CEQ), a cumulative effect is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. In this analysis, we consider the impacts of past projects within the regions of influence as part of the affected environment (environmental baseline) which was described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered.

Consistent with CEQ guidance and to determine cumulative impacts, we expanded the geographic boundaries of our review into regions of influence as described below. Actions located outside the regions of influence are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

As described in the environmental analysis section of this is EA, constructing and operating the Project would temporarily and permanently impact the environment. The Project would impact geology, soils, water resources, vegetation, wetlands, wildlife, cultural resources, visual resources, air quality, noise, and some land uses. However, we conclude that these impacts would not be significant. We also conclude that nearly all of the project-related impacts would be contained within or adjacent to the temporary construction right-of-way and ATWS. In addition, the abandonment work is confined to the existing right-of-way and the replacement pipeline is almost entirely collocated within an existing pipeline right-of-way. Based on these conclusions and determinations, implementation of the ECS, and Columbia's adherence to our recommendations, we conclude that the impacts of the Project would be highly localized.

Furthermore, the impacts of the Project would only contribute incrementally to a cumulative impact in the region of influence. As a result, the scope of our analysis is consistent with the magnitude of the aforementioned environmental impacts. We determined that the Project would not contribute discernable cumulative impacts on geology and soils. Cumulative impacts on water use and quality, cultural resources, wildlife, land use, air quality, and noise could occur and are discussed further.

Based on the impacts of the Project as identified and described in this EA and consistent with CEQ guidance, we have determined that the following resource-specific regions of influence are appropriate to assess cumulative impacts:

- Impacts on fish, wildlife, vegetation wildlife and water resources (primarily increased turbidity) could extend outside of the workspaces, but would be contained to a relatively small area. Therefore, for these resources we evaluated other projects/actions within the Hydraulic Unit Code (HUC) 12[6] sub-watersheds.
- Impacts on cultural resources would also be largely contained within or adjacent to proposed Project workspaces. Therefore, we evaluated other projects/actions that overlapped with known cultural features potentially affected by the Project. However, as no projects were identified within or adjacent to the Project resources, cumulative impacts on cultural features are not discussed further.
- Temporary impacts on air quality, including fugitive dust, and noise would be largely limited to areas immediately around active construction. We evaluated other projects/actions that overlap in time and were located within one-half mile of construction activities.
- The region of influence identified for the cumulative impacts on land use was also defined as one-half mile from construction areas.

Natural Gas and Oil Production Wells

Impacts of drilling activities are associated with well pad development, improvement of existing dirt and paved roads, and construction of gathering systems and associated rights-of-way. Well drilling and construction and operation of gathering pipelines, gas treatment and compression facilities (as needed to support new production) are ongoing in the region. Potential environmental impacts are assumed based on the nature of the actions and regional location(s) of activity and could include impacts to water resources, land use, air quality, noise, geology, soils, fish and wildlife, vegetation, and natural resources. Columbia identified 32 existing active wells within five miles of the Project area. However, we presume that additional wells have been permitted and that additional wells are located in the Project HUC 12 watersheds.

A well site is specifically designed for the function and the existing physical conditions present at the well location. Consequently, the footprint of construction is

[6] Drainage basins in the United States are divided and sub-divided at four different levels and each assigned a unique hydrologic unit code (HUC) consisting of eight digits based on these four levels.

variable. If an average footprint is assumed, then some imprecision is introduced. However, the bigger problem is that the resources that lie within the footprint are not readily available for inclusion in a cumulative impacts analysis. Thus, for example, we may know that well development in the region of influence could affect up to 50 acres of land, but we do not know how many acres of that land are forested, wetlands, or pasture. Similarly, data for resources affected by the existing wells is also unknown. As a result, it is only possible to speak in general terms about the cumulative effects on specific resources.

It should be noted that the WVDEP Office of Oil and Gas is the permitting agency responsible for the monitoring and regulation of all actions related to the exploration of drilling, storage, and production of oil and natural gas in West Virginia (WVDEP 2016). As such the WVDEP has developed best management practices that must be put into action as part of their permitting process. These practices include setback requirements from streams, erosion control practices, and soil amendment procedures.

In summary, natural gas and oil production wells have contributed and will continue to contribute to impacts on all of the resources considered in our analysis. However, the timing, location, and resources affected are unknown.

Other projects within the regions of influence

Table 14 identifies the past, present, and reasonably foreseeable projects or actions that we identified within the regions of influence. These projects were identified by a review of publicly available information; aerial and satellite imagery; consultations with federal, state, and local agencies/officials and development authorities; and information provided by Columbia.

Table 10: Past, Present, and Reasonably Foreseeable Projects Considered for Cumulative Impacts

Project	County	Location	Description / Comment / Area of Impact [a]	Status
Leach XPress Project (FERC Docket Number CP15-514-	Wayne	0.07 miles north of MP 4.5	Consists of two natural gas pipelines totaling 130 miles, two new pipeline loops totaling 30 miles, and three new greenfield compressor stations in West Virginia, Pennsylvania, and Ohio. Construction in Wayne County	Construction expected to commence November 2016 and be completed in November 2017.

Table 10: Past, Present, and Reasonably Foreseeable Projects Considered for Cumulative Impacts				
Project	County	Location	Description / Comment / Area of Impact [a]	Status
000)			includes upgrades to the existing Ceredo Compressor Station and 2.8 miles of new natural gas looping pipeline.	
Mountaineer XPress Project (FERC Docket Number PF15-31-00)	Wayne	0.07 miles north of MP 4.5	Consists of approximately 165 miles of natural gas pipeline, three new compressor stations, and modifications to three existing compressor stations and one regulating station in West Virginia. Construction in Wayne County includes the addition of compression and appurtenances at the existing Ceredo Compressor station.	Construction expected September 2017 through November 2018.

Water Use and Quality

The Leach XPress Project and the Mountaineer XPress Project overlap with the Twelvepole Creek watershed. Construction of the Mountaineer XPress Project is expected to occur between September 2017 and November 2018, well after completion of the proposed Project. Therefore the potential for increased sedimentation and erosion in the area is low. Concurrent construction of the Leach XPress Project within the vicinity of the proposed Project could increase the amount of exposed soil in the area and potentially extend the time it is exposed. These exposed soils may increase the potential for soil erosion and result in increased sedimentation in surface waterbodies.

The Leach XPress Project, Mountaineer XPress Project, and the proposed Project are subject to FERC regulation and to Section 404 permitting with the USACE. Columbia Gas would implement best management practices required by both these agencies, which would ensure avoidance, minimization, and or/ mitigation of potential impacts on surface water resources. Additionally, all impacts on waterbodies crossed by the Project would be temporary and minor, as discussed in section B.2.2 of this EA. Therefore, the Projects' contribution to cumulative impacts on surface water resources would be minor and the cumulative impacts of all projects within the regions of influence would also be minor.

Fish, Wildlife, and Vegetation

Clearing and grading of pipeline rights-of-way, contractor yards, well pads, and temporary access roads for the proposed projects and other nearby projects would result in vegetation impacts ranging from temporary to permanent. Impacts on agricultural areas, open lands and other herbaceous areas would be temporary, as these areas would be restored quickly following construction. Longer-term impacts would occur where forested areas are cleared for temporary workspaces because these areas could take decades to return to pre-construction conditions. Permanent impacts would occur where forested lands are cleared for establishment and maintenance of permanent rights-of-way or access roads.

Portions of the Leach XPress Project and Mountain XPress Project, including upgrades at the existing Ceredo Compressor Station and new looping pipeline associated with the Leach XPress Project, are within the same HUC 12 watersheds of the Project. Impacts on vegetation and wildlife habitat due to the upgrades at the existing compressor station would be minimal as it is a fenced industrial facility. In addition, construction of the Mountaineer XPress Project is expected to occur between September 2017 and November 2018, well after completion of the proposed Project.

The proximity of the new looping pipeline of the Leach Xpress Project and the Project and the overlap of construction periods of the Project and the Leach Xpress Project may increase disturbance of vegetation and wildlife. Approximately 20.7 acres of forest would be temporarily affected and 8.8 acres of forested land would be permanently affected by the portion of the Leach Xpress Project located within the same HUC 12 watershed of the SM-80 Restoration Project.

Columbia would minimize impacts on vegetation and wildlife habitat by collocating the Project with existing rights-of-way where practicable and by implementing the measures in the ECS. As described in section B.3 of this EA, impacts on vegetation and wildlife for the Projects would be mostly short-term. Based on the fact that the Project would contribute minor and mostly temporary impacts and the limited footprint of the other projects in the region of influence, we conclude that cumulative impacts on vegetation and wildlife would be minor.

Cumulative impacts on fish would be similar to what is discussed for surface water resources. We conclude that the Project's contribution to cumulative impacts on fisheries would be minor and the cumulative impacts of all projects within the regions of influence would also be minor.

We conclude in section B.3.2 of this EA that the Project may affect, but is not likely to adversely affect any federally listed species. The planned Leach XPress Project, Mountaineer XPress Project, and the proposed Project are all subject to Section 7 of the Endangered Species Act, and FERC staff would conduct consultations with the USFWS. The ESA consultation process includes a consideration of the current status of affected species and cumulative impacts would be minimized. The application review process would ensure that impacts on threatened and endangered species would be avoided, minimized, and/or mitigated. Based on the consultations with the USFWS and the minimization measures to be implemented by Columbia, we conclude that the projects considered in this analysis would not have a significant impact on federally listed species.

