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FINAL ENVIRONMENTAL IMPACT STATEMENT

Volume II – Appendices

Atlantic Sunrise Project

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

Federal Energy Regulatory Commission
Division of Gas – Environment and Engineering
888 First Street, NE, Washington, DC 20426

Cooperating Agencies:

U.S. Army Corps of Engineers

Natural Resources Conservation Service

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APPENDIX C

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CENTRAL PENN LINE NORTH				
Columbia County				
CO-003	0.2	0.1	Upland forest	Wetland crossing
CO-004	0.6	0.1	Upland forest	Stream crossing
CO-005	0.6	0.1	Upland forest	Stream crossing
CO-006	0.8	0.1	Upland forest	Wetland crossing
CO-007	1.0	0.1	Upland forest	Wetland crossing
CO-008	1.1	0.2	Upland forest	Road crossing
CO-008.1	1.1	0.3	Upland forest	Foreign pipeline crossing
CO-008.2	1.1	<0.1	Upland forest	Foreign pipeline crossing
CO-009	1.1	<0.1	Residential land	Road crossing
CO-010	1.2	<0.1	Residential land	Wetland crossing
CO-012	1.2	0.2	Residential land	Topsoil segregation
CO-013	1.3	0.1	Residential land	Stream crossing
CO-014	1.4	0.3	Upland forest	Stream crossing
CO-015	1.5	0.2	Upland forest	Road crossing
CO-016	1.5	0.2	Agricultural land	Road crossing
CO-017	1.5	0.3	Upland forest; residential land	Road crossing
CO-018	1.6	0.2	Upland forest	Road crossing
CO-019	1.7	0.1	Upland forest	Side slope
CO-020	1.7	0.1	Open land	Side slope
CO-021	1.9	0.1	Upland forest	Stream crossing
CO-022	2.0	0.1	Upland forest	Stream crossing
CO-023	2.1	0.3	Upland forest	Point of intersection
CO-024	2.1	0.1	Open land	Point of intersection
CO-024.1	M-0086 0.1	0.1	Upland forest	Point of intersection
CO-024.2	M-0086 0.2	0.1	Upland forest	Point of intersection
CO-024.3	M-0086 0.2	0.1	Upland forest	Point of intersection
CO-025	2.2	0.1	Upland forest	Stream crossing
CO-026	2.5	0.2	Agricultural land	Topsoil segregation
CO-027	2.6	0.1	Open land	Road crossing
CO-028	2.6	0.1	Upland forest	Road crossing
CO-029	2.7	0.1	Upland forest	Road crossing
CO-030	2.7	0.1	Open land	Road crossing
CO-031	2.8	0.1	Upland forest	Road crossing
CO-032	2.8	0.1	Upland forest	Road crossing
CO-033	2.9	0.1	Upland forest	Stream crossing
CO-034	2.8	0.1	Open land	Road crossing
CO-035	3.0	0.1	Upland forest	Stream crossing
CO-036	3.2	0.1	Upland forest	Road crossing
CO-037	3.3	0.1	Upland forest	Road crossing
CO-038	3.3	0.1	Upland forest	Stream crossing
CO-039	3.4	0.1	Upland forest; open land	Stream crossing
CO-040	3.8	0.1	Upland forest	Stream crossing
CO-041	3.8	0.1	Upland forest	Stream crossing
CO-042	3.8	0.1	Upland forest; open land	Stream crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-043	3.9	0.1	Upland forest	Wetland crossing
CO-044	4.0	0.1	Upland forest	Wetland crossing
CO-045	4.0	0.1	Upland forest; open land	Wetland crossing
CO-046	4.1	0.1	Upland forest	Stream crossing
CO-048	4.2	0.1	Upland forest; open land	Stream crossing
CO-049	4.2	0.1	Upland forest	Road crossing
CO-050	4.3	0.3	Upland forest; open land	Road crossing
CO-051	4.3	0.1	Open land	Road crossing
CO-052	4.3	0.1	Upland forest; open land	Road crossing
CO-053	4.9	0.1	Upland forest; open land	Point of intersection
CO-054	4.9	0.1	Upland forest; open land	Point of intersection
CO-055	5.0	0.1	Open land	Road crossing
CO-057	5.0	0.1	Upland forest	Road crossing
Luzerne County				
LU-056	5.0	0.1	Open land	Road crossing
LU-058	5.0	0.1	Open land; upland forest	Road crossing
LU-059	5.0	0.1	Upland forest	Stream crossing
LU-061	5.1	0.1	Upland forest	Stream crossing
LU-062	5.1	0.1	Upland forest	Point of intersection
LU-063	5.3	0.1	Upland forest	Point of intersection
LU-064	5.4	0.1	Upland forest	Point of intersection
LU-065	5.5	0.1	Upland forest	Point of intersection
LU-066	5.5	0.1	Upland forest; open land	Road crossing
LU-067	5.6	0.1	Open land	Road crossing
LU-068	5.5	0.1	Upland forest	Road crossing
LU-069	5.6	0.1	Upland forest	Road crossing
LU-070	5.7	0.1	Agricultural land; upland forest	Topsoil segregation
LU-071	5.7	0.4	Agricultural land; upland forest; open land	Point of intersection
LU-072	5.7	0.2	Agricultural land; upland forest; open land	Topsoil segregation
LU-073	5.8	0.1	Upland forest; open land	Road crossing
LU-074	5.8	0.1	Upland forest	Road crossing
LU-075	5.7	<0.1	Agricultural land	Topsoil segregation
LU-076	5.7	<0.1	Agricultural land	Point of intersection
LU-077	5.8	0.1	Agricultural land	Topsoil segregation
LU-078	5.8	0.1	Agricultural land	Road crossing
LU-079	5.8	0.2	Open land; upland forest	Road crossing
LU-080	6.0	0.2	Upland forest; wetland	Wetland crossing
LU-081	6.1	0.1	Upland forest	Stream crossing
LU-082	6.1	0.1	Open land; upland forest	Wetland crossing
LU-083	6.2	0.1	Upland forest	Point of intersection
LU-084	6.3	0.1	Upland forest	Wetland crossing
LU-085	6.3	0.1	Upland forest	Point of intersection
LU-086	6.5	0.1	Upland forest	Point of intersection
LU-087	6.5	0.1	Upland forest	Wetland crossing
LU-088	6.6	0.1	Upland forest	Point of intersection

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LU-089	6.7	0.1	Upland forest; open land	Valve fabrication
LU-090	6.7	0.1	Upland forest	Road crossing
LU-091	6.7	0.1	Upland forest	Road crossing
LU-092	6.9	0.1	Upland forest	Wetland crossing
LU-093	7.0	0.1	Upland forest	Wetland crossing
LU-094	7.1	0.1	Upland forest	Wetland crossing
LU-095	7.2	0.2	Upland forest	Wetland crossing
LU-096	7.3	0.1	Upland forest	Road crossing
LU-097	7.3	0.1	Upland forest	Stream crossing
LU-098	7.3	0.1	Upland forest; open land	Stream crossing
LU-099	7.4	0.1	Upland forest	Stream crossing
LU-100	7.4	0.1	Open land	Stream crossing
LU-101	7.4	0.1	Upland forest	Stream crossing
LU-102	7.4	0.1	Open land	Stream crossing
LU-103	7.5	0.1	Upland forest	Stream crossing
LU-104	7.5	0.1	Open land	Stream crossing
LU-104.1	7.6	0.1	Upland forest	Equipment Bypass
LU-104.2	7.7	0.1	Upland forest	Equipment Bypass
LU-105	8.1	0.1	Upland forest	Road crossing
LU-106	8.1	0.1	Open land	Road crossing
LU-107	8.2	0.1	Open land	Road crossing
LU-108	8.2	0.1	Open land	Road crossing
LU-109	M-0056 0.6	0.1	Upland forest	Point of intersection
LU-110	M-0056 0.6	0.2	Upland forest	Point of intersection
LU-111	M-0056 0.7	0.3	Upland forest; open land	Crossover
LU-113	M-0056 0.7	<0.1	Upland forest	Road crossing
LU-114	9.1	0.1	Upland forest	Road crossing
LU-115	9.0	0.1	Upland forest	Road crossing
LU-116	9.1	0.1	Upland forest	Stream crossing
LU-117	9.2	0.1	Upland forest	Stream crossing
LU-118	9.2	0.2	Open land; upland forest	Stream crossing
LU-119	9.3	0.1	Upland forest	Stream crossing
LU-120	9.3	0.1	Open land; upland forest	Stream crossing
LU-121	9.3	0.1	Upland forest	Stream crossing
LU-122	9.6	0.2	Upland forest	Point of intersection
LU-123	9.6	0.4	Agricultural land; upland forest	Crossover
LU-124	9.6	0.1	Agricultural land; upland forest	Topsoil segregation
LU-125	9.7	0.1	Residential	Road crossing
LU-126	9.8	0.1	Agricultural land	Road crossing
LU-127	9.8	0.1	Agricultural land	Point of intersection
LU-128	9.8	0.1	Agricultural land	Road crossing
LU-129	9.8	0.2	Agricultural land	Road crossing
LU-130	9.8	0.2	Agricultural land	Topsoil segregation
LU-131	9.9	0.1	Agricultural land	Road crossing
LU-132	9.9	0.1	Agricultural land	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LU-133	9.9	0.1	Agricultural land	Topsoil segregation
LU-134	10.1	0.1	Open land	Stream crossing
LU-135	10.2	0.1	Agricultural land	Stream crossing
LU-137	10.3	0.2	Upland forest	Stream crossing
LU-138	10.3	0.1	Open land	Stream crossing
LU-139	10.9	0.1	Upland forest	Road crossing
LU-140	10.9	0.1	Upland forest	Road crossing
LU-141	11.2	0.1	Open land	Stream crossing
LU-142	11.2	0.1	Upland forest	Stream crossing
LU-143	11.2	0.1	Open land; upland forest	Stream crossing
LU-144	11.4	0.1	Open land; upland forest	Road crossing
LU-145	11.4	0.1	Open land	Road crossing
LU-146	11.4	0.1	Upland forest	Road crossing
LU-147	11.4	0.1	Upland forest	Road crossing
LU-148	11.5	0.1	Upland forest	Wetland crossing
LU-149	11.8	0.1	Upland forest	Stream crossing
LU-150	11.9	0.1	Upland forest	Stream crossing
LU-151	12.1	0.1	Upland forest	Stream crossing
LU-152	12.2	0.1	Upland forest	Stream crossing
LU-153	12.3	0.1	Upland forest	Wetland crossing
LU-154	12.5	0.1	Upland forest	Road crossing
LU-155	12.5	0.1	Upland forest	Road crossing
LU-156	12.9	0.1	Upland forest	Stream crossing
LU-157	12.9	0.1	Upland forest; open land	Stream crossing
LU-158	12.9	0.1	Upland forest	Road crossing
LU-159	13.0	0.1	Upland forest	Road crossing
LU-160	13.0	0.1	Upland forest	Stream crossing
LU-161	13.2	0.1	Upland forest	Stream crossing
LU-162	13.3	0.1	Upland forest	Road crossing
LU-163	13.4	0.1	Upland forest; open land	Road crossing
LU-164	13.4	<0.1	Upland forest	Road crossing
LU-165	13.4	0.3	Upland forest; wetland	Road crossing
LU-166	13.8	0.1	Upland forest	Wetland crossing
LU-167	13.9	0.1	Upland forest	Road crossing
LU-168	14.0	0.2	Upland forest	Stream crossing
LU-169	14.1	0.1	Upland forest; open land	Road crossing
LU-170	14.2	0.1	Upland forest	Road crossing
LU-171	14.4	0.1	Upland forest	Road crossing
LU-172	14.4	0.1	Upland forest; open land	Road crossing
LU-173	14.4	0.1	Upland forest	Stream crossing
LU-174	14.5	0.1	Upland forest; open land	Stream crossing
LU-175	14.5	0.1	Upland forest	Stream crossing
LU-176	14.9	0.1	Upland forest	Wetland crossing
LU-177	15.0	0.1	Upland forest	Stream crossing
LU-178	15.4	0.1	Upland forest	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LU-179	15.5	0.1	Residential	Road crossing
LU-180	15.5	0.1	Residential	Topsoil segregation
LU-181	15.7	0.1	Upland forest	Stream crossing
LU-182	15.7	0.1	Upland forest; open land	Stream crossing
LU-183	15.8	0.1	Upland forest	Stream crossing
LU-184	15.9	0.5	Upland forest; agricultural land	Topsoil segregation
LU-185	16.0	0.2	Agricultural land	Road crossing
LU-186	16.0	0.2	Agricultural land	Road crossing
LU-187	16.1	<0.1	Open land; residential	Road crossing
LU-188	16.1	<0.1	Open land; residential	Road crossing
LU-189	16.2	0.1	Agricultural land	Topsoil segregation
LU-190	16.5	0.2	Upland forest; open land	Point of intersection
LU-191	16.4	0.1	Open land; upland forest	Crossover
LU-192	16.5	0.1	Open land; upland forest	Road crossing
LU-193	16.6	0.2	Upland forest; residential	Road crossing
LU-194	16.6	<0.1	Upland forest	Wetland crossing
LU-195	16.6	<0.1	Wetland	Wetland crossing
LU-196	16.6	0.1	Open land; upland forest	Stream crossing
LU-198	16.7	0.2	Upland forest	Road crossing
LU-199	16.7	0.2	Upland forest	Stream crossing
LU-200	17.0	0.1	Upland forest	Drag section
LU-201	17.1	0.2	Upland forest; open land	Point of intersection
LU-202	17.2	0.1	Upland forest; open land	Road crossing
LU-203	17.1	0.4	Open land; upland forest	Crossover
LU-204	17.2	0.1	Upland forest	Road crossing
LU-205	17.2	0.1	Upland forest; open land	Stream crossing
LU-206	17.5	0.1	Upland forest	Road crossing
LU-207	17.5	0.1	Upland forest; open land	Road crossing
LU-208	17.5	<0.1	Open land	Road crossing
LU-209	17.6	0.1	Upland forest	Stream crossing
LU-210	17.6	0.1	Upland forest; open land	Stream crossing
LU-211	17.6	0.1	Upland forest; open land	Stream crossing
LU-212	17.7	0.1	Upland forest	Stream crossing
LU-213	18.0	0.2	Upland forest	Stream crossing
LU-214	18.1	0.1	Wetland	Wetland crossing
LU-215	18.2	0.2	Upland forest	Stream crossing
LU-216	18.2	0.1	Upland forest	Road crossing
LU-217	18.3	0.1	Upland forest	Road crossing
` LU-218	18.3	0.3	Upland forest	Road crossing
LU-219	18.8	0.1	Upland forest	Stream crossing
LU-220	18.8	0.1	Upland forest	Stream crossing
LU-221	18.9	0.1	Upland forest; open land	Road crossing
LU-222	18.9	0.1	Agricultural land	Road crossing
LU-223	19.2	0.1	Upland forest	Road crossing
LU-224	19.3	0.1	Upland forest; open land	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LU-225	19.4	0.2	Upland forest	Stream crossing
LU-226	19.4	0.1	Agricultural land	Stream crossing
LU-227	19.4	0.1	Agricultural land	Topsoil segregation
LU-228	19.5	0.1	Upland forest; agricultural land	Topsoil segregation
LU-229	19.6	0.2	Upland forest; agricultural land	Topsoil segregation
LU-230	19.6	0.2	Agricultural land	Crossover
LU-231	19.6	0.2	Agricultural land	Crossover
LU-232	19.7	0.2	Agricultural land	Topsoil segregation
LU-233	19.8	0.3	Upland forest	Stream crossing
LU-234	19.8	0.3	Upland forest	Wetland crossing
LU-235	20.0	0.1	Upland forest	Wetland crossing
LU-235.1	20.0	<0.1	Wetland	Wetland crossing
LU-237	20.1	0.2	Agricultural land	Road crossing
LU-238	20.1	0.1	Residential; agricultural land	Topsoil segregation
LU-239	20.1	0.1	Residential; agricultural land	Road crossing
LU-240	20.2	0.2	Agricultural land	Topsoil segregation
LU-241	20.2	0.1	Agricultural land	Topsoil segregation
LU-242	20.4	0.3	Upland forest	Side slope
LU-243	20.9	0.2	Upland forest; agricultural land	Topsoil segregation
LU-244	20.9	0.1	Agricultural land	Road crossing
LU-245	20.9	0.2	Agricultural land	Road crossing
LU-246	21.0	0.3	Residential; agricultural land	Topsoil segregation
LU-250	21.3	0.5	Upland forest; open land	Wetland crossing
LU-251	21.3	0.1	Open land	Crossover
LU-251.1	21.4	0.2	Wetland	Wetland crossing
LU-252	21.6	0.3	Open land; agricultural land	Point of intersection
LU-253	21.8	0.1	Agricultural land	Road crossing
LU-254	21.8	0.1	Agricultural land	Road crossing
LU-255	21.8	0.1	Agricultural land	Point of intersection
LU-256	21.8	0.1	Upland forest; agricultural land	Point of intersection
LU-257	21.9	0.1	Upland forest	Point of intersection
LU-258	22.0	0.1	Upland forest	Point of intersection
LU-259	M-0060 0.1	0.1	Upland forest	Stream crossing
LU-260	M-0060 0.2	0.1	Upland forest	Stream crossing
LU-261	M-0060 0.2	0.1	Upland forest open land	Road crossing
LU-262	M-0060 0.3	0.2	Upland forest; open land	Road crossing
LU-263	M-0060 0.3	<0.1	Upland forest; open land	Road crossing
LU-264	M-0060 0.3	0.2	Upland forest; open land	Road crossing
LU-265	M-0060 0.3	<0.1	Upland forest	Road crossing
LU-266	M-0060 0.4	0.1	Upland forest	Point of intersection
LU-266.1	M-0060 0.4	<0.1	Upland forest	Road crossing
LU-266.2	M-0060 0.4	0.1	Upland forest	Stream crossing
LU-267	M-0060 0.4	0.1	Upland forest	Stream crossing
LU-267.1	M-0060 0.8	0.1	Upland forest	Stream crossing
LU-268	M-0060 0.8	0.1	Upland forest	Stream crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LU-268.1	M-0060 0.8	0.1	Upland forest	Stream Crossing
LU-269	M-0060 0.9	0.1	Upland forest	Point of intersection
LU-269.1	M-0060 0.9	<0.1	Open land	Stream crossing
LU-269.2	M-0060 0.9	<0.1	Upland forest	Stream Crossing
LU-270	24.0	0.5	Agricultural land	Topsoil segregation
LU-271	24.1	0.1	Agricultural land; upland forest; open land	Road crossing
LU-272	24.1	0.1	Upland forest; agricultural land; open land	Road crossing
LU-273	M-0141 0.0	0.1	Open land; agricultural land	Road crossing
LU-273.1	M-0141 0.0	0.1	Agricultural land	Road crossing
LU-275.3	M-0141 0.1	0.1	Agricultural land	Barn
LU-277	M-0141 0.1	0.3	Upland forest	Road crossing
LU-278	M-0141 0.2	0.1	Upland forest	Road crossing
LU-279	M-0141 0.3	0.1	Upland forest	Point of intersection
LU-279.1	M-0141 0.4	0.1	Upland forest	Road crossing
LU-280.1	M-0150 0.09	0.2	Upland forest	Stream crossing
LU-281	M-0141 0.5	0.1	Upland forest	Stream crossing
LU-281.1	M-0141 0.6	0.1	Upland forest	Point of intersection
LU-282	25.0	0.1	Open land	Point of intersection
LU-283	25.0	0.1	Open land	Foreign pipeline crossing
LU-284	25.3	0.4	Agricultural land; open land	Topsoil segregation
LU-285	25.4	0.1	Agricultural land	Topsoil segregation
LU-286	25.5	0.1	Residential	Road crossing
LU-287	25.5	<0.1	Open land	Road crossing
LU-288	25.5	0.1	Open land	Road crossing
LU-289	25.5	0.1	Open land	Road crossing
LU-290	25.5	0.2	Open land; industrial and commercial land	Road crossing
LU-290.1	25.5	0.1	Open land	Equipment turnaround
LU-291	25.6	0.1	Upland forest	Stream crossing
LU-292	25.6	0.1	Upland forest	Point of intersection
LU-293	M-0142 0.0	0.2	Agricultural land; open land	Point of intersection
LU-293.1	M-0142 0.1	0.1	Open land	Point of intersection
LU-293.2	M-0142 0.2	0.2	Upland forest	Topsoil segregation
LU-293.3	M-0142 0.2	0.1	Upland forest	Stream crossing
LU-294	M-0142 0.0	0.1	Agricultural land; open land	Road crossing
LU-295	26.0	0.1	Upland forest	Road crossing
LU-296	26.0	0.1	Upland forest	Road crossing
LU-297	26.2	0.1	Upland forest	Spoil storage
LU-297.1	M-0088 0.0	<0.1	Upland forest	Point of intersection
LU-297.2	M-0088 0.2	0.1	Upland forest	Point of intersection
LU-298	M-0088 0.3	0.1	Upland forest	Point of intersection
LU-298.1	M-0088 0.4	0.4	Upland forest	Side slope
LU-298.2	M-0088 0.6	0.1	Upland forest	Point of intersection
LU-299	M-0088 0.9	0.1	Upland forest	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LU-299.1	M-0088 0.9	0.1	Upland forest	Road crossing
LU-300	M-0088 0.9	0.1	Upland forest	Point of intersection
LU-300.1	M-0088 1.0	0.1	Upland forest	Point of intersection
LU-300.2	M-0088 1.1	0.1	Upland forest	Wetland crossing
LU-301	M-0088 1.2	0.1	Upland forest	Point of intersection
LU-302	M-0088 1.2	0.1	Upland forest	Point of intersection
LU-302.1	M-0088 1.3	0.1	Upland forest	Point of intersection
LU-303	M-0088 1.3	0.1	Upland forest	Point of intersection
LU-303.1	M-0088 1.4	0.1	Upland forest	Point of intersection
LU-303.2	M-0088 1.7	0.1	Upland forest	Stream crossing
LU-303.3	M-0088 1.8	0.1	Upland forest	Stream crossing
LU-303.4	M-0088 1.8	0.1	Upland forest	Point of intersection
LU-304	M-0088 2.3	0.1	Upland forest	Point of intersection
Wyoming County				
WY-304.1	M-0088 2.3	0.1	Upland forest	Point of intersection
WY-304.2	M-0088 2.7	0.1	Upland forest	Point of intersection
WY-304.3	M-0088 2.7	0.1	Upland forest	Point of intersection
WY-305	M-0088 3.0	0.1	Agricultural land	Point of intersection
WY-306.11	M-0088 3.2	0.1	Upland forest	Wetland crossing
WY-306.12	M-0088 3.3	0.1	Upland forest	Stream crossing
WY-306.9	M-0088 3.1	0.1	Upland forest	Stream crossing
WY-307	M-0088 3.5	0.1	Upland forest	Point of intersection
WY-307.1	M-0088 3.8	0.1	Upland forest	Stream crossing
WY-308	M-0088 4.2	0.1	Upland forest	Road crossing
WY-309	M-0088 4.2	0.1	Agricultural land	Road crossing
WY-310	M-0088 4.2	0.3	Agricultural land	Topsoil segregation
WY-311	30.0	0.1	Agricultural land	Road crossing
WY-312	30.0	0.1	Agricultural land	Road crossing
WY-313	30.1	0.4	Agricultural land	Topsoil segregation
WY-314	30.3	0.1	Upland forest	Wetland crossing
WY-315	30.3	0.1	Upland forest	Side slope
WY-316	M-0071 0.0	0.1	Upland forest	Point of intersection
WY-317	M-0071 0.1	0.2	Upland forest; open land	Foreign pipeline crossing
WY-318	M-0071 0.4	0.2	Upland forest	Foreign pipeline crossing
WY-319	M-0071 0.6	0.1	Upland forest	Stream crossing
WY-320	M-0071 0.7	0.1	Upland forest	Stream crossing
WY-321	M-0071 0.9	0.1	Open land	Point of intersection
WY-322	M-0071 1.1	0.1	Upland forest	Road crossing
WY-323	M-0071 1.2	0.1	Upland forest; open land	Road crossing
WY-324	M-0071 1.2	0.1	Upland forest	Foreign pipeline crossing
WY-326	M-0071 1.6	0.1	Upland forest	Point of intersection
WY-327	M-0071 1.6	0.3	Upland forest	Foreign pipeline crossing
WY-328	M-0071 1.9	0.1	Upland forest	Side slope
WY-329	M-0071 1.9	0.1	Upland forest	Stream crossing
WY-330	M-0071 2.0	0.1	Open land; upland forest	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
WY-331	M-0071 2.1	0.1	Upland forest	Stream crossing
WY-332	M-0071 2.1	<0.1	Upland forest	Stream crossing
WY-333	M-0071 2.2	0.1	Upland forest	Stream crossing
WY-334	M-0071 2.2	0.1	Agricultural land	Point of intersection
WY-335	M-0071 2.3	0.1	Agricultural land	Wetland crossing
WY-336	M-0071 2.3	0.1	Agricultural land	Wetland crossing
WY-337	M-0071 2.4	0.4	Agricultural land; open land	Topsoil segregation
WY-338	M-0071 2.5	0.1	Open land	Road crossing
WY-339	M-0071 2.5	0.1	Open land	Road crossing
WY-340	M-0071 2.5	<0.1	Agricultural land; open land	Road crossing
WY-341	M-0071 2.6	0.5	Agricultural land	Topsoil segregation
WY-341.1	M-0071 3.0	0.1	Upland forest	Point of intersection
WY-341.2	M-0071 3.1	0.1	Upland forest	Point of intersection
WY-342	M-0071 2.6	0.1	Agricultural land	Drag section
WY-343	M-0071 3.7	0.2	Upland forest; open land	Foreign pipeline crossing
WY-344	34.8	0.1	Open land	Horizontal directional drill
WY-345	34.8	0.2	Open land	Horizontal directional drill
WY-346	34.9	1.1	Open land	Horizontal directional drill
WY-347	34.9	1.5	Open land	Horizontal directional drill
WY-348	35.1	0.2	Agricultural land; residential	Horizontal directional drill
WY-349	35.2	0.5	Agricultural land	Topsoil segregation
WY-350	35.2	0.9	Agricultural land	Horizontal directional drill
WY-351	35.3	0.5	Agricultural land	Horizontal directional drill
WY-352	35.4	1.8	Agricultural land	Horizontal directional drill
WY-352.1	35.4	2.7	Agricultural land	Horizontal directional drill
WY-353	35.4	0.6	Agricultural land	Horizontal directional drill
WY-354	35.6	1.0	Agricultural land	Topsoil segregation
WY-356	35.9	0.1	Upland forest	Stream crossing
WY-357	35.9	0.1	Upland forest	Stream crossing
WY-358	35.9	0.1	Upland forest	Stream crossing
WY-359	35.9	0.1	Upland forest	Stream crossing
WY-360	36.3	0.4	Upland forest	Point of intersection
WY-361	36.3	0.4	Upland forest	Side slope
WY-362	36.8	0.1	Upland forest	Stream crossing
WY-363	36.9	0.1	Agricultural land	Wetland crossing
WY-364	36.9	0.1	Agricultural land	Topsoil segregation
WY-365	37.0	0.2	Agricultural land	Topsoil segregation
WY-366	37.0	0.1	Upland forest	Stream crossing
WY-367	37.1	0.1	Upland forest	Stream crossing
WY-368	37.2	0.1	Upland forest	Topsoil segregation
WY-369	37.2	0.1	Agricultural land	Road crossing
WY-370	37.2	0.1	Agricultural land; upland forest	Road crossing
WY-371	37.2	0.1	Upland forest	Stream crossing
WY-372	37.3	0.1	Agricultural land; upland forest	Stream crossing
WY-373	37.5	0.5	Agricultural land; upland forest	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
WY-374	37.6	0.1	Agricultural land	Point of intersection
WY-375	37.6	0.1	Upland forest	Wetland crossing
WY-376	37.6	0.2	Wetland	Wetland crossing
WY-377	37.7	0.1	Upland forest	Wetland crossing
WY-378	37.8	0.1	Agricultural land	Topsoil segregation
WY-379	37.8	0.6	Agricultural land	Wetland crossing
WY-380	38.0	0.1	Residential land	Road crossing
WY-381	38.0	0.1	Residential land	Road crossing
WY-382	38.0	<0.1	Residential land	Road crossing
WY-382.1	38.1	0.1	Upland forest	Stream crossing
WY-382.2	38.1	0.1	Upland forest	Stream crossing
WY-383	38.3	0.1	Upland forest	Side slope
WY-384	38.4	0.1	Upland forest	Road crossing
WY-385	38.4	0.1	Upland forest	Road crossing
WY-386	38.4	0.1	Upland forest	Road crossing
WY-387	38.4	0.1	Upland forest	Road crossing
WY-388	38.5	0.1	Upland forest	Stream crossing
WY-389	38.5	0.1	Upland forest	Wetland crossing
WY-390	38.6	0.1	Upland forest	Wetland crossing
WY-391	38.6	0.1	Upland forest	Wetland crossing
WY-392	38.8	0.1	Upland forest	Road crossing
WY-393	38.8	0.1	Upland forest	Road crossing
WY-394	39.0	0.7	Agricultural land	Topsoil segregation
WY-395	39.2	0.4	Agricultural land	Topsoil segregation
WY-396	39.3	0.1	Agricultural land	Wetland crossing
WY-396.1	39.4	0.1	Wetland	Wetland crossing
WY-397	39.4	0.1	Agricultural land	Topsoil segregation
WY-398	39.4	0.1	Agricultural land	Road crossing
WY-399	39.5	0.1	Agricultural land	Road crossing
WY-400	39.6	0.6	Agricultural land	Topsoil segregation
WY-401	39.8	0.4	Agricultural land	Topsoil segregation
WY-402	39.9	<0.1	Agricultural land	Road crossing
WY-403	39.9	0.1	Agricultural land; open land	Road crossing
WY-404	39.9	0.1	Agricultural land; open land	Road crossing
WY-405	40.1	0.1	Agricultural land	Stream crossing
WY-406	40.1	0.1	Agricultural land	Topsoil segregation
WY-407	40.3	0.2	Agricultural land	Topsoil segregation
WY-408	40.5	0.2	Agricultural land	Topsoil segregation
WY-409	40.6	0.1	Agricultural land	Point of intersection
WY-410	40.6	0.1	Agricultural land	Topsoil segregation
WY-411	40.7	0.2	Agricultural land; upland forest	Topsoil segregation
WY-412	40.9	0.1	Upland forest	Road crossing
WY-413	40.9	<0.1	Upland forest	Road crossing
WY-414	41.0	0.1	Upland forest	Wetland crossing
WY-415	41.0	0.1	Upland forest	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
WY-416	41.7	0.2	Upland forest	Side slope
WY-416.1	42.0	0.1	Upland forest	Point of intersection
WY-416.2	42.1	0.1	Upland forest	Point of intersection
WY-417	M-0054 0.0	0.3	Upland forest	Road crossing
WY-418	M-0054 0.0	0.2	Upland forest	Road crossing
WY-419	M-0054 0.1	0.1	Upland forest	Road crossing
WY-420	M-0054 0.1	<0.1	Wetland	Wetland crossing
WY-420.1	M-0054 0.1	<0.1	Wetland	Wetland crossing
WY-421	M-0054 0.1	0.1	Agricultural land; upland forest	Stream crossing
WY-422	M-0054 0.2	0.5	Agricultural land	Topsoil segregation
WY-422.1	M-0054 0.4	<0.1	Upland forest	Point of intersection
WY-424	43.7	0.3	Upland forest	Stream crossing
WY-425	43.7	0.1	Upland forest	Stream crossing
WY-426	43.7	0.6	Agricultural land	Stream crossing
WY-427	43.7	0.1	Agricultural land	Topsoil segregation
WY-428	43.8	0.1	Agricultural land	Stream crossing
WY-429	43.8	0.1	Agricultural land	Road crossing
WY-430	43.8	0.2	Agricultural land	Topsoil segregation
WY-431	43.8	0.3	Agricultural land	Road crossing
WY-432	43.9	0.1	Agricultural land	Road crossing
WY-434	43.9	0.4	Upland forest	Road crossing
WY-435	43.9	0.2	Upland forest	Road crossing
WY-436	44.2	0.8	Agricultural land; upland forest	Topsoil segregation
WY-436.1	44.2	0.1	Agricultural land	Foreign pipeline crossing
WY-436.2	44.3	0.1	Agricultural land	Foreign pipeline crossing
WY-436.3	44.3	0.1	Agricultural land; upland forest	Foreign pipeline crossing
WY-437	44.4	0.1	Agricultural land; upland forest	Foreign pipeline crossing
WY-438	44.4	<0.1	Agricultural land	Road crossing
WY-439	44.4	0.4	Agricultural land	Road crossing
WY-440	44.4	0.1	Agricultural land	Wetland crossing
WY-441	44.5	0.3	Agricultural land	Stream crossing
WY-442	44.5	0.1	Agricultural land	Stream crossing
WY-443	44.6	0.5	Agricultural land	Topsoil segregation
WY-448	45.2	0.1	Agricultural land; wetland	Road crossing
WY-449	45.2	0.1	Agricultural land	Road crossing
WY-450	45.3	0.2	Agricultural land; upland forest	Topsoil segregation
WY-451	45.3	0.1	Agricultural land; upland forest	Stream crossing
WY-452	45.4	0.1	Upland forest	Stream crossing
WY-453	45.8	0.1	Upland forest	Stream crossing
WY-454	45.8	0.1	Agricultural land	Road crossing
WY-455	45.8	0.1	Agricultural land	Topsoil segregation
WY-456	45.8	0.1	Upland forest	Road crossing
WY-457	45.9	0.1	Upland forest	Road crossing
WY-458	45.9	0.1	Agricultural land	Road crossing
WY-459	45.9	0.1	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
WY-460	45.9	0.1	Agricultural land	Stream crossing
WY-461	45.9	0.1	Agricultural land	Stream crossing
WY-462	45.9	0.1	Agricultural land	Topsoil segregation
WY-463	46.0	0.3	Agricultural land	Topsoil segregation
WY-464	46.0	0.1	Agricultural land	Stream crossing
WY-465	46.0	0.1	Agricultural land	Stream crossing
WY-466	46.1	0.1	Upland forest	Railroad crossing
WY-467	46.1	0.2	Upland forest	Railroad crossing
WY-467.1	46.1	0.1	Upland forest	Railroad crossing
WY-468	46.2	0.1	Open land	Railroad crossing
WY-470	46.2	0.1	Upland forest	Side slope
WY-470.1	M-0058 0.0	0.3	Upland forest	Side slope
WY-470.2	M-0058 0.1	0.1	Upland forest	Point of intersection
WY-471	M-0058 0.1	0.1	Upland forest	Stream crossing
WY-472	M-0058 0.2	0.1	Upland forest	Stream crossing
WY-473	M-0058 0.2	0.1	Upland forest	Stream crossing
WY-474	M-0058 0.2	0.1	Upland forest	Stream crossing
WY-475	M-0058 0.4	0.1	Upland forest	Point of intersection
WY-476	46.9	0.2	Residential	Road crossing
WY-477	46.9	0.1	Upland forest	Road crossing
WY-478	47.0	0.1	Upland forest	Side slope
WY-479	47.2	0.2	Upland forest	Stream crossing
WY-480	47.3	0.2	Upland forest	Stream crossing
WY-481	47.4	0.1	Agricultural land	Topsoil segregation
WY-482	47.4	0.3	Agricultural land; upland forest	Topsoil segregation
WY-483	47.6	0.7	Agricultural land; upland forest	Topsoil segregation
WY-484	47.9	0.5	Agricultural land	Topsoil segregation
WY-485	48.0	0.1	Agricultural land	Point of intersection
WY-486	48.1	0.3	Agricultural land	Topsoil segregation
WY-487	48.1	0.1	Agricultural land	Road crossing
WY-488	48.2	0.1	Agricultural land	Road crossing
WY-489	48.2	0.1	Agricultural land	Topsoil segregation
WY-490	48.2	0.1	Agricultural land	Point of intersection
WY-491	48.4	0.1	Agricultural land	Topsoil segregation
WY-492	48.7	0.1	Upland forest	Road crossing
WY-493	48.7	0.2	Agricultural land; upland forest	Road crossing
WY-494	48.8	0.2	Upland forest	Stream crossing
WY-495	48.9	0.3	Upland forest	Side slope
WY-495.1	49.1	0.1	Agricultural land	Point of intersection
WY-496	M-0051 0.0	0.4	Agricultural land	Topsoil segregation
WY-497	M-0051 0.0	0.1	Agricultural land	Road crossing
WY-498	M-0051 0.0	0.2	Agricultural land	Road crossing
WY-498.1	M-0051 0.0	0.1	Agricultural land	Topsoil segregation
WY-499	M-0051 0.07	0.1	Upland forest	Stream crossing
WY-499.1	M-0051 0.1	<0.1	Open water	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
WY-499.2	M-0051 0.1	0.1	Open water	Stream crossing
WY-500	M-0051 0.1	0.2	Upland forest	Stream crossing
WY-500.1	49.4	<0.1	Wetland	Wetland crossing
WY-500.2	M-0080 0.1	0.1	Agricultural land	Point of intersection
WY-501	M-0080 0.0	0.2	Agricultural land	Stream crossing
WY-501.1	M-0080 0.1	0.1	Agricultural land	Stream crossing
WY-502	M-0080 0.0	0.5	Agricultural land	Topsoil segregation
WY-503	M-0080 0.2	<0.1	Agricultural land	Wetland crossing
WY-503.1	M-0080 0.3	0.1	Upland forest	Point of intersection
WY-506	M-0080 0.4	0.2	Agricultural land	Road crossing
WY-507	M-0080 0.5	0.2	Agricultural land	Road crossing
WY-508	M-0080 0.6	0.1	Upland forest	Point of intersection
WY-509	M-0080 0.9	0.3	Agricultural land	Topsoil segregation
WY-509.1	M-0080 1.0	0.2	Agricultural land	Topsoil segregation
WY-509.2	M-0080 1.1	0.1	Upland forest	Stream crossing
WY-509.3	M-0080 1.1	0.1	Upland forest	Stream crossing
WY-509.4	M-0080 1.2	0.1	Upland forest	Point of intersection
WY-509.5	M-0080 1.2	0.1	Upland forest	Stream crossing
WY-509.6	M-0080 1.3	0.0	Upland forest	Topsoil segregation
WY-510	M-0080 1.4	0.4	Agricultural land	Topsoil segregation
WY-509.7	50.5	0.1	Agricultural land	Point of intersection
WY-510.1	50.5	0.2	Agricultural land	Topsoil segregation
Susquehanna County				
SU-511	51.0	0.1	Agricultural land	Topsoil segregation
SU-512	51.2	0.5	Agricultural land	Topsoil segregation
SU-513	51.3	0.1	Upland forest	Stream crossing
SU-514	51.4	0.1	Upland forest	Stream crossing
SU-515	51.5	0.1	Upland forest; agricultural land	Foreign pipeline crossing
SU-516	51.6	0.2	Agricultural land	Stream crossing
SU-517	51.7	0.2	Agricultural land; upland forest	Stream crossing
SU-517.1	51.8	0.1	Agricultural land	Point of intersection
SU-518	51.8	0.3	Agricultural land	Topsoil segregation
SU-519	51.9	0.1	Agricultural land; upland forest	Foreign pipeline crossing
SU-520	52.0	0.1	Agricultural land	Point of intersection
SU-521	52.0	0.1	Upland forest	Foreign pipeline crossing
SU-522	52.2	0.3	Agricultural land; upland forest	Foreign pipeline crossing
SU-523	52.2	0.1	Open land	Foreign pipeline crossing
SU-524	52.2	0.1	Agricultural land; upland forest	Topsoil segregation
SU-525	52.4	0.2	Agricultural land; upland forest	Road crossing
SU-526	52.4	0.1	Agricultural land; open land	Road crossing
SU-527	52.5	0.6	Agricultural land	Topsoil segregation
SU-528	52.6	0.1	Agricultural land	Road crossing
SU-529	52.7	0.1	Agricultural land; open land	Road crossing
SU-529.1	52.7	0.2	Agricultural land	Anode bed
SU-530	52.8	0.6	Agricultural land; open land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SU-531	52.9	0.1	Agricultural land	Topsoil segregation
SU-532	53.1	0.3	Agricultural land	Topsoil segregation
SU-533	53.3	0.2	Agricultural land	Topsoil segregation
SU-533.1	53.3	0.1	Agricultural land	Point of intersection
SU-534	53.4	0.1	Agricultural land	Stream crossing
SU-535	53.4	0.1	Upland forest	Stream crossing
SU-536	53.4	0.1	Upland forest	Road crossing
SU-537	53.5	0.1	Agricultural land	Road crossing
SU-538	53.5	0.1	Agricultural land	Road crossing
SU-539	53.5	0.1	Upland forest	Road crossing
SU-540	53.6	0.5	Agricultural land; upland forest	Topsoil segregation
SU-541	53.7	0.1	Agricultural land	Topsoil segregation
SU-541.1	53.7	0.1	Agricultural land	Topsoil segregation
SU-542	53.8	0.2	Upland forest	Road crossing
SU-543	53.9	0.2	Upland forest	Road crossing
SU-544	53.9	0.3	Upland forest	Road crossing
SU-545	53.9	0.2	Agricultural land; upland forest	Road crossing
SU-547	M-0067 0.0	0.5	Agricultural land; upland forest	Topsoil segregation
SU-548	54.1	0.1	Agricultural land	Stream crossing
SU-548.1	54.1	0.1	Upland forest	Stream crossing
SU-549	54.2	0.1	Upland forest	Stream crossing
SU-550	54.2	0.1	Upland forest	Stream crossing
SU-551	54.4	0.2	Upland forest; open land	Foreign pipeline crossing
SU-552	54.6	0.2	Agricultural land	Topsoil segregation
SU-553	54.7	0.2	Agricultural land	Topsoil segregation
SU-554	54.7	0.1	Agricultural land	Road crossing
SU-555	54.8	0.1	Residential	Road crossing
SU-556	54.8	0.3	Residential	Topsoil segregation
SU-557	54.8	0.1	Residential	Road crossing
SU-558	55.0	0.3	Upland forest	Point of intersection
SU-559	55.0	0.1	Upland forest	Point of intersection
SU-559.1	55.1	0.1	Upland forest	Stream crossing
SU-559.2	55.1	0.1	Upland forest	Stream crossing
SU-560	55.1	0.1	Upland forest	Point of intersection
SU-561	55.3	0.3	Agricultural land; upland forest	Topsoil segregation
SU-561.1	55.4	0.1	Agricultural land	Wetland crossing
SU-561.2	M-0061 0.0	<0.1	Agricultural land	Wetland crossing
SU-562	M-0061 0.01	0.1	Upland forest	Stream crossing
SU-563	M-0061 0.01	0.1	Upland forest	Point of intersection
SU-564	55.7	0.1	Upland forest	Road crossing
SU-565	55.7	0.1	Upland forest	Road crossing
SU-566	M-0062 0.1	0.3	Agricultural land	Topsoil segregation
SU-566.1	M-0062 0.2	0.1	Wetland	Wetland crossing
SU-567	M-0062 0.2	0.1	Upland forest	Point of intersection
SU-568	M-0062 0.2	0.1	Upland forest	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SU-569	56.4	0.1	Upland forest	Point of intersection
SU-570	56.5	0.6	Agricultural land; upland forest	Topsoil segregation
SU-571	56.6	0.1	Agricultural land; upland forest	Foreign pipeline crossing
SU-572	56.7	0.2	Agricultural land; upland forest	Topsoil segregation
SU-572.1	56.7	0.1	Agricultural land; upland forest	Stream crossing
SU-573	56.8	0.1	Upland forest	Stream crossing
SU-574	56.9	0.1	Upland forest; residential	Stream crossing
SU-575	56.9	0.3	Residential; upland forest	Foreign pipeline crossing
SU-576	57.0	0.1	Residential	Road crossing
SU-577	57.0	0.2	Residential; open land	Road crossing
SU-578	57.1	0.1	Agricultural land	Road crossing
SU-579	57.1	0.2	Agricultural land	Topsoil segregation
SU-580	57.2	0.1	Agricultural land; upland forest	Foreign pipeline crossing
SU-581	57.2	0.7	Agricultural land	Crossover
SU-582	57.2	<0.1	Agricultural land	Crossover
Central Penn Line North Subtotal		**95.7**		
CENTRAL PENN LINE SOUTH				
Lancaster County				
LA-003	0.2	0.1	Agricultural land	Stream crossing
LA-002	0.2	0.4	Agricultural land	Topsoil segregation
LA-004	0.2	0.1	Upland forest	Stream crossing
LA-005	0.3	0.1	Agricultural land; upland forest	Stream crossing
LA-007	0.3	0.1	Upland forest	Point of intersection
LA-006	0.3	0.1	Agricultural land; upland forest	Topsoil segregation
LA-008	0.4	0.1	Upland forest	Road crossing
LA-009	0.5	0.1	Agricultural land	Road crossing
LA-010	0.7	1.1	Agricultural land	Topsoil segregation
LA-013	0.8	0.1	Agricultural land	Road crossing
LA-011	0.8	0.1	Agricultural land	Road crossing
LA-014	0.9	0.1	Agricultural land	Road crossing
LA-012	0.9	0.1	Agricultural land	Road crossing
LA-015	M-0147 0.1	0.6	Agricultural land	Topsoil segregation
LA-016	M-0147 0.2	0.2	Agricultural land	Topsoil segregation
LA-017	M-0147 0.2	0.2	Agricultural land	Topsoil segregation
LA-018	M-0147 0.4	0.1	Agricultural land	Point of intersection
LA-020	M-0147 0.5	0.1	Wetland	Wetland crossing
LA-019	M-0147 0.4	0.6	Upland forest	Topsoil segregation
LA-022	M-0147 0.6	0.2	Agricultural land	Stream crossing
LA-021	M-0147 0.6	0.2	Agricultural land	Stream crossing
LA-023	M-0147 0.7	1.3	Agricultural land	Topsoil segregation
LA-024	M-0147 0.9	0.1	Agricultural land	Point of intersection
LA-025	1.9	0.1	Agricultural land	Road crossing
LA-027	1.9	0.1	Agricultural land	Road crossing
LA-028	1.9	0.1	Agricultural land	Road crossing
LA-026	1.9	0.1	Agricultural land	Road crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-029	2.0	0.1	Residential	Point of intersection
LA-032	2.1	0.1	Upland forest	Point of intersection
LA-030	2.1	0.1	Residential	Road crossing
LA-031	2.1	0.1	Upland forest	Road crossing
LA-033	M-0224 0.0	0.1	Agricultural land	Point of intersection
LA-034	M-0224 0.0	0.1	Agricultural land	Point of intersection
LA-034.1	M-0224 0.1	0.8	Agricultural land	Topsoil segregation
LA-036	M-0224 0.3	0.1	Agricultural land	Point of intersection
LA-035	M-0224 0.3	0.3	Agricultural land	Topsoil segregation
LA-038	2.8	0.1	Agricultural land	Road crossing
LA-037	2.8	0.1	Agricultural land	Road crossing
LA-039	M-0184 0.0	1.1	Agricultural land	Topsoil segregation
LA-041	M-0184 0.0	0.1	Upland forest; agricultural land	Point of intersection
LA-040	M-0184 0.0	0.1	Agricultural land	Point of intersection
LA-042	M-0184 0.4	1.0	Agricultural land	Topsoil segregation
LA-043	M-0184 0.4	0.1	Agricultural land	Road crossing
LA-045	M-0184 0.4	0.1	Agricultural land	Road crossing
LA-046	M-0184 0.5	0.1	Open land agricultural land	Road crossing
LA-044	M-0184 0.4	0.1	Agricultural land	Road crossing
LA-047	M-0184 0.5	1.2	Agricultural land	Topsoil segregation
LA-050	M-0184 0.9	0.2	Agricultural land	Stream crossing
LA-051	M-0184 0.9	0.1	Agricultural land	Stream crossing
LA-049	M-0184 0.8	0.1	Agricultural land	Stream crossing
LA-048	M-0184 0.8	0.1	Agricultural land	Stream crossing
LA-054	M-0184 1.0	0.1	Agricultural land	Road crossing
LA-055	M-0184 1.0	0.1	Agricultural land	Road crossing
LA-053	M-0184 0.9	0.1	Agricultural land	Road crossing
LA-052	M-0184 0.9	0.3	Agricultural land	Topsoil segregation
LA-058	M-0184 1.1	0.1	Agricultural land	Point of intersection
LA-056	M-0184 1.0	1.1	Agricultural land	Topsoil segregation
LA-057	M-0184 1.3	0.1	Agricultural land	Point of intersection
LA-059	4.4	0.3	Agricultural land	Topsoil segregation
LA-061	4.5	0.1	Agricultural land; upland forest	Stream crossing
LA-060	4.5	0.1	Agricultural land	Topsoil segregation
LA-062	4.7	0.8	Agricultural land; upland forest	Topsoil segregation
LA-064	4.9	0.1	Upland forest	Point of intersection
LA-063	4.9	0.1	Upland forest	Point of intersection
LA-065	5.0	0.3	Upland forest	Side slope
LA-066	5.1	0.1	Upland forest	Point of intersection
LA-067	5.1	0.1	Upland forest upland forest	Point of intersection
LA-068	5.2	0.1	Upland forest	Point of intersection
LA-070	5.3	0.1	Residential	Topsoil segregation
LA-069	5.3	0.1	Agricultural land	Road crossing
LA-071.1	5.4	0.1	Agricultural land; upland forest	Stream crossing
LA-072	M-0354 0.0	0.1	Agricultural land; upland forest	Stream crossing
LA-072.2	M-0354 0.0	0.1	Agricultural land; upland forest	Point of intersection
LA-071	M-0354 0.0	0.1	Agricultural land; upland forest	Road crossing
LA-073	M-0354 0.1	0.7	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-074	M-0354 0.2	0.1	Agricultural land	Point of intersection
LA-075	5.7	0.2	Agricultural land	Topsoil segregation
LA-076	5.9	1.2	Agricultural land	Topsoil segregation
LA-078	6.1	0.1	Agricultural land	Road crossing
LA-077	6.1	0.1	Agricultural land	Road crossing
LA-080	6.2	0.1	Agricultural land	Road crossing
LA-079	6.2	0.1	Agricultural land	Road crossing
LA-082	6.3	0.1	Agricultural land	Point of intersection
LA-081	6.4	1.5	Agricultural land	Topsoil segregation
LA-084	6.6	0.1	Agricultural land	Road crossing
LA-083	6.6	0.1	Agricultural land	Road crossing
LA-086	6.7	0.6	Agricultural land	Topsoil segregation
LA-085	6.7	0.1	Open land; agricultural land	Road crossing
LA-090	6.9	0.1	Upland forest	Road crossing
LA-088	6.9	0.1	Upland forest; agricultural land	Topsoil segregation
LA-087	6.9	0.1	Agricultural land; residential	Stream crossing
LA-089	6.9	0.2	Upland forest	Road crossing
LA-091	7.0	0.1	Open land	Road crossing
LA-092	7.0	0.2	Open land	Road crossing
LA-094	7.0	0.4	Upland forest	Road crossing
LA-093	7.0	0.4	Upland forest; open land	Road crossing
LA-097	7.1	0.1	Upland forest	Wetland crossing
LA-095	7.1	0.2	Open land	Road crossing
LA-096	7.1	0.2	Open land	Road crossing
LA-098	7.2	0.2	Upland forest	Stream crossing
LA-099	M-0227 0.0	0.1	Upland forest; agricultural land	Point of intersection
LA-103	M-0227 0.1	0.1	Open land	Road crossing
LA-102	M-0227 0.1	0.1	Agricultural land	Topsoil segregation
LA-101	M-0227 0.1	0.1	Agricultural land	Road crossing
LA-100	M-0227 0.0	0.2	Agricultural land	Topsoil segregation
LA-104	M-0227 0.1	0.1	Open land	Road crossing
LA-105	7.5	0.1	Agricultural land	Point of intersection
LA-106	7.6	0.8	Agricultural land	Topsoil segregation
LA-107	7.8	0.1	Agricultural land	Topsoil segregation
LA-109	7.9	0.1	Agricultural land	Topsoil segregation
LA-108	7.9	0.1	Upland forest	Side slope
LA-111	8.0	0.1	Upland forest	Stream crossing
LA-110	8.0	0.1	Upland forest	Stream crossing
LA-112	8.1	0.2	Agricultural land	Topsoil segregation
LA-113	8.1	0.1	Upland forest	Stream crossing
LA-114	8.1	0.4	Agricultural land; upland forest	Stream crossing
LA-117	8.2	0.1	Agricultural land	Road crossing
LA-116	8.2	0.4	Agricultural land	Road crossing
LA-115	8.2	0.2	Agricultural land	Stream crossing
LA-117.1	M-0405 0.0	0.1	Agricultural land	Point of intersection
LA-117.2	M-0405 0.0	1.3	Agricultural land	Topsoil segregation
LA-117.3	M-0405 0.0	0.1	Agricultural land	Point of intersection
LA-118.2	M-0405 0.3	0.1	Agricultural land	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-118.3	M-0405 0.3	0.4	Agricultural land	Topsoil segregation
LA-118.4	M-0405 0.4	0.1	Agricultural land	Road crossing
LA-118.5	M-0405 0.4	0.1	Agricultural land	Road crossing
LA-118.6	M-0405 0.4	0.1	Agricultural land, upland forest	Road crossing
LA-118.7	M-0405 0.4	0.1	Agricultural land	Road crossing
LA-119	M-0405 0.4	0.1	Agricultural land	Topsoil segregation
LA-121	M-0405 0.5	0.1	Agricultural land; upland forest	Stream crossing
LA-120	M-0405 0.5	0.2	Open land; upland forest	Point of intersection
LA-122	M-0405 0.5	0.1	Upland forest	Stream crossing
LA-123	M-0405 0.6	0.1	Upland forest	Stream crossing
LA-125	M-0405 0.6	0.2	Upland forest	Steep slope
LA-124	M-0405 0.6	0.1	Upland forest	Stream crossing
LA-126	M-0405 0.7	0.1	Agricultural land	Point of intersection
LA-126.1	M-0405 0.7	0.1	Agricultural land	Point of intersection
LA-126.2	M-0405 0.7	0.6	Agricultural land	Topsoil segregation
LA-127	M-0405 0.9	0.1	Agricultural land	Road crossing
LA-127.1	M-0405 0.9	0.1	Agricultural land	Road crossing
LA-127.2	M-0405 0.9	0.1	Agricultural land, upland forest	Road crossing
LA-128	M-0405 0.9	0.1	Agricultural land, upland forest	Road crossing
LA-128.1	M-0405 0.9	0.3	Agricultural land	Topsoil segregation
LA-128.2	M-0405 1.0	0.2	Agricultural land	Stream crossing
LA-129	M-0405 1.1	0.1	Agricultural land	Point of intersection
LA-129.1	M-0405 1.1	0.1	Upland forest	Topsoil segregation
LA-129.2	M-0405 1.1	0.1	Upland forest	Point of intersection
LA-129.3	M-0405 1.1	0.1	Upland forest	Side slope
LA-129.4	M-0405 1.1	0.1	Upland forest	Stream crossing
LA-130	M-0405 1.2	0.1	Open land, upland forest	Steep slope
LA-130.1	M-0405 1.2	0.1	Upland forest	Side slope
LA-130.2	M-0405 1.3	0.1	Upland forest	Side slope
LA-130.3	M-0405 1.3	0.1	Agricultural land	Point of intersection
LA-130.4	M-0405 1.3	0.1	Agricultural land	Point of intersection
LA-131	M-0405 1.4	0.1	Agricultural land	Road crossing
LA-131.1	M-0405 1.4	0.1	Agricultural land	Road crossing
LA-131.2	M-0405 1.4	0.2	Agricultural land	Stream crossing
LA-131.3	M-0405 1.4	0.1	Agricultural land	Stream crossing
LA-132	M-0405 1.5	0.1	Agricultural land	Stream crossing
LA-132.1	M-0405 1.5	0.3	Agricultural land	Topsoil segregation
LA-132.4	M-0417 0.1	0.1	Upland forest	Stream crossing
LA-132.5	M-0417 0.1	0.1	Upland forest	Stream crossing
LA-134	M-0417 0.13	0.3	Agricultural land	Topsoil segregation
LA-133	M-0417 0.13	0.1	Agricultural land	Point of intersection
LA-133.1	M-0405 1.7	0.1	Agricultural land	Point of intersection
LA-135	10.1	0.1	Agricultural land; upland forest	Stream crossing
LA-135.4	10.2	0.1	Agricultural land	Road crossing
LA-135.3	10.2	0.3	Agricultural land	Topsoil segregation
LA-135.2	10.2	0.1	Agricultural land	Point of intersection
LA-135.1	10.2	0.1	Upland forest; agricultural land	Stream crossing
LA-136	10.2	0.1	Open land; agricultural land	Road crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-137	10.3	0.3	Open land; agricultural land	Topsoil segregation
LA-139	10.4	0.1	Agricultural land	Point of intersection
LA-138	10.4	0.3	Agricultural land	Topsoil segregation
LA-140	10.5	0.5	Agricultural land	Topsoil segregation
LA-141	10.7	0.1	Agricultural land	Point of intersection
LA-143	10.8	0.1	Agricultural land	Point of intersection
LA-142	10.8	0.6	Agricultural land	Topsoil segregation
LA-146	10.9	0.1	Agricultural land	Point of intersection
LA-145	10.9	0.1	Agricultural land	Stream crossing
LA-144	10.9	0.1	Agricultural land	Stream crossing
LA-147	10.9	0.3	Agricultural land	Topsoil segregation
LA-147.2	11.0	0.1	Agricultural land	Stream crossing
LA-147.1	11.0	0.1	Agricultural land	Stream crossing
LA-148	11.0	0.2	Agricultural land	Topsoil segregation
LA-149	11.2	0.1	Upland forest	Stream crossing
LA-150	11.2	0.1	Upland forest; open land	Point of intersection
LA-153	11.3	0.1	Residential	Topsoil segregation
LA-152	11.3	0.1	Residential	Topsoil segregation
LA-151	11.3	0.3	Agricultural land	Topsoil segregation
LA-156	11.4	0.1	Agricultural land	Road crossing
LA-154	11.4	0.1	Residential	Road crossing
LA-155	11.4	0.1	Residential	Road crossing
LA-157	11.5	0.2	Agricultural land	Road crossing
LA-158	11.5	0.1	Upland forest	Point of intersection
LA-159	11.6	0.5	Agricultural land	Topsoil segregation
LA-160	11.8	0.9	Agricultural land	Topsoil segregation
LA-161	12.0	0.5	Agricultural land	HDD
LA-162	12.1	1.7	Agricultural land	HDD
LA-163	12.1	1.0	Transportation	HDD water withdrawal
LA-164	12.1	0.5	Transportation	HDD water withdrawal
LA-175	12.7	0.1	Agricultural land	Road crossing
LA-177	12.8	1.8	Agricultural land	HDD
LA-174	12.8	0.1	Agricultural land	Road crossing
LA-176	M-0152 0.0	1.3	Agricultural land	Topsoil segregation
LA-176.1	M-0248 0.0	2.2	Agricultural land	HDD pull back
LA-178.1	M-0248 0.1	0.1	Agricultural land	Road crossing
LA-178.2	M-0248 0.1	0.1	Agricultural land	Stream crossing
LA-179.1	M-0248 0.2	0.1	Agricultural land	Road crossing
LA-179.2	M-0248 0.2	0.1	Agricultural land	Stream crossing
LA-179.3	M-0248 0.2	0.1	Agricultural land	Topsoil segregation
LA-180.1	M-0248 0.3	0.1	Agricultural land	Topsoil segregation
LA-181.8	M-0248 0.4	0.1	Upland forest	Stream crossing
LA-181.9	M-0248 0.4	0.1	Upland forest	Stream crossing
LA-182	M-0248 0.5	0.4	Agricultural land	Topsoil segregation
LA-182.1	13.7	0.1	Upland forest	Stream crossing
LA-182.2	13.7	0.1	Upland forest	Stream crossing
LA-182.3	13.8	0.1	Agricultural land	Stream crossing
LA-183	13.8	0.1	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-183.1	13.9	0.2	Agricultural land	Stream crossing
LA-183.2	13.9	0.1	Agricultural land	Stream crossing
LA-184	13.9	0.2	Agricultural land	Topsoil segregation
LA-185	14.1	0.6	Agricultural land	Topsoil segregation
LA-187.1	M-0206 0.1	0.2	Agricultural land	Road crossing
LA-188.1	M-0206 0.1	<0.1	Wetland	Wetland crossing
LA-191	M-0206 0.1	0.2	Agricultural land	Topsoil segregation
LA-188	M-0188 0.0	0.1	Agricultural land	Point of intersection
LA-190	M-0188 0.0	<0.1	Agricultural land	Point of intersection
LA-189	M-0206 0.1	<0.1	Agricultural land	Road crossing
LA-196	M-0188 0.2	0.1	Agricultural land	Topsoil segregation
LA-196.1	M-0188 0.2	0.1	Agricultural land	Topsoil segregation
LA-196.2	M-0188 0.2	0.1	Agricultural land	Point of intersection
LA-195	M-0188 0.1	0.1	Agricultural land	Road crossing
LA-198	M-0188 0.3	0.2	Agricultural land	Topsoil segregation
LA-197	M-0188 0.3	0.1	Agricultural land	Topsoil segregation
LA-199.1	14.6	0.1	Upland forest	Topsoil segregation
LA-200	14.7	0.1	Agricultural land	Stream crossing
LA-201	14.8	0.1	Agricultural land	Topsoil segregation
LA-201.1	14.8	0.4	Agricultural land	Topsoil segregation
LA-202	14.9	0.2	Agricultural land	Road crossing
LA-202.1	14.9	0.2	Agricultural land	Road crossing
LA-203	15.2	1.1	Agricultural land	Topsoil segregation
LA-204	15.3	0.2	Agricultural land	Stream crossing
LA-205	15.4	0.1	Upland forest	Stream crossing
LA-206	15.4	0.4	Upland forest	Topsoil segregation
LA-207	15.5	0.1	Upland forest open land	Road crossing
LA-208	15.5	0.1	Upland forest open land	Road crossing
LA-209	15.6	0.1	Agricultural land	Road crossing
LA-210	15.6	0.1	Upland forest	Road crossing
LA-211	15.7	0.7	Agricultural land	Topsoil segregation
LA-212	15.7	0.1	Upland forest	Point of intersection
LA-213	15.9	0.9	Agricultural land	Topsoil segregation
LA-216	M-0182 0.0	0.1	Upland forest	Road crossing
LA-217	16.1	0.1	Agricultural land	Point of intersection
LA-214	16.1	0.1	Agricultural land	Road crossing
LA-215	M-0182 0.0	0.6	Agricultural land	Topsoil segregation
LA-219	M-0185 0.0	0.1	Agricultural land	Road crossing
LA-218	M-0185 0.0	0.1	Agricultural land	Point of intersection
LA-220	M-0185 0.1	0.1	Agricultural land	Road crossing
LA-224	M-0185 0.2	0.1	Agricultural land	Point of intersection
LA-221	M-0185 0.1	0.1	Agricultural land	Road crossing
LA-222	M-0185 0.1	0.1	Agricultural land	Road crossing
LA-223	M-0185 0.15	1.0	Agricultural land	Topsoil segregation
LA-225	M-0185 0.3	0.8	Agricultural land	Topsoil segregation
LA-225.1	M-0185 0.4	0.1	Agricultural land	Point of intersection
LA-228	17.0	0.1	Agricultural land	Stream crossing
LA-227	17.0	0.1	Agricultural land	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-226	17.0	0.1	Upland forest	Stream crossing
LA-229	17.1	0.7	Agricultural land	Topsoil segregation
LA-230	17.2	0.2	Agricultural land	Road crossing
LA-232	17.3	0.5	Agricultural land	Topsoil segregation
LA-231	17.3	0.2	Upland forest	Road crossing
LA-233	17.4	0.1	Agricultural land	Point of intersection
LA-234	17.5	0.4	Agricultural land	Topsoil segregation
LA-235	17.5	<0.1	Agricultural land	Point of intersection
LA-237	17.6	0.1	Agricultural land	Point of intersection
LA-236	17.6	0.2	Agricultural land	Topsoil segregation
LA-238.1	17.7	0.1	Upland forest	Point of intersection
LA-238	17.7	0.6	Agricultural land	Topsoil segregation
LA-239	17.8	0.1	Agricultural land	Road crossing
LA-241	17.9	0.5	Agricultural land	Topsoil segregation
LA-240	17.9	0.1	Agricultural land	Road crossing
LA-244	18.1	0.2	Agricultural land	Stream crossing
LA-243	18.1	0.1	Agricultural land	Topsoil segregation
LA-242	18.1	0.2	Agricultural land	Stream crossing
LA-245	18.2	0.4	Agricultural land	Topsoil segregation
LA-247	18.3	0.2	Agricultural land	Road crossing
LA-246	18.3	0.2	Agricultural land	Road crossing
LA-248	18.4	0.6	Agricultural land	Topsoil segregation
LA-249	18.7	1.1	Agricultural land	Topsoil segregation
LA-251	18.8	0.1	Agricultural land	Stream crossing
LA-250	18.8	0.1	Agricultural land	Stream crossing
LA-253	18.9	0.1	Agricultural land	Stream crossing
LA-252	18.9	0.1	Agricultural land	Stream crossing
LA-254	19.1	1.3	Agricultural land	Topsoil segregation
LA-256	19.3	0.1	Agricultural land	Road crossing
LA-255	19.3	0.1	Agricultural land	Road crossing
LA-257	19.5	1.1	Agricultural land	Topsoil segregation
LA-258	19.6	0.1	Agricultural land	Point of intersection
LA-259	19.7	0.1	Agricultural land	Foreign pipeline crossing
LA-260	19.8	0.4	Agricultural land	Topsoil segregation
LA-261	19.8	0.1	Agricultural land	Point of intersection
LA-262	M-0389 0.0	0.1	Upland forest	Railroad crossing
LA-262.3	M-0389 0.1	0.1	Upland forest	Railroad crossing
LA-263	M-0389 0.0	0.2	Upland forest	Railroad crossing
LA-266	M-0389 0.2	0.1	Upland forest	Stream crossing
LA-267	M-0389 0.2	0.1	Upland forest	Stream crossing
LA-264	M-0389 0.1	0.2	Upland forest	Railroad crossing
LA-265	M-0389 0.1	0.1	Upland forest	Railroad crossing
LA-267.3	20.0	<0.1	Agricultural land	Stream crossing
LA-268	20.1	0.4	Agricultural land	Topsoil segregation
LA-269	20.2	0.1	Agricultural land	Point of intersection
LA-271	20.2	0.1	Agricultural land	Point of intersection
LA-274	20.3	0.1	Agricultural land	Road crossing
LA-273	20.3	0.1	Agricultural land	Road crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-272	20.3	0.4	Agricultural land	Topsoil segregation
LA-270	20.3	0.1	Agricultural land	Point of intersection
LA-275	20.5	0.9	Agricultural land	Topsoil segregation
LA-276	20.6	0.1	Agricultural land	Road crossing
LA-277	20.6	0.1	Agricultural land	Road crossing
LA-279	20.7	0.1	Agricultural land	Point of intersection
LA-278	20.7	0.1	Agricultural land	Road crossing
LA-281	20.8	0.1	Agricultural land	Stream crossing
LA-280	20.8	0.1	Agricultural land	Stream crossing
LA-282	20.9	0.5	Agricultural land	Topsoil segregation
LA-282.1	M-0396 0.0	0.4	Agricultural land	Road crossing
LA-282.2	M-0396 0.0	0.1	Agricultural land	Road crossing
LA-283	M-0396 0.1	0.4	Agricultural land	Road crossing
LA-283.1	M-0396 0.1	0.4	Agricultural land	Road crossing
LA-290	M-0396 0.2	0.1	Agricultural land	Stream crossing
LA-288	M-0396 0.1	0.2	Agricultural land	Topsoil segregation
LA-289	M-0396 0.1	0.1	Agricultural land	Stream crossing
LA-291	M-0396 0.3	0.4	Agricultural land	Topsoil segregation
LA-291.1	M-0396 0.4	0.1	Agricultural land	Point of intersection
LA-292	M-0396 0.4	0.1	Agricultural land	Point of intersection
LA-293	21.6	0.7	Agricultural land	Topsoil segregation
LA-293.1	21.7	0.2	Upland forest	Side slope
LA-293.2	21.8	0.1	Upland forest	Side slope
LA-294	22.0	1.0	Agricultural land	Topsoil segregation
LA-295	22.0	0.1	Agricultural land	Point of intersection
LA-298.1	22.2	0.1	Agricultural land	Railroad crossing
LA-298	22.2	0.1	Upland forest	Point of intersection
LA-297	22.2	0.1	Upland forest	Point of intersection
LA-299	22.3	0.2	Agricultural land	Topsoil segregation
LA-298.2	22.3	0.1	Agricultural land	Railroad crossing
LA-301	22.3	0.1	Agricultural land	Road crossing
LA-300	22.3	0.1	Agricultural land	Road crossing
LA-303	22.4	0.2	Agricultural land	Topsoil segregation
LA-302	22.4	0.1	Agricultural land	Stream crossing
LA-303.1	22.5	0.1	Agricultural land	Side slope
LA-307	M-0192 0.0	0.3	Agricultural land	Topsoil segregation
LA-306	22.6	0.1	Agricultural land	Road crossing
LA-305	22.6	0.1	Agricultural land	Road crossing
LA-308	M-0192 0.0	0.1	Upland forest	Point of intersection
LA-311	22.8	0.1	Agricultural land	Road crossing
LA-310	M-0192 0.1	0.1	Upland forest	Road crossing
LA-309	M-0192 0.1	0.1	Agricultural land	Road crossing
LA-312.1	23.0	0.1	Open land	Stream crossing
LA-313	23.0	0.1	Upland forest	Stream crossing
LA-312	23.0	0.1	Residential	Point of intersection
LA-315	23.1	0.6	Residential	Topsoil segregation
LA-314.1	M-0209 0.0	0.1	Agricultural land	Point of intersection
LA-315.1	M-0209 0.2	0.1	Upland forest	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-315.2	M-0209 0.2	0.1	Upland forest	Stream crossing
LA-316	M-0209 0.3	0.2	Agricultural land	Topsoil segregation
LA-317	M-0209 0.4	0.4	Agricultural land	Topsoil segregation
LA-319.1	M-0209 0.5	0.2	Upland forest	Road crossing
LA-319.3	M-0209 0.5	0.1	Upland forest	Road crossing
LA-318	M-0209 0.5	0.1	Agricultural land	Road crossing
LA-318.3	M-0209 0.5	0.1	Upland forest	Topsoil segregation
LA-319.4	M-0209 0.6	0.4	Upland forest	Topsoil segregation
LA-319.5	M-0209 0.7	0.1	Upland forest	Point of intersection
LA-325.2	23.8	0.1	Agricultural land	Hydro test
LA-325.1	23.8	0.1	Agricultural land	Hydro test
LA-323	23.8	0.5	Agricultural land	Topsoil segregation
LA-324	23.8	0.1	Agricultural land	Point of intersection
LA-325	23.8	0.1	Agricultural land	Point of intersection
LA-327	23.9	0.1	Agricultural land	Stream crossing
LA-326	23.9	0.1	Agricultural land	Stream crossing
LA-329	24.0	0.1	Agricultural land	Stream crossing
LA-328	24.0	0.1	Agricultural land	Stream crossing
LA-330	24.2	1.7	Agricultural land	Topsoil segregation
LA-334	24.3	0.1	Agricultural land	Foreign pipeline crossing
LA-332	24.3	0.1	Agricultural land	Foreign pipeline crossing
LA-331	24.3	0.1	Agricultural land	Point of intersection
LA-333	24.3	0.1	Agricultural land	Point of intersection
LA-337	24.5	0.1	Agricultural land	Road crossing
LA-338	24.5	0.1	Agricultural land	Road crossing
LA-336	24.5	0.1	Agricultural land	Road crossing
LA-335	24.5	0.1	Agricultural land	Road crossing
LA-340	24.6	0.1	Agricultural land	Point of intersection
LA-339	24.8	1.9	Agricultural land	Topsoil segregation
LA-342	24.8	0.1	Agricultural land	Point of intersection
LA-341	24.8	0.1	Agricultural land	Point of intersection
LA-343	25.1	0.4	Agricultural land	Topsoil segregation
LA-345	25.3	0.1	Residential	Road crossing
LA-344	25.3	0.1	Agricultural land	Road crossing
LA-346	25.7	2.2	Residential agricultural land	Topsoil segregation
LA-347	26.0	0.1	Agricultural land	Road crossing
LA-350	26.1	0.1	Agricultural land	Road crossing
LA-349	26.1	0.1	Agricultural land	Road crossing
LA-348	26.1	0.1	Agricultural land	Road crossing
LA-351	26.3	1.5	Agricultural land	Topsoil segregation
LA-353	26.5	0.1	Agricultural land	Road crossing
LA-352	26.5	0.1	Agricultural land	Road crossing
LA-355	26.6	0.1	Agricultural land	Road crossing
LA-354	26.6	0.1	Agricultural land	Road crossing
LA-357	26.8	0.1	Agricultural land	Point of intersection
LA-356	27.0	2.6	Agricultural land	Topsoil segregation
LA-359	27.3	0.6	Agricultural land	Railroad crossing
LA-358	27.3	0.4	Agricultural land	Railroad crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-361	27.4	0.3	Agricultural land	Railroad crossing
LA-360	27.4	0.1	Agricultural land	Railroad crossing
LA-362	27.5	0.4	Agricultural land	Topsoil segregation
LA-365	27.6	0.2	Agricultural land	Road crossing
LA-364	27.6	0.2	Agricultural land	Road crossing
LA-368	27.7	0.1	Agricultural land	Point of intersection
LA-366	27.7	0.4	Agricultural land	Topsoil segregation
LA-367	27.7	0.1	Agricultural land	Point of intersection
LA-371	27.9	0.1	Agricultural land	Point of intersection
LA-369	27.9	0.4	Agricultural land	Topsoil segregation
LA-370	27.9	0.1	Agricultural land	Point of intersection
LA-372	28.0	0.3	Agricultural land	Topsoil segregation
LA-373	M-0162 0.0	0.3	Agricultural land	Road crossing
LA-377	M-0162 0.1	0.3	Agricultural land	Foreign pipeline crossing
LA-374	M-0162 0.0	0.6	Agricultural land	Topsoil segregation
LA-380	M-0162 0.2	0.2	Agricultural land	Road crossing
LA-379	M-0162 0.2	0.3	Agricultural land	Road crossing
LA-382	M-0162 0.3	<0.1	Agricultural land	Topsoil segregation
LA-383	M-0162 0.3	0.1	Agricultural land	Road crossing
LA-381	M-0162 0.3	0.3	Agricultural land	Road crossing
LA-385	M-0162 0.4	2.0	Agricultural land	Topsoil segregation
LA-385.1	M-0162 0.7	0.1	Agricultural land	Point of intersection
LA-386	M-0162 1.1	0.1	Agricultural land	Road crossing
LA-386.1	M-0162 1.1	0.1	Agricultural land	Topsoil segregation
LA-387	M-0162 1.0	0.2	Agricultural land	Road crossing
LA-389	29.1	0.1	Agricultural land	Road crossing
LA-388	29.1	0.1	Agricultural land	Road crossing
LA-390	29.3	1.5	Agricultural land	Topsoil segregation
LA-394	29.5	0.1	Agricultural land	Road crossing
LA-391	29.5	0.1	Agricultural land	Road crossing
LA-393	29.5	0.1	Agricultural land	Road crossing
LA-392	29.5	0.1	Agricultural land	Road crossing
LA-395	29.6	0.4	Agricultural land	Topsoil segregation
LA-396	29.7	0.1	Agricultural land	Road crossing
LA-397	29.8	1.0	Agricultural land	Topsoil segregation
LA-398	29.8	0.1	Agricultural land	Point of intersection
LA-399	29.9	0.1	Agricultural land	Point of intersection
LA-400	30.0	0.2	Agricultural land	Topsoil segregation
LA-404	30.1	0.1	Agricultural land	Stream crossing
LA-402	30.1	0.1	Agricultural land	Topsoil segregation
LA-403	30.1	0.1	Residential	Stream crossing
LA-401	30.1	0.1	Agricultural land	Point of intersection
LA-407	30.2	0.6	Agricultural land	Topsoil segregation
LA-405	30.2	0.2	Agricultural land	Road crossing
LA-406	30.2	0.2	Agricultural land	Road crossing
LA-409.1	M-0308 0.1	<0.1	Wetland	Wetland crossing
LA-410	M-0308 0.1	0.1	Agricultural land	Stream crossing
LA-411	M-0308 0.1	0.1	Agricultural land	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-408	M-0308 0.0	0.1	Upland forest	Road crossing
LA-409	M-0308 0.0	0.1	Upland forest	Road crossing
LA-414	M-0308 0.1	0.6	Agricultural land	Topsoil segregation
LA-413	M-0308 0.1	0.1	Agricultural land	Point of intersection
LA-412	M-0308 0.1	<0.1	Agricultural land	Point of intersection
LA-416	30.6	0.1	Agricultural land	Stream crossing
LA-415	30.6	0.1	Agricultural land	Stream crossing
LA-417	30.7	0.1	Upland forest	Stream crossing
LA-418	30.7	0.1	Upland forest	Stream crossing
LA-419	30.9	1.5	Agricultural land	Topsoil segregation
LA-422	31.1	0.1	Upland forest	Stream crossing
LA-421	31.1	0.1	Agricultural land	Point of intersection
LA-420	31.1	0.1	Agricultural land	Point of intersection
LA-425	31.2	0.1	Agricultural land	Point of intersection
LA-426	31.2	0.1	Agricultural land	Stream crossing
LA-424	31.2	0.1	Upland forest	Stream crossing
LA-423	31.2	0.1	Upland forest	Stream crossing
LA-427	31.4	0.9	Agricultural land	Topsoil segregation
LA-429	31.5	0.1	Agricultural land	Stream crossing
LA-428	31.5	0.1	Agricultural land	Point of intersection
LA-430	31.5	0.1	Agricultural land	Point of intersection
LA-432	31.6	0.1	Agricultural land	Stream crossing
LA-433	31.6	0.1	Agricultural land	Stream crossing
LA-431	31.6	0.1	Agricultural land	Stream crossing
LA-434	31.8	1.4	Agricultural land	Topsoil segregation
LA-436	31.8	0.1	Agricultural land	Point of intersection
LA-435	31.8	0.1	Agricultural land	Point of intersection
LA-439	32.0	0.1	Agricultural land	Road crossing
LA-440	32.0	0.1	Agricultural land	Road crossing
LA-438	32.0	0.1	Agricultural land	Road crossing
LA-437	32.0	0.1	Agricultural land	Road crossing
LA-441	32.1	0.6	Agricultural land	Topsoil segregation
LA-442	32.1	0.1	Agricultural land	Point of intersection
LA-443	32.1	0.1	Agricultural land	Point of intersection
LA-445	32.2	0.1	Agricultural land	Stream crossing
LA-444	32.2	0.1	Agricultural land	Stream crossing
LA-447	32.3	0.1	Agricultural land	Stream crossing
LA-446	32.3	0.1	Agricultural land	Stream crossing
LA-448	32.6	2.1	Agricultural land	Topsoil segregation
LA-449	32.7	0.1	Agricultural land	Point of intersection
LA-450	32.7	0.1	Agricultural land	Point of intersection
LA-452	33.0	0.2	Agricultural land	Stream crossing
LA-451	33.0	0.2	Agricultural land	Stream crossing
LA-457	33.1	0.1	Agricultural land	Road crossing
LA-456	33.1	0.1	Agricultural land	Road crossing
LA-453	33.1	0.2	Agricultural land	Topsoil segregation
LA-455	33.1	0.1	Agricultural land	Road crossing
LA-454	33.1	0.1	Agricultural land	Road crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LA-458	33.3	1.0	Agricultural land	Topsoil segregation
LA-459	33.3	0.1	Agricultural land	Point of intersection
LA-461	33.4	0.1	Agricultural land	Point of intersection
LA-462	33.4	0.1	Agricultural land	Road crossing
LA-460	33.4	0.1	Agricultural land	Road crossing
LA-464	33.4	0.1	Agricultural land	Road crossing
LA-465	33.5	0.4	Agricultural land	Topsoil segregation
LA-466	33.5	0.1	Agricultural land	Stream crossing
LA-463	33.5	0.1	Agricultural land	Road crossing
LA-467.1	33.6	0.1	Wetland	Wetland crossing
LA-467	33.6	0.1	Agricultural land	Stream crossing
LA-468	33.7	0.1	Agricultural land	Wetland crossing
LA-469	33.8	0.6	Agricultural land	Topsoil segregation
LA-474	33.9	0.3	Agricultural land	Topsoil segregation
LA-473	33.9	0.1	Agricultural land	Road crossing
LA-472	33.9	0.1	Agricultural land	Road crossing
LA-471	33.9	0.1	Agricultural land	Road crossing
LA-470	33.9	0.1	Agricultural land	Road crossing
LA-475	M-0164 0.0	0.2	Agricultural land	Stream crossing
LA-476	M-0164 0.0	0.3	Agricultural land	Topsoil segregation
LA-476.1	M-0164 0.1	0.1	Agricultural land	Point of intersection
LA-477	M-0164 0.2	1.0	Agricultural land	Topsoil segregation
LA-478	M-0164 0.4	0.2	Agricultural land	Stream crossing
LA-479	34.6	0.5	Agricultural land	Topsoil segregation
LA-480	34.6	0.1	Agricultural land	Road crossing
LA-483	34.7	0.1	Agricultural land	Road crossing
LA-482	34.7	0.1	Agricultural land	Road crossing
LA-481	34.7	0.1	Agricultural land	Road crossing
LA-485	35.1	0.1	Agricultural land	Point of intersection
LA-484	35.2	3.1	Agricultural land	Topsoil segregation
LA-486	M-0278 0.1	0.1	Agricultural land	Point of intersection
LA-487	M-0278 0.3	0.1	Agricultural land	Point of intersection
LA-488	M-0278 0.1	1.0	Agricultural land	Topsoil segregation
LA-490	36.0	0.2	Agricultural land	Stream crossing
LA-489	36.0	0.1	Agricultural land	Stream crossing
LA-492	36.1	0.2	Agricultural land	Road crossing
LA-491	36.1	0.2	Agricultural land	Road crossing
LA-494	36.2	0.1	Agricultural land	Point of intersection
LA-493	36.2	0.8	Agricultural land	Topsoil segregation
LA-495	36.4	0.1	Agricultural land	Topsoil segregation
LA-496	36.4	0.5	Agricultural land	Topsoil segregation
Lebanon County				
LE-479.3	36.5	0.2	Agricultural land	Load out
LE-479.4	36.5	0.1	Agricultural land	Load out
LE-497	36.6	0.1	Agricultural land	Point of intersection
LE-498	36.7	0.1	Upland forest	Point of intersection
LE-498.1	36.8	0.1	Upland forest	Stream crossing
LE-498.2	36.9	0.1	Upland forest	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-500	36.9	0.4	Upland forest	Road crossing
LE-499	36.9	0.2	Upland forest	Road crossing
LE-501	37.0	0.1	Upland forest	Road crossing
LE-502	37.0	0.3	Upland forest	Road crossing
LE-504	37.2	0.1	Upland forest	Stream crossing
LE-503	37.2	0.1	Upland forest	Point of intersection
LE-505	37.3	0.1	Agricultural land	Stream crossing
LE-506	37.3	0.2	Agricultural land	Topsoil segregation
LE-509	37.5	0.1	Agricultural land	Topsoil segregation
LE-508	37.5	0.1	Agricultural land	Road crossing
LE-507	37.5	0.1	Agricultural land	Road crossing
LE-511	37.6	0.2	Agricultural land	Stream crossing
LE-510	37.6	0.2	Agricultural land	Stream crossing
LE-512	37.7	0.8	Agricultural land	Topsoil segregation
LE-513	37.8	0.1	Agricultural land	Point of intersection
LE-514	38.1	1.4	Agricultural land	Topsoil segregation
LE-515	38.1	0.1	Agricultural land	Point of intersection
LE-516	38.1	0.1	Agricultural land	Point of intersection
LE-517	38.3	0.1	Agricultural land	Road crossing
LE-518	38.3	0.2	Agricultural land	Road crossing
LE-519	38.4	0.1	Agricultural land	Road crossing
LE-520	38.8	2.7	Agricultural land	Topsoil segregation
LE-521	M-0300 0.0	0.1	Agricultural land	Point of intersection
LE-524	M-0300 0.2	0.1	Agricultural land	Road crossing
LE-523	M-0300 0.2	0.1	Agricultural land	Road crossing
LE-521.2	M-0300 0.1	0.3	Agricultural land	Topsoil segregation
LE-525	M-0300 0.2	0.1	Agricultural land	Road crossing
LE-522	M-0300 0.2	0.1	Agricultural land	Road crossing
LE-526	M-0300 0.2	0.2	Agricultural land	Topsoil segregation
LE-527	39.5	0.1	Agricultural land	Wetland crossing
LE-530	39.6	0.1	Agricultural land	Point of intersection
LE-531	39.6	0.1	Agricultural land	Point of intersection
LE-528	39.6	0.2	Agricultural land	Wetland crossing
LE-529	39.8	1.4	Agricultural land	Topsoil segregation
LE-532	40.0	0.1	Agricultural land	Point of intersection
LE-534	40.0	0.1	Agricultural land	Road crossing
LE-533	40.0	0.1	Agricultural land	Road crossing
LE-538	40.1	0.1	Agricultural land	Point of intersection
LE-537	40.1	0.1	Agricultural land	Point of intersection
LE-536	40.1	0.1	Agricultural land	Road crossing
LE-535	40.1	0.1	Agricultural land	Road crossing
LE-539	40.3	1.4	Agricultural land	Topsoil segregation
LE-540	40.3	0.1	Agricultural land	Point of intersection
LE-541	40.5	0.1	Agricultural land	Wetland crossing
LE-542	40.6	0.1	Upland forest	Wetland crossing
LE-543	41.0	0.1	Upland forest	Stream crossing
LE-545	41.1	0.1	Upland forest	Point of intersection
LE-544	41.1	0.1	Upland forest	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-546.1	41.2	0.1	Upland forest	Foreign pipeline crossing
LE-548	41.2	0.1	Upland forest	Foreign pipeline crossing
LE-549	41.2	0.1	Upland forest	Point of intersection
LE-546	41.2	0.1	Upland forest	Stream crossing
LE-547	41.2	0.0	Upland forest	Foreign pipeline crossing
LE-550	41.3	0.1	Upland forest	Stream crossing
LE-551	41.3	0.1	Upland forest	Stream crossing
LE-553	41.3	0.1	Upland forest	Stream crossing
LE-552	41.3	0.1	Upland forest	Stream crossing
LE-555	41.7	0.3	Upland forest	Foreign pipeline crossing
LE-554	41.7	0.2	Upland forest	Foreign pipeline crossing
LE-558	41.9	0.1	Upland forest	Stream crossing
LE-560	42.0	0.1	Upland forest	Point of intersection
LE-559	42.0	0.1	Upland forest	Stream crossing
LE-562	42.1	0.1	Agricultural land	Point of intersection
LE-561	42.3	1.5	Agricultural land	Topsoil segregation
LE-563	42.5	0.1	Agricultural land	Stream crossing
LE-568	42.6	0.1	Agricultural land	Road crossing
LE-565	42.6	0.1	Agricultural land	Road crossing
LE-566	42.6	0.1	Agricultural land	Road crossing
LE-564	42.6	0.1	Agricultural land	Stream crossing
LE-567	42.7	0.1	Agricultural land	Road crossing
LE-569	42.9	1.8	Agricultural land	Topsoil segregation
LE-570	43.0	0.1	Agricultural land	Point of intersection
LE-571	43.2	0.1	Agricultural land	Road crossing
LE-572	43.2	0.1	Agricultural land	Road crossing
LE-573	43.4	1.3	Agricultural land	Topsoil segregation
LE-574	43.4	0.1	Agricultural land	Point of intersection
LE-575	43.4	0.1	Agricultural land	Point of intersection
LE-578	43.9	1.9	Agricultural land	Topsoil segregation
LE-579	44.2	0.1	Agricultural land	Road crossing
LE-580	44.3	0.1	Agricultural land	Road crossing
LE-581	44.5	1.7	Agricultural land	Topsoil segregation
LE-582	44.8	0.1	Agricultural land	Road crossing
LE-581.1	M-0424 0.1	0.1	Agricultural land	Road crossing
LE-581.2	M-0424 0.0	0.1	Agricultural land	Road crossing
LE-581.3	M-0424 0.1	2.2	Agricultural land	Topsoil segregation
LE-581.4	M-0424 0.4	0.1	Agricultural land	Point of intersection
LE-582.2	M-0424 0.8	0.1	Agricultural land	Point of intersection
LE-583.1	M-0424 0.9	0.1	Agricultural land	Point of intersection
LE-583.2	M-0424 1.0	1.8	Agricultural land	Topsoil segregation
LE-583.3	M-0424 1.1	0.1	Agricultural land	Point of intersection
LE-583.4	M-0424 1.3	0.1	Agricultural land	Load out
LE-584.1	M-0424 1.4	0.1	Agricultural land	Point of intersection
LE-584.2	M-0424 1.5	0.2	Agricultural land	Road crossing
LE-585.1	M-0424 1.5	0.1	Agricultural land	Road crossing
LE-585.2	M-0424 1.59	0.1	Agricultural land	Road crossing
LE-585.3	M-0424 1.59	0.3	Agricultural land	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-583	44.8	0.1	Agricultural land	Road crossing
LE-599	M-0183 1.1	0.4	Open land	Railroad crossing
LE-597.1	M-0183 0.0	0.2	Industrial	Anode bed
LE-598	M-0183 1.0	0.9	Industrial	Spoil storage
LE-602	M-0183 1.2	0.1	Agricultural land	Stream crossing
LE-600	M-0183 1.2	0.1	Upland forest	Point of intersection
LE-601	M-0183 1.2	0.1	Upland forest	Point of intersection
LE-603	M-0183 1.2	0.1	Open land; agricultural land	Stream crossing
LE-603.1	M-0183 1.3	<0.1	Agricultural land	Wetland crossing
LE-604	M-0183 1.4	0.1	Open land; agricultural land	Stream crossing
LE-604.1	M-0183 1.4	0.1	Agricultural land	Stream crossing
LE-605	M-0183 1.4	0.4	Agricultural land	Topsoil segregation
LE-606	M-0183 1.5	0.1	Agricultural land	Point of intersection
LE-609	M-0183 1.7	0.4	Agricultural land	Topsoil segregation
LE-607	M-0183 1.5	0.1	Agricultural land	Point of intersection
LE-607.1	M-0183 1.5	0.1	Agricultural land	Stream crossing
LE-608	M-0183 1.7	0.1	Agricultural land	Point of intersection
LE-610	M-0183 2.0	0.4	Agricultural land	Topsoil segregation
LE-611	M-0183 2.0	0.1	Agricultural land	Point of intersection
LE-612	M-0183 2.0	0.2	Agricultural land	Road crossing
LE-613	47.0	0.2	Agricultural land	Road crossing
LE-614	47.0	0.2	Agricultural land	Topsoil segregation
LE-616	47.1	0.1	Agricultural land	Point of intersection
LE-615	47.1	0.1	Residential; agricultural land	Point of intersection
LE-618	47.2	0.8	Agricultural land	Topsoil segregation
LE-617	47.2	0.1	Agricultural land	Point of intersection
LE-621	47.4	0.4	Agricultural land	Topsoil segregation
LE-620	47.4	0.1	Agricultural land	Road crossing
LE-619	47.4	0.1	Agricultural land	Road crossing
LE-623	47.6	0.1	Agricultural land	Topsoil segregation
LE-622	47.6	0.2	Agricultural land	Topsoil segregation
LE-624	47.7	0.2	Agricultural land	Topsoil segregation
LE-626	47.8	0.1	Agricultural land	Road crossing
LE-625	47.8	0.4	Agricultural land	Topsoil segregation
LE-627	47.9	0.1	Agricultural land	Road crossing
LE-628	47.9	0.1	Open land; residential	Road crossing
LE-629	47.9	0.1	Upland forest; agricultural land	Side slope
LE-630	48.0	0.1	Agricultural land	Topsoil segregation
LE-632	48.0	0.3	Agricultural land	Topsoil segregation
LE-631	48.0	0.1	Agricultural land	Point of intersection
LE-633	48.1	0.1	Agricultural land	Point of intersection
LE-633.1	48.1	0.1	Upland forest	Stream crossing
LE-636	48.2	0.1	Agricultural land	Topsoil segregation
LE-635	48.2	0.1	Agricultural land	Stream crossing
LE-634	48.2	0.1	Agricultural land	Point of intersection
LE-637	48.3	0.2	Agricultural land	Topsoil segregation
LE-638	48.3	0.1	Agricultural land	Point of intersection
LE-639	48.4	0.5	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-640	48.5	0.1	Upland forest; agricultural land	Stream crossing
LE-641	48.5	0.1	Upland forest	Stream crossing
LE-645	48.6	0.1	Agricultural land	Road crossing
LE-644	48.6	0.1	Agricultural land	Road crossing
LE-642	48.6	0.1	Upland forest	Road crossing
LE-643	48.6	0.1	Upland forest	Road crossing
LE-646	48.7	0.4	Agricultural land	Topsoil segregation
LE-648	48.7	0.1	Agricultural land	Stream crossing
LE-647	48.7	0.1	Agricultural land	Stream crossing
LE-650	48.8	0.1	Upland forest; agricultural land	Stream crossing
LE-649	48.8	0.1	Upland forest; agricultural land	Stream crossing
LE-651	48.9	0.4	Agricultural land	Topsoil segregation
LE-652	49.0	0.2	Upland forest; agricultural land	Topsoil segregation
LE-653.1	49.1	0.3	Agricultural land	Topsoil segregation
LE-653	49.1	0.1	Agricultural land	Point of intersection
LE-655	49.2	0.2	Agricultural land	Stream crossing
LE-654	49.2	0.3	Agricultural land	Stream crossing
LE-656	49.2	0.2	Agricultural land	Topsoil segregation
LE-660	M-0229 0.2	0.5	Agricultural land	Topsoil segregation
LE-659	M-0229 0.2	0.1	Agricultural land	Point of intersection
LE-661	49.8	0.9	Agricultural land	Topsoil segregation
LE-664	50.0	0.2	Agricultural land	Topsoil segregation
LE-665	50.0	0.1	Agricultural land; upland forest	Stream crossing
LE-662	50.0	0.1	Agricultural land	Point of intersection
LE-663	50.0	0.1	Agricultural land	Point of intersection
LE-666	50.0	0.1	Agricultural land	Stream crossing
LE-665.1	50.1	0.0	Upland forest	Wetland crossing
LE-670	50.1	0.1	Agricultural land	Topsoil segregation
LE-669	50.1	0.1	Agricultural land	Stream crossing
LE-668	50.1	0.1	Agricultural land	Road crossing
LE-667	50.1	0.1	Agricultural land	Road crossing
LE-671	50.1	<0.1	Agricultural land	Road crossing
LE-672	50.1	0.1	Agricultural land	Road crossing
LE-674	50.2	0.3	Agricultural land	Foreign pipeline crossing
LE-673	50.2	0.3	Agricultural land	Topsoil segregation
LE-675	50.2	0.2	Agricultural land	Foreign pipeline crossing
LE-677	50.4	0.7	Agricultural land	Topsoil segregation
LE-678	50.5	0.1	Open land	Stream crossing
LE-681	50.6	0.1	Agricultural land	Point of intersection
LE-682	50.6	0.1	Agricultural land	Point of intersection
LE-680	50.6	0.1	Agricultural land	Point of intersection
LE-679	50.6	0.0	Agricultural land	Stream crossing
LE-683	50.7	0.6	Agricultural land	Topsoil segregation
LE-683.1	50.7	0.1	Agricultural land	Foreign pipeline crossing
LE-685	50.8	0.1	Agricultural land	Road crossing
LE-684	50.8	0.1	Agricultural land	Point of intersection
LE-687	50.9	0.1	Agricultural land	Point of intersection
LE-688	50.9	0.1	Agricultural land	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-686	50.9	0.9	Agricultural land	Topsoil segregation
LE-691	51.1	0.1	Residential	Topsoil segregation
LE-689	51.1	0.1	Agricultural land	Road crossing
LE-690	51.1	0.1	Agricultural land	Road crossing
LE-692	51.1	0.1	Upland forest	Road crossing
LE-693	51.2	0.1	Residential	Stream crossing
LE-694	51.2	0.1	Agricultural land	Stream crossing
LE-695	51.3	0.5	Agricultural land	Topsoil segregation
LE-696	51.4	0.1	Agricultural land	Point of intersection
LE-698	M-0165 0.0	0.1	Agricultural land	Point of intersection
LE-697	M-0165 0.0	1.8	Agricultural land	Topsoil segregation
LE-699	M-0165 0.3	0.2	Agricultural land	Point of intersection
LE-701	M-0165 0.5	0.1	Agricultural land	Stream crossing
LE-700	M-0165 0.4	0.1	Agricultural land	Stream crossing
LE-702	M-0165 0.5	0.2	Agricultural land	Topsoil segregation
LE-705	52.1	0.1	Agricultural land	Road crossing
LE-704	52.1	0.1	Agricultural land	Road crossing
LE-706	52.1	0.1	Agricultural land	Road crossing
LE-703	52.1	0.1	Agricultural land	Road crossing
LE-707	52.2	0.9	Agricultural land	Topsoil segregation
LE-708	52.4	0.3	Agricultural land	Topsoil segregation
LE-709	52.4	0.2	Agricultural land	Road crossing
LE-711	52.4	0.1	Agricultural land	Road crossing
LE-710	52.4	0.1	Agricultural land	Road crossing
LE-712	52.5	0.3	Agricultural land	Topsoil segregation
LE-713	52.5	0.1	Agricultural land	Road crossing
LE-717	52.6	0.1	Agricultural land	Topsoil segregation
LE-716	52.6	0.2	Agricultural land	Road crossing
LE-715	52.6	0.1	Agricultural land	Topsoil segregation
LE-714	52.6	0.1	Agricultural land	Road crossing
LE-720	52.7	0.2	Agricultural land	Topsoil segregation
LE-722	52.7	0.1	Agricultural land	Stream crossing
LE-721	52.7	0.1	Agricultural land	Stream crossing
LE-718	52.7	0.1	Residential	Stream crossing
LE-719	52.7	0.1	Agricultural land	Stream crossing
LE-725	52.8	0.2	Agricultural land	Topsoil segregation
LE-724	52.8	0.2	Agricultural land	Road crossing
LE-723	52.8	0.1	Agricultural land	Point of intersection
LE-727	52.9	0.1	Agricultural land	Road crossing
LE-726	52.9	0.1	Agricultural land	Road crossing
LE-730	53.0	0.1	Agricultural land	Stream crossing
LE-729	53.0	0.1	Agricultural land	Stream crossing
LE-728	53.0	0.4	Agricultural land	Topsoil segregation
LE-732	53.1	0.1	Agricultural land	Stream crossing
LE-733	53.1	0.3	Agricultural land	Topsoil segregation
LE-731	53.1	0.1	Agricultural land	Stream crossing
LE-734	53.3	0.2	Agricultural land	Topsoil segregation
LE-736	53.3	0.3	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-737	53.3	0.1	Agricultural land	Road crossing
LE-738	53.4	0.1	Agricultural land	Road crossing
LE-739	53.3	0.3	Agricultural land	Topsoil segregation
LE-740	53.4	0.1	Open land; residential	Road crossing
LE-741	53.4	0.2	Agricultural land	Topsoil segregation
LE-742	53.5	0.1	Agricultural land	Wetland crossing
LE-745	53.6	0.1	Agricultural land	Stream crossing
LE-746	53.6	0.1	Agricultural land	Road crossing
LE-743	53.6	0.1	Agricultural land	Road crossing
LE-742.1	53.6	0.1	Open land	Road crossing
LE-744	53.6	0.1	Agricultural land	Topsoil segregation
LE-747	53.7	0.1	Agricultural land	Point of intersection
LE-748	53.7	0.2	Agricultural land	Topsoil segregation
LE-749	53.8	0.1	Upland forest; residential	Wetland crossing
LE-750	M-0199 0.0	0.2	Agricultural land	Topsoil segregation
LE-751	M-0199 0.0	0.4	Agricultural land	Road crossing
LE-753	M-0199 0.1	0.1	Open land	Road crossing
LE-754	M-0199 0.1	0.9	Agricultural land	Road crossing
LE-757	M-0199 0.2	0.2	Agricultural land	Topsoil segregation
LE-756	M-0199 0.2	0.4	Agricultural land	Road crossing
LE-755	M-0199 0.2	0.2	Agricultural land	Road crossing
LE-759	M-0199 0.3	0.1	Agricultural land	Point of intersection
LE-760	M-0199 0.3	0.2	Agricultural land	Topsoil segregation
LE-758	M-0199 0.3	0.1	Upland forest	Point of intersection
LE-761	54.2	0.2	Upland forest	Wetland crossing
LE-762	M-0388 0.0	0.1	Wetland	Wetland crossing
LE-762.1	M-0388 0.1	0.1	Agricultural land	Point of intersection
LE-762.2	M-0388 0.1	0.1	Agricultural land	Point of intersection
LE-762.3	M-0388 0.2	0.4	Agricultural land	Topsoil segregation
LE-762.4	M-0388 0.3	0.5	Agricultural land	Topsoil segregation
LE-764	M-0388 0.4	0.1	Agricultural land	Point of intersection
LE-763	M-0388 0.4	0.1	Agricultural land	Point of intersection
LE-765	M-0388 0.4	0.5	Agricultural land	Topsoil segregation
LE-766	54.9	0.2	Agricultural land	Road crossing
LE-768	55.0	0.1	Agricultural land	Stream crossing
LE-767	55.0	0.2	Agricultural land	Topsoil segregation
LE-768.1	M-0168 0.0	0.7	Agricultural land	Topsoil segregation
LE-769	M-0168 0.0	0.1	Agricultural land	Stream crossing
LE-769.1	M-0168 0.0	0.1	Agricultural land	Point of intersection
LE-769.2	M-0168 0.9	0.1	Agricultural land	Point of intersection
LE-773	55.4	0.1	Agricultural land	Road crossing
LE-770	M-0168 0.9	0.1	Agricultural land	Stream crossing
LE-772	55.4	0.1	Agricultural land	Road crossing
LE-771	M-0168 0.9	0.2	Agricultural land	Topsoil segregation
LE-775	55.5	0.1	Agricultural land	Point of intersection
LE-774	55.5	0.2	Agricultural land; residential	Stream crossing
LE-777	55.6	0.1	Agricultural land	Stream crossing
LE-776	55.6	0.4	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-779	55.7	0.1	Agricultural land	Stream crossing
LE-778	55.7	0.1	Agricultural land	Point of intersection
LE-780	55.8	0.7	Agricultural land	Topsoil segregation
LE-784	M-0180 0.1	0.1	Agricultural land	Point of intersection
LE-782	M-0180 0.1	0.1	Agricultural land	Road crossing
LE-781	M-0180 0.0	0.1	Open land	Road crossing
LE-781.1	M-0180 0.0	0.1	Agricultural land	Topsoil segregation
LE-783	M-0180 0.1	0.9	Agricultural land	Topsoil segregation
LE-787	56.3	0.1	Agricultural land	Topsoil segregation
LE-786	56.3	0.1	Agricultural land	Stream crossing
LE-785	56.3	0.1	Agricultural land	Stream crossing
LE-788	56.3	0.1	Agricultural land	Road crossing
LE-790	56.5	0.1	Agricultural land	Point of intersection
LE-789	56.5	0.8	Agricultural land	Topsoil segregation
LE-789.1	56.5	0.3	Agricultural land	Hydro test
LE-789.2	56.5	0.1	Agricultural land	Hydro test
LE-791	56.5	0.1	Agricultural land	Point of intersection
LE-796	56.6	0.1	Agricultural land	Topsoil segregation
LE-796.1	56.6	0.1	Agricultural land	Topsoil segregation
LE-796.2	56.6	0.1	Agricultural land	Point of intersection
LE-795	56.6	0.1	Agricultural land	Road crossing
LE-794	56.6	0.1	Agricultural land	Road crossing
LE-792	56.6	0.1	Agricultural land	Road crossing
LE-793	56.6	0.1	Agricultural land	Road crossing
LE-797	56.7	0.1	Agricultural land	Foreign pipeline crossing
LE-797.1	56.7	0.1	Agricultural land	Point of intersection
LE-797.2	56.6	0.1	Agricultural land	Stream crossing
LE-801	56.8	0.1	Agricultural land	Road crossing
LE-803	56.8	0.1	Residential	Road crossing
LE-799	56.8	0.1	Agricultural land	Topsoil segregation
LE-802	56.8	0.1	Agricultural land	Road crossing
LE-804	56.9	0.1	Upland forest	Stream crossing
LE-805	56.9	0.1	Upland forest	Stream crossing
LE-805.3	M-0205 0.1	0.1	Upland forest	Stream crossing
LE-805.2	M-0205 0.0	0.1	Upland forest	Point of intersection
LE-805.1	M-0205 0.0	0.1	Upland forest	Point of intersection
LE-806	M-0205 0.4	0.3	Upland forest	Point of intersection
LE-808	M-0205 0.43	0.3	Upland forest	Side slope
LE-809.1	M-0230 0.0	0.2	Upland forest	Steep slope
LE-810	M-0230 0.0	0.1	Upland forest	Point of intersection
LE-809	M-0230 0.0	0.1	Upland forest	Point of intersection
LE-810.1	M-0230 0.1	0.5	Upland forest	Steep slope
LE-810.2	M-0230 0.2	0.5	Upland forest	Steep slope
LE-810.3	M-0230 0.2	0.2	Upland forest	Steep slope
LE-812	M-0230 0.6	0.3	Upland forest	Foreign pipeline crossing
LE-814	M-0230 0.7	0.1	Upland forest	Point of intersection
LE-815	58.5	0.1	Upland forest	Steep slope
LE-816	58.6	0.1	Upland forest	Side slope