Air Quality

The cumulative impact area for air quality was considered to be 0.25 miles from the pipeline. As discussed in section B.6.1 of this EA, the proposed Project would result in minor and localized temporary construction emissions and dust. Cumulative impacts from construction related emissions as a result of concurrent construction with the Mountaineer XPress and Leach XPress Projects would be minor and temporary in nature and would decrease as the distance from the source increases. Therefore, the emissions generated during construction of the proposed Project would not contribute to a significant cumulative impact on air quality.

Noise

Construction of the Project would be concurrent with construction of the Leach Xpress Project and Mountaineer Xpress Project which could result in cumulative impacts on noise in the area. However, construction activities are temporary and would occur during the day; therefore, cumulative impacts on noise during construction are anticipated to be minor. No operation noise is anticipated as a result of the proposed Project.

Land Use

The Leach XPress project components in the vicinity of the Project consist of modifications to an existing compressor station and a pipeline loop that is collocated within and adjacent to an existing right-of-way. The Mountaineer XPress components in the vicinity of the Project consist of modifications to an existing compressor station. As such, the impacts of these projects would be minimal as they occur at or are collocated with existing facilities. We conclude that the land use impacts of the Project would not result in significant cumulative impacts when combined with the Leach Xpress and

Mountaineer Express projects.

Conclusion

The Project would occur in a region that has been substantially affected by previous human activity and development is expected to continue in the region. If constructed, the Project and other projects in the area could result in varying degrees of cumulative impact on different resources depending on the type and scope of each project, their proximity to each other, the timeframe in which they are constructed, and the measures that would be implemented to avoid or reduce impacts at each project site. The majority of impacts associated with the Project would be temporary or short-term, and about 97 percent of the pipeline facilities would be collocated with existing infrastructure, thereby reducing overall impacts. As discussed in this EA, the environmental impacts associated with the Project would be less than significant and we conclude that construction and operation of the Project would not result in a significant cumulative impact on any resource in the region.

C. ALTERNATIVES

In accordance with NEPA, we evaluated alternatives to Columbia's proposed action to determine whether they would be preferable to constructing the Project as proposed. Our evaluation criteria for selecting potentially preferable alternatives are:

- technical and economic feasibility and practicality;
- significant environmental advantage over the proposed action; and
- the ability to satisfy Columbia's stated purpose, which is to restore this portion of the SM-80 pipeline to its original MAOP.

Our evaluation of alternatives is based on project-specific information provided by the applicant, input from stakeholders; publicly available information; our consultations with federal and state resource agencies; and our expertise and experience regarding the siting, construction, and operation of natural gas transmission facilities and their potential impact on the environment.

Evaluation Process

Through environmental comparison and application of our professional judgement, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, GIS data, aerial imagery)

and assume the same right-of-way widths and general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage or mileage) and uses common comparative factors such as total length, amount of collocation, and land requirements. Our evaluation also considers impacts on both the natural and human environments. These impacts were described in detail in section B of this EA. Because the alternatives represent mostly alternative locations for natural gas facilities, the specific nature of these impacts on the natural and human environments would generally be similar to the impacts described in section B. In recognition of the competing interests and the different nature of impacts resulting from an alternative that sometimes exist (i.e. impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative and discount or eliminate factors that are not relevant or may have less weight or significance.

Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical.

Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Project when considered

against the cost of relocating the route/facility to a new set of landowners was also factored into our evaluation.

1. NO-ACTION ALTERNATIVE

If the Commission decides to deny the proposed action, the environmental impacts addressed in this EA would not occur. Under this alternative, this section of the SM-80 pipeline would not be restored to its full MAOP. The No-Action alternative would limit Columbia's long-term ability to provide consistent service to its customers. In addition, Columbia has indicated that the Project is necessary to address issues related to the age and condition of the existing pipeline and to satisfy U.S. Department of Transportation (DOT) requirements (40 CFR Part 192) regarding population density near the pipeline. Therefore, the No-Action alternative could result in the SM-80 being non-compliant. Therefore, we conclude that the no-action alternative would not meet the objectives of the proposed action.

2. PIPELINE ROUTE ALTERNATIVE

We evaluated a route alternative in order to reduce impacts on forests. The alternative consists of approximately 3.3 miles of lift and lay of the existing 30-inch-diameter SM-80 pipeline. This route would split from the proposed replacement route near MP 1.2 where it would continue east before intersecting with the proposed replacement route near MP 4.0. Table 15 below compares this route alternative to the proposed replacement route.

Table 11: Project Route Alternatives Comparison

Category	Proposed Route	Alternative 1
Route Length (miles)	3.9	3.3
Total Land Disturbance (acres) [a]	46.4	40.2
Percent Adjacent to Existing Easement	97	100
Residences within 100 feet	0	26
Land Use (acres)		
Agriculture	4.4	0
Forest	23.5	11.3
Wetland[b]	0	0
Open Land	18.2	20.3

Table 11: Project Route Alternatives Comparison		
Category	**Proposed Route**	**Alternative 1**
Residential	0.15	7.8
Waterbodies Crossed[c]	4	1
[a] Based on 100-foot workspace corridor (Proposed Route includes permanent easement and temporary workspace only).		
[b] Includes only NWI wetlands crossed by the pipeline.		

As depicted in the table above, implementing the alternative route affect 12.2 acres less of forested lands and cross three less waterbodies. However, it would affect 26 more residences than the proposed route. This approximately 3.3-mile section of Line SM-80 was constructed in 1955. The population density surrounding the pipeline corridor has increased to the extent that the segment now qualifies as a Class 3 area location under PHMSA regulations. Part of Columbia's decision in selecting its proposed route was to bypass the densely populated Class 3 area and allow Line SM-80 to operate safely within DOT regulations. Because of the potential impacts on residences, we conclude that the minimal reduction in forest and waterbody impacts would not provide a significant environmental advantage over the Project.

3. MINOR ROUTE VARIATION

A minor route deviation was considered between MP 1.6 and MP 2.3 of the replacement pipeline route. This deviation was considered to avoid crossing the Maple Hill Cemetery. This deviation would provide workspace necessary to complete the pipeline construction; however it would involve greenfield disturbance as it would not be co-located with existing pipeline easements. In addition a garage structure would need to be removed and workspace would be added within 50 feet of a residence. A comparison of the deviation and the proposed route is provided in Table 16 below.

Table 12: Project Minor Route Deviation Comparison		
Category	**Proposed Route**	**Deviation A – Route**
Route Length (miles)	0.74	1.1
Total Land Disturbance (acres) [a]	11.9	14.9
Cultural sites affected	1	??
Percent Adjacent to Existing Easement	100	0
Residences within 100 feet	0	3

Land Use (acres)		
Agriculture	5.7	9.0
Forest	3.6	0.71
Wetland	0	0
Open Land	2.3	3.7
Residential	0	1.4
Waterbodies Crossed	1	1

Although the deviation would avoid the Maple Hill Cemetery and reduce forest impacts, it provides less collocation and affects more residential lands. On balance, we have determined that implementing this alternative would not provide a significant environmental advantage over the proposed route. In addition, as the Maple Hill Cemetery would be crossed by HDD, no significant impacts to the cemetery are anticipated.

Conclusion

No substantial adverse impacts were identified during scoping or in our analysis of the Project. Therefore, we did not identify any alternatives that could provide a significant environmental advantage over the Project as proposed, and we identified no alternatives that could satisfy all three of our evaluation criteria. Therefore, we conclude that the proposed Project is the preferred alternative that can meet the Project objectives.

D. STAFF'S CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this EA, we conclude that approval of the project would not constitute a major federal action significantly affecting the quality of the human environment. This finding is based on our environmental analysis as described above; information provided in Columbia's application and supplemental filings, and its implementation of our recommended mitigation measures. We recommend that the Commission order include the mitigation measures listed below as conditions to any certificate the Commission may issue.

1. Columbia shall follow the abandonment and construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by this Order. Columbia must:

    a. request any modification to these procedures, measures, or conditions

in a filing with the Secretary of the Commission (Secretary);

b. justify each modification relative to site-specific conditions;

c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification**.

2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during abandonment, construction, and operation of the project. This authority shall allow:

a. the modification of conditions of this Order; and

b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project abandonment, construction, and operation.

3. **Prior to any construction**, Columbia shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors and contractor personnel will be informed of the environmental inspector's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be shown in the EA, as supplemented by filed alignment sheets of plot plans. **As soon as they are available, and before the start of construction,** Columbia shall file with the Secretary any revised detailed survey alignment maps/sheet at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated of these alignment maps/sheet.

Columbia's exercise of eminent domain authority granted under NGA section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Columbia's right of eminent domain granted under NGA section

7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Columbia shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, and documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

   This requirement does not apply to extra workspace allowed by Columbia's ESC described in the document and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;
   b. implementation of endangered, threatened, or special concern species mitigation measures;
   c. recommendations by state regulatory authorities; and
   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the Certificate and before abandonment by removal or construction begins**, Columbia shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Columbia must file revisions to the plan as schedules change. The plan shall identify:

   a. how Columbia will implement the construction procedures and mitigation

measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;

b. how Columbia will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;

c. the number of EIs assigned and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;

d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

e. the location and dates of the environmental compliance training and instructions Columbia will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change),

f. the company personnel (if known) and specific portion of Columbia's organization having responsibility for compliance;

g. the procedures (including use of contract penalties) Columbia will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;

(2) the environmental compliance training of onsite personnel;

(3) the start of construction; and

(4) the start and completion of restoration.

7. Beginning with the filing of its Implementation Plan, Columbia shall file updated status reports with the Secretary on a **biweekly basis until all abandonment, construction, and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on Columbia’s efforts to obtain the necessary federal authorizations;

b. the construction status of the project, work planned for the following reporting period, and any schedule for stream crossings or works in

other environmentally sensitive areas;

c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permits requirements imposed by other federal, state, or local agencies);
d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
e. the effectiveness of all corrective actions implemented;
f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
g. copies of any correspondence received by Columbia's from other federal, states, or local permitting agencies concerning instances of noncompliance, and Columbia's response.

8. **Prior to receiving written authorization from the Director of OEP to commence construction of any project facilities**, Columbia shall file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

9. Columbia must receive written authorization from the Director of OEP **before placing the replacement pipeline into service.** Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.

10. **Within 30 days of placing the authorized facilities in service**, Columbia shall file an affirmative statement with the Secretary, certified by a senior company official:

a. that the facilities have been abandoned and constructed in compliance with all applicable conditions, and the continuing activities will be consistent with all applicable conditions; or
b. identify which of the certificate conditions Columbia has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

11. Prior to construction, Columbia shall file with the Secretary for review and approval by the Director of OEP, a landslide mitigation plan to adopt the

recommendations contained in Terracon Consultants, Inc.'s Geotechnical Survey Data Report relating to slope instability, or provide justifications for why the recommendations are not appropriate.

12. **Prior to construction,** Columbia shall file with the Secretary for review and approval by the Director of OEP a project-specific Unanticipated Discovery Plan, and documentation that the West Virginia SHPO has reviewed and accepted the plan.

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F. LIST OF PREPARERS

Zielinski, Jennifer A. - Project Manager

M.A., Environmental Resource Policy, 2015, The George Washington University
B.S., Environmental Science, 2010, University of Delaware

Anis, Shahid – Air Quality and Noise, Pipeline Reliability and Safety

M.S., Energy, Resources, and Environment, 1977, George Washington University
B.S., Mechanical Engineering, 1974, University of Maryland

Friedman, Paul – Cultural Resources

M.A., History, 1980, University of California at Santa Barbara
B.A., Anthropology and History, 1976, University of California at Santa Barbara

Montag, Rafael – Geology; Soils

M.A., Geology, 1977, Brooklyn College, City University of New York
B.A., Geology, 1972, Queens College, City University of New York
A.A., Liberal Arts and Sciences, 1970, Queensborough Community College, City University of New York

Appendix A
Site Specific Deviations from the Procedures

Site Specific Deviations from the Plan and Procedures					
Mile-post	**Waterbody or Wetland**	**Section of Plan and Procedures**	**Deviations to FERC Plan and Procedures**	**Justification**	**Equal Compliance Measures**
SM-80 Replacement					
2.0	Stream S004	Procedures V.B.2.a	ATWS Within 50 feet	Waterbody crossing and pipeline crossing location– ATWS is needed for additional construction equipment	Maintain 10-foot buffer between ATWS and waterbody and implement the ECS
2.1	Wetland W002	Procedures VI.A.3.	Construction ROW 100 feet	Waterbody/wetland crossing and pipeline crossing location –ATWS is needed for additional construction equipment. A reduction of the workspace in this area would not reduce the temporary impacts to Wetland W002 due to the location of the wetland within the workspace.	Implement measures outlined in the ECS
2.1	Stream S007	Procedures V.B.2.a	ATWS Within 50 feet	Waterbody/wetland crossing and pipeline crossing location – ATWS is needed for additional construction equipment and placement of excavated soils outside of the waterbody	Implement measures outlined in the ECS
3.3	Stream S010	Procedures V.B.2.a	Within 50 feet	Waterbody crossing and Road bore crossing – ATWS is needed for additional construction equipment and placement of excavated soils outside of the waterbody	Implement measures outlined in the ECS
3.3	Stream S011	Procedures V.B.2.a	Within 50 feet	ATWS is needed to accommodate work on a side slope	Maintain 10-foot buffer between ATWS and waterbody and implement the

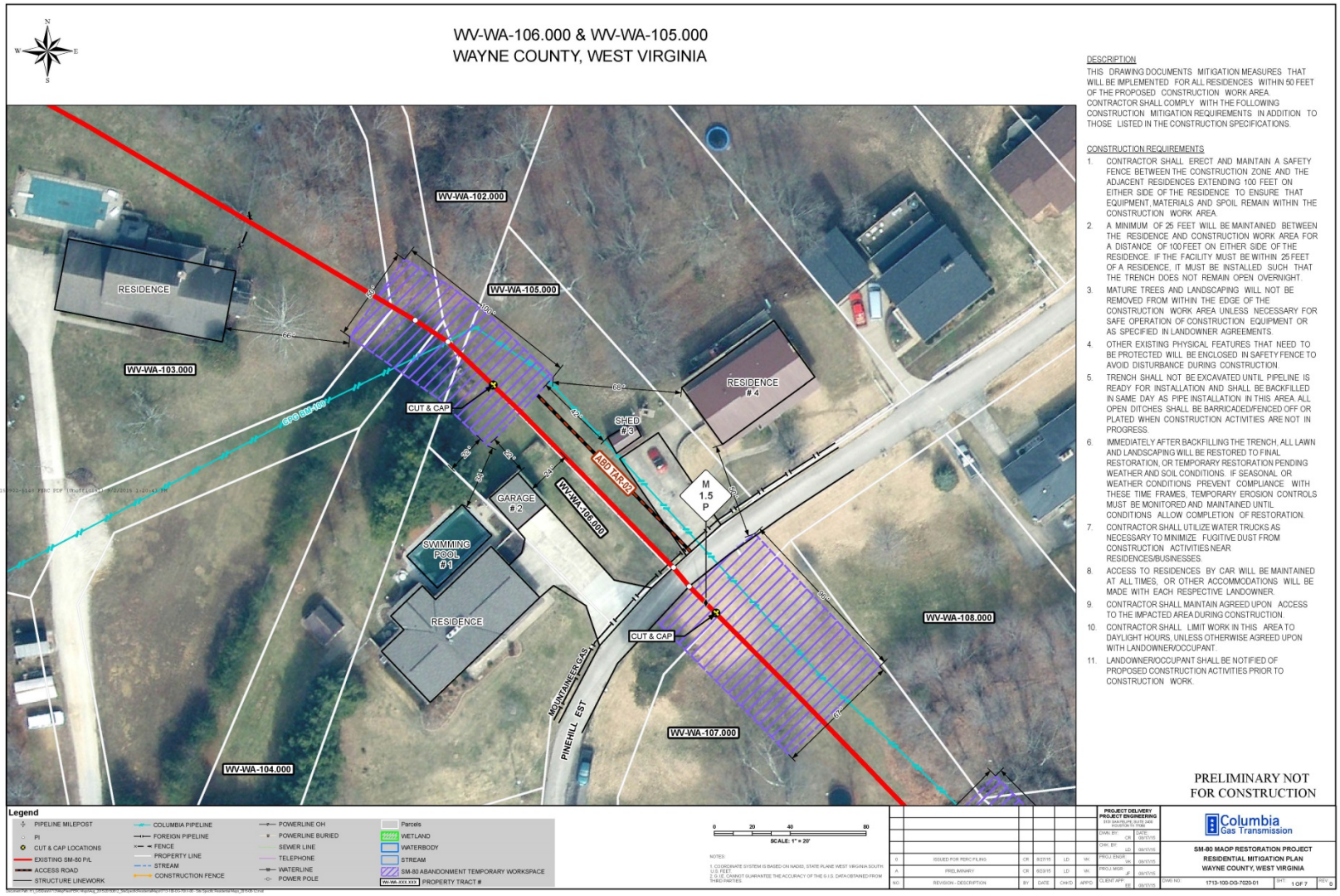
Site Specific Deviations from the Plan and Procedures					
Mile-post	**Waterbody or Wetland**	**Section of Plan and Procedures**	**Deviations to FERC Plan and Procedures**	**Justification**	**Equal Compliance Measures**
3.8	Stream S012	Procedure V.B.2.a	Within 50 feet	Two Waterbody crossings – ATWS is needed for additional construction equipment, placement of excavated soils outside of the waterbody and to accommodate work on a side slope	Implement measures outlined in the ECS
3.8	Stream S013	Procedures V.B.2.a	Within 50 feet	Two Waterbody crossings – ATWS is needed for additional construction equipment, placement of excavated soils outside of the waterbody and to accommodate work on a side slope	Implement measures outlined in the ECS
3.8	Stream S013	Procedures V.B.3.c	Pipeline parallels waterbody within 15 feet	Co-location of the new pipeline prevents avoidance of the waterbody crossing	Implement measures outlined in the ECS
4.1	Stream S015	Procedures V.B.2.a	Within 50 feet	Necessary to accommodate work on a side slope	Implement measures
4.4	Stream S016	Procedures V.B.2.a	Within 50 feet	Necessary to accommodate work on a side slope	Implement measures outlined in the
ATWS = additional temporary workspace ECS = *Environmental Construction Standards – West Virginia Projects*					