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-817	58.7	0.2	Upland forest	Road crossing
LE-819	58.7	0.1	Upland forest	Stream crossing
LE-818	58.7	0.1	Upland forest	Road crossing
LE-820	58.7	0.1	Upland forest	Foreign pipeline crossing
LE-824	58.9	0.1	Upland forest	Point of intersection
LE-823	58.9	0.1	Upland forest	Wetland crossing
LE-822	58.9	0.1	Open land	Wetland crossing
LE-822.1	58.9	0.1	Agricultural land	Wetland crossing
LE-825	58.9	0.1	Upland forest	Point of intersection
LE-827	59.0	0.1	Agricultural land	Point of intersection
LE-826	59.0	0.5	Agricultural land	Topsoil segregation
LE-828	59.1	0.1	Agricultural land	Stream crossing
LE-831	59.2	0.1	Open land	Road crossing
LE-830	59.2	0.1	Agricultural land	Road crossing
LE-829	59.2	0.1	Agricultural land	Topsoil segregation
LE-832	59.3	0.2	Upland forest	Spoil storage
LE-833	M-0176 0.0	0.1	Upland forest	Stream crossing
LE-834	M-0176 0.0	0.2	Upland forest	Stream crossing
LE-836	M-0176 0.0	0.2	Agricultural land	Topsoil segregation
LE-839	M-0176 0.1	0.3	Agricultural land	Stream crossing
LE-840	M-0176 0.1	0.1	Upland forest	Stream crossing
LE-841	M-0176 0.1	0.2	Agricultural land	Stream crossing
LE-842.4	M-0176 0.2	0.1	Agricultural land	Point of intersection
LE-842.5	59.8	0.2	Agricultural land	Point of intersection
LE-842	M-0176 0.1	0.2	Agricultural land	Topsoil segregation
LE-843.4	M-0200 0.0	<0.1	Upland forest	Trail crossing
LE-842.3	M-0176 0.2	0.5	Upland forest	Topsoil segregation
LE-843.5	M-0200 0.0	<0.1	Upland forest	Trail crossing
LE-845	M-0200 0.3	0.1	Upland forest	Stream crossing
LE-844	M-0200 0.3	0.2	Agricultural land	Stream crossing
LE-846	M-0200 0.4	0.4	Agricultural land	Topsoil segregation
LE-847	M-0200 0.5	0.5	Agricultural land	Topsoil segregation
LE-848	M-0200 0.7	0.1	Upland forest	Stream crossing
LE-849	M-0200 0.7	0.1	Upland forest	Stream crossing
LE-851	60.7	0.1	Open land upland forest	Road crossing
LE-850	60.7	0.1	Open land upland forest	Road crossing
LE-852	60.9	1.2	Agricultural land	Topsoil segregation
LE-854	61.1	0.1	Agricultural land	Stream crossing
LE-853	61.1	0.2	Agricultural land	Stream crossing
LE-855	61.3	0.3	Agricultural land	Side slope
LE-856	61.3	0.3	Agricultural land	Topsoil segregation
LE-857	61.3	0.4	Agricultural land	Spoil storage
LE-857.3	61.4	0.1	Upland forest	Steep slope
LE-857.4	61.4	0.1	Residential; upland forest	Steep slope
LE-857.2	61.4	0.1	Agricultural land; upland forest	Steep slope
LE-857.1	61.4	0.1	Agricultural land; upland forest	Stream crossing
LE-860	61.5	0.1	Agricultural land	Road crossing
LE-859	61.5	0.1	Agricultural land	Point of intersection

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LE-859.1	61.5	0.2	Agricultural land	Anode bed
LE-858	61.5	0.3	Agricultural land; upland forest	Road crossing
LE-861	61.6	0.8	Agricultural land; upland forest	Topsoil segregation
LE-862	61.9	0.3	Agricultural land	Topsoil segregation
LE-864	62.0	0.2	Agricultural land	Topsoil segregation
LE-865	62.3	1.1	Agricultural land	Topsoil segregation
LE-867	62.4	0.1	Agricultural land	Point of intersection
LE-866	62.4	0.1	Agricultural land	Point of intersection
LE-866.1	62.0	0.1	Agricultural land	Stream crossing
LE-868	62.5	0.1	Upland forest	Point of intersection
LE-869	62.5	0.1	Upland forest	Stream crossing
LE-870	62.6	0.3	Upland forest	Stream crossing
LE-871	63.3	0.1	Upland forest	Point of intersection
LE-872	63.3	0.1	Upland forest	Point of intersection
LE-873	63.5	0.7	Upland forest; agricultural land	Topsoil segregation
LE-874	63.6	0.1	Agricultural land	Point of intersection
LE-877	63.7	0.1	Agricultural land	Stream crossing
LE-875	63.7	0.1	Agricultural land	Road crossing
LE-878	63.8	0.5	Agricultural land	Topsoil segregation
LE-876	63.8	0.1	Agricultural land	Stream crossing
LE-879	63.9	0.1	Agricultural land; upland forest	Stream crossing
LE-880	64.0	0.1	Upland forest	Stream crossing
LE-882	64.0	0.1	Upland forest	Stream crossing
LE-881	64.0	0.1	Upland forest	Point of intersection
LE-883	64.0	0.1	Upland forest	Point of intersection
LE-884	64.1	0.1	Upland forest	Stream crossing
LE-885	64.1	0.1	Upland forest	Point of intersection
LE-886	64.2	0.3	Agricultural land	Foreign pipeline crossing
LE-887	64.3	0.9	Agricultural land	Topsoil segregation
Schuylkill County				
SC-889	64.4	0.1	Agricultural land	Road crossing
SC-890	64.5	0.1	Agricultural land	Road crossing
SC-891	64.7	1.2	Agricultural land	Topsoil segregation
SC-894.1	65.0	<0.1	Upland forest	Stream crossing
SC-894.2	65.0	0.1	Upland forest; agricultural land	Stream crossing
SC-899.1	65.2	0.1	Open land	Steep slope
SC-898	65.2	0.1	Residential	Point of intersection
SC-899	65.2	0.1	Open land	Point of intersection
SC-897	65.2	0.1	Agricultural land	Point of intersection
SC-901.2	65.3	0.5	Agricultural land	Bypass
SC-901.1	65.3	0.1	Open land	Stream crossing
SC-901	65.3	0.1	Open land	Road crossing
SC-900	65.3	0.1	Open land	Road crossing
SC-903	65.4	0.1	Agricultural land	Stream crossing
SC-902	65.4	0.1	Upland forest	Stream crossing
SC-907	65.5	0.1	Agricultural land	Stream crossing
SC-905	65.5	0.3	Agricultural land	Topsoil segregation
SC-906	65.5	0.1	Agricultural land	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SC-904	65.5	0.1	Agricultural land	Stream crossing
SC-908	65.6	0.1	Agricultural land	Stream crossing
SC-911	65.7	0.3	Agricultural land	Topsoil segregation
SC-912	65.8	0.1	Agricultural land	Topsoil segregation
SC-913	M-0177 0.0	0.4	Agricultural land	Topsoil segregation
SC-914	M-0177 0.0	0.1	Agricultural land	Point of intersection
SC-915	M-0221 0.6	0.4	Agricultural land	Topsoil segregation
SC-916.1	M-0221 0.3	0.1	Upland forest	Stream crossing
SC-917.1	M-0221 0.2	0.1	Upland forest	Stream crossing
SC-918.1	M-0221 0.2	0.1	Upland forest	Road crossing
SC-918.2	M-0221 0.3	0.2	Upland forest	Road crossing
SC-920.1	M-0221 0.5	0.1	Agricultural land	Point of intersection
SC-919.1	M-0221 0.4	1.1	Open land	Topsoil segregation
SC-921	66.7	0.1	Agricultural land	Point of intersection
SC-923	66.7	0.1	Agricultural land	Road crossing
SC-925	66.8	0.1	Agricultural land	Road crossing
SC-924	66.8	0.1	Agricultural land	Road crossing
SC-922	66.8	0.1	Agricultural land	Road crossing
SC-926	M-0196 0.0	0.7	Agricultural land	Topsoil segregation
SC-929	M-0196 0.0	0.1	Agricultural land	Road crossing
SC-927	M-0196 0.0	0.1	Agricultural land	Road crossing
SC-927.1	M-0196 0.0	0.1	Agricultural land	Point of intersection
SC-928	M-0196 0.0	0.1	Agricultural land	Road crossing
SC-930	M-0196 0.0	1.2	Agricultural land	Topsoil segregation
SC-930.1	M-0196 0.2	0.1	Agricultural land	Point of intersection
SC-930.2	M-0196 0.2	0.1	Agricultural land	Point of intersection
SC-930.3	M-0196 0.2	0.1	Agricultural land	Point of intersection
SC-931	67.4	0.8	Agricultural land	Topsoil segregation
SC-933	67.6	0.1	Agricultural land	Stream crossing
SC-932	67.6	0.1	Agricultural land	Stream crossing
SC-934	67.7	0.4	Agricultural land	Topsoil segregation
SC-935	67.8	0.1	Agricultural land	Valve fabrication
SC-936	67.8	0.2	Agricultural land	Topsoil segregation
SC-938	68.0	0.2	Upland forest	Point of intersection
SC-937	68.0	0.2	Upland forest; open land	Point of intersection
SC-939	68.1	0.2	Agricultural land	Topsoil segregation
SC-940	68.2	0.2	Agricultural land	Topsoil segregation
SC-941	68.2	0.1	Agricultural land	Point of intersection
SC-943	68.3	0.1	Agricultural land	Stream crossing
SC-942	68.3	0.2	Agricultural land	Topsoil segregation
SC-944	68.4	0.1	Upland forest; agricultural land	Stream crossing
SC-945	68.4	0.1	Agricultural land	Stream crossing
SC-946	68.5	0.3	Agricultural land	Topsoil segregation
SC-948	68.6	0.5	Agricultural land	Topsoil segregation
SC-947	68.6	0.1	Agricultural land	Point of intersection
SC-950	68.7	0.1	Upland forest	Point of intersection
SC-949	68.7	0.2	Upland forest	Point of intersection
SC-952	68.8	0.1	Upland forest	Road crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SC-951	68.8	0.1	Upland forest	Road crossing
SC-954	68.8	0.1	Upland forest	Road crossing
SC-953	68.8	0.1	Upland forest	Road crossing
SC-956	68.9	0.3	Upland forest	Side slope
SC-955	68.9	0.3	Upland forest	Side slope
SC-957	69.1	0.1	Upland forest	Point of intersection
SC-958	69.1	0.1	Upland forest	Stream crossing
SC-960	M-0223 0.1	0.1	Upland forest	Point of intersection
SC-959	M-0223 0.1	0.1	Upland forest	Point of intersection
SC-963	69.6	0.1	Upland forest	Point of intersection
SC-964	69.6	0.1	Upland forest	Point of intersection
SC-961	M-0223 0.1	2.7	Upland forest	Side slope
SC-962	M-0223 0.1	2.7	Upland forest	Side slope
SC-965	70.1	0.1	Upland forest	Point of intersection
SC-966	70.2	0.1	Upland forest	Point of intersection
SC-968	70.6	0.1	Upland forest	Steep slope
SC-967	70.6	0.1	Upland forest	Steep slope
SC-969	70.7	0.1	Upland forest	Point of intersection
SC-970	70.7	0.1	Upland forest	Point of intersection
SC-971	M-0181 0.0	0.4	Upland forest	Side slope
SC-973	M-0181 0.0	0.1	Upland forest	Point of intersection
SC-972	M-0181 0.0	0.1	Upland forest	Point of intersection
SC-973.1	M-0181 0.0	0.1	Upland forest	Steep slope
SC-974	M-0181 0.1	<0.1	Upland forest	Road crossing
SC-976	M-0181 0.2	0.1	Upland forest	Stream crossing
SC-975	M-0181 0.1	0.1	Residential	Road crossing
SC-976.1	M-0181 0.1	0.1	Upland forest	Stream crossing
SC-977	71.1	0.1	Upland forest	Point of intersection
SC-978	71.3	0.1	Upland forest	Point of intersection
SC-979	71.6	0.1	Upland forest	Point of intersection
SC-979.1	M-0198 0.2	0.1	Open land	Stream crossing
SC-979.2	M-0198 0.3	0.1	Open land	Stream crossing
SC-983	72.6	0.1	Open land	Road crossing
SC-982	72.6	0.1	Open land	Road crossing
SC-984	72.7	0.1	Open land	Stream crossing
SC-985	72.7	0.1	Open land	Stream crossing
SC-987	73.2	0.1	Open land	Road crossing
SC-986	73.2	0.1	Open land	Road crossing
SC-989	73.3	0.1	Open land	Point of intersection
SC-988	73.3	0.1	Open land	Point of intersection
SC-994	73.4	0.2	Open land	Road crossing
SC-993	73.4	0.1	Open land	Road crossing
SC-992	73.4	0.2	Open land	Road crossing
SC-991	73.4	0.1	Open land	Point of intersection
SC-990	73.4	0.1	Open land	Point of intersection
SC-996	73.5	0.1	Open land	Stream crossing
SC-997	73.5	0.2	Open land	Stream crossing
SC-998	73.6	0.1	Open land	Wetland crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SC-999	73.6	0.1	Upland forest	Wetland crossing
SC-1000	73.9	0.1	Upland forest	Point of intersection
SC-1001	74.0	0.1	Upland forest	Wetland crossing
SC-1002	74.0	0.1	Upland forest	Wetland crossing
SC-1006	74.1	0.1	Upland forest	Railroad crossing
SC-1002.1	74.1	0.0	Upland forest	Wetland crossing
SC-1005	74.1	0.1	Upland forest	Railroad crossing
SC-1004	74.1	0.1	Upland forest	Wetland crossing
SC-1003	74.1	0.1	Upland forest	Wetland crossing
SC-1007	M-0201 0.0	0.2	Upland forest	Railroad crossing
SC-1008	M-0201 0.3	0.1	Wetland	Wetland crossing
SC-1008.2	74.8	<0.1	Open land	Stream crossing
SC-1009	74.8	0.1	Wetland	Wetland crossing
SC-1018	74.9	0.1	Upland forest	Road crossing
SC-1019	74.9	0.1	Upland forest	Road crossing
SC-1020	75.0	0.3	Agricultural land	Topsoil segregation
SC-1022	M-0316 0.0	0.2	Agricultural land	Topsoil segregation
SC-1021	M-0316 0.0	0.1	Agricultural land	Topsoil segregation
SC-1022.1	M-0316 0.0	0.1	Upland forest	Topsoil segregation
SC-1022.2	M-0316 0.1	0.1	Upland forest	Steep slope
SC-1023	M-0316 0.3	0.1	Agricultural land	Topsoil segregation
SC-1023.2	M-0316 0.5	0.7	Upland forest	Steep slope
SC-1023.1	M-0316 0.5	0.8	Upland forest	Steep slope
SC-1024	M-0316 0.7	0.7	Upland forest	Steep slope
SC-1025	M-0316 0.7	0.8	Upland forest	Steep slope
SC-1027	M-0316 0.9	0.1	Upland forest	Stream crossing
SC-1026	M-0316 0.9	0.1	Upland forest	Stream crossing
SC-1026.1	M-0316 1.0	<0.1	Wetland	Wetland crossing
SC-1029	76.2	0.2	Agricultural land	Road crossing
SC-1028	76.2	0.1	Agricultural land	Road crossing
SC-1030	76.3	1.1	Agricultural land	Topsoil segregation
SC-1032	76.5	0.1	Agricultural land	Stream crossing
SC-1031	76.5	0.1	Agricultural land	Stream crossing
SC-1035	76.6	0.2	Agricultural land	Topsoil segregation
SC-1034	76.6	0.1	Upland forest; agricultural land	Stream crossing
SC-1033	76.6	0.1	Agricultural land	Stream crossing
SC-1037	76.7	0.1	Agricultural land	Road crossing
SC-1036	76.7	0.2	Agricultural land	Road crossing
SC-1038	76.8	0.7	Agricultural land	Topsoil segregation
SC-1039	76.9	0.1	Agricultural land	Stream crossing
SC-1042	M-0170 0.0	0.1	Residential	Stream crossing
SC-1041	M-0170 0.0	0.1	Residential	Stream crossing
SC-1041.1	M-0170 0.1	0.1	Residential	Point of intersection
SC-1040	77.0	0.1	Agricultural land	Stream crossing
SC-1045	M-0170 0.1	0.1	Agricultural land	Road crossing
SC-1046	M-0170 0.1	0.1	Agricultural land	Road crossing
SC-1044	M-0170 0.1	0.1	Residential	Road crossing
SC-1043	M-0170 0.0	0.2	Residential	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SC-1047	M-0170 0.1	0.8	Agricultural land	Topsoil segregation
SC-1047.1	77.5	0.2	Upland forest	Steep slope
SC-1048	77.7	0.1	Agricultural land	Topsoil segregation
SC-1049	77.7	0.1	Agricultural land	Road crossing
SC-1057	78.0	0.1	Upland forest	Stream crossing
SC-1056	78.0	0.1	Agricultural land	Stream crossing
SC-1058	78.2	1.3	Agricultural land	Topsoil segregation
SC-1060	78.5	0.1	Upland forest	Road crossing
SC-1059	78.5	<0.1	Open land; upland forest	Road crossing
SC-1060.3	79.3	0.3	Upland forest	Side slope
SC-1061	79.8	0.5	Agricultural land	Topsoil segregation
SC-1062	80.0	0.4	Agricultural land	Topsoil segregation
SC-1063	80.2	0.1	Upland forest	Stream crossing
SC-1064	80.2	0.1	Open land	Stream crossing
SC-1066	M-0351 0.0	0.1	Open land	Road crossing
SC-1066.1	M-0351 0.1	0.1	Agricultural land	Point of intersection
SC-1065	M-0351 0.0	0.1	Upland forest	Road crossing
SC-1067.1	M-0351 0.1	0.1	Agricultural land	Foreign pipeline crossing
SC-1067	80.4	0.3	Agricultural land	Topsoil segregation
SC-1069	80.4	0.1	Agricultural land	Road crossing
SC-1070	80.5	0.1	Agricultural land	Road crossing
SC-1071	80.5	0.1	Agricultural land	Road crossing
SC-1068	80.5	0.1	Agricultural land	Road crossing
SC-1072	80.7	1.2	Agricultural land	Topsoil segregation
SC-1072.1	80.8	0.1	Agricultural land	Foreign pipeline crossing
SC-1076	80.9	0.1	Agricultural land	Road crossing
SC-1075	80.9	0.1	Agricultural land	Road crossing
SC-1074	80.9	0.1	Agricultural land	Road crossing
SC-1073	80.9	0.1	Agricultural land	Road crossing
SC-1077	81.0	0.8	Agricultural land	Topsoil segregation
SC-1078	81.1	0.1	Agricultural land	Stream crossing
SC-1079	81.1	0.1	Agricultural land	Stream crossing
SC-1082	81.2	0.2	Agricultural land	Topsoil segregation
SC-1081	81.2	0.1	Agricultural land	Stream crossing
SC-1080	81.2	0.1	Agricultural land	Stream crossing
SC-1083	81.4	0.1	Agricultural land	Point of intersection
SC-1084	M-0194 0.0	0.9	Agricultural land	Topsoil segregation
SC-1085	M-0194 0.1	0.1	Agricultural land	Road crossing
SC-1086	M-0194 0.1	0.1	Agricultural land	Road crossing
SC-1089	M-0194 0.1	0.1	Agricultural land	Topsoil segregation
SC-1087	M-0194 0.1	0.1	Agricultural land	Road crossing
SC-1088	M-0194 0.1	0.1	Agricultural land	Road crossing
SC-1092	M-0194 0.2	1.0	Agricultural land	Topsoil segregation
SC-1092.1	M-0194 0.2	0.1	Agricultural land	Point of intersection
SC-1092.2	M-0194 0.2	0.1	Agricultural land	Point of intersection
SC-1091	M-0194 0.2	0.1	Agricultural land	Stream crossing
SC-1090	M-0194 0.2	0.1	Agricultural land	Stream crossing
SC-1093	M-0194 0.4	0.1	Agricultural land	Point of intersection

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
SC-1093.1	M-0194 0.4	0.1	Agricultural land	Point of intersection
SC-1094	M-0194 0.5	0.1	Agricultural land	Road crossing
SC-1095	M-0194 0.5	0.0	Open land	Road crossing
SC-1096	M-0194 0.5	0.8	Open land	Topsoil segregation
SC-1096.2	M-0247 0.3	0.1	Upland forest	Point of intersection
Northumberland County				
NO-1101	M-0194 1.2	0.6	Open land	Steep slope
NO-1102	82.7	0.5	Upland forest	Side slope
NO-1103	83.3	0.2	Upland forest	Point of intersection
NO-1104	83.4	0.1	Upland forest	Stream crossing
NO-1104.1	83.4	0.1	Upland forest	Stream crossing
NO-1106	83.4	0.2	Upland forest	Stream crossing
NO-1105	83.4	0.2	Upland forest	Stream crossing
NO-1107	83.7	0.1	Upland forest	Road crossing
NO-1108	83.7	0.1	Upland forest	Road crossing
NO-1109	83.7	0.1	Upland forest	Road crossing
NO-1110	83.8	0.1	Upland forest	Point of intersection
NO-1111	83.8	0.1	Upland forest	Point of intersection
NO-1113	83.9	0.1	Upland forest	Point of intersection
NO-1113.1	M-0252 0.0	0.1	Upland forest	Point of intersection
NO-1113.2	M-0323 0.0	0.1	Upland forest	Point of intersection
NO-1113.3	M-0323 0.1	0.1	Upland forest	Point of intersection
NO-1113.4	M-0323 0.1	0.1	Upland forest	Point of intersection
NO-1112	83.9	0.1	Upland forest	Point of intersection
NO-1114	85	0.1	Upland forest	Topsoil segregation
NO-1115	85.1	0.1	Upland forest	Topsoil segregation
NO-1116	85.2	0.2	Upland forest	Topsoil segregation
NO-1116.3	85.4	0.1	Upland forest	Hydro testing
NO-1116.4	85.4	0.1	Upland forest	Hydro testing
NO-1117	85.4	0.1	Upland forest	Stream crossing
NO-1118	85.4	0.1	Upland forest	Stream crossing
NO-1119	85.5	0.1	Upland forest	Stream crossing
NO-1120	85.5	0.1	Upland forest	Stream crossing
NO-1120.1	M-0240 0.0	0.1	Upland forest	Point of intersection
NO-1120.2	M-0240 0.0	0.2	Upland forest	Steep slope
NO-1120.3	M-0240 0.1	0.2	Upland forest	Road crossing
NO-1121.1	M-0240 0.1	0.1	Upland forest	Road crossing
NO-1121.3	M-0240 0.1	0.1	Upland forest	Road crossing
NO-1122	M-0240 0.1	<0.1	Upland forest	Road crossing
NO-1122.1	M-0240 0.1	0.1	Upland forest	Road crossing
NO-1122.3	M-0240 0.1	<0.1	Upland forest	Road crossing
NO-1122.4	M-0240 0.1	0.1	Upland forest	Road crossing
NO-1122.5	M-0240 0.1	0.1	Upland forest	Railroad crossing
NO-1126	M-0240 0.2	0.1	Upland forest	Stream crossing
NO-1125	M-0240 0.2	0.1	Upland forest	Stream crossing
NO-1126.1	M-0240 0.3	0.2	Upland forest	Steep slope
NO-1126.2	M-0240 0.4	0.1	Upland forest	Point of intersection
NO-1127	86.6	0.1	Upland forest, open land	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
NO-1128	86.6	0.1	Upland forest	Road crossing
NO-1130	M-0235 0.0	0.1	Upland forest	Stream crossing
NO-1129	M-0235 0.0	0.1	Upland forest	Stream crossing
NO-1131	M-0235 0.1	0.1	Upland forest	Point of intersection
NO-1131.1	M-0372 0.0	0.1	Upland forest	Road crossing
NO-1131.2	M-0372 0.0	0.1	Upland forest	Road crossing
NO-1131.3	M-0372 0.1	0.1	Upland forest	Road crossing
NO-1131.4	M-0372 0.1	0.1	Upland forest	Road crossing
NO-1132.1	M-0372 0.3	0.2	Upland forest	Steep slope
NO-1132.2	M-0372 0.3	0.1	Upland forest	Point of intersection
NO-1132.3	M-0372 0.3	0.1	Upland forest	Point of intersection
NO-1133.1	M-0372 047	0.1	Upland forest	Point of intersection
NO-1133.2	M-0372 047	0.1	Upland forest	Load out
NO-1133.3	M-0372 047	0.1	Upland forest	Load out
NO-1135.2	M-0372 0.2	0.1	Upland forest	Stream crossing
NO-1135.3	M-0372 0.2	0.1	Upland forest	Stream crossing
NO-1132	M-0235 0.1	0.1	Upland forest	Point of intersection
NO-1137	M-0235 1.1	0.1	Upland forest	Road crossing
NO-1138	M-0235 1.1	0.1	Upland forest	Road crossing
NO-1139	M-0235 1.1	<0.1	Upland forest	Road crossing
NO-1140	M-0235 1.1	0.1	Upland forest	Road crossing
NO-1140.1	M-0235 1.1	0.1	Upland forest	Stream crossing
NO-1139.1	M-0235 1.1	0.1	Upland forest	Stream crossing
NO-1139.2	88.6	0.5	Upland forest	Steep slope
NO-1139.3	88.8	0.1	Wetland	Wetland crossing
NO-1141	89.1	0.1	Upland forest	Road crossing
NO-1142	89.1	0.1	Upland forest	Road crossing
NO-1144	89.2	0.1	Upland forest	Road crossing
NO-1144.3	89.2	0.1	Upland forest	Point of intersection
NO-1145	89.2	0.1	Upland forest	Point of intersection
NO-1146	89.4	0.1	Upland forest	Point of intersection
NO-1146.1	89.7	1.4	Upland forest	Steep slope
NO-1148	90	0.1	Upland forest	Road crossing
NO-1147	90	0.1	Upland forest	Road crossing
NO-1149	90	0.1	Upland forest	Road crossing
NO-1150	90	0.1	Upland forest	Road crossing
NO-1151	90.1	0.1	Upland forest	Point of intersection
NO-1152	90.3	0.1	Upland forest	Road crossing
NO-1154	90.3	0.1	Upland forest	Road crossing
NO-1153	90.3	0.1	Agricultural land	Road crossing
NO-1155	M-0167 0.0	1.0	Agricultural land	Topsoil segregation
NO-1156	M-0167 0.2	0.1	Agricultural land	Road crossing
NO-1157	M-0167 0.3	0.1	Agricultural land	Road crossing
NO-1159	M-0167 0.3	0.1	Agricultural land	Road crossing
NO-1158	M-0167 0.3	0.1	Agricultural land	Road crossing
NO-1160	M-0167 0.3	0.9	Agricultural land	Topsoil segregation
NO-1161	91.0	0.1	Upland forest	Wetland crossing
NO-1161.1	91.0	<0.1	Wetland	Stream crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
NO-1161.2	91.0	<0.1	Wetland	Wetland crossing
NO-1162	91.0	0.1	Upland forest	Wetland crossing
NO-1162.1	91.0	0.1	Upland forest	Stream crossing
Columbia County				
CO-1163	91.1	0.1	Agricultural land	Point of intersection
CO-1164	91.1	0.2	Agricultural land	Road crossing
CO-1165	91.1	0.3	Agricultural land	Road crossing
CO-1166	91.1	0.2	Agricultural land	Topsoil segregation
CO-1167	91.2	0.1	Agricultural land	Point of intersection
CO-1168	91.3	0.8	Agricultural land	Topsoil segregation
CO-1169	91.5	0.1	Agricultural land	Road crossing
CO-1170	91.5	0.1	Agricultural land	Road crossing
CO-1172	91.5	0.1	Agricultural land	Road crossing
CO-1171	91.5	0.1	Agricultural land	Road crossing
CO-1173	91.6	0.5	Agricultural land	Topsoil segregation
CO-1174	91.7	0.1	Agricultural land	Topsoil segregation
CO-1176	91.7	0.2	Agricultural land	Road crossing
CO-1177	91.7	0.1	Agricultural land	Point of intersection
Northumberland County				
NO-1179	91.8	0.1	Upland forest	Stream crossing
NO-1178	91.8	0.1	Upland forest	Stream crossing
NO-1180	91.9	0.8	Residential	Topsoil segregation
NO-1182	92.0	0.1	Residential	Point of intersection
NO-1181	92.0	0.1	Residential	Point of intersection
NO-1182.1	M-0271 0.0	0.2	Upland forest	Steep slope
Columbia County				
CO-1185	M-0271 0.1	0.1	Upland forest	Road crossing
CO-1184	M-0271 0.1	0.2	Upland forest	Road crossing
CO-1185.1	M-0271 0.0	<0.1	Upland forest	Steep slope
CO-1185.2	M-0271 0.0	<0.1	Wetland	Wetland crossing
CO-1184.1	M-0271 0.0	<0.1	Upland forest	Steep slope
CO-1186	M-0271 0.2	0.2	Upland forest	Side slope
CO-1186.1	M-0271 0.2	<0.1	Upland forest	Side slope
CO-1186.2	M-0271 0.2	<0.1	Upland forest	Point of intersection
CO-1187	92.5	0.4	Agricultural land	Topsoil segregation
CO-1188	92.7	0.5	Agricultural land	Topsoil segregation
CO-1189	92.9	0.2	Agricultural land	Topsoil segregation
CO-1190	93	0.1	Upland forest	Road crossing
CO-1191	93	0.1	Agricultural land	Road crossing
CO-1192	93.1	0.1	Agricultural land	Road crossing
CO-1193	93.1	0.1	Agricultural land	Road crossing
CO-1194	93.1	0.1	Agricultural land	Topsoil segregation
CO-1195	93.2	0.1	Agricultural land	Topsoil segregation
CO-1196	93.2	0.1	Agricultural land	Road crossing
CO-1197	93.2	0.1	Agricultural land	Road crossing
CO-1198	93.2	0.1	Agricultural land	Road crossing
CO-1199	93.3	0.6	Agricultural land	Topsoil segregation
CO-1200	93.5	0.4	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1202	93.8	0.1	Agricultural land	Point of intersection
CO-1201	93.9	0.1	Upland forest	Topsoil segregation
CO-1203	93.9	0.7	Agricultural land	Point of intersection
CO-1204	94	0.1	Agricultural land	Point of intersection
CO-1204.2	94.2	0.2	Upland forest	Streep slope
CO-1205	94	0.1	Agricultural land	Point of intersection
CO-1205.1	94.1	0.1	Upland forest	Steep slope
CO-1206	94.4	0.1	Upland forest; agricultural land	Topsoil segregation
CO-1208	94.4	0.1	Upland forest; open land	Stream crossing
CO-1207	94.4	0.1	Upland forest; open land	Stream crossing
CO-1209	94.5	0.4	Upland forest	Road crossing
CO-1210	94.5	0.1	Upland forest	Road crossing
CO-1211	94.7	0.7	Agricultural land	Topsoil segregation
CO-1212	94.8	0.3	Agricultural land	Topsoil segregation
CO-1213	94.9	0.1	Agricultural land	Point of intersection
CO-1214	94.9	0.1	Agricultural land	Stream crossing
CO-1220	95.1	0.1	Upland forest	Road crossing
CO-1219	95.1	0.1	Agricultural land	Road crossing
CO-1221	95.2	0.6	Agricultural land	Topsoil segregation
CO-1222	95.2	0.1	Agricultural land	Point of intersection
CO-1222.1	95.3	0.1	Agricultural land	Stream crossing
CO-1222.2	95.3	0.1	Agricultural land	Stream crossing
CO-1223	95.4	0.1	Agricultural land	Topsoil segregation
CO-1224	95.4	0.1	Agricultural land	Road crossing
CO-1225	95.4	<0.1	Agricultural land	Road crossing
CO-1226	95.5	0.1	Agricultural land	Stream crossing
CO-1227	95.5	0.1	Agricultural land	Stream crossing
CO-1228	95.6	0.6	Agricultural land	Topsoil segregation
CO-1228.3	95.7	0.3	Upland forest	Steep slope
CO-1229	95.8	0.1	Upland forest	Stream crossing
CO-1230	95.9	0.1	Open land	Stream crossing
CO-1231	M-0285 0.1	0.6	Agricultural land	Topsoil segregation
CO-1232	M-0285 0.2	0.1	Agricultural land	Road crossing
CO-1233	96.1	0.1	Open land	Road crossing
CO-1234	96.2	0.1	Open land	Road crossing
CO-1235	96.2	0.1	Agricultural land	Topsoil segregation
CO-1237	M-0197 0.0	0.1	Agricultural land	Point of intersection
CO-1236	M-0197 0.0	2.2	Agricultural land	Topsoil segregation
CO-1238	M-0197 0.5	0.1	Agricultural land	Point of intersection
CO-1239	96.9	0.1	Agricultural land	Road crossing
CO-1240	97	0.1	Agricultural land	Road crossing
CO-1241	97	0.4	Agricultural land	Topsoil segregation
CO-1242	97.1	0.1	Agricultural land	Road crossing
CO-1243	97.1	0.1	Agricultural land	Road crossing
CO-1244	97.1	0.1	Agricultural land	Road crossing
CO-1245	97.2	0.4	Agricultural land	Topsoil segregation
CO-1246	97.2	0.1	Agricultural land	Road crossing
CO-1247	97.4	0.9	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1248	97.6	0.6	Agricultural land; residential	Topsoil segregation
CO-1250	97.8	0.2	Upland forest	Point of intersection
CO-1249	97.9	0.1	Upland forest	Point of intersection
CO-1251	97.9	0.1	Upland forest	Road crossing
CO-1253	97.9	0.2	Agricultural land	Point of intersection
CO-1252	97.9	0.1	Agricultural land	Point of intersection
CO-1254	98	0.3	Agricultural land	Topsoil segregation
CO-1255	98	0.1	Agricultural land	Road crossing
CO-1256	98	0.1	Agricultural land	Road crossing
CO-1258	98.1	0.1	Agricultural land	Road crossing
CO-1258.1	M-0174 0.0	0.1	Agricultural land	Point of intersection
CO-1257	98.1	0.1	Agricultural land	Road crossing
CO-1259	M-0174 0.0	1.2	Agricultural land	Topsoil segregation
CO-1259.1	M-0174 0.3	0.1	Agricultural land	Point of intersection
CO-1260	M-0174 0.4	1.2	Agricultural land	Topsoil segregation
CO-1260.1	M-0174 0.4	0.1	Agricultural land	Point of intersection
CO-1261	98.8	0.1	Agricultural land	Road crossing
CO-1262	98.8	0.1	Agricultural land	Road crossing
CO-1264	98.8	0.1	Agricultural land	Road crossing
CO-1263	98.8	0.1	Agricultural land	Road crossing
CO-1265	99.0	0.9	Agricultural land	Topsoil segregation
CO-1266	99.1	0.7	Agricultural land	Load out
CO-1266.3	99.3	0.5	Agricultural land	HDD
CO-1266.4	99.3	0.1	Agricultural land	HDD
CO-1266.5	99.3	0.7	Agricultural land	Topsoil segregation
CO-1267	99.8	0.5	Agricultural land	HDD water withdrawal
CO-1268	99.8	0.2	Agricultural land	HDD water withdrawal
CO-1270	100.0	0.1	Agricultural land	Road crossing
CO-1270.1	100.0	0.1	Agricultural land	HDD
CO-1271	100.0	0.1	Agricultural land	Road crossing
CO-1272.1	100.0	0.5	Agricultural land	HDD
CO-1272	100.1	0.6	Upland forest	Topsoil segregation
CO-1272.4	100.1	0.2	Agricultural land	Load out
CO-1274	100.3	0.5	Open land	Steep slope
CO-1275	100.6	0.5	Agricultural land	Topsoil segregation
CO-1276	100.9	0.6	Agricultural land	Topsoil segregation
CO-1278	101.0	0.1	Agricultural land	Road crossing
CO-1277	101.0	0.1	Agricultural land	Road crossing
CO-1279	101.0	0.1	Agricultural land	Road crossing
CO-1280	101.1	0.1	Agricultural land	Road crossing
CO-1281	M-0179 0.0	0.9	Agricultural land	Topsoil segregation
CO-1283	M-0179 0.1	0.1	Open land; upland forest	Point of intersection
CO-1282	M-0179 0.0	0.1	Upland forest	Point of intersection
CO-1284	M-0179 0.3	0.1	Upland forest	Point of intersection
CO-1286	101.5	0.2	Wetland	Wetland crossing
CO-1285.1	M-0390 0.1	0.1	Upland forest	Point of intersection
CO-1287	101.6	<0.1	Upland forest	Stream crossing
CO-1288	101.7	<0.1	Upland forest	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1290	101.7	0.1	Open land	Road crossing
CO-1291	101.7	0.1	Upland forest	Stream crossing
CO-1289	101.7	0.1	Open land	Road crossing
CO-1291.1	101.7	0.1	Open land	Anode bed
CO-1295	101.8	0.1	Open land	Road crossing
CO-1294	101.9	0.4	Open land	Road crossing
CO-1296	101.9	0.1	Open land	Valve fabrication
CO-1297	102	0.1	Open land	Stream crossing
CO-1298	102	0.1	Upland forest	Stream crossing
CO-1300	102.1	0.1	Agricultural land	Stream crossing
CO-1299	102.1	0.1	Agricultural land	Stream crossing
CO-1301	M-0423 0.0	0.3	Agricultural land	Topsoil segregation
CO-1300	M-0423 0.1	0.2	Agricultural land	Topsoil segregation
CO-1301	M-0423 0.2	0.1	Agricultural land	Point of intersection
CO-1301.1	M-0423 0.2	0.3	Agricultural land	Point of intersection
CO-1302	M-0423 0.3	0.1	Agricultural land	Point of intersection
CO-1303	M-0423 0.3	0.1	Upland forest	Stream crossing
CO-1304	M-0423 0.3	0.1	Upland forest	Stream crossing
CO-1305	M-0423 0.4	0.1	Agricultural land	Point of intersection
CO-1306	M-0423 0.4	0.2	Agricultural land	Topsoil segregation
CO-1307	M-0423 0.4	0.1	Upland forest	Road crossing
CO-1308	M-0423 0.4	0.1	Upland forest	Road crossing
CO-1309	M-0423 0.5	0.1	Upland forest	Road crossing
CO-1310	M-0423 0.5	0.1	Upland forest	Road crossing
CO-1311	M-0423 1.1	0.1	Upland forest	Stream crossing
CO-1313	M-0423 1.2	0.1	Upland forest	Point of intersection
CO-1313.1	M-0423 1.2	0.2	Upland forest	Road crossing
CO-1314	M-0423 1.2	0.2	Upland forest	Side slope
CO-1315	M-0423 1.3	0.1	Upland forest	Point of intersection
CO-1317	M-0423 1.4	0.3	Upland forest	Side slope
CO-1318	M-0423 1.4	0.1	Upland forest	Point of intersection
CO-1319	M-0423 1.4	0.1	Upland forest	Point of intersection
CO-1320	M-0423 1.4	0.1	Upland forest	Stream crossing
CO-1321	M-0423 1.5	<0.1	Upland forest	Wetland crossing
CO-1322	M-0423 1.5	<0.1	Upland forest	Road crossing
CO-1323	M-0423 1.6	0.1	Upland forest	Road crossing
CO-1324	M-0423 1.6	0.2	Upland forest	Road crossing
CO-1326	M-0423 1.6	0.1	Upland forest	Road crossing
CO-1327	M-0423 1.6	0.1	Upland forest	Point of intersection
CO-1328	M-0423 1.7	0.1	Agricultural land	Road crossing
CO-1329	M-0423 1.7	0.1	Agricultural land	Road crossing
CO-1330	M-0423 1.7	0.1	Agricultural land	Road crossing
CO-1331	M-0423 1.7	0.1	Agricultural land	Road crossing
CO-1332	M-0423 1.8	0.2	Agricultural land	Road crossing
CO-1334	M-0423 1.8	0.6	Agricultural land	Topsoil segregation
CO-1335	M-0423 1.9	0.1	Agricultural land	Point of intersection
CO-1336	M-0423 2.1	0.1	Agricultural land	Point of intersection
CO-1336.1	M-0423 2.2	0.3	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1337	M-0423 2.2	0.1	Agricultural land	Point of intersection
CO-1338	M-0423 2.4	0.6	Upland forest	Topsoil segregation
CO-1339	M-0423 2.4	0.1	Agricultural land	Point of intersection
CO-1339.1	M-0423 2.6	0.1	Agricultural land	Point of intersection
CO-1340	M-0423 2.4	0.1	Agricultural land	Point of intersection
CO-1340.1	M-0423 2.6	0.1	Agricultural land	Point of intersection
CO-1342	M-0423 2.6	0.2	Agricultural land	Topsoil segregation
CO-1343	M-0423 2.7	0.1	Upland forest	Point of intersection
CO-1344	M-0423 2.8	0.1	Upland forest	Point of intersection
CO-1345	M-0423 2.8	0.1	Upland forest	Point of intersection
CO-1346	M-0423 3.0	0.3	Upland forest	Road crossing
CO-1347	M-0423 3.0	0.7	Upland forest / Open land	HDD
CO-1347.5	M-0423 3.0	0.0	Open land	HDD water withdrawal
CO-1347.6	M-0423 3.0	0.0	Open land	HDD water withdrawal
CO-1348	M-0423 3.0	0.2	Agricultural land	HDD
CO-1349	M-0423 3.3	0.6	Agricultural land	HDD
CO-1350	M-0423 3.3	0.9	Agricultural land	HDD
CO-1351	M-0423 3.4	0.8	Agricultural land	Topsoil segregation
CO-1352	M-0423 3.5	0.5	Agricultural land	HDD
CO-1352.1	M-0423 3.6	2.4	Agricultural land	HDD
CO-1352.7	M-0423 3.5	0.3	Agricultural land	Topsoil segregation
CO-1353	M-0423 3.5	0.1	Upland forest	Stream crossing
CO-1353.1	M-0423 3.6	0.1	Upland forest	Stream crossing
CO-1353.2	M-0423 3.6	0.3	Agricultural land	Road crossing
CO-1354	M-0423 3.7	0.3	Upland forest	Topsoil segregation
CO-1355	M-0423 3.7	0.1	Agricultural land	Point of intersection
CO-1356	M-0423 3.7	0.2	Agricultural land	Road crossing
CO-1357	M-0423 3.7	0.1	Agricultural land	Point of intersection
CO-1358	M-0423 3.7	0.2	Agricultural land	Road crossing
CO-1359	M-0423 3.8	0.1	Agricultural land	Stream crossing
CO-1360	M-0423 3.8	0.1	Agricultural land	Stream crossing
CO-1361	M-0423 3.9	0.1	Agricultural land	Road crossing
CO-1362	M-0423 3.9	0.4	Agricultural land	Road crossing
CO-1363	M-0423 3.9	0.1	Upland forest	Road crossing
CO-1364	M-0423 3.9	0.1	Agricultural land	Road crossing
CO-1365	M-0423 4.0	0.9	Agricultural land	Topsoil segregation
CO-1366	M-0423 4.3	0.2	Agricultural land	Topsoil segregation
CO-1367	M-0423 4.4	0.8	Agricultural land	Topsoil segregation
CO-1368	M-0423 4.7	0.2	Agricultural land	Point of intersection
CO-1369	M-0423 4.7	0.1	Agricultural land	Point of intersection
CO-1370	M-0423 4.7	0.1	Agricultural land	Road crossing
CO-1371	M-0423 4.7	0.1	Upland forest	Road crossing
CO-1372	M-0423 4.8	0.1	Upland forest	Point of intersection
CO-1373	M-0423 4.8	<0.1	Upland forest	Road crossing
CO-1374	M-0423 4.81	0.3	Upland forest	Point of intersection
CO-1354	M-0236 0.0	0.3	Upland forest	Topsoil segregation
CO-1354.2	M-0236 0.3	0.1	Upland forest	Point of intersection
CO-1354.3	M-0236 0.4	0.4	Upland forest	Steep slope