Appendix B
ATWS Information

Milepost	Dimensions (feet) Width x Length	Acreage	Justification	Land Use
0	130 x 136	0.44	Access to existing SM-80 launcher	Facility piping, open land
0.67	-	1.07	Tie-in, beginning of construction	Open land
0.67-1.01	25 x 1811	1.1	Side slope construction (Angle 12.9° - 15.6°) [a]	Forest, open land
1.10-1.88	25 x 4112	2.36	Side slope construction (Angle 13.4° - 17.3°) [a]	Forest, open land, agriculture
1.90	25 x 333	0.20	Side slope construction (Angle 4.9° - 8.9°) [a]	Open land
1.98	-	0.28	Cemetery bore, pipeline crossover	Agriculture
1.98	-	0.31	Cemetery bore, pipeline crossover	Agriculture
2.08	50 x 100	0.12	Cemetery bore	Forest
2.12	-	0.11	Cemetery bore, pipeline crossover	Open land
2.12-2.27	25 x 794	0.47	Cemetery bore, pipeline crossover, side slope construction	Forest
2.30	-	0.13	Waterbody crossing	Open land
2.32	-	0.37	Waterbody crossing, pipeline crossover, road crossing	Residential
2.49-3.31	25 x 4339	2.49	Side slope construction (Angle 14.2° - 17.6°)[a]	Forest
2.50	-	0.26	Pipeline crossover	Forest
3.35-4.57	25 x 6464	3.71	Side slope construction (Angle 11.7° - 15.4°) [a]	Forest
4.50	-	0.10	Tie-in, end of construction, vehicle parking	Open land
4.53	-	0.05	Tie-in, end of construction, vehicle parking	Open land

[a] *Side slope angles were obtained by calculating slope angle perpendicular to the ROW every 25' along the ATWS. Slope range represents average minimum and maximum values.*

Appendix C
Site-Specific Construction Plans for the Pipeline Abandonment for Residences within 50 Feet of the Project Area


WV-WA-106.000 & WV-WA-105.000
WAYNE COUNTY, WEST VIRGINIA
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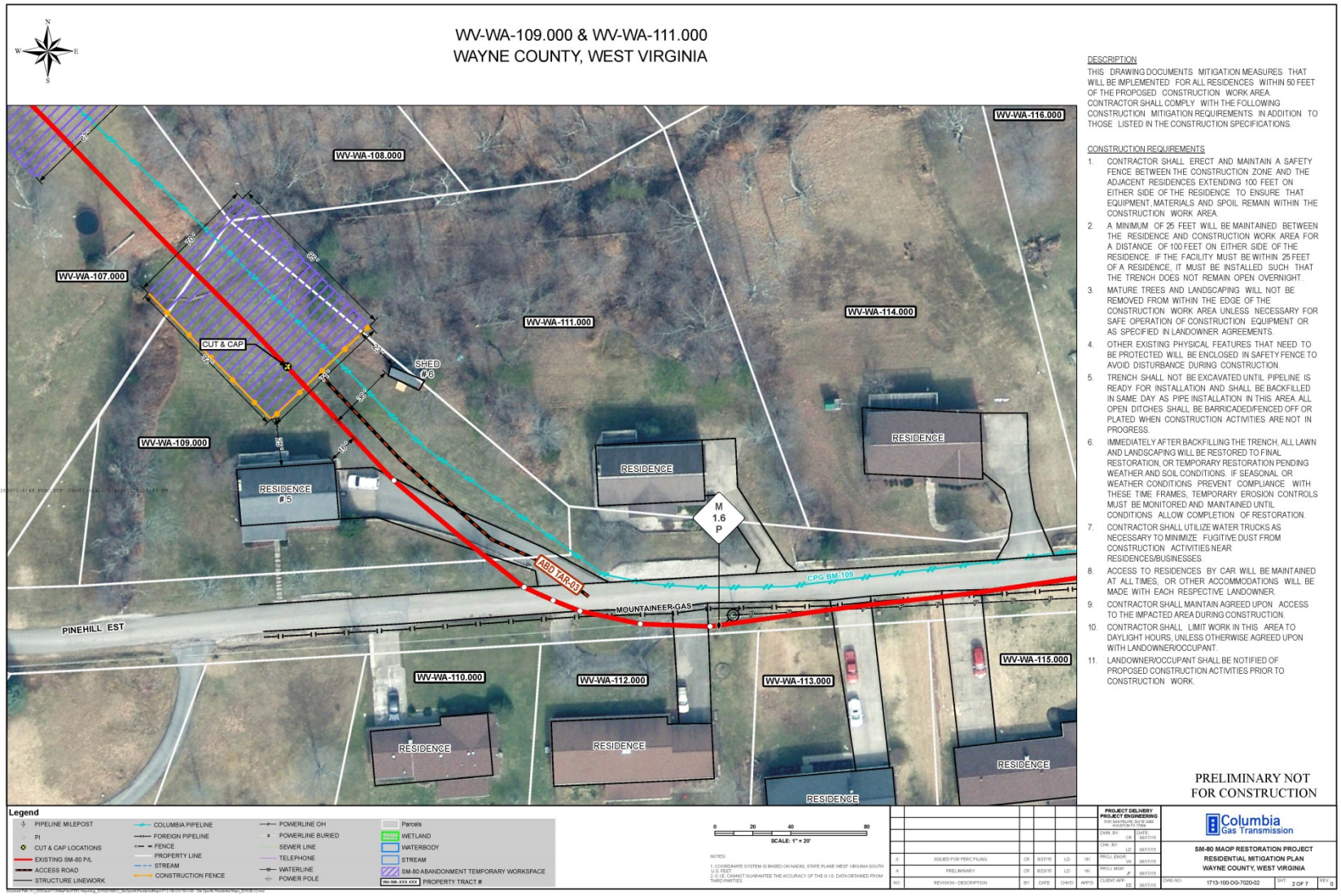
WV-WA-105.000
WV-WA-103.000
WV-WA-108.000
WV-WA-107.000
WV-WA-104.000
RESIDENCE
RESIDENCE # 4
RESIDENCE
SHED #3
GARAGE #2
SWIMMING POOL #1
CUT & CAP
CUT & CAP
CUT & CAP
CPG SM-100
ABD TAR-02
M 1.5 P
MOUNTAINEER GAS
PINEHILL EST
DESCRIPTION
THIS DRAWING DOCUMENTS MITIGATION MEASURES THAT WILL BE IMPLEMENTED. FOR ALL RESIDENCES WITHIN 50 FEET OF THE PROPOSED CONSTRUCTION WORK AREA. CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CONSTRUCTION MITIGATION REQUIREMENTS IN ADDITION TO THOSE LISTED IN THE CONSTRUCTION SPECIFICATIONS.
CONSTRUCTION REQUIREMENTS
1. CONTRACTOR SHALL ERECT AND MAINTAIN A SAFETY FENCE BETWEEN THE CONSTRUCTION ZONE AND THE ADJACENT RESIDENCES EXTENDING 100 FEET ON EITHER SIDE OF THE RESIDENCE TO ENSURE THAT EQUIPMENT, MATERIALS AND SPOIL REMAIN WITHIN THE CONSTRUCTION WORK AREA.
2. A MINIMUM OF 25 FEET WILL BE MAINTAINED BETWEEN THE RESIDENCE AND CONSTRUCTION WORK AREA FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE. IF THE FACILITY MUST BE WITHIN 25 FEET OF A RESIDENCE, IT MUST BE INSTALLED SUCH THAT THE TRENCH DOES NOT REMAIN OPEN OVERNIGHT.
3. MATURE TREES AND LANDSCAPING WILL NOT BE REMOVED FROM WITHIN THE EDGE OF THE CONSTRUCTION WORK AREA UNLESS NECESSARY FOR SAFE OPERATION OF CONSTRUCTION EQUIPMENT OR AS SPECIFIED IN LANDOWNER AGREEMENTS.
4. OTHER EXISTING PHYSICAL FEATURES THAT NEED TO BE PROTECTED WILL BE ENCLOSED IN SAFETY FENCE TO AVOID DISTURBANCE DURING CONSTRUCTION.
5. TRENCH SHALL NOT BE EXCAVATED UNTIL PIPELINE IS READY FOR INSTALLATION AND SHALL BE BACKFILLED IN SAME DAY AS PIPE INSTALLATION IN THIS AREA. ALL OPEN DITCHES SHALL BE BARRICADED/FENCED OFF OR PLATED WHEN CONSTRUCTION ACTIVITIES ARE NOT IN PROGRESS.
6. IMMEDIATELY AFTER BACKFILLING THE TRENCH, ALL LAWN AND LANDSCAPING WILL BE RESTORED TO FINAL RESTORATION, OR TEMPORARY RESTORATION PENDING WEATHER AND SOIL CONDITIONS. IF SEASONAL OR WEATHER CONDITIONS PREVENT COMPLIANCE WITH THESE TIME FRAMES, TEMPORARY EROSION CONTROLS MUST BE MONITORED AND MAINTAINED UNTIL CONDITIONS ALLOW COMPLETION OF RESTORATION.
7. CONTRACTOR SHALL UTILIZE WATER TRUCKS AS NECESSARY TO MINIMIZE FUGITIVE DUST FROM CONSTRUCTION ACTIVITIES NEAR RESIDENCES/BUSINESSES.
8. ACCESS TO RESIDENCES BY CAR WILL BE MAINTAINED AT ALL TIMES, OR OTHER ACCOMMODATIONS WILL BE MADE WITH EACH RESPECTIVE LANDOWNER.
9. CONTRACTOR SHALL MAINTAIN AGREED UPON ACCESS TO THE IMPACTED AREA DURING CONSTRUCTION.
10. CONTRACTOR SHALL LIMIT WORK IN THIS AREA TO DAYLIGHT HOURS, UNLESS OTHERWISE AGREED UPON WITH LANDOWNER/OCCUPANT.
11. LANDOWNER/OCCUPANT SHALL BE NOTIFIED OF PROPOSED CONSTRUCTION ACTIVITIES PRIOR TO CONSTRUCTION WORK.
PRELIMINARY NOT FOR CONSTRUCTION
Legend
PIPELINE MILEPOST
PI
CUT & CAP LOCATIONS
EXISTING SM-80 P/L
ACCESS ROAD
STRUCTURE LINEWORK
COLUMBIA PIPELINE
FOREIGN PIPELINE
FENCE
PROPERTY LINE
STREAM
CONSTRUCTION FENCE
POWERLINE OH
POWERLINE BURIED
SEWER LINE
TELEPHONE
WATERLINE
POWER POLE
Parcels
WETLAND
WATERBODY
STREAM
SM-80 ABANDONMENT TEMPORARY WORKSPACE
WV-WA-XXX.XXX PROPERTY TRACT #
0 20 40 80
SCALE: 1" = 20'
NOTES:
1. COORDINATE SYSTEM IS BASED ON NAD83, STATE PLANE WEST VIRGINIA SOUTH, U.S. FEET.
2. COLUMBIA CANNOT GUARANTEE THE ACCURACY OF THE G.I.S. DATA OBTAINED FROM THIRD PARTIES
PROJECT DELIVERY
PROJECT ENGINEERING
Columbia Gas Transmission
SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA
DWG NO 1713-100-DG-7020-01
SHT 1 OF 7
REV 0


WV-WA-109.000 & WV-WA-111.000
WAYNE COUNTY, WEST VIRGINIA
WV-WA-116.000
WV-WA-108.000
WV-WA-107.000
WV-WA-111.000
WV-WA-114.000
WV-WA-109.000
CUT & CAP
SHED
RESIDENCE #5
RESIDENCE
RESIDENCE
M 1.6 P
ABD TAR-03
CPG BM-109
MOUNTAINEER GAS
PINEHILL EST
WV-WA-110.000
WV-WA-112.000
WV-WA-113.000
WV-WA-115.000
RESIDENCE
RESIDENCE
RESIDENCE
RESIDENCE
Legend
PIPELINE MILEPOST
PI
CUT & CAP LOCATIONS
EXISTING SM-80 P/L
ACCESS ROAD
STRUCTURE LINEWORK
COLUMBIA PIPELINE
FOREIGN PIPELINE
FENCE
PROPERTY LINE
STREAM
CONSTRUCTION FENCE
POWERLINE OH
POWERLINE BURIED
SEWER LINE
TELEPHONE
WATERLINE
POWER POLE
Parcels
WETLAND
WATERBODY
STREAM
SM-80 ABANDONMENT TEMPORARY WORKSPACE
WV-WA-XXX.XXX PROPERTY TRACT #
SCALE: 1" = 20'
NOTES:
1. COORDINATE SYSTEM IS BASED ON NAD83, STATE PLANE WEST VIRGINIA SOUTH U.S. FEET.
2. CB CANNOT GUARANTEE THE ACCURACY OF THE G.I.S. DATA OBTAINED FROM THIRD PARTIES.
DESCRIPTION
THIS DRAWING DOCUMENTS MITIGATION MEASURES THAT WILL BE IMPLEMENTED FOR ALL RESIDENCES WITHIN 50 FEET OF THE PROPOSED CONSTRUCTION WORK AREA. CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CONSTRUCTION MITIGATION REQUIREMENTS IN ADDITION TO THOSE LISTED IN THE CONSTRUCTION SPECIFICATIONS.
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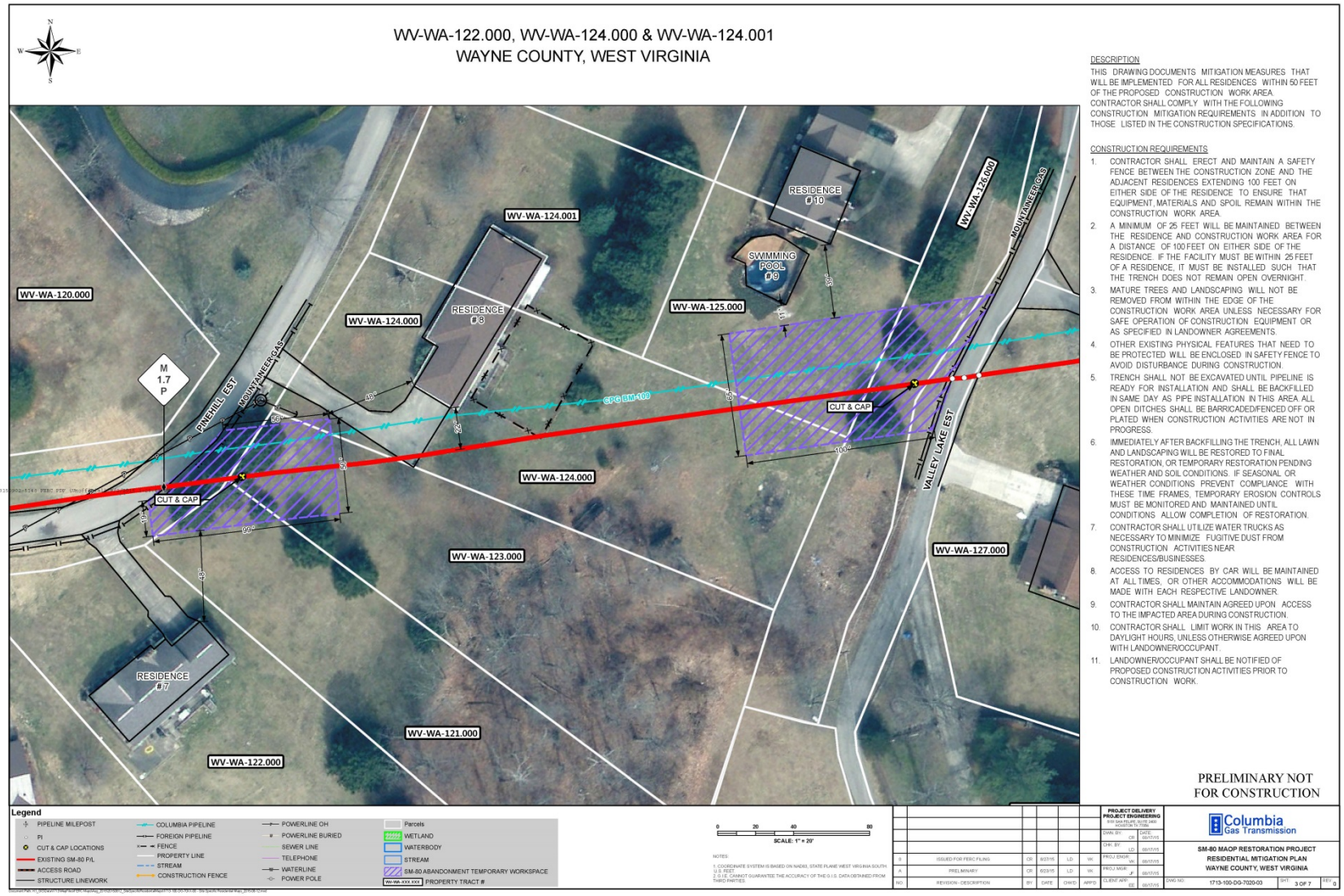
11. LANDOWNER/OCCUPANT SHALL BE NOTIFIED OF PROPOSED CONSTRUCTION ACTIVITIES PRIOR TO CONSTRUCTION WORK.
PRELIMINARY NOT FOR CONSTRUCTION
PROJECT DELIVERY
PROJECT ENGINEERING
Columbia Gas Transmission
SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA
DWG NO: 1713-100-DG-7020-02
SHT: 2 OF 7
REV: 0