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1354.4	M-0236 0.4	0.3	Upland forest	Steep slope
CO-1355	106.9	0.2	Upland forest	Road crossing
CO-1356	106.9	0.1	Agricultural land	Road crossing
CO-1358	106.9	0.2	Agricultural land	Topsoil segregation
CO-1357	106.9	0.2	Agricultural land	Road crossing
CO-1359	107.0	0.1	Agricultural land	Point of intersection
CO-1360	107.0	<0.1	Residential	Road crossing
CO-1361	107.1	0.1	Upland forest	Stream crossing
CO-1362	107.1	0.1	Upland forest	Stream crossing
CO-1361.1	107.1	<0.1	Open land	Stream crossing
CO-1362.1	107.1	<0.1	Open land	Topsoil segregation
CO-1363	M-0214 0.0	0.8	Open land; upland forest	Topsoil segregation
CO-1363.2	M-0214 0.1	0.1	Agricultural land	Point of intersection
CO-1363.3	M-0214 0.1	<0.1	Agricultural land	Stream crossing
CO-1372.1	M-0214 0.2	0.3	Upland forest	Stream crossing
CO-1372.2	M-0214 0.2	0.3	Upland forest	Stream crossing
CO-1376	M-0195 0.5	0.6	Upland forest	Topsoil segregation
CO-1377	M-0195 0.7	0.6	Upland forest	Topsoil segregation
CO-1378	M-0195 0.7	0.1	Upland forest	Point of intersection
CO-1382	M-0195 0.9	0.1	Upland forest	Point of intersection
CO-1382.1	108.5	0.1	Agricultural land	Point of intersection
CO-1383	108.5	0.2	Agricultural land	Topsoil segregation
CO-1384	108.6	0.1	Upland forest	Stream crossing
CO-1385	108.7	0.1	Upland forest	Stream crossing
CO-1386	108.7	0.1	Upland forest, open land	Stream crossing
CO-1387	108.7	0.1	Upland forest, open land	Stream crossing
CO-1388	108.7	0.1	Upland forest, open land	Road crossing
CO-1389	108.8	0.1	Agricultural land	Stream crossing
CO-1390	108.8	0.1	Upland forest	Stream crossing
CO-1391	108.8	0.1	Agricultural land	Point of intersection
CO-1392	108.8	0.1	Agricultural land	Point of intersection
CO-1393	108.9	1.0	Agricultural land	Topsoil segregation
CO-1394	109.1	0.1	Agricultural land	Stream crossing
CO-1395	109.2	0.1	Agricultural land	Stream crossing
CO-1396	109.3	0.7	Agricultural land	Topsoil segregation
CO-1398	109.4	0.1	Agricultural land	Road crossing
CO-1397	109.4	0.1	Agricultural land	Road crossing
CO-1399.1	109.5	0.1	Agricultural land	Road crossing
CO-1399	109.5	0.6	Agricultural land	Topsoil segregation
CO-1400	109.6	<0.1	Agricultural land	Point of intersection
CO-1401	109.6	0.1	Agricultural land	Road crossing
CO-1403	109.6	0.1	Agricultural land	Road crossing
CO-1402	109.6	0.1	Agricultural land	Road crossing
CO-1404	109.8	0.9	Agricultural land	Topsoil segregation
CO-1406	109.9	0.1	Agricultural land	Stream crossing
CO-1407	109.9	0.1	Open land	Stream crossing
CO-1408	109.9	0.1	Agricultural land	Stream crossing
CO-1409	110.0	0.1	Open land	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1410	110.0	0.1	Agricultural land	Road crossing
CO-1412	110.0	0.1	Agricultural land	Point of intersection
CO-1411	110.1	0.5	Agricultural land	Topsoil segregation
CO-1413	110.2	0.1	Agricultural land	Stream crossing
CO-1414	110.2	0.1	Upland forest	Stream crossing
CO-1415	110.2	<0.1	Wetland	Wetland crossing
CO-1417	110.2	0.2	Upland forest	Road crossing
CO-1416	110.2	0.1	Agricultural land, upland forest	Road crossing
CO-1418	110.4	0.7	Agricultural land	Topsoil segregation
CO-1419	110.6	0.4	Agricultural land	Topsoil segregation
CO-1420	110.7	0.1	Agricultural land	Road crossing
CO-1421	110.7	0.1	Agricultural land	Road crossing
CO-1422	110.8	0.6	Agricultural land	Topsoil segregation
CO-1423	111.0	0.6	Agricultural land	Topsoil segregation
CO-1425	111.1	0.1	Agricultural land,	Road crossing
CO-1424	111.1	0.1	Agricultural land	Road crossing
CO-1426	111.2	0.1	Agricultural land	Road crossing
CO-1429	111.2	<0.1	Agricultural land	Stream crossing
CO-1430	111.3	0.1	Open land upland forest	Stream crossing
CO-1431	111.3	0.1	Open land	Stream crossing
CO-1433	111.4	0.1	Agricultural land	Point of intersection
CO-1434	111.4	0.1	Agricultural land	Point of intersection
CO-1432	111.4	0.7	Agricultural land	Topsoil segregation
CO-1435	111.5	0.1	Agricultural land	Road crossing
CO-1437	111.7	0.1	Agricultural land	Stream crossing
CO-1436	111.7	0.1	Agricultural land	Stream crossing
CO-1438	111.8	1.3	Agricultural land	Topsoil segregation
CO-1439	112.0	0.1	Agricultural land	Point of intersection
CO-1441	112.0	0.1	Agricultural land	Point of intersection
CO-1442	112.1	0.1	Agricultural land	Road crossing
CO-1440	112.1	0.1	Agricultural land	Road crossing
CO-1443	112.1	0.1	Agricultural land	Point of intersection
CO-1444	112.1	0.1	Agricultural land	Point of intersection
CO-1444.1	112.2	0.1	Agricultural land	Road crossing
CO-1444.2	112.3	0.1	Agricultural land	Road crossing
CO-1445	112.4	0.1	Agricultural land	Topsoil segregation
CO-1445.1	112.7	0.6	Agricultural land	Topsoil segregation
CO-1445.2	112.8	0.1	Agricultural land	Road crossing
CO-1445.3	112.8	0.1	Agricultural land	Road crossing
CO-1445.4	112.9	0.3	Agricultural land	Topsoil segregation
CO-1446	113	0.4	Upland forest	Steep slope
CO-1448	113.1	0.1	Upland forest	Road crossing
CO-1447	113.1	0.1	Upland forest	Road crossing
CO-1450	113.1	0.1	Agricultural land	Road crossing
CO-1449	113.1	0.1	Agricultural land	Road crossing
CO-1451	113.2	0.7	Agricultural land	Topsoil segregation
CO-1452	113.3	0.1	Agricultural land	Road crossing
CO-1453	113.4	0.1	Agricultural land	Road crossing

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Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1456	113.4	<0.1	Agricultural land	Topsoil segregation
CO-1455	113.4	0.1	Agricultural land	Wetland crossing
CO-1454	113.4	0.1	Agricultural land	Stream crossing
CO-1457	113.5	<0.1	Agricultural land	Stream crossing
CO-1459	113.5	<0.1	Agricultural land	Stream crossing
CO-1458	113.5	0.1	Agricultural land	Road crossing
CO-1460	113.5	0.1	Agricultural land	Topsoil segregation
CO-1461	113.5	0.1	Agricultural land	Road crossing
CO-1462	113.5	0.1	Agricultural land	Stream crossing
CO-1464	113.5	<0.1	Agricultural land	Topsoil segregation
CO-1463	113.5	0.1	Agricultural land	Road crossing
CO-1465	113.6	0.1	Agricultural land	Stream crossing
CO-1466	113.7	0.7	Agricultural land	Topsoil segregation
CO-1467	113.8	0.1	Agricultural land	Road crossing
CO-1468	113.8	0.1	Agricultural land	Road crossing
CO-1470	113.8	0.1	Agricultural land	Road crossing
CO-1469	113.8	0.1	Agricultural land	Road crossing
CO-1471	114.2	2.0	Agricultural land	Topsoil segregation
CO-1472	114.3	0.1	Agricultural land	Point of intersection
CO-1473	114.4	0.1	Agricultural land	Point of intersection
CO-1475	114.5	0.1	Agricultural land	Road crossing
CO-1476	114.6	0.5	Agricultural land	Topsoil segregation
CO-1477	114.7	0.1	Agricultural land	Road crossing
CO-1478	114.7	0.1	Agricultural land	Road crossing
CO-1479	114.7	0.1	Agricultural land	Road crossing
CO-1480	115.1	2.1	Agricultural land	Topsoil segregation
CO-1480.1	115.2	0.1	Agricultural land	Point of intersection
CO-1481.1	115.4	0.1	Open land	Steep slope
CO-1481.2	115.4	0.1	Open land	Steep slope
CO-1482	115.4	0.1	Upland forest	Stream crossing
CO-1481	115.4	0.1	Upland forest	Stream crossing
CO-1483	115.5	0.1	Agricultural land	Wetland crossing
CO-1484	115.5	0.2	Agricultural land	Road crossing
CO-1487	115.6	0.1	Agricultural land	Road crossing
CO-1488	115.6	0.1	Agricultural land	Road crossing
CO-1489	115.7	1.0	Agricultural land	Topsoil segregation
CO-1491	115.8	0.1	Agricultural land	Road crossing
CO-1490	115.9	0.1	Agricultural land	Road crossing
CO-1493	115.9	0.1	Agricultural land	Road crossing
CO-1494	115.9	0.1	Agricultural land	Road crossing
CO-1492	115.9	0.4	Agricultural land	Topsoil segregation
CO-1495	116.1	0.3	Agricultural land	Topsoil segregation
CO-1496	116.1	0.1	Agricultural land	Road crossing
CO-1498	116.2	0.1	Agricultural land	Topsoil segregation
CO-1497	116.2	0.1	Agricultural land	Road crossing
CO-1499	116.2	0.1	Agricultural land	Road crossing
CO-1500	116.3	0.8	Agricultural land	Topsoil segregation
CO-1501	117	0.4	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1501.1	117.4	0.1	Upland forest	Point of intersection
CO-1502	117.5	0.3	Agricultural land	Topsoil segregation
CO-1504	117.5	0.1	Agricultural land	Road crossing
CO-1505	117.6	0.1	Agricultural land	Topsoil segregation
CO-1506	117.6	0.6	Agricultural land	Road crossing
CO-1507	118.0	0.5	Agricultural land	Topsoil segregation
CO-1507.1	118.0	0.1	Agricultural land	Point of intersection
CO-1509	118.0	0.1	Agricultural land	Road crossing
CO-1508	118.0	0.1	Agricultural land	Road crossing
CO-1510	118.1	0.1	Upland forest	Stream crossing
CO-1510.1	118.1	0.1	Upland forest	Stream crossing
CO-1511	118.3	0.3	Upland forest; open land	Topsoil segregation
CO-1512	118.3	0.1	Agricultural land; upland forest	Road crossing
CO-1513	118.3	0.1	Upland forest	Road crossing
CO-1514	118.5	0.8	Agricultural land	Topsoil segregation
CO-1515	118.6	0.1	Agricultural land	Road crossing
CO-1515.1	118.7	0.2	Agricultural land	Anode bed
CO-1516	118.7	0.1	Agricultural land	Road crossing
CO-1517	118.8	0.7	Agricultural land	Topsoil segregation
CO-1518	119.0	0.3	Agricultural land	Topsoil segregation
CO-1520	119.2	0.1	Upland forest	Stream crossing
CO-1519	119.2	0.1	Upland forest	Stream crossing
CO-1521	119.3	0.1	Agricultural land	Road crossing
CO-1523	119.3	0.1	Agricultural land	Topsoil segregation
CO-1522	119.3	0.1	Agricultural land	Road crossing
CO-1523.1	M-0159 0.0	0.1	Agricultural land	Point of intersection
CO-1524	M-0159 0.0	0.6	Agricultural land	Topsoil segregation
CO-1524.1	M-0159 0.0	0.1	Upland forest	Point of intersection
CO-1525	M-0159 0.3	0.2	Agricultural land	Topsoil segregation
CO-1525.1	M-0159 0.3	0.1	Agricultural land	Point of intersection
CO-1526	119.8	0.1	Agricultural land	Topsoil segregation
CO-1527	119.9	0.1	Upland forest	Stream crossing
CO-1528	119.9	0.1	Upland forest	Stream crossing
CO-1530	119.9	0.1	Upland forest	Stream crossing
CO-1529	119.9	0.1	Upland forest	Stream crossing
CO-1532	120.0	0.1	Upland forest	Point of intersection
CO-1531	120.0	0.1	Agricultural land	Road crossing
CO-1533	120.0	0.1	Agricultural land	Road crossing
CO-1535	120.0	0.1	Agricultural land	Road crossing
CO-1534	120.0	0.1	Agricultural land	Road crossing
CO-1536	120.1	0.3	Agricultural land	Topsoil segregation
CO-1537	120.1	0.1	Agricultural land	Stream crossing
CO-1538	120.1	0.1	Agricultural land	Stream crossing
CO-1540	120.1	<0.1	Upland forest	Stream crossing
CO-1539	120.1	<0.1	Upland forest	Stream crossing
CO-1541	120.3	0.6	Agricultural land	Topsoil segregation
CO-1542	120.6	0.3	Agricultural land	Topsoil segregation
CO-1543	120.8	0.6	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1543.1	121.1	0.1	Upland forest	Point of intersection
CO-1544.1	121.2	0.2	Agricultural land	Point of intersection
CO-1545	121.2	0.3	Agricultural land	Topsoil segregation
CO-1546	121.2	0.1	Agricultural land	Stream crossing
CO-1547	121.3	0.1	Agricultural land	Stream crossing
CO-1548	121.3	0.1	Open land	Road crossing
CO-1550	121.3	0.1	Agricultural land	Point of intersection
CO-1549	121.4	0.1	Agricultural land	Point of intersection
CO-1551	121.4	0.9	Agricultural land	Topsoil segregation
CO-1551.1	121.6	0.3	Agricultural land	Topsoil segregation
CO-1552	121.9	1.0	Agricultural land	Topsoil segregation
CO-1554	122.0	0.1	Agricultural land	Road crossing
CO-1553	122.0	0.1	Agricultural land	Road crossing
CO-1555	122.0	0.1	Agricultural land	Road crossing
CO-1556	122.0	0.1	Agricultural land	Road crossing
CO-1557	122.1	0.2	Agricultural land	Topsoil segregation
CO-1558	122.2	<0.1	Agricultural land	Road crossing
CO-1560	122.2	0.1	Agricultural land	Road crossing
CO-1557.1	122.2	0.1	Agricultural land	Topsoil segregation
CO-1561	122.2	0.1	Agricultural land	Road crossing
CO-1562	122.4	0.9	Agricultural land	Topsoil segregation
CO-1563	122.6	0.1	Upland forest	Point of intersection
CO-1564	122.6	0.1	Upland forest	Road crossing
CO-1565	122.6	0.1	Upland forest	Stream crossing
CO-1566	122.7	0.1	Upland forest	Stream crossing
CO-1567	122.9	0.9	Agricultural land	Topsoil segregation
CO-1568	123.1	0.1	Agricultural land	Point of intersection
CO-1569	123.2	0.2	Agricultural land	Topsoil segregation
CO-1571	123.2	0.1	Agricultural land	Road crossing
CO-1571.4	123.2	<0.1	Agricultural land	Road crossing
CO-1571.5	123.2	0.3	Agricultural land	Road crossing
CO-1570	123.2	0.1	Open land	Road crossing
CO-1573	123.2	0.1	Agricultural land	Topsoil segregation
CO-1572	123.2	0.2	Open land	Stream crossing
CO-1573.1	123.4	0.1	Upland forest	Point of intersection
CO-1573.2	123.4	0.1	Upland forest	Wetland crossing
CO-1574	123.6	0.5	Agricultural land	Topsoil segregation
CO-1575	123.6	0.1	Agricultural land	Road crossing
CO-1576	123.7	0.1	Agricultural land	Road crossing
CO-1577	123.8	0.6	Agricultural land	Topsoil segregation
CO-1578	124.0	0.1	Upland forest	Point of intersection
CO-1579	124.1	0.1	Upland forest	Road crossing
CO-1580	124.1	0.1	Upland forest	Road crossing
CO-1582	124.1	0.1	Upland forest	Road crossing
CO-1581	124.1	0.1	Upland forest	Road crossing
CO-1584	124.6	0.1	Upland forest	Stream crossing
CO-1583	124.6	0.1	Upland forest	Stream crossing
CO-1585	124.6	0.1	Upland forest	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
CO-1586	124.6	0.1	Upland forest	Stream crossing
CO-1587	124.7	0.1	Upland forest	Stream crossing
CO-1588	124.7	0.1	Upland forest	Stream crossing
CO-1588.2	124.9	0.1	Upland forest	Point of intersection
CO-1588.1	124.9	0.1	Upland forest	Point of intersection
CO-1589	124.9	0.1	Agricultural land	Topsoil segregation
CO-1591	125.1	0.2	Open land	Crossover
	Total Central Penn Line South Subtotal	**398.1**		
CHAPMAN LOOP				
Clinton County				
CL-001	L186.3	<0.1	Upland forest	Stream crossing
CL-002	L186.3	<0.1	Upland forest	Stream crossing
CL-003	L186.6	0.1	Open land	Road crossing
CL-004	L186.6	0.1	Open land	Road crossing
CL-005	L186.6	0.2	Open land	Road crossing
CL-006	L186.8	0.1	Upland forest	Side slope
CL-007	L186.9	0.2	Open land	Topsoil segregation
CL-008	L187.1	0.1	Upland forest	Side slope
CL-009	L187.1	0.1	Open land	Stream crossing
CL-010	L187.2	0.1	Upland forest	Side slope
CL-010.1	L187.4	0.1	Upland forest	Stream crossing
CL-011	L187.2	0.1	Upland forest	Stream crossing
CL-011.1	L188.0	0.1	Upland forest	Wetland crossing
CL-011.2	L188.1	0.1	Upland forest	Wetland crossing
CL-012	L188.3	0.1	Upland forest	Road crossing
CL-013	L188.3	0.1	Upland forest	Road crossing
	Chapman Loop Subtotal	**1.4**		
UNITY LOOP				
Lycoming County				
LY-002	L120.5	0.2	Upland forest	Stream crossing
LY-003	L120.6	<0.1	Open land	Stream crossing
LY-005	L120.7	0.2	Open land	Road crossing
LY-006	L120.7	0.1	Open land	Road crossing
LY-007	L120.9	0.2	Agricultural land	Topsoil segregation
LY-008	L120.9	0.2	Agricultural land	Topsoil segregation
LY-010	L121.2	0.1	Agricultural land	Topsoil segregation
LY-011	L121.3	0.1	Upland forest	Stream crossing
LY-012	L121.4	0.1	Open land	Stream crossing
LY-014	L121.5	0.1	Open land, agricultural land	Road crossing
LY-015	L121.5	0.1	Open land, agricultural land	Road crossing
LY-016	L121.6	0.7	Agricultural land	Topsoil segregation
LY-017	L121.5	0.1	Agricultural land	Point of intersection
LY-018	L121.6	0.1	Agricultural land	Point of intersection
LY-019	L121.8	0.5	Agricultural land	Topsoil segregation
LY-020	L122.1	0.1	Upland forest	Stream crossing
LY-021	L122.2	0.1	Upland forest	Stream crossing
LY-022	L122.3	0.1	Upland forest	Road crossing
LY-025	L122.5	0.1	Upland forest	Stream crossing

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LY-026	L122.6	<0.1	Wetland	Wetland crossing
LY-027	L122.6	0.1	Agricultural land	Road crossing
LY-028	L122.7	0.1	Agricultural land	Road crossing
LY-029	L122.7	0.1	Agricultural land	Road crossing
LY-030	L122.7	0.3	Agricultural land	Topsoil segregation
LY-031	L123.1	0.2	Agricultural land	Road crossing
LY-032	L123.1	0.1	Agricultural land	Topsoil segregation
LY-033	L123.1	0.1	Open land	Road crossing
LY-034	L123.2	0.1	Open land	Road crossing
LY-035	L123.2	0.1	Open land	Stream crossing
LY-036	L123.3	0.1	Open land	Stream crossing
LY-037	L123.5	0.2	Agricultural land	Road crossing
LY-038	L123.5	0.2	Agricultural land	Topsoil segregation
LY-039	L123.5	0.3	Upland forest, agricultural land	Foreign pipeline crossing
LY-040	L123.7	0.1	Open land	Stream crossing
LY-041	L123.8	<0.1	Wetland	Wetland crossing
LY-042	L123.8	0.1	Open land	Road crossing
LY-043	L123.8	0.1	Open land	Road crossing
LY-043.1	L124.1	0.1	Upland forest	Side slope
LY-044	L124.3	0.1	Open land	Stream crossing
LY-045	L124.3	0.1	Upland forest	Stream crossing
LY-046	L124.4	<0.1	Upland forest	Wetland crossing
LY-047	L124.4	0.1	Upland forest	Stream crossing
LY-048	L124.4	0.1	Open land	Road crossing
LY-049	L124.5	0.1	Open land, upland forest	Road crossing
LY-050	L124.8	0.1	Upland forest, open land	Foreign pipeline crossing
LY-051	L124.9	0.2	Agricultural land	Topsoil segregation
LY-052	L125.0	0.1	Open land	Road crossing
LY-053	L125.1	0.1	Open land	Road crossing
LY-053.1	L125.1	0.1	Open land	Wetland crossing
LY-053.2	L125.1	<0.1	Open land	Wetland crossing
LY-054	L125.1	0.1	Open land, upland forest	Crossover
LY-055	L125.2	0.2	Open land	Stream crossing
LY-056	L125.3	0.1	Upland forest	Stream crossing
LY-056.1	L125.3	<0.1	Wetland	Wetland crossing
LY-056.2	L125.3	<0.1	Wetland	Wetland crossing
LY-059	L125.4	0.1	M-003 0.0	Crossover
LY-059.1	M-0015 0.0	0.1	Open land	Road crossing
LY-060	M-0015 0.0	0.1	Open land	Road crossing
LY-060.1	M-0015 0.13	0.2	Upland forest	Road crossing
LY-060.2	M-0015 0.13	0.2	Open land	Point of intersection
LY-060.3	L125.7	0.3	Upland forest	Hydrotest withdrawal/discharge
LY-060.4	L125.7	0.8	Agricultural land	Hydrotest withdrawal/discharge
LY-061	L125.8	0.3	Agricultural land	Topsoil segregation
LY-062	L125.8	0.1	Agricultural land	Foreign pipeline crossing
LY-063	L125.9	0.3	Agricultural land	Topsoil segregation
LY-064	L126.0	0.1	Agricultural land	Road crossing
LY-065	L126.2	1.0	Agricultural land	Topsoil segregation

APPENDIX C (cont'd)

Additional Temporary Workspace Associated with Construction of the Atlantic Sunrise Project

County/Additional Temporary Workspace ID	Milepost [a]	Area (acres) [b]	Existing Land Use	Justification
LY-066	L126.2	0.1	Agricultural land	Foreign pipeline crossing
LY-067	L126.3	0.1	Upland forest, agricultural land	Stream crossing
; LY-068	L126.5	0.7	Upland forest, agricultural land	Topsoil segregation
LY-069	L126.7	0.2	Upland forest, open land	Topsoil segregation
LY-070	L126.8	0.3	Open land	Crossover
LY-071	L126.8	0.1	Upland forest, open land	Crossover
LY-072	L126.8	0.2	Agricultural land	Point of intersection
LY-072.1	L126.8	0.2	Agricultural land	Topsoil segregation
LY-072.2	L127.0	0.2	Agricultural land	Topsoil segregation
LY-073	L126.8	0.1	Open land	Point of intersection
LY-074	L127.1	0.1	Upland forest, open land	Road crossing
LY-076	L127.2	0.2	Upland forest, agricultural land	Topsoil segregation
LY-076.1	L127.3	0.1	Agricultural land, upland forest	Road crossing
LY-076.2	L127.3	0.1	Upland forest	Stream crossing
LY-076.3	L127.3	0.1	Open land	Road crossing
LY-077	L127.4	0.1	Agricultural land	Stream crossing
LY-078	L127.6	1.3	Agricultural land	Topsoil segregation
LY-079	L127.8	0.1	Agricultural land	Road crossing
LY-080	L127.9	0.1	Agricultural land	Road crossing
LY-081	L127.9	0.5	Agricultural land	Topsoil segregation
LY-082	L128.8	0.3	Upland forest	Side slope
LY-083	L128.8	0.2	Upland forest	Road crossing
Unity Loop Subtotal		**15.8**		
MAINLINE A AND B REPLACEMENTS				
Prince William				
PW-001	1578.7	<0.1	Upland forest	Hydrotest area
PW-002	1578.8	0.3	Residential	Spoil storage
PW-003	1578.9	0.1	Residential	Stream crossing
PW-004	1579.0	0.2	Residential	Spoil storage
PW-005	1579.2	0.3	Residential open land	Spoil storage
PW-006	1579.3	0.2	Residential open land	Spoil storage
PW-007	1579.5	0.3	Residential open land	Spoil storage
PW-008	1579.6	0.1	Residential open land	Stream crossing
PW-009	1579.7	0.2	Residential open land	Stream crossing
PW-010	1579.8	0.1	Upland forest open land	Stream crossing
PW-011	1579.9	0.1	Upland forest open land	Valve fabrication
PW-012	1580.8	0.1	Upland forest open land	Spoil storage
PW-013	1580.9	0.2	Open land	Spoil storage
Mainline A & B Replacements Subtotal		**2.0**		
PROJECT TOTAL		**513.1**		

[a] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M-####) preceding the milepost value.

[b] All values rounded to the nearest tenth; total(s) may not match sum of addends due to rounding.

APPENDIX D

PRIVATE ACCESS ROADS ASSOCIATED WITH THE ATLANTIC SUNRISE PROJECT

APPENDIX D

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
PENNSYLVANIA											
Central Penn Line North											
Luzerne County											
AR-LU-006	5.7	Gravel	None	Temp.	Transportation; agricultural land; upland forest	20	1,115	20	1.2	0.0	Required for access to right-of-way near pipeline crossover location
AR-LU-007.1	6.7	Vegetation	New	Perm.	Open land; upland forest	0	206	20	<0.1	<0.1	Required for valve site access
AR-LU-008	7.3	Gravel	Trim trees and add aggregate	Temp.	Transportation; open land; upland forest; residential	10	3,574	20	3.8	0.0	Required for access to right-of-way near stream crossing
AR-LU-009	M-0056 0.7	Gravel	Trim trees and add aggregate	Temp.	Transportation; upland forest	10	344	20	0.3	0.0	Required for access to right-of-way near pipeline crossover location
AR-LU-009.1	13.4	Gravel	None	Perm.	Transportation	18	593	20	0.4	0.2	Required for access to right-of-way near road crossing
AR-LU-011	17.2	Gravel	Trim trees and add aggregate	Temp.	Residential land; upland forest	12	619	20	0.3	0.0	Required for access to right-of-way near pipeline crossover location
AR-LU-012	17.5	Gravel/dirt/ vegetation	Trim trees and add aggregate	Temp.	Open land; upland forest; agricultural	10	1,078	20	0.4	0.0	Required for access to right-of-way near stream crossing
AR-LU-013.1	21.2	Gravel/dirt/ vegetation	Trim trees and add aggregate	Perm.	Transportation; open land; upland forest	10	1,300	20	1.6	0.4	Required for valve and regulator site access
AR-LU-014	21.5	Gravel	None	Temp.	Open land	15	176	20	0.7	0.0	Required for access to right-of-way near wetland crossing
AR-LU-015	24.2	Gravel	Trim trees and add aggregate	Temp.	Transportation;	15	352	20	<0.1	0.0	Required for access to right-of-way
AR-LU-019	25.4	Gravel	Add aggregate	Temp.	Transportation; open land; upland forest	15	620	20	0.6	0.0	Required for access to right-of-way near road crossing

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-LU-020.1	25.5	Gravel	None	Temp.	Industrial/ commercial	12	56	20	<0.1	0.0	Required for turnaround
AR-LU-020	25.7	Gravel	Add aggregate	Temp.	Transportation; open land	12	683	20	0.8	0.0	Required for access to right-of-way near road and stream crossing
Wyoming County											
AR-WY-021	M-0088 2.4	Gravel/ vegetation	Trim trees and add aggregate	Temp.	Transportation; upland forest	10	694	20	0.4	0.0	Required for access to right-of-way
AR-WY-023	30.6	Gravel/dirt/ vegetation	Trim trees and add aggregate	Temp.	Transportation; open land; upland forest	10	771	20	0.8	0.0	Required for access to right-of-way near pipeline crossover location
AR-WY-024	M-0071 0.9	Gravel	None	Perm.	Transportation; open land	20	973	20	1.3	0.5	Required for access ASR Springville Station
AR-WY-025	M-0071 2.2	Gravel/dirt/ vegetation	Add aggregate	Temp.	Transportation; agricultural; upland forest	18	909	20	1.0	0.0	Required for access to right-of-way near wetland crossings
AR-WY-026	M-0071 2.7	Gravel	None	Temp.	Transportation; open land	12	1,281	20	1.9	0.0	Required for access to right-of-way near residences and road crossing
AR-WY-027	34.8	Vegetation	New	Temp.	Open land	0	146	20	0.1	0.0	Required for access to right-of-way near road crossing
AR-WY-027.1	34.8	Gravel	None	Temp.	Transportation; open land	10	100	20	<0.1	0.0	Required for access to horizontal directional drill (HDD) entry box
AR-WY-028	35.8	Dirt/ vegetation	Trim trees and add aggregate	Perm.	Transportation; open land; agricultural land	10	533	20	0.7	0.2	Required for valve site access
AR-WY-029	35.3	Gravel/dirt/ vegetation	Trim trees and add aggregate	Temp.	Transportation; open land; upland forest	12	2,144	20	1.4	0.4	Required for access to right-of-way
AR-WY-029.1	35.2	Gravel/ Vegetation	Grading and add aggregate/ Partially New	Perm.	Transportation; Industrial/ commercial; agricultural land	12	1,494	20	1.8	0.3	Required for access to mainline valve (MLV) site

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-WY-030	37.0	Gravel/dirt/ vegetation	Add aggregate	Temp.	Transportation; open land	15	1,172	20	1.2	0.0	Required for access to right-of-way near wetland and stream crossings
AR-WY-031	40.6	Gravel/dirt	Trim trees and add aggregate	Temp.	Transportation; agricultural; upland forest	16	1,079	20	1.1	0.0	Required for access to right-of-way near wetland crossings
AR-WY-032	43.4	Vegetation	Trim trees and add aggregate	Temp.	Transportation; open land; upland forest	10	407	20	2.3	0.0	Required for access to right-of-way near wetland and stream crossings
AR-WY-034.1	44.4	Vegetation	Add aggregate	Temp.	Agricultural; transportation	10	50	20	<0.1	0.0	Required for access to right-of-way
AR-WY-035.3	44.6	Vegetation	New	Perm.	Agricultural land	0	2,945	20	0.1	<0.1	Required for station access
AR-WY-036	45.7	Gravel/ vegetation	Trim trees and add aggregate	Temp.	Transportation; open land; upland forest	11	316	20	0.6	0.0	Required for access to right-of-way near wetland crossing
AR-WY-039	M-0080 0.3	Gravel/ vegetation	Trim trees and add aggregate	Temp.	Transportation; residential; upland forest	8	434	20	0.4	0.0	Required for access to right-of-way near road, stream and wetland crossings
AR-WY-039.1	M-0080 0.4	Gravel	Add aggregate	Temp.	Residential; upland forest	12	152	20	0.1	0.0	Required for access to right-of-way
AR-WY-040.2	M-0080 0.4	Vegetation	New	Temp.	Residential; industrial/ commercial	0	204	20	0.2	0.0	Required for access to right-of-way
Susquehanna County											
AR-SU-041	50.7	Gravel	Trim trees and add aggregate	Perm.	Transportation; open land; upland forest	13	2,071	20	1.3	0.4	Required for access to right-of-way near wetland crossings
AR-SU-044	52.1	Gravel	None	Temp.	Transportation; open land	20	2,310	20	2.6	0.0	Required for access to right-of-way near pipeline crossover location and stream crossing
AR-SU-045	52.9	Gravel/ vegetation	Add aggregate	Temp.	Transportation; open land	15	229	20	0.2	0.0	Required for access to right-of-way

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-SU-046	56.4	Gravel/ vegetation	New	Perm.	Open land	20	793	20	0.9	0.3	Required for access to right-of-way near stream and wetland crossings
AR-SU-046.1	57.1	Vegetation	New	Temp.	Transportation	0	31	20	<0.1	<0.1	Required for contractor staging area access
AR-SU-046.4	57.1	Vegetation	New	Temp.	Transportation	0	22	20	<0.1	<0.1	Required for contractor staging area access
AR-SU-047	57.3	Gravel	None	Perm.	Transportation; agricultural land	20	808	20	0.9	0.4	Required for access to right-of-way, proposed MLV site and existing compressor station
AR-SU-047.1	57.3	Vegetation	New	Perm.	Agricultural land	0	176	20	0.1	0.1	Required for access to right-of-way, proposed MLV site and existing compressor station
						Central Penn Line North Subtotal			**32.0**	**3.1**	
Central Penn Line South											
Lancaster County											
AR-LA-001.1	0.1	Vegetation	New	Perm.	Agricultural land	0	2,765	20	2.6	0.6	New permanent access road needed for access to MLV site at milepost 0.0
AR-LA-002	M-0147 0.1	Dirt	Add gravel	Temp.	Agricultural land	12	316	20	0.3	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LA-006.1	4.9	Dirt	New`	Temp.	Agricultural land; upland forest	0	586	20	0.6	0.0	Temporary access road needed for improved access to right-of-way during construction

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-LA-009.1	8.1	Field road	Construct Road through AG field and add gravel	Temp.	Agricultural land	10	170	20	0.1	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LA-010.2	8.2	Vegetation	New	Perm.	Agricultural land	0	82	20	0.1	0.1	Permanent access road to access proposed valve site
AR-LA-012.1	12.1	Gravel, dirt	Widen road, add gravel	Temp.	Agricultural land	14	446	20	0.4	0.0	Temporary access road needed for improved access to HDD entry point during construction
AR-LA-012.2	12.8	Gravel, dirt	Add gravel	Temp.	Agricultural land	0	215	20	0.1	0.0	Temporary access road needed for improved access to HDD exit point during construction
AR-LA-013.1	M-0248 0.2	Vegetation	New	Temp.	Agricultural land	0	919	20	0.6	0.0	Required for access to right-of-way
AR-LA-013.2	M-0248 0.2	Vegetation	New	Temp.	Agricultural land	0	295	20	0.2	0.0	Required for access to right-of-way
AR-LA-014.1	14.9	Gravel	Add aggregate	Temp.	Agricultural land	14	198	20	0.2	0.0	Required for access to CSA
AR-LA-016	15.6	Gravel	Add gravel	Temp.	Agricultural land	10	181	20	0.1	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LA-018.3	M-0185 0.1	New	Construct road through field and add gravel	Perm.	Agricultural land	0	356	20	0.2	0.2	Permanent access road to access proposed valve site
AR-LA-020	M-0396 0.1	Forested/ gravel/paved	Clear timber, widen, add gravel, construct 400 ft. of new road	Perm.	Upland forest; open land	12	1,238	20	0.8	0.4	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-LA-021	M-0396 0.1	Paved/dirt/ gravel	Construct new road thru field, add gravel, trim trees	Perm.	Residential; agricultural land; upland forest	12	2,488	20	2.8	0.8	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete
AR-LA-023.3	M-0396 0.1	Vegetative	Add aggregate	Temp.	Transportation; agricultural land	15	734	20	0.2	0.0	Required for access to right-of-way
AR-LA-023.2	21.5	Vegetation	Add aggregate	Temp.	Upland forest; open land	0	1,396	20	1.1	0.0	Required for access to right-of-way
AR-LA-026.2.1	M-0209 0.5	Vegetation	New	Perm.	Agricultural land	0	78	20	<0.1	<0.1	Permanent access road to access proposed valve site
AR-LA-026.4	27.0	Vegetation	New	Temp.	Agricultural land	0	793	20	0.8	0.0	Required for access to right-of-way
AR-LA-027.05	27.6	Vegetation	New	Temp.	Agricultural land	0	1	20	<0.1	0.0	Temporary access road needed for improved access to right-of-way during construction and access the CSA
AR-LA-027.1	M-0162 0.3	Field road	Construct road; add gravel	Temp.	Agricultural land transportation	0	2,413	20	3.3	0.0	Gain access to the north side of Highway 283 boring site
AR-LA-028.1	30.6	Field road	Construct road; add gravel	Temp.	Agricultural land	12	1,247	20	1.3	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LA-029.3	29.7	Vegetation	New	Perm.	Agricultural land	0	64	20	<0.1	<0.1	Permanent access road to access proposed valve site
AR-LA-030	35.4	Gravel and dirt	Add gravel and widen	Temp.	Agricultural land; transportation; open land; residential	12	1,050	20	0.6	0.0	Temporary access road needed for improved access to right-of-way during construction

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
Lebanon County											
AR-LE-033.1	36.6	Gravel	Widen; add gravel	Temp.	Residential; agricultural land	20	2,754	20	0.5	0.1	Gain access to south side of I-76 boring site
AR-LE-033.2	37.4		New	Temp.	Agricultural land	0	17	20	<0.1	0.0	Temporary access road needed for improved access to right-of-way during construction and access the CSA
AR-LE-037.2	42.6	Vegetation	New	Perm.	Agricultural land	0	116	20	<0.1	<0.1	Permanent access road to access proposed valve site
AR-LE-039.1	M-0183 1.0	Paved and dirt	Construct road from end of pavement, add gravel	Temp.	Residential	15	102	20	0.1	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-040	M-0183 1.1	Forest/gravel	Trim trees, add gravel	Temp.	Transportation; open land	15	790	20	0.9	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-042	47.4	Gravel/paved	Add gravel	Temp.	Residential; agricultural land	12	1,104	20	1.2	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-047	53.6	Gravel	Widen, add gravel, increase turn radius	Temp.	Transportation	10	254	20	0.2	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-049	M-0199 0.1	Gravel	Add gravel	Temp.	Transportation	8	827	20	0.9	0.0	Temporary access road needed for improved access to right-of-way during construction

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Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-LE-050	54.1	Dirt and gravel	Add gravel, trim trees, clear timber	Temp.	Upland forest: open land	8	812	20	0.6	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-050.1.1	56.8	Vegetation	New	Perm.	Agricultural land	0	40	20	<0.1	<0.1	Permanent access road to access proposed valve site
AR-LE-050.3	M-205 0.15	Gravel	Add gravel, trim trees	Temp.	Transportation; upland forest	12	3,106	20	2.5	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-052	M-230 0.72	Forest and gravel	Clear timber, trim trees, add gravel	Perm.	Forest; open land	12	3,582	20	3.9	1.2	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete
AR-LE-052.1	59.3	Dirt and gravel	Add gravel, trim trees	Temp.	Transportation	8	830	20	0.3	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-054	M-0176 0.2	Gravel and dirt	Add gravel, trim trees	Perm.	Agricultural land; open land	6	667	20	0.7	0.2	Temporary access road needed for improved access to right-of-way during construction
AR-LE-055	M-0200 0.5	Gravel	Add gravel	Perm.	Agricultural land; residential; transportation	15	1,304	20	1.4	0.0	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete.

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-LE-056	60.9	Dirt/gravel	Add gravel and water bars along road to break runoff velocity	Temp.	Agricultural land; transportation; industrial/ commercial	8	1,021	20	1.1	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-057	61.3	Dirt	Add gravel	Temp.	Agricultural land; residential	8	914	20	0.9	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-057.1	61.45	Gravel	None	Perm.	Residential	10	600	20	0.4	0.2	Required for access to rectifier and cathodic protection equipment
AR-LE-059.1	62.5	Existing	Widen; add gravel ; trim trees	Temp.	Upland forest	6	177	20	0.1	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-LE-060	63.7	Gravel	Add gravel, trim trees	Temp.	Agricultural land; transportation; open land; upland forest	10	1,120	20	1.2	0.0	Temporary access road needed for improved access to right-of-way during construction
Schuylkill County											
AR-SC-060.1.1	65.2	Vegetation	New	Temp.	Residential	20	117	20	0.2	0.1	Temporary access road needed for improved access to right-of-way during construction
AR-SC-060.2	65.2	Asphalt	Add gravel, trim trees	Temp.	Residential; transportation	20	190	20	0.2	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-SC-060.3	65.1	Vegetation	Build new Temporary access road across ag land, add gravel	Temp.	Agricultural land; transportation	0	59	20	0.1	0.0	Prefer access to staging area

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Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-SC-060.5	65.0	Gravel/Dirt/ Vegetation	Add aggregate	Temp.	Agricultural land	8	988	20	1.5	0.0	Required for access to CSA
AR-SC-061.1	M-0177 0.0	Dirt	Add gravel, trim trees	Temp.	Residential; open land; upland forest	8	2,647	20	2.2	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-SC-063	67.7	Gravel	Trim trees, re-work drain ditch, add gravel	Perm.	Transportation agricultural land	10	555	20	0.5	0.2	Permanent access road to access proposed valve site and temporary access road needed for improved access to right-of-way during construction
AR-SC-064	69.5	Forest	Clear 5 or 6 trees, widen entrance, add gravel	Temp.	Upland forest	10	2,059	20	2.3	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-SC-064.1	M-0181 0.0	Dirt/gravel	Widen; add gravel	Perm.	Transportation; upland forest	12	543	20	0.2	0.2	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete
AR-SC-065	M-0181 0.3	Asphalt/ forest	Trim trees, add gravel	Temp.	Residential; transportation; upland forest	12	1,031	20	1.1	0.0	Temporary access road needed for access near road crossing
AR-SC-067.1	73.41	Gravel/ Vegetation	Trim trees, add gravel	Temp.	Transportation; upland forest	10	798	20	1.3	0.0	Required for access to right-of-way
AR-SC-067.2	73.4	Vegetation	New	Temp.	Transportation; upland forest	0	565	20	0.6	0.0	Required for access to right-of-way
AR-SC-067.3	73.3	Gravel	Widen; Add gravel.	Temp.	Transportation; upland forest	8	460	14	0.6	0.0	Required for access to right-of-way

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Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-SC-068	73.9	Gravel	Last 300 ft. is new road-add 300 ft. gravel	Temp.	Industrial and commercial land; open space; transportation; upland forest	20	10,711	20	12.2	0.0	Temporary access road needed for access near railroad crossing
AR-SC-069	75.0	Gravel	Add gravel	Temp.	Transportation; upland forest	10	1,058	20	1.2	0.0	Temporary access road needed for access near road crossing
AR-SC-070	M-0316 0.7	Gravel	No modifications or improvements needed	Perm.	Upland forest; open land	16	5,335	20	6.1	1.9	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete
AR-SC-071	78.0	Gravel	Widen entrance, widen turn, add gravel	Temp.	Agricultural land; transportation	12	2,600	20	3.0	0.0	Temporary access road needed for access to potential water source and to creek crossing
AR-SC-072	M-0213 0.25	Forest	Clear trees, grade, add gravel	Temp.	Upland forest; open land; transportation	10	11,382	20	13.0	0.0	Temporary access road needed for improved access to right-of-way in forested area
AR-SC-073	79.9	Gravel/dirt	Install two culverts, add gravel, divert drainage	Temp.	Agricultural land; open land	12	2,344	20	2.6	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-SC-073.5	80.8	Vegetation	New	Perm.	Transportation; agricultural		98		0.1	0.1	Required for access to MLV

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Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
Northumberland County											
AR-NO-075	83.2	Forest	Improve entrance from south, erosion control needed at stream	Perm.	Upland forest; transportation	16	13,085	20	7.1	2.4	Permanent access road needed for access near creek crossing and potential test water source
AR-NO-076	85.3	Gravel/forest	Slight blade work	Perm.	Upland forest; open land; transportation	20	10,496	20	12.0	6.1	Permanent access road needed for improved access in long forested area.
AR-NO-076.1	85.3	Gravel	Add Aggregate	Temp.	Transportation	20	6,378	20	7.2	0.0	Required for access to right-of-way
AR-NO-077	M-0240 0.2	Asphalt	Trim trees to access bore pit north of Hwy. 901.	Temp.	Residential; transportation; upland forest	20	1,496	20	1.5	0.0	Temporary access road needed to get to location of bore pit on north side of Hwy. 901
AR-NO-078.1	M-0240 0.2	Gravel	None	Temp.	Industrial/ commercial land; upland forest	10	3,509	20	3.0	0.0	Required for access to right-of-way
AR-NO-079	86.5	Dirt/gravel	Grade out gravel stockpile	Perm.	Industrial/ commercial land	12	444	20	0.4	0.2	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete
AR-NO-081	M-235 0.4	Gravel/forest	Trim trees, grade	Temp.	Open land; transportation; industrial/ commercial land	0	1,392	20	1.7	0.0	Temporary access road needed to load/ unload equipment north of Hwy. 61
AR-NO-082	M-235 0.9	Forest/dirt	Clear trees, grade, add gravel	Temp.	Upland forest; industrial/ commercial land	10	4,450	20	4.8	0.0	Temporary access road needed for improved access in long forested area

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Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-NO-82.1	88.2	Gravel	None	Temp.	Transportation; industrial/ commercial land; upland forest		4,127		4.1	0.0	Required for access to right-of-way
AR-NO-084	89.1	Mining/dirt	Replace culvert, entrance from north only	Perm.	Upland forest; transportation	11	2,018	20	2.2	0.5	Temporary access road needed for improved access to right-of-way during construction and to be kept by Operations after construction complete
Columbia County											
AR-CO-085.1.3	M-0167 0.0	Vegetation	New	Perm.	Agricultural land	0	326	20	0.1	0.1	Permanent access road to access proposed valve site
AR-CO-091	95.7	Paved/dirt	Add gravel	Temp.	Residential; agricultural land; transportation; open land	10	2,383	20	2.6	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-CO-093	99.1	Gravel/dirt	Add gravel	Temp.	Agricultural land; residential; transportation	12	1,895	20	2.1	0.0	Temporary access to geo-technical bore holes and to potential hydrotest water source
AR-CO-094.1	103.0	Gravel/dirt	Add gravel	Temp.	Residential; agricultural land; transportation; upland forest	12	2,083	20	2.3	0.0	Temporary access road to right-of-way during construction
AR-CO-094.1.1	100.1	Field road	Widen ; Add gravel	Temp.	Agricultural land; transportation	1	799	20	0.9	0.0	Gain access to HDD exit location
AR-CO-095.1.1.3	M-0423 0.4	Vegetation	New	Perm.	Transportation	0	300	14	0.1	0.1	Permanent access road needed for valve site

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Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-CO-094.1.2	M-0423 1.2	Gravel	None	Temp.	Transportation	10	1890	10	1.0	0.0	Temporary access road to right-of-way during construction
AR-CO-094.1.3	M-0423 1.46	Gravel/Dirt	None	Temp.	Transportation	10	665	10	0.3	0.0	Gain access to HDD entry location
AR-CO-096.1	M-0423 2.9	Gravel/Dirt	None	Temp.	Transportation	14	650	14	0.7	0.0	Gain access to HDD exit location
AR-CO-096.2	M-0423 3.0	Gravel/Dirt	Widen; Add gravel	Temp.	Transportation	10	450	14	0.5	0.0	Temporary access road to right-of-way during construction
AR-CO-097.1	M-0423 3.6	Gravel/Dirt	Widen; Add gravel	Temp.	Transportation	6	560	14	0.6	0.0	Temporary access road to right-of-way during construction
AR-CO-097.2	M-0423 3.9	Grass	New	Temp.	Transportation	0	60	14	0.1	0.0	Temporary access road to right-of-way during construction
AR-CO-097.3	M-0423 3.9	Dirt/Grass	New	Temp.	Transportation	0	75	20	0.1	0.0	Temporary access road to right-of-way during construction
AR-CO-098.1	M-0423 4.7	Gravel	Widen; Add gravel	Temp.	Transportation	9	380	14	0.3	0.0	Temporary access road to right-of-way during construction
AR-CO-098.2	M-0423 4.8	Gravel/Grass	Add gravel over second half through grass	Temp.	Transportation	13	1180	14	1.3	0.0	Temporary access road to right-of-way during construction
AR-CO-95.4	101.8	Dirt	None	Temp.	Industrial/ commercial	8	93	20	<0.1	0.0	Required for access to rectifier and cathodic protection equipment
AR-CO-099	106.9	Gravel/dirt	Trim trees, add gravel	Temp.	Residential;	10	405	20	0.1	0.0	Temporary access road needed for improved access to right-of-way near road crossing
AR-CO-100	108.5	Paved/dirt	Add gravel	Temp.	Residential; agricultural land; transportation; upland forest	10	2,324	20	2.6	0.0	Temporary access road needed for improved access to right-of-way during construction

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-CO-101	108.9	Gravel/dirt	Widen entrance, move mailboxes, increase turn radius, add gravel	Temp.	Residential; agricultural land; transportation	12	796	20	0.8	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-CO-102	109.7	Gravel	Add gravel	Temp.	Transportation; agricultural land	12	425	20	0.3	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-CO-102.1	112.4	Vegetation	New	Perm.	Transportation	0	6	20	<0.1	0.0	Required for station access
AR-CO-103	116.1	Gravel/dirt	Trim few overhanging trees, add gravel	Temp.	Agricultural land; open land; transportation; upland forest	13	2,013	20	2.3	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-CO-106	120.5	Dirt	Move power pole, trim trees, add gravel	Temp.	Upland forest; agricultural land; open land	10	1,063	20	1.1	0.0	Temporary access road needed for improved access to right-of-way during construction
AR-CO-106.2	123.2	Gravel/Dirt/ Vegetation	Add aggregate	Perm.	Open land	10	479	20	0.2	0.0	Required for access to right-of-way
AR-CO-106.3	123.2	Vegetation	New	Perm.	Open land	0	22	20	<0.1	0.0	Required for access to right-of-way
AR-CO-109	125.0	Vegetation	Grade and add gravel	Temp.	Transportation	0	31	20	<0.1	0.0	Temporary access road needed for improved access to right-of-way during construction and access the CSA
AR-CO-106.1	125.1	None	Add gravel	Perm.	Open land	0	711	20	0.8	0.3	Permanent access road needed for valve site

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-CO-107.1	125.2	Forest/dirt	Clear timber, grade and add gravel	Temp.	Upland forest	0	733	20	<0.1	<0.1	Temporary access road needed for improved access to right-of-way during construction
						Central Penn Line South Subtotal			154.9	18.1	
Chapman Loop Clinton County											
AR-CL-001	L185.9	Gravel/dirt	Add aggregate	Perm.	Open land; residential; upland forest	12	9,070	20	12.0	3.0	Required for access to right-of-way and proposed valve site
AR-CL-002	L187.6	Gravel/dirt	Trim trees and add aggregate	Temp.	Transportation; upland forest	15	715	20	0.8	0.0	Required for access to right-of-way
AR-CL-004	L188.9	Vegetation	New	Perm.	Upland forest	0	913	20	0.3	0.3	Permanent access road for valve/ launcher site
						Chapman Loop Subtotal			13.1	3.2	
Unity Loop Lycoming County											
AR-LY-002.1	120.4	Vegetation	New	Perm.	Agricultural land; open land; upland forest	0	613	20	2.1	0.4	Required for access to MLV
AR-LY-003	120.7	Vegetation	New	Temp.	Residential; open land	0	258	20	0.2	0.0	Required for access to right-of-way west of road crossing – steep road banks
AR-LY-004	120.9Vegetation	Vegetation/ dirt	Trim trees and add aggregate	Temp.	Residential; agricultural land; upland forest	12	973	20	1.1	0.0	Required for access to right-of-way
AR-LY-006	122.7	Vegetation/ dirt	Trim trees and add aggregate	Temp.	Open land; upland forest	12	72	20	0.1	0.0	Required for access to right-of-way west of road crossing
AR-LY-007	123.5	Gravel	None	Temp.	Transportation; open land; upland forest; residential; agricultural land	20	2,788	20	2.6	0.0	Required for access to right-of-way east of steep slope and valve site

APPENDIX D (cont'd)

Private Access Roads Associated with the Atlantic Sunrise Project

Facility/State/ County/ Access Road ID	Milepost[a]	Existing Road Type	Modification Required/New	Use (Perm. or Temp.)	Existing Land Use	Existing Width (feet)	Length (feet)	Constr. Width (feet)	Land Affected During Constr. (acres)[b]	Land Affected During Oper. (acres)[c]	Justification
AR-LY-008	124.4	Vegetation/ dirt	Trim trees and add aggregate	Temp.	Residential; upland forest	12	441	20	0.4	0.0	Required for access to right-of-way east of steep banks at road crossing
AR-LY-009	125.0	Vegetation/ dirt	Trim trees and add aggregate	Temp.	Open land	12	220	20	0.3	0.0	Required for access to right-of-way
AR-LY-009.1	125.7	Gravel	None	Temp.	Open land	10	2,438	20	0.6	0.0	Required for access to hydrostatic testing water source
AR-LY-011	126.9	Gravel/ vegetation/ dirt	Add aggregate	Temp.	Open land; Upland forest	12	1,233	20	1.3	0.0	Required for access to right-of-way near pipeline crossover location
AR-LY-012	127.1	Vegetation	Trim trees and add aggregate	Temp.	Open land	0	229	20	0.2	0.0	Required for access to right-of-way
AR-LY-014	127.8	Dirt/ vegetation	Add aggregate	Temp.	agricultural land	0	176	20	0.1	0.0	Required for access to right-of-way west of road crossing – steep road banks
							Unity Loop Subtotal		**8.9**	**0.4**	
VIRGINIA											
Virginia Line A and B Replacement											
Prince Williams County											
AR-PW-003	1579.8	Vegetation	Add aggregate	Temp.	Open land	0	1,375	20	0.2	0.0	Required for access from the public road to the workspace
AR-PW-002	1580.7	Vegetation	Add aggregate	Temp.	Open land	0	923	20	0.9	0.0	Required for access from the public road to the workspace
AR-PW-004	1580.0	Vegetation	Add aggregate	Perm.	Open land	0	227	20	<0.1	0.0	Required for access to MLV
							Virginia Line A and B Replacement Subtotal		**1.2**	**0.0**	
PROJECT TOTAL									**210.1**	**25.1**	

[a] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M-####) preceding the milepost value.

[b] Land affected during construction includes the entire width of permanent and temporary access roads and any additional temporary workspace needed along access roads.

[c] Land affected during operation includes permanent access roads needed to access the project during operation.

APPENDIX E

TRANSCONTINENTAL GAS PIPELINE COMPANY LLC'S
UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN AND
WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

Transcontinental Gas Pipe Line Company, LLC

Transco Project-Specific Upland Erosion Control, Revegetation, and Maintenance Plan

Atlantic Sunrise Project

March 2015

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I. APPLICABILITY

A. The intent of this Plan is to identify baseline mitigation measures for minimizing erosion and enhancing revegetation for the Transcontinental Gas Pipe Line Company, LLC (Transco) Atlantic Sunrise Project (Project). Transco will specify in its application for a new FERC authorization and in prior notice and advance notice filings, any individual measures in this Plan it considers unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Transco will also explain how those alternative measures would achieve a comparable level of mitigation. Deviations from the FERC Plan proposed by Transco to reflect site-specific conditions are **bolded** in the text.

Once the Project is authorized, Transco will request further changes as variances to the measures in the Transco Plan. The Director of the Office of Energy Projects (Director) will consider approval of variances upon Transco's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;

2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on wetland and waterbody systems are addressed in the Transco Project-specific Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of the Transco Plan, Transco Procedures, the environmental conditions of the FERC's Orders, the mitigation measures (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;

7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction;

10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies,

cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

    a. on a daily basis in areas of active construction or equipment operation;

    b. a minimum of once a week in areas with no construction or equipment operation; and

    c. within 24 hours of each 0.5 inch of rainfall.

14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;

15. Keeping records of compliance with the environmental conditions of the FERC's Orders, and the mitigation measures in the Transco application submitted to the FERC, and other federal or state environmental permits during active construction and restoration;

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and

17. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with section III.E.

III. PRECONSTRUCTION PLANNING

Transco will do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, additional temporary workspaces (ATWS) areas, pipe storage and contractor yards, borrow and disposal areas, access roads) that would be needed for safe construction. Transco will ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.

2. Transco will expand any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.

3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.

2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the Project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. AGENCY COORDINATION

Transco will coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities. Refer to the Transco Project-specific Noxious and Invasive Plant Management Plan.

3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and wildlife movement and protection during construction.

4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas. Refer to the Transco Project-specific Blasting Plan.

G. SPILL PREVENTION AND RESPONSE PROCEDURES

Transco will develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. A copy will be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. Refer to the Transco Project-specific Spill Plan for Oil and Hazardous Materials.

H. RESIDENTIAL CONSTRUCTION

For all properties with residences located within 50 feet of construction work areas, Transco will avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following clean-up operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

I. WINTER CONSTRUCTION PLANS

Transco has filed a Project-specific Winter Construction Plan with the FERC application.

The plan addresses:

1. winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);

2. stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and

3. final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance will be limited to the construction right-of-way, extra work space areas, ATWS areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any Project- related ground disturbing activities outside these areas will require prior Director approval. This requirement does not apply to activities needed to comply with the Plan and Procedures (i.e., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.

2. The Transco construction rights-of-way widths in upland locations for this Project will include:

a. 90 feet for the Central Penn Line (CPL) North and Chapman Loop;

b. 100 feet for the CPL South and Unity Loop; and

c. 150 feet for the Mainline A & B Replacements.

Transco will provide extra work spaces and ATWS areas outside of the construction rights-of-way for full construction right-of-way topsoil segregation and to ensure safe construction where required by topographic conditions (e.g., side-slopes) or soil limitations. Extra work space and ATWS areas may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

Project use of extra work space and ATWS areas outside of authorized work areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. **Transco will request variances (per section I.A) for these additional areas and will report the requested and approved variances in its weekly construction reports to FERC.** The following materials will be included in the reports:

a. the location of each additional area by milepost and reference to previously filed alignment sheets showing the additional areas;

b. identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and

c. a statement that landowner approval has been obtained and is available in project files.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves

otherwise, Transco will prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

a. cultivated or rotated croplands, and managed pastures;

b. residential areas;

c. hayfields; and

d. other areas at the landowner's or land managing agency's request.

2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.

3. Where topsoil segregation is required:

a. segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and

b. make every effort to segregate the entire topsoil layer in soils with less than 12 inches of topsoil.

4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.

6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction. Refer to the Transco Project-specific Traffic and Transportation Management Plan.

2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.

3. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

   a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

   b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing in Pennsylvania (closer spacing shall be used if necessary):

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

   c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

   d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental

resource areas.

2. Temporary Trench Plugs

Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.

b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3. Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

4. Mulch

a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch all disturbed upland areas (except cultivated cropland) before seeding if:

(1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.

h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

V. RESTORATION

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

   Transco will file with the Secretary for the review and written approval of the Director, a Winter Construction Plan (as specified in section III.I). Refer to the Transco Project-specific Winter Construction Plan.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock **in excess of 4 inches** from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or

wetland. Install trench breakers at wetland boundaries, as specified in the Transco Procedures.

e. Trench breakers will be installed in wetlands to prevent water from traveling along the trench and altering micro-watersheds within the wetlands.

2. Permanent Slope Breakers

a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.

b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. **Unless restricted by state permitting,** slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling. Refer to the Transco Project-specific Agricultural Construction and Monitoring Plan.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

a. Transco will ensure successful revegetation of soils disturbed by Project-related activities, except as noted in section V.D.1.b.

b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application.

3. Seeding Requirements

a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.

c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a through V.D.3.c.

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

a. signs;

b. fences with locking gates;

c. slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

d. conifers or other appropriate trees or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES AND REPORTING

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

   Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.

4. Restoration will be considered successful when the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per section V.A.6), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands will not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case will routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

B. REPORTING

1. Transco will maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions;

   e. the location of any subsurface drainage repairs or improvements made during restoration; and

   f. any problem areas and how they were addressed.

2. Transco will file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by section VII.A.1; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction.

Transcontinental Gas Pipe Line Company, LLC

Transco Project-Specific Wetland and Waterbody Construction and Mitigation Procedures

Atlantic Sunrise Project

March 2015

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I. APPLICABILITY

A. The intent of these Procedures is to identify baseline mitigation measures for minimizing the extent and duration of the Transcontinental Gas Pipe Line Company, LLC (Transco) Atlantic Sunrise Project (Project) related disturbance on wetlands and waterbodies. Transco will specify in its applications for a new FERC authorization, and in prior notice and advance notice filings, any individual measures in these Procedures it considers unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Transco will also explain how those alternative measures will achieve a comparable level of mitigation. Deviations from the FERC Procedures proposed by Transco to reflect site-specific conditions are **bolded** in the text.

Once the Project is authorized, Transco may request further changes as variances to the measures in the Transco Procedures. The Director of the Office of Energy Projects (Director) will consider approval of variances upon Transco's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;

2. is necessary because a portion of these Procedures is infeasible or unworkable based on Project-specific conditions; or

3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on non-wetland areas are addressed in the Transco Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Transco Plan).

B. Definitions

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:

   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;

   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and

   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.

2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

II. PRECONSTRUCTION FILING

A. The following information will be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:

1. site-specific justifications for additional temporary workspace (ATWS) areas that would be closer than 50 feet from a waterbody or wetland; and

2. site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands.

B. The following information will be filed with the Secretary prior to the beginning of construction:

1. Spill Prevention and Response Procedures specified in Section IV.A;

2. a schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, within any designated coldwater fishery, and within any waterbody identified as habitat for federally-listed threatened or endangered species. Transco will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice;

3. plans for horizontal directional drills (HDD) under wetlands or waterbodies, specified in Section V.B.6.d;

4. site-specific plans for major waterbody crossings, described in Section V.B.9;

5. a wetland delineation report as described in Section VI.A.1, and

6. the hydrostatic testing information specified in Section VII.B.3.

III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the Project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in the Transco Plan.

IV. PRECONSTRUCTION PLANNING

A. Transco will develop a project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. A copy will be filed with the Secretary prior to construction and made available in the field on each construction spread. Refer to the Transco Project-specific Spill Plan for Oil and Hazardous Materials.

1. Transco and its contractors will structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. Transco and its contractors must, at a minimum, ensure that:

    a. all employees handling fuels and other hazardous materials are properly trained;

    b. all equipment is in good operating order and inspected on a regular basis;

    c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

    d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary;

    e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas;

    f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

    g. pumps operating within 100 feet of a waterbody or wetland boundary utilize appropriate secondary containment systems to prevent spills; and

    h. bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.

2. Transco and its contractors will structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, Transco and its contractors will:

    a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;

b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

c. know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

Transco will coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (USACE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic Section 401 water quality certification or waiver.

4. Notify appropriate federal and state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in applicable permits.

B. INSTALLATION

1. Time Window for Construction

As permitted by state agencies, instream work, except that required to install or remove equipment bridges, will occur during the following time windows:

a. PA Coldwater fisheries – Year-round;

b. PA Trout Stocked Waters – June 16 through February 28;

c. PA Wild Trout Waters – January 1 through September 30;

d. PA Class A Wild Trout Waters – April 2 through September 30;

e. PA Warmwater fisheries – Year-round (except when sensitive species are present); and

f. VA waterbody crossings (fishery classifications TBD) – TBD

Transco may request at specific identified locations to perform in-stream work outside of specific state agency windows at individual waterbodies, as approved by state agencies prior to construction.

2. Extra Work Areas

a. Locate all extra work areas (such as staging areas) and ATWS areas (such as spoil storage areas and full right-of-way topsoil) at least 50 feet away from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

In select areas, Transco will need to locate ATWS within 50 feet of a stream in areas that are not active agricultural land due to adjacent land use or topographic limitations. Transco has filed with the Secretary for review and written approval by the Director, site-specific justification for each ATWS area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. Refer to Resource Report 2, Appendix 2E of the Transco application. The justifications specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected.

b. Limit the size of ATWS areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the USACE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact.

In select areas, Transco has identified where the pipeline will be installed such that a 15-foot vegetated buffer between the waterbody and the construction right-of-way cannot be maintained. Transco has filed with the Secretary for review and written approval by the Director, site-specific justification where pipelines parallel a waterbody and the 15-foot vegetated buffer between the waterbody and the construction right-of-way cannot be maintained. Refer to

Table 2.3-8 in Resource Report 2 of the Transco application. The justifications specify the conditions that will not permit a 15-foot vegetated buffer and measures to ensure the waterbody is adequately protected.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate waterbody flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

g. Crossing of waterbodies when they are dry or frozen and not flowing may proceed using standard upland construction techniques in accordance with the Project-specific Plan, provided that the Environmental Inspector verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature. In the event of perceptible flow, the project sponsor must comply with all applicable Procedure requirements for "waterbodies" as defined in Section I.B.1.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in ATWS areas as described in Section V.B.2.

b. Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody.

5. Equipment Bridges

a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

b. Construct and maintain equipment bridges to allow unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

(1) equipment pads and culvert(s);
(2) equipment pads or railroad car bridges without culverts;
(3) clean rock fill and culvert(s); and
(4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove temporary equipment bridges as soon as practicable after permanent seeding.

f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges as soon as practicable after final cleanup.

g. Obtain any necessary approval from the USACE, or the appropriate state agency for permanent bridges.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally- designated as critical habitat.

b. Dam and Pump

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
(iii) screen pump intakes to minimize entrainment of fish;
(iv) prevent streambed scour at pump discharge; and

(v) continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

(1) install flume pipe after blasting (if necessary), but before any trenching;

(2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);

(3) properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) do not remove flume pipe during trenching, pipe laying, or backfilling activities, or initial streambed restoration efforts.; and

(5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill

For each waterbody or wetland that would be crossed using the HDD method, Transco will file with the Secretary for the review and written approval by the Director, a plan that includes:

(1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) justification that disturbed areas are limited to the minimum needed to construct the crossing;

(3) identification of any aboveground disturbance or clearing between the HDD entry and exit workspaces during construction;

(4) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(5) a contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours.

b. streambanks and unconsolidated streambeds may require additional restoration after this period;

c. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

d. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in Section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, Transco will cross intermediate waterbodies using the open-cut crossing method, with the following restrictions:

a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. all other construction equipment must cross on an equipment bridge as specified in Section V.B.5.

9. Crossings of Major Waterbodies

Before construction, Transco will file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing. This plan will be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, ATWS areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in Section IV.F.3.a of the Transco Plan) immediately after initial disturbance of the waterbody or adjacent upland.

Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Transco Plan; however, Transco will implement the following specific measures at stream crossings:

a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or drivable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and

c. use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank re-contouring. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

5. Application of riprap for bank stabilization must comply with USACE, or its delegated agency, permit terms and conditions.

6. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes, and woody species, similar in density to adjacent undisturbed lands.

8. Unless more stringent guidelines are established, Transco will install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, Transco will install sediment barriers as outlined in the Transco Plan.

9. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

10. Sections V.C.3 through V.C.7 above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. 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. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

3. Time of year restrictions specified in Section VII.A.5 of the Transco Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

VI. WETLAND CROSSINGS

A. GENERAL

1. Transco will conduct wetland delineations using the current federal methodology and will file wetland delineation reports with the Secretary before construction.

   This report will identify:

   a. by milepost all wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

   The requirements outlined in this Section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process Transco will identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.

   Transco is proposing to use an additional 15 feet of workspace in some wetlands. Transco has filed with the Secretary for review and written approval by the Director, site-specific justification for additional workspace within wetlands. Refer to Resource Report 2, Appendix 2G of the Transco application. The justifications specify the conditions that will not permit a 75-foot wide corridor reduction.

4. Wetland boundaries and buffers will be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of Sections V and VI in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of Sections V

and VI cannot be met, Transco will file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan will address at a minimum:

a. spoil control;

b. equipment bridges;

c. restoration of waterbody banks and wetland hydrology;

d. timing of the waterbody crossing;

e. method of crossing; and

f. size and location of all extra work areas and ATWS areas.

6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads

a. Locate all extra work areas (such as staging areas) and ATWS (such as additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

b. Transco will file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area and ATWS with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification will specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

In select areas, Transco will need to locate ATWS within 50 feet of a wetland in areas that are not active agricultural land due to adjacent land use or topographic limitations. Transco has filed with the Secretary for review and written approval by the Director, site-specific justification for additional workspace within 50 feet of wetlands. Refer to Resource Report 2, Appendix 2G of the Transco application. The justifications specify the conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

c. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right- of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

d. In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

e. The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland.

2. Crossing Procedures

a. Comply with USACE, or its delegated agency, permit terms and conditions.

b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

c. Use “push-pull” or “float” techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal.

g. Transco may burn woody debris in wetlands, if approved by the USACE and in accordance with state and local regulations, ensuring that all remaining woody debris is removed for disposal.

h. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

i. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

j. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.

k. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

l. Remove all Project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in Section IV.F.3.a of the Transco Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in Section VI.B.3.c, maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.

b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland.

c. Install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any wetland. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. Restore pre-construction wetland contours to maintain the original wetland hydrology.

3. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Project Specific Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

4. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate federal or state agency.

5. Transco will consult with the appropriate federal or state agencies to develop a Project- specific wetland restoration plan. The restoration plan will include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of invasive species and noxious weeds (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Refer to the Project-specific Noxious and Invasive Plant Management Plan.

6. Until a Project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).

7. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in Section VII.A.4 of the Transco Plan.

D. POST-CONSTRUCTION MAINTENANCE AND REPORTING

1. Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.

3. Time of year restrictions specified in Section VII.A.5 of the Transco Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.

4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.

5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:

   a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);

   b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;

   c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and

   d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.

6. Within 3 years after construction, Transco will file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in Section VI.D.5, above.

   For any wetland where revegetation is not successful at the end of 3 years after construction, Transco will develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address secondary containment and the refueling of these pumps in the project-specific Spill Prevention and Response Procedures. Refer to the Transco Project-specific Spill Plan for Oil and Hazardous Materials.

3. Transco will file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to minimize the potential for entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission

APPENDIX F

ROADWAYS AND RAILROADS CROSSED BY THE ATLANTIC SUNRISE PROJECT

TABLE F-1

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
PENNSYLVANIA				
Central Penn Line North				
Columbia County				
Sugarloaf Township	0.1	West Creek Road (Township Road 700 [T700])	Public	Open cut
	1.1	Camp Lavigne Road (State Route [SR] 4049)	Public	Open cut
	1.5	Schoolhouse Road (T714)	Public	Open cut
	1.5	Fritz Hill Road (T825)	Public	Open cut
	2.7	Comstock Road (T812)	Public	Open cut
	2.8	Caselot Road (T822)	Public	Open cut
	3.3	Laubach Road (T816)	Public	Open cut
	4.3	Red Rock Road (SR 487)	Public	Bore
Luzerne County				
Fairmount Township	5.0	County Line Road (T662)	Public	Open cut
	5.5	SR 4011 (Old Tioga Turnpike)	Public	Bore
	5.8	Mossville Road (SR 4013)	Public	Bore
	6.7	Tripp Road (T634)	Public	Open cut
	8.2	Bethel Hill Road (SR 4015)	Public	Bore
	M-0056 0.7	Goss Road (T642)	Public	Open cut
	9.8	Bridge Out Road (T672	Public	Open cut
	9.9	Maransky Road (T644)	Public	Open cut
Ross Township	10.9	Kyttle Pike Road (T668)	Public	Open cut
	11.4	Patla Road (T547)	Public	Open cut
	12.5	SR 4024 (Grassy Pond Road)	Public	Bore
	12.9	Mahoneys Road (T670)	Public	Open cut
	13.9	State Highway 118	Public	Bore
	14.1	Old State Road	Public	Open cut
	14.4	Green Valley Road (T672)	Public	Open cut
Lake Township	15.5	Bronson Road (T800)	Public	Open cut
	16.0	Gordon Road (T790)	Public	Open cut
	16.6	State Highway 29	Public	Bore
	17.2	SR 1034 (Pine Tree Road)	Public	Open cut
	17.5	Loyalville Road (T779)	Public	Open cut
	18.3	SR 1051 (Meeker Road)	Public	Open cut
	18.9	Zosh Road (T708)	Public	Open cut
	19.3	Hoover Road (T710)	Public	Open cut
Lehman Township	20.1	SR 1049 (Outlet Road)	Public	Bore
	20.9	Peaceful Valley Road (T825)	Public	Open cut
	21.8	Huntsville Idetown Road	Public	Open cut
	21.5	Private Road	Private	Open cut
	21.8	Idetown Road (T823)	Public	Open cut
Dallas Township	M-0060 0.2	Memorial Highway (State Highway [SH] 0415)	Public	Bore
	M-0060 0.3	West 42nd Street (SR 1018)	Public	Bore
	M-0060 0.3	Brier Crest Road (T870)	Public	Open cut
	24.1	SR 1047 (Lake Street)	Public	Bore
	M-0141 0.2	Stredney Road (T683)	Public	Open cut
	25.5	Old Tunkhannock Road (T790)	Public	Open cut
	26.0	Meadowview Dr	Public	Open cut
	M-0088 0.9	Lake Catalpa Road (SR 1041)	Public	Bore

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
Wyoming County				
Northmoreland Township	M-0088 4.2	Levitt Hill Road (T368)	Public	Open cut
	30.0	State Highway 292	Public	Bore
	M-0120 0.0	Schoolhouse Road (SR 2002)	Public	Open cut or bore
Eaton Township	M-0071 2.5	Thurston Hollow Road (T370)	Public	Open cut
	34.8	Keelersburg Road (SR 2007)	Public	Bore
Falls Township	35.1	SR 92	Public	Horizontal directional drill
	37.2	Post Hill/Blueberry Road SR 2006	Public	Bore
Overfield Township	38.0	Whites Ferry Road (SR 2004)	Public	Bore
	38.4	State Highway 307 (Roosevelt Highway)	Public	Bore
	38.8	Timber Lane (T389)	Public	Open cut
	39.4	Jermyn Hill Road (SR 2035)	Public	Bore
	39.9	Mislevy Road	Public	Open cut
	40.9	Mislevy Road	Public	Open cut
	41.1	Stanton Lane	Private	Open cut
Clinton Township	M-0054 0.1	SR 2012 Lithia Valley Road	Public	Bore
	43.8	Creek Road (T468)	Public	Open cut
	43.9	US 6	Public	Bore
	44.4	US 11 (Lackawanna Trail)	Public	Bore
	45.2	Savage Road (T464)	Public	Open cut
	45.8	College Ave (SR 1017)	Public	Bore
Nicholson Township	46.9	SR 1014	Public	Bore
	48.2	Matulevich Road (T519)	Public	Open cut
	48.7	SR 1031 (Farnham Road)	Public	Bore
	M-0051 0.1	Vic Lane (T523)	Public	Open cut
	M-0080 0.4	Reesa Lane	Private	Open cut
	M-0080 0.4	SR-92	Public	Bore
Susquehanna County				
Lenox Township	52.4	Pratt Hollow Road (T501)	Public	Open cut
	52.7	Wickwire Hill Road (T510)	Public	Open cut
	53.5	Township Road 383 (Rod & Gun Club Road)	Public	Open cut
	53.9	Glenwood Road (SR 2041)	Public	Bore
	54.8	T503 (Swamp Road)	Public	Open cut
	55.7	Bennet Road (T503)	Public	Open cut
	57.0	Forest Street (SR 2020)	Public	Bore
Central Penn Line South				
Lancaster County				
Drumore Township	0.4	Silver Spring Road (T412)	Public	Open cut
	0.8	Penny Road (T452)	Public	Open cut
Martic Township	1.9	Susquehannock Drive	Public	Bore
	2.1	Holtwood Road (SR 372)	Public	Bore
	25.5	State Highway 309 (Tunkhannock Highway)	Public	Bore
	2.8	Private Road	Private	Open cut
	M-0184 0.3	Private Road	Private	Open cut
	M-0184 0.4	Drytown Road (SR 3012)	Public	Bore
	M-0184 1.0	Martic Heights Road (SR 3018)	Public	Bore
	5.3	Clearview Road/ (T400)	Public	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
	5.7	Private Road	Private	Open cut
	6.1	Stump Road (T449)	Public	Open cut
	6.3	Private Road	Private	Open cut
	6.6	Red Hill Road (SR 3019)	Public	Bore
	6.9	Red Hill Road (SR 3019)	Public	Open cut
	7.0	Lakewood Drive (T510)	Public	Open cut
	7.1	Enola Low Grade Trail	Public	Open cut
	7.1	Pennsy Road (T413)	Public	Open cut
	M-0227 0.1	Marticville Road (SR 324)	Public	Bore
	7.8	Private Road	Private	Open cut
Conestoga Township	8.2	Pequea Creek Road (T410)	Public	Open cut
	M-0405 0.4	Pequea Creek Road (T410)	Public	Open cut
	M-0405 0.9	Sickmans Mill Road (T405)	Public	Open cut
	M-0405 1.3	Hilltop Drive	Public	Open cut
	10.2	River Corner Road (T416)	Public	Open cut
	11.4	Main Street (SR 3022)	Public	Bore
	12.2	Conestoga Boulevard (SR 3030)	Public	HDD
Manor Township	12.7	Witmer Road (T582)	Public	Open cut
	M-0248 0.2	Safe Harbor Road (SR3017)	Public	Open cut
	M-0206 0.1	Indian Marker Road (T579)	Public	Open cut
	M-0188 0.1	Highville Road (T392)	Public	Open cut
	14.9	Breneman Road (T581)	Public	Open cut
	15.6	Letort Road (SR 3032)	Public	Bore
	15.6	Private Road	Private	Open cut
	16.1	Private Road	Private	Open cut
	16.1	Unnamed Road		Open cut
	M-0185 0.1	Anchor Road (T858)	Public	Open cut
	17.3	Blue Rock Road (T589)	Public	Open cut
	17.8	Penn Street (SR 0999)	Public	Bore
	18.3	Charlestown Road (T589)	Public	Open cut
	18.4	Private Road	Private	Open cut
	19.3	Franklin Road (SR 3036)	Public	Bore
West Hempfield Township	20.3	Locust Grove Road (T601)	Public	Open cut
	20.6	Indian Head Road	Public	Bore
	20.6	Columbia Ave (SR 0462)	Public	Bore
	M-0396 0.1	U.S. Route 30 (SR0030)	Public	Bore
	22.3	Ironville Pike (T663)	Public	Open cut
	22.6	Norwood Road (T362)	Public	Open cut
	22.8	Fairview Road (T665)	Public	Open cut
	22.9	Private Road	Public	Open cut
	M-0209 0.5	Marietta Ave (SR 0023)	Public	Bore
Rapho Township	24.5	Bridge Valley Road (T365)	Public	Open cut
	25.3	Pinkerton Road (T673)	Public	Open cut
	26.1	Garfield Road (T360)	Public	Open cut
	26.6	Newcomer Road (T344)	Public	Open cut
	27.6	E Main Street (SR 0230)	Public	Bore
	28.1	Strickler Road (T364)	Public	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
	M-0162 0.3	Pennsylvania Route 283 (ST0330)	Public	Bore
	M-0162 1.0	Mount Joy Road (SR 0772)	Public	Bore
	29.5	Breneman Road (T366)	Public	Open cut
	29.7	Zink Road (T408)	Public	Open cut
	30.1	Spangler Road (T881)	Public	Open cut
	M-0308 0.1	Back Run Road (SR 4016)	Public	Open cut
	32.0	Hossler Road (SR 4010)	Public	Open cut
	33.1	Meadow View Road (SR 4033)	Public	Bore
	33.4	Sunnyside Road (T0331)	Public	Open cut
	33.9	Sunnyside Road (T0331)	Public	Open cut
Mount Joy Township	34.7	Elizabethtown Road (SR 4008)	Public	Bore
	35.4	Private Road	Private	Open cut
	M-0278 0.1	Private Road	Private	Open cut
	36.1	Harvest Road (T330)	Public	Open cut
Lebanon County				
South Londonderry Township	37.0	Pennsylvania Turnpike Interstate 76	Public	Bore
	37.5	Elizabethtown Road (SR 241)	Public	Bore
	38.3	Lawn Road (SR 3007)	Public	Bore
	M-0300 0.2	Colebrook Road (SR 341)	Public	Bore
	40.0	S Forge Road (SR 0117)	Public	Bore
South Annville Township	41.8	Bowman Lane	Public	Open cut
	42.6	Horseshoe Pike (SR 0322)	Public	Bore
	43.2	Wagner Lane	Public	Open cut
	43.6	Private Road	Private	Open cut
	44.8	Louser Road (T429)	Public	Open cut
	M-0183 0.4	Private Road	Private	Open cut
	M-0211 0.1	West Main Street/SR 422	Public	Bore
North Annville Township	M-0183 1.1	Private Road	Private	Open cut
	47.0	Shanamahantown Road (T467)	Public	Open cut
	47.4	Private Road	Private	Open cut
	47.9	PA Hwy (SR 0934)	Public	Bore
	48.6	Harrison Road (SR 4008)	Public	Open cut
East Hanover Township	M-0229 0.0	Swatara Drive (T581)	Public	Open cut
	50.1	Swatara Drive (T581)	Public	Open cut
	50.8	Private Road	Private	Open cut
	51.1	McGillstown Road (T432)	Public	Open cut
	51.4	Private Road	Private	Open cut
	M-0165 0.4	Private Road	Private	Open cut
	M-0165 0.4	Private Road	Private	Open cut
	52.1	Ono Road (SR 4007)	Public	Bore
	52.4	Private Road	Private	Open cut
	52.4	Jonestown Road (T601)	Public	Open cut
	52.6	Allentown Boulevard (SR 22)	Public	Bore
Union Township	52.9	Racehorse Road (T386)	Public	Open cut
	53.4	Awol Road (T662)	Public	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
	53.6	Private Road	Private	Open cut
	53.7	Hoover Drive (T444)	Public	Open cut
	53.8	Private Road	Private	Open cut
	M-0199 0.1	Interstate 81	Public	Bore
Union Township	M-0199 0.2	Cavalry Road (T445)	Public	Open cut
	54.9	Cavalry Road (T445)	Public	Open cut
	55.5	Fisher Avenue (SR 4020)	Public	Bore
	55.8	Private Road	Private	Open cut
	M-0180 0.1	Bordnersville Road (T447)	Public	Open cut
	56.3	Private Road	Private	Open cut
	56.6	Fort Swatara Road (T599)	Public	Open cut
	56.8	Fort Swatara Road (T599)	Public	Open cut
	M-0205 0.1	Acorn Road	Public	Open cut
	58.7	Moonshine Road (SR 443)	Public	Bore
	59.2	Smokey Lane	Private	Open cut
	59.3	Smokey Lane	Private	Open cut
	M-0176 0.2	Private Road	Private	Open cut
	M-0176 0.3	Private Road	Private	Open cut
	M-0200 0.5	Private Road	Private	Open cut
	60.7	Rudy Lane	Private	Open cut
	61.2	Private Road	Private	Open cut
	61.4	Goldmine Road (SR 4025)	Public	Open cut
	62.1	Private Road	Private	Open cut
Cold Spring Township	62.5	Private Road	Private	Open cut
Union Township	63.7	Private Road	Private	Open cut
Schuylkill County				
Pine Grove Township	64.5	Oak Grove Road (T886)	Public	Open cut
	65.2	Old Forge Road (T392)	Public	Open cut
	65.6	Private Road	Private	Open cut
	65.8	Private Road	Private	Open cut
	65.8	Private Road	Private	Open cut
	M-0177 0.0	Private Road	Private	Open cut
	M-0301 0.1	Private Road	Private	Open cut
	M-0301 0.1	Dark Woods Road (T390)	Public	Open cut
	66.8	Oak Grove Road (T886)	Public	Open cut
	M-0196 0.0	Klick Drive (T880)	Public	Open cut
	67.7	Beuchler Lane	Private	Open cut
	68.1	Private Road	Private	Open cut
	68.8	Private Road	Private	Open cut
	69.1	Private Road	Private	Open cut
	69.2	Private Road	Private	Open cut
Tremont Township	M-0181 0.1	Molleystown Road (T654)	Public	Open cut
	72.7	Lincoln Road (T625)	Public	Open cut
Frailey Township	73.2	Private Road	Private	Open cut
	73.4	SR 209	Public	Bore
Porter Township	74.9	E Center St. (SR 0125)	Public	Bore
	76.2	Pine Drive (T520)	Public	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
	76.7	E Main St (SR 0025)	Public	Bore
	M-0170 0.1	E Mountain Road (T879)	Public	Open cut
	77.7	Valley Road (T377)	Public	Open cut
	78.0	Private Road	Private	Open cut
	78.4	Private Road	Private	Open cut
	78.5	Deep Creek Road (SR 4020)	Public	Bore
Eldred Township	79.9	Private Road	Private	Open cut
	80.3	Creek Drive (T504)	Public	Open cut
	80.5	Mill Hill Road (T494)	Public	Open cut
	80.9	Ranch Road (T399)	Public	Open cut
	M-0194 0.1	Zion Church Road (T506)	Public	Open cut
	M-0194 0.5	Helfenstein Road (SR 4022)	Public	Bore
Northumberland County				
East Cameron Township	83.2	Private Road	Private	Open cut
	83.7	Upper Road (SR 2044)	Public	Bore
	84.4	Private Road	Private	Open cut
	85.1	Private Road	Private	Open cut
Coal Township	85.3	Private Road	Private	Open cut
	M-0240 0.1	SR 901	Public	Bore
	86.6	Industrial Park Road	Public	Open cut
	M-0372 0.08	SR 61	Public	Bore
	M-0235 1.1	Main Street (SR 2026)	Public	Bore
	88.1	Private Road	Private	Open cut
	88.3	Private Road	Private	Open cut
	88.4	Private Road	Private	Open cut
	88.5	Private Road	Private	Open cut
	88.7	Private Road	Private	Open cut
	89.1	Private Road	Private	Open cut
	89.1	Private Road	Private	Open cut
Ralpho Township	90.0	Longacre Road	Private	Open cut
	90.2	Private Road	Private	Open cut
	90.3	Reading Turnpike (SR 2016)	Public	Bore
	M-0167 0.3	State Hwy 54	Public	Bore
Columbia County				
Cleveland Township	91.0	Happy Valley Road (T302)	Public	Open cut
	91.5	Wynn School Road (T311)	Public	Open cut
	91.7	Happy Valley Road (T302)	Public	Open cut
	M-0271 0.1	Happy Valley Road (T302)	Public	Open cut
	93.0	Cleveland Road (T326)	Public	Open cut
	93.2	Taft Road (T317)	Public	Open cut
	93.4	Private Road	Private	Open cut
	93.5	Private Road	Private	Open cut
	94.3	Private Road	Private	Open cut
	94.5	Pine Swamp Road (T337)	Public	Open cut
	94.9	Private Road	Private	Open cut
	95.1	Bethel Drive (T320)	Public	Open cut
	95.4	Campbell Road (T353)	Public	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
Franklin Township	M-0285 0.2	Southern Drive (SR 487)	Public	Bore
	97.0	Shady Creek Drive (T322)	Public	Open cut
	97.1	Orchard Drive (SR 3003)	Public	Bore
	97.2	Private Road	Private	Open cut
	97.9	Lawrence Drive (T338)	Public	Open cut
	98.0	Longwoods Road (T395)	Public	Open cut
	98.8	Mt Zion Road (SR 3012)	Public	Bore
	99.1	Private Road	Private	Open cut
	99.2	Private Road	Private	Open cut
	99.3	Private Road	Private	Open cut
	99.6	Susque View Road (SR 3014)	Public	HDD
Montour Township	100.0	Legion Road (SR 4002)	Public	Horizontal directional drill
	101.0	Grovania Road (SR 4002)	Public	Bore
	101.7	Montour Blvd (SR 0011)	Public	Bore
	101.8	Valley Road (T146)	Public	Bore
	M-0423 0.45	Ridge Road (SR 4004)	Public	Bore
Hemlock Township	M-0241 0.2	Private Road	Private	Open cut
	M-0423 1.55	Frosty Valley Road (SR 4006)	Public	Bore
	M-0423 1.7	Mall Blvd	Public	Bore
	M-042 1.8	Red Mill	Public	Open Cut
	M-042 2.97	Creek Road	Public	Open Cut
	M-042 3.1	Creek Road	Public	Open Cut
	M-042 3.15	I-80	Public	HDD
	M-0423 3.1	Creek Road	Public	Open Cut
	M-0423 3.66	Creek Road	Public	Open Cut
	M-0423 3.72	Holmes Lane	Public	Open Cut
	M-0423 3.85	School House Road (T475)	Public	Open cut
	M-0423 3.9	Mall Blvd	Public	Bore
	106.9	Millville Road (SR 0042)	Public	Bore
	107.0	Covered Bridge Drive (T493)	Public	Open cut
Mount Pleasant Township	M-0195 0.9	Private Road	Private	Open cut
	108.5	Private Road	Private	Open cut
	108.7	Mellick Hollow Road (T518)	Public	Open cut
	109.4	Millertown Road (SR 4011)	Public	Bore
	109.6	Private Road	Private	Open cut
	109.7	Private Road	Private	Open cut
	110.0	Shaner Road (T540)	Public	Open cut
	110.2	Mount Pleasant Road (SR 4020)	Public	Bore
	110.7	Lamoreaux Road (T551)	Public	Open cut
	111.1	Lick Run Road (T506)	Public	Open cut
	111.6	Huckleberry Hill Road (T520)	Public	Open cut
Orange Township	112.1	Welliversville Road (T559)	Public	Open cut
	112.2	Bartholomew Road (T518)	Public	Open cut
	112.8	Black Road (T575)	Public	Open cut
Greenwood Township	113.1	Pats Upper Road (T593)	Public	Open cut
	113.3	Pats Lower Road (T585)	Public	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
	113.5	Bowman's Mill Road (SR 4037)	Public	Bore
	113.8	Utt Road (T456)	Public	Open cut
	114.5	Private Road	Private	Open cut
	114.7	Rohrsburg Road (SR 254)	Public	Bore
	114.9	Private Road	Private	Open cut
	115.5	Austin Trail (SR 4039)	Public	Bore
	115.9	Winters Road (T459)	Public	Open cut
	116.1	Private Road	Private	Open cut
	116.2	Private Road	Private	Open cut
	117.5	Laubach Hill Road (T457)	Public	Open cut
	118.1	Campbell Road (T586)	Public	Open cut
Jackson Township	118.3	McHenry Road (T659)	Public	Open cut
	118.7	Derr's Road (SR 4030)	Public	Bore
	119.3	Knouse Road (T691)	Public	Open cut
	119.6	Private Road	Private	Open cut
	119.6	Private Road	Private	Open cut
	120.0	Green Creek Road (T715)	Public	Open cut
	120.3	Private Road	Private	Open cut
	120.4	Private Road	Private	Open cut
	120.4	Private Road	Private	Open cut
	120.4	Private Road	Private	Open cut
	120.5	Private Road	Private	Open cut
	120.5	Private Road	Private	Open cut
	120.5	Private Road	Private	Open cut
	120.5	Private Road	Private	Open cut
	120.6	Private Road	Private	Open cut
	120.6	Private Road	Private	Open cut
	120.6	Private Road	Private	Open cut
	120.6	Private Road	Private	Open cut
	120.7	Private Road	Private	Open cut
	120.8	Private Road	Private	Open cut
	120.9	Private Road	Private	Open cut
	120.9	Private Road	Private	Open cut
	120.9	Private Road	Private	Open cut
	121.3	Green Creek Road (T715)	Public	Open cut
	121.6	Private Road	Private	Open cut
	122.0	Mendenhall Hill Road (T725)	Public	Open cut
	122.2	Waller Divide Road (T700)	Public	Open cut
	122.6	Smith Hill Road (T790)	Public	Open cut
	122.8	Private Road	Private	Open cut
	122.9	Private Road	Private	Open cut
	123.2	SR 239	Public	Bore
	123.7	Shultz Hollow Road (T692)	Public	Open cut
	124.1	Will Kyle Road (T698)	Public	Open cut
	124.1	Private Road	Private	Open cut
Chapman loop				
Clinton County				
Chapman Township	L186.2	Private Road	Private	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
	L186.5	Sunflower Lane	Private	Open cut
	L186.6	Dogwood Lane	Private	Open cut
	L186.8	Private Road	Private	Open cut
	L187.5	Private Road	Private	Open cut
	L188.3	Summerson Mountain Road (T313)	Public	Open cut
Unity loop				
Lycoming County				
Jordan Township	L120.6	SR42	Public	Bore
	L120.9	Private Road	Private	Open cut
Franklin Township	L121.4	Cleman Hollow Road (T720)	Public	Open cut
	L121.6	Private Road	Private	Open cut
	L122.3	Miller Road (T728)	Public	Open cut
	L122.5	Buck Road (Private Road)	Private	Open cut
	L122.7	Fairview Road (T710)	Public	Open cut
	L122.7	Private Road	Private	Open cut
	L123.2	Harriman Road (T708)	Public	Open cut
	L123.3	Private Road	Private	Open cut
	L123.5	Private Road	Private	Open cut
Penn Township	L123.8	Beaver Run Road (SR 2077)	Public	Open cut
	L124.4	Private Road	Private	Open cut
	L124.4	Private Road	Private	Open cut
	L124.5	Loop Hill Road (T692)	Public	Open cut
	L124.6	Private Road	Private	Open cut
	L124.7	Private Road	Private	Open cut
	L124.7	Private Road	Private	Open cut
	L124.8	Private Road	Private	Open cut
	L125.1	Crawley Hill Road (T694)	Public	Open cut
	L125.3	Private Road	Private	Open cut
	L125.3	Private Road	Private	Open cut
	L125.4	Dark Hollow Road (T800)	Public	Open cut
	L125.8	Private Road	Private	Open cut
	L126.0	Dr. Poust Road (T674)	Public	Open cut
	L126.2	Private Road	Private	Open cut
	L126.4	Private Road	Private	Open cut
	L126.8	Private Road	Private	Open cut
	L126.8	Private Road	Private	Open cut
	L126.9	Private Road	Private	Open cut
	L127.1	Green Valley Road (SR 2061)	Public	Open cut
	L127.2	Private Road	Private	Open cut
	L127.3	S. Frymire Hollow Road (T671)	Public	Open cut
	L127.6	Private Road	Private	Open cut
	L127.8	Beaver Lake Road (SR 2073)	Public	Bore
	L128.8	Barto Hollow Road (T650)	Public	Open cut
	L128.9	Private Road	Private	Open cut

TABLE F-1 (cont'd)

Roadways Crossed by the Atlantic Sunrise Project

Facility/County/Township	Milepost[a]	Road Name	Public or Private	Crossing Method
VIRGINIA				
Mainline A and B Replacements				
Prince William County				
Brentsville District Township	1579.6	University Boulevard	Public	Bore
	1579.0	Tygart Lake Drive	Public	Bore

[a] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusions of the associated route modification number (M-####) preceding the milepost value.

TABLE F-2

Railroads Crossed by the Project Facilities for the Atlantic Sunrise Project

Facility/County, State/ Township	Milepost	Railroad	Status	Crossing Method
CPL North				
Wyoming County, PA				
Falls Township	35.1	Reading Blue Mountain and Northern Railroad	Active	Horizontal directional drill (HDD) [a]
Clinton Township	46.2	Norfolk Southern Railway Company	Active	Bore
CPL South				
Lancaster County, PA				
West Hempfield Township	M-0389 0.1	Norfolk Southern	Active	Bore
West Hempfield Township	22.2	Pennsylvania Lines LLC, c/o Norfolk Southern	Abandoned	Bore
Rapho Township	27.4	Amtrak	Active	Bore
Lebanon County, PA				
North Annville Township	M-0183 1.1	Northern Southern	Active	Bore
Schuylkill County, PA				
Frailey Township	M-0201 0.0	Reading Blue Mountain and Northern Railroad	Active	Bore
Northumberland County, PA				
Coal Township	M-0240 0.2	Split Vein Coal	Active	Bore
Columbia County, PA				
Franklin Township	99.6	Norfolk Southern Railway Company	Active	HDD
Montour Township	99.9	SEDA-COG Joint Rail Authority	Active	HDD [a]
Mainline A & B Replacements				
Prince William County, VA				
Brentsville and Gainesville Townships	1580.8	Norfolk Southern Railroad	Active	Bore

[a] The HDD crossings of these railroads are associated with the HDD crossings of the Susquehanna River.

APPENDIX H

AREAS OF SHALLOW DEPTH TO BEDROCK FOR THE ATLANTIC SUNRISE PROJECT FACILITIES

APPENDIX H

Areas of Shallow Depth to Bedrock for the Atlantic Sunrise Project Facilities[a,b]

Facility/County	Begin Milepost[c]	End Milepost[c]	Distance (miles)[d]	Rippability[e]
CPL North				
Columbia				
	0.6	0.8	0.2	Moderately Difficult
	0.9	1.0	0.1	Moderately Difficult
	1.5	2.1	0.6	Moderately Difficult
	M-0086 0.0	M-0086 0.2	0.2	Moderately Difficult
	2.3	2.3	<0.1	Moderately Difficult
	2.3	2.4	0.1	Moderately Difficult
	2.5	2.6	0.1	Moderately Difficult
	3.0	3.0	<0.1	Moderately Difficult
	4.3	4.4	0.1	Moderately Difficult
Luzerne				
	5.2	5.4	0.1	Moderately Difficult
	5.6	5.6	<0.1	Moderately Difficult
	6.8	6.9	0.1	Moderately Difficult
	7.4	7.4	<0.1	Moderately Difficult
	M-0056 0.4	M-0056 0.6	0.2	Moderately Difficult
	9.2	9.4	0.2	Moderately Difficult
	9.5	9.7	0.2	Moderately Difficult
	11.4	11.8	0.4	Moderately Difficult
	11.9	12.1	0.2	Moderately Difficult
	12.3	12.5	0.2	Moderately Difficult
	12.7	12.8	0.1	Moderately Difficult
	14.1	14.3	0.2	Moderately Difficult
	14.5	14.9	0.4	Moderately Difficult
	15.2	15.6	0.4	Moderately Difficult
	16.2	16.4	0.2	Moderately Difficult
	16.8	17.2	0.4	Moderately Difficult
	17.5	17.5	<0.1	Moderately Difficult
	17.8	17.9	0.1	Moderately Difficult
	20.1	20.8	0.7	Moderately Difficult
	21.5	21.6	0.1	Moderately Difficult
	21.7	21.8	0.1	Moderately Difficult
	M-0060 0.6	M-0060 0.7	0.1	Moderately Difficult
	M-0060 0.9	M-0060 1.0	0.1	Moderately Difficult
	23.2	24.0	0.8	Moderately Difficult
	M-0141 0.7	M-0141 0.7	<0.1	Moderately Difficult
	24.7	25.2	0.5	Moderately Difficult
	25.9	26.3	0.4	Moderately Difficult
	M-0142 0.3	M-0142 0.3	<0.1	Moderately Difficult
	M-0088 0.0	M-0088 0.8	0.8	Moderately Difficult
	M-0088 1.2	M-0088 1.5	0.3	Moderately Difficult
	M-0088 1.9	M-0088 2.3	0.4	Moderately Difficult
Wyoming				
	M-088 2.3	M-088 2.5	0.2	Moderately difficult
	M-0088 3.3	M-0088 3.7	0.4	Moderately difficult

APPENDIX H (cont'd)

Areas of Shallow Depth to Bedrock for the Atlantic Sunrise Project Facilities[a,b]

Facility/County	Begin Milepost[c]	End Milepost[c]	Distance (miles)[d]	Rippability[e]
	M-0088 4.0	M-0088 4.2	0.2	Moderately difficult
	M-0071 0.6	M-0071 0.9	0.3	Moderately difficult
	M-0071 2.7	M-0071 3.7	1.0	Moderately difficult
	36.0	36.6	0.6	Difficult
	38.0	38.4	0.4	Difficult
	41.0	42.2	1.2	Difficult
	M-0054 0.0	M-0054 0.7	0.8	Difficult
	43.0	43.5	0.5	Difficult
	45.8	45.9	0.1	Difficult
	46.2	46.3	0.1	Difficult
	M-0058 0.0	M-0058 0.1	0.1	Difficult
	47.6	47.8	0.2	Difficult
	47.9	48.0	0.1	Difficult
	48.3	48.6	0.3	Difficult
	48.8	49.0	0.2	Difficult
Susquehanna				
	M-0080 0.4	M-0080 1.4	1.0	Difficult
	50.6	50.8	0.2	Difficult
	51.5	51.5	<0.1	Difficult
	52.2	52.2	<0.1	Difficult
	53.0	53.1	0.1	Difficult
	54.9	55.2	0.3	Difficult
	56.3	56.4	0.1	Difficult
CPL South				
Lancaster				
	M-0248 0.1	M-0248 0.2	0.1	Difficult
	M-0389 0.1	M-0389 0.2	0.1	Difficult
	M-0417 0.0	M-0417 0.1	0.1	Difficult
	M-0152 0.0	M-00152 0.1	0.1	Difficult
	20.0	20.0	<0.1	Difficult
	21.5	21.6	0.1	Moderately easy to Difficult
	M-0192 0.0	M-0192 0.1	0.1	Difficult
	M-0209 0.3	M-0209 0.7	0.4	Difficult
	30.1	30.2	0.1	Difficult
	32.8	33.0	0.2	Moderately Easy
	36.8	37.3	0.5	Difficult
Lebanon				
	M-0228 0.0	M-0228 0.1	0.1	Difficult
	40.7	42.0	1.3	Difficult
	M-0424 0.4	M-0424 0.8	0.4	Difficult
	M-0183 1.0	M-0183 2.0	1.0	Difficult
	M-0230 0.1	M-0230 0.5	0.4	Difficult (quartzite) to Moderately Difficult (sandstone and shale)
Schuylkill				
	68.7	70.7	1.9	Difficult (Sherman Creek) to Moderately Difficult (Clarks Ferry)
	72.9	73.5	0.6	Difficult
	M-0316 0.6	M-0316 0.8	0.2	Difficult

APPENDIX H (cont'd)

Areas of Shallow Depth to Bedrock for the Atlantic Sunrise Project Facilities[a,b]

Facility/County	Begin Milepost[c]	End Milepost[c]	Distance (miles)[d]	Rippability[e]
	77.4	77.7	0.3	Moderately easy to Moderately Difficult
	M-0213 0.6	M-0213 0.6	<0.1	Difficult
	78.9	79.4	0.5	Difficult
Northumberland				
	M-0194 0.9	M-0194 1.1	0.2	Difficult
	82.7	83.1	0.4	Difficult
	M-0247 0.1	M-0247 0.4	0.3	Difficult
	83.0	83.5	0.5	Moderately Easy to Moderately Difficult
	83.8	84.6	0.8	Difficult
	M-0323 0.1	M-0323 0.1	<0.1	Difficult
	84.8	85.0	0.2	Moderately Easy to Moderately Difficult
	86.2	86.4	0.2	Difficult
	88.9	89.2	0.3	Moderately Easy to Moderately Difficult
	89.4	89.7	0.3	Difficult
	89.9	90.2	0.3	Moderately Difficult/Easy in shale
Columbia				
	M-0174 0.0	M-0174 0.3	0.3	Moderately Difficult
	100.2	100.7	0.5	Moderately Difficult/Easy in shale
	M-0179 0.0	M-0179 0.3	0.3	Moderately Easy to Difficult
	101.4	101.6	0.2	Moderately Easy to Difficult
	M-0423 2.7	M-0432 3.1	0.4	Moderately Difficult
	M-0423 4.7	M-0423 4.8	0.2	Moderately Difficult
	M-0236 0.0	106.9	0.5	Moderately Easy, Moderately Difficult, and Difficult
	106.9	108.2	1.3	Moderately Easy, Moderately Difficult, and Difficult
	M-0214 0.0	M-0195 0.0	0.4	Moderately Easy, Moderately Difficult, and Difficult
	M-0195 0.0	M-0195 0.3	0.3	Difficult
	117.1	117.4	0.3	Moderately Difficult
	121.4	122.6	1.2	Difficult
	122.8	123.1	0.3	Difficult
	123.5	123.7	0.2	Difficult
	124.0	124.2	0.2	Difficult
	124.9	125.2	0.3	Difficult
Unity Loop				
Lycoming				
	L120.4	L120.7	0.2	Difficult
	L120.8	L121.0	0.2	Difficult
	L121.0	L121.4	0.4	Difficult
	L121.5	L121.7	0.2	Difficult
	L122.8	L123.1	0.3	Difficult
	L123.7	L123.8	0.1	Difficult
	L123.9	L124.1	0.2	Difficult
	L124.2	L124.3	0.1	Difficult
	L124.5	L124.9	0.4	Difficult
	L125.7	L125.8	0.1	Difficult
	L126.0	L127.1	1.1	Moderately Difficult
	L127.1	L127.3	0.2	Moderately Difficult

APPENDIX H (cont'd)

Areas of Shallow Depth to Bedrock for the Atlantic Sunrise Project Facilities[a,b]

Facility/County	Begin Milepost[c]	End Milepost[c]	Distance (miles)[d]	Rippability[e]
	L127.6	L128.9	1.3	Moderately Difficult
Chapman Loop				
Clinton	L186.0	L186.6	0.6	Difficult
	L186.6	L187.0	0.4	Difficult to Moderately Easy
	L187.0	L188.5	1.5	Difficult

Sources: Berg et al., 1980; Braun, 2006a, 2006c-f, 2007a-e, 2012; Field Conference of Pennsylvania Geologists, Inc., 2002, 2006; Foose and Humphreville, 1979; Geyer and Wilshusen, 1982, Miles and Whitfield, 2001; NRCS, 2013, Sevon, 1996; Wilshusen, 1979; USGS, 2005.

[a] No areas of shallow depth to bedrock were identified along Mainline A and B replacements or at the new or existing aboveground facilities.

[b] Shallow bedrock is considered within 8 feet below ground surface.

[c] Where start and end mileposts are the same, the crossing distance is less than 0.1 mile.

[d] Where route modifications have been incorporated into the proposed route, the new mileposts are identified by inclusion of the associated route modification number (M-####) preceding the milepost value. Beginning and ending mileposts are approximate; therefore, the difference between beginning and ending mileposts in these areas does not necessarily equal the total length.

[e] Rippability:

- **Difficult** – typically requires drilling and blasting except where extensively fractured or weathered.
- **Intermediate** – rippable by heavy-weight power equipment to depths chiefly limited by maneuverability of equipment. Hard rock layers or zones may require drilling and blasting.
- **Moderately difficult** – requires drilling and blasting for most deep excavations, but locally may be ripped to depths of several feet due to closely spaced joints, bedding, or weathered rock.
- **Moderately easy** – rippable by heavy-weight power equipment at least to interface with non-weathered rock interface and locally to greater depths.
- **Easy** – can be excavated by hand tools or light-weight power equipment. Some large boulders may require drilling and blasting for their removal. Dewatering or bracing of excavation walls may be required.

Note: CPL = Central Penn Line

APPENDIX I

MINERAL RESOURCES WITHIN 0.25 MILE OF THE ATLANTIC SUNRISE PROJECT FACILITIES

APPENDIX I

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/ Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
CPL North								
Columbia								
	4.0	984	NW	Oil/Gas Well	EXCO Resources PA, LLC	Plugged OG Well	Oil/Gas	
Luzerne								
	6.1	897	NE	Oil/Gas Well	Encana Oil & Gas USA, Inc.	Active	Oil/Gas	
	13.7	260	NW	Quarry	Sugarloaf Peat Co. / Sweet Valley Sugarloaf Peat Operation	Active	Peat	Surface Mine
	17.8	680	SE	Oil/Gas Well	Encana Oil & Gas USA, Inc.	Operator Reported Not Drilled	Oil/Gas	Five permitted wellheads
	19.0	80	NE	Oil/Gas Well	Encana Oil & Gas USA, Inc.	Plugged OG Well	Oil/Gas	
	19.1	841	SW	Oil/Gas Well	Encana Oil & Gas USA. Inc.	Operator Reported Not Drilled	Oil/Gas	
	21.7	0	Within Workspace	Unknown	Unknown	AML	Unknown	Open shaft/mine entry
	21.7	474	SE	Unknown	Unknown	AML	Unknown	Open shaft/mine entry
	21.7	416	NW	Coal Mining Operation	Jeddo Highland Prospect Mine / Jeddo Highland Coal Company	Reclamation Complete	Coal	
	21.7	567	NW	Coal Mining Operation	Jeddo Highland Prospect Mine / Jeddo Highland Coal Company	Active	Coal	
	25.6	0	Within Workspace	Unknown	Unknown	AML	Unknown	Vertical Mine Shaft

APPENDIX I (cont'd)

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
Wyoming								
	M-0071 2.1	704	NW	Quarry	Kenneth Murach / Murach Eaton Quarry	Active	Unknown	Surface Mine: Industrial Mineral Mining Operations
	M-0071 2.7	456	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Operator Reported Not Drilled	Oil/Gas	Two permitted wellheads
	34.9	1284	NW	Quarry	Vosburg Quarry / Albert M Vosburg III	Active	Unknown	
	35.8	42	SW	Quarry	Hilltop Quarry / Reading Materials	Active	Quarries/Other Mines/Pits/Plants	
	46.3	606	NW	Quarry	Royals Legacy Farm, LLC / Royals Legacy Reynolds Road Quarry	Active	Unknown	Surface Mine: Industrial Mineral Mining Operations
	49.1	1251	SW	Oil/Gas Well	Columbia GasTrans, LLC	Inactive	Oil/Gas	Plugged
	50.0	1142	SE	Quarry	Jeremy Choplosky / Choplosky Doghole Quarry	Active	Unknown	Surface Mine: Industrial Mineral Mining Operations
	M-0080 1.4	1203	SE	Quarry	Algerd Choplosky Jr / Choplosky Nicholson Quarry	Reclamation Complete	Unknown	Surface Mine: Industrial Mineral Mining Operations
Susquehanna								
	51.9	303	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	4 permitted wellheads
	52.0	274	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead
	52.0	283	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead
	52.0	294	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead
	52.7	899	SE	Quarry	Lindley L Rood / Rood Wick Wire 1 Quarry	Active	Unknown	Surface Mine: Industrial Mineral Mining Operations
	54.3	815	SE	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
	54.3	826	SE	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
	54.3	835	SE	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
	55.4	1131	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead
	55.4	1138	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead
	55.4	1142	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead
	55.4	1147	NW	Oil/Gas Well	Chief Oil & Gas, LLC	Active	Oil/Gas	1 permitted wellhead

APPENDIX I (cont'd)

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
	56.3	552	NW	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
	56.3	567	NW	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
	56.3	626	NW	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
	56.3	642	NW	Oil/Gas Well	Cabot Oil & Gas Corp.	Active	Oil/Gas	1 permitted wellhead
CPL South								
Lancaster								
	23.6	529.06	NE	Quarry	Marietta Ceiling Plant	Active	Perlite	
Lebanon								
	M-0183 1.7	0	Within Workspace	Quarry	Lebanon Rock Plant	Active	Stone, Crushed/Broken	
Schuylkill								
	65.0	1164	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0198 0.4	1139	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0198 0.5	1077	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0198 0.5	673	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0198 0.5	427	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0198 0.5	1006	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0198 0.5	701	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0198 0.5	863	NE	Unknown	Unknown	AML	Unknown	Structure
	M-0198 0.5	145	NE	Unknown	Unknown	AML	Unknown	Structure
	72.2	294	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	72.5	1038	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	72.5	1200	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	72.6	1303	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	73.1	277	NE	Coal Mining Operations	New Lincoln Coal Co., Inc. / New Lincoln Coal 1 Mine	Reclamation Completed	Coal	Underground Mine
	73.3	227	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	73.4	317	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	73.6	172	NE	Coal Mining Operations	DJT Coal Co / DJT Coal 1 Slope Mine	Reclamation Completed	Coal	NPDES Discharge Point and Underground Mine
	73.7	541	NE	Coal Mining Operations	JR & L Coal Co. / JR & L Coal 2 Mine	Reclamation Completed	Coal	Underground Mine

APPENDIX I (cont'd)

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
	73.7	707	SW	Coal Mining Operations	Westwood Generation, LLC / Westwood Generation Bank	Active	Coal	Refuse Reprocessing: NPDES Discharge Point
	73.7	1115	NW	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.5	1285	SW	Coal Mining Operations	Westwood Generation, LLC / Westwood Generation Bank	Active	Coal	Refuse Reprocessing: NPDES Discharge Point
	74.1	34	SW	Unknown	Unknown	AML	Unknown	Impacted Water Source
	74.1	402	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.0	1066	NW	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.0	746	NW	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.0	417	NW	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.1	238	SE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.2	1128	NW	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0201 0.3	35	SE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	74.2	960	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	75.0	925	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	75.0	77	NE	Coal Mining Operations	Rausch Creek Land LP / Rausch Creek Penag Mine	Reclamation Completed	Coal	Surface Mine / NPDES Discharge Point
	75.0	20	NE	Coal Mining Operations	Rausch Creek Land LP / Rausch Creek Penag Mine	Reclamation Completed	Coal	Surface Mine / NPDES Discharge Point
	M-0316 0.1	10	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	M-0316 0.1	199	SW	Unknown	Unknown	AML	Unknown	Impacted Water Source
Northumberland								
	84.3	913	NE	Coal Mining Operations	Reading Anthracite Company / West Spring Slope Mine	Active	Anthracite Coal	Surface Mine
	84.4	136	NE	Coal Mining Operations	Excel Coal Company	Active	Anthracite Coal	Underground Mine
	84.6	546	SW	Coal Mining Operations	High Mountain Coal Boyers Knob Mine	Reclamation Completed	Coal	Coal Surface Mine

APPENDIX I (cont'd)

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
	84.8	915	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	84.9	1069	NE	Unknown	Unknown	AML	Unknown	Impacted Water Source
	85.0	859	SW	Unknown	Unknown	AML	Unknown	Structure
	85.1	399	NE	Unknown	Unknown	AML	Unknown	Coal Surface Mine
	85.1	1303	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.1	0	Within Workspace	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.1	1183	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.2	1102	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.2	1043	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.2	959	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.2	886	NE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	85.2	820	NE	Unknown	Unknown	AML	Unknown	Coal Surface Mine
	85.4	0	Within Workspace	Unknown	Unknown	AML	Unknown	Structure
	M-0240 0.2	480	NE	Coal Mining Operations	Split Vein Coal Co., Inc. / Split Vein Coal Excelsior Mine	Active	Coal	Refuse Reprocessing
	86.6	69	SW	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.0	528	SW	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.1	266	SW	Unknown	Unknown	AML	Unknown	Structure
	M-0235 0.1	666	SW	Unknown	Unknown	AML	Unknown	Structure
	M-0235 0.6	136	SE	Coal Mining Operations	Cal Mining / Cal Mining 2 Mine	Inactive	Coal	Underground Mine
	M-0235 0.7	407	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.7	925	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.7	1,056	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.8	1,316	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.9	163	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.9	870	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	M-0235 0.9	1307	NW	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	87.9	852	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
	87.9	1,258	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening

APPENDIX I (cont'd)

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
	88.1	750	SE	Unknown	Unknown	AML	Unknown	Entry Point/Opening
Unity Loop								
Lycoming								
	L122.4	1,064	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	Four wellheads on site: one active, three operator reported not drilled
	L122.4	1,054	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	
	L122.4	1,044	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	
	L122.4	1,035	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	
	L123.0	1,239	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	
	L123.0	1,209	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	
	L123.0	1,206	SW	Oil/Gas Well	XTO Energy, Inc.	Active	Oil/Gas	
	L125.1	875	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.1	881	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.1	886	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.1	891	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.1	898	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.1	903	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.1	909	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.6	190	NE	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.6	195	NE	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.6	175	SW	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L125.6	91	NE	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	

APPENDIX I (cont'd)

Mineral Resources Within 0.25 Mile of the Atlantic Sunrise Project Facilities [a]

Facility/County	Milepost	Distance From Workspace (feet)	Direction from Centerline/Workspace	Mineral Resource Type	Operating Company/ Facility Name (If applicable)	Site Status	Commodity	Additional Information (If applicable)
	L127.3	1307	NE	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L127.3	1272	NE	Oil/Gas Well	EXCO Resources PA, LLC	Active	Oil/Gas	
	L127.3	1269	NE	Oil/Gas Well	EXCO Resources PA, LLC	Proposed But Never Materialized	Oil/Gas	
	L127.3	1238	NE	Oil/Gas Well	EXCO Resources PA, LLC	Proposed But Never Materialized	Oil/Gas	
	L127.3	1203	NE	Oil/Gas Well	EXCO Resources PA, LLC	Proposed But Never Materialized	Oil/Gas	
	L127.3	1225	NE	Oil/Gas Well	EXCO Resources PA, LLC	Proposed But Never Materialized	Oil/Gas	
Chapman Loop								
Clinton								
	186.0	850	NE	Oil/Gas Well	Cabot Oil and Gas Corporation	Operator Reported Not Drilled	Oil/Gas	Three proposed wellheads on site and four inactive wellheads on site
Mainline A & B Replacements								
Prince William								
	0.2	1300	SE	Quarry	Fairfax Quarries	Past Producer	Stone, Crushed/Broken	
	1580.8	1155	SE	Quarry	Vulcan Materials Crushed Stone Quarry	Active	Stone, Crushed/Broken	

Sources: PADEP, 2014b-e; PADEP BMR, 2012; USGS, 2006.

[a] No mineral resources were identified at the new or existing aboveground facilities.

Key:

CPL = Central Penn Line

L = Leidy Line

APPENDIX J

ATLANTIC SUNRISE PROJECT SEISMIC ANALYSIS REPORT AND REVISED KARST INVESTIGATION AND MITIGATION PLAN

Transcontinental Gas Pipe Line Company, LLC

Resource Report No. 6

Geological Resources

Appendix 6G – Seismic Analysis Report

Atlantic Sunrise Project

March 2015

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SEISMIC ANALYSIS REPORT

Atlantic Sunrise Project

Date: March 19, 2015

Subject: Earthquake Ground Motions Parameters for Atlantic Sunrise Pipeline Project in Eastern Pennsylvania.

Introduction

Values of earthquake ground-motion parameters, consisting of horizontal-component peak ground acceleration (PGA), and 5% damped response spectral accelerations at natural periods of 0.2 sec and 1.0 sec, S_a(0.2s) and S_a(1.0s), were extracted from the U.S. Geological Survey (USGS) website, http://earthquake.usgs.gov/hazards/products/conterminous/2014/data/, for the pipeline route and the Chapman and Unity loops. The values correspond to a 2% probability of being exceeded in 50 years (or an average return period of 2,475 years) and pertain to a generic bedrock condition, defined as Site Class B in Chapter 20 of the ASCE 7-10 standard.

The PGA and S_a(1.0s) values were scaled by site coefficients for Site Class C in the ASCE 7-10 standard, and the resulting values were substituted in simple equations (ASCE, 1984; PRCI, 2004) to estimate ground strain and ground curvature, which are conservative estimates of the pipeline axial strain and bending curvature along straight or nearly straight sections of the pipeline.

USGS Ground Motion Values

The values of the 2,475-yr PGA, S_a(0.2s) and S_a(1.0s), extracted from the USGS website, are listed in **Table 1**. The study was conducted on 5-mile intervals. Central Penn Line (CPL) South, MP 0.0 (first row in table) to MP 125.2, represents the southern section of the route, which starts in the southern end of Lancaster County and terminates in the northern end of Columbia County. CPL North, MP 0.0 to MP 57.3, represents the northern section of the route, which terminates at MP 57.3 in the southern end of Susquehanna County. The Chapman loop is in the northern part of Clinton County, while the Unity loop is in the eastern end of Lycoming County, just west of the junction of CPL South and CPL North.

Along CPL South, the ground motions are highest at the southern end and gradually decrease to the north. The higher ground motions at the southern end, relative to those at the northern end, are the result of the Lancaster Seismic Zone, which has higher observed seismicity rates than the surrounding region.

Table 1
2014 USGS Ground Motions along Pipeline Route. Site Class B. [g]

PIPELINE	MP	PGA	S_a(0.2s)	S_a(1.0s)
CPLS	0	0.106	0.178	0.039
	5	0.107	0.180	0.039
	10	0.105	0.177	0.039
	15	0.103	0.173	0.038
	20	0.100	0.170	0.038
	25	0.098	0.167	0.038
	30	0.096	0.165	0.038
	35	0.091	0.158	0.038
	40	0.087	0.153	0.037
	45	0.083	0.148	0.037
	50	0.079	0.142	0.037
	55	0.076	0.137	0.036
	60	0.072	0.132	0.036
	65	0.072	0.132	0.036
	70	0.071	0.132	0.036
	75	0.067	0.127	0.036
	80	0.064	0.122	0.035
	85	0.062	0.118	0.035
	90	0.059	0.115	0.035
	95	0.058	0.114	0.035
	100	0.057	0.112	0.035
	105	0.055	0.110	0.035
	110	0.055	0.109	0.035
	115	0.054	0.108	0.035
	120	0.054	0.107	0.035
	125	0.053	0.107	0.035
CPLN	0	0.053	0.107	0.035
	5	0.054	0.108	0.035
	10	0.055	0.110	0.036
	15	0.056	0.112	0.036
	20	0.057	0.114	0.036
	25	0.058	0.114	0.036
	30	0.058	0.115	0.036
	35	0.057	0.114	0.037
	40	0.058	0.115	0.037
	45	0.058	0.115	0.037
	50	0.058	0.116	0.037
	55	0.058	0.116	0.037
Chapman - mid	187.4	0.045	0.092	0.033
Unity - W end	128.9	0.050	0.101	0.034
Unity - E end	120.3	0.052	0.105	0.035

The ground motions are similar along the CPL North section of the route as seen in **Table 1**. The ground motions in the Chapman and Unity loops are slightly smaller than the smallest motions along CPL North section (i.e., those at MP 0).

The ground motions in **Table 1** indicate the pipeline route and two loops are in an area of low seismic hazard. The higher ground motions in the Lancaster Seismic Zone, relative to those along the route north of this zone, do not change this conclusion.

Effect of Local Geology on Ground Motions

Surficial geologic data were available for CPL South MP 0.0 through MP 46.7, CPL South MP 110.5 through MP 125.2, and CPL North MP 0.0 through MP 57.3. The available geologic information between MP 0.0 and MP 46.7, the region covering the Lancaster Seismic Zone, are summarized in a table at the end of this report. Geologic data were also available for the two loops. Collectively, all of these geologic data indicate that the majority of the two route segments and two loops are Site Class A, B or C, according to Chapter 20 of the ASCE 7-10 standard. The geology for the remainder of the proposed route between CPL South MP 46.7 and MP 110.5 is assumed to be similar. Chapter 20 defines Site Class A as hard rock, Site Class B as rock, and Site Class C as very dense soil and soft rock. For conservatism, the entire route and both loops were designated as Site Class C.

According to the site coefficient tables in Chapter 11 of ASCE 7-10, the PGA, $S_a(0.2s)$, and $S_a(1.0s)$ values for Site Class A would be 20% less than those for Site Class B, while the PGA and $S_a(0.2s)$ values for Site Class C would be 20% greater. The $S_a(1.0s)$ values for Site Class C would be 70% greater than those for Site Class B.

Earthquake-induced Dynamic Ground Strains and Curvatures

Chapter 6 and Appendix B of the ASCE (1984) publication, "Guidelines for the Seismic Design of Oil and Gas Pipeline Systems," present simple equations for computing maximum earthquake-induced dynamic ground strains (ε_g) and curvatures (κ_g). For shear waves, which typically produce the largest ground motion, these equations are

$$\varepsilon_g = V_{max}/(2c) \quad (1)$$

$$\kappa_g = PGA/c^2 \quad (2)$$

where V_{max} is the maximum ground velocity and c is the propagation velocity for shear waves. V_{max} was estimated with the equation (Newmark and Hall, 1982)

$$V_{max} = [S_a(1.0s)]\ [9.80/(2\pi)]/1.65 \quad (3)$$

where the term, [9.80/(2π)], converts S_a(1.0s) in g to 1-sec spectral velocity in m/sec, and the 1.65 factor converts the spectral velocity to V_{max}. For the purpose of the strain and curvature calculation, the classification of the entire pipeline route and both loops as Site Class C is conservative, as noted above, except possibly in areas of stream crossings or rivers where soft soils may exist. The shear-wave velocity was assumed to be c = 560 m/s, which is the average value for Site Class C.

To compute ε_g and κ_g, the PGA and S_a(1.0s) values in **Table 1** were converted to values corresponding to Site Class C. This conversion was accomplished by multiplying the PGA and S_a(1.0s) in **Table 1** by the appropriate site coefficients for Site Class C in the ASCE 7-10 standard (F_{PGA} = 1.2 in Table 11.8-1 for PGA and F_v = 1.7 in Table 11.4-2 for S_a(1.0s)). After converting the units on the resulting PGA and S_a(1.0s) from g to m/sec^2, the ground strains and curvatures were computed and are summarized in **Table 2**. An additional unit conversion from (1/m) to (1/ft) was made in the κ_g because the pipeline radius (r) is reported in ft rather than m. Thus, the pipe bending strain can be computed as r κ_g without a unit conversion.

Discussion

The maximum ground strains and curvatures in **Table 2** are conservative estimates of the maximum pipeline compressive/tensile strain and curvature under the following assumptions: (1) the pipeline moves with the soil without offering any resistance, i.e., interaction or slippage between the pipeline and surrounding material does not occur, (2) the native material through which the pipeline passes is not softer than Site Class C, and (3) the ground does not permanently deform differentially along the alignment due to the ground motion, i.e., earthquake-induced landslides, subsidence, or ground-surface rupture do not occur. Under these assumptions, the product of the curvature and pipeline radius is the bending strain.

The pipeline passes through deposits of loose, saturated cohesionless soils, which may be present at or near stream or river crossings, wetlands, or in alluvial valleys. Although such deposits are susceptible to liquefaction, the liquefaction potential and associated risk to the pipeline are judged to be low. This is based on the low ground-motion hazard along the route and the small earthquake magnitudes that have the majority contribution to this hazard.

Table 2
Maximum Ground Strains and Curvatures along Pipeline Route. Site Class C.

PIPELINE	MP	ε_g	κ_g (1/ft)
CPLS	0	5.6E-05	1.2E-06
	5	5.6E-05	1.2E-06
	10	5.6E-05	1.2E-06
	15	5.5E-05	1.2E-06
	20	5.5E-05	1.1E-06
	25	5.5E-05	1.1E-06
	30	5.5E-05	1.1E-06
	35	5.4E-05	1.0E-06
	40	5.3E-05	9.9E-07
	45	5.3E-05	9.5E-07
	50	5.3E-05	9.1E-07
	55	5.2E-05	8.6E-07
	60	5.2E-05	8.2E-07
	65	5.2E-05	8.2E-07
	70	5.2E-05	8.1E-07
	75	5.1E-05	7.7E-07
	80	5.1E-05	7.3E-07
	85	5.1E-05	7.0E-07
	90	5.0E-05	6.8E-07
	95	5.0E-05	6.7E-07
	100	5.0E-05	6.5E-07
	105	5.0E-05	6.3E-07
	110	5.0E-05	6.3E-07
	115	5.0E-05	6.2E-07
	120	5.0E-05	6.1E-07
	125	5.0E-05	6.1E-07
CPLN	0	5.0E-05	6.1E-07
	5	5.1E-05	6.2E-07
	10	5.1E-05	6.3E-07
	15	5.1E-05	6.4E-07
	20	5.2E-05	6.6E-07
	25	5.2E-05	6.6E-07
	30	5.2E-05	6.6E-07
	35	5.2E-05	6.6E-07
	40	5.3E-05	6.6E-07
	45	5.3E-05	6.6E-07
	50	5.3E-05	6.6E-07
	55	5.4E-05	6.6E-07
Chapman - mid	187.4	4.7E-05	5.2E-07
Unity - W end	128.9	4.9E-05	5.7E-07
Unity - E end	120.3	5.0E-05	5.9E-07

References

ASCE, 1984. Guidelines for the Seismic Design of Oil and Gas Pipeline Systems. Prepared by the committee on Gas and Liquid Fuels Lifelines of the ASCE Technical Council on Lifeline Earthquake Engineering, American Society of Civil Engineers, New York, New York, 473 p.

Newmark, N.M., and Hall, W.J., 1982. Earthquake Spectra and Design. Monograph, Earthquake Engineering Research Institute, Berkeley, California.

PRCI, 2004. Guidelines for the Seismic Design and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines. Prepared for Pipeline Design, Construction & Operations Technical Committee of Pipeline Research Council International, Inc. Prepared by D.G. Honegger Consulting, and D.J. Nyman and Associates, October 1.

SURFICIAL GEOLOGY (< 100 FT BGS) ALONG CPL-S, MP 0 - MP 46.7							
PIPELINE	FROM MILEPOST	TO MILEPOST	DEPTH INTERVAL (FT)	CLASS TYPE	COMMENTS	Notes	ASCE 7-10 SITE CLASS
	0	2.0	0 to 6	IV	Colluvium - platy rock fragments in finer-grained matrix. Wetlands at MP 0.25 & from from MP 1.4 to MP 1.45.	Cultivated farmland	C
			6 to 30	III	Interspersed, weathering resistant and weathered lithofacies		
			30 to 100	II	Unweathered schist ; schistosity dips 25-30 deg.		
	2	7.05	0 to 6	III	Thin, discontinuous colluvium over bedrock		B
			6 to 100	II	Chlorite schist and quartz schist, phyllitic limestone, and quartzite with schistosity dips 0 to 10 deg.		
	7.05	7.1	0 to 10	IV	Compacted to semi-compacted fill derived from local bedrock (schist and phyllitic limestone) or surficial material		B
			10 to 100	II	Unweathered schist; schistosity dips 0 to 10 deg		
	7.1	8.15	0 to 6	IV	Colluvium - platy rock fragments in finer-grained matrix. Wetlands from 7.1 to 7.2; MP 7.5; & MP 7.75.		B
			6 to 100	II	Schist with variable lithofacies; schistosity dips 0 to 10 deg		
	8.15	8.2	0 to 10	V	Alluvium (Pequea Creek valley)	Cultivated farmland	C
			10 to 15	III	Weathered limestone, schist and quartzite		
			30 to 100	II	Folded limestone, schist, phyllite and quartzite; schistosity dips gently 0 to 10 deg.		
	8.2	9.05	0 to 100	IV to V	Carbonate residuum in karst terrain.		C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of sinkhole locally is Class V.		
	9.05	9.15	0 to 6	III	Quartzite colluvium and bedrock. Colluvium is discontinuous.		B
			6 to 100	I to II	Quartzite and quartz schist. Possible contact with phyllitic limestone between 50 and 100 ft bgs.		
	9.15	9.25	0 to 100	V to IV	Carbonate residuum in karst terrain		C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V.		
	9.25	9.4	0 to 6	III	Quartzite colluvium and bedrock. Colluvium is discontinuous.		B
			6 to 100	I to II	Quartzite and quartz schist. Possible contact with phyllitic limestone between 50 and 100 ft bgs.		
	9.4	10.1	0 to 100	V to IV	Carbonate residuum in karst terrain		C
			0 to 100	II (rock) IV & V (soil)	Dolomite pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.		
	10.1	10.85	0 to 6	III	Quartzite colluvium and bedrock. Colluvium is discontinuous.		B
			6 to 100	I to II	Quartzite and quartz schist. Possible contact with phyllitic limestone between 50 and 100 ft bgs.		
	10.85	11.25	0 to 100	V to IV	Carbonate residuum in karst terrain. Wetlands at MP 11.0.		C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone and dolomite pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.		
	11.25	12.25	0 to 6	III	Quartzite colluvium and bedrock. Colluvium is discontinuous.		B
			6 to 100	I to II	Quartzite and quartz schist. Possible contact with phyllitic limestone between 50 and 100 ft bgs.		
	12.25	12.3	0 to 10	V	Alluvium (Conestoga River valley)		C
			10 to 100	II	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.		
	12.3	13.75	0 to 100	V to IV	Carbonate residuum in karst terrain. Wetlands at MP 12.65; Mp 13.25 to Mp 13.3; MP 13.6; MP 13.75.	Cultivated farmland	C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.		
	13.75	14.35	0 to 6	IV	Colluvium - platy rock fragments in finer-grained matrix. Wetlands at MP 13.75; MP 14.25 to MP 14.95.		B
			6 to 100	II	Schist with variable lithofacies; schistosity dips 0 to 10 deg		
			0 to 100	V to IV	Carbonate residuum in karst terrain. Wetlands at MP 14.25 to 14.95.		

SURFICIAL GEOLOGY (< 100 FT BGS) ALONG CPL-S, MP 0 - MP 46.7							
PIPELINE	FROM MILEPOST	TO MILEPOST	DEPTH INTERVAL (FT)	CLASS TYPE	COMMENTS	Notes	ASCE 7-10 SITE CLASS
CPL-S	14.35	14.55	0 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.	Cultivated farmland	C
	14.55	14.6	0 to 10	V	Alluvium and limestone colluvium mix (Indian Creek valley). Wetlands at MP 14.25 to 14.95.		C
			10 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.		
	14.6	14.8	0 to 100	V to IV	Carbonate residuum in karst terrain. Wetlands 14.25 to 14.95.	Cultivated farmland	C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Possible contact with schist (Class II) between 75 to 100 ft.		
	14.8	15.8	0 to 6	IV	Colluvium - platy rock fragments in finer-grained matrix. Wetlands from MP 14.25 to MP 14.95.		B
			6 to 100	II	Schist with variable lithofacies; schistosity dips 0 to 10 deg		
	15.8	18.6	0 to 100	V to IV	Carbonate residuum in karst terrain		C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone and dolomite pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V.		
	18.6	19.5	0 to 5	III to IV	Quartzite colluvium and weathered bedrock. Colluvium is discontinuous.		B
			5 to 100	I to II	Folded and faulted quartzite and quartz schist. Schistosity dipping 30 to 40 deg.		
	19.5	20.5	0 to 5	III	Weathered limestone, shale/phyllite and quartzite colluvium. Wetlands from 19.95 to 20.0.	Mixed cultivated and suburban with forested quartzite ridge	B
			5 to 100	I to II	Folded and faulted dolomite, shale/phyllite, and quartzite. Bedding/schistosity dipping 30 to 50 deg		
	20.5	21.7	0 to 100	V to IV	Carbonate residuum in karst terrain. Wetlands from 21.15 to MP 21.2.		C
			0 to 100	II (rock) IV & V (soil)	Phyllitic limestone pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Some open solution channels may be present locally above the water table.		
	21.7	23.4	0 to 5	V to III	Quartzite and quartz schist residum. Wetlands at MP 23.0.	Primarily suburban-wooded & non-cultivated	B
			5 to 100	II to I	Tightly folded quartzite and quartz schist and phyllite.		
	23.4	29.4	0 to 5	V to III	Carbonate residuum in karst terrain.	Mostly cultivated farmland; Chickies Creek alluvium over rock at 23.9 (10 ft thick)	C
			5 to 100	I to II	Pinnacles in folded and faulted carbonate bedrock interspersed with solution-enlarged fracture slots and soil-filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V. Some open solution channels may be present locally above the water table.		
	29.4	33.0	0 to 5	V to IV	Saprolite and weathered phyllite and shale with some shaly and quartzose sandstone between MP 29.4 and 31.0. Wetlands from MP 30.35 to 30.45; MP 31.2; MP 31.55; MP 32.25.	Mostly cultivated farmland; Back Run alluvium / colluvium over weathered rock at MP 31.25.	B
			5 to 20	IV to III			
			20 to 100	II to I	Folded and faulted phyllite with some shales and sandstone		
	33.0	33.2	0 to 10	V to IV	Saprolite of Mesozoic basal conglomerate.	Mostly cultivated farmland; alluvium/colluvium in Brubaker Run at MP 33.0	B
			10 to 100	III to I	Mesozoic basal sandstone conglomerate.		
	33.2	33.95	0 to 65	V to III	Saprolite of mudstone. Wetlands from MP 33.55 to 33.7.	Cultivated farmland	C
			65 to 100	II to I	Mudstone and shale interbedded with fine sandstone and arkosic sandstone		
	33.95	34.1	0 to 10	V to IV	Saprolite of Mesozoic basal conglomerate. Wetlands at MP 34.0 to 34.05.	Cultivated farmland; MP 33.8 R-O-W crosses regional diabase dike	B
			10 to 100	III to I	Mesozoic basal sandstone conglomerate.		

SURFICIAL GEOLOGY (< 100 FT BGS) ALONG CPL-S, MP 0 - MP 46.7							
PIPELINE	**FROM MILEPOST**	**TO MILEPOST**	**DEPTH INTERVAL (FT)**	**CLASS TYPE**	**COMMENTS**	**Notes**	**ASCE 7-10 SITE CLASS**
	34.1	36.75	0 to 65	V to III	Saprolite and alluvium (MP 34.5 and MP 36.1)) of mudstone and sandstone. Wetlands at MP 34.5; MP 36.1 to MP 36.2.	Cultivated farmland; crosses regional diabase dike at MP 34.7.	C
			65 to 100	II to I	Mudstone and shale interbedded with fine sandstone and arkosic sandstone. Rock is baked hard near diabase contact at MP 36.6.		
	36.75	37.25	0 to 100	III to I	Mesozoic diabase sill and dike. Variable depth to sound rock. Diabase that has been intensely decomposed often shows a profile of over 50 feet to a complete, solid bedrock. Wetlands at MP 37.1.	Forrested, rural land.	C
	37.25	40.8	0 to 30	IV to III	Saprolite of sandstone. Alluvium at MP 37.55, MP 37.8, & MP 39.5. Wetlands at MP 37.55 and MP 37.8; and MP 38.0 to MP 38.8; MP 39.5; and MP 40.55.	Cultivated farmland	C
			30 to 100	II to I	Coarse sandstone with shale and conglomerate interbeds. Rock is baked hard near diabase contacts at MP 37.5 and MP 40.5.		
	40.8	41.5	0 to 100	III to I	Mesozoic diabase sill and dike and hornfelsic sandstone. Variable depth to sound rock. Diabase that has been intensely decomposed often shows a profile of over 50 feet to a complete, solid bedrock. Wetlands at MP 41.15 & MP 41.25.	Forrested, rural land.	C
	41.5	42.0	0 to 5 ft	IV to III	Saprolite and residuuum of weathered Mesozoic conglomerate. Wetlands at MP 41.9.		B
			5 to 100	II to I	Very coarse quartz conglomerate. Border fault with Paleozoic baked carbonate rocks at MP 42.0.		
	42.0	46.7	0 to 100	V to IV	Carbonate residuum in karst terrain. Alluvium in stream channel at 46.65. Wetlands at MP 46.65.	Cultivated farmland; MP 46.0 to 46.5 developed. Limestone mines in proximity.	C
			0 to 100	II (rock) IV & V (soil)	Limestone and dolomite pinnacles interspersed with solution-enlarged fracture slots and soil- filled sink holes. Saturated soil at throat of soil-filled sink holes can be Class V.		

Class Types:			
I	hard rock	intact, high strength	UCS: 16-32 ksi
II	rock	low to moderate strength	UCS: 4 - 16 ksi
III	weathered rock / very stiff soil	weak, soil-like rock/ barely indented by thumbnail	UCS: <4 ksi
IV	stiff soil	imprinted under pressure by fingers or indented by thumbnail	
V	loose/soft soil	easily penetrated when rod pushed by hand; or pinched in two between thumb & forefinger	

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Transcontinental Gas Pipe Line Company LLC

Atlantic Sunrise Project

Karst Investigation and Mitigation Plan

DOCUMENT ID NO.								
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REVISION DESCRIPTION		
Section	**Paragraph**	**Description of Changes**

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EXECUTIVE SUMMARY

The Atlantic Sunrise Project (Project) will extend through areas underlain by carbonate bedrock formations which are susceptible to solutioning by groundwater. This solutioning can lead to the formation of subsurface voids into which the overlying soil material may erode, resulting in ground subsidence and irregular terrain which is often termed karst. The origin and nature of karst makes accurate predication of its occurrence and effects challenging. Different methodologies have been developed to assess the susceptibility of various carbonate formations relative to one another, termed relative risk, to develop karst features; however, no rigid or standardized guidelines have been established. Evaluation of relative risk is therefore made using professional judgment and experience based on assessment of the physical characteristics typically associated with karst terrain.

The relative risk of future karst occurrence is principally identified by two factors: geologic formation and incidence. The geologic community has long differentiated carbonate bedrock formations by the key chemical and physical conditions affecting karst development including mineral composition, purity of carbonate content, and bedding and fracture arrangement (which is the primary factor controlling the movement of groundwater and correspondingly, the patterns of solutioning within the bedrock). The natural variability of these conditions and their combined effects within a given formation are further affected by more localized variations in ground topography/drainage, bed and fracture orientation and weathering which, in turn, lead to variable density or patterns of past occurrence within the formation which is termed incidence. Incidence is primarily expressed as karst surface features including open and closed depressions, broad topographic troughs, and lineaments. Future karst features are more likely to develop in geologic formations that exhibit a higher incidence than those formations exhibiting lower incidence. Similarly, on a more local scale, areas within a given formation exhibiting a higher density or frequency of incidence possess a higher relative risk of future karst development.

From this understanding of relative risk, it is possible and appropriate to evaluate and categorize the relative risk of karst development within the ground that will support the Project. Categories of low, moderate and high relative risk for karst development were therefore established for the 27.8 mile-long portion of the Project that will cross carbonate bedrock formations. The presence and incidence of existing karst features, manifested as ground surface subsidence, were investigated and identified using geologic site reconnaissance and aerial photograph and LiDAR data evaluation. The cumulative densities of karst features identified from these investigation methods were then established for and compared between manageable (500 feet long) sections of the Project. Based on the geologic formation and review of karst incidence within each formation, the results of the relative risk evaluation indicate the following:

- High relative risk: 4.33 miles (15.6% of that portion of the Project crossing carbonate bedrock);
- Moderate relative risk: 7.75 miles (27.9% of that portion of the Project crossing carbonate bedrock); and
- Low relative risk: 15.69 miles (56.4% of that portion of the Project crossing carbonate bedrock)

Geophysical survey methods were used to provide a continuous survey of the subsurface soil and rock materials along the centerline of the Project alignment to identify potential features (anomalies) that could be the result of karst activity and, in the future, lead to future ground subsidence that could impact the Project. However, it should be noted that the absence of a well-defined geophysical anomaly does not eliminate the risk for future karst-related ground subsidence. This is particularly true for more deeply seated solution features as well as features in the earlier stages of development where the variations in physical properties of these features relative to the surrounding geologic materials may be too subtle to detect as distinct geophysical anomalies. Conversely, a detected geophysical anomaly may be present within non-karst conditions that are not associated with potential future ground subsidence. In summary, a detected geophysical anomaly identifies the location of a potential subsurface void feature but its occurrence does not by itself represent the likelihood or risk of the feature further developing and causing future ground subsidence.

The presence of geophysical anomalies detected during the geophysical survey effort are deemed to provide a secondary evaluation of relative risk as well as the locations of potential voids and other karst features for which mitigation may be required. Geophysical anomalies detected in sections of the Project having high relative risk would be expected to have a greater potential to further develop and cause future ground subsidence than geophysical anomalies detected in sections of moderate or low relative risk. Therefore, more robust mitigation measures will be implemented for anomalies located in high relative risk areas. In addition, because a significant percentage of subsurface anomalies were detected at locations of observed karst features in moderate risk areas, anomalies within moderate risk areas will also be further assessed for potential mitigation.

Mitigation measures have been developed for the Project in a tiered fashion consistent with the categories of low, moderate and high relative risk of future karst development established for the Project. In general, these measures are intended to (1) reduce the potential for storm water infiltration that could initiate or accelerate the development of karst conditions, (2) eliminate actual soft ground or void features associated with geophysical anomalies detected in relative high risk areas as confirmed and delineated during pre-design investigation (to be completed in support of the mitigation design) or during construction, and (3) provide for long-term monitoring to identify any potential developing karst features following the Project construction.

1.0 OVERVIEW

The planned alignment of the Atlantic Sunrise Project (Project) extends through areas of potential risk for ground subsidence associated with karst conditions. Karst terrains along the Project represent areas where the landscape has been shaped by the dissolution of soluble carbonate bedrock, thereby creating karst topography. Karst topography includes features such as sinkholes, surface and closed depressions and caves. Potential karst areas may include sections of the Project in Lancaster, Lebanon and Columbia Counties totaling approximately 27.8 miles of the proposed route as shown on **Figure 1-1** (attached) and summarized in **Table 1-1** (attached).

The majority of the Project within the karst areas extends across cultivated farm fields that generally exhibit rolling topography, although portions of the alignment within the karst areas also traverse wooded areas, streams, roadways and developed land. Sinkholes are typically more prone to form in topographically low areas because the concentration of surface water run-off provides a greater potential for infiltration and, in turn, increased flow into porous rock and open fractures where dissolution of the bedrock has been occurring. However, sinkholes can also develop on slopes underlain by inclined rock formations. Because the carbonate rock formations underlying these three counties are geologically old, and consequently are structurally complex, the spatial and geographic distribution of known karst features is variable, thereby requiring completion of the multi-faceted investigation summarized in this report.

1.1 General Discussion of Karst Conditions and Sinkhole Development

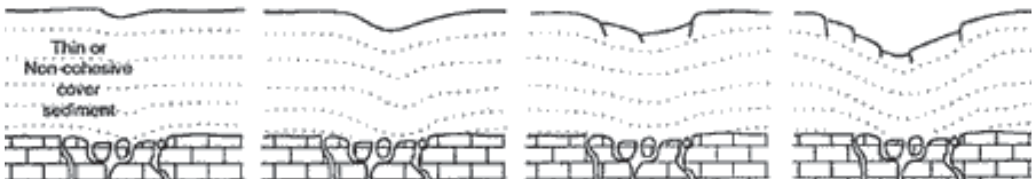
The project area is situated over karst terrain. Karst is the German form of the Slavic word "kras", which means a "bleak waterless place", and during the 19th century this term was given to a 500-meter high limestone plateau situated in Slovenia. Similar terrain has since been termed karst, which is defined as a type of topography that is formed over limestone, dolomite or gypsum by dissolving the carbonate content, and characterized by closed depressions or sinkholes, caves and underground drainage. An irregular bedrock surface is typical of most karst areas. Karst terrain ultimately owes its origins to the natural processes caused by solution and leaching of soluble rocks along joints and bedding planes.

Natural solution processes dissolve the limestone most rapidly at the surface, because the acidity of the water is greatest when it first encounters the rock. If the limestone or dolomite is situated near surface or exposed at the ground surface, water will flow over the surface until it encounters a fracture or joint and then it will drain downward into the opening. Preferential pathways for water infiltration are generally at the intersection of two fractures. As the acidified water flows through the limestone, it dissolves and widens the wall of the fracture through which it flows. Preferential pathways are widened most rapidly because more water flows through them. As they grow, they transmit more water and capture drainage from the smaller fractures permeating the surrounding rock mass. This self-accelerating process results in the formation of greatly enlarged vertical conduits that are termed solution pipes (also termed 'throats').

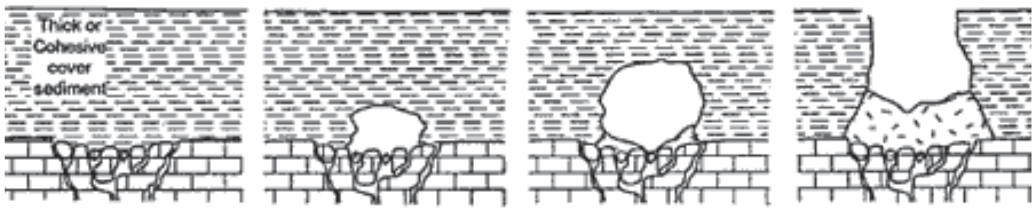
Sinkholes result from two different processes, either the transport of surficial materials downward along solution enlarged channels or the collapse of roofs over cavities. The converging flow of water toward and down the solution pipe(s) has the potential to erode the loose sediment above the pipe(s). As the unconsolidated materials erode down the solution pipe grain-by-grain, the cover soil above settles down to fill the void space. A cavity is never formed, but the sediments slowly eroded from beneath the ground surface causing slow, gradual settling of the ground. This is termed a cover subsidence sinkhole.

However, in areas where the cover sediments are cohesive, a soil cavity may form above the solution pipe in the limestone, and it may gradually enlarge upward as its roof continues to erode. More cohesive strata within the overburden sediments may temporally impede the upward erosion, causing the cavity to grow laterally with a flat roof. Eventually the upward erosion of this soil void may leave only a thin roof of sediments that are not strong enough to support their self-weight. The result is a sudden collapse that is termed a cover collapse sinkhole. However, the collapse scenario can be more innocuous. If the sediments covering the limestone are relatively non-cohesive, the soil cavity may erode upward rapidly without growing wider. As the roof of the cavity crumbles and sediments are deposited on the floor of the cavity, the cavity may simply migrate upward without increasing in size, like a bubble rising through liquid. When the cavity reaches the surface a small hole suddenly appears, and this is also termed a cover collapse sinkhole.

Figure 1-2 presents a typical schematic for the development of cover subsidence and cover collapse sinkholes.



Development of Cover Subsidence Sinkhole



Development of Cover Collapse Sinkhole

Figure 1-2: Generalized Profile of Sinkhole Development

2.0 INVESTIGATION APPROACH

Initial investigation of potential karst features has been completed where landowner access was obtained. The identified features have been categorized by general degree of relative risk and corresponding mitigation measures have been developed. The karst investigation approach utilized a combination of industry-accepted techniques implemented in complementary fashion to assess conditions that may be associated with future ground subsidence. Investigation methods included literature review of geologic setting, continuous remote sensing (i.e., surface geophysical surveys), observational methods including geologic site reconnaissance to identify nearby karst-related features (e.g., carbonate pinnacle outcrops and closed depressions) and aerial photograph and Light Detection and Ranging (LiDAR) data evaluation.

Although the investigative methods applied in this investigation use current industry-accepted tools, each tool has its limits of accuracy and precision. Geophysical surveys provide an interpreted, indirect graphical representation of a particular property of the subsurface. Anomalies in the geophysical signature of surface wave velocity or electrical resistance may represent more than one type of source feature. The resolution of historic aerial photographs varies with date and location of the fly-over due to seasonal effects and photographic specifications. The processed LiDAR is based on a Digital Elevation Model (DEM) with sensitive resolution, but DEMs have some degree of elevation inaccuracy due to elevations being averaged for each cell, therefore some actual depressions that are too shallow or too incipient may not be depicted, whereas, some depicted depressions may represent an unrelated surface condition. Ground reconnaissance can identify incipient features if they are not obscured by conditions on the ground at the time of the survey. For these reasons, multiple lines of evidence based on independent methods increases confidence in the thoroughness of the investigation, and thus the reliability of the results.

2.1 Karst Investigation

The karst investigation was designed and implemented to address the following objectives:

1. Obtain and evaluate information regarding the presence and frequency of existing visible ground subsidence features along those portions of the Project that overlie carbonate bedrock. This information was used to assess the risk for existing anomalous subsurface features (e.g., possible voids) to develop into future ground subsidence features (e.g., sinkholes) as further described in Section 5.0;
2. Conduct a geophysical survey to identify anomalous subsurface features that may require mitigation based on the risk of such features to develop into future ground subsidence features (e.g., sinkholes).

To address these objectives, the work scope of the karst investigation was completed under the following three general tasks: (1) geologic site reconnaissance and aerial photograph and LiDAR data evaluation; (2) geophysical survey and (3) evaluation of the investigation findings and development of recommended general mitigation measures, to the extent practicable. The approach and findings of these three tasks are presented below.

2.1.1 Task 1 - Aerial Photography, LiDAR, and Ground Reconnaissance Evaluation

To identify and assess the occurrence of existing visible ground subsidence features along those portions of the Project that overlie carbonate bedrock, Transco applied a multiple lines-of-evidence approach using the following non-intrusive methods:

1. Review of published literature and geologic maps together with aerial photograph evaluations using historic aerial photographs;
2. LiDAR imagery; and
3. Ground reconnaissance along the pipeline alignment.

The Project crosses eight (8) areas identified as underlain by potentially karstic geologic formations (U.S.G.S. OFR 2014-1156):

- Lancaster Carbonate Group (Conestoga Valley and Lititz Belts)
- Lebanon Valley Carbonate Belt
- Carbonates within the Hamburg Sequence (2 areas)
- Tully Limestone equivalent within the Hamilton Group (3 areas)
- Keyser-Tonoloway Formation carbonates (1 area)

The Tully Limestone equivalent of the Hamilton Group has not been differentiated as a mappable carbonate unit in the mapped areas of eastern Pennsylvania where the Project crosses the upper Hamilton Group. Heckel (1969) reported that the Tully “Limestone” equivalent in this region is composed of calcareous shale with more than 50% insoluble material and with shale and carbonate interbeds ranging from just inches to only one foot thick. Karst-related subsidence in the upper Hamilton Group Tully equivalent rocks has not been generally recognized in the Project area. Therefore, the three (3) Hamilton Group crossings are considered to constitute a very low risk of karst feature development.

Similarly, the carbonate units of the Hamburg Sequence are thin carbonate layers (inches to 1 foot) interbedded with calcareous and siliceous shales and argillaceous siltstones and sandstones (greywacke). These characteristics were confirmed by field investigations and rock core borings at the Swatara Creek crossing in Lebanon County which encountered no voids or cavities in the borings. Accordingly, it was concluded that there is a very low risk of karst feature development in the Hamburg Sequence crossed by the Project.

In view of the minimal risk of karst-related subsidence in the three Hamilton Group and the two Hamburg Sequence units, the desktop evaluation of karst terrains focused primarily on the Project route through the two carbonate belts of Lancaster County, Lebanon County, plus the Keyser–Tonoloway Formation in Columbia County.

Evaluation of Historic Aerial Photographs and Light Detection and Ranging (LiDAR) Maps

Historic aerial photographs dating from 1969 and 1970 were obtained from the Penn Pilot Project website through Pennsylvania State University. These photos were selected for evaluation because they recorded conditions that are more obscured by human land use development in the most recently available imagery. Complete aerial photo coverage of the Project route through the subject carbonate belts was examined stereoscopically for indications of pinnacles, grikes (or cutters), closed depressions, and collapsed sinkhole features. Observed features were compared with published sinkhole, cave, surface mines, springs, and closed depressions available from the Pennsylvania Geologic Survey of the Department of Conservation and Natural Resources (DCNR) from their Pennsylvania Spatial Data Access (PASDA) database. The variable resolution of the photographs contributes to variability in the number of potential depressions or sinkholes that could be identified. Tonal variations of soil areas were often identified. These variations indicate potential for karst features to be present today though not necessarily present in 1970. By comparing the observations from evaluation of aerial photographs with those of the LiDAR, geophysics, and ground reconnaissance, a high degree of congruence is considered significant evidence of a potential karst feature (PKF). The results are summarized in **Table 2-1** (attached) and discussed below in Section 4.0.

Potential subsidence or collapse features that developed between 1970 and the present were evaluated by review of high resolution LiDAR imagery from the PAMAP Program 3.2 feet DEM of Pennsylvania Department of Conservation and Natural Resources (PA DCNR, 2008). This dataset, produced by the PAMAP Program, consists of a raster DEM with a horizontal ground resolution of 3.2 feet. The model was constructed from PAMAP LiDAR elevation points. PAMAP data are organized into adjoining blocks (gaps or overlaps) that represent plan dimensions of 10,000 feet by 10,000 feet on the ground. The DEM was processed using slope shade and hillshade methods available using ArcGIS software. The scale of the LiDAR maps evaluated was 1:7,200 (1 inch equals 600 feet). The slope shade process enhances the contrast between steeply and gently sloped areas whereas the hillshade process replaces contour lines as the best way to visualize 3-D topographic surfaces, thereby allowing visualization of an elevation dataset as realistic images of the landscape. Although the karst areas evaluated consisted of mostly open farm land areas, the imagery is useful for areas where there are groves of trees as well as along stream and creek valleys. This information is therefore compared for congruence with aerial photo, geophysics, and ground reconnaissance. The results of the LiDAR evaluation are summarized in **Table 2-1** (attached) and discussed below in Section 4.0.

Ground Reconnaissance

Reconnaissance traverses along the project pipeline segments through the Lancaster, Lebanon, and Columbia County karst areas were conducted in April and May 2015, where property access was permitted, with the objective of identifying the presence/absence of the features observed on the aerial photographs and LiDAR maps. Features observed within 200 feet of the centerline were noted. The width of this study corridor was consistent with the width considered in the air photo and LiDAR map reviews. The results of the ground reconnaissance are summarized in **Table 2-1** (attached) and discussed below in Section 4.0.

2.1.2 Task 2 - MASW Geophysical Survey

Geophysical survey was completed to identify anomalous subsurface features that may be the locations of potential voids within the karstic, solution-prone carbonate bedrock that underlies the designated portions of the Project. The geophysical survey utilized the multichannel analysis of surface waves (MASW) method. The MASW method is a powerful tool for providing detailed, laterally continuous, 2-dimensional profiles of surface wave velocities of subsurface layers. In addition to providing information relative to subsurface layering, the MASW method is effective for detecting and delineating subsurface features associated with potential ground subsidence.

The MASW data are collected using manual impacts (shots) of a 10- to 16-pound sledgehammer on a metal plate as the seismic source for the MASW survey. Signal stacking from multiple shots are utilized at each location to increase the quality of the signal recorded at each shot location. The data are recorded using a Geometrics Geode 24-channel seismograph and a 24-phone land streamer with 4.5-hertz geophones. Lateral resolution of the MASW method is largely a function of the shot and geophone spacing. The planned survey design utilizes a 10-foot shot spacing and a 5-foot geophone spacing that is expected to provide lateral resolution in the range of 10 or more feet.

Transco collected positional data of surveyed locations of the geophysical transect lines. The positional data are collected using a Trimble ProXH global positioning system (GPS). Real-time differential corrections were provided by the Wide Area Augmentation System, where the resulting differential GPS have a horizontal accuracy of approximately 3 feet.

Approximately 15.5 miles of MASW data have been collected as summarized in **Table 2-2** below. Collection of MASW data is complete where survey access has been granted. MASW data will be collected on the alignment through the remaining parcels (up to 12.3 miles) as survey access becomes available.

Table 2-2: Summary of MASW Survey Performed

County	Alignment	Beginning Mile Post	Ending Mile Post	Linear Distance Covered (Miles)
LANCASTER				
	CPLS	7.10	7.12	0.02
	CPLS	7.44	7.46	0.02
	CPLS	7.49	7.65	0.16
	CPLS	7.65	7.70	0.05
	CPLS	7.70	7.74	0.04
	CPLS	7.74	7.77	0.02
	CPLS	8.04	8.07	0.04
	CPLS	8.23	8.29	0.06
	CPLS	8.29	8.50	0.21
	CPLS	8.50	8.67	0.17
	CPLS	9.54	9.56	0.02
	CPLS	9.64	9.68	0.04
	CPLS	9.68	9.87	0.19
	CPLS	9.90	9.92	0.03
	CPLS	9.99	10.07	0.09
	CPLS	10.66	10.67	0.01
	CPLS	10.68	10.80	0.11
	CPLS	10.83	10.87	0.04
	CPLS	10.91	10.91	0.01
	CPLS	10.93	11.08	0.16
	CPLS	12.43	12.73	0.30
	CPLS	12.75	13.10	0.35
	CPLS M-0152	0.00	0.01	0.01
	CPLS M-0152	0.05	0.08	0.03
	CPLS	14.65	14.72	0.07
	CPLS	14.72	14.83	0.11
	CPLS	15.80	16.06	0.26
	CPLS M-0185	0.00	0.08	0.08
	CPLS M-0185	0.11	0.15	0.04
	CPLS	16.31	16.60	0.29
	CPLS	17.14	17.23	0.09
	CPLS	17.26	17.43	0.17
	CPLS	17.43	17.48	0.04
	CPLS	17.48	17.70	0.22
	CPLS	17.70	17.82	0.12
	CPLS	17.86	18.09	0.23
	CPLS	18.12	18.26	0.14
	CPLS	18.29	18.64	0.36
	CPLS	18.76	18.83	0.06
	CPLS	18.85	18.93	0.07
	CPLS	19.51	19.55	0.04
	CPLS	19.55	19.76	0.20
	CPLS	19.76	19.79	0.04
	CPLS	20.05	20.19	0.14
	CPLS	20.19	20.25	0.06
	CPLS	20.25	20.31	0.06
	CPLS	20.54	20.61	0.07
	CPLS	20.65	20.71	0.06
	CPLS	20.71	20.80	0.08
	CPLS	20.83	20.84	0.01
	CPLS	20.84	21.12	0.29
	CPLS	21.15	21.32	0.17
	CPLS	21.32	21.34	0.02
	CPLS	23.48	23.57	0.09
	CPLS	23.60	23.76	0.16
	CPLS	23.76	23.88	0.12
	CPLS	23.93	24.14	0.22
	CPLS	24.19	24.31	0.12
LANCASTER	CPLS	24.31	24.46	0.15
	CPLS	24.50	24.64	0.15
	CPLS	24.64	24.81	0.17
	CPLS	24.81	25.29	0.48
	CPLS	25.29	25.31	0.02
	CPLS	25.38	26.07	0.69
	CPLS	26.09	26.55	0.46
	CPLS	26.58	26.77	0.18
	CPLS	26.86	27.31	0.45
	CPLS	27.31	27.37	0.06
	CPLS	27.62	27.70	0.08
	CPLS	27.70	27.91	0.21
	CPLS	28.09	28.12	0.03
	CPLS M-0162	0.00	0.03	0.03
	CPLS M-0162	0.03	0.20	0.17
	CPLS M-0162	0.20	0.22	0.02
LEBANON	CPLS	42.06	42.09	0.03
	CPLS	42.12	42.46	0.34
	CPLS	42.65	42.96	0.31
	CPLS	42.96	43.13	0.17
	CPLS	43.13	43.19	0.06
	CPLS	43.19	43.20	0.01
	CPLS	43.23	43.44	0.20
	CPLS	43.44	44.33	0.89
	CPLS	44.45	44.58	0.12
	CPLS	44.58	44.76	0.19
	CPLS	44.79	44.95	0.16
	CPLS M-0183	0.96	0.97	0.02
	CPLS M-0183	1.13	1.15	0.02
	CPLS M-0183	1.34	1.42	0.08
	CPLS M-0183	1.42	1.50	0.08
	CPLS	48.72	48.75	0.02
	CPLS	48.83	48.85	0.02
	CPLS	48.96	49.01	0.05
	CPLS	49.13	49.20	0.07
	CPLS	51.49	51.56	0.06
	CPLS M-0165	0.00	0.07	0.07
	CPLS M-0165	0.17	0.26	0.09
COLUMBIA	CPLS	94.23	94.25	0.02
	CPLS	94.38	94.40	0.02
	CPLS	101.70	101.71	0.02
	CPLS	101.75	101.81	0.05
	CPLS	102.06	102.16	0.09
	CPLS	102.16	102.20	0.05
	CPLS	102.40	102.42	0.02
	CPLS	102.44	102.58	0.14
	CPLS	103.06	103.38	0.31
	CPLS	103.38	103.47	0.09
	CPLS	103.66	103.68	0.02
	CPLS	103.94	103.95	0.01
	CPLS	104.65	104.72	0.07
	CPLS	113.10	113.31	0.20
	CPLS	113.35	113.41	0.06
	CPLS	113.45	113.48	0.02
	CPLS	113.56	113.79	0.23
	CPLS	113.82	114.04	0.22
	CPLS	114.04	114.21	0.17
	CPLS	114.73	115.19	0.46
	CPLS	115.19	115.40	0.21

CPL South Total 15.5

**Linear Distances calculated using MASW line lengths*

2.1.3 Task 3 - Evaluation and Reporting

Findings of the aerial photography, LiDAR and ground reconnaissance efforts and results of the geophysical survey have been evaluated with respect to potential future ground subsidence and its impact to the Project. The results are summarized and presented Sections 3 and 4 this report, respectively.

3.0 AERIAL PHOTOGRAPH/LIDAR/GROUND RECONNAISSANCE EVALUATION AND RESULTS

3.1 Investigation Program

The investigation program of the three karst terrains noted in Section 2.1.2 was conducted during the period from January through early June 2015. Initially, evaluation was conducted during the winter months using remote sensing techniques comprised of historic aerial photographs. LiDAR imagery along the Project alignment was performed separately afterward. The span of the desktop evaluation was limited to 200 feet on either side of the Project centerline.

Where property access permission existed at the time of the survey, ground reconnaissance was conducted along the Project centerline to observe evidence of karst-related subsidence or cover-collapse over sinkholes. Ground reconnaissance will also be conducted on Project tracts as future access becomes available. Recent aerial digital imagery and field GPS instruments were used to guide the longitudinal ground reconnaissance survey along the survey corridor.

3.2 Evaluation Results

The carbonate bedrock surface of Lancaster and Lebanon Counties typically exhibits classic karstic characteristics. These characteristics vary between formations because certain formations exhibit a relatively higher density of closed soil depressions compared with others (e.g., Kochanov and Reese, 2003). The historic aerial photographs revealed many cultivated areas traversed by the centerline exhibiting mottled soil patterns indicative of variable soil moisture retention and drainage that is characteristic of carbonate bedrock terrain. The LiDAR maps qualitatively revealed a relatively high degree of correspondence between areas with many depressions and areas exhibiting strongly mottled soil. The ground reconnaissance revealed some small recent soil collapse features too small to detect from the aerial photographs or LiDAR maps. Potential stream capture by underground solution channels is suggested by the presence of dry stream channels at two channel crossing in the area between MP-17 to 18.

The results of the survey have been summarized in **Table 3-1** (attached). Interpreted geologic features have been categorized relative to potential active karst (potential soil collapse into a depression or trough), inactive karst (closed depressions where potential soil collapse was not discerned on the imagery or during ground reconnaissance), and other features (i.e. the potential for karst subsidence is unrelated or uncertain). Sinkholes and depressions mapped by the Pennsylvania Geological Survey were incorporated to the evaluation for completeness. The observations which intersect the Project centerline or impinge within approximately 200 feet to either side of the centerline, are depicted on the MASW geophysical survey profiles which are presented as **Figures 3-1** through **3-40** (attached).

4.0 GEOPHYSICAL FIELD INVESTIGATION AND RESULTS

4.1 Geophysical Field Investigation Program

MASW survey was completed along all accessible portions of the identified karst areas where property access agreements had been secured. Additional MASW surveying is planned to be completed across the remainder of the identified karst areas upon acquiring applicable agreements for property access. The MASW survey was completed between February 2 and May 20, 2015. The results of the investigation are included in this report. Further details of their work are provided in a separate geophysical report included as **Appendix A**.

4.2 Geophysical Results

The results of the MASW survey are presented as color-enhanced 2-D shear wave velocity profiles included as **Figures 3-1** through **3-40** (attached). The locations of potential karst features (PKFs) identified from the ground reconnaissance surveys are annotated on the respective figures. Logs of limited geotechnical borings completed along the alignment are also annotated on the profiles.

The calculated shear wave velocities generally range from about 500 feet per second (ft/s) to 3,000 ft/s. Based on correlation to the results of the limited borings and seismic refraction surveying, the transition from soil to rock is interpreted to typically occur in the range of 1,200 ft/s but is expected to vary across the alignment and with rock type. Shear wave velocities below 1,200 ft/s are interpreted to represent near surface soils, highly weathered rock, or void space. Shear wave velocities greater than 1,200 ft/s are interpreted to represent moderately weathered to competent bedrock.

The modeled results indicate an interpreted uneven and variable bedrock surface commonly characteristic of karst terrain. Karst environments may consist of bedrock pinnacles, solution-enlarged joints, weathered rock, small and large voids or cavities and other complex geologic features.

Identified anomalies are annotated on the figures and summarized in **Table 3-1** (attached). For the purposes of this investigation, the identified anomalies of concern have been classified into four categories including:

1. Potential Karst Feature – Localized;
2. Potential Karst Feature – Zone;
3. Potential Karst Rock Pinnacle; and
4. Potential Bedrock Discontinuity.

The classification of Potential Karst Features (PKFs) as localized (relatively limited extent) versus zones (broader extent) is based on the indicated extent longitudinally along the respective MASW profile. It should be noted that the extents of identified features are expected to vary outward (i.e. laterally) from the axis of the profile.

5.0 RELATIVE KARST RISK EVALUATION

The origin and nature of karst makes accurate predication of its occurrence and effects challenging. Different methodologies have been developed to assess the susceptibility of various carbonate formations relative to one another, termed relative risk, to develop karst features; however, no rigid or standardized guidelines have been established. Evaluation of relative risk is therefore made using professional judgment and experience based on assessment of the physical characteristics typically associated with karst terrain.

The relative risk of future karst occurrence is most identified by two factors: geologic formation and incidence. The geologic community has long differentiated carbonate bedrock formations by the key chemical and physical conditions affecting karst development including mineral composition, purity of carbonate content, and bedding and fracture arrangement (which is the primary factor controlling the movement of groundwater and, in turn, the patterns of solutioning within the bedrock). The natural variability of these conditions and their combined effects within a given formation are further affected by more localized variations in ground topography/drainage, bed and fracture orientation and weathering which, in turn, lead to variable density or patterns of past occurrence within the formation. This natural variability is termed incidence, which is primarily expressed as karst surface features including open and closed depressions, broad topographic troughs, and lineaments. Future karst features are more likely to develop in geologic formations that exhibit a higher incidence than those formations exhibiting lower incidence. Similarly, on a more local scale, areas within a given formation exhibiting a higher density or frequency of incidence possess a higher relative risk of future karst development.

The analyses of the relative karst susceptibility with respect to the geologic units and proximity to existing karst features (occurrence) are detailed below in sections 5.1 and 5.2, respectively. The results of the analyses provided a means of scoring the relative karst susceptibility and occurrence which are presented as **Tables 5-1** and **5-2** (attached), respectively. The scores were subsequently summed to provide an overall evaluation of the relative risk for development of karst related subsidence discussed in Section 5-4 and summarized in **Table 5-5** (attached).

5.1 Geology Category (Susceptibility)

Geologic formations have varying levels of karst susceptibility. For example, a massively bedded relatively pure crystalline limestone may generally be less susceptible to the development of karst compared to a more thinly bedded limestone interbedded with shale due to increased groundwater flow. The evaluation of the relative susceptibility of the geologic units to karst development within portions of the Project alignment crossing through identified karst areas consisted of quantifying the relative density of identified karst features within the applicable portions of the published geologic map outcrop areas of each of the respective geologic bedrock units.

The count of karst features included features identified based on the results of the aerial photograph, LiDAR, and ground reconnaissance evaluations discussed in Section 4 above as well as the partial inventory of karst features from the PA DCNR, 2007 point dataset. The relative

density of karst features was calculated based on the number of features divided by the outcrop area of the respective geologic units within the Pennsylvania counties where karst feature mapping data is available.

The results of the relative susceptibility to karst development by geologic unit based on density of features are summarized in **Table 5-1** (attached). From this relative susceptibility evaluation we assigned scores of 1, 3, 6, 9 and 12 for the lowest to highest relative karst susceptibility per geologic unit. The five scoring values are based on evaluation of the relative density distribution using the natural breaks (Jenks) classification, which is a data clustering method specifically designed to determine the best arrangement of values into different classes and is widely used in the evaluation of GIS datasets.

These results indicate that the Stonehenge, Richenbach, Milbach and Schaefferstown, Epler Formation and Millbach Formations are characterized by the highest relative susceptibility to karst development. The units characterized by the lowest relative susceptibility include the Keyser, Cocalico, Harpers, Antietam, Hamburg Sequence, Onandaga and Old Port, Wills Creek, Bloomsburg and Mifflintown, Octoraro, Harrell, Bloomsburg, Onondaga, Hammer Creek, Hammer Creek Conglomerate, Chickies, Trimmers Rock, Limestone of Hamburg Sequence and Clinton Group formations.

The results of the relative susceptibility of karst development by stationing along the alignment are provided as **Table 5-2** (attached). The results indicate that of the 27.8 miles of the alignment and re-located sections, approximately 7 miles of the alignment extends through areas characterized by the lowest relative susceptibility of karst (score of 1) while approximately 6.5 miles of the alignment extends through areas characterized by the highest relative susceptibility of karst (score of 12).

5.2 Proximity to Existing Karst Features Category (Occurrence)

Sinkholes are most likely to occur in regions where sinkholes have occurred before. Spatial distribution of sinkhole locations may indicate that locations are clustered, and an interaction exists between them. Therefore, an area where a new sinkhole is more likely to develop is delineated within the radius of interaction from all sinkholes in the cluster. The evaluation of the relative occurrence of karst features is based on an assessment of the density of mapped karst features within a series of windows (400 feet wide by 500 feet long) centered on the centerline of the alignment. The density is based on karst features from the PA DCNR, 2007 data set as well as those identified from the Transco desktop and site recon studies. The selected 400 feet wide window corresponds to the corridor width of the ground reconnaissance survey. The 500 feet length is a reasonable match to the width while also keeping corridors at a manageable size relative to implementing the applicable risk mitigation measures.

For the relative occurrence evaluation, scores of 1, 3, 6, 9 and 12 were assigned for the corresponding lowest to highest relative karst occurrence within each window. The five scoring divisions were based on evaluation of the relative occurrence distributions using the natural breaks (Jenks) classification.

The results of the relative occurrence evaluation by stationing along the alignment are provided as **Table 5-3** (attached). The results indicate that of the 27.8 miles of the alignment and re-route sections, approximately 19 miles of the alignment extends through areas characterized by the lowest relative occurrence of karst (score of 1) while approximately 1.2 miles of the alignment extends through areas characterized by the highest relative occurrence of karst (score of 12).

5.3 Geophysical Anomalies

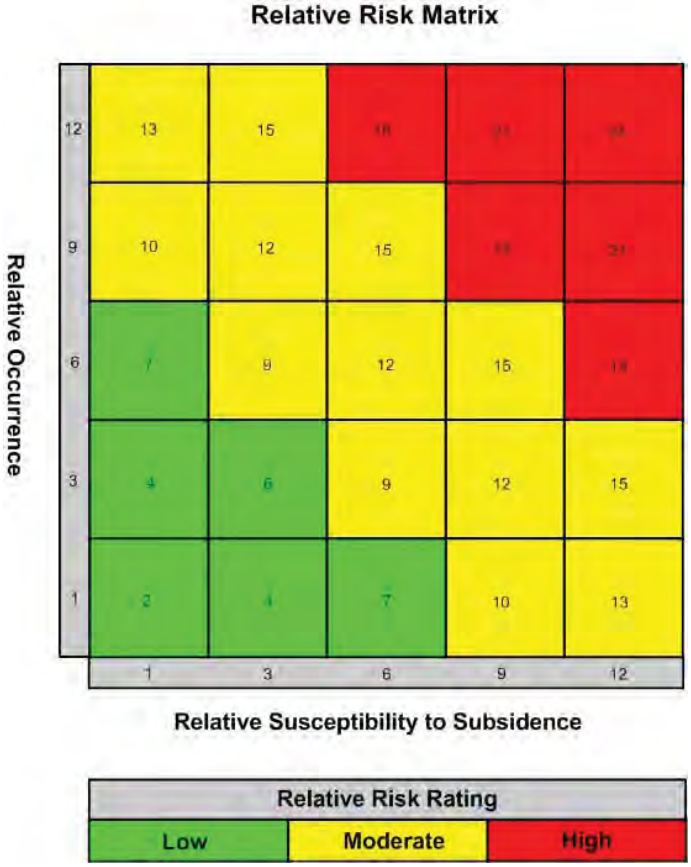
Geophysical results are indicative of subsurface conditions and provide a means of delineating anomalies that represent variable conditions with respect to the general condition. These anomalies can indicate potential voids and other karst features. However, it should be noted that the absence of a well-defined geophysical anomaly may not necessarily discount the potential for risk for future karst-related ground subsidence. This is particularly true for more deeply seated solution features as well as subsidence features in the earlier stages of development where the variations in physical properties of these features relative to the surrounding geologic materials may be too subtle to resolve as distinct geophysical anomalies. Conversely, a detected geophysical anomaly may be present within non-karst conditions that are not associated with potential future ground subsidence. In summary, a detected geophysical anomaly identifies the location of a potential subsurface void feature but does not indicate the likelihood or risk of the feature further developing and causing future ground subsidence.

However, as discussed in Section 5.5 below, the presence of geophysical anomalies are deemed to provide a secondary evaluation of relative risk as well as the locations of potential voids and other karst features, and will therefore be considered as a factor in the designation of karst mitigation measures as discussed in Section 6.

5.4 Relative Karst Risk

The scores of the geology (susceptibility) category and the proximity to existing karst features (occurrence) category were summed to provide an overall evaluation of the relative risk for development of karst-related subsidence. The relative risk scoring is system is summarized in matrix provided as **Table 5-4** below and consists of three categories of relative risk designated as high, medium and low.

Table 5-4 Relative Risk Scoring System



The results of the primary relative risk evaluation are provided as **Table 5-5** (attached). The results indicate that the approximately 27.8 miles of designated karst is divided into the following relative hazard rankings:

- High Relative Risk: 4.33 miles (15.6% of alignment in karst areas)
- Moderate Relative Risk: 7.75 miles (27.9% of alignment in karst areas)
- Low Relative Risk: 15.69 miles (56.4% of alignment in karst areas)

5.5 Secondary Risk Evaluation By Geophysical Anomalies

In addition to identifying the locations of potential subsurface voids or other karst features, the results of the geophysical investigation are deemed to provide a secondary means of evaluating the relative risk of development of karst related subsidence. **Table 3-1** (attached) provides a summary of the geophysical anomalies. The presence of geophysical anomalies within the designated high relative risk areas is somewhat expected. However, the presence of identified anomalies within the low relative risk zones represents an elevated level of interest and where deemed warranted will trigger an elevated level of mitigation in respective low relative risk areas.

The secondary risk evaluation will guide additional intrusive investigations with the objective of further characterizing identified potential karst-related features. This investigation will aid in further evaluating mitigation measures to be implemented for the project. The intrusive investigation will consist of probe hole drilling using air-track drilling. The investigation will include probe hole drilling at geophysical anomalies identified as potential karst features (excluding pinnacles) that are located within the high relative risk zones. The intrusive investigations may be further supplemented by non-intrusive methods including microgravity, particularly in areas where existing surface conditions such as dense vegetation or wet conditions may preclude access with the air-track drill rig. Additional investigation of anomalies within the moderate relative risk zone will also be conducted to further evaluate if they represent features that pose a significant additional risk that is not sufficiently addressed using the mitigation measures applicable to the moderate relative risk areas.

Site-specific mitigation measures, commensurate with the features identified in the Secondary Risk Evaluation, will be provided in the Implementation Plan prior to construction. Also, a Karst Monitoring Plan will be established based on site-specific conditions encountered during construction. This Plan will include type, location and frequency of monitoring measures and will be available immediately following construction.

6.0 MITIGATION

Mitigation measures have been developed for the Project in a tiered fashion consistent with the categories of low, moderate and high relative risk of future karst development established for the Project. In general, these measures are intended to (1) reduce the potential for storm water infiltration that could initiate or accelerate the development of karst conditions, (2) eliminate actual soft ground or void features associated with geophysical anomalies detected in relative high risk areas as confirmed and delineated during pre-design investigation (to be completed in support of the mitigation design) or during construction, and (3) provide for long-term monitoring to identify any potential developing karst features following the Project construction. These measures are further described below.

6.1 General Mitigation Measures

The various data sets collected from the initial and planned additional karst investigation will be evaluated and compared to identify, classify and delineate PKFs. Consistent with the site-specific subsurface conditions identified by these investigation efforts, the construction type (thick-walled steel pipe) and industry-standard methods for addressing carbonate bedrock, the following general measures will be incorporated into the Project design and implementation for the entire section of the alignment that will extend across carbonate bedrock:

- Design the pipeline to maximize its intrinsic ability to span sinkhole features. See Appendix B (Freespan Assessment) for engineering analysis of the pipeline spanning capability.
- Minimize the extent and time that open-cut trench excavations are left open, to the extent practicable.

- Reduce the potential for surface water run-on and ponding in open trenches. Direct surface water runoff away from work areas, and remove ponded water from open excavations as soon as practicable. Standard erosion & sediment control best management practices (BMPs) that will be implemented during the construction (e.g., upslope diversion berms, bypass flumes) will provide for this surface water control.
- For each stream crossing located within the limits of carbonate bedrock, Transco will evaluate during the design phase of the Project the geologic and geotechnical characteristics at the crossing and develop special care procedures to be implemented during pipeline construction including the placement of low-permeability backfill soil or a geosynthetic barrier (e.g., geosynthetic clay liner) beneath the pipeline to limit surface water infiltration.
- Perform visual monitoring of the alignment on a regular basis during construction to observe for signs of potentially developing sinkhole features. If found, these features will be monitored on a more frequent/enhanced basis. In addition, measures may be implemented to further evaluate the features (e.g., settlement monitoring via fixed survey points) and, based on evaluation results, perform remediation of these features as needed.
- Where shallow bedrock is found to be present near a shallow PKF that may require blasting during pipeline construction, Transco will work closely with its licensed blasting contractor to utilize blasting procedures and a site-specific blasting plan for such locations that consider the presence of shallow PKFs. If necessary, measures other than blasting (e.g., expansive grouts, mechanical excavation, etc.) will be implemented.
- A qualified geotechnical engineering firm that is familiar with the subsurface conditions and the construction mitigation measures associated with karst features will provide full-time construction monitoring during sinkhole mitigation and open-cut trench construction within and in the vicinity of each PKF to minimize the potential for a PKF to affect pipeline integrity. Owing to the nature of karst terrain combined with the daily logistics of the construction, it is not possible to identify all site-specific measures that may be needed to properly mitigate PKFs and other karst features (e.g., sinkholes) encountered during construction. Accordingly, the field professional(s) conducting the construction monitoring will be knowledgeable and experienced in identifying and providing technical guidance for mitigating such karst features.

6.2 Areas With Low Relative Risk

The areas discussed in Section 5 and summarized in **Table 5-5** (attached) as Low Relative Risk are believed to have low susceptibility to the development of karst conditions. Long-term monitoring will be in accordance with the Karst Monitoring Plan. The general mitigation activities listed above will be implemented.

6.3 Areas With Moderate Relative Risk

The areas discussed in Section 5 and summarized in **Table 5-5** (attached) as Moderate Relative Risk are believed to have moderate susceptibility to the development of karst conditions. The

general mitigation activities as necessary listed above will be implemented. No additional measures will likely need to be implemented for these areas prior to construction. During construction, low-permeability pipeline trench backfill comprised of compacted clayey soil, 'flowable fill' or compacted, bentonite-amended sandy soil may need to be utilized if shallow karst conditions are encountered. The construction documents will detail the preparation and placement of these low-permeability materials which will involve the use of conventional earthwork equipment; no specialized equipment will be necessary. Following construction, long-term settlement monitoring should also be conducted in these areas consisting of a site walk and recording field observations of any developing subsidence features in proximity of the Project.

6.4 Areas With High Relative Risk

The areas discussed in Section 5 and summarized in **Table 5-5** (attached) as High Relative Risk are believed to have a high susceptibility to the development of karst conditions. The general mitigation activities as necessary listed above will be implemented. In addition, the following mitigation measures may be implemented as appropriate:

6.4.1 Shallow PKF Mitigation Measures

In general, shallow potential PKFs are expected to have greater potential to affect pipeline integrity than deep PKFs. Accordingly, shallow PKFs may need to be mitigated. For mitigation, the lateral limits of each shallow PKF will be delineated during construction by a combined use of probing (e.g., with excavator bucket) along the bottom of the trench and visual observation methods. Once the limits of each shallow PKF have been established, appropriate shallow PKF mitigation measures may need to be implemented that may include excavating and plugging with grout a sinkhole 'throat' (i.e., a solution-enlarged conduit commonly filled with soil that extends down into possibly a larger open cavity in the carbonate bedrock below), excavating and fracture filling, or excavating and replacing with low-permeability backfill.

6.4.2 Deep PKF Mitigation Measures

At deep PKF locations, the potential for further sinkhole formation along the pipeline alignment will be addressed prior to pipeline installation. This will be accomplished by initially completing investigation at each deep PKF location to better understand the extent of the PKF and its site-specific subsurface conditions, including soil type and relative density/strength, depth to groundwater, and depth to bedrock. Such investigation is expected to include air-track probing, geotechnical test borings, and geophysical survey. Results of the PKF-specific investigation will be evaluated relative to soil and groundwater characteristics to assess the need for and type of specific mitigation measures to be implemented prior to pipeline installation. In the event that mitigation of deep PKFs becomes necessary, one or more of the following measures would be considered:

- Compaction grouting of loose/soft subsoils - inject highly viscous (low-mobility) grout into subsoils with pressure to displace and densify the surrounding soils. Depending on the depth and extent of soils to be mitigated, design of the compaction grout measures may include proof-test compaction grouting to better understand soil behavior.

- Supporting the pipe with a concrete cradle capable of spanning an extended area - provide a concrete cradle to support the pipe for the case where soils underlying the pipe may subside and therefore cannot provide reliable bearing support to the pipe above.
- Long-term settlement monitoring utilizing fixed survey points - install fixed survey monuments near the pipe and survey them periodically for evidence of long-term settlement. The details of this settlement monitoring would be provided in the Karst Monitoring Plan.

In addition, as described above for areas of relative moderate risk, pipeline trench backfill comprised of compacted clayey soil, 'flowable fill' or compacted, bentonite-amended sandy soil may be utilized and long-term settlement monitoring consisting of a site walk and recording field observations of any developing subsidence features in proximity of the pipeline may need to be implemented.

Following the completion of any PKF mitigation found to be necessary, backfilling of the pipeline trench will be completed such that the compacted backfill surface is crowned (if permissible by landowners) and sealed with low-permeability soils to promote positive drainage of surface water run-off away from the area. Similarly, final grading may need to be completed to provide for positive drainage of run-off. All disturbed areas will be restored consistent with existing land use.

7.0 PATH FORWARD

The sites that did not have property owner access granted at the time of the site reconnaissance will be evaluated in the same manner as the sites described in this report as property access becomes available. The investigation and mitigation plan for the additional sites will be provided as an addendum to this report. In addition, Transco is in the process of implementing an additional intrusive investigation program to validate and delineate identified potential karst-related features in areas of high relative karst risk. The additional intrusive investigation will consist of probe hole drilling using air-track drilling. Based on the findings of the air-track drilling, additional intrusive investigation via test borings and/or non-intrusive methods (including microgravity) may be implemented. The non-intrusive methods may be especially necessary in areas where existing surface conditions such as dense vegetation or wet conditions may preclude access with the air-track drill rig.

Site-specific mitigation measures, commensurate with the features identified in the additional intrusive investigation program, will be provided in the Implementation Plan prior to construction. Also, the Karst Monitoring Plan will be written with baseline conditions established during construction. This Plan will include type, location and frequency of monitoring measures and will be available during and following construction.

8.0 REFERENCES

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The attachments to this report are too voluminous to include in this document. They are available for viewing on the Federal Energy Regulatory Commission's website at http://www.ferc.gov. Using the "eLibrary" link, select "General Search" from the eLibrary menu, enter the selected date range and "Docket No." excluding the last three digits (i.e., CP15-138), and follow the instructions. For assistance please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, contact 202-502-8659. The Category/Accession number for this submittal is 20150729-5077.

APPENDIX K

WATERBODY TABLES

TABLE K-1

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
PENNSYLVANIA									
CPL North									
Pipeline Facilities									
WW-T02-15002	UNT to Fishing Creek	0.6	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15004	UNT to Fishing Creek	0.9	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T02-15006	UNT to Fishing Creek	1.2	12	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T92-15001B	UNT to Fishing Creek	1.3	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15007	Fishing Creek	1.3	68	Perennial	Intermediate	CWF, MF	Approved Trout Waters, Wild Trout Waters	Jan. 1– Sept 30	Dam-and-pump
WW-T02-15008	UNT to Fishing Creek	2.0	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T91-15004	UNT to Fishing Creek	M-0086 0.2	<5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15009	UNT to Fishing Creek	2.3	<5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15010	Hess Hollow	2.9	≤ 5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T92-15001	UNT to Hess Hollow	2.9	≤ 5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T02-15011	UNT to Hess Hollow	2.9	≤ 5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T02-15013	UNT to Coles Creek	3.4	10	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15014	Ashelman Run	3.8	10	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15012C	UNT to Coles Creek	4.1	6	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15012	Coles Creek	4.1	24	Perennial	Intermediate	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T92-15002	UNT to Coles Creek	4.2	NA	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T93-15001	UNT to Marsh Run	4.8	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T02-15016	Marsh Run	5.1	19	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T02-15017	Maple Run	6.0	13	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T02-15017A	UNT to Maple Run	6.0	<5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T02-15018	Kitchen Creek	7.3	8	Perennial	Minor	HQ-CWF, MF	Approved Trout Waters, Class A Wild Trout Waters	April 2– Sept 30	Dam-and-pump
WW-T24-15001	Crooked Creek	7.5	<5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T02-16001	UNT to Phillips Creek	9.2	≤ 5	Intermittent	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T02-16002	Phillips Creek	9.3	22	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T05-16003	Lick Branch	10.2	8	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T11-16001D	UNT to Arnold Creek	11.2	5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T11-16001	Arnold Creek	11.2	20	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T11-16001B	UNT to Arnold Creek	11.2	NA	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	NA
WB-T13-16002	UNT to Shingle Run	11.5	NA	Pond	Minor	None	None	Year-round	NA
WW-T13-16002	UNT to Shingle Run	11.8	≤ 5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Flume
WW-T13-16001	Shingle Run	12.2	15	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T05-16002	UNT to Mitchler Run	12.9	17	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T90-16002	UNT to Mitchler Run	13.1	≤ 5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T05-16001	Mitchler Run	13.1	15	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T05-16001A	UNT to Mitchler Run	13.1	≤ 5	Ephemeral	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T90-16001	UNT to Mitchler Run	13.1	≤ 5	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T03-16003C	UNT to Huntington Creek	13.9	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Conventional bore
WW-T03-16004	UNT to Huntington Creek	13.9	NA	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T65-16001	UNT to Huntington Creek	14.4	NA	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	NA
WW-T03-16003B	Huntington Creek	14.5	25	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T03-16003	UNT to Huntington Creek	14.5	16	Ephemeral	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T03-16002A	UNT to Huntington Creek	14.9	≤ 5	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-16002	UNT to Huntington Creek	15.0	≤ 5	Ephemeral	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-16001	Fades Creek	15.8	8	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WW-T03-17008	Pikes Creek	16.6	17	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Conventional bore
WW-T03-17007	UNT to Pikes Creek	16.7	≤ 5	Ephemeral	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2– Sept. 30	Dam-and-pump
WB-T03-17002	Unnamed pond (contiguous with Paint Spring Run)	17.2	17	Pond	Intermediate	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-17006	UNT to Paint Spring Run	17.2	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-17005	Paint Spring Run	17.6	18	Perennial	Intermediate	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T03-17004	Harveys Creek	18.1	43	Perennial	Intermediate	HQ-CWF, MF	Approved Trout Waters, Wild Trout Waters	Jan. 1– Sept 30[d]	Dam-and-pump
WW-T03-17003	UNT to Harveys Creek	18.8	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-17001	UNT to Harveys Creek	19.4	12	Perennial	Intermediate	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-17002	UNT to Harveys Creek	19.8	≤ 5	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T03-17002A	UNT to Harveys Creek	19.8	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-Pump
WW-T03-17002B	UNT to Harveys Creek	19.8	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T49-17003	UNT to Harveys Creek	19.9	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Flume
WW-T93-17001	UNT to Huntsville Creek	21.4	NA	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T93-16001	UNT to Huntsville Creek	21.4	10	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Flume
WW-T49-17001	UNT to Huntsville Creek	21.8	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T51-17001	UNT to Huntsville Creek	22.1	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T52-17002	UNT to Huntsville Creek	22.1	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T52-17001	UNT to Huntsville Creek	22.6	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T07-17002C	UNT to Huntsville Creek	M-0060 0.2	15	Intermittent	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T08-17001	UNT to Huntsville Creek	M-0060 0.4	15	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T53-17002	UNT to Huntsville Creek	M-0060 0.9	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T53-17002A	UNT to Huntsville Creek	M-0060 0.9	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T53-17003	UNT to Huntsville Creek	M-0060 0.9	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T53-17003B	UNT to Huntsville Creek	M-0060 0.9	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T53-17003A	UNT to Huntsville Creek	M-0060 0.9	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T53-17004	UNT to Huntsville Creek	M-0060 0.9	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T90-17002	UNT to Huntsville Creek	M-0600 1.0	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T07-17003	UNT to Leonard Creek	M-0150 0.0	≤ 5	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T07-17004	UNT to Leonard Creek	M-0141 0.5	12	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T17-18001	UNT to Leonard Creek	25.6	12	Perennial	Intermediate	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T65-18001	UNT to Leonard Creek	M-0142 0.3	≤ 5	Ephemeral	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T61-18001	UNT to Leonard Creek	26.7	≤ 5	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T56-18002	UNT to Leonard Creek	M-0088 1.1	≤ 5	Ephemeral	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T56-18004	UNT to Leonard Creek	M-0088 1.8	≤ 5	Intermittent	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T54-18002B	UNT to Whitelock Creek	M-0088 3.2	NA	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T54-18002A	UNT to Whitelock Creek	M-0088 3.2	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T54-18002	Whitelock Creek	M-0088 3.2	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T54-18003	UNT to Whitelock Creek	M-0088 3.8	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T69-18001	UNT to Whitelock Creek	30.2	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T69-18002	UNT to Whitelock Creek	30.3	25	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T69-18003	UNT to Whitelock Creek	30.3	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T69-18004	UNT to Whitelock Creek	30.3	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T05-18001	Mill Creek	M-0071 0.7	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T13-19001	UNT to Martin Creek	M-0071 1.9	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T92-19002	UNT to Martin Creek	M-0071 2.1	NA	Perennial	Minor	CWF, MF	None	Year-round	NA
WW-T13-19002	UNT to Martin Creek	M-0071 2.1	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T13-19003	UNT to Martin Creek	M-0071 2.2	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T21-19001	Susquehanna River	35.0	615	Perennial	Major	WWF, MF	WWCW Fisheries Stream	Year-round	HDD
WW-T93-19001	UNT to Susquehanna Rover	35.0	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	HDD
WW-T95-19004A	UNT to Susquehanna Rover	35.1	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	HDD
WW-T21-19002	UNT to Susquehanna River	35.9	15	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T19-19002	UNT to Susquehanna River	36.8	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T19-19001	UNT to Susquehanna River	37.1	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T95-19002	UNT to Susquehanna River	37.1	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T15-4001	UNT to Susquehanna River	37.3	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T15-4002	UNT to Susquehanna River	37.3	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T24-19001B	UNT to Susquehanna River	37.7	NA	Perennial	Minor	CWF, MF	None	Year-round	NA
WW-T24-19001	UNT to Susquehanna River	37.7	16	Perennial	Intermediate	CWF, MF	None	Year-round	Flume
WW-T24-19001A	UNT to Susquehanna River	37.7	NA	Perennial	Minor	CWF, MF	None	Year-round	NA
WW-T19-19003	UNT to Susquehanna River	38.1	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T54-19001	UNT to Mill Run	38.5	13	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T12-19002	UNT to Beaver Creek	40.0	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T93-20002	UNT to Trout Brook	40.9	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T19-20005	Trout Brook	M-0054 0.1	16	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T14-20004	UNT South Branch Tunkhannock Creek	43.6	NA	Ephemeral	Minor	TSF, MF	Approved Trout Waters, Trout Stocked Stream	June 16–Feb. 28	NA
WW-T14-20003	South Branch Tunkhannock Creek	43.7	74	Perennial	Intermediate	TSF, MF	Approved Trout Waters, Trout Stocked Stream	June 16–Feb. 28	Dam-and-pump
WW-T14-20002	UNT to South Branch Tunkhannock Creek	44.4	≤ 5	Perennial	Minor	CWF, MF	Approved Trout Waters, Trout Stocked Stream	June 16–Feb. 28	Dam-and-pump
WW-T14-20002A	UNT to South Branch Tunkhannock Creek	44.5	≤ 5	Perennial	Minor	CWF, MF	Approved Trout Waters, Trout Stocked Stream	June 16–Feb. 28	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T19-20004	UNT to South Branch Tunkhannock Creek	45.3	5	Perennial	Minor	CWF, MF	Approved Trout Waters	June 16–Feb. 28	Dam-and-pump
WW-T10-20001	UNT to South Branch Tunkhannock Creek	45.8	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T10-20002	UNT to South Branch Tunkhannock Creek	45.9	6	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T54-20002	UNT to South Branch Tunkhannock Creek	46.2	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T10-20003	UNT to South Branch Tunkhannock Creek	M-0058 0.2	17	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T19-20002	UNT to South Branch Tunkhannock Creek	46.9	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T19-20003	UNT to South Branch Tunkhannock Creek	47.2	7	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T19-20001	UNT to Tunkhannock Creek	48.7	11	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T54-21001	Tunkhannock Creek	49.5	115	Perennial	Major	TSF, MF	Approved Trout Waters, WWCW Fisheries Stream	Year-round [d]	Dam-and-pump
WW-T57-21003	UNT to Tunkhannock Creek	M-0080 1.1	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T57-21002	UNT to Tunkhannock Creek	M-0080 1.3	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T30-21001	UNT to Willow Brook	51.4	6	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T12-21004A	UNT to Willow Brook	51.7	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	NA
WW-T12-21004	UNT to Willow Brook	51.7	20	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T12-21001	Willow Brook	52.4	29	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T50-21001	Utley Brook	53.4	13	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T50-21002	Millard Creek	54.1	18	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T50-21003	UNT to Millard Creek	54.1	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T12-21007	UNT to Millard Creek	55.1	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	NA
WW-T12-21007A	UNT to Millard Creek	55.1	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T92-21002	UNT to Tower Branch	M-0061 0.1	NA	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	NA
WW-T12-21009A	UNT to Tower Branch	M-0061 0.1	6	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T48-21001A	UNT to Tower Branch	56.8	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	NA
WW-T48-21001	Tower Branch	56.8	6	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T17-21001	UNT to Tower Branch	57.2	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
Access Roads									
WW-T10-20001	UNT to South Branch Tunkhannock Creek	AR-WY-036	NA	Intermittent	Minor	CWF, MF	None	Year-round	NA

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T33-17001	UNT to Huntsville Creek	AR-LU-013-1	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
CPL South									
Pipeline Facilities									
WW-T10-001A	UNT to Fishing Creek	0.2	NA	Perennial	Minor	HQ-CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16– Sept. 30 & Jan. 1– Feb 28	NA
WW-T10-001	UNT to Fishing Creek	0.3	≤ 5	Perennial	Minor	HQ-CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16– Sept. 30 & Jan. 1– Feb 28	Flume
WW-T10-003	Muddy Run	M-0147 0.6	29	Perennial	Intermediate	TSF, MF	None	Year-round	Dam-and-pump
WW-T10-003A	UNT to Muddy Run	M-0147 0.6	12	Perennial	Minor	TSF, MF	Approved Trout Waters	Year round [d]	Dam-and-pump
WW-T10-004	Tucquan Creek	M-0184 0.9	≤ 5	Perennial	Minor	HQ-CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T62-001	UNT to Trout Run	5.4	≤ 5	Ephemeral	Minor	HQ-CWF, MF	Class A Wild Trout Waters	Jan. 1– Sept 30	Dam-and-pump
WW-T10-100	UNT to Climbers Run	7.2	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T20-002	Climbers Run	7.5	14	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T31-002	UNT to Pequea Creek	8.0	12	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-T31-002A	UNT to Pequea Creek	8.0	≤ 5	Ephemeral	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T65-001	UNT to Pequea Creek	8.1	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T31-003	Pequea Creek	8.2	89	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-RS-120006	UNT to Pequea Creek	M-0405 0.6	17	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-RS-120005	UNT to Pequea Creek	M-0405 1.1	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T25-1001	UNT to Pequea Creek	M-0405 1.5	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T65-1002	UNT to Pequea Creek	M-0405 1.7	≤ 5	Ephemeral	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T10-1003	UNT to Pequea Creek	10.1	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T35-1002	UNT to Conestoga River	10.9	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T35-1002A	UNT to Conestoga River	11.0	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-RS-1001	UNT to Conestoga River	11.1	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T20-1001	Conestoga River	12.3	142	Perennial	Major	WWF, MF	None	Year-round	HDD
WW-T36-1001A	UNT to Conestoga River	12.4	7	Perennial	Minor	WWF, MF	None	Year-round	HDD
WW-T49-1001	UNT to Witmer Run	M-0248 0.2	15	Perennial	Intermediate	WWF, MF	None	Year-round	Flume
WW-T93-1001	UNT to Witmer Run	13.6	N/A	Intermittent	N/A	WWF, MF	None	Year-round	Dam-and-pump
WW-T92-1002	UNT to Witmer Run	13.6	N/A	Ephemeral	N/A	WWF, MF	None	Year-round	Dam-and-pump
WW-T36-1004	UNT to Witmer Run	13.7	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T92-1003	UNT to Witmer Run	13.8	≤ 5	Ephemeral	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T36-1006	UNT to Witmer Run	13.9	6	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T36-1007	Indian Run	14.6	11	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-T20-1005	UNT to Indian Run	15.3	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T24-1001	Witmers Run	17.0	16	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T11-2001	Stamans Run	18.1	9	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T11-2002	UNT to Stamans Run	18.9	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T24-2001	Strickler Run	M-0389 0.1	22	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-T10-2005	UNT to Strickler Run	20.8	7	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-RS-2008	UNT to Strickler Run	M-0396 0.2	20	Intermittent	Intermediate	WWF, MF	None	Year-round	Flume
WW-RS-2002	UNT to Shawnee Run	21.8	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T10-2004	Shawnee Run	22.4	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T10-2002	UNT to Chiques Creek	23.0	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T49-2001	UNT to Chiques Creek	M-0209 0.3	≤ 5	Ephemeral	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T42-2003	Chiques Creek	23.9	44	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-T31-3003	UNT to Back Run	30.1	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3004	Back Run	30.4	13	Perennial	Intermediate	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3009	UNT to Back Run	30.6	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3008	UNT to Back Run	31.2	11	Perennial	Intermediate	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3007	UNT to Back Run	31.6	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3006	UNT to Brubaker Run	32.3	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T31-3005	Brubaker Run	33.0	36	Perennial	Intermediate	TSF, MF	None	Year-round	Flume

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T31-3002	UNT to Little Chiques Creek	33.6	16	Perennial	Intermediate	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3002A	UNT to Little Chiques Creek	33.6	NA	Intermittent	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T31-3001	UNT to Little Chiques Creek	34.0	≤ 5	Ephemeral	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T24-3001	Little Chiques Creek	34.5	14	Perennial	Intermediate	TSF, MF	Approved Trout Waters, Trout Stocked Stream	Year-round d	Dam-and-pump
WW-T30-4001	Shells Run	36.0	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T64-4001	UNT to Conewago Creek	36.9	≤ 5	Intermittent	Minor	TSF, MF	Trout Stocked Stream	June 16 - Feb. 28	Dam-and-pump
WW-T64-4001	UNT to Conewago Creek	37.0	≤ 5	Intermittent	Minor	TSF, MF	Trout Stocked Stream	June 16 - Feb. 28	Dam-and-pump
WW-T30-4003	UNT to Conewago Creek	37.3	≤ 5	Ephemeral	Minor	TSF, MF	Approved Trout Waters, Trout Stocked Stream	June 16– Feb. 28	Dam-and-pump
WW-T30-4002	Conewago Creek	37.5	18	Perennial	Intermediate	TSF, MF	Approved Trout Waters, Trout Stocked Stream	June 16– Feb. 28	Dam-and-pump
WW-T18-4002	UNT to Little Conewago Creek	38.8	NA	Ephemeral	NA	TSF, MF	None	Year-round	NA
WW-T43-4001	UNT to Conewago Creek	M-0330 0.0	NA	Ephemeral	NA	TSF, MF	Approved Trout Waters, Trout Stocked Stream	June 16– Feb. 28	Dam-and-pump
WW-T53-4001	UNT to Little Conewago Creek	M-0300 0.3	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T13-4002A	UNT to Little Conewago Creek	41.1	≤ 5	Ephemeral	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T13-4002	UNT to Little Conewago Creek	41.1	≤ 5	Intermittent	Minor	TSF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T13-4005	UNT to Little Conewago Creek	41.1	13	Perennial	Intermediate	TSF, MF	None	Year-round	Dam-and-pump
WW-T13-4004	UNT to Little Conewago Creek	41.3	23	Perennial	Intermediate	TSF, MF	None	Year-round	Dam-and-pump
WW-T13-4003	UNT to Gingrich Run	41.9	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T33-4001	UNT to Gingrich Run	42.0	≤ 5	Ephemeral	Minor	TSF, MF	None	Year-round	Dam-and-pump
WW-T64-5001	Gingrich Run	42.6	≤ 5	Perennial	Minor	TSF, MF	None	Year-round	Flume
WW-T43-5003	Quittapahilla Creek	M-0183 1.3	40	Perennial	Intermediate	TSF, MF	Approved Trout Waters, Trout Stocked Stream	June 16–Feb. 28	Flume
WW-T43-5001	UNT to Quittapahilla Creek	M-0183 1.6	≤ 5	Intermittent	Minor	TSF, MF	Approved Trout Waters	June 16–Feb. 28	Dam-and-pump
WW-T14-5003	UNT to Swatara Creek	48.1	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5004	UNT to Swatara Creek	48.6	36	Perennial	Intermediate	WWF, MF	None	Year-round	Flume
WW-T14-5005	UNT to Swatara Creek	48.8	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5006	Swatara Creek	49.3	145	Perennial	Major	WWF, MF	None	Year-round	Flume
WW-T14-5006A	UNT to Swatara Creek	49.3	NA	Intermittent	NA	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5007	UNT to Swatara Creek	50.1	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T99-5008A	UNT to Swatara Creek	50.5	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5008	UNT to Swatara Creek	50.5	7	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5009A	UNT to Swatara Creek	51.2	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T44-5001	UNT to Swatara Creek	M-0165 0.5	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T14-5010	UNT to Reeds Creek	52.7	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5011	UNT to Reeds Creek	52.8	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5011A	UNT to Reeds Creek	52.8	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5013	Reeds Creek	53.0	6	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T14-5013A	UNT Reeds Creek	53.1	6	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T10-6002	UNT to Swatara Creek	53.7	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T40-6004	UNT to Qureg Run	M-0388 0.0	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T69-6002	UNT to Qureg Run	55.0	NA	Intermittent	NA	WWF, MF	None	Year-round	Dam-and-pump
WW-T69-6001	UNT to Querg Run	55.1	≤ 5	Ephemeral	Minor	WWF, MF	None	Year-round	N/A
WW-T40-6003	UNT to Querg Run	M-0168 0.1	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T30-6004	UNT to Qureg Run	55.5	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Conventional bore
WW-T30-6005	UNT to Qureg Run	55.7	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T32-6001	Forge Creek	56.3	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T67-6001	UNT to Forge Creek	56.6	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T40-6001A	UNT to Forge Creek	56.9	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T40-6001	UNT to Forge Creek	56.9	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T43-6003A	UNT to Trout Run	58.5	NA	Perennial	NA	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T43-6004	UNT to Trout Run	58.5	≤ 5	Intermittent	Minor	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T23-6003	Trout Run	58.8	7	Perennial	Minor	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T33-6001	UNT to Trout Run	59.3	16	Perennial	Intermediate	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T43-6001	UNT to Trout Run	M-0176 0.1	18	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-Pump
WW-T44-7002	UNT to Trout Run	M-0200 0.3	6	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T23-6001	UNT to Swatara Creek	60.7	14	Perennial	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T23-6002	UNT to Swatara Creek	61.1	21	Perennial	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T20-7002	UNT to Swatara Creek	61.2	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T20-7001	UNT to Swatara Creek	61.4	16	Perennial	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T20-7003	UNT to Swatara Creek	62.0	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T10-7004	UNT to Swatara Creek	62.5	40	Perennial	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Flume
WW-T10-7003	UNT to Swatara Creek	63.7	6	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T10-7002	UNT to Swatara Creek	63.9	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T10-7001	UNT to Swatara Creek	64.1	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T34-7001	UNT to Mill Creek	65.0	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WB-T35-7001	Unnamed pond	65.3	44	Pond	Intermediate	None	None	Year-round	Dam-and-pump
WW-T35-7002	Mill Creek	65.4	25	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T34-7002	UNT to Mill Creek	65.5	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T34-8001	UNT to Swatara Creek	M-0177 0.3	18	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T34-8001A	UNT to Swatara Creek	M-0177 MP 0.3	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T18-7007C	UNT to Swatara Creek	68.4	NA	Intermittent	NA	CWF, MF	None	Year-round	Dam-and-pump
WW-T18-7007A	UNT to Swatara Creek	68.4	11	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T18-7007B	UNT to Swatara Creek	68.4	NA	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T18-7007	UNT to Swatara Creek	68.4	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T21-7001	UNT to Swatara Creek	69.0	33	Intermittent	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T21-7002	UNT to Swatara Creek	69.1	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T31-8001	Lorberry Creek	M-0181 0.2	39	Perennial	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T31-8001A	UNT to Lorberry Creek	M-0181 0.2	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T43-8002	UNT to Lower Rauch Creek	M-0198 0.3	14	Perennial	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T43-8001	UNT to Lower Rauch Creek	M-0198 0.3	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T24-8003	UNT to Lower Rausch Creek	72.7	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T24-8002	UNT to Lower Rausch Creek	73.5	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T24-8002A	UNT to Lower Rausch Creek	73.5	NA	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1–Sept. 30	NA

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T24-8001	Lower Rausch Creek	73.5	17	Intermittent	Intermediate	CWF, MF	Wild Trout Water (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T95-8001	UNT to Lower Rauch Creek	73.6	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T95-8001A	UNT to Lower Rauch Creek	73.6	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T35-8001	Good Spring Creek	74.7	10	Perennial	Minor	CWF, MF	Wild Trout Water (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T20-8001A	UNT to Pine Creek	M-0316 1.0	≤ 5	Perennial	Minor	CWF, MF	Approved Trout Waters, Wild Trout Waters	June 16– Sept. 30 & Jan. 1– Feb 28	Dam-and-pump
WW-T20-8001	Pine Creek	76.1	13	Perennial	Intermediate	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16– Sept. 30 & Jan. 1– Feb 28	Dam-and-pump
WW-T20-9001	UNT to Pine Creek	76.5	≤ 5	Perennial	Minor	CWF, MF	Approved Trout Waters, Wild Trout Waters	June 16– Sept. 30 & Jan. 1– Feb 28	Dam-and-pump
WW-T16-9001	UNT to Pine Creek	M-0170 0.0	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T16-9003	Deep Creek	78.0	35	Perennial	Intermediate	CWF, MF	Approved Trout Waters, Trout Stocked Stream	June 16– Feb. 28	Flume
WW-T11-9001	Mahantango Creek	80.3	40	Perennial	Intermediate	CWF, MF	Approved Trout Waters	Year-round [d]	Dam-and-pump
WW-T09-9002	UNT to Little Mahantango Creek	81.2	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T09-9001	Little Mahantango Creek	M-0194 0.2	≤ 5	Perennial	Minor	CWF, MF	Approved Trout Waters	Year-round [d]	Dam-and-pump
WW-T44-10002C	UNT to Mahanoy Creek	83.4	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Flume
WW-T01-10001	Mahanoy Creek	83.4	56	Perennial	Intermediate	WWF, MF	None	Year-round	Flume

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T04-10002	UNT to Shamokin Creek	85.5	≤ 5	Intermittent	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T04-10001	Shamokin Creek	M-0240 0.2	43	Perennial	Intermediate	WWF, MF	None	Year-round	Dam-and-pump
WW-T18-10002	Quaker Run	86.6	30	Perennial	Minor	CWF, MF	None	Year-round	Flume
WW-T68-11001B	UNT to Quaker Run	M-0372 0.1	NA	Ephemeral	Minor	CWF, MF	None	Year-round	Flume
WW-T68-11001A	UNT to Quaker Run	M-0372 0.1	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Flume
WW-T68-11001	UNT to Quaker Run	M-0372 0.1	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T58-11001	Coal Run	M-0235 1.2	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T44-11002	UNT to South Branch Roaring Creek	88.9	NA	Perennial	NA	HQ-CWF, MF	Approved Trout Waters, Wild Trout Waters	Jan. 1–Sept. 30[d]	Dam-and-pump
WW-T45-11001	South Branch Roaring Creek	91.0	24	Perennial	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
WW-T51-11001	UNT to South Branch Roaring Creek	91.0	≤ 5	Intermittent	Minor	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
WW-T47-11001	UNT to South Branch Roaring Creek	91.7	12	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
WW-T47-11002	South Branch Roaring Creek	91.8	28	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
WW-T44-11001C	UNT to South Branch Roaring Creek	M-0271 0.1	NA	Ephemeral	NA	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Flume
WW-T44-11001A	UNT to South Branch Roaring Creek	M-0271 0.1	NA	Intermittent	NA	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
WW-T44-11001	South Branch Roaring Creek	M-0271 0.1	44	Perennial	Intermediate	HQ-CWF, MF	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T31-11001	UNT to Mugser Run	94.1	10	Intermittent	Minor	HQ-CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T04-11001	Mugser Run	94.4	24	Perennial	Intermediate	HQ-CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T04-11001A	UNT to Mugser Run	94.4	≤ 5	Intermittent	Minor	HQ-CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T04-11001B	UNT to Mugser Run	94.4	NA	Intermittent	Minor	HQ-CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T04-11002	UNT to Roaring Creek	95.0	≤ 5	Perennial	Minor	TSF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T28-12005	UNT to Roaring Creek	95.3	≤ 5	Intermittent	Minor	TSF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T28-12004	UNT to Roaring Creek	95.4	≤ 5	Intermittent	Minor	TSF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WB-T35-11001	Unnamed slough	95.8	34	Open Water	Intermediate	None	None	None	Conventional bore
WW-T35-11001	Roaring Creek	95.9	54	Perennial	Intermediate	TSF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb 28	Dam-and-pump
WW-T04-12001	Susquehanna River	99.7	939	Perennial	Major	WWF	WWCW Fisheries Stream	Year-round	HDD
WW-T04-12002	UNT to Montour Run	101.6	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T04-12003	UNT to Montour Run	101.6	NA	Intermittent	NA	CWF, MF	None	Year-round	NA
WW-T04-12005/	Montour Run	101.7	21	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T04-12005A	UNT to Montour Run	101.7	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T04-12006	UNT to Montour Run	102.0	≤ 5	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-RS-80012	UNT to Montour Run	M-0423 0.3	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T70-12003	Hemlock Creek	M-0423 1.5	35	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T70-12011	UNT to Fishing Creek	M-0423 3.0	≤ 5	Perennial	Minor	WWF, MF	None	Year-round	Dam-and-pump
WW-T70-12010-1	Little Fishing Creek	M-0423 3.3	35	Perennial	Intermediate	CWF, MF	None	Year-round	HDD
WW-T70-12010	Little Fishing Creek	M-0423 3.6	48	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T70-12012	UNT to Little Fishing Creek	M-0423 3.8	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T01-12005	UNT to Little Fishing Creek	M-0423 4.0	≤ 5	Ephemeral	Minor	CWF, MF	None	Year-round	NA
WW-T52-13001C	UNT to Little Fishing Creek	M-0214 0.2	NA	Intermittent	NA	CWF, MF	None	Year-round	Dam-and-Pump
WW-T52-13001	UNT to Little Fishing Creek	M-0214 0.2	16	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-RS-12002	Little Fishing Creek	107.0	35	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T01-13002	UNT to Little Fishing Creek	108.7	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T01-13003	UNT to Little Fishing Creek	108.8	≤ 5	Intermittent	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T06-13001	UNT to Deerlick Run	109.9	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T06-13002	UNT to Deerlick Run	110.2	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T35-13002	Deerlick Run	111.2	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1–Sept. 30	Dam-and-pump
WW-T35-13001	UNT to Deerlick Run	111.6	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1–Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T90-14003	UNT to Mud Run	113.4	12	Intermittent	Intermediate	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T21-13001	Mud Run	113.4	14	Perennial	Intermediate	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T21-13001A	UNT to Mud Run	113.5	13	Perennial	Intermediate	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T16-14003	Little Green Creek	115.4	25	Perennial	Intermediate	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T16-14001	UNT to Little Green Creek	116.0	NA	Ephemeral	NA	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T16-14002	UNT to Green Creek	118.1	≤ 5	Perennial	Minor	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T15-14003	UNT to Green Creek	119.3	≤ 5	Perennial	Minor	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T15-14005	UNT to Green Creek	119.9	≤ 5	Intermittent	Minor	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T15-14006	UNT to Green Creek	119.9	≤ 5	Intermittent	Minor	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T15-14007	Green Creek	120.1	14	Perennial	Intermediate	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T15-14007A	UNT to Green Creek	120.1	NA	Perennial	NA	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T15-14008	UNT to Green Creek	121.3	≤ 5	Intermittent	Minor	TSF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T17-14001	UNT to York Hollow	122.6	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T17-14002	UNT to York Hollow	123.1	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T17-14003	York Hollow	123.2	≤ 5	Ephemeral	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T06-14002	West Creek	124.6	41	Perennial	Intermediate	CWF, MF	Approved Trout Waters, Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T06-14001	UNT to West Creek	124.7	22	Perennial	Intermediate	CWF, MF	Approved Trout Waters, Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
Access Roads									
WW-T47-12001	UNT to Susquehanna River	AR-CO-094.1.1	NA	Intermittent	NA	CWF, MF	None	Year-round	NA
WW-T67-13001	UNT to Green Creek	AR-CO-106	NA	Perennial	NA	TSF, MF	Wild Trout Waters	Jan. 1–Sept. 30	NA
WW-T65-001	UNT to Pequea Creek	AR-LA-009.1	NA	Perennial	NA	WWF, MF	None	Year-round	NA
WW-T25-2001	UNT to Strickler Run	AR-LA-020	NA	Perennial	Intermediate	WWF, MF	None	Year-round	NA
WW-T25-4002	Shells Run	AR-LA-030	NA	Perennial	NA	TSF, MF	None	Year-round	NA
WW-T25-6001	UNT to Trout Run	AR-LE-052	NA	Perennial	NA	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb. 28	NA
WW-T33-6001A	UNT to Trout Run	AR-LE-052.1	NA	Perennial	NA	CWF, MF	Approved Trout Waters, Trout Stocked Stream, Wild Trout Waters	June 16–Sept. 30 & Jan. 1–Feb. 28	NA
WW-T65-8001A	UNT to Swatara Creek	AR-SC-061.1	NA	Intermittent	NA	CWF, MF	None	Year-round	NA
WW-T65-8001	UNT to Swatara Creek	AR-SC-061.1	NA	Perennial	NA	CWF, MF	None	Year-round	NA
WW-T44-10002	UNT to Mahanoy Creek	AR-NO-075	NA	Perennial	NA	WWF, MF	None	Year-round	NA
WW-T44-10003	UNT to Mahanoy Creek	AR-NO-075	NA	Perennial	NA	WWF, MF	None	Year-round	NA
WW-T44-10004	UNT to Mahanoy Creek	AR-NO-075	NA	Perennial	NA	WWF, MF	None	Year-round	NA
WW-T68-10002	UNT to Shamokin Creek	AR-NO-079.1	NA	Ephemeral	NA	WWF, MF	None	Year-round	NA
WW-T68-10001	UNT to Shamokin Creek	AR-NO-079.1	NA	Ephemeral	NA	WWF, MF	None	Year-round	NA

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T58-11001A	Coal Run	AR-NO-082	NA	Ephemeral	NA	CWF, MF	None	Year-round	NA
WW-T58-11001A	Coal Run	AR-NO-082.1	NA	Ephemeral	NA	CWF, MF	None	Year-round	NA
Chapman Loop									
WW-T21-27002	Post Hollow	L186.3	**≤ 5**	Intermittent	Minor	EV	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T21-27001	UNT to Mudlick Run	L187.2	≤ 5	Ephemeral	Minor	EV	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
WW-T30-27001	UNT to Mudlick Run	L187.4	≤ 5	Perennial	Minor	EV	Class A Wild Trout Waters	April 2–Sept. 30	Dam-and-pump
Unity Loop									
Pipeline Facilities									
WW-T01-22016	West Branch Little Muncy Creek	L120.6	17	Perennial	Intermediate	EV, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22016A	UNT to West Branch Little Muncy Creek	L120.6	≤ 5	Ephemeral	Minor	EV, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22015A	UNT to West Branch Little Muncy Creek	L120.6	≤ 5	Intermittent	Minor	EV, MF	Wild Trout Waters	Jan. 1–Sept. 30	NA
WW-T01-22015	UNT to West Branch Little Muncy Creek	L120.6	≤ 5	Intermittent	Minor	EV, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22014	Little Indian Run	L121.5	7	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22012	UNT to Little Indian Run	L122.1	9	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22012A	UNT to Little Indian Run	L122.1	6	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22011	UNT to Little Muncy Creek	L122.6	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22010	UNT Beaver Run	L123.2	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump
WW-T01-22009	Beaver Run	L123.8	30	Perennial	Intermediate	CWF, MF	Wild Trout Waters	Jan. 1–Sept. 30	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method
WW-T01-22008A	UNT to Beaver Run	L124.4	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
WW-T01-22008	UNT to Beaver Run	L124.4	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T01-22008B	UNT to Beaver Run	L124.4	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	Dam-and-pump
WW-T01-22006B	UNT Big Run	L125.3	17	Perennial	Minor	CWF, MF	None	Year-round	Dam-and-pump
WW-T01-22007	Big Run	L125.3	12	Perennial	Intermediate	CWF, MF	None	Year-round	Dam-and-pump
WW-T01-22003	UNT to Sugar Run	L126.4	≤ 5	Intermittent	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T01-22002	Sugar Run	L127.1	13	Perennial	Intermediate	CWF, MF	Wild Trout Waters (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T65-27001	UNT to Sugar Run	L127.3	≤ 5	Perennial	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1– Sept. 30	Dam-and-pump
WW-T65-27001A	UNT to Sugar Run	L127.3	NA	Intermittent	Minor	CWF, MF	Wild Trout Waters (under review)	Jan. 1– Sept. 30	NA
Access Roads									
WW-T24-22003	UNT Beaver Run	AR-LY-007	NA	Perennial	Minor	CWF, MF	Wild Trout Waters	Jan. 1– Sept. 30	NA
VIRGINIA									
Mainline A and B Replacements									
WW-T26-23001A	UNT Broad Run	1578.7	NA	Perennial	Intermediate	3A [f]	None	Year-round	Dam-and-pump
WW-T26-23001C	Dawkins Branch	1578.9	25	Perennial	Intermediate	3A [f]	None	Year-round	Dam-and-pump
WW-T26-23002	UNT Broad Run	1579.6	12	Perennial	Minor	3A [f]	None	Year-round	Dam-and-pump
WW-T26-23002A	UNT Broad Run	1579.7	8	Ephemeral	Minor	3A [f]	None	Year-round	Dam-and-pump

TABLE K-1 (cont'd)

Waterbodies Crossed by the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Width (feet)) [c]	Stream Type	Federal Energy Regulatory Commission Classification [c]	State Water Quality Use Classification – Designated Use [d]	State Fishery Classification [e]	Crossing Window [e]	Crossing Method

[a] Waterbody IDs with "RS" designations are in a non-surveyed area and are based on remote sensing analysis.

[b] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M-####) preceding the milepost value. Mileposts along the Chapman Loop are identified with an "L" because they are part of Transco's Leidy Line system.

[c] The crossing length and Federal Energy Regulatory Commission's classification for non-surveyed waterbodies (as noted with an "RS" ID) are based on remote sensing analysis.

[d] State Water Quality Use Classification is Designated Use. Where Existing Use is present, it takes precedence over Designated Use.

[e] State fishery classifications and crossing windows were reviewed by Pennsylvania Fish and Boat Commission staff.

[f] "3A" indicates that the Virginia Department of Environmental Quality has not completed the assessment required to determine whether any designated uses are met.

Notes: The crossing length is based on the ordinary high water mark field delineation. "NA" indicates waterbodies that would not be crossed by the centerline but may be crossed by equipment.

CPL = Central Penn Line
CWF = Coldwater Fishes
EV = Exceptional Value
HQ = High Quality
MF = Migratory Fishes
Tier II = State water quality standards apply
TSF = Trout Stocked Fishery
UNT = Unnamed Tributary
WWCW = Warmwater/Coolwater
WWF = Warmwater Fishes

TABLE K-2

Waterbodies with Steep and/or Eroding Banks for the Atlantic Sunrise Project

State/Facility	Waterbody ID [a]	Waterbody Name	Milepost [b]
Pennsylvania			
CPL North			
	WW-T02-15006	UNT to Fishing Creek	1.2
	WW-T02-15007 / WW-RS-15006	Fishing Creek	1.3
	WW-T02-15008	UNT to Coles Creek	2.0
	WW-T02-15010	Hess Hollow	2.9
	WW-T02-15011	UNT to Hess Hollow	2.9
	WW-T02-15014	Ashelman Run	3.8
	WW-T02-15012C	UNT to Coles Creek	4.1
	WW-T02-15012	Coles Creek	4.1
	WW-T02-15016	Marsh Run	5.1
	WW-T02-15017	Maple Run	6.0
	WW-T02-15017A	UNT to Maple Run	6.0
	WW-T02-15018	Kitchen Creek	7.3
	WW-T24-15001	Crooked Creek	7.5
	WW-T02-16001	UNT to Phillips Creek	9.2
	WW-T02-16002	Phillips Creek	9.3
	WW-T05-16003	Lick Branch	10.2
	WW-T11-16001D	UNT to Arnold Creek	11.2
	WW-T11-16001	Arnold Creek	11.2
	WW-T11-16001B	UNT to Arnold Creek	11.2
	WW-T13-16002	UNT to Shingle Run	11.8
	WW-T13-16001	Shingle Run	12.2
	WW-T05-16002	UNT to Mitchler Run	12.9
	WW-T05-16001	Mitchler Run	13.1
	WW-T05-16001A	UNT to Mitchler Run	13.1
	WW-T90-16001	UNT to Mitchler Run	13.1
	WW-T65-16001	UNT to Huntington Creek	14.4
	WW-T03-16003B	Huntington Creek	14.5
	WW-T03-16002A	UNT to Huntington Creek	14.9
	WW-T03-16002	UNT to Huntington Creek	15.0
	WW-T03-16001	Fades Creek	15.8
	WW-T03-17008	UNT to Pikes Creek	16.6
	WW-T03-17005	Paint Spring Run	17.6
	WW-T03-17004	Harveys Creek	18.1
	WW-T03-17001	UNT to Harveys Creek	19.4
	WW-T03-17002	UNT to Harveys Creek	19.8
	WW-T03-17002A	UNT to Harveys Creek	19.8
	WW-T03-17002B	UNT to Harveys Creek	19.8
	WW-T49-17003	UNT to Harveys Creek	19.9
	WW-T93-17001	UNT to Huntsville Creek	21.4
	WW-T49-17001	UNT to Huntsville Creek	21.8
	WW-T51-17001	UNT to Huntsville Creek	22.1
	WW-T08-17001	UNT to Huntsville Creek	M-0060 0.4
	WW-T53-17003	UNT to Huntsville Creek	M-0060 0.9
	WW-T17-18001	UNT to Leonard Creek	25.6
	WW-T13-19001	UNT to Martin Creek	M-0071 1.9
	WW-T13-19002	UNT to Martin Creek	M-0071 2.1
	WW-T13-19003	UNT to Martin Creek	M-0071 2.2

TABLE K-2 (cont'd)

Waterbodies with Steep and/or Eroding Banks for the Atlantic Sunrise Project

State/Facility	Waterbody ID [a]	Waterbody Name	Milepost [b]
	WW-T21-19001	Susquehanna River	35.0
	WW-T21-19002	UNT to Susquehanna River	35.9
	WW-T19-19002	UNT to Susquehanna River	36.8
	WW-T19-19001	UNT to Susquehanna River	37.1
	WW-T15-4001	UNT to Susquehanna River	37.3
	WW-T15-4002	UNT to Susquehanna River	37.3
	WW-T24-19001B	UNT to Susquehanna River	37.7
	WW-T24-19001	UNT to Susquehanna River	37.7
	WW-T24-19001A	UNT to Susquehanna River	37.7
	WW-T12-19002	UNT to Beaver Creek	40.0
	WW-T19-20005	Trout Brook	MP-0054 0.1
	WW-T14-20003	South Branch Tunkhannock Creek	43.7
	WW-T14-20002	UNT to South Branch Tunkhannock Creek	44.4
	WW-T14-20002A	UNT to South Branch Tunkhannock Creek	44.5
	WW-T19-20004	UNT to South Branch Tunkhannock Creek	45.3
	WW-T10-20001	UNT to South Branch Tunkhannock Creek	45.8
	WW-T10-20002	UNT to South Branch Tunkhannock Creek	45.9
	WW-T10-20003	UNT to South Branch Tunkhannock Creek	M-0058 0.2
	WW-T19-20002	UNT to South Branch Tunkhannock Creek	46.9
	WW-T19-20003	UNT to South Branch Tunkhannock Creek	47.2
	WW-T19-20001	UNT to Tunkhannock Creek	48.7
	WW-T54-21001	Tunkhannock Creek	49.5
	WW-T57-21003	UNT to Tunkhannock Creek	M-0080 1.1
	WW-T57-21002	UNT to Tunkhannock Creek	M-0080 1.3
	WW-T30-21001	UNT to Willow Brook	51.4
	WW-T12-21004A	UNT to Willow Brook	51.7
	WW-T12-21004	UNT to Willow Brook	51.7
	WW-T12-21001	Willow Brook	52.4
	WW-T50-21002	Millard Creek	54.1
	WW-T50-21003	UNT to Millard Creek	54.1
	WW-T12-21007	UNT to Millard Creek	55.1
	WW-T12-21007A	UNT to Millard Creek	55.1
	WW-T48-21001	Tower Branch	56.8
	WW-T17-21001	UNT to Tower Branch	57.2
CPL South			
	WW-T10-001A	UNT to Fishing Creek	0.2
	WW-T10-001	UNT to Fishing Creek	0.3
	WW-T10-003	Muddy Run	M-0147 0.6
	WW-T10-004	Tucquan Creek	M-0184 0.9
	WW-T10-100	UNT to Climbers Run	7.2
	WW-T20-002	Climbers Run	7.5
	WW-T65-001	UNT to Pequea Creek	8.1
	WW-T25-1001	UNT to Pequea Creek	M-0405 1.5
	WW-T65-1002	UNT to Pequea Creek	M-0405 1.7
	WW-T10-1003	UNT to Pequea Creek	10.1
	WW-T35-1002	UNT to Conestoga River	10.9
	WW-T35-1002A	UNT to Conestoga River	11.0
	WW-T20-1001	Conestoga River	12.3
	WW-T36-1001A	UNT to Conestoga River	12.4

TABLE K-2 (cont'd)

Waterbodies with Steep and/or Eroding Banks for the Atlantic Sunrise Project

State/Facility	Waterbody ID [a]	Waterbody Name	Milepost [b]
	WW-T49-1001	UNT to Witmer Run	M-0248 0.2
	WW-T36-1004	UNT to Witmer Run	13.7
	WW-T20-1005	UNT to Indian Run	15.3
	WW-T11-2001	Stamans Run	18.1
	WW-T11-2002	UNT to Stamans Run	18.9
	WW-T24-2001	Strickler Run	M-0389 0.1
	WW-T10-2005	UNT to Strickler Run	20.8
	WW-T10-2002	UNT to Chiques Creek	23.0
	WW-T49-2001	UNT to Chiques Creek	M-0209 0.3
	WW-T42-2003	Chiques Creek	23.9
	WW-T31-3003	UNT to Back Run	30.1
	WW-T31-3004	Back Run	30.4
	WW-T31-3009	UNT to Back Run	30.6
	WW-T31-3008	UNT to Back Run	31.2
	WW-T31-3007	UNT to Back Run	31.6
	WW-T31-3005	Brubaker Run	33.0
	WW-T31-3002	UNT to Little Chiques Creek	33.6
	WW-T31-3002A	UNT to Little Chiques Creek	33.6
	WW-T31-3001	UNT to Little Chiques Creek	34.0
	WW-T24-3001	Little Chiques Creek	34.5
	WW-T30-4001	Shells Run	36.0
	WW-T30-4002	Conewago Creek	37.5
	WW-T18-4002	UNT to Little Conewago Creek	38.8
	WW-T43-4001	UNT to Conewago Creek	M-0330 0.0
	WW-T13-4002A	UNT to Little Conewago Creek	41.1
	WW-T13-4002	UNT to Little Conewago Creek	41.1
	WW-T13-4005	UNT to Little Conewago Creek	41.1
	WW-T13-4003	UNT to Gingrich Run	41.9
	WW-T64-5001	Gingrich Run	42.6
	WW-T43-5003	Quittapahilla Creek	M-0183 1.3
	WW-T43-5001	UNT to Quittapahilla Creek	M-0183 1.6
	WW-T14-5007	UNT to Swatara Creek	50.1
	WW-T99-5008A	UNT to Swatara Creek	50.5
	WW-T44-5001	UNT to Swatara Creek	M-0165 0.5
	WW-T14-5011	UNT to Reeds Creek	52.8
	WW-T14-5013	Reeds Creek	53.0
	WW-T10-6002	UNT to Swatara Creek	53.7
	WW-T40-6003	UNT to Querg Run	M-0168 0.1
	WW-T30-6004	UNT to Qureg Run	55.5
	WW-T30-6005	UNT to Qureg Run	55.7
	WW-T32-6001	Forge Creek	56.3
	WW-T40-6001A	UNT to Forge Creek	56.9
	WW-T43-6003A	UNT to Trout Run	58.5
	WW-T43-6004	UNT to Trout Run	58.5
	WW-T23-6003	Trout Run	58.8
	WW-T33-6001	UNT to Trout Run	59.3
	WW-T43-6001	UNT to Trout Run	M-0176 0.1
	WW-T23-6001	UNT to Swatara Creek	60.7
	WW-T23-6002	UNT to Swatara Creek	61.1

TABLE K-2 (cont'd)

Waterbodies with Steep and/or Eroding Banks for the Atlantic Sunrise Project

State/Facility	Waterbody ID [a]	Waterbody Name	Milepost [b]
	WW-T20-7002	UNT to Swatara Creek	61.2
	WW-T20-7001	UNT to Swatara Creek	61.4
	WW-T10-7004	UNT to Swatara Creek	62.5
	WW-T10-7003	UNT to Swatara Creek	63.7
	WW-T10-7002	UNT to Swatara Creek	63.9
	WW-T10-7001	UNT to Swatara Creek	64.1
	WW-T35-7002	Mill Creek	65.4
	WW-T18-7007C	UNT to Swatara Creek	68.4
	WW-T18-7007A	UNT to Swatara Creek	68.4
	WW-T18-7007	UNT to Swatara Creek	68.4
	WW-T49-7001	UNT to Swatara Creek	69.0
	WW-T21-7002	UNT to Swatara Creek	69.1
	WW-T31-8001	Lorberry Creek	M-0181 0.2
	WW-T31-8001A	UNT to Lorberry Creek	M-0181 0.2
	WW-T43-8002	UNT to Lower Rauch Creek	M-0198 0.3
	WW-T24-8003	UNT to Lower Rausch Creek	72.7
	WW-T24-8002	UNT to Lower Rausch Creek	73.5
	WW-T24-8001	Lower Rausch Creek	73.5
	WW-T35-8001	Good Spring Creek	74.7
	WW-T20-8001A	UNT to Pine Creek	M-0316 1.0
	WW-T20-8001	Pine Creek	76.1
	WW-T20-9001	UNT to Pine Creek	76.5
	WW-T16-9003	Deep Creek	78.0
	WW-T11-9001	Mahantango Creek	80.3
	WW-T09-9002	UNT to Little Mahantango Creek	81.2
	WW-T09-9001	Little Mahantango Creek	M-0194 0.2
	WW-T01-10001	Mahanoy Creek	83.4
	WW-T04-10002	UNT to Shamokin Creek	85.5
	WW-T04-10001	Shamokin Creek	M-0240 0.2
	WW-T18-10002	Quaker Run	86.6
	WW-T68-11001B	UNT to Quaker Run	M-0372 0.1
	WW-T68-11001	UNT to Quaker Run	M-0372 0.1
	WW-T45-11001	South Branch Roaring Creek	91.0
	WW-T51-11001	UNT to South Branch Roaring Creek	91.0
	WW-T47-11001	UNT to South Branch Roaring Creek	91.7
	WW-T47-11002	South Branch Roaring Creek	91.8
	WW-T44-11001C	UNT to South Branch Roaring Creek	M-0271 0.1
	WW-T44-11001	South Branch Roaring Creek	M-0271 0.1
	WW-T31-11001	UNT to Mugser Run	94.1
	WW-T04-11001	Mugser Run	94.4
	WW-T04-11001A	UNT to Mugser Run	94.4
	WW-T04-11002	UNT to Roaring Creek	95.0
	WW-T28-12005	UNT to Roaring Creek	95.3
	WW-T28-12004	UNT to Roaring Creek	95.4
	WW-T35-11001	Roaring Creek	95.9
	WW-T04-12001	Susquehanna River	99.7
	WW-T04-12002	UNT to Montour Run	101.6
	WW-T04-12003	UNT to Montour Run	101.6
	WW-T04-12004	UNT to Montour Run	101.6

TABLE K-2 (cont'd)

Waterbodies with Steep and/or Eroding Banks for the Atlantic Sunrise Project

State/Facility	Waterbody ID [a]	Waterbody Name	Milepost [b]
	WW-T04-12005	Montour Run	101.7
	WW-T04-12005A	UNT to Montour Run	101.7
	WW-T04-12006	UNT to Montour Run	102.0
	WW-T70-12003	Hemlock Creek	M-0423 1.5
	WW-T70-12011	UNT to Fishing Creek	M-0423 3.0
	WW-T70-12010-1	Little Fishing Creek	M-0423 3.3
	WW-T70-12010	Little Fishing Creek	M-0423 3.6
	WW-T01-12005	UNT to Little Fishing Creek	M-0423 4.0
	WW-T01-13002	UNT to Little Fishing Creek	108.7
	WW-T01-13003	UNT to Little Fishing Creek	108.8
	WW-T06-13001	UNT to Deerlick Run	109.9
	WW-T06-13002	UNT to Deerlick Run	110.2
	WW-T35-13002	Deerlick Run	111.2
	WW-T21-13001	Mud Run	113.4
	WW-T21-13001A	UNT to Mud Run	113.5
	WW-T16-14003	Little Green Creek	115.4
	WW-T16-14001	UNT to Little Green Creek	116.0
	WW-T16-14002	UNT to Green Creek	118.1
	WW-T15-14003	UNT to Green Creek	119.3
	WW-T15-14005	UNT to Green Creek	119.9
	WW-T15-14006	UNT to Green Creek	119.9
	WW-T15-14007	Green Creek	120.1
	WW-T15-14007A	UNT to Green Creek	120.1
	WW-T15-14008	UNT to Green Creek	121.3
	WW-T17-14001	UNT to York Hollow	122.6
	WW-T17-14002	UNT to York Hollow	123.1
	WW-T17-14003	York Hollow	123.2
	WW-T06-14002	West Creek	124.6
	WW-T06-14001	UNT to West Creek	124.7
	WW-T47-12001	UNT to Susquehanna River	AR-CO-094.1.1
	WW-T67-13001	UNT to Green Creek	AR-CO-106
	WW-T65-001	UNT to Pequea Creek	AR-LA-009.1
	WW-T25-2001	UNT to Strickler Run	AR-LA-020
	WW-T25-6001	UNT to Trout Run	AR-LE-052
	WW-T65-8001A	UNT to Swatara Creek	AR-SC-061.1
	WW-T65-8001	UNT to Swatara Creek	AR-SC-061.1
	WW-T44-10003	UNT to Mahanoy Creek	AR-NO-075
	WW-T68-10001	UNT to Shamokin Creek	AR-NO-079.1
Chapman Loop			
	WW-T21-27001	UNT to Mudlick Run	L187.2
	WW-T30-27001	UNT to Mudlick Run	L187.4
Unity Loop			
	WW-T01-22016	West Branch Little Muncy Creek	L120.6
	WW-T01-22016A	UNT to West Branch Little Muncy Creek	L120.6
	WW-T01-22015A	UNT to West Branch Little Muncy Creek	L120.6
	WW-T01-22015	UNT to West Branch Little Muncy Creek	L120.6
	WW-T01-22014	Little Indian Run	L121.5
	WW-T01-22012	UNT to Little Indian Run	L122.1
	WW-T01-22012A	UNT to Little Indian Run	L122.1

TABLE K-2 (cont'd)

Waterbodies with Steep and/or Eroding Banks for the Atlantic Sunrise Project

State/Facility	Waterbody ID [a]	Waterbody Name	Milepost [b]
	WW-T01-22011	UNT Beaver Run	L122.6
	WW-T01-22010	UNT Beaver Run	L123.2
	WW-T01-22009	Beaver Run	L123.8
	WW-T01-22008A	UNT to Beaver Run	L124.4
	WW-T01-22008	UNT to Beaver Run	L124.4
	WW-T01-22008B	UNT to Beaver Run	L124.4
	WW-T01-22006B	UNT Big Run	L125.3
	WW-T01-22007	Big Run	L125.3
	WW-T01-22003	UNT to Sugar Run	L126.4
	WW-T01-22002	Sugar Run	L127.1
	WW-T65-27001	UNT to Sugar Run	L127.3
	WW-T24-22003	UNT Beaver Run	AR-LY-007
Virginia			
Mainline A and B Replacements			
	WW-T26-23001C	Dawkins Branch	1578.9
	WW-T26-23002	UNT Broad Run	1579.6
	WW-T26-23002A	UNT Broad Run	1579.7

[a] Waterbody IDs with "RS" designations are in non-surveyed area and are based on remote sensing analysis.

[b] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M-####) preceding the milepost value.

Note: UNT = unnamed tributary

TABLE K-3

Waterbody Crossings Located Within Federal Emergency Management Agency-Designated Special Hazard Flood Areas for the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Length (feet)	County	FEMA Flood Zone	Flood Zone Description
WW-T02-15012C	Unnamed tributary to Coles Creek	4.1	338	Columbia	A	100-year floodplain, flood water elevations not established
WW-T02-15012	Coles Creek	4.1	338	Columbia	A	100-year floodplain, flood water elevations not established
WW-T02-15016	Marsh Run	5.1	72	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T02-15017	Maple Run	6.0	1,132	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T02-15017A	Unnamed tributary to Maple Run	6.0	1,132	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T02-15018	Kitchen Creek	7.3	1,132	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T24-15001	Crooked Creek	7.5	1,132	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T02-16002	Phillips Creek	9.3	90	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T05-16003	Lick Branch	10.2	804	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T11-16001D	Unnamed tributary to Arnold Creek	11.2	804	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T11-16001	Arnold Creek	11.2	804	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T11-16001B	Unnamed tributary to Arnold Creek	11.2	804	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T05-16001	Mitchler Run	13.1	804	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T05-16001A	Unnamed tributary to Mitchler Run	13.1	804	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T03-16003F	Unnamed tributary to Huntington Creek	14.4	110	Luzerne	AE	100-year floodplain, established flood water elevations
WW-T03-16003B	Huntington Creek	14.5	110	Luzerne	AE	100-year floodplain, established flood water elevations
WW-T03-16003	Unnamed tributary to Huntington Creek	14.5	272	Luzerne	AE	100-year floodplain, established flood water elevations
WW-T03-17008	Pikes Creek	16.6	91	Luzerne	AE	100-year floodplain, established flood water elevations
WW-T03-17005	Paint Spring Run	17.6	111	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T17-18001	Unnamed tributary to Leonard Creek	25.6	36	Luzerne	A	100-year floodplain, flood water elevations not established
WW-T05-18001	Mill Creek	M-0071 0.7	36	Wyoming	A	100-year floodplain, flood water elevations not established
WW-T21-19001	Susquehanna River	35.0	773	Wyoming	AE	100-year floodplain, established flood water elevations
WW-T21-19002	Unnamed tributary to Susquehanna River	35.9	146	Wyoming	A	100-year floodplain, flood water elevations not established
WW-T14-20003	South Branch Tunkhannock Creek	43.7	285	Wyoming	AE	100-year floodplain, established flood water elevations
WW-T54-21001	Tunkhannock Creek	49.5	276	Wyoming	A	100-year floodplain, flood water elevations not established
WW-T12-21001	Willow Brook	52.4	50	Susquehanna	A	100-year floodplain, flood water elevations not established
WW-T31-003	Pequea Creek	8.2	479	Lancaster	AE	100-year floodplain, established flood water elevations
WW-RS-120006	UNT to Pequea Creek	M-0405 0.6	98	Lancaster	AE	100-year floodplain, established flood water elevations
WW-T20-1001	Conestoga River	12.3	479	Lancaster	AE	100-year floodplain, established flood water elevations
WW-T24-2001	Strickler Run	20.0	63	Lancaster	AE	100-year floodplain, established flood water elevations

TABLE K-3 (cont'd)

Waterbody Crossings Located Within Federal Emergency Management Agency-Designated Special Hazard Flood Areas for the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Length (feet)	County	FEMA Flood Zone	Flood Zone Description
WW-T42-2003	Chiques Creek	23.9	383	Lancaster	AE	100-year floodplain, established flood water elevations
WW-T31-3004	Back Run	30.4	444	Lancaster	A	100-year floodplain, flood water elevations not established
WW-T31-3008	Unnamed tributary to Back Run	31.2	444	Lancaster	A	100-year floodplain, flood water elevations not established
WW-T31-3005	Brubaker Run	33.0	276	Lancaster	A	100-year floodplain, flood water elevations not established
WW-T24-3001	Little Chiques Creek	34.5	35	Lancaster	A	100-year floodplain, flood water elevations not established
WW-T30-4002	Conewago Creek	37.5	701	Lebanon	A	100-year floodplain, flood water elevations not established
WW-T64-5001	Gingrich Run	42.6	227	Lebanon	A	100-year floodplain, flood water elevations not established
WW-T43-5003	Quittapahilla Creek	M-0183 1.3	203	Lebanon	A	100-year floodplain, flood water elevations not established
WW-T14-5006	Swatara Creek	49.3	409	Lebanon	AE	100-year floodplain, established flood water elevations
WW-T14-5006A	UNT to Swatara Creek	49.3	409	Lebanon	AE	100-year floodplain, established flood water elevations
WW-T32-6001	Forge Creek	56.3	201	Lebanon	A	100-year floodplain, flood water elevations not established
WW-T23-6003	Trout Run	58.8	182	Lebanon	A	100-year floodplain, flood water elevations not established
WW-T35-7002	Mill Creek	65.4	65	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T34-7002	Unnamed tributary to Mill Creek	65.5	228	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T34-8001	Unnamed tributary to Swatara Creek	M-0177 0.3	228	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T34-8001A	Unnamed tributary to Swatara Creek	M-177 0.3	215	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T31-8001	Lorberry Creek	M-0181 0.2	215	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T31-8001A	Unnamed tributary to Lorberry Creek	M-0181 0.2	215	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T24-8002	Unnamed tributary to Lower Rausch Creek	73.5	638	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T20-8001A	Unnamed tributary to Pine Creek	M-0316 1.0	305	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T20-8001	Pine Creek	76.1	305	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T16-9003	Deep Creek	78.0	271	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T11-9001	Mahantango Creek	80.3	473	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T01-10001	Mahanoy Creek	83.4	392	Northumberland	A	100-year floodplain, flood water elevations not established
WW-T04-10001	Shamokin Creek	M-0240 0.2	196	Northumberland	A	100-year floodplain, flood water elevations not established
WW-T47-11001	Unnamed tributary to South Branch Roaring Creek	91.7	207	Northumberland	AE	100-year floodplain, established flood water elevations
WW-T45-11001	South Branch Roaring Creek	91.8	207	Northumberland	AE	100-year floodplain, established flood water elevations
WW-T47-11002	South Branch Roaring Creek	92.3	207	Northumberland	A	100-year floodplain, flood water elevations not established

TABLE K-3 (cont'd)

Waterbody Crossings Located Within Federal Emergency Management Agency-Designated Special Hazard Flood Areas for the Atlantic Sunrise Project

State/Facility/ Waterbody ID [a]	Waterbody Name	Milepost [b]	Crossing Length (feet)	County	FEMA Flood Zone	Flood Zone Description
WW-T44-11001A	Unnamed tributary to South Branch Roaring Creek	M-0271 0.1	13	Northumberland	AE	100-year floodplain, established flood water elevations
WW-T04-11001	Mugser Run	94.4	271	Columbia	AE	100-year floodplain, established flood water elevations
WW-T04-11001A	Unnamed tributary to Mugser Run	94.4	271	Columbia	AE	100-year floodplain, established flood water elevations
WW-T04-11001B	Unnamed tributary to Mugser Run	94.4	271	Columbia	AE	100-year floodplain, established flood water elevations
WW-T35-11001	Roaring Creek	95.9	391	Columbia	AE	100-year floodplain, established flood water elevations
WW-T04-12001	Susquehanna River	99.7	1,016	Columbia	AE	100-year floodplain, established flood water elevations
WW-T04-12005	Montour Run	101.7	152	Columbia	A	100-year floodplain, flood water elevations not established
WW-T70-12003	Hemlock Creek	M-0423 1.5	306	Columbia	A	100-year floodplain, flood water elevations not established
WW-T70-12010 / WW-T70-12010-1	Little Fishing Creek	M-0423 3.3/ M-0423 3.6	569	Columbia	AE	100-year floodplain, established flood water elevations
WW-T52-13001C	Unnamed tributary to Little Fishing Creek	M-0214 0.2	278	Columbia	AE	100-year floodplain, established flood water elevations
WW-T21-13001	Mud Run	113.4	796	Columbia	A	100-year floodplain, flood water elevations not established
WW-T21-13001A	Unnamed tributary to Mud Run	113.5	796	Columbia	A	100-year floodplain, flood water elevations not established
WW-T16-14003	Little Green Creek	115.4	399	Columbia	A	100-year floodplain, flood water elevations not established
WW-T06-14002	West Creek	124.6	526	Columbia	A	100-year floodplain, flood water elevations not established
WW-T65-8001	Unnamed tributary to Swatara Creek	AR-SC-061.1	351	Schuylkill	A	100-year floodplain, flood water elevations not established
WW-T01-22016	West Branch Little Muncy Creek	L120.6	371	Lycoming	A	100-year floodplain, flood water elevations not established
WW-T01-22016A	Unnamed tributary to West Branch Little Muncy Creek	L120.6	371	Lycoming	A	100-year floodplain, flood water elevations not established
WW-T01-22010	Unnamed tributary to Beaver Run	L123.2	371	Lycoming	A	100-year floodplain, flood water elevations not established
WW-T01-22009	Beaver Run	L123.8	371	Lycoming	A	100-year floodplain, flood water elevations not established
WW-T01-22002	Sugar Run	L127.1	242	Lycoming	A	100-year floodplain, flood water elevations not established
WW-T26-23001A	Unnamed tributary Broad Run	1578.7	1,970	Prince William	AE	100-year floodplain, established flood water elevations
WW-T26-23001C	Dawkins Branch	1578.9	520	Prince William	AE	100-year floodplain, established flood water elevations

[a] Waterbody IDs with "RS" designations are in non-surveyed areas and are based on remote sensing analysis.

[b] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M###) preceding the milepost value. The locations of access road wetland crossings are identified by the access road workspace ID.

[c] Access road crossing.

TABLE K-4

Waterbodies with Shallow Depth to Bedrock [a,b,c] Crossed by the Atlantic Sunrise Project

Facility/County	Milepost	Waterbody ID	Crossing Length (feet)	Waterbody Name	Soil Map Unit	Rippability [d]
PENNSYLVANIA						
CPL North						
Columbia	0.6	WW-T02-15002	≤5	Unnamed tributary to Fishing Creek	OsB – Oquafa very stony silt loam, 0 to 12 percent slopes	Moderately difficult
	2.0	WW-T02-15008	≤5	Unnamed tributary to Coles Creek	OcC2 – Oquaga channery silt loam, 12 to 20 percent slopes, moderately eroded	Moderately difficult
	M-0086 0.2	WW-T91-15004	≤5	Unnamed tributary to Coles Creek	LcD – Lackawanna very stony loam, 12 to 35 percent slopes	Moderately difficult
	2.3	WW-T02-15009	≤5	Unnamed tributary to Coles Creek	LcD – Lackawanna very stony loam, 12 to 35 percent slopes	Moderately difficult
Luzerne	9.2	WW-T02-16001	≤5	Unnamed tributary to Phillips Creek	OXF – Oquaga and Lordstown extremely stony silt loams steep	Moderately difficult
	9.3	WW-T02-16002	≤5	Phillips Creek	OXF – Oquaga and Lordstown extremely stony silt loams steep	Moderately difficult
	11.8	WW-T13-16002	≤5	Unnamed tributary to Shingle Run	OsB – Oquaga very stony silt loam, 0 to 12 percent slope	Moderately difficult
	14.5	WW-T03-16003B	25	Huntington Creek	Bf, Basher soils	Moderately difficult
	14.5	WW-T03-16003	16	Unnamed tributary to Huntington Creek	Bf, Basher soils	Moderately difficult
	14.9	WW-T03-16002A	≤5	Unnamed tributary to Huntington Creek	WmD – Wellsboro very stony silt loam, 8 to 25 percent slopes	Moderately difficult
	17.2	WB-T03-17002	17	Unnamed pond (contiguous with Paint Spring Run)	OpD –Oquaga and Lordstown extremely stony silt loams, 8 to 25 percent slopes	Moderately difficult
	17.2	WW-T03-17006	≤5	Unnamed tributary to Paint Spring Run	OpD –Oquaga and Lordstown extremely stony silt loams, 8 to 25 percent slopes	Moderately difficult
	21.8	WW-T49-17001	≤5	Unnamed tributary to Huntsville Creek	WlB – Wellsboro channery silt loam, 3 to 8 percent slopes	Moderately difficult
	M-0060 0.9	WW-T53-17002	≤5	Unnamed tributary to Huntsville Creek	WmD – Wellsboro very stony silt loam, 8 to 25 percent slopes	Moderately difficult
	M-0060 0.9	WW-T53-17003	≤5	Unnamed tributary to Huntsville Creek	WmD – Wellsboro very stony silt loam, 8 to 25 percent slopes	Moderately difficult
	M-0060 0.9	WW-T53-17003B	≤5	Unnamed tributary to Huntsville Creek	WmD – Wellsboro very stony silt loam, 8 to 25 percent slopes	Moderately difficult
	M-0060 0.9	WW-T53-17004	≤5	Unnamed tributary to Huntsville Creek	WmD – Wellsboro very stony silt loam, 8 to 25 percent slopes	Moderately difficult
	M-0142 0.3	WW-T65-18001	≤5	Unnamed tributary to Leonard Creek		

TABLE K-4 (cont'd)

Waterbodies with Shallow Depth to Bedrock [a,b,c] Crossed by the Atlantic Sunrise Project

Facility/County	Milepost	Waterbody ID	Crossing Length (feet)	Waterbody Name	Soil Map Unit	Rippability [d]
Wyoming	M-0071 0.7	WW-T05-18001	12	Mill Creek	NcA – Norwich and Chippewa channery silt loams, 0 to 3 percent slopes	Moderately difficult
	38.1	WW-T19-19003	≤5	Unnamed tributary to Susquehanna River	OxD – Oquaga extremely stony loam, 8 to 25 percent slopes	Difficult
	M-0054 0.1	WW-T19-20005	16	Trout Brook	FA – Fluvents and Fluvaquents	Difficult
	45.8	WW-T10-20001	≤5	Unnamed tributary to South Branch Tunkhannock Creek	NxB – Norwich and Chippewa extremely stony silt loams, 0 to 8 percent slopes	Difficult
	45.9	WW-T10-20002	6	Unnamed tributary to South Branch Tunkhannock Creek	NxB – Norwich and Chippewa extremely stony silt loams, 0 to 8 percent slopes	Difficult
	46.2	WW-RS-20002	≤5	Unnamed tributary to South Branch Tunkhannock Creek	NxB – Norwich and Chippewa extremely stony silt loams, 0 to 8 percent slopes	Difficult
	M-0080 1.1	WW-T57-21003	≤5	Unnamed tributary to Tunkhannock Creek	NxB – Norwich and Chippewa extremely stony silt loams, 0 to 8 percent slopes	Difficult
	M-0080 1.3	WW-T57-21002	≤5	Unnamed tributary to Tunkhannock Creek	VcC – Volusia channery silt loam, 8 to 18 percent slopes	Difficult
	55.1	WW-T12-21007A	≤5	Unnamed tributary to Millard Creek	LsD – Lordstown and Oquaga very stony silt loams, 12 to 30 percent slopes	Difficult
CPL South						
Lancaster	M-0248 0.2	WW-T49-1001	15	Unnamed tributary to Witmer Run	MaD – Manor silt loam, 15 to 25 percent slopes	Difficult
	M-0209 0.3	WW-T49-2001	≤5	Unnamed tributary Chiques Creek	GdB – Glenelg silt loam, 3 to 8 percent slopes	Difficult
	30.1	WW-T31-3003	≤5	Unnamed tributary to Back Run	BeD – Bedington channery silt loam, 15 to 25 percent slopes	Moderately easy
	33	WW-T31-3005	36	Brubaker Run	Rd – Rowland silt loam	Moderately easy
	36.9	WW-T64-4001	36.9	Unnamed tributary to Conewago Creek	NhC – Neshaminy extremely stony silt loam, 8 to 25 percent slopes	Difficult
	37.0	WW-T64-4001	37.0	Unnamed tributary to Conewago Creek	NhC – Neshaminy extremely stony silt loam, 8 to 25 percent slopes	Difficult
	37.3	WW-T30-4003	37.3	Unnamed tributary to Conewago Creek	NeC – Neshaminy gravelly silt loam, 8 to 15 percent slopes	Difficult
Lebanon	41.1	WW-T13-4002A	≤5	Unnamed tributary to Little Conewago Creek	Nhc – Neshaminy extremely stony silt loam, 8 to 25 percent slopes	Difficult
	41.1	WW-T13-4002	≤5	Unnamed tributary to Little Conewago Creek	Nhc – Neshaminy extremely stony silt loam, 8 to 25 percent slopes	Difficult
	41.1	WW-T13-4005	11	Unnamed tributary to Little Conewago Creek	MsB – Morris very stony silt loam, 0 to 8 percent slopes	Difficult
	41.3	WW-T13-4004	23	Unnamed tributary to Little Conewago Creek	Nhc – Neshaminy extremely stony silt loam, 8 to 25 percent slopes	Difficult

TABLE K-4 (cont'd)

Waterbodies with Shallow Depth to Bedrock [a,b,c] Crossed by the Atlantic Sunrise Project

Facility/County	Milepost	Waterbody ID	Crossing Length (feet)	Waterbody Name	Soil Map Unit	Rippability [d]
	41.9	WW-T13-4003	≤5	Unnamed tributary to Gingrich Run	UoC – Ungers loam, 8 to 25 percent slopes, extremely stony	Difficult
	42.0	WW-T33-4001	≤5	Unnamed tributary to Gingrich Run	UoC – Ungers loam, 8 to 25 percent slopes, extremely stony	Difficult
	M-0183 1.3	WW-T43-5003	40	Quittapahilla Creek	Ls – Lindside silt loam	Difficult
	M-0183 1.6	WW-T43-5001	≤5	Unnamed tributary to Quittapahilla Creek	BeB2 – Belmont silt loam, 3 to 12 percent slopes, moderately eroded	Difficult
Schuylkill	69.0	WW-T49-7001	≤5	Unnamed tributary to Swatara Creek	MkC – Meckesville very stony loam, 8 to 25 percent slopes	Moderately difficult to difficult
	69.1	WW-T21-7002	≤5	Unnamed tributary to Swatara Creek	MkC – Meckesville very stony loam, 8 to 25 percent slopes	Moderately difficult to difficult
	73.5	WW-T24-8002	≤5	Unnamed tributary to Lower Rausch Creek	WaB – Washington silt loam, 3 to 8 percent slopes	Difficult
	73.5	WW-T24-8001	17	Lower Rausch Creek	HfC – Hazleton extremely stony fine sandy loam, 8 to 25 percent slopes	Difficult
Northumber-land	83.4	WW-T44-10002C	<5	Unnamed tributary to Mahanoy Creek	Uf – Udifluvents, coal overwash	Moderately easy to Moderately difficult
	83.4	WW-T01-10001	56	Mahanoy Creek	Hs – Holly silt loam	Moderately easy to Moderately difficult
Columbia	101.6	WW-T04-12002	≤5	Unnamed tributary to Montour Run	Hs – Holly silt loam	Moderately easy to difficult
	101.6	WB-T04-12007		WB-T04-12007	LgB – Lawrenceville and Duncannon silt loams, 3 to 8 percent slopes	Moderately easy to difficult
	M-0214 0.2	WW-T52-13001	16	Unnamed tributary to Little Fishing Creek	KkE – Klinesville and leck kill shaly silt loams, 35 to 70 percent slopes	Moderately Difficult / Moderately Easy / Difficult
	107.0	WW-RS-12002	40	Little Fishing Creek	Ts – Tioga silt loam	Moderately easy, moderately difficult, and difficult
	122.6	WW-T17-14001	≤5	Unnamed tributary to York Hollow	LkB2 – Leck kill channery silt loam, 3 to 12 percent slopes, moderately eroded	Difficult
	123.1	WW-T17-14002	≤5	Unnamed tributary to York Hollow	LkB2 – Leck kill channery silt loam, 3 to 12 percent slopes, moderately eroded	Difficult
Chapman Loop						
Clinton	L186.3	WW-T21-27002	6	Post Hollow	HmD – Hazleton-Clymer channery loams, 8 to 25 percent slopes, extremely stony	Difficult
	L187.2	W-T21-27001	≤5	Unnamed tributary to Mudlick Run	JlE – Hazleton channery sandy loam, 25 to 80 percent slopes, rubbly	Difficult

TABLE K-4 (cont'd)

Waterbodies with Shallow Depth to Bedrock [a,b,c] Crossed by the Atlantic Sunrise Project

Facility/County	Milepost	Waterbody ID	Crossing Length (feet)	Waterbody Name	Soil Map Unit	Rippability [d]
	L187.4	WW-T30-27001	<5	Unnamed tributary to Mudlick Run	CpB – Cookport channery loam, 0 to 8 percent slopes, extremely stony	Difficult
Unity Loop						
Lycoming	L120.6	WW-T01-22016	17	West Branch Little Muncy Creek	Bd – Basher fine sandy loam	Difficult
	L120.6	WW-T01-22016A	≤5	Unnamed tributary to West Branch Little Muncy Creek	Bd – Basher fine sandy loam	Difficult
	L120.6	WW-T01-22015A	≤5	Unnamed tributary to West Branch Little Muncy Creek	Bd – Basher fine sandy loam	Difficult
	L120.6	WW-T01-22015	≤5	Unnamed tributary to West Branch Little Muncy Creek	Bd – Basher fine sandy loam	Difficult
	L121.5	WW-T01-22014	7	Little Indian Run	AbB – Abbottstown silt loam, 15 to 25 percent slopes	Difficult
	123.8	WW-T01-22009	30	Beaver Run	Ho – Holly silt loam	Difficult
	L126.4	WW-T01-22003	≤5	Unnamed tributary to Sugar Run	OgD – Oquaga channery loam, 15 to 25 percent slopes	Difficult
	L127.1	WW-T01-22002	13	Sugar Run	WmB- Wellsboro very stony silt loam, 3 to 8 percent slopes	Moderately difficult
	L127.3	WW-T65-27001	<5	Unnamed tributary to Sugar Run	WIC – Wellsboro channery silt loam, 8 to 15 percent slopes	Moderately difficult

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TABLE K-4 (cont'd)

Waterbodies with Shallow Depth to Bedrock [a,b,c] Crossed by the Atlantic Sunrise Project

Facility/County	Milepost	Waterbody ID	Crossing Length (feet)	Waterbody Name	Soil Map Unit	Rippability [d]

Braun, D.D. 2007c. Surficial Geology of the Harveys Lake 7.5-minute Quadrangle Luzerne County, Pennsylvania. Pennsylvania Geological Survey. 4th Se. Harrisburg, Pennsylvania. Open-File Report OFSM 07–08.1. 19 pp.

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[a] Transco preliminarily identified areas of shallow depth to bedrock using available mapping and soils data. Data would be field-verified prior to construction.

[b] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M#####) preceding the milepost value

[c] Shallow bedrock is considered to be within 8 feet below ground surface.

[d] Rippability

- **Difficult** – typically requires drilling and blasting except where extensively fractured or weathered.
- **Moderately difficult** – requires drilling and blasting for most deep excavations, but locally may be ripped to depths of several feet due to closely spaced joints, bedding or weathered rock.
- **Intermediate** – rippable by heavy-weight power equipment to depths chiefly limited by maneuverability of equipment. Hard rock layers or zones may require drilling and blasting.
- **Moderately easy** – rippable by heavy-weight power equipment at least to interface with non-weathered rock interface and locally or greater depths.
- **Easy** – can be excavated by hand tools or light-weight power equipment. Some large boulders may require drilling and blasting for their removal. Dewatering or bracing of excavation walls may be required. Some intervals transect a formation with a range of excavation difficulties (e.g., moderately easy to difficult). In these instances, the formation has variable excavation characteristics because the formation consists of a range of lithologies, susceptibility to weathering, layer thickness, and fracture orientation and frequency.

Notes: CPL = Central Penn Line
L = Leidy Line system milepost

TABLE K-5

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
CPL North					
Columbia					
	CO-010	WW-T02-15006	1.2	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. The ATWS would provide spoil storage within the wetland and would result in less impacts than transporting the material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-013	WW-RS-15006	1.3	To minimize additional impacts to the adjacent resource features and due to area constraints and proximity of resource features this ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-049	WW-T92-15002	4.2	This ATWS would be required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
Luzerne					
	LU-059	WW-T02-15016	5.0	This ATWS would be required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed due to the topography of the area.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-080	WW-T02-15017 WW-T02-15017A	6.0	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. The ATWS would provide storage for spoil within the wetland and result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-194	WW-T03-17008	16.6	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-209.1	WW-T03-17005	17.6	AR-LU-012 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LU-209.2	WW-T03-17005	17.6	AR-LU-012 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-214	WW-T03-17004	18.1	The ATWS has been modified and trimmed within the stream to avoid stream impacts. However, the stream (WW-T03-17004) would be crossed using a dam-and-pump method within a very saturated surrounding wetland. The ATWS would aid in safe construction activities within this area and provide storage for spoil within the wetlands. Without this ATWS, the spoil from the large wetland complex would have to be transported to an upland area, which may result in greater impacts to the wetlands.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-247.1	WW-T33-17001	21.2	AR-LU-012 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-247.2	WW-T33-17001	21.2	AR-LU-012 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-251.1	WW-T93-16001 WW-T93-17001	21.4	A saturated wetland crossing with unconsolidated soils in area. Wetland is associated with stream. This ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-269.1	WW-T53-17003 WW-T53-17002 WW-T53-17003A WW-T53-17003B	M-0060 0.9	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-279	WW-T71-18001	M-0150 0.0	The ATWS would be required for stockpiling excavated materials, and equipment to facilitate construction of the point of inflection (PI).	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-279.1	WW-T71-18001	M-0150 0.0	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LU- 280	W-RS-80001	M-0150 0.09	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-280.1	W-T71-18001A	M-0150 0.09	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-285	WB-T22-2002	25.4	The ATWS would be required for stockpiling excavated topsoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-286	WB-T22-2002	25.5	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-294.1	WW-T24-18001	25.7	ATWS is required to install sediment barriers to protect the waterbody from sediment tracked by construction vehicles on the access road (AR-LU-020). There are no proposed improvements to the existing road within 50 feet of the waterbody. An existing culvert conveys the waterbody under a portion of the existing paved road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-294.2	WW-T24-18001	25.7	ATWS is required to install sediment barriers to protect the waterbody from sediment tracked by construction vehicles on the access road (AR-LU-020). There are no proposed improvements to the existing road within 50 feet of the waterbody. An existing culvert conveys the waterbody under a portion of the existing paved road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-297	**WW-T61-18001**	**26.2**	**This ATWS would be required for stockpiling excavated topsoil.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**
	LU-300.2	WW-T56-18002	M-0088 1.1	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LU-301	WW-T56-18003	M-0088 1.2	The ATWS would be required for stockpiling excavated topsoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LU-303.4	WW-T56-18004	M-0088 1.8	The ATWS would be required for stockpiling excavated materials, and equipment to facilitate construction of PI.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
Wyoming					
	WY-306.11	WW-T54-18002A WW-T54-18002	M-0088 3.2	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. The ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-331	WW-T92-19002	M-0071	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient stream crossing	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-347	WW-RS-19003	34.9	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient horizontal directional drill (HDD).	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-376	WW-T24-19001	37.6	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. The ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-389	**WW-T54-19001**	**38.5**	**The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**
	WY-396.1	WB-T12-19001	39.4	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. The ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland. This ATWS was modified to be further from the waterbody.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	WY-419	WW-T19-20005	M-0054 0.1	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-420	WW-T19-20005	M-0054 0.1	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland. ATWS has been removed within the stream top of banks to avoid temporary waterbody impact; however, due to adjacent saturated wetlands, ATWS is required on both sides of the waterbody to perform safe construction and store spoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-420.1	WW-T19-20005	M-0054 0.1	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-424	WW-T14-20003	43.7	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-425	WW-T14-20003	43.7	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-426	WW-T14-20003	43.8	The ATWS would be required for stockpiling of excavated materials and storage of equipment to facilitate a safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-427	WW-T14-20003	43.8	The ATWS would be required for stockpiling excavated topsoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-437	WW-T14-20002	44.4	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient foreign pipeline crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	WY-438	WW-T14-20002	44.4	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-440	WW-T14-20002	44.5	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-444.4	**WW-T21-CS605Zi01**	**M-0063 0.2**	**Due to area constraints between features, ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient pipeline crossing.**	**This waterbody does not appear on the alignment sheets. Confirm a waterbody is within 50 feet of the proposed ATWS.**
	WY-453.1	WW-T10-20001	45.8	This ATWS is required to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-453.2	WW-T10-20001	45.8	This ATWS is required to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-466	WW-RS-20001	46.1	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient railroad crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-472	WW-T10-20003	M-0058 0.2	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-480	WW-T19-20003	47.3	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed due to the topography of the area.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	WY-499	**WW-T57-21001**	**M-0051 0.1**	**This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed for the installation of the road crossing.**	**The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation. However, verify Waterbody Feature ID.**

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	WY-499.1	**WW-T57-21001**	**M-0051 0.1**	**The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient stream crossing.**	**The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation. However, verify Waterbody Feature ID.**
	WY-499.1	**WW-T57-21001**	**M-0051 0.1**	**The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient stream crossing.**	**The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation. However, verify ATWS No. and Waterbody Feature ID.**
	WY-500	**WW-T57-21001**	**M-0051 0.1**	**This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed for the installation of the road crossing.**	**The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation. However, verify Waterbody Feature ID.**
	WY-500.1	**WW-RS-20003**	**49.4**	**A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.**	**The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation. However, verify ATWS No. and Waterbody Feature ID.**
Susquehanna					
	SU-509.6	**WW-T57-21002**	**M-0080 1.3**	**The ATWS would be required for stockpiling excavated topsoil.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**
	SU-510.2	**WW-T65-21001**	**50.6**	**This ATWS required for safe and efficient installation of access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	SU-510.3	**WW-T49-21001**	**50.6**	**This ATWS required for safe and efficient installation of access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	SU-516	WW-T12-21004A	51.6	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed due to the topography of the area.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	SU-520	WB-T95-21002	51.9	The ATWS would be required for stockpiling excavated materials, and equipment to facilitate construction of PI.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
CPL South					
Lancaster					
	LA-049	WW-T10-004	M-0184 0.8	This ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-070.1	**WW-T62-001**	**M-0354 0.0**	**A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.**	**This ATWS does not appear on the alignment sheets. Confirm the ATWS is part of the current project footprint.**
	LA-097	WW-T10-100	7.1	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-113.1	**WW-T65-001**	**8.1**	**This ATWS would be required for safe and efficient installation of the access road.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**
	LA-113.2	WW-T65-001	8.1	This ATWS would be required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-114	WW-T31-003	8.1	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. And to minimize tree clearing for ATWS.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-117	WW-T31-003	8.2	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LA-117.2	WW-T31-003	8.2	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-116	WW-T31-003	8.2	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-115	WW-T31-003	8.2	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. And to minimize tree clearing for ATWS.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-127.2	**WW-RS-80016**	**M-0405 0.9**	**The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	LA-132.1	WW-T25-1001	M-0405 1.5	This ATWS is required for stockpiling of excavated topsoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-262.2	WW-T25-2001	19.9	AR-LA-020 utilizes an existing dirt road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-262.1	WW-T25-2001	19.9	AR-LA-020 utilizes an existing dirt road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-360	WB-T63-3001	27.4	This ATWS is required for stockpiling of excavated materials and equipment to facilitate safe and efficient railroad crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-409.1	WW-T31-3004	30.4	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed due to the topography of the area.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LA-485.2	WW-T25-4002	35.4	AR-LA-030 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-485.1	WW-T25-4002	35.4	AR-LA-030 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LA-497.2	WW-RS-4003	36.2	This ATWS is required for safe and efficient access road construction.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
Lebanon					
	LE-499	WW-T64-4001	36.9	This ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-521.2	WW-T43-4001	39.4	This ATWS is required for stockpiling of excavated topsoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-545	WW-T13-4005A	41.1	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient PI.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-656.1	WW-T14-5006	49.3	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-656.2	WW-T14-5006	49.3	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-665.1	WW-T14-5007	50.1	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LE-693	WW-T14-5009A	51.2	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed for the installation of the PI and top soil storage.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-762	WW-T40-6004	54.3	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-769.1	WW-T40-6003A	M-0168 0.0	This ATWS is required for installation of a PI.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-804	WW-T40-6001	56.9	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-805.4	**WW-T40-6002**	**M-0205 0.1**	**This ATWS is required for safe and efficient installation of an access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	LE-805.5	**WW-T40-6002**	**M-0205 0.1**	**This ATWS is required for safe and efficient installation of an access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	LE-814.1	WW-T25-6001	**M-0230 0.7**	AR-LE-044 utilizes an existing dirt road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-814.2	WW-T25-6001	**M-0230 0.7**	AR-LE-044 utilizes an existing dirt road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-815	WW-T43-6003	58.5	This ATWS is required for stockpiling of excavated materials and equipment to facilitate safe and efficient construction on steep slope.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LE-832.1	WW-T33-6001	59.3	AR-LE-052.1 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-832.2	WW-T33-6001	59.3	AR-LE-052.1 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LE-864.1	WW-T20-7003	62.0	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
Schuylkill					
	SC-891.1	**WW-T58-7001**	**64.9**	**This ATWS required for safe and efficient installation of access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	SC-891.2	**WW-T58-7001**	**64.9**	**This ATWS required for safe and efficient installation of access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	SC-915.1	**WW-T65-8001**	**M-0177 0.0**	**This ATWS required for safe and efficient installation of access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	SC-915.2	**WW-T65-8001**	**M-0177 0.0**	**This ATWS required for safe and efficient installation of access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	SC-991	WW-T24-8002	73.4	This ATWS is required to accommodate for the construction of the PI due to the storage of additional excavated material. The ATWS is located within an upland area that avoids direct impacts on the surrounding waterway while maintaining a minimum set back due to the steep terrain approaching the road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	SC-994	WW-T24-8002	73.4	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	SC-1026.1	WW-T20-8001A	76.1	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
Northumberland					
	NO-1116.5	WW-T68-10001	85.3	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	NO-1116.6	WW-T68-10001	85.3	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	NO-1124.1	WW-RS-10001	**-85.9**	AR-NO-78 utilizes an existing gravel road that is adjacent to W-RS-10001. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	NO-1136.4	**WW-T58-11001A**	**M-023 0.9**	**This ATWS is required for safe and efficient installation of the access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	NO-1136.5	**WW-T58-11001A**	**M-0235 0.9**	**This ATWS is required for safe and efficient installation of the access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	NO-1140	WW-T58-11001	M-0235 1.1	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	NO-1140.2	WW-T58-11001A	88.1	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	NO-1140.3	WW-T58-11001A	88.1	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	NO-1161.1	WW-T51-11001	91.0	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	NO-1162.1	WW-T51-11001	91.0	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
Columbia					
	CO-1272.2	**WW-T47-12001**	**100.0**	**This ATWS is required for safe and efficient installation of the access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	CO-1272.3	**WW-T47-12001**	**100.0**	**This ATWS is required for safe and efficient installation of the access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	CO-1287	WB-T04-12007	101.6	This ATWS is required to accommodate for the construction of the PI due to the storage of additional excavated material. The ATWS is located within an upland area that avoids direct impacts to the surrounding waterways and wetlands while maintaining a minimum set back as much as possible.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1387	WW-T01-13003	108.7	This ATWS is required for stockpiling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed due to the topography of the area.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1415	WW-T06-13002	110.2	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1541.1	WW-T67-13001	120.5	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1541.2	WW-T67-13001	120.5	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	CO-1571.1	WW-T17-14002	123.2	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1571.2	WW-T17-14003	123.2	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1571.3	WW-T17-14003	123.2	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1571.4	WW-T17-14002	123.2	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1571.5	WW-T17-14002	123.2	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1571.6	WW-T17-14002	123.2	This ATWS is required for safe and efficient installation of the access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1571.7	**WW-T17-14002**	**123.2**	**This ATWS is required for safe and efficient installation of the access road.**	**This ATWS does not appear on the alignment sheets. Confirm the ATWS is part of the current project footprint.**
	CO-1603	**WW-RS-80012**	**M-0423 0.3**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**
	CO-1620.1	**WW-T70-12003 WW-T70-12003A**	**M-0423 1.5**	**ATWS required for safe and efficient installation of access road.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	CO-1620.2	**WW-T70-12003 WW-T70-12003A**	**M-0423 1.5**	**ATWS required for safe and efficient installation of access road.**	**Provide additional site-specific information regarding why an additional buffer cannot be provided immediately adjacent to the waterbody.**
	CO-1627	WW-T70-12001	M-0423 1.6	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient PI.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1628	WW-T70-12001	M-0423 1.7	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1647	WW-T70-12011	M-0423 3.0	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient HDD.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1647.6	WW-T70-12006	M-0423 3.0	ATWS required to facilitate safe and efficient water withdrawal for HDD.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1648	WW-T70-12011	M-0423 3.0	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient HDD.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1649	WW-T70-12010-1	M-0423 3.3	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient HDD.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	CO-1675.2	**WW-T01-12002 WW-RS-8002**	**M-0423 1.2**	**ATWS required for safe and efficient installation of access road.**	**This ATWS does not appear on the alignment sheets. Confirm the ATWS is part of the current project footprint.**
Chapman Loop					
Clinton					
	CL-010.1	WW-T30-27001	187.4	The ATWS would be required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
Unity Loop					
Lycoming					
	LY-003	WW-T01-22016 WW-T01-22016A	120.6	To minimize additional impacts to the adjacent resource features and due to area constraints and proximity of resource features this ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LY-026	WW-T01-22011	122.6	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LY-037.1	WW-T24-22003	123.3	AR-LY-007 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LY-37.2	**WW-T24-22003**	**123.2**	**AR-LY-007 utilizes an existing gravel road with an existing culvert. The right-of-way has been necked down at the culvert crossing to minimize disturbance. The project is minimizing impacts to the area by utilizing the existing road rather than constructing a new access road.**	**This waterbody does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a waterbody.**
	LY-044	WW-T01-22008	124.3	This ATWS is required for stock piling the additional material excavated due to the extra depth required to maintain the minimal depth of 5 feet under a stream. This ATWS is also needed due to the topography of the area.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LY-046	WW-T01-22008B	124.4	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LY-054	WW-T01-22006	125.1	The ATWS is required for stockpiling the additional excavated material, for the proposed pipeline crossover. To complete this crossover the proposed pipeline would require a trench with extra depth to cross under the existing pipeline. This would ensure that the proposed pipeline would maintain a safe distance from the existing pipeline in order to maintain the integrity to both pipelines.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

TABLE K-5 (cont'd)

Additional Temporary Workspace Justification for Waterbodies for the Atlantic Sunrise Project

Facility/ County	ATWS No.	Waterbody Feature ID	Approx. Milepost	Justification for Modification	Federal Energy Regulatory Commission Comments
	LY-056.1	WW-T01-22007	125.3	A saturated wetland crossing with unconsolidated soils is present in the area. The wetland is associated with the waterbody. ATWS would provide storage for spoil within the wetland and would result in less impact than transporting material to a stockpile area outside the wetland. The ATWS has been removed within the stream top of banks to avoid temporary impact, however, due to the adjacent saturated wetland, ATWS would be required on both sides of the waterbody to perform safe construction and store spoil.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.
	LY-075.2	WW-T01-22002	127.1	AR-LY-012 utilizes an existing dirt road and clearing. The project is minimizing impacts to the area by utilizing the existing dirt road and clearing rather than constructing a new access road corridor.	The request for ATWS within 50 feet of the waterbody appears justified and potential impacts would be minimized by the proposed mitigation.

Note: ATWS = additional temporary workspace

APPENDIX L

WETLAND TABLES

TABLE L-1

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
CPL North												
W-T02-15001	0.2	Columbia	Sugarloaf	297.4	PEM/PFO	0.4	0.0	0.0	<0.1	<0.1	0.5	<0.1
W-T02-15002	0.6	Columbia	Sugarloaf	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T02-15003 [h]	0.6	Columbia	Sugarloaf	8.5	PEM/PFO	<0.1	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T02-15004	0.9	Columbia	Sugarloaf	199.2	PEM/PFO	0.1	0.0	0.0	0.3	0.2	0.4	0.2
W-T02-15005	1.1	Columbia	Sugarloaf	25.9	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T02-15006 [h]	1.2	Columbia	Sugarloaf	107.5	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T02-15007 [h]												
W-T02-15009 [h]	2.3	Columbia	Sugarloaf	242.3	PEM/PFO	0.2	0.0	0.0	<0.1	<0.1	0.3	<0.1
W-T02-15010 [h]	2.9	Columbia	Sugarloaf	437.1	PEM/PFO	0.5	0.0	0.0	0.1	<0.1	0.6	<0.1
W-T02-15013 [h]	3.3	Columbia	Sugarloaf	100.5	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T02-15014 [h]	3.8	Columbia	Sugarloaf	160.7	PEM/PFO	0.2	0.0	0.0	<0.1	<0.1	0.3	<0.1
W-T02-15015	4.0	Columbia	Sugarloaf	241.5	PEM/PFO	0.5	0.0	0.0	<0.1	<0.1	0.5	<0.1
W-T02-15012 [h]	4.2	Columbia	Sugarloaf	212.8	PEM/PFO	0.4	0.0	0.0	<0.1	<0.1	0.5	<0.1
W-T02-15016	4.7	Columbia	Sugarloaf	596.6	PEM/PFO	0.3	0.0	0.0	<0.1	0.0	0.3	0.0
W-T02-15017 [h]	5.1	Luzerne	Fairmount	112.6	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T02-15019 [h]	5.9	Luzerne	Fairmount	920.7	PEM/PSS/PFO	0.8	0.6	0.1	0.2	0.1	1.6	0.2
W-T02-15020	6.4	Luzerne	Fairmount	464.7	PFO	0.0	0.0	0.0	0.7	0.5	0.7	0.5
W-T02-15022	6.9	Luzerne	Fairmount	462.8	PEM/PFO	0.5	0.0	0.0	0.1	<0.1	0.5	<0.1
W-T02-15023	7.2	Luzerne	Fairmount	195.5	PEM/PFO	0.3	0.0	0.0	0.2	0.1	0.5	0.1
W-T24-15001 [h]	7.5	Luzerne	Fairmount	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T02-16001 [h]	8.3	Luzerne	Fairmount	13.3	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T02-16003 [h]	M-0056 0.36	Luzerne	Fairmount	658.4	PEM	0.5	0.0	0.0	0.0	0.0	0.5	0.0
W-T02-16002 [h]	9.2	Luzerne	Fairmount	22.1	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T05-16004 [h]	10.2	Luzerne	Fairmount	198.1	PEM	0.7	0.0	0.0	0.0	0.0	0.7	0.0
W-T05-16005	10.7	Luzerne	Ross	NA	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T11-16001	11.0	Luzerne	Ross	193.8	PEM/PSS/PFO	0.1	0.1	<0.1	0.1	<0.1	0.3	<0.1
W-T11-16002 [h]	11.2	Luzerne	Ross	5.1	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T13-16002	11.5	Luzerne	Ross	132.5	PEM/PFO	<0.1	0.0	0.0	0.2	0.1	0.2	0.1
W-T13-16001 [h]	11.8	Luzerne	Ross	28.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T05-16003 [h]	13.1	Luzerne	Ross	67.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T05-16002	13.7	Luzerne	Ross	NA	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T05-16001	13.7	Luzerne	Ross	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T03-16005 [h]	13.8	Luzerne	Ross	175.8	PEM	0.3	0.0	0.0	0.0	0.0	0.3	0.0
W-T03-16004 [h,i]	14.0	Luzerne	Ross	119.0	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T03-16003	14.1	Luzerne	Ross	NA	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T03-16002 [h]	14.9	Luzerne	Ross	89.8	PEM/PSS	0.2	0.1	<0.1	0.0	0.0	0.3	<0.1
W-T03-16001 [h]	15.8	Luzerne	Lake	47.7	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T03-17012 [h,i]	16.6	Luzerne	Lake	121.1	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T03-17011 [h]	16.6	Luzerne	Lake	20.7	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T03-17010 [h]	17.2	Luzerne	Lake	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T03-17009 [h]	17.6	Luzerne	Lake	34.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T03-17008 [h]	18.1	Luzerne	Lake	266.7	PEM/PFO	0.1	0.0	0.0	0.5	0.2	0.6	0.2
W-T03-17007 [h]	18.8	Luzerne	Lake	65.2	PEM/PFO	0.2	0.0	0.0	<0.1	<0.1	0.2	<0.1
W-T03-17006	19.1	Luzerne	Lake	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T03-17005	19.5	Luzerne	Lehman	115.7	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T05-17001 [h]	19.9	Luzerne	Lehman	648.2	PEM/PSS	1.1	0.6	0.1	0.0	0.0	1.1	0.1
W-T03-17003	21.0	Luzerne	Lehman	36.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T03-17001	21.2	Luzerne	Lehman	NA	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T07-17001 [h]	21.4	Luzerne	Lehman	628.8	PFO	0.0	0.0	0.0	1.2	0.7	1.2	0.7
W-T49-17001	21.7	Luzerne	Lehman	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T49-17002 [h]	21.8	Luzerne	Lehman	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T07-17003 [h]	M-0060 0.1	Luzerne	Lehman	434.2	PEM/PSS/PFO	0.3	0.4	0.3	0.5	0.3	1.3	0.7
W-T51-17001	M-0060 0.5	Luzerne	Lehman	59.5	PFO	0.0	0.0	0.0	0.1	0.1	0.1	0.1
W-T51-17002 [h]	M-0060 1.0	Luzerne	Lehman	5.5	PFO	0.0	0.0	0.0	0.1	<0.1	0.1	<0.1
W-RS-2002N	23.6	Luzerne	Dallas	NA	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-RS-2001N	23.6	Luzerne	Dallas	18.1	PSS/PFO	0.0	0.2	0.1	0.1	<0.1	0.3	0.1
W-T71-18002	M-0150 0.0	Luzerne	Dallas	17.6	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
W-T07-17006	25.4	Luzerne	Dallas	86.7	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T65-18002 [h]	M-0142 0.3	Luzerne	Dallas	0.9	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T65-18003	M-0142 0.3	Luzerne	Dallas	55.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T61-18001 [h]	26.4	Luzerne	Dallas	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T56-18001 [h]	M-0088 1.0	Luzerne	Dallas	212.0	PFO	0.0	0.0	0.0	0.5	0.2	0.5	0.2
W-T56-18002	M-0088 1.6	Luzerne	Dallas/Franklin	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T56-18004	M-0088 1.7	Luzerne	Franklin	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T56-18003 [h]	M-0088 1.8	Luzerne	Franklin	15.7	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T56-18005	M-0088 1.8	Luzerne	Franklin	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T57-18002	M-0088 2.6	Wyoming	Northmoreland	45.1	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T54-18005 [h]	M-0088 3.2	Wyoming	Northmoreland	344.7	PFO	0.0	0.0	0.0	0.8	0.4	0.8	0.4
W-T54-18006 [h]	M-0088 3.7	Wyoming	Northmoreland	33.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T54-18007 [h]	M-0088 3.8	Wyoming	Northmoreland	125.1	PFO	0.0	0.0	0.0	0.1	0.1	0.1	0.1
W-T69-18002 [h]	30.3	Wyoming	Northmoreland	145.4	PFO	0.0	0.0	0.0	0.3	0.2	0.3	0.2
W-T08-18001	M-0071 0.5	Wyoming	Northmoreland	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.01	0.0
W-T05-18002 [h]	M-0071 0.6	Wyoming	Northmoreland	60.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T95-19008	M-0071 1.9	Wyoming	Northmoreland	30.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T13-19001	M-0071 2.1	Wyoming	Eaton	769.8	PEM/PFO	0.9	0.0	0.0	0.1	<0.1	1.0	<0.1
W-T21-19001 [i]	35.1	Wyoming	Falls	24.4	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T19-19007	35.9	Wyoming	Falls	88.2	PSS	0.0	0.2	0.0	0.0	0.0	0.2	0.1
W-T19-19006	36.4	Wyoming	Falls	45.8	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T19-19004	36.9	Wyoming	Falls	12.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T19-19003	36.9	Wyoming	Falls	154.8	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T19-19002	37.1	Wyoming	Falls	27.3	PEM/PSS	0.1	<0.1	0.0	0.0	0.0	0.1	0.0
W-T19-19001	37.3	Wyoming	Falls	138.4	PFO	0.0	0.0	0.0	0.2	0.2	0.2	0.2
W-T15-4001	37.6	Wyoming	Falls	488.2	PEM/PSS	0.5	0.5	0.0	0.0	0.0	1.0	0.3
W-T95-19006	37.8	Wyoming	Falls	21.2	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T12-19001	39.3	Wyoming	Overfield	275.5	PEM	0.6	0.0	0.0	0.0	0.0	0.6	0.0
W-T12-19002	40.0	Wyoming	Overfield	314.3	PEM	0.5	0.0	0.0	0.0	0.0	0.5	0.0
W-T12-19003	40.9	Wyoming	Overfield	54.7	PEM/PFO	0.1	0.0	0.0	<0.1	<0.1	0.1	<0.1
W-T12-19004	41.0	Wyoming	Overfield	85.6	PFO	0.0	0.0	0.0	0.2	0.1	0.2	0.1
W-T19-20004	M-0054 0.2	Wyoming	Clinton	175.9	PEM	0.4	0.0	0.0	0.0	0.0	0.4	0.0
W-T14-20004	43.6	Wyoming	Clinton	48.1	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T14-20003 [i]	43.9	Wyoming	Clinton	4.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T14-20002	44.4	Wyoming	Clinton	144.1	PEM	0.3	0.0	0.0	0.0	0.0	0.3	0.0
W-T19-20003	45.3	Wyoming	Clinton	199.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T10-20001	45.7	Wyoming	Clinton	346.5	PEM/PSS/PFO	<0.1	0.4	0.0	<0.1	0.0	0.4	0.0
W-T54-20002	46.1	Wyoming	Clinton	8.3	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T28-20001	46.3	Wyoming	Nicholson	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T65-20001	48.2	Wyoming	Nicholson	101.6	PEM/PFO	0.2	0.0	0.0	0.1	<0.1	0.3	<0.1
W-T19-20001 [h]	48.7	Wyoming	Nicholson	263.3	PEM	0.4	0.0	0.0	0.0	0.0	0.4	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T17-20001	M-0080 0.3	Wyoming	Nicholson	86.7	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T57-21006	M-0080 0.7	Wyoming	Nicholson	11.1	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T57-21005	M-0080 0.8	Wyoming	Nicholson	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T57-21004	M-0080 1.1	Wyoming	Nicholson	16.0	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
W-T57-21003	M-0080 1.1	Wyoming	Nicholson	158.7	PSS/PFO	0.0	0.3	0.2	<0.1	0.0	0.3	0.2
W-T57-21002	M-0080 1.3	Wyoming	Nicholson	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T31-21001	50.4	Wyoming	Nicholson	17.6	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T30-21001 [h]	51.4	Susquehanna	Lenox	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T30-21002	51.5	Susquehanna	Lenox	49.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T12-21001	52.3	Susquehanna	Lenox	477.4	PEM	0.8	0.0	0.0	0.0	0.0	0.8	0.0
W-T51-21004	53.3	Susquehanna	Lenox	99.6	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T51-21003	53.4	Susquehanna	Lenox	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T64-21001	53.7	Susquehanna	Lenox	70.6	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T50-21002 [h]	54.1	Susquehanna	Lenox	7.6	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
W-T50-21003 [h]	54.1	Susquehanna	Lenox	8.5	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
W-T12-21007 [h]	54.4	Susquehanna	Lenox	79.7	PEM/PFO	0.1	0.0	0.0	<0.1	0.0	0.1	0.0
W-T12-21008 [h]	55.1	Susquehanna	Lenox	38.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T12-21009 [h]	55.4	Susquehanna	Lenox	444.3	PEM/PSS/PFO	0.4	0.1	0.1	0.3	0.2	0.8	0.3
W-T48-21002	M-0062 0.2	Susquehanna	Lenox	272.5	PEM/PFO	0.4	0.0	0.0	0.2	0.1	0.6	0.1
W-T48-21001 [h]	56.7	Susquehanna	Lenox	80.9	PEM	0.3	0.0	0.0	0.0	0.0	0.3	0.0
W-T48-21003 [h]	56.8	Susquehanna	Lenox	95.9	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T54-18010	AR-WY-021	Wyoming	Northmoreland	NA	PEM	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
W-T68-20001	AR-WY-032	Wyoming	Clinton	NA	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T02-15023	AR-LU-008	Luzerne	Fairmount	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T03-17009	AR-LU-012	Luzerne	Lake	NA	PEM	0.0	0.0	0.0	0.0	0.0	0.0	0.0
					Subtotal [i]	**18.0**	**3.4**	**1.6**	**7.9**	**4.2**	**29.3**	**5.8**
CPL South												
W-T31-001 [h]	M-0147 0.5	Lancaster	Drumore township	NA	PSS	0.0	<0.01	0.0	0.0	0.0	<0.1	0.0
W-T10-003 [h]	M-0147 0.6	Lancaster	Martic	61.3	PFO	0.0	0.0	0.0	0.1	0.1	0.1	0.1
W-T62-001 [h]	M-0354 0.1	Lancaster	Martic	62.6	PEM/PFO	<0.1	0.0	0.0	0.1	0.1	0.1	0.1
W-T10-101	7.1	Lancaster	Martic	236.5	PEM/PFO	0.1	0.0	0.0	0.3	0.2	0.5	0.2
W-T10-100	7.2	Lancaster	Martic	NA	PFO	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T20-002 [h]	7.5	Lancaster	Martic	NA	PSS	0.0	<0.1	0.0	0.0	0.0	<0.1	0.0
W-RS-80013	M-0405 0.6	Lancaster	Conestoga	NA	PFO	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0
W-T35-1001	11.0	Lancaster	Conestoga	45.3	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-RS-1001	11.1	Lancaster	Conestoga	21.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-1003	11.1	Lancaster	Conestoga	10.8	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-1006	11.6	Lancaster	Conestoga	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T36-1002	13.6	Lancaster	Manor	18.8	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T36-1003	13.7	Lancaster	Manor	NA	PEM/PFO	<0.1	0.0	0.0	0.1	0.0	0.1	0.0
W-T36-1004	M-0206 0.0	Lancaster	Manor	29.1	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T36-1005	M-0188 0.2	Lancaster	Manor	100.3	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T32-2004	M-0389 0.1	Lancaster	West Hempfield	9.6	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-RS-2007	M-0396 0.2	Lancaster	West Hempfield	67.1	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-RS-99020	21.5	Lancaster	West Hempfield	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-2001S	22.0	Lancaster	West Hempfield	NA	PFO	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0
W-T31-3003	M-0308 0.1	Lancaster	Rapho	114.3	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T31-3006	31.2	Lancaster	Rapho	88.3	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T31-3005	31.6	Lancaster	Rapho	24.0	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T31-3004	32.3	Lancaster	Rapho	45.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T31-3002	33.6	Lancaster	Rapho	116.1	PEM	0.3	0.0	0.0	0.0	0.0	0.3	0.0
W-T31-3001	34.0	Lancaster	Rapho	41.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T30-4001	36.1	Lancaster	Mount Joy	53.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T96-4003	37.5	Lebanon	South Londonderry	56.2	PEM/PFO	0.1	0.0	0.0	<0.1	0.0	0.1	0.0
W-T11-4004	37.8	Lebanon	South Londonderry	21.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T11-4003	38.5	Lebanon	South Londonderry	77.3	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T18-4003	38.6	Lebanon	South Londonderry	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T11-4002	38.8	Lebanon	South Londonderry	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T32-4001	M-0300 0.3	Lebanon	South Londonderry	47.2	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T13-4001	40.6	Lebanon	South Londonderry	98.1	PFO	0.0	0.0	0.0	0.2	0.1	0.2	0.1
W-T13-4005	41.2	Lebanon	South Londonderry	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T13-4004	41.3	Lebanon	South Annville	NA	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T13-4002	41.9	Lebanon	South Annville	NA	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
W-T43-4001	42.0	Lebanon	South Annville	11.2	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-120012	M-0424 0.9	Lebanon	South Annville	95.4	PEM	0.1	0.0	0.0	0.0	0.0	0.0	0.0
W-RS-120013	M-0424 0.9	Lebanon	South Annville	117.8	PEM/PSS	0.1	<0.1	0.0	0.0	0.0	0.2	0.0
W-T43-5004	M-0183 1.4	Lebanon	North Annville	40.9	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T43-5003	M-0183 1.6	Lebanon	North Annville	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T14-5002	47.9	Lebanon	North Annville	NA	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T14-5003	48.1	Lebanon	North Annville	23.0	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T14-5005	48.8	Lebanon	North Annville	71.8	PEM/PFO	0.1	0.0	0.0	<0.1	0.0	0.1	0.0
W-T14-5008	50.1	Lebanon	East Hanover	51.1	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T14-5010	50.5	Lebanon	East Hanover	32.3	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T32-5001	M-0165 0.5	Lebanon	East Hanover	NA	PEM	<0.01	0.0	0.0	0.0	0.0	<0.1	0.0
W-T14-5014	52.7	Lebanon	East Hanover	26.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T14-5015	53.0	Lebanon	Union	47.2	PEM/PSS	<0.1	0.1	0.0	0.0	0.0	0.1	0.0
W-T13-6002	53.5	Lebanon	Union	57.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T10-6004	53.6	Lebanon	Union	44.9	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T10-6003	53.7	Lebanon	Union	22.1	PEM/PSS	0.1	<0.1	<0.1	0.0	0.0	0.1	<0.1
W-T10-6002	M-0388 0.0	Lebanon	Union	228.6	PEM/PFO	0.2	0.0	0.0	0.2	0.1	0.4	0.1
W-T69-6001	55.0	Lebanon	Union	37.7	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T30-6001 [h]	55.5	Lebanon	Union	61.5	PFO	0.0	0.0	0.0	0.1	0.1	0.1	0.1
W-T30-6003	M-0180 0.0	Lebanon	Union	57.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T32-6001	56.3	Lebanon	Union	34.7	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T67-6001	56.6	Lebanon	Union	NA	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T67-6002	56.7	Lebanon	Union	43.8	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T40-6001	56.8	Lebanon	Union	331.1	PEM/PFO	0.4	0.0	0.0	0.2	0.2	0.6	0.2
W-T53-6001	M-0205 0.4	Lebanon	Union	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T43-6002 [h]	58.5	Lebanon	Union	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T23-6002 [h]	58.8	Lebanon	Union	315.9	PEM/PFO	<0.1	0.0	0.0	0.6	0.4	0.6	0.4

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T33-6001 [h]	59.3	Lebanon	Union	28.2	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T44-7001	M-2000 0.3	Lebanon	Union	35.9	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T23-6001 [h]	60.7	Lebanon	Union	29.1	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T20-7001 [h]	61.2	Lebanon	Union	27.3	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T48-7001 [h]	65.0	Schuylkill	Pine Grove	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T35-7001 [h]	65.4	Schuylkill	Pine Grove	43.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T34-7002 [h]	65.5	Schuylkill	Pine Grove	50.5	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T34-8001	M-0177 0.3	Schuylkill	Pine Grove	13.2	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T31-7001	M-0196 0.0	Schuylkill	Pine Grove	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T18-7005	67.6	Schuylkill	Pine Grove	57.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T21-7001	67.9	Schuylkill	Pine Grove	23.9	PSS	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
W-T62-8001 [h]	M-0181 0.2	Schuylkill	Tremont	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T24-8005 [h]	M-0198 0.2	Schuylkill	Tremont	9.7	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T24-8004 [h]	73.5	Schuylkill	Frailey	31.0	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T24-8003 [h]	73.6	Schuylkill	Frailey	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T24-8002	74.1	Schuylkill	Frailey	30.9	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T20-8006	74.3	Schuylkill	Frailey	NA	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T20-8007	74.4	Schuylkill	Frailey	4.0	PFO	0.0	0.0	0.0	0.1	<0.1	0.1	<0.1
W-T96-9003 [h]	M-0201 0.3	Schuylkill	Frailey	280.7	PEM	0.7	0.0	0.0	0.0	0.0	0.7	0.0
W-T96-9004 [h]	74.7	Schuylkill	Frailey	63.5	PSS	0.0	0.1	<0.1	0.0	0.0	0.1	<0.1
W-T95-9001	74.8	Schuylkill	Frailey	170.2	PEM/PSS	0.1	0.4	0.2	0.0	0.0	0.5	0.2
W-T20-8003 [h]	M-0316 1.0	Schuylkill	Hegins	116.9	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T20-8001 [h]	76.5	Schuylkill	Hegins	4.1	PFO	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T16-9001 [h]	M-0170 0.0	Schuylkill	Hegins	16.2	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T53-9001	77.7	Schuylkill	Hegins	331.4	PEM/PFO	0.4	0.0	0.0	<0.1	<0.1	0.4	<0.1
W-T16-9003	78.0	Schuylkill	Hegins	25.7	PEM/PFO	<0.1	0.0	0.0	0.1	<0.1	0.1	<0.1
W-T11-9002	80.2	Schuylkill	Eldred	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T11-9001	80.3	Schuylkill	Eldred	123.1	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T09-9002	81.2	Schuylkill	Eldred	74.5	PFO	0.0	0.0	0.0	0.1	0.1	0.1	0.1
W-T09-9001	M-0194 0.2	Schuylkill	Eldred	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T18-10001	83.4	Northumberland	East Cameron	28.1	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T44-11001 [h]	88.8	Northumberland	Coal	69.6	PEM/PFO	0.1	0.0	0.0	0.2	0.1	0.2	0.1
W-T49-11002 [h]	91.0	Columbia	Cleveland	68.1	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T49-11001 [h]	91.8	Northumberland	Ralpho	4.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T49-11003 [h]	M-0271 0.1	Northumberland	Ralpho/ Cleveland	38.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T04-11004	94.3	Columbia	Cleveland	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T04-12001 [i]	99.8	Columbia	Montour	50.4	PFO	0.0	0.0	0.0	0.1	0.1	0.1	0.1
W-T04-12002	101.6	Columbia	Montour	392.3	PEM/PFO	0.4	0.0	0.0	0.4	0.3	0.8	0.3
W-T04-12004	101.7	Columbia	Montour	26.4	PSS	0.0	0.0	0.0	<0.1	<0.1	<0.1	<0.1
W-T70-12005	M-0423 1.5	Columbia	Hemlock	93.4	PEM/PSS	0.1	0.1	<0.1	0.0	0.0	0.2	<0.1
W-T70-12009	M-0423 1.8	Columbia	Hemlock	3.8	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-110003	M-0423 2.3	Columbia	Hemlock	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-110004	M-0423 2.3	Columbia	Hemlock	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T70-12010	M-0423 3.0	Columbia	Hemlock	108.4	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T70-12008	M-0423 3.3	Columbia	Hemlock	26.8	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T70-12007	M-0423 3.6	Columbia	Hemlock	14.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T01-12004	M-0423 4.8	Columbia	Hemlock	7.0	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-RS-12003	107.1	Columbia	Mt. Pleasant	74.2	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T01-13001	109.2	Columbia	Mt. Pleasant	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T06-13002 [h]	110.0	Columbia	Mt. Pleasant	68.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T06-13003 [h]	110.2	Columbia	Mt. Pleasant	52.9	PEM/PSS/PFO	<0.1	<0.1	0.0	<0.1	<0.1	<0.1	<0.1
W-T06-13005 [h]	110.5	Columbia	Mt. Pleasant	45.4	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T63-14001	111.2	Columbia	Mt. Pleasant	85.1	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T35-13002 [h]	111.2	Columbia	Mt. Pleasant	23.8	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T35-13001 [h]	111.6	Columbia	Mt. Pleasant	150.5	PEM	0.3	0.0	0.0	0.0	0.0	0.3	0.0
W-T21-13002 [h]	113.4	Columbia	Greenwood	14.4	PSS	0.0	<0.1	0.0	0.0	0.0	<0.1	0.0
W-T21-13001 [h]	113.4	Columbia	Greenwood	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T90-14005 [h]	113.5	Columbia	Greenwood	1.7	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T16-14001 [h]	115.5	Columbia	Greenwood	39.7	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T44-14001 [h]	115.5	Columbia	Greenwood	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T10-14001 [h]	118.1	Columbia	Greenwood	65.5	PEM/PSS	<0.1	0.1	0.1	0.0	0.0	0.1	0.1
W-T15-14003 [h]	120.1	Columbia	Jackson	30.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T15-14004 [h]	121.3	Columbia	Jackson	28.9	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T02-14001 [h]	123.4	Columbia	Jackson	63.9	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T06-14001	124.7	Columbia	Jackson	20.4	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T68-10001	AR-NO-079.1	Northumberland	Coal	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T33-6001 [h]	AR-LE-052.1	Lebanon	Union	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
					Subtotal [i]	**8.5**	**0.9**	**0.4**	**3.2**	**2.0**	**12.6**	**2.4**
Chapman Loop												
W-T30-27001 [h]	L187.4	Clinton	Chapman	34.5	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
					Subtotal [i]	**<0.1**	**0.0**	0.0	**0.0**	**0.0**	**<0.1**	**0.0**
Unity Loop												
W-T01-22016 [h]	L120.6	Lycoming	Jordan	NA	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T01-22015 [h]	L120.6	Lycoming	Jordan	77.2	PEM/PFO	0.1	0.0	0.0	<0.1	0.0	0.1	0.0
W-T01-22014 [h]	L121.4	Lycoming	Franklin	208.7	PEM/PFO	0.3	0.0	0.0	0.2	0.1	0.4	0.1
W-T01-22013 [h]	L122.1	Lycoming	Franklin	47.5	PEM/PFO	0.1	0.0	0.0	0.1	<0.1	0.1	<0.1
W-T01-22012 [h]	L122.6	Lycoming	Franklin	212.8	PEM	0.4	0.0	0.0	0.0	0.0	0.4	0.0
W-T01-22011 [h]	L123.2	Lycoming	Franklin	16.1	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T01-22010 [h]	L123.8	Lycoming	Franklin	66.6	PEM/PFO	0.1	0.0	0.0	0.1	<0.1	0.1	<0.1
W-T01-22009 [h]	L124.4	Lycoming	Penn	161.4	PEM	0.3	0.0	0.0	0.0	0.0	0.3	0.0
W-T01-22007 [h]	L125.0	Lycoming	Penn	NA	PFO	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0
W-T01-22004 [h]	L125.1	Lycoming	Penn	10.0	PEM	0.1	0.0	0.0	0.0	0.0	0.1	0.0
W-T01-22006 [h]	L125.2	Lycoming	Penn	102.5	PEM	0.2	0.0	0.0	0.0	0.0	0.2	0.0
W-T01-22005 [h]	L125.3	Lycoming	Penn	237.3	PEM/PFO	0.5	0.0	0.0	<0.1	0.0	0.5	0.0
W-T01-22001 [h]	L126.4	Lycoming	Penn	14.8	PEM	<0.1	0.0	0.0	0.0	0.0	<0.1	0.0
W-T65-27001 [h]	L127.3	Lycoming	Penn	NA	PEM/PSS	<0.1	<0.1	0.0	0.0	0.0	<0.1	0.0
					Subtotal [i]	**2.0**	**<0.1**	**0.0**	**0.3**	**0.1**	**2.3**	**0.1**
Mainline A and B Replacements												
W-T26-23001	1578.8	Prince William	Brentsville	280.4	PEM	0.5	0.0		0.0	0.0	0.5	0.0
W-T26-23002	1578.9	Prince William	Brentsville	217.4	PEM	0.3	0.0		0.0	0.0	0.3	0.0
W-T26-23003	1579.1	Prince William	Brentsville	67.9	PEM	0.1	0.0		0.0	0.0	0.1	0.0
W-T26-23004	1579.2	Prince William	Brentsville	43.7	PEM	0.1	0.0		0.0	0.0	0.1	0.0
W-T26-23005	1579.4	Prince William	Brentsville	64.0	PEM	<0.1	0.0		0.0	0.0	<0.1	0.0
W-T26-23006	1579.6	Prince William	Brentsville	NA	PEM	<0.1	0.0		0.0	0.0	<0.1	0.0
W-T26-23007	1579.7	Prince William	Brentsville	618.9	PEM	0.8	0.0		0.0	0.0	0.8	0.0
W-T26-23008	1579.8	Prince William	Brentsville	215.1	PEM	0.2	0.0		0.0	0.0	0.2	0.0

TABLE L-1 (cont'd)

Wetlands Crossed by the Atlantic Sunrise Project

Wetland ID [a]	Milepost [b]	County	Township	Crossing Length [c] (feet)	Cowardin Class	Wetland Impact [d,e] (acres)						
						PEM	PSS		PFO		Total [f]	
						Cons.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [g]
W-T26-24002/ W-RS-24002	1580.8	Prince William	Brentsville	97.2	PEM	0.2	0.0		0.0	0.0	0.2	0.0
					Subtotal [i]	**2.2**	**0.0**		**0.0**	**0.0**	**2.2**	**0.0**

[a] Wetland IDs with "RS" designations are in non-surveyed areas and are based on remote sensing analysis.

[b] Where route modifications have been incorporated into the proposed route, new mileposts have been developed. The new mileposts are identified by inclusion of the associated route modification number (M-####) preceding the milepost value. The locations of access road wetland crossings are identified by the access road workspace ID.

[c] Crossing Length is the total linear feet of pipeline within the wetland boundaries. "NA" indicates wetlands that are not crossed by the pipeline but would be crossed by equipment in workspace or access roads.

[d] Construction impacts include the construction right-of-way, additional temporary workspace, and access roads.

[e] Operational impacts are limited to a 10-foot-wide corridor centered on the pipeline that may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. 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.

[f] Total may not match the sum of addends due to rounding.

[g] Total operational impacts shown includes PFO wetlands only.

[h] Pennsylvania wetlands designated under Chapter 93 as Exceptional Value.

[i] Direct impacts on the wetland would be avoided by use of the conventional bore or horizontal directional drill crossing methods.

Notes: PEM = palustrine emergent
PFO = palustrine forested
PSS = palustrine scrub-shrub

TABLE L-2

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
PENNSYLVANIA								
CPL North								
Columbia								
CO-1591.1	**W-T02-15001C**	**East**	**0.1**	**0.4**	**28**	**Additional Temporary Workspace (ATWS) required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide additional site-specific justification for why the ATWS cannot be shortened to accommo-date a 50-foot setback from the wetland.**
CO-008	W-T02-15005	North	1.1	0.2	42	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-010	W-T02-15006A	South	1.2	< 0.1	Within	ATWS is needed to successfully complete the road crossing of Camp Lavigne Road due to the confined workspace between the road and environmental features.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-013	W-T02-15007	South	1.3	0.1	4	Due to area constraints between stream and wetland, ATWS is required for stockpiling excavated materials and equipment and to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-024.2	W-T02-15009A	South	M-0086 0.2	0.1	21	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-024.3	W-T61-15009A	North	M-0086 0.2	0.1	47	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
CO-045	W-T02-15015C	North	4.0	0.1	42	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-048	W-T02-15012A	North	4.2	0.1	39	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-051	W-T02-15012A	North	4.3	0.3	43	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
Luzerne								
LU-080	W-T02-15019A W-T02-15019B W-T02-15019C	South	6.0	0.2	Within	Saturated wetland with unconsolidated soils and with two complex stream crossings, which will require a construction depth of a minimum of 5 foot of cover over the proposed pipeline and will result in a larger and deeper trench line. This ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-087	W-T02-15020C	North	6.5	0.1	25	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LU-098	W-T02-15023A-1	North	7.3	0.1	21	This ATWS is separated from wetland W-T02-15023A-1 by an access road AR-LU-008. This ATWS is required due to the steep slope down to Kitchen Creek WW-T02-15018 and is required for stockpiling excavated material and equipment to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-098.2	W-T02-15023A-1	North	7.3	1.5	24	The existing gravel road to be used for AR-LU-008 is within 50 feet of the wetland. No improvements are proposed and no vegetation will be cleared within 50 feet of the wetland. The wetland will be protected by sediment barriers from sediment tracked by construction vehicles.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-167	W-T03-16005	North	13.9	0.1	27	This ATWS is required for a safe and efficient road crossing of HWY 118 including spoil storage and dewatering of bore pit.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-194	W-T03-17012	South	16.6	> 0.1	Within	This ATWS is required for safe and efficient access for construction equipment from adjacent rights-of-way separated by HWY29. In addition the ATWS is required to accommodate elevation changes between the rights-of-way and HWY 29.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-195	W-T03-17012	South	16.6	< 0.1	Within	This ATWS is required to accommodate spoils resulting from the installation of the bore pit. The road and adjacent stream (WW-T03-17008) will be crossed by the proposed pipeline utilizing a bore method.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LU-209.1	W-T03-17009 W-T03-17009-1	North	17.6	0.1	Within	Access road (AR-LU-012) revised to avoid wetland; however, the existing dirt/gravel road to be used for the access road is within 50 feet of the wetland. The limits of disturbance has been minimized adjacent to the wetland and no clearing is proposed within 50 feet of the wetland. Timber matting will be used along the existing 8 feet wide access road to minimize disturbance.	Sediment barriers at edge of ATWS parallel to wetland and temporary free-span bridge	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-209.2	W-T03-17009 W-T03-17009-1	North	17.6	0.1	Within	Access road (AR-LU-012) limits of disturbance revised to avoid wetland; however, the existing dirt/gravel road to be used for the access road is within 50 feet of the wetland. The limits of disturbance has been minimized adjacent to the wetland and no clearing is proposed within 50 feet of the wetland. Timber matting will be used along the existing 8-foot-wide access road to minimize disturbance.	Sediment barriers at edge of ATWS parallel to wetland and temporary free-span bridge	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LU-214	W-T03-17008C	North	18.1	0.1	Within	The ATWS has been modified and trimmed within the stream to avoid stream impacts. However, the stream (WW-T03-17004) will be crossed using a dam and pump method within a very saturated surrounding wetland. The ATWS will aid in safe construction activities within this area and provide storage for spoil within the wetlands. Without this ATWS, the spoil from the large wetland complex will have to be transported to an upland area, which may result in greater impacts to the wetlands.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-235.1	W-T05-17001A	South	20.0	< 0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-247.1	W-T68-17001	South	21.3	0.6	38	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-247.2	W-T68-17001	South	21.3	0.6	3	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LU-251.1	W-T07-17001	West	21.4	0.2	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-252	W-T07-17001	East	21.6	0.4	32	Access road (AR-LU-014) limits of disturbance avoids the wetland; however, the existing gravel road to be used for the access road is within 50 feet of the wetland. The limits of disturbance has been minimized adjacent to the wetland and no clearing is proposed within 50 feet of the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-252.2	W-T07-17001	East	21.6	0.4	Within	ATWS is associated with access road construction. Impact to wetland will be avoided by using free-span bridge at the wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland and temporary free-span bridge	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-254	W-T49-17002	West	21.8	0.3	14	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LU-256	**W-T49-17002**	**West**	**21.8**	**0.1**	**49**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide additional site-specific justification for clearing this Exceptional Value wetland and mitigation measures to offset this impact.**

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LU-280	**W-RS-80001**	**North**	**M-0150 0.4**	**0.3**	**37**	**This RS wetland is not being impacted by the construction workspace. There are multiple RS Stream features in the areas that need to be crossed and this ATWS is required to accommodate spoil associated with these crossings.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland does not appear on the alignment sheets. Confirm the approximate milepost and that the proposed ATWS is within 50 feet of a wetland.**
LU-284	W-T07-17006	South	25.3	0.4	44	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LU-285	W-T07-17006	North	25.4	0.1	41	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LU-290.1	**W-RS-9503**	**West**	**25.5**	**0.1**	**3**	**ATWS required to allow a secure spot for vehicles to turnaround during construction material delivery.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a wetland.**
LU-300.1	W-T56-18001C-5	North	M-0088-1.0	0.1	24	This ATWS is needed to provide spoil stockpiling areas for the crossing of multiple aquatic features located in the vicinity of the workspace. Due to the minimal adjacent upland areas within the vicinity, this ATWS is required to accommodate the spoils.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LU-300.2	W-T56-18001C-6	North	M-0088-1.1	0.1	0	This ATWS is needed to provide spoil stockpiling areas for the crossing of multiple aquatic features located in the vicinity of the workspace. Due to the minimal adjacent upland areas within the vicinity, this ATWS is required to accommodate the spoils.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LU-303.2	W-T56-18003B	East	M-0088-1.7	0.1	6	Wetland W-T56-18003B is not impacted by the construction workspace. This ATWS is needed to provide spoil stockpiling areas for the crossing of stream WW-T56-18004. Due to the minimal adjacent upland areas within the vicinity and approaching point of inflection (PI), this ATWS is required to accommodate the spoils.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LU-303.3	W-T56-18003B W-T56-18003C	East	M-0088-1.8	0.1	30	Wetland W-T56-18003B & C are not impacted by the construction workspace. This ATWS is needed to provide spoil stockpiling areas for the PI. Due to the minimal adjacent upland areas within the vicinity and PI, this ATWS is required to accommodate the spoils.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LU-303.4	W-T56-18003A-1	North	M-0088-1.8	0.1	35	Wetland W-T56-18003A-1 is not impacted by the construction workspace. This ATWS is needed to provide spoil stockpiling areas for the PI. Due to the minimal adjacent upland areas within the vicinity and PI, this ATWS is required to accommodate the spoils.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
Wyoming								
WY-306.11	W-T54-18005	North	M-0088-3.2	0.1	0	This ATWS is needed to provide spoil stockpiling areas for the crossing of multiple aquatic features located in the vicinity of the workspace. Streams will be crossed using a dry open cut method within a very saturated surrounding wetland. Without this ATWS, the spoil from the large wetland complex will have to be transported to an upland area, which may result in greater impacts.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-306.3	**W-T54-18010**	**North**	**M-0088-2.4**	**0.3**	**0**	**ATWS required for access road construction.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide additional site-specific justification for clearing this Exceptional Value wetland and mitigation measures to offset this impact.**
WY-313	W-RS-180017 W-RS-180016	West	30.1	0.5	19	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-329	**W-T95-19008**	**West**	**M-0071-1.9**	**0.1**	**48**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide additional site-specific justification for clearing this Exceptional Value wetland and mitigation measures to offset this impact.**
WY-331	W-T13-19001C-3	East	2.00	0.1	6	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient PI.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
WY-332	W-T13-19001C-2	South	2.10	<0.1	24	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland and stream crossings.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-375	**W-T15-4001A-1 W-T15-4001B**	**West**	**37.50**	**0.10**	**40**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide additional site-specific justification for clearing this Exceptional Value wetland and mitigation measures to offset this impact.**
WY-376	W-T15-4001A W-T15-4001B	West	37.6	0.2	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-378	W-T95-19006A-2	West	37.8	0.1	48	ATWS required for stockpiling of excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-396.1	W-T12-19001	North	39.4	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-397	W-T12-19001-1	West	39.4	0.1	19	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
WY-398	W-T12-19001-1	West	39.4	0.1	24	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-404	W-T12-19002	North	39.9	0.1	34	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-418	W-T19-20004A	West	M-0054 0.0	0.2	41	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-419	W-T19-20004A	East	M-0054 0.1	0.1	5	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of the wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-420	W-T19-20004A	West	M-0054 0.1	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-420.1	W-T19-20004	East	M-0054 0.1	0.1	0	Saturated wetland crossing. Unconsolidated soils in area. Wetland is associated with stream. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
WY-422.2	**W-T68-20001**	**West**	**43.4**	**0.7**	**0**	**ATWS required for access road construction.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland feature ID does not appear on the alignment sheets. Confirm the ATWS is within 50 feet of a wetland.**
WY-432	W-T14-20003	East	43.9	0.1	43	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-434	W-T14-20003	East	43.9	0.4	31	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-436	**W-T19-CS605Zi11**	**South**	**44.4**		**8**	**ATWS required for stockpiling of excavated topsoil.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a wetland.**
WY-438	W-T14-20002	South	44.4	< 0.1	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-439	**W-T19-CS605Zi11**	**South**	**44.4**	**0.4**	**7**	**ATWS required for stockpiling of excavated topsoil.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a wetland.**
WY-439.1	**W-T19-CS605Zi11**	**South**	**44.4**	**<0.1**	**35**	**ATWS required for stockpiling of excavated topsoil.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland does not appear on the alignment sheets. Confirm the proposed ATWS is within 50 feet of a wetland.**

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
WY-440	W-T14-20002	West	44.4	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile are outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-453	W-T10-20001B W-T10-20001C-1	North	45.8	0.1	35	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-453.1	W-T10-20001A W-T10-20001B	North	45.8	0.1	4	ATWS is associated with access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-453.2	W-T10-20001A W-T10-20001B W-T10-20001C-1	North	45.8	0.2	35	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
WY-455	W-T10-20001A	South	45.8	0.1	42	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-456	W-T10-20001A	North	45.8	0.1	13	ATWS is associated with access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
WY-466	W-T54-20002	North	46.1	0.1	35	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-467	W-T54-20002	South	46.1	0.2	0	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-467.1	W-T54-20002	North	46.1	0.1	39	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-488	W-T65-20001	South	48.2	0.1	37	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-489	W-T65-20001	West	48.2	0.1	25	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing and facilitate safe and efficient PI.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
WY-490	W-T65-20001	South	48.2	0.1	45	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing and facilitate safe and efficient PI.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
WY-510	W-T31-21001 W-T31-21002	West	50.4	0.2	41	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
Susquehanna								
SU-510.2	**W-T65-21001 W-T65-21002A W-T65-21002 W-T65-21002C W-T49-21001 W-RS-210038**	**South**	**50.6**	**0.6**	**1**	**ATWS required for access road construction.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Wetlands W-T65-21001, W-T65-21002A, W-T65-21002, W-T65-21002C, and W-RS-21003 do not appear on the alignment sheet. Confirm the proposed ATWS is within 50 feet of these wetlands.** **For W-T49-21001, the request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.**

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
SU-510.3	**W-T65-21001 W-T65-21002A W-T65-21002 W-T65-21002C W-T49-21001 W-RS-210038**	**South**	**50.6**	**0.7**	**3**	**ATWS required for access road construction.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Wetlands W-T65-21001, W-T65-21002A, W-T65-21002, W-T65-21002C, and W-RS-21003 do not appear on the alignment sheet. Confirm the proposed ATWS is within 50 feet of these wetlands.** **For W-T49-21001, the request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.**
SU-530	**W-T70-21001A-3**	**South**	**52.9**	**0.5**	**32**	**ATWS required for stockpiling of excavated topsoil.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide site-specific justification for clearing this Exceptional Value wetland and mitigation measures to offset this impact.**
SU-531	W-T70-21001A-3	North	52.9	0.1	15	ATWS required for stockpiling of excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
SU-551.1	W-T12-21007A	West	54.4	<0.1	0	Saturated wetland crossing. Unconsolidated soils in area. Wetland is associated with stream. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
SU-561.2	W-T12-21009C	North	M-0061-0.0	<0.1	26	This ATWS is within open land upland and is required for the PI. Due to the minimal adjacent upland areas within the vicinity and PI, this ATWS is required to accommodate the spoils.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
SU-566.1	W-T48-21002A W-T48-21002C	West	M-0062-0.2	0.1	0	This ATWS is needed to provide spoil stockpiling areas for the crossing of multiple aquatic features located in the vicinity of the workspace. Without this ATWS, the spoil from the large wetland complex will have to be transported to an upland area, which may result in greater impacts.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
SU-570	W-T48-21001	West	56.5	0.6	21	ATWS required for Top Soil Segregation in an agriculture area.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
SU-575	W-T17-21001	West	57	0.3	15	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient crossing of foreign pipelines.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CPL South								
Lancaster								
LA-097	W-T10-101A W-T10-101C	West	7.1	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LA-103	W-T20-002	West	7.4	0.1	44	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-124	**W-RS-80013**	**North**	**M-0405 0.6**	**0.1**	**20**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland is not listed on the alignment sheets. Confirm wetland should be shown on the alignment sheets.**
LA-125	**W-RS-80013**	**North**	**M-0405 0.6**	**0.2**	**24**	**ATWS required for stockpiling of excavated topsoil.**	**Sediment barriers at edge of ATWS parallel to wetland**	**This wetland is not listed on the alignment sheets. Confirm wetland should be shown on the alignment sheets.**
LA-159	W-RS-1006	North	11.6	0.5	0	ATWS required for stockpiling of excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-179.1	W-T65-1003	West	M-0248 0.2	<0.1	35	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-179.4	W-T65-1003	West	M-0248 0.2	<0.1	22	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-179.5	W-T65-1003	West	M-0248 0.2	<0.1	0	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LA-188.1	W-T36-1004	North	M-0206 0.06	<0.1	0	Saturated wetland crossing. Unconsolidated soils in area. Wetland is associated with stream. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-264	W-T32-2003	East	20.0	0.1	31	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-265	W-T32-2004	West	20.0	0.1	11	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-292.1	W-RS-99020	North	21.5	0.6	11	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-292.2	W-RS-99020	North	21.5	0.5	40	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LA-409.1	W-T31-3003	East	30.4	0	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. ATWS is also required for stockpiling of excavated materials and equipment to facilitate safe and efficient road stream crossing. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LA-410	W-T31-3003	East	M-0308 0.1	0.1	44	Due to area constraints between stream and wetland, ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LA-441	W-T31-3004	East	32.1	0.6	35	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LA-444	W-T31-3004	East	32.2	0.1	40	Due to area constrains between stream and wetland, ATWS is required for stockpiling excavated materials and equipment and to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LA-467.1	W-T31-3002	East	33.6	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
Lebanon								
LE-512	W-T11-4004	East	37.7	0.8	32	ATWS required for stockpiling excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-513	W-T11-4004	West	37.8	0.1	35	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient point of inflection.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-603.1	W-T43-5004	South	M-0183 1.3	0.1	Within	Saturated wetland crossing. Unconsolidated soils in area. Wetland is associated with stream. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-608	W-T43-5001	North	M-0183 1.7	0.1	16	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient PI.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-629	W-T14-5002	East	47.9	0.1	42	ATWS required to facilitate safe and efficient pipeline construction due to steep slope.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-650	W-T14-5005A	East	48.8	0.1	43	Due to area constrains between stream and wetland, ATWS is required for stockpiling excavated materials and equipment and to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LE-665.1	W-T14-5008A W-T14-5008C	East	50.1	0	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-671	W-T14-5009	South	50.1	0.1	42	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing. ATWS is also needed to facilitate safe and efficient installation of the point of inflection.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-754	W-T61-6001	East	M-0199 0.1	0.9	15	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-758.2	W-RS-99001	North	M-0199 0.26	0.3	41	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-762	W-T10-6002A W-T-10-6002C	East	54.3	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-768	**W-T69-6001**	**East**	**55.0**	**0.1**	**50**			**Provide Justification for modification and proposed mitigation measures.**

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LE-797	W-T62-6002	South	56.7	<0.1	45	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient crossing of foreign pipelines.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-799	W-T62-6002	North	56.8	0.1	25	ATWS required for stockpiling of excavated topsoil.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-801	W-T40-6001 W-T40-6001C W-T40-6001A	West	56.8	0.1	47	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-802	W-T67-6002	North	56.8	0.1	16	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-803	W-T40-6001A W-T40-6001C	East	56.8	<0.1	30	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LE-803.1	W-T40-6001A W-T40-6001C	East	56.8	<0.1	0	Saturated wetland crossing. Unconsolidated soils in area. Wetland is associated with stream. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LE-820	W-T23-6002-2	North	58.7	0.1	1	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient crossing of foreign pipelines.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-832.2	W-T33-6001	East	59.3	0.3	15	The existing gravel road to be used for AR-LE-052.1 is within 50 feet of the wetland. No grading activities are proposed within 50 feet of the wetland and the limits of disturbance has been minimized. Timber matting will be used along the existing 9-foot-wide gravel access road to minimize disturbance.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LE-832.1	W-T33-6001	East	59.3	0.3	Within	The existing gravel road to be used for AR-LE-052.1 is within 50 feet of the wetland. No grading activities are proposed within 50 feet of the wetland and the limits of disturbance has been minimized. Timber matting will be used along the existing 9-foot-wide gravel access road to minimize disturbance.	Sediment barriers at edge of ATWS parallel to wetland and temporary free-span bridge	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
Schuylkill								
SC-901.2	W-T35-7001	South	65.3	0.2	17	ATWS is associated with access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of this Exceptional Value wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
SC-902	**W-T35-7001 W-T35-7001-1**	**South**	**65.4**	**0.1**	**15**	**Due to area constrains between stream and wetland, ATWS is required for stockpiling excavated materials and equipment and to facilitate a safe and efficient stream crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
SC-908	**W-T34-7002**	**South**	**65.6**	**0.1**	**35**	**Due to area constrains between stream and wetland, ATWS is required for stockpiling excavated materials and equipment and to facilitate a safe and efficient stream crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**
SC-1005	W-T20-8006	West	74.1	0.1	22	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1006	W-T35-8001 W-T20-8007	West	74.1	0.1	39	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1002.1	W-T24-8002	West	74.1	0	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1007	W-T20-8005B	North	M-0201 0.0	0.2	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient railroad crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1008	T96-9003	North	M-0201 0.1	0.8	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
SC-1008.2	W-T95-9001B-1	East	74.8	<0.1	18	Due to area constrains between stream and wetland, ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1009	W-95-9001A W-95-9001B-1	West	M-0201 0.48	0.4	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1026.1	W-T20-8003A	West	76.1	0.1	Within	The ATWS and additional clearing will be required due to the complex terrain, multiple wetland and stream crossings, approaching PI and road crossing in the area.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
SC-1029	W-T20-8003A-2	West	76.2	0.2	44	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
SC-1059	W-T18-9001	East	78.5	0	31	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
Northumberland								
NO-1104.1	W-T18-10001	South	83.4	0.1	31	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
NO-1105	W-T18-10001	West	83.4	0.2	38	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
NO-1139.3	W-T44-11001C	West	88.8	<0.1	0	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
NO-1141	**W-T44-11001A-2**	**West**	**89.1**	**0.1**	**45**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**
NO-1142	**W-T44-11001A-2**	**East**	**89.1**	**0.1**	**49**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**
NO-1161.1	W-T49-11002	North	91.0	<0.1	0	This ATWS is required due to the steep terrain on the both sides of the wetland leading into stream WW-T51-11001. This will require excavation for the stream crossing and this ATWS will be used for equipment crossing and spoil storage to accommodate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
NO-1161.2	W-T49-11002	North	91.0	<0.1	0	This ATWS is required due to the steep terrain on the East sides of the wetland leading into stream WW-T51-11001. This will require excavation for the stream crossing and this ATWS will be used for equipment crossing and spoil storage to accommodate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
NO-1162.1	W-T49-11002	South	91.0	0.1	15	This ATWS is within an upland area and due to difficult terrain, stream, and wetland proximity on both sides this ATWS is required for spoil storage.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
Columbia								
CO-1185.2	W-T49-11003	South	M-0271 0.0	<0.1	0	This ATWS is required due to the steep terrain and PI on either side of the wetland leading into stream WW-T44-11001. This will require extra excavation for the stream crossing and this ATWS will be used for equipment crossing and spoil storage to accommodate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-1286	W-T04-12002	West	101.5	0.2	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-1288	W-T04-12004	West	101.7	<0.1	16	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
CO-1620.1	**W-T70-12006**	**West**	**M-0423 1.5**	**0.1**	**27**	**ATWS required for access road construction.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**
CO-1620.1	**W-T70-12006**	**West**	**M-0423 1.5**	**0.1**	**9**	**ATWS required for access road construction.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**
CO-1621	W-T70-12005A W-T70-12005B	North	M-0423 1.5	<0.1	0	Saturated wetland crossing. Unconsolidated soils in area. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-1627	W-T70-12001	North	M-0423 1.6	0.1	33	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient PI.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-1628	W-T70-12001	North	M-0423 1.6	0.1	9	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-1631	**W-T70-12009**	**South**	**M-0423 1.7**	**0.1**	**40**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within 50 feet of this Exceptional Value forested wetland.**

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
CO-1647	W-T70-12010A-2	West	M-0423 3.0	0.7	0	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient horizontal directional drilling (HDD).	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1647.3	W-T70-12010C	East	M-0423 3.0	0.1	38	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1647.4	W-T70-12010C	East	M-0423 3.1	0.2	8	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1647.5	W-T70-12010C W-T70-12010A-3	East	M-0423 3.0	<0.1	0	ATWS required to facilitate safe and efficient water withdrawal for HDD.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1647.6	**W-T70-12010C**	**East**	**M-0423 3.0**	**<0.1**	**40**	**Sediment barriers at edge of ATWS parallel to wetland**	**Sediment barriers at edge of ATWS parallel to wetland**	**Provide justification for modification.**
CO-1286	W-T04-12002	West	101.5	0.2	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
CO-1415	W-T06-13003B	West	110.2	< 0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
CO-1425	W-RS-13003	East	111.1	0.1	43	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1571.1	W-T67-14001A	West	123.2	<0.1	47	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1571.2	W-T67-14001A W-T67-14001B	West	123.2	<0.1	15	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
CO-1571.3	W-T67-14001A W-T67-14001B	West	123.2	<0.1	28	ATWS required for access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
Unity Loop								
Lycoming								
LY-001	W-T61-27001	South	120.4	0.9	6	ATWS is for grading access road AR-LY-002.1. The access road is pushed as far away from the wetland as possible on the parcel. The disturbed areas will be immediately stabilized with erosion control blankets over pervious areas and stone over the proposed access road. The access road will be graded to direct runoff away from wetland. However, the existing drainage area for the wetland is not impacted.	Erosion control blankets or stone to immediately stabilize disturbed areas	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LY-003	W-T01-22016 W-T01-22015A	South	120.6	> 0.1	21	ATWS is for spoil storage for crossing of wetland W-T01-22106, stream WW-T01-22015A and for the road bore of state route 42. This spoil storage is required due to the limited space available between the environmental features and the road. This workspace will aid in a safe road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LY-014	W-T01-22014A	South	121.5	> 0.1	34	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LY-026	W-T01-22012	North	122.6	0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LY-037.1	W-T24-22011	South	123.3	0.9	12	ATWS is associated with access road construction.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LY-041	W-T01-22010C	North	123.8	> 0.1	Within	Saturated wetland crossing. Unconsolidated soils in area. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LY-044	W-T01-22009	South	124.3	> 0.1	40	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LY-046	W-T01-22009	North	124.4	> 0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
LY-047	W-T01-22009	North	124.4	> 0.1	20	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
LY-053.1	W-T01-22004	South	125.1	0.1	25	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient Wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of this Exceptional Value wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
LY-053.2	W-T01-22004	South	125.1	> 0.1	Within	Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within this Exceptional Value wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LY-056.1	**W-T01-22005A**	**South**	**125.3**	**> 0.1**	**Within**	**Saturated wetland with unconsolidated soils and an associated watercourse. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. [a]**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within this Exceptional Value forested wetland.**
LY-056.2	W-T01-22005A	South	125.3	< 0.1	0	Saturated wetland crossing. Unconsolidated soils in area. Wetland is associated with stream. ATWS provides storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within this Exceptional Value wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
LY-060.3	**W-T01-22003**	**North**	**125.7**	**0.3**	**15**	**ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient stream crossing.**	**Sediment barriers at edge of ATWS parallel to wetland**	**Additional site-specific information and mitigation measures should be provided to justify the additional clearing within this Exceptional Value forested wetland.**
LY-76.1	W-T65-27001A W-T65-27001B	South	127.3	0.1	32	ATWS required for stockpiling of excavated materials and equipment to facilitate safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within this Exceptional Value wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
VIRGINIA								
Mainline A and B Replacements								
Prince Williams								
PW-002	W-T26-23001	East	1,578.8	0.3	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
PW-003	W-T26-23001	East	1,578.8	0.1	21	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within 50 feet of wetland appears justified and potential impact would be minimized by proposed mitigation.
PW-004	W-T26-23002A	East	1,578.9	0.2	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
PW-005	W-T26-23003	East	1,579.1	0.3	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
PW-007	W-T26-23005	East	1,579.4	0.3	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
PW-008	W-T26-23006	East	1,579.6	0.1	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient stream crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.

TABLE L-2 (cont'd)

Additional Temporary Workspaces (ATWS) Requested Within 50 Feet of Wetlands for the Atlantic Sunrise Project

Facility/ State/County/ ATWS No.	Wetland Feature ID	ATWS Location	Approx. Milepost	ATWS Size (acres)	Proposed Distance of ATWS from Resource (feet)	Justification for Modification	Proposed Measure(s) To Protect Resource and Minimize Impacts	Federal Energy Regulatory Commission Comments
PW-009	W-T26-23007A	East	1,579.7	0.2	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
PW-010	W-T26-23008 / W-T26-23008-1	East	1,579.8	0.1	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient wetland crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.
PW-012	W-T26-24002	East	1,580.8	0.1	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland in a cultivated field appears justified and potential impact would be minimized by proposed mitigation.
PW-013	W-T26-24002-1	East	1,580.9	0.2	Within	ATWS required for stockpiling of excavated materials and equipment to facilitate a safe and efficient road crossing.	Sediment barriers at edge of ATWS parallel to wetland	Request for ATWS within wetland appears justified and potential impact would be minimized by proposed mitigation.

[a] Due to unconsolidated saturated wetland soils, the trench will likely be wider than standard trench width in non-saturated wetland areas. To minimize the mixing of wetland and upland soils to the best extent possible, ATWS is required to store this soil. This ATWS will allow additional workspace for stockpiling of the spoil away from the edge of the excavated trench. Additionally, without this ATWS, the saturated soil may have to be relayed into an adjacent upland area for storage, which could require additional equipment.

Note: Bold entries indicate that additional justification or explanation is required to complete the evaluation of the request for ATWS in some wetland areas.

APPENDIX M

MIGRATORY BIRD PLAN

Transcontinental Gas Pipe Line Company, LLC

Migratory Bird Plan: Version 4

Atlantic Sunrise Project

September 2016

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List of Acronyms

ATWS	additional temporary workspaces
BCC	Birds of Conservation Concern
BCR	Bird Conservation Regions
CPL	Central Penn Line
ECP	Transco's Project-specific Environmental Construction Plan
EO	Executive Order
ESA	Endangered Species Act of 1973
FERC	Federal Energy Regulatory Commission
HEA	Habitat Equivalency Analysis
IBA	Important Bird Area
MBTA	Migratory Bird Treaty Act of 1918
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
PEM	palustrine emergent wetland
PFO	palustrine forested wetland
PADEP	Pennsylvania Department of Environmental Protection
PGC	Pennsylvania Game Commission
Plan	draft Migratory Bird Plan
Project	Atlantic Sunrise Project
PSS	palustrine scrub-shrub wetland
ROW	right-of-way
SGL	Pennsylvania State Game Land
Transco	Transcontinental Pipe Line Company, LLC
Transco Plan	Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 INTRODUCTION

1.1 Purpose and Scope

Transcontinental Gas Pipe Line Company, LLC (Transco), an indirect subsidiary of Williams Partners L.P., prepared this draft Migratory Bird Plan (Plan) to support its application to the Federal Energy Regulatory Commission (FERC) for a Certificate of Public Convenience and Necessity for the proposed Atlantic Sunrise Project (Project) pursuant to Section 7 of the Natural Gas Act. The Project is an expansion of the existing Transco natural gas transmission system that will enable Transco to provide natural gas from northern Pennsylvania to its existing market areas in the southeastern United States.

The Project will disturb existing land cover, which will, in turn, impact birds protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-718) and Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (January 10, 2001). The MBTA makes it unlawful for anyone to take migratory birds or their parts, nests, or eggs unless permitted to do so by regulations (United States Fish and Wildlife Service [USFWS] 2014a). Per the MBTA, "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 Code of Federal Regulations §10.12). Migratory birds, as defined by the MBTA, include nearly all species (1,026 in total) that may occur in the United States, with the exceptions of some upland game birds (e.g., northern bobwhite [*Colinus virginianus*] and wild turkey [*Meleagris gallopavo*]) and non-native species (e.g., European starling [*Sturnus vulgaris*], house sparrow [*Passer domesticus*], and rock pigeon [*Columba livia*]) that occur in the United States by way of human introduction (USFWS 2013).

The MBTA does not explicitly include provisions for permits to authorize incidental take of migratory birds that results from an otherwise legal activity but is not the purpose of the activity. Instead, the USFWS encourages individuals, companies and industries to use best practices established to help reduce and avoid the unpermitted take of MBTA species. Although the MBTA does not specifically protect habitat, the alteration or disturbance of habitat during construction or operation of any project that results in the take of an MBTA-protected species would constitute a violation of the MBTA.

EO 13186 requires that all federal agencies undertaking activities that may negatively impact migratory birds take a prescribed set of actions to further implement the MBTA. EO 13186 directs federal agencies to develop a Memorandum of Understanding (MOU) with the USFWS that promotes the conservation of migratory birds. In accordance with the development

of the MOU, and to the extent possible as per law and budgetary considerations, EO 13186 encourages agencies to implement a series of conservation measures aimed at reinforcing and strengthening the MBTA. These conservation measures include provisions that require agencies to support migratory bird conservation, minimize and mitigate effects on and take of migratory birds, restore and enhance habitat, prevent pollution, incorporate conservation principles into agency plans and ensure their consistency with and support of existing migratory bird planning efforts, and properly evaluate migratory birds as part of the National Environmental Policy Act process.

In March 2011, FERC entered into an MOU with the USFWS. This MOU does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act, or the Endangered Species Act of 1973 (ESA), nor does it authorize the take of migratory birds. Rather, it outlines the missions of both agencies and their roles and responsibilities as they pertain to the development of the Nation's energy infrastructure in a manner that protects the natural environment. The MOU identifies the specific obligations related to migratory bird conservation that are to be implemented as part of the MOU, as well as the agency responsible for implementing each obligation. Finally, the MOU outlines the terms of the agreement and the process by which disputes may be resolved (FERC and USFWS 2011).

Though all migratory birds are afforded protection under the MBTA, EO 13186 and the MOU require that Birds of Conservation Concern (BCC) are prioritized when considering impacts on migratory birds. BCCs are a subset of MBTA-protected species identified by the USFWS as those in the greatest need of additional conservation action to avoid future listing under the ESA. BCCs have been identified at three geographic scales: National, USFWS Regions, and Bird Conservation Regions (BCRs). BCRs are the smallest geographic scale at which BCCs have been identified, and the lists of BCC species at this scale are expected to be the most useful for resource management agencies to consider in complying with the MBTA and EO 13186 (USFWS 2008).

In an effort to comply with the MBTA, EO 13186, and the MOU, Transco initiated consultations with the USFWS and the Pennsylvania Game Commission (PGC). PGC does not implement the MBTA, EO 13186, or the MOU; however, Transco is including this agency in the consultations to ensure that the Commonwealth's Project-related migratory bird concerns also are addressed. Transco met with the USFWS Pennsylvania Field Office and the PGC on several occasions to discuss potential Project-related MBTA issues..

This document is the fourth version of the Plan, based on the collaborative effort between Transco, the USFWS, and the PGC. It incorporates additional input provided by the USFWS regarding bald eagles (*Haliaeetus leucocephalus*), the northern long-eared bat (*Myotis septentrionalis*), restoration seed mixes, mitigation, and Project updates.

This Plan focuses on migratory birds in Pennsylvania because they have the greatest potential to be impacted by the construction and operation of the Project facilities. Effects on migratory bird habitat from construction of Project facilities in Maryland, Virginia, North Carolina, and South Carolina are anticipated to be negligible because the Project's facilities will be located primarily within existing rights-of-way (ROWs) or other developed areas.

1.2 Project Overview

The Project will provide 1.7 million dekatherms per day of incremental firm transportation of natural gas from the Marcellus Shale production areas in northern Pennsylvania to existing market areas, extending as far south as the Station 85 Pooling Point in Choctaw County, Alabama. The Project will include modifications of the existing Transco Mainline system to reverse the direction of flow, thus enabling new north-to-south capabilities (bi-directional flow) to transport this new source of natural gas to existing markets. Project facilities in Pennsylvania include approximately 186 miles of new 30-inch and 42-inch diameter pipeline; approximately 11 miles of 42-inch and 36-inch diameter pipeline loops, various aboveground facilities; and temporary and permanent access roads (Table 1-1). Figure 1-1 shows the location of the proposed Project facilities in Pennsylvania.

The Project will include two new greenfield pipelines (Central Penn Line [CPL] North and CPL South) and two pipeline loops (Unity Loop and Chapman Loop) in Pennsylvania. Table 1-1 summarizes the proposed pipelines within each county.

Table 1-1
Summary of Pipeline Facilities in Pennsylvania

Facility	County	Municipality	Beginning/End Milepost[a]	Miles
Pennsylvania				
CPL North				
30-inch-diameter pipeline	Columbia	Sugarloaf Township	0.0–5.0	5.0
	Luzerne	Fairmount Township	5.0–10.3	5.4
		Ross Township	10.3–15.0	4.7
		Lake Township	15.0–19.3	4.3

Table 1-1
Summary of Pipeline Facilities in Pennsylvania

Facility	County	Municipality	Beginning/End Milepost[a]	Miles
		Lehman Township	19.3–M-0060 0.2	3.1
		Dallas Township	M-0060 0.2 to M-0088 1.6	5.7
	Wyoming	Franklin Township	M-0088 1.6 to M-0088 2.3	0.7
		Northmoreland Township	M-0088 2.3 to M-0071 2.0	4.6
		Eaton Township	M-0071 2.0 to 35.0	2.4
		Falls Township	35.0 to 37.9	2.9
		Overfield Township	37.9 to 41.6	3.7
		Clinton Township	41.6 to 46.2	4.6
		Nicholson Township	46.2 to 50.6	4.8
	Susquehanna	Lenox Township	50.6–57.3	6.7
			CPL North Total	**58.7**
CPL South				
42-inch-diameter pipeline	Lancaster	Drumore Township	0.0–1.8	1.6
		Martic Township	1.8–8.2	6.7
		Conestoga Township	8.2–12.3	4.2
		Manor Township	12.3–19.6	7.4
		West Hempfield Township	19.6–23.9	4.4
		Rapho Township	23.9–27.4	3.5
		Mount Joy Borough	27.4–27.6	0.2
		Rapho Township	27.6–34.5	7.0
		Mount Joy Township	34.5–36.5	2.1
	Lebanon	South Londonderry Township	36.5–41.3	4.7
		South Annville Township	41.3 to M-0424 1.5	5.0
		North Annville Township	M-0424 1.5 to 49.3	3.7
		East Hanover Township	49.3–52.8	3.6
		Union Township	52.8–62.4	11.2
		Cold Springs Township	62.4–64.3	0.2

Table 1-1
Summary of Pipeline Facilities in Pennsylvania

Facility	County	Municipality	Beginning/End Milepost[a]	Miles
42-inch-diameter pipeline	Schuylkill	Pine Grove Township	64.3–70.5	6.3
		Tremont Township	70.5–73.1	2.6
		Frailey Township	73.1–M-0201 0.4	1.4
		Porter Township	M-0201 0.4–75.0	0.5
		Hegins Township	75.0–79.1	4.1
		Eldred Township	79.1 to M-0247 0.4	3.6
	Northumberland	East Cameron Township	M-0247 0.4 to M-0323 0.1	2.1
		Coal Township	M-0323 0.1 to 89.7	5.1
		Ralpho Township	89.7 to 91.0; 91.7 to M-0271 0.1	1.3; 0.5
	Columbia	Cleveland Township	91.0–91.7; M-0271 0.1 to 95.4	4.0; 3.2
		Franklin Township	95.4–99.7	4.3
		Montour Township	99.7–103.0	3.4
		Hemlock Township	103.0 to M-0423 0.8	4.1
		Mount Pleasant Township	M-0423 0.8 to 112.0	5.3
		Orange Township	112.0–112.9	0.8
		Greenwood Township	112.9–118.2	5.4
		Jackson Township	118.2–125.0	6.8
		Sugarloaf Township	125.0 to M-0353 0.1	0.2
			CPL South Total[b]	**127.3**
Chapman Loop				
36-inch-diameter pipeline	Clinton	Chapman Township	186.0–188.5	2.5
			Chapman Loop Total	**2.5**
Unity Loop				
42-inch-diameter pipeline	Lycoming	Jordan Township	120.3–121.4	1.0
		Franklin Township	121.4–123.8	2.4
		Penn Township	123.8–128.9	5.1
			Unity Loop Total	**8.5**
			Pennsylvania [a]	**197.0**

[a] Where route modifications have been incorporated into the proposed route, new MPs have been developed. The new MPs are identified by inclusion of the associated route modification number (M-####) preceding the MP value. Beginning and ending MPs are approximate; therefore, the difference between beginning and ending mileposts in these areas does not necessarily equal the total length.

[b] Numbers may not sum exactly for CPL South due to rounding.

Key:

CPL = Central Penn Line

MP= Milepost

Aboveground facilities for the Project in Pennsylvania include modification of two existing compressor stations, two new compressor stations, two new meter stations, and three new regulator stations. Table 1-2 provides a summary, by location, of the proposed modified and new aboveground facilities in Pennsylvania. New aboveground facilities for the Project will include means for communication, which may include towers. All communication towers will be free-standing, with no guy wires; will not include any lighting, in compliance with Federal Aviation Administration (FAA) regulations; and will be less than 199 feet in height.

Table 1-2
Summary of Pennsylvania Aboveground Facilities

Facility	Type	Municipality	County
Pennsylvania			
New Aboveground Facilities			
Compressor Station 605	New Compressor Station	Clinton Township	Wyoming
Compressor Station 610	New Compressor Station	Orange Township	Columbia
Zick Meter Station	New Meter Station	Lenox Township	Susquehanna
Springville Meter Station	New Meter Station	Northmoreland Township	Wyoming
North Diamond Regulator Station	New Regulator Station	Lehman Township	Luzerne
West Diamond Regulator Station	New Regulator Station	Sugarloaf Township / Jackson Township	Columbia
River Road Regulator Station	New Regulator Station	Drumore Township	Lancaster
Modifications to Existing Aboveground Facilities			
Compressor Station 520	Upgrade existing compressor station	Mifflin Township	Lycoming
Compressor Station 517	Upgrade existing compressor station	Benton Township	Columbia
Puddlefield Meter and Regulator Station	Modify existing meter and regulator station	Northmoreland Township	Wyoming

1.3 Pipeline Construction and Operation

The workspaces for the Project will include temporary construction ROWs, permanent ROWs, additional temporary workspaces (ATWS), aboveground facilities, temporary and permanent access roads, contractor/pipe yards, and contractor staging areas. A 90-foot-wide construction ROW will be used for installation of the CPL North pipeline and Chapman Loop,

and a 100-foot-wide construction ROW will be used for installation of the CPL South pipeline and Unity Loop. These construction ROWs will be reduced, where practicable, at various locations to address specific environmental or residential issues along the proposed pipelines.

Transco proposes to maintain a 50-foot-wide permanent ROW along the greenfield segments of CPL North and CPL South that are not co-located with existing utility ROWs. At mainline valves, the width of permanent ROW in greenfield segments will be expanded up to 92 feet to allow for access around the facility during operations. Transco will also maintain a 50-foot-wide permanent ROW where CPL North is co-located with Williams Field Services (midstream) pipelines and other foreign utility ROWs. Transco proposes to maintain additional 25-foot-wide permanent ROWs adjacent to the existing ROWs along the proposed Chapman Loop, Unity Loop, and portions of CPL North that will be co-located with the Transco Leidy Line system. In these areas, 25 feet of the existing Transco ROWs will also be used for operation of the pipelines.

Temporary ROWs will be restored to pre-construction conditions per landowner and applicable permit conditions. Permanent ROWs will be maintained in an herbaceous state for the operational life of the pipelines, with the exception of forested wetlands, where partial regrowth of woody vegetation will be permitted to within 15 feet of either side of the centerlines. Transco will use 118 temporary access roads and 40 permanent access roads to access the Project ROW, which Transco will maintain for the life of the related facility.

Transco filed its certificate application with FERC on March 31, 2015, and FERC assigned the Project Docket No. CP15-138.

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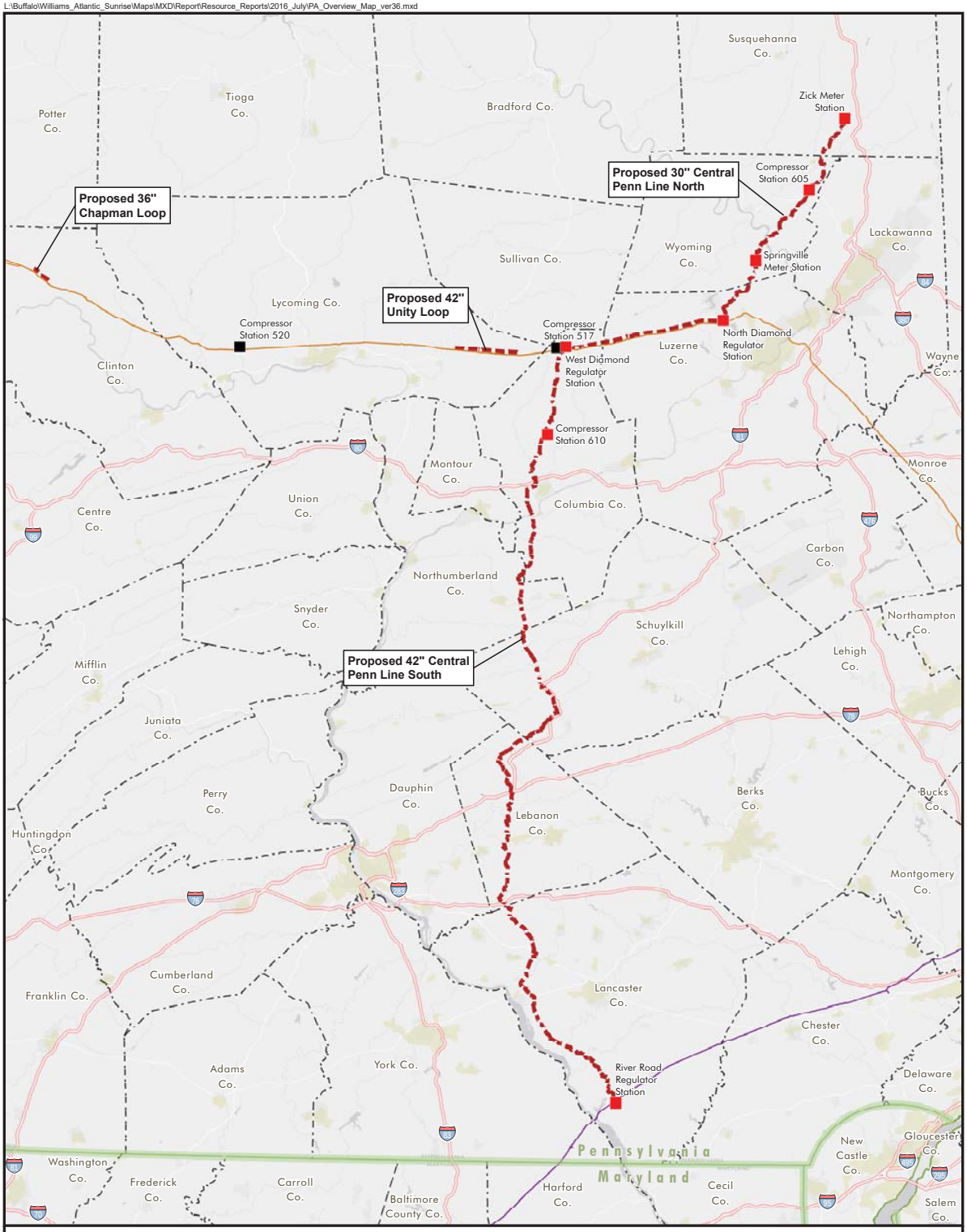


Legend:

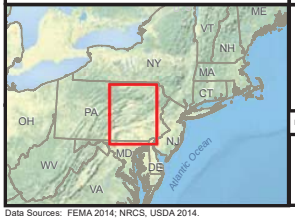
- Existing Aboveground Facility
- New Aboveground Facility
- State Boundary
- County Boundary
- Township Boundary
- Existing Transco Leidy Line Pipeline
- Existing Transco Mainline Pipeline
- Proposed 30" Central Penn Line North, Central Penn Line South, Chapman Line, and Unity Line

N

0 10 20

SCALE IN MILES

SITE LOCATION



DRAWING NO.	REFERENCE TITLE
	1

ATLANTIC SUNRISE PROJECT: PENNSYLVANIA FACILITES

Williams

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
A	7/13/2016	JR	ISSUED FOR FERC PRE-FILING	1000891	BS	BS

DRAWN BY: JR	DATE: 7/13/2016	ISSUE FOR BID: N/A	SCALE: 1:800,000
CHECKED BY: BS	DATE: 7/13/2016	ISSUE FOR CONSTRUCTION: N/A	
APPROVED BY: BS	DATE: 7/13/2016	DRAWING NUMBER:	FIGURE 1: PROJECT LOCATION MAP
WO: 1000891		10:55 AM 7/13/2016	

Data Sources: FEMA 2014; NRCS, USDA 2014.

2 MIGRATORY BIRDS IN THE PROJECT AREA

In total, 426 bird species have been documented in Pennsylvania, of which 290 are considered to occur regularly in the state (Pennsylvania Ornithological Records Committee 2011). The regular occurrence of 290 bird species in Pennsylvania does not mean that all of these species are present year-round, every year. Rather, a species only needs to be documented in the state 8 of the last 10 years to achieve "regular" status. The remaining 136 species are infrequently recorded in Pennsylvania and, in some cases, are extirpated or extinct. Some species are year-round residents, while others may only occur seasonally during spring and/or fall migrations, the breeding season, and/or winter. Most of these species, whether as rare or common occurrences in the state, are protected under the MBTA. The term "migratory birds" hereafter refers to species that are protected under the MBTA, which includes both migrating and non-migrating species.

The Project has the potential to impact migratory birds during all seasons, as construction will occur over the course of 12 months. Likewise, the operations and maintenance phase will occur year-round for the life of the Project. Therefore, this Plan identifies measures to avoid and minimize impacts (Section 4), as well as impacts that may still occur after implementation of these measures (Section 5). Breeding migratory birds, however, are of particular concern as Project-related impacts may affect their ability to reproduce successfully. Similarly, BCCs are of added concern. For these reasons, this section and Section 3 "Migratory Bird Habitat in the Project Area" address breeding migratory birds and BCCs, and their habitats, in more detail.

2.1 Breeding Birds

In the breeding season, successful reproduction is the primary purpose of adult birds. During this period, birds in the Project area will be engaged in courtship, nest-building, parental care, foraging, and nest/territory defense to increase the chances of survival for themselves and their young.

The USFWS Pennsylvania Field Office has indicated that field surveys for migratory birds are not necessary, as birds are expected to occur in all Project habitats (Zimmerman 2014). Furthermore, migratory bird occurrence data are ample in the counties crossed by the Project, allowing for the development of a comprehensive list of the species that regularly occur in the area. Experienced avian ecologists reviewed occurrence data from eBird (2014), the United States Geological Survey (USGS) Breeding Bird Survey (Sauer et al. 2014), and the Pennsylvania Breeding Bird Atlas (Wilson et al. 2012) and developed a table of migratory bird

species potentially breeding in the Project area by county (Appendix A, Table A-1). The species lists for each county were compared to the land cover of the Project area using field-collected data and desktop data for areas where on-site access has not yet been granted. Species were removed from county lists where suitable nesting habitat will not be traversed by the Project. Habitat information for each species was compiled from The Birds of North America Online (Poole 2005). See Section 4 for details on land cover/habitats in the Project area.

The review of available occurrence data revealed 157 migratory bird species that are regular breeders in counties crossed by the Project (Table A-1). Table A-1 in Appendix A includes information on median fledge dates and breeding date ranges. These species represent many major bird taxa, including, but not limited to, waterfowl, raptors, shorebirds, nightjars, woodpeckers, and passerines. Many of the species are possible breeders throughout most, if not all, counties crossed by the Project, while others are limited to just a few counties. Species limited to small portions of the Project area may be restricted by available nesting habitat, like the peregrine falcon (*Falco peregrinus*), which now occurs primarily in urban areas in Pennsylvania (Brauning 2014). Other species are restricted by range. The Carolina chickadee (*Poecile carolinensis*), for example, reaches the northern extent of its range in the southernmost counties crossed by the Project (Mostrom et al. 2002; eBird 2014; Sauer et al. 2014). Conversely, the magnolia warbler's (*Setophaga magnolia*) breeding range extends only as far south as Columbia County (Dunn and Hall 2010; Wilson et al. 2012; eBird 2014; Sauer et al. 2014).

2.2 Wintering Birds

During the winter, birds are primarily focused on finding food and shelter, particularly in areas with harsher winter climates such as the Project area. More than 120 migratory bird species regularly overwinter in counties crossed by the Project (eBird 2014). Most of these species are year-round residents, although about one-third of them are primarily winter residents. Waterfowl, such as cackling goose (*Branta hutchinsii*) and American wigeon (*Anas americana*), make up more than half of the winter-only residents. The remaining regular winter-only residents include raptors (e.g., rough-legged hawk [*Buteo lagopus*]), gulls (e.g., great black-backed gull [*Larus marinus*]), and passerines (e.g., northern shrike [*Lanius excubitor*] and common redpoll [*Acanthis flammea*]).

2.3 Migrating Birds

During spring and fall migrations, birds travel from areas of low or decreasing resources (i.e., nesting sites and/or food) to areas of high or increasing resources (Cornell Lab of

Ornithology 2007). Migrating birds, especially long-distance migrants, may stop over at various locations *en route* to their breeding or wintering grounds to forage and rest. However, birds migrating through the Project area during spring and fall are likely to be present for only a short period of time to rest and feed.

There are more than 200 migratory bird species that regularly occur in the counties crossed by the Project during the spring and fall migration periods (eBird 2014). Migrating birds that are present in the Project area may be arriving to breed (spring) or to overwinter (fall), or they may be passing through on their way to other breeding or wintering grounds. Some species will be departing the Project area for breeding grounds further north or at higher elevations in the spring, or to wintering grounds further south or at lower elevations in the fall. Year-round residents also will be present in the Project area during spring and fall migrations.

A number of species typically only occur in the counties crossed by the Project during spring and/or fall migrations. Shorebirds (e.g., dunlin [*Calidris alpine*]), terns (e.g., Caspian tern [*Hydroprogne caspia*]), and warblers (e.g., Tennessee warbler [*Oreothlypis peregrine*]) make up the bulk of these migrant visitors (eBird 2014). Some of these migrant species are substantially more likely to occur in the Project area during the fall than during the spring—most notably, shorebirds. In most cases, these species follow different migration routes in the fall than in the spring. For example, buff-breasted sandpipers (*Calidris subruficollis*) and Baird's sandpipers (*Calidris bairdii*) follow a relatively narrow corridor through the central United States en route to Arctic breeding grounds but travel a similar but wider corridor in the fall (Lanctot and Laredo 1994; Moskoff and Montgomerie 2002).

The Project will also traverse a major pathway for migrating raptors. Kittatinny Ridge is an Important Bird Area (IBA) through which 16 species of raptors, comprising tens of thousands of individuals, migrate each year (PGC 2013). For example, in the fall of 2014, more than 24,000 raptors were recorded migrating through the Waggoner's Gap Hawkwatch site, a ridgeline approximately 40 miles west of the Project (Hawk Migration Association of North America 2014). Refer to Section 3.2.1 for more discussion of the Kittatinny Ridge IBA.

2.4 Birds of Conservation Concern

Though all migratory birds are afforded protection under the MBTA, EO 13186 and the FERC MOU require that BCCs are prioritized when considering impacts on migratory birds. The Project area is located in the northern portions of BCRs 28 (Appalachian Mountains) and 29 (Piedmont) (USFWS 2008). A list of BCCs within the Project area was developed by cross-referencing the migratory birds that are known to occur in the Project area (using data from

eBird [2014], the USGS Breeding Bird Survey [Sauer et al. 2014], and the Pennsylvania Breeding Bird Atlas [Wilson et al. 2012]) with the BCC lists for BCRs 28 and 29 (USFWS 2008). Transco determined that 18 BCCs regularly occur in the Project area, including four non-breeding species; these species are listed in Appendix A, Table A-2. Additional species were considered but excluded as presented below.

- The northern saw-whet owl (*Aegolius acadicus*), yellow-bellied sapsucker (*Sphyrapicus varius*), black-capped chickadee (*Poecile atricapillus*), and red crossbill (*Loxia curvirostra*) were excluded from Table A-2 because only the Southern Appalachian breeding populations are listed as BCCs and the Project is not within the southern portion of the Appalachian Mountains.
- Non-breeding populations of the sedge wren (*Cistothorus platensis*) are listed as BCC in BCR 28. This species is listed as a BCC in BCR 29 for all seasons. However, the sedge wren was excluded from Table A-2 because it does not regularly occur in the Project area at any time of year.
- The following species and subspecies are listed as BCCs in BCRs 28 and/or 29 but were excluded from Table A-2 because their ranges do not overlap with the Project area: loggerhead shrike (*Lanius ludovicianus*), Swainson's warbler (*Limnothlypis swainsonii*), black rail (*Laterallus jamaicensis*), brown-headed nuthatch (*Sitta pusilla*), Bachman's sparrow (*Peucaea aestivalis*), and the *bewickii* subspecies of the Bewick's wren (*Thryomanes bewickii*).

Fourteen of the listed BCCs in the Project area, including the bald eagle, are regular breeders in one or more counties crossed by the Project. According to the Pennsylvania Bald Eagle Nest Locations and Buffer Zones mapped by the USFWS (USFWS 2015), the closest known bald eagle nest to the Project is approximately 0.6 miles (3,160 feet) west of CPL South in Schuylkill County. A second nest was identified through a comment submitted to FERC. In February 2015, the nest was identified in the field by Transco-contracted personnel. This nest was confirmed as a probable bald eagle nest, although its status (i.e., active or not active) was not determined during the field visit. The nest is approximately 0.4 miles (2,110 feet) east of CPL South in Lancaster County. There are no other known bald eagle nests within 1 mile of any of the other Project facilities.

3 MIGRATORY BIRD HABITAT IN THE PROJECT AREA

3.1 General Habitat

This section describes the land cover types traversed by the Project that provide habitat for migratory birds (Table 3-1). Transco identified land cover in the Project area with a combination of field surveys, interpretation of recent aerial photography, and state geographic information system land cover/land use data layers (Pennsylvania Department of Conservation and Natural Resources [PADCNR] 2013a,b). Land cover was categorized during field surveys using a natural community classification system based on the *Terrestrial and Palustrine Plant Communities of Pennsylvania* (Fike 1999) for uplands and the *Classification of Wetlands and Deepwater Habitats in the United States* (Cowardin et al. 1979) for wetlands. Land cover in the Project area includes the following six broad types: upland forest, open land, wetland, open waters, agricultural land, and developed land, including industrial or commercial land, transportation land, and residential land. All land cover types, natural and human-modified, support migratory birds, but the species composition and abundances vary due to a variety of factors such as the time of year and resources available to birds (e.g., nest/roost sites, food). The general land cover types (i.e., migratory bird habitats) occurring in the Project area are discussed in further detail in Sections 3.1.1 to 3.1.6.

3.1.1 Upland Forest

In Pennsylvania, upland (terrestrial, non-palustrine) forest is defined as land dominated by trees over 16 feet tall and having at least 60% aerial cover (Fike 1999). Woodlands, which have trees over 16 feet tall but with as little as 10% aerial cover, are also grouped into this general land cover type. The Project will cross 71.5 miles of upland forests; deciduous forests account for approximately 60% of the upland forest areas traversed by the Project, and mixed and coniferous forests make up approximately 35% and 5%, respectively. Conifers, such as eastern hemlock (*Tsuga canadensis*) and eastern white pine (*Pinus strobus*), have been reduced by selective cutting. Red maple (*Acer rubrum*), black birch (*Betula lenta*), and eastern white pine are becoming more common in Pennsylvania, while sugar maple (*Acer saccharum*), eastern hemlock, and oak species (*Quercus* spp.) are declining (PADCNR 2010). The PADCNR (2010, 2014) reports that old-growth forests (forests that are near climax and have suffered few, if any, intrusions by humans) in Pennsylvania are uncommon. This is consistent with Transco's 2014 field observations. In general, CPL North and the northern part of CPL South contain the least amount of forest fragmentation, while forested land along the southern part of CPL South is the most fragmented, with numerous small patches and minimal interior forest.

Table 3-1

Land Use Types Crossed by the Pennsylvania Pipeline Facilities

Facility	Agricultural Land		Upland Forest/ Woodland		Industrial/ Commercial Land		Transportation Land		Residential Land		Open Land		Wetlands		Open Water		Total[a]	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Pennsylvania																		
CPL North	11.5	19.6	30.6	52.1	0.1	0.1	0.8	1.4	1.6	2.7	10.6	18.1	3.0	5.1	0.6	1.0	58.7	100.0
CPL South	70.7	55.5	37.6	29.5	0.3	0.2	2.1	1.7	2.2	1.7	7.6	6.0	1.2	0.9	1.2	0.9	127.3	100.0
Chapman Loop	0.0	0.0	0.4	16.0	0.0	0.0	<0.1	0.0	0.0	0.0	2.1	84.0	<0.1	0.0	0.0	0.0	2.5	100.0
Unity Loop	2.7	31.8	3.0	35.3	0.0	0.0	0.1	0.1	<0.1	0.0	2.2	25.9	0.2	2.4	0.1	1.2	8.5	100.0
PA Total	**89.3**	45.3	**71.5**	36.3	**0.4**	0.2	**3.1**	1.6	**3.9**	2.0	**22.5**	11.4	**6.3**	3.2	**0.9**	0.5	**197.0**	**100.0**

[a] All values rounded to the nearest tenth; numbers may not sum exactly due to rounding.

Key:
CPL = Central Penn Line
PA = Pennsylvania

M-20

Examples of migratory birds commonly occurring in upland forested areas in counties crossed by the Project include the red-bellied woodpecker (*Melanerpes carolinus*), a year-round resident, and the black-and-white warbler (*Mniotilta varia*), which migrates to the area to breed. Two BCCs are year-round residents of upland forests in counties crossed by the Project: the bald eagle and red-headed woodpecker (*Melanerpes erythrocephalus)*. An additional seven BCCs migrate to counties crossed by the Project to breed in upland forests each spring: wood thrush (*Hylocichla mustelina*), eastern whip-poor-will (*Antrostomus vociferous*), worm-eating warbler (*Helmitheros vermivorum*), Louisiana waterthrush (*Parkesia motacilla*), Kentucky warbler (*Geothlypis formosa*), cerulean warbler (*Setophaga cerulean*), and Canada warbler (*Cardellina canadensis*). The olive-sided flycatcher (*Contopus cooperi*) is a BCC that may use upland forests in counties crossed by the Project during spring and/or fall migrations (see Table A-1).

3.1.1.1 Deciduous Forest

Deciduous forests and woodlands consist of broadleaf trees (e.g., oaks and maples) that provide at least 75% of the overall canopy cover (Fike 1999). As previously noted, deciduous forest is the predominant forest community crossed by the Project, particularly in Columbia, Lebanon, Luzerne, Northumberland, Schuylkill, and Wyoming Counties. In total, the Project will cross approximately 40 miles of upland deciduous forest. Red maple was most commonly reported during the 2014 field surveys, along with multiple stands of red oak (*Quercus rubra*), white oak (*Quercus alba*), black walnut (*Juglans nigra*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), and various hickory (*Carya* spp.) species. Several occurrences of black cherry (*Prunus serotina*), gray birch (*Betula populifolia*), tuliptree (*Liriodendron tulipifera*), box elder (*Acer negundo*), and quaking aspen (*Populus tremuloides*) also were observed within this community type in the Project area. A limited number of sugar maple stands were identified in deciduous forest areas during the 2014 surveys.

3.1.1.2 Coniferous Forest

Coniferous forests and woodlands in Pennsylvania consist of cone-bearing trees with needle-like leaves, especially eastern hemlock and eastern white pine that generally exceed 75% of the overall canopy cover (Fike 1999). Associated species include a variety of northern hardwoods and oaks. Coniferous forests make up a relatively small portion of the total upland forest area crossed by the Project and account for approximately 3 miles of crossings. This forest type is most prominent in Luzerne and Columbia Counties. The trees most commonly

encountered in this forest community during the 2014 field surveys included eastern hemlock and eastern red cedar (*Juniperus virginiana*).

3.1.1.3 Mixed Deciduous/Coniferous Forests

Mixed forests and woodlands are defined as those whose canopy covers of both deciduous trees and coniferous trees exceed 25% (Fike 1999). Mixed forest communities were frequently encountered during the 2014 field surveys, as this forest type makes up approximately 25 miles of upland forest crossed by the Project. This forest type is prominent in the counties of Columbia, Luzerne, and Wyoming. Commonly observed mixed-forest species included eastern white pine, red maple, eastern hemlock, black walnut, American beech, and several birch (*Betula* spp.) species. Black cherry, red cedar, and oak species also were occasional components of the mixed forest communities. Some pine and oak appear to be planted in rows, but field conditions indicate that these areas are not part of an active silviculture operation.

3.1.2 Open Lands

The open land cover type includes all non-forested and non-wetland vegetated areas that are not landscaped or in agricultural production. It includes terrestrial herbaceous openings such as terrestrial grasslands (including non-palustrine meadows), successional old fields (i.e., previously active agricultural land), and maintained utility ROWs, as well as non-palustrine shrublands. In Pennsylvania, these terrestrial herbaceous openings and shrublands are generally defined as having less than 25% tree cover that is 16 feet or more tall (Fike 1999). Open lands have typically been cleared for farming, utility construction, or other developments but are not subject to frequent maintenance or disturbance. A majority of open lands within the Project are existing utility ROWs (accounting for approximately 22 miles) and shrublands (accounting for approximately 7 miles). Utility ROW lands were common in Luzerne, Lycoming, Columbia, and Chapman Counties, whereas shrublands were more frequently encountered in Wyoming, Schuylkill, and Columbia Counties.

Dominant plant species identified in the maintained ROWs during Transco's 2014 field surveys included timothy grass (*Phleum pretense*), Virginia strawberry (*Fragaria virginiana*), hayscented fern (*Dennstaedtia punctilobula*), creeping buttercup (*Ranunculus repens*), goldenrod (*Solidago* spp.), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), Kentucky blue grass (*Poa pratensis*), and smooth brome (*Bromus inermis*). Vegetation encountered in non-ROW open lands included reed canary grass (*Phalaris arundinacea*), goldentop (*Euthamia* spp.), multiflora rose (*Rosa mulitflora*), and clover species.

Examples of migratory birds commonly occurring in open land habitats in counties crossed by the Project include the American goldfinch (*Spinus tristis*), a year-round resident, and the gray catbird (*Dumetella carolinensis*), which migrates to the area to breed. An additional four BCCs migrate to counties crossed by the Project to breed in open lands each spring: blue-winged warbler (*Vermivora cyanoptera*), golden-winged warbler (*Vermivora chrysopter*), prairie warbler (*Setophaga discolor*), and Henslow's sparrow (*Ammodramus henslowii*). The upland sandpiper (*Bartramia longicauda*) and short-eared owl (*Asio flammeus*) are BCCs that may use open lands in counties crossed by the Project but are not known breeders in the area (see Table A-1).

3.1.3 Wetlands

During 2014 and 2015 field surveys, Transco classified wetlands in the Project area as palustrine forested (PFO), palustrine scrub-shrub (PSS), or palustrine emergent (PEM) (Cowardin et al. 1979). Palustrine systems include all non-tidal wetlands that are dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens. The palustrine system was developed to group vegetated wetlands, commonly referred to as marshes, swamps, bogs, and prairies. Transco routed the proposed pipeline facilities and work areas to avoid wetlands to the greatest extent practicable, resulting in 6.3 miles of wetlands crossed by the Project. Wetlands are most prominent in Wyoming, Luzerne, Columbia, and Lebanon Counties.

Examples of migratory birds commonly occurring in wetlands in counties crossed by the Project are the swamp sparrow (*Melospiza georgiana*) and the red-winged blackbird (*Agelaius phoeniceus*), which are year-round residents. Two BCCs use wetlands during migration and winter only: short-eared owl and rusty blackbird (*Euphagus carolinus*) (see Table A-1).

3.1.3.1 Palustrine Emergent Wetlands

PEM wetlands are non-tidal wetlands characterized by erect, rooted, herbaceous hydrophytes, although some woody vegetation may be present. Hydrologic conditions may vary temporally in wetlands, with a sustained presence of water in the growing season that may increase or decrease during other parts of the year. Therefore, the vegetation found in PEM wetlands can be highly dynamic, with turnovers in the plant community based on changes in the season and hydrologic regime. Typically, hydrophytic vegetation is present for a majority of the growing season in most years (Cowardin et al. 1979). PEM wetlands are the most frequently encountered wetland type in the Project area, accounting for approximately 60% of the wetlands traversed by the Project.

Commonly observed species in PEM wetlands during Transco's surveys include spotted jewelweed (*Impatiens capensis*), fringed sedge (*Carex crinita*), lurid sedge (*Carex lurida),* common fox sedge (*Carex vulpinoidea*), sensitive fern (*Onoclea sensibilis*), Japanese stilt-weed (*Microstegium vimineum*), soft rush (*Juncus effusus*), and reed canary grass.

3.1.3.2 Palustrine Scrub-shrub Wetlands

PSS wetlands are freshwater wetlands dominated by woody vegetation less than 20 feet in height or with trunks less than 3 inches in diameter at breast height. The woody vegetation found in PSS wetlands is typically composed of true shrubs, saplings, young trees, and other stunted trees or shrubs (Cowardin et al. 1979). PSS wetlands account for approximately 15% of the wetlands traversed by the Project. Frequently observed shrub species observed during Transco's field surveys and associated with PSS wetlands include highbush blueberry (*Vaccinium corymbosum*), spicebush (*Lindera benzoin*), and multiflora rose.

3.1.3.3 Palustrine Forested Wetlands

PFO wetlands are commonly dominated by hydrophytic trees such as black willow (*Salix nigra*). Notable exceptions include wetlands that contain non-hydrophytic trees displaying buttressed roots (Environmental Laboratory 1987). In addition, some non-hydrophytic shrubs and trees can dominate PFO wetlands by rooting on raised microtopography throughout the wetland. PFO wetlands account for approximately 25% of the wetlands traversed by the Project, primarily in the CPL North and to a lesser extent in CPL South and the Unity Loop sections. Commonly observed tree species found in PFO wetlands during Transco's field surveys include eastern hemlock, black willow, and red maple.

3.1.4 Open Waters

Open water includes rivers, streams, creeks, canals, and other linear waterbodies, as well as lakes, ponds, and other non-flowing waterbodies. The Project ROWs will traverse a relatively small amount of open water, making up less than 1% of the total area and less than 1 mile. The Project will traverse a total of 230 linear perennial waterways in Pennsylvania. Based on FERC's classification system, the majority of waterways to be crossed by the Project are minor and/or intermediate, that is, less than 100 feet wide. The Project will traverse four major waterways, classified as those greater than 100 feet wide: the Susquehanna River (two crossings), the Conestoga River, Tunkhannock Creek, and Swatara Creek. The Project will traverse four non-linear waterbodies, such as ponds, accounting for less than 200 feet. Two of

these non-linear waterbodies are located along CPL North, and two are located along CPL South.

Examples of migratory birds commonly occurring in open water habitats in counties crossed by the Project include the mallard *(Anas platyrhynchos)* and the double-crested cormorant *(Phalacrocorax auritus*). There are no BCCs that breed in open water habitats; however, open water habitats are vital components of the breeding territories of several BCCs occurring in counties crossed by the Project, such as the bald eagle, wood thrush, Louisiana waterthrush, and Kentucky warbler (see Table A-1).

3.1.5 Agricultural Lands

Agricultural land includes land associated with active cultivation of row and field crops; areas of grasses planted for livestock grazing or for the production of hay crops; orchards; and specialty crops, including vineyards, Christmas trees, fruits, and vegetables. Agricultural lands make up 45% of the lands crossed by the Project, for a total of 89.3 miles. Agricultural lands are the dominant land use along CPL South and make up a smaller portion of CPL North and the Unity Loop. No agricultural lands are crossed by the Chapman Loop. Agricultural lands crossed by CPL South in Lancaster and Lebanon Counties are primarily large tracts of row and field crops such as corn, soybeans, wheat, and hay. Agricultural lands crossed by CPL South in Schuylkill and Columbia Counties; CPL North in Columbia, Luzerne, Wyoming, and Susquehanna Counties; and Unity Loop in Lycoming County, are primarily hay fields with limited areas of row crops.

Examples of migratory birds commonly occurring in agricultural lands in counties crossed by the Project are the red-tailed hawk (*Buteo jamaicensis*) and the vesper sparrow (*Pooecetes gramineus*). The short-eared owl, red-headed woodpecker, and rusty blackbird are BCCs that may use agricultural lands in counties crossed by the Project (see Table A-1).

3.1.6 Developed Lands

Developed land includes land that has been modified or adapted from its original use. For the purposes of this Plan, developed land includes industrial and commercial lands, transportation lands, and residential lands. Industrial land used for mines, quarries, or manufacturing or other industrial facilities, and commercial land that has been developed for commercial or retail uses account for a total of 0.4 miles of the Project area. The Project will cross 3.1 miles of transportation land, most of which is located in CPL South and is composed of interstate highways; state, county, and local highways and roads; and railroad lines.

Residential land, including any land or structure associated with residential areas, accounts for a total of 3.9 miles of the Project area.

Examples of migratory birds commonly occurring in developed lands in counties crossed by the Project are the house finch (*Haemorhous mexicanus*), a year-round resident, and the chimney swift (*Chaetura pelagica*), a summer breeding resident. Peregrine falcons are a BCC that nest in developed lands in counties crossed by the Project (see Appendix A, Table A-1).

3.2 Migratory Bird Key Habitat Areas

Transco identified specific areas where BCCs are known or assumed to occur in the Project area or are recognized as having greater value to birds. These areas, referred to as key habitat areas, were identified in an effort to establish the locations where vegetation clearing may have the greatest potential to result in adverse impacts on BCCs and where enhanced avoidance, minimization, and mitigation measures would be implemented. The areas considered key habitat areas are: Audubon Pennsylvania IBAs, Pennsylvania State Forests, Pennsylvania State Game Lands (SGLs), eBird (2014) hotspots, and interior forests. Habitats connected to these areas (i.e., not fragmented by major roads or other man-made features) also were considered. Interior forests were identified because they are assumed to provide suitable breeding habitat for the six interior forest BCCs occurring in the Project area. These migratory bird key habitat areas are discussed in further detail below and presented in Appendix A, Table A-3 and Figure B-1 in Appendix B.

3.2.1 Important Bird Areas

The IBA program is a global bird conservation initiative of BirdLife International and is implemented in the United States by the National Audubon Society (NAS 2014; Pennsylvania NAS 2013) and its local partners. Its purpose is to identify and conserve sites that provide essential habitats for breeding, wintering, and/or migrating birds. IBAs vary in size and may occur on public or private lands. Sites designated as IBAs must support one or more of the following: 1) special-status species, 2) restricted-range species, 3) species that are vulnerable because their populations are concentrated in one general habitat type or biome, and/or 4) species, or groups of similar species that are vulnerable because they congregate at high densities.

In Pennsylvania, IBAs are designated by the Pennsylvania Ornithological Technical Committee and encompass more than two million acres (Pennsylvania NAS 2013). The Project will traverse portions of four IBAs (Table A-3 and Figure B-1). CPL North will cross 0.5 miles of

the Ricketts Glen – Crevelling Lake Area IBA; however, the Project will be co-located with Transco's existing Leidy Line through this IBA. CPL South will cross approximately 1.7 miles of the St. Anthony's Wilderness – SGL 211 IBA. A majority of these crossings impact continuous mixed forest or deciduous forest habitat. CPL South will cross approximately 2 miles of the Kittatinny Ridge IBA, and impacted habitats will be continuous deciduous forest, mixed forest habitat, and cropland/pastureland, with some patches of open and developed land. CPL South also will cross 0.2 miles of the Lower Susquehanna River Gorge – Conowingo/Muddy Run IBA, through a mixture of forest, agricultural, and developed land. The Project also will cross forest lands (i.e., "Connecting Habitats") that are connected to the Tamarack Swamp IBA near the Chapman Loop and the Lower Susquehanna River Gorge – Conowingo/Muddy Run IBA near CPL South.

3.2.2 Pennsylvania State Forests

There are 2.2 million acres of land in the Pennsylvania state forest system. The goal of the state forest system is to retain forests' wild character and biological diversity while providing pure water and emphasizing opportunities for dispersed recreation, habitats for plants and animals, sustained yields of quality timber, and environmentally sound use of mineral resources (PADNCR 2014b).

The Chapman Loop will traverse Sproul State Forest adjacent to the existing Leidy Line system ROW. Approximately 0.9 miles of the state forest will be crossed during construction. Forest habitats adjacent to the existing ROW are connected to the Tamarack Swamp IBA. Refer to Table A-3 and Figure B-1 for more details on the specific Project locations and bird species observed in Sproul State Forest and connected forest habitats.

3.2.3 Pennsylvania State Game Lands

The PGC administers 305 individual SGLs that make up over 1.4 million acres, of which about 1.2 million acres are categorized as forest (Jacobson et al. 2010). The SGLs are primarily managed for the protection, propagation, and preservation of game and non-game wildlife. During development of the CPL North and CPL South pipeline routes, Transco attempted to avoid all SGLs. In cases where avoidance was not practicable, Transco attempted to co-locate the proposed route with existing utility ROWs to minimize effects on wildlife habitat in SGLs where possible. Portions of four Pennsylvania SGLs are crossed by the Project: SGL 206, SGL 084, SGL 132, and SGL 211 (Table A-3 and Figure B-1).

CPL North will cross the northern edge of SGL 206 at two locations in Luzerne County where it is co-located with Transco's existing Leidy Line. The Project will cross approximately 1.0 mile of the SGL, comprising mostly open land on the existing ROW and upland forest adjacent to the ROW. The area also includes two intermediate-size stream crossings along the route: Shingle Run and Arnold Creek.

CPL South will cross approximately 0.3 miles of SGL 211 in Lebanon County, all of which is upland forest. The Project will cross the Appalachian Trail within a forested portion of SGL 211. Transco plans to cross the trail and adjacent portion of SGL 211 using a directional bore.

CPL South will cross approximately 0.8 miles of SGL 132 adjacent to an existing oil pipeline ROW. This crossing consists of open land on the existing ROW and upland forest outside of the maintained ROW.

CPL South will cross approximately 0.8 miles of SGL 084 adjacent to an existing electric transmission line ROW. This crossing consists mostly of upland forest adjacent to the open land on the existing ROW.

3.2.4 eBird Hotspots

eBird (2014) is the world's largest repository for bird observation data launched by the National Audubon Society and Cornell Lab of Ornithology in 2002. It houses hundreds of millions of bird observations, with millions more arriving each month. eBird has designated many birding areas as hotspots and summarizes data for these locations. All eBird hotspots near the Project were reviewed, and those with a minimum of 100 species recorded were included in the list of key habitat areas in the Project area. The presence of eBird hotspots with at least 100 species observed indicates two things: 1) that many bird species use this area throughout the year; and 2) the area is important/popular with birders and representative of the public's value of this site/habitat. All eBird hotspots with at least 100 recorded species were part of established IBAs and SGLs, with the exception of Safe Harbor/Conestoga River Park. In a few cases, an SGL or IBA was associated with an eBird hotspot that did not have at least 100 recorded species; however, eBird data were still used to identify the potential presence of BCCs. Refer to Table A-3 and Figure B-1 for more details on the specific locations and bird species observed for eBird hotspots in the Project area.

3.2.5 Interior Forests

Transco identified interior forest habitats in the vicinity of the Project and routed the Project to avoid them to the greatest extent practicable. Interior forests provide habitat that is not substantially influenced by edge habitat conditions, such as light penetration, wind, humidity, and exposure to predators (Slonecker et al. 2012). For the purposes of this evaluation, Transco defined interior forest as forest patches that are located more than 300 feet from a non-forested edge (Harper et al. 2005).

3.2.5.1 Minimum Area Requirements for Birds of Conservation Concern

Six BCCs that breed in the Project area are interior forest birds that are considered area-sensitive: wood thrush, Louisiana waterthrush, worm-eating warbler, Kentucky warbler, cerulean warbler, and Canada warbler. These species require large areas of interior forest to breed successfully. Robbins (1979) examined minimum area requirements for forest birds in Maryland using Breeding Bird Survey data and provided preliminary estimated areas needed to sustain viable breeding populations for several of the species noted above, including wood thrush (250 acres), Louisiana waterthrush (250 acres), worm-eating warbler (750 acres), and Kentucky warbler (80 acres). Later, Robbins et al. (1989) examined the minimum area requirements for forest birds in Maryland and adjacent counties in Pennsylvania, Virginia, and West Virginia based on the relative abundances of each species established from point count surveys. The authors suggest that the minimum forest patches required for the six BCCs noted above to breed are as follows: wood thrush (2.5 acres), worm-eating warbler (370 acres), Louisiana waterthrush (865 acres), Kentucky warbler (42 acres), cerulean warbler (1,730 acres), and Canada warbler (988 acres). These requirements were identified using the forest size at which the probability of a species occurring is 50%.

Robbins et al. (1989) note that species may occur in forest patches smaller than their suggested minimum area requirements, but that presence alone is not an indication that the species is successfully breeding in those areas. Several studies have attempted to refine Robbins et al.'s estimates and have focused specifically on some of the BCCs that breed in the Project area. For example, Hoover et al. (1995) examined nesting success of wood thrushes relative to the forest area categories used by Robbins et al. (1989) to study minimum area requirements. Hoover et al. found that wood thrushes had about 35% nesting success in forest patches 25 to 75 acres in size, despite Robbins et al. determining that the species had a 70% probability of being detected in a forest in that size range. Nesting success was not examined for forests 250 acres in size, which Robbins et al. (1989) identified as having a 75% chance of

detecting a wood thrush and which Robbins (1979) estimated was the minimum area required to sustain a viable population of the species.

Wenny et al. (1993) evaluated minimum area requirements for worm-eating warblers and Kentucky warblers in Missouri and found that Robbins et al.'s (1989) minimum area requirements may be too small for these species. Worm-eating warblers were not present in a 741-acre site and were present, but not breeding, in an 840-acre site. The authors also suggest that 741-acre forests may not be suitable for sustaining a minimum viable population of Kentucky warblers. Robbins et al. had previously suggested the minimum area requirements for these species were 370 acres and 42 acres, respectively.

Research indicates that not all interior forest areas are of the same value, particularly as they pertain to the forest interior BCC species occurring in the Project area. While it is possible that these species may occur in smaller forest patches during the breeding season, it appears that they may have limited reproductive success (Wenny et al. 1993; Hoover et al. 1995). Based on the work of Robbins (1979), Robbins et al. (1989), Wenny et al. (1993), and Hoover et al. (1995), the smallest minimum area requirement of the six interior forest BCCs belongs to the wood thrush. Hoover et al. (1995) found that this species has limited success breeding in smaller forests (i.e., 25 to 75 acres) but, unlike Robbins et al. (1989), did not test forests of 250 acres and greater. Robbins (1979) also indicated that 250 acres was the minimum area required to sustain a viable population of wood thrushes.

Based on this literature review, and for the purposes of this evaluation, Transco has conservatively estimated 250 acres as the minimum forest patch requirement for the six forest interior BCCs to nest successfully. As a conservative approach, Transco identified interior forests traversed by the Project that are part of a forest patch (including interior and edge forest) approximately 225 acres or greater, as discussed below. These are the interior forests anticipated to have the highest potential for breeding BCCs and, therefore, impacts from construction of the Project may have adverse effects on forest interior birds.

3.2.5.2 Delineating Interior Forests

Transco used recent aerial photography (Google Earth September 12, 2012–September 26, 2014 [Google Earth 2015] and Transco aerial imagery dated April 2014) to delineate the amount of interior forests associated with forest patches 225 acres or greater crossed by the pipeline facilities. Forest patches were delineated by their non-forested edges. Edge was defined as the "Interface between forested and non-forested ecosystems or between two forests

of contrasting composition or structure. In practice, a forest edge can be defined as the limit of the continuous canopy or the boundary in canopy composition" (Harper et al. 2005).

Forest patches included mid-successional or mature forests of any species composition. Christmas tree farms, early successional/shrub vegetation, tree "wind rows," and trees in residential yards or landscaping were not included as forest patches. Individual forest patches were delineated by other non-forested cover types (e.g., agricultural, residential), paved roads, maintained dirt or gravel roads, utility ROWS, and large water features. Unmaintained dirt or gravel roads with intact tree canopy cover, wetlands, small "natural" forest openings, overgrown utility ROWs, and small water features were included within forest patches. After delineating forest patches, interior forests were based on a 300-foot buffer of the forest patch edges. Forest interiors were considered independent of each other, regardless of if they were connected by a common contiguous forest patch.

3.2.5.3 Interior Forests in the Project Area

Based on this analysis, the Project will cross 45 interior forests. No proposed new aboveground facilities are located within interior forests. Interior forests are listed in Appendix A, Table A-3 and shown on Figure B-1 in Appendix B.

4 AVOIDANCE AND MINIMIZATION MEASURES

Transco has implemented avoidance and minimization measures during the planning and pre-construction phases of the Project. Avoidance measures have been developed to reduce direct and indirect environmental impacts, including migratory birds and their habitats. To the extent practicable, Transco avoided and minimized sensitive habitats during Project routing, including SGLs, interior forest habitats, and wetlands.

4.1 Avoidance Measures during Project Siting

The first routing mechanism developed to avoid or minimize effects on sensitive habitats, including forests, was the co-location of pipeline routes with existing utility and transportation infrastructure via a desktop analysis. Approximately 45% of CPL North will be co-located with the existing Transco Leidy Line system, Williams' Field Services (midstream) pipelines, and electric power line ROW; approximately 8% of CPL South will be co-located with electrical power line ROWs; and the Chapman Loop and Unity Loop will be 100% co-located with the existing Transco Leidy Line system. Where co-location with existing infrastructure was not possible, Transco minimized the amount of forested land crossed wherever possible. To the extent feasible, Transco proposes to reduce temporary construction workspace from 90 or 100 feet to 75 feet in wetlands to minimize impacts.

Transco also implemented a series of measures to minimize the potential effects of the Project when routing through forests was unavoidable. Field routing surveys were conducted within a 600-foot-wide study corridor along a centerline that was determined based on desktop data. The field routing survey was designed to further refine the proposed centerline within that corridor to minimize effects on sensitive resources, including interior forest, while developing a constructible route. Large contiguous forest stands (with more interior forest area) were given a greater value, or weight, than smaller fragmented stands, such that routing the pipeline through a smaller noncontiguous forest stand was preferable to routing through a larger contiguous forest stand. This approach was implemented to minimize forest fragmentation, maintain forest and habitat contiguity, protect wildlife movement and dispersal corridors, and maintain higher ratios of interior forest to forest edge. In addition, forest stands with a continuous tree canopy were avoided preferentially over those that had some level of internal fragmentation or discontinuity with respect to tree cover.

In addition, the shape of the forest patch was taken into account to minimize the amount of tree clearing that will be required to construct, operate, and maintain the pipeline. Routing

through a forest patch was accomplished by locating the ROW as far from the interior portion of the forest stand as practicable. Adjusting the route and associated tree clearing effects toward the edges of a forest patch will maximize preservation of interior forest habitat. In addition, more linear forest patches with shorter crossing distances were preferentially selected over forest stands with longer crossing distances due to their shape or geometry. These criteria were implemented to minimize how the effects were spread across a forest stand and to reduce the proportion of the forest stand that will be affected by tree clearing. Furthermore, the routing distance through a forest patch was minimized by locating the pipeline between internal sections of a forest stand that were already disturbed, cleared, or fragmented with respect to forest cover to minimize the total tree clearing impacts within the stand. Lastly, the pipeline was routed to exit the forest stand as soon as feasible to further minimize the length over which forest impacts will occur within a particular stand.

4.2 Impact Minimization Measures

Measures developed to avoid or minimize environmental impacts on sensitive resources during construction and restoration of the Project are also being incorporated into various Project construction and mitigation plans. The Transco Project-specific Environmental Construction Plan (ECP) outlines measures, best management practices, and plans to minimize construction and operational impacts on the environment and other public resources. Avoidance and minimization measures developed by Transco to date that indirectly benefit or relate to migratory birds are listed in this Plan as “General Measures.” Each avoidance and minimization General Measure will be applied throughout the entire Project area for each construction phase where these measures would apply.

In addition to the General Measures, specific measures have been developed to avoid and minimize impacts on migratory birds. These measures are listed in this document as “Migratory Bird-Specific Measures.” Due to the sensitivity of key habitat areas (including larger tracts of interior forest), additional “Key Habitat Area–Specific Measures” have been developed to further reduce Project impacts on migratory bird populations. “Other Resource Specific Measures” have also been included, as they indirectly benefit migratory birds.

A summary of the proposed avoidance and minimization measures is presented below. The document from which each measure was adopted or modified is referenced in parentheses unless otherwise stated in the text of the measure.

4.2.1 General Measures

GM1: Environmental inspectors for each construction spread will be on site during construction and restoration (ECP).

GM2: Clearing will be restricted to only the approved ROW and ATWS areas necessary to complete construction (ECP).

GM3: Transco will clearly delineate the approved workspace boundaries (ECP).

GM4: Where applicable, waterbody setbacks will be maintained at all times (ECP).

GM5: Transco has developed site-specific wetland crossing plans to be implemented during construction (ECP).

GM6: Trees will be felled into the ROWs to prevent damage to trees adjacent to the ROWs (ECP).

GM7: Construction debris (e.g., garbage timber, slash, mats, drilling fluids, excess rock, etc.) will be disposed of according to federal, state, and local regulations (ECP).

GM8: Access to the ROW during construction and restoration activities is permitted only by approved new or existing access roads identified on the construction drawings (ECP).

GM9: Transco will restrict travel from non-essential vehicles, including off-highway vehicles, on the Project ROW and other operations areas (ECP).

GM10: Transco will determine methods and locations for the disposal of tree and other vegetation removed during clearing before initiating construction activities (ECP).

GM11: Speed limits on Project ROWs and access roads will be posted and enforced.

GM12: Erosion control measures will be carefully described in the ECP and Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Transco Plan).

GM13: Transco will implement a site-specific Noxious and Invasive Plant Management Plan for the construction activities associated with the Project.

GM14: Transco will implement a Spill Plan for Oil and Hazardous Materials to prevent any spills that may occur during the Project and to respond to any spills that do occur (ECP).

GM15: Transco will implement fire prevention planning throughout all stages of construction and maintenance (ECP).

GM16: Any herbicides used will be applied according to manufacturer specifications and any applicable regulations (ECP).

GM17: Open ends of agricultural drain tile will be covered to prevent ingress of wildlife (ECP).

GM18: The use of synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat is prohibited, unless the product is specifically designed to minimize harm to wildlife (ECP).

GM19: Vehicles, equipment, and materials (including equipment mats) will be inspected and cleaned of soils, vegetation, and debris before they are brought to the Project area or moved to another work area within the construction ROW to prevent the spread of invasive species (Resource Report 3).

4.2.2 Migratory Bird Specific Measures

MB1: Transco will not conduct clearing activities in migratory bird key habitats from April 1 to July 31 to avoid impacts on breeding migratory birds in these areas (Measure KHA1). Transco will implement all reasonable measures to avoid clearing other, non-key habitat areas during the breeding season (April 1 through July 31) to further minimize impacts. However, for the reasons outlined in Section 4.6, Transco may not be able to complete clearing for all approximately 167 miles of non-key habitat area affected by the Project during the breeding season.

MB2: Protection buffers around active, known bald eagle nests will be used to avoid adverse impacts on the species from construction activities. These buffers include:

- 330-foot buffer if the construction activity will not be visible from the nest
- 660-foot buffer if the construction activity will be visible from the nest
- 0.5-mile buffer from blasting activities (USFWS 2007).

Note: Transco will continue to work closely with the USFWS, monitor the bald eagle nest database maintained by the USFWS, and take appropriate actions if

any new nests are documented near the construction area, especially if blasting may occur. In the event that new nests are documented near the construction area, Transco will also complete a Bald Eagle Project Screening Form, as recommended by the USFWS (USFWS 2014b; Shellenberger 2015).

MB3: Transco will conduct post-construction routine ROW vegetation maintenance from August 1 to April 14 to avoid potential impacts on the migratory bird breeding season in accordance with the FERC Upland Erosion Control, Revegetation, and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures (FERC 2013a,b), as amended by the Transco Plan and Project-specific Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures). In no cases will routine vegetation maintenance clearing occur between April 15 and July 31 of any year, unless otherwise approved by the appropriate regulatory agencies.

MB4: Transco will provide environmental compliance training that includes specific information related to migratory birds to all construction and operations personnel (ECP).

MB5: Night construction operations will not allow lighting to project upward during migratory periods (approximately August through November and March through May) (ECP).

MB6: For the Project's communication towers, Transco will follow the guidelines set forth in the USFWS (2000) Memorandum *Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers*, to the extent possible. These guidelines include the following:

- Communication towers will be 199 feet or less above ground level.
- No lighting will be used on communication towers.
- Communication towers will be free standing without the support of guy wires.
- Communication towers will be constructed in areas co-located with other Project facilities (e.g., compressor and regulator stations).
- Any security lighting will be down-shielded.

4.2.3 Key Habitat Area Specific Measures

KHA1: Transco will not conduct clearing activities in migratory bird key habitat areas from April 1 to July 31 to avoid impacts on breeding migratory birds in these areas. Key habitat areas cover approximately 15% of the Project length in Pennsylvania. April 1 to July 31 represents the entire breeding season for BCCs that breed within the Project's key habitat areas. The breeding seasons for BCCs in key habitat areas are defined in Table A-2.

KHA2: Transco will clearly delineate the boundaries of key habitat areas with signs during all construction phases, and fencing will be used when clearing trees in adjacent areas during restricted periods to ensure compliance (ECP).

KHA3: Night construction operations will not allow lighting to project upward during migratory periods (approximately August through November and March through May) (ECP).

4.2.4 Other Resource-Specific Measures

Fisheries

The Pennsylvania Fish and Boat Commission imposes timing restrictions for construction in Trout Stocked Waters, Wild Trout Waters, and Class A Wild Trout Streams. The Project will cross several waterbodies with one or more of these trout classifications, including several crossings within migratory bird key habitat areas. The Pennsylvania Boat and Fish Commission timing restrictions (e.g., period when in-stream work is not allowed) for these waterbodies are as follows:

- Trout Stocked Waters: March 1–June 15
- Wild Trout Waters: October 1–December 31
- Class A Wild Trout Streams: October 1–April 1

Northern Long-eared Bat

Northern long-eared bats, a species recently designated as threatened under the ESA, were captured during 2014–2015 summer mist netting and radio-tracking surveys in the Project area. Seasonal vegetation clearing restrictions will be required around roost sites and will vary depending on the Project's proximity to maternity roosts and existing conditions of workspaces (i.e., greenfield vs. existing ROW). Vegetation clearing restrictions for northern long-eared bats are,

in some cases, more conservative than those for migratory birds. In locations within known northern long-eared bat summer habitat and less than 0.25 miles from a documented occupied maternity roost, clearing would not occur between June 1 and July 31 which overlaps with the clearing restriction in MB1 (see Section 4.3). In other areas within 0.25 miles of a known bat hibernaculum, vegetation clearing will be restricted from April 1 to May 14 and from August 16 to November 15. Refer to Figure D-2 in Transco's *Draft Biological Assessment* (Ecology & Environment, Inc. 2015a) for detailed northern long-eared bat vegetation clearing window locations.

4.3 Other Pipeline Construction Considerations

Transco will implement all reasonable measures to avoid potential impacts on migratory birds during the breeding season. Construction contractors will be directed to prioritize clearing of migratory bird habitats. Key habitat areas (defined in Table A-1, and shown on Figure B-1) will be given the highest priority to ensure clearing is completed in these areas during the non-breeding season. Following key habitat areas, priority will be given to any other patches of mature forest. If permit conditions or other restrictions prohibit the use of mechanized equipment or limit access to key habitat areas, Transco will require contractors to use non-mechanized equipment to ensure trees in key habitat areas are felled in the non-breeding season.

Transco will also require the construction contractor to expedite clearing of migratory bird habitats by mobilizing multiple clearing crews for each construction spread. The number of crews assigned to each spread and the starting points will be determined according to site access and the prioritization outlined above.

These measures are intended to ensure that clearing of key habitat areas is completed before April 1. In the unlikely event that a key habitat area is not cleared prior to April 1, Transco will consult with USFWS and FERC to develop a plan to minimize and mitigate potential impacts to migratory birds. Transco has taken all reasonable steps to complete clearing of other migratory bird habitats during the non-breeding season. However, there are multiple challenges to the Project schedule that might prevent clearing in limited sections of the ROW prior to April 1. These include other time of year restrictions, permitting delays and resource availability. The sections below provide a more detailed summary of these potential risks. As described in Section 6, Transco is consulting with USFWS regarding compensatory mitigation for impacts to migratory birds across the Project area. This mitigation will benefit

migratory birds across the region and will be designed to offset any potential impacts resulting from clearing during breeding season.

4.3.1 Time of Year Restrictions

Under normal conditions, pipeline construction activities are completed in sequence where clearing activities are immediately followed by grading, trenching, pipeline installation, backfilling, grading and final restoration. This sequencing minimizes environmental and land use impacts by reducing the amount of time the construction ROW is disturbed. However, for this Project, there are a number of other considerations which significantly restrict Transco's ability to sequence construction in this manner.

The proposed pipeline segments cross 36 streams designated as Class A wild trout streams, and an additional 160 streams designated as wild trout streams. Twenty-three of the Class A wild trout and wild trout streams are also trout stocked streams. These streams are most prevalent in the northern half of the Project along CPL North, the northern half of CPL South, and the Unity Loop. The PAFBC prohibits in-stream construction activities from October 1 through April 1 in Class A wild trout streams, from October 1 through December 31 in wild trout streams, and from March 1 through June 15 in trout stocked streams.

Equipment crossings must be installed across these streams to establish a travel lane along the length of the construction ROW. The installation of these equipment bridges for streams that cannot be spanned will require in-stream disturbance. The inability to install equipment crossings during the restricted period will cutoff access to sections of the construction ROW. As a result, these time of year restrictions, while only technically applicable to in-stream construction, prevent access to sections of the ROW between affected stream crossings and limit all construction activities in these areas.

The available construction window in areas with Class A wild trout streams, when combined with the typical clearing restriction for breeding migratory birds (April 1 through July 31), is limited to August 1 through September 30. For areas with designated wild trout streams, the available construction windows are August 1 through September 30 and January 1 through March 31. The duration of construction activities will vary depending on site and geological conditions, land access, terrain, weather, etc. but, given the size of this Project, it is not practical to complete construction activities within these narrow windows.

4.3.2 Permitting and ROW Acquisition Delays

Transco may not proceed with clearing activities until the FERC approves the project and issues Notice to Proceed. The necessary land rights and applicable permits and clearances must also be obtained prior to clearing. Transco anticipates receiving these items in time to complete clearing of migratory bird habitats before April 2017. However, there is a possibility that one or more of these approvals could delay clearing activities.

Transco continues to negotiate with landowners to obtain the easement necessary to construct the Project. To date, Transco has not been able to negotiate easements with a number of these landowners. If the FERC approves the Project and no agreement with a landowner is reached, Transco may acquire the easement under eminent domain (a right given by statute to take private land for FERC-authorized use) with a court determining compensation. If necessary, the eminent domain process would not begin until the FERC approves the project and can take several months.

Environmental surveys have not been completed on some of these inaccessible properties. These surveys will be completed once Transco gains access to these properties. If environmental resources, such as wetlands or waterbodies, are identified on a property, then Transco may need to modify or obtain certain permits and clearances prior to initiating clearing activities. This permit modification process may take several months.

A delay in the FERC and/or the other downstream risk factors outlined above (e.g., eminent domain process, environmental surveys or permit modifications) has the potential to delay the start of clearing activities. Depending on the extent of these potential delays, it may not be possible to complete clearing activities in some areas prior to April 1.

4.3.3 Resource Availability

Construction of the Project is planned to occur in 2017. Regionally, there are multiple pipeline projects that are expected to be under construction during this timeframe. These projects will be subject to similar time of year restrictions, which will limit the resources (e.g., equipment and qualified personnel) available to complete clearing prior to April 1.

4.4 Restoration and Revegetation

Restoration and revegetation measures included in Transco's ECP are developed to reduce environmental impacts, including impacts on migratory bird habitats. Transco is currently starting restoration planning and is considering the functionality of seed mixes as they relate to migratory birds. Transco has selected optimal seed mixes that will not only reestablish

vegetation cover and stabilize the ROW but will also benefit migratory birds and other wildlife species (e.g., butterflies, pollinators). Seed mixes include plant species that are native to the region.

For restoration of temporary workspaces, Transco is evaluating and consulting with applicable agencies and organizations (e.g., USFWS, Natural Resources Conservation Service, and National Wild Turkey Federation) regarding activities that will maximize wildlife habitat and food sources.

5 PROJECT EFFECTS ON MIGRATORY BIRDS AND THEIR HABITATS

This section outlines potential Project-related impacts on migratory birds. Impacts are classified as short term (less than 5 years), long term (greater than 5 years), or permanent (lasting at least the life of the Project) and are described as having direct or indirect effects. This section also discusses the relative intensity of the residual impacts after the proposed avoidance and minimized measures have been implemented (refer to Section 4). The impacts evaluation below is divided into three separate discussions: 1.) potential impacts due to Project activities that occur during the breeding season, 2.) potential impacts associated with Project-related removal or modification of habitat, and 3.) potential impacts associated with the Project's proposed communication towers.

5.1 Breeding Season Impacts

Transco is implementing all reasonable measures to avoid clearing during the breeding season. However, as outlined above, it may be necessary to clear in some non-key habitat areas during the migratory bird breeding season. Some maintenance activities may also be necessary in the breeding seasons of subsequent years during operations. This section describes the potential impacts associated with Project activities occurring during the breeding season, with the exception of impacts related to the removal or modification of breeding habitat, which are addressed in Section 5.2 "Habitat-related Impacts."

Mortality/Injury

Some mortalities or injuries of migratory birds may occur as a direct result of Project activities during breeding season; however, Transco will minimize these impacts to the extent practicable. Adult migratory birds are generally highly mobile and would be able to avoid Project vehicles and equipment during clearing, grading, excavation, and maintenance activities. Eggs and young birds would be more susceptible to crushing, mortality, or injury, and adult birds may potentially suffer mortality or injury while defending their nests or young. Transco will avoid mortalities or injuries of breeding birds and their eggs or young by clearing vegetation outside of the breeding season to the extent practicable, particularly in key habitat areas (see MB1 and KHA1 in Sections 4.3 and 4.4, respectively). By clearing outside of the breeding season in key habitat areas, Transco will avoid impacts on BCCs, especially those that are associated with interior forests. Transco will also conduct vegetation maintenance activities during the operations phase of the Project outside of the breeding season (see MB3 in Section 4.3).

Transco will implement several additional avoidance and minimization measures to greatly reduce the likelihood of migratory bird mortalities and/or injuries from Project activities (refer to Section 4). Transco will also restrict travel on approved Project ROWs and access roads to essential vehicles only (GM8 and GM9) and will impose speed limits (GM11) to reduce the potential for bird collisions with vehicles and equipment. Transco will implement a series of measures to minimize the potential for mortalities or injuries occurring because of Project-related contaminants or fires. Transco will implement a Spill Plan for Oil and Hazardous Materials to minimize the likelihood of spills occurring during construction and operation of the Project and to respond to any spills that do occur (see GM14 in Section 4.2). Likewise, Transco will apply herbicides according to manufacturer specifications and any applicable regulations to reduce spills or overspray (see GM16 in Section 4.2). Transco will implement fire prevention planning throughout all stages of construction and maintenance to minimize the risk of accidental fires (see GM15 in Section 4.2).

In summary, Transco will substantially reduce the likelihood of migratory bird mortalities or injuries related to vegetation clearing, vehicle collisions, contaminants, and fires with the implementation of the proposed avoidance and minimization measures.

Sensory Disturbance

The increased presence of humans, noise, and vibrations associated with Project activities would likely cause sensory disturbances of migratory birds. The resulting negative impacts are expected to be intermittent and short term, occurring during work hours and ceasing after construction activities have moved from a given area. Displacement, nest abandonment, and avoidance of the area are direct responses to sensory disturbances. Birds may be injured or suffer mortality as an indirect impact of fleeing an area of disturbance. Stress also is a potential direct impact on migratory birds, which may lead to subsequent indirect impacts on the health of individuals and local populations. Stress and displacement/avoidance associated with disturbances take time and energy away from important activities like feeding, reproduction, and parental care (Frid and Dill 2002). As a result, individuals and their young may exhibit a reduction in overall fitness and may be more susceptible to illness and predation. The fitness of local populations may also be at risk if disturbances impact a relatively large number of individuals and/or occur over a relatively long period of time.

Artificial lights associated with the night-lighting of Project activities occurring between sunset and sunrise may disorient migratory birds. Some birds use natural light sources and patterns for navigation, interspecific interactions, and other critical biological behaviors

(Longcore and Rich 2004). If night construction operations are required, Transco will ensure that lighting is not projected upward during migratory periods, which is approximately August through November and March through May (MB5). In general, construction and operation activities will be conducted during daylight hours. Impacts associated with light pollution are expected to be minimal given the Project's commitment to limiting night-lighting activities.

In most cases, Project activities would be short term and episodic. As such, sensory disturbance impacts associated with these activities may affect individuals but would not likely have notable impacts on any local populations of migratory birds. Permanent aboveground structures such as compressor stations would create potential localized disturbances for the life of the Project, thus resulting in more permanent impacts. However, compressor stations were sited in areas that were already subject to anthropogenic disturbances and away from key habitat areas. Transco avoided sensitive habitats during Project routing (see Section 4.1) and, to the extent possible, will clear vegetation outside of the breeding season for many migratory birds (MB1) to avoid or minimize sensory disturbances. Given the Project's anticipated construction start date and in-service date, the majority of construction activities can be expected to occur outside of the migratory bird breeding season. Transco has also committed to conducting routing ROW maintenance outside of the breeding season (MB3).

Increased Predation

Transco does not expect Project construction or maintenance