WV-WA-122.000, WV-WA-124.000 & WV-WA-124.001
WAYNE COUNTY, WEST VIRGINIA
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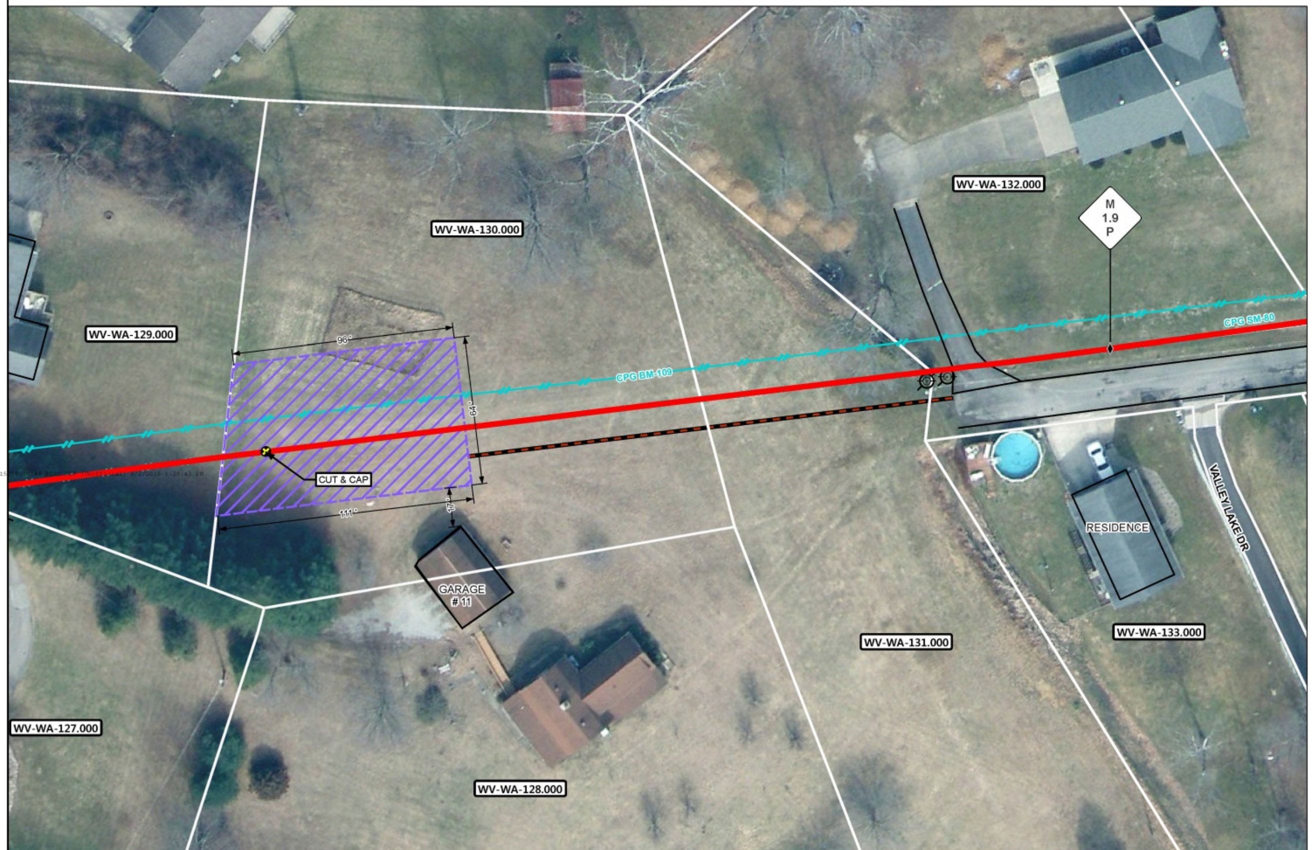
PRELIMINARY NOT FOR CONSTRUCTION
WV-WA-120.000
WV-WA-124.001
WV-WA-124.000
WV-WA-125.000
WV-WA-123.000
WV-WA-121.000
WV-WA-122.000
WV-WA-127.000
RESIDENCE #10
RESIDENCE #8
RESIDENCE #7
SWIMMING POOL #9
M 1.7 P
PINEHILL EST
MOUNTAINEER GAS
CUT & CAP
CPG BM-109
VALLEY LAKE EST
Legend
PIPELINE MILEPOST
PI
CUT & CAP LOCATIONS
EXISTING SM-80 P/L
ACCESS ROAD
STRUCTURE LINEWORK
COLUMBIA PIPELINE
FOREIGN PIPELINE
FENCE
PROPERTY LINE
STREAM
CONSTRUCTION FENCE
POWERLINE OH
POWERLINE BURIED
SEWER LINE
TELEPHONE
WATERLINE
POWER POLE
Parcels
WETLAND
WATERBODY
STREAM
SM-80 ABANDONMENT TEMPORARY WORKSPACE
WV-WA-XXX.XXX PROPERTY TRACT #
SCALE: 1" = 20'
NOTES:
1. COORDINATE SYSTEM IS BASED ON NAD83, STATE PLANE WEST VIRGINIA SOUTH U.S. FEET.
2. G.I.E. CANNOT GUARANTEE THE ACCURACY OF THE G.I.S. DATA OBTAINED FROM THIRD PARTIES.
ISSUED FOR FERC FILING
PRELIMINARY
REVISION - DESCRIPTION
PROJECT DELIVERY PROJECT ENGINEERING
Columbia Gas Transmission
SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA
DWG NO: 1713-100-DG-7020-03
SHT: 3 OF 7
REV: 0

WV-WA-130.000 & WV-WA-128.000
WAYNE COUNTY, WEST VIRGINIA



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PRELIMINARY NOT FOR CONSTRUCTION

Legend

PIPELINE MILEPOST	COLUMBIA PIPELINE	POWERLINE OH	Parcels
PI	FOREIGN PIPELINE	POWERLINE BURIED	WETLAND
CUT & CAP LOCATIONS	FENCE	SEWER LINE	WATERBODY
EXISTING SM-80 P/L	PROPERTY LINE	TELEPHONE	STREAM
ACCESS ROAD	STREAM	WATERLINE	SM-80 ABANDONMENT TEMPORARY WORKSPACE
STRUCTURE LINEWORK	CONSTRUCTION FENCE	POWER POLE	WV-WA-XXX.XXX PROPERTY TRACT #

0 20 40 80
SCALE: 1" = 20'

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NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D
0	ISSUED FOR FERC FILING	CR	8/27/15	LD	VK
A	PRELIMINARY	CR	8/23/15	LD	VK

PROJECT DELIVERY
PROJECT ENGINEERING
5151 SAN FELIPE, SUITE 2400
HOUSTON TX 77056

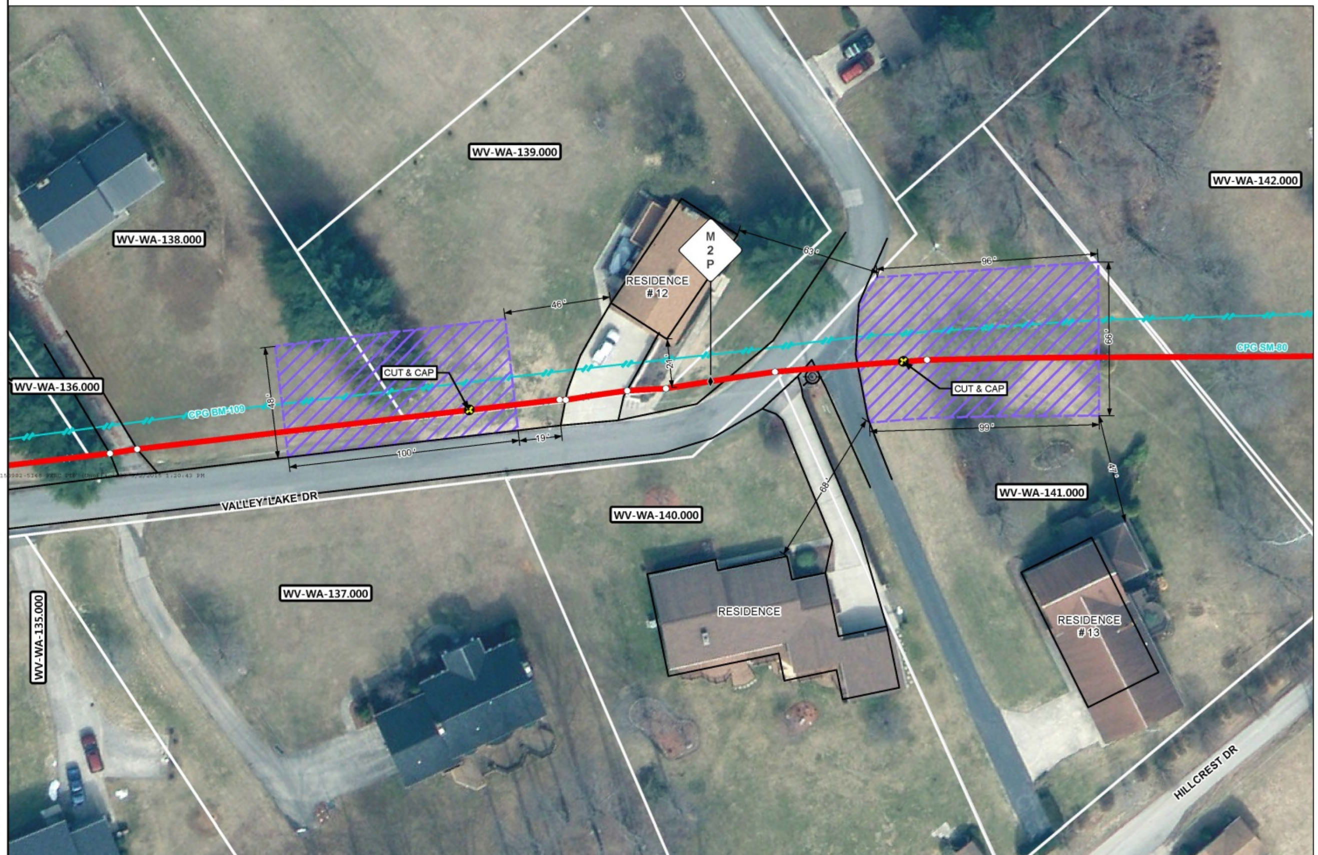
DWN. BY:	CR	DATE: 08/17/15
CHK. BY:	LD	08/17/15
PROJ. ENGR:	VK	08/17/15
PROJ. MGR:	JF	08/17/15
CLIENT APP:	EE	08/17/15

Columbia Gas Transmission

SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA

DWG NO: 1713-100-DG-7020-04 SHT: 4 OF 7 REV: 0

WV-WA-139.000 & WV-WA-141.000
WAYNE COUNTY, WEST VIRGINIA



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PRELIMINARY NOT FOR CONSTRUCTION

Legend

PIPELINE MILEPOST
PI
CUT & CAP LOCATIONS
EXISTING SM-80 P/L
ACCESS ROAD
STRUCTURE LINEWORK
COLUMBIA PIPELINE
FOREIGN PIPELINE
FENCE
PROPERTY LINE
STREAM
CONSTRUCTION FENCE
POWERLINE OH
POWERLINE BURIED
SEWER LINE
TELEPHONE
WATERLINE
POWER POLE
Parcels
WETLAND
WATERBODY
STREAM
SM-80 ABANDONMENT TEMPORARY WORKSPACE
WV-WA-XXX.XXX PROPERTY TRACT #

0 20 40 80
SCALE: 1" = 20'

NOTES:
1. COORDINATE SYSTEM IS BASED ON NAD83, STATE PLANE WEST VIRGINIA SOUTH, U.S. FEET.
2. G.I.E. CANNOT GUARANTEE THE ACCURACY OF THE G.I.S. DATA OBTAINED FROM THIRD PARTIES.

NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D
0	ISSUED FOR FERC FILING	CR	8/27/15	LD	VK
A	PRELIMINARY	CR	8/23/15	LD	VK

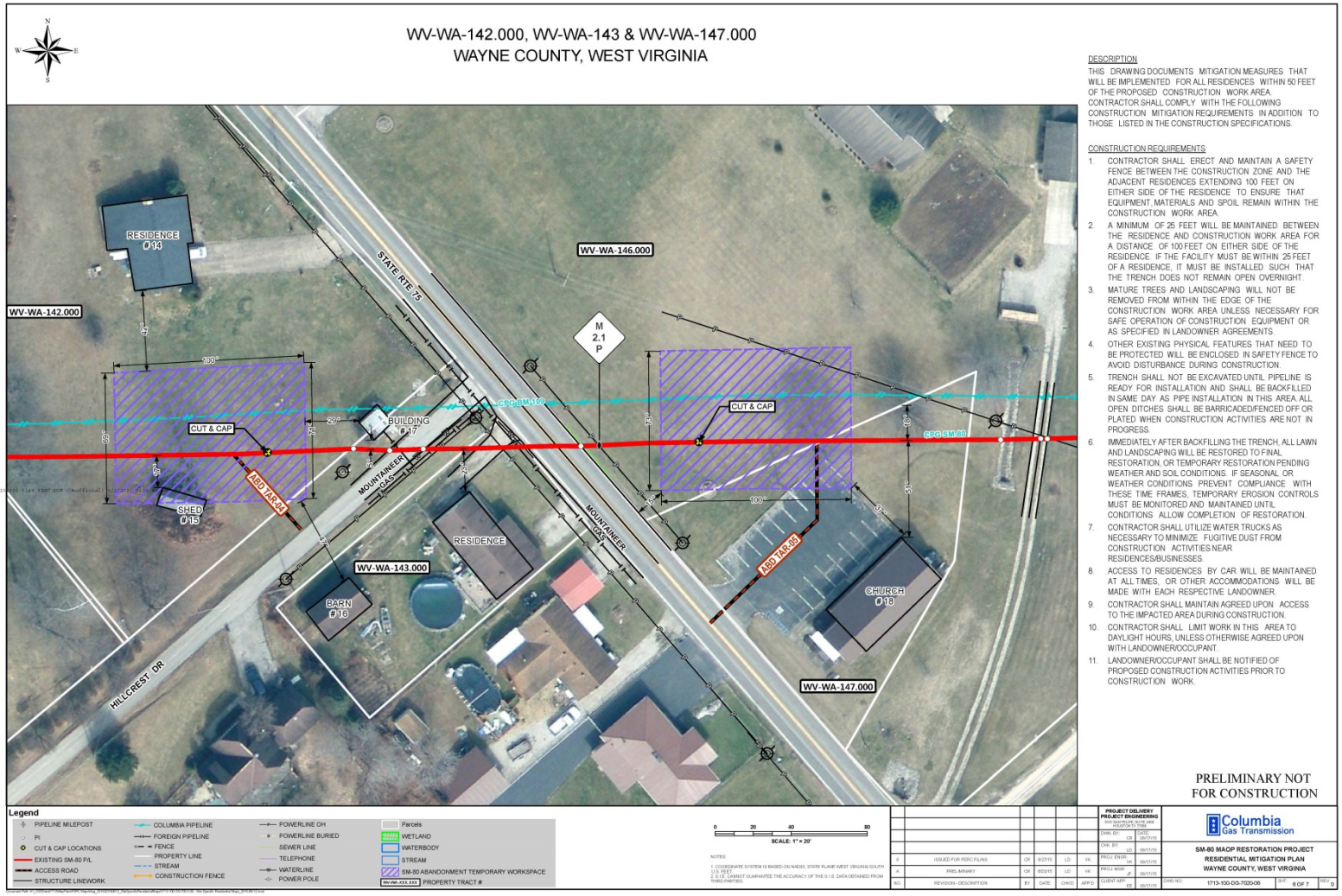
PROJECT DELIVERY
PROJECT ENGINEERING
5151 SAN FELIPE, SUITE 2400
HOUSTON TX 77056

DWN. BY:	CR	DATE: 08/17/15
CHK. BY:	LD	08/17/15
PROJ. ENGR:	VK	08/17/15
PROJ. MGR:	JF	08/17/15
CLIENT APP:	EE	08/17/15

Columbia Gas Transmission

SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA

DWG NO: 1713-100-DG-7020-05 SHT: 5 OF 7 REV: 0


WV-WA-142.000, WV-WA-143 & WV-WA-147.000
WAYNE COUNTY, WEST VIRGINIA
RESIDENCE #14
STATE RTE 75
WV-WA-146.000
WV-WA-142.000
M 2.1 P
CPG SM-80
CUT & CAP
BUILDING #17
MOUNTAINEER GAS
ABD TAR-84
SHED #15
RESIDENCE
WV-WA-143.000
BARN #16
ABD TAR-85
CHURCH #18
WV-WA-147.000
HILLCREST DR
DESCRIPTION
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PRELIMINARY NOT FOR CONSTRUCTION
Legend
PIPELINE MILEPOST
PI
CUT & CAP LOCATIONS
EXISTING SM-80 P/L
ACCESS ROAD
STRUCTURE LINEWORK
COLUMBIA PIPELINE
FOREIGN PIPELINE
FENCE
PROPERTY LINE
STREAM
CONSTRUCTION FENCE
POWERLINE OH
POWERLINE BURIED
SEWER LINE
TELEPHONE
WATERLINE
POWER POLE
Parcels
WETLAND
WATERBODY
STREAM
SM-80 ABANDONMENT TEMPORARY WORKSPACE
WV-WA-XXX.XXX PROPERTY TRACT #
SCALE: 1" = 20'
NOTES:
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PROJECT DELIVERY PROJECT ENGINEERING
Columbia Gas Transmission
SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA
DWG NO: 1713-100-DG-7020-06
SHT: 6 OF 7
REV: 0

WV-WA-029.000
WAYNE COUNTY, WEST VIRGINIA

DESCRIPTION

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PRELIMINARY NOT FOR CONSTRUCTION

Legend

PIPELINE MILEPOST; PI; CUT & CAP LOCATIONS; EXISTING SM-80 P/L; ACCESS ROAD; STRUCTURE LINEWORK; COLUMBIA PIPELINE; FOREIGN PIPELINE; FENCE; PROPERTY LINE; STREAM; CONSTRUCTION FENCE; POWERLINE OH; POWERLINE BURIED; SEWER LINE; TELEPHONE; WATERLINE; POWER POLE; Parcels; WETLAND; WATERBODY; STREAM; SM-80 ABANDONMENT TEMPORARY WORKSPACE; WV-WA-XXX.XXX PROPERTY TRACT #

0 20 40 80
SCALE: 1" = 20'

NOTES:
1. COORDINATE SYSTEM IS BASED ON NAD83, STATE PLANE WEST VIRGINIA SOUTH. U.S. FEET.
2. G.I.E. CANNOT GUARANTEE THE ACCURACY OF THE G.I.S. DATA OBTAINED FROM THIRD PARTIES.

NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D
0	ISSUED FOR FERC FILING	CR	8/27/15	LD	VK
A	PRELIMINARY	CR	8/23/15	LD	VK

PROJECT DELIVERY PROJECT ENGINEERING
5151 SAN FELIPE, SUITE 2400 HOUSTON TX 77056

DWN. BY:	CR	DATE: 08/17/15
CHK. BY:	LD	08/17/15
PROJ. ENGR:	VK	08/17/15
PROJ. MGR:	JF	08/17/15
CLIENT APP:	EE	08/17/15

Columbia Gas Transmission

SM-80 MAOP RESTORATION PROJECT
RESIDENTIAL MITIGATION PLAN
WAYNE COUNTY, WEST VIRGINIA

DWG NO: 1713-100-DG-7020-07 SHT: 7 OF 7 REV: 0

Appendix D
Temporary and Permanent Access Roads for the SM-80 MAOP Restoration Project

Access Road ID	Milepost	Proposed Use	Existing Use	Upgrade Requirements	Approx. Length (feet)	Length Gravel Improvement	Length New Gravel	Length New Clearing/ Grading	Length Tree Trimming	Approx. Width (feet)	Estimated Area Affected (acres)	Driveway to Occupied Structure
SM-80 Replacement												
TAR-12	0	Temporary	Facility Road	None	1553	0	0	0	0	25	0.89	No
TAR-01	0.67	Temporary	Gravel Road/	Gravel	2364	2364	0	0	563	25	0.95	No
TAR-02	1.63	Temporary	Private Driveway/ Field Road	Gravel	3137	3137	0	0	0	25	1.77	Yes
TAR-03	2	Temporary	Open Field	Gravel	724	0	724	0	0	25	0.36	No
SHO-01	2.34	Temporary shoofly road to divert	Open Field	Gravel	288	0	288	0	0	25	0.08	No
TAR-04	2.73	Temporary	Private Driveway/ Field Road	Gravel	1257	1257	0	0	652	25	0.69	Yes

TAR-05	2.85	Temporary	Private Driveway/ Field Road	Gravel	1798	1141	657	657	681	25	0.96	Yes
TAR-06	3.21	Temporary	Private Driveway/	Gravel	1365	670	695	0	0	25	0.75	Yes
TAR-11	3.89	Temporary	ROW Access	Gravel	3491	3491	0	0	624	25	1.91	No
TAR-10	4.39	Temporary	Private Commercial Driveway/ Forest Area	Gravel	1129	647	482	482	0	25	0.59	Yes
PAR-12	4.53	Permanent	Permanent Access to Valve	None	488	0	0	0	0	25	0.29	No
SM-80 Abandonment												
ABD_TAR-01	1.35	Temporary	Open Field	None/ Mats	31	0	0	0	0	25	0.02	No
ABD_TAR-02	1.5	Temporary	Private Driveway/ Open Field	None/ Mats	116	0	0	0	0	25	0.07	Yes
ABD_TAR-03	1.59	Temporary	Private Driveway/ Open Field	None/ Mats	186	0	0	0	0	25	0.1	Yes
ABD_TAR-06	1.85	Temporary	Open Field	None/ Mats	212	0	0	0	0	25	0.12	No
ABD_TAR-04	2.06	Temporary	Open Field	None/ Mats	53	0	0	0	0	25	0.01	No

ABD_TAR-05	2.12	Temporary	Asphalt Parking Lot	None	120	0	0	0	0	25	0.05	Yes
ABD_TAR-07	2.61	Temporary	Private Driveway/ Field/Road	None/Mats	1366	0	0	0	0	25	0.78	Yes

Appendix E
Interagency Endangered Species Act Consultation Checklist for the NiSource Multi-species Habitat Conservation Plan

INTERAGENCY ENDANGERED SPECIES ACT CONSULTATION CHECKLIST FOR THE NISOURCE MULTI-SPECIES HABITAT CONSERVATION PLAN

APPLICANT SECTION

ACTION AGENCY (Recipient): Federal Energy Regulatory Commission

OTHER INVOLVED FEDERAL AGENCIES: U.S. Army Corps of Engineers, and US Fish and Wildlife Service

PROJECT NAME: SM-80 MAOP Restoration Project

PROJECT I.D. NO. (if applicable): _____

NiSource and Columbia Pipeline Group (Columbia) has provided the attached documentation to involved federal agencies in accordance with "Project Review and Documentation Protocols" of the NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance [4]. This documentation describes if and how the project is covered by the NiSource Multi-Species Habitat Conservation Plan (MSHCP), programmatic biological opinion (BO), and/or programmatic concurrence letters. In addition, the action agency could refer to the following sections and/or pages of the MSHCP, BO, and/or concurrence letters to verify that the activity is covered by the MSHCP and associated Section 7 consultation under the Endangered Species Act (ESA):

Reference:

- NiSource MSHCP Chapter 2.3 Covered Lands (pp 2-11)
- NiSource MSHCP Chapter 2.4 Covered Activities (pp 11- 25)
- NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance Quick Reference for Species Consultation Categories (pp 5-6)
- NiSource/Columbia Pipeline Group's, "Habitat Conservation Program Best Management Practices Guidebook", v.1.0, March 12 2014 (specific pages for each species are referenced in the attached application material)

By signing below, Columbia certifies that its proposed activity, as outlined in the accompanying application or notification, is consistent with the MSHCP, BO, and/or concurrence letters.

Brandi Naughton — Columbia Pipeline representative

02/17/2016 — Date

☐ By checking the box, Columbia is notifying the involved federal agencies that the proposed activity will require additional ESA Section 7 consultation because part of the activity may include: (1) any of the 10 Likely to Adversely Affect (LAA) species that are not included in the MSHCP [5], (2) species not addressed in the MSHCP, BO, or concurrence letters [5], (3) non-covered activities, (4) activities outside of the covered lands, or (5) activities otherwise deviating from the MSHCP, BO, and/or concurrence letters. Additional biological information about the species, habitat, or effects of the action may be required. The federal agencies can contact the U.S. Fish and

[4] See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. February 13, 2014. Pg 11.
[5] See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. February 13, 2014. Pg 5.

Wildlife Service's NiSource/Columbia MSHCP Implementation Coordinator (Karen Herrington, 859.348.6495, karen_herrington@fws.gov) for more information.

FEDERAL AGENCY SECTION

This checklist serves as the official documentation that each action agency involved has completed its Section 7 responsibilities under the ESA for NiSource and Columbia Pipeline Group (Columbia) projects conducted as described in the MSHCP, BO, and/or concurrence letters. Every agency that receives a copy of this checklist should fill it out. The MSHCP, BO, and concurrence letters can be found on the U.S. Fish and Wildlife Service (FWS) NiSource website:

http://www.fws.gov/midwest/endangered/permits/hcp/niscurce/index.html

Quick access to the required Avoidance and Minimization Measures (AMMs) and Best Management Practices (BMP) can be found in the Columbia BMP Guidebook, which is also posted on the above website.

1. Does the federal action occur entirely within the covered lands as described in the MSHCP?
   X Yes. Go to #2.
   _____No. Additional consultation is required because the action is not consistent with the MSHCP, BO, and/or concurrence letters. If the project may affect listed species, contact your local FWS Field Office.

2. Is the proposed action as described in the MSHCP, programmatic BO, and/or concurrence letter?
   X Yes. Go to #3.
   _____No. Additional consultation is required because the action is not consistent with the MSHCP, BO, and/or concurrence letters. If the project may affect listed species, contact your local FWS Field Office.

3. Does the proposed action pose any effects on species not included in the MSHCP, BO or concurrence letters[5]?
   _____Yes. Additional consultation is required because the species was not included in the MSHCP, BO, and/or concurrence letters. If the project may affect listed species not included in the consultation, contact your local FWS Field Office.
   X No. Go to #4.

4. Does the proposed action include MSHCP species[6] only?
   X Yes. Go to #6.
   _____No. Go to #5.

5. Does the proposed action include any of the 10 Likely to Adversely Affect (LAA) species that are not included in the MSHCP (i.e., LAA non MSHCP species) as addressed in the BO?
   _____Yes. Additional consultation is required. Enter into tiered consultation with your local FWS office for any LAA non-MSHCP species.
   _____No. Go to #6.

[6] See NiSource/Columbia Pipeline MSHCP Consultation Implementation Guidance. February 13, 2014. Pg. 5

6. Are all mandatory AMMs and/or BMPs for each species included in the action?[7]
   X Yes. Go to #7.
   ____No. Additional consultation is required because the proposed action is not consistent with the MSHCP, BO, and/or concurrence letter. Request additional information from Columbia about AMMs.

7. Are all non-mandatory AMMs and/or BMPs for each species included in the action?
   X Yes. Consultation is complete because the proposed action is consistent with the MSHCP, BO, and/or concurrence letter.
   ____No. Go to #8.

8. Are reasons provided for not including non-mandatory AMMs for each species?[8]
   ____Yes. Consultation is complete.
   ____No. Request justification from Columbia, and attach documentation here. Once justification is provided, consultation is complete.

It is the federal agency's responsibility to comply with ESA Section 7 requirements for this project. The programmatic BO and/or the concurrence letters cover most of Columbia's activities implemented under the MSHCP within the covered lands. By signing below, the federal agency verifies that the proposed action within the agency's authority complies with the programmatic BO, and/or concurrence letters. If additional Section 7 consultation is required, the U.S. Fish and Wildlife Service's supplemental concurrence letter or biological opinion will be attached to this documentation.

AGENCY COMMENTS:

Federal Agency representative

5/18/16
Date

[7] See NiSource/Columbia Pipeline Groups, "Habitat Conservation Program Best Management Practices Guidebook", v 1.0, March 12, 2014.
[8] Per the MSHCP, explanation for non-mandatory AMM use is not required for the Indiana Bat.

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Document Content(s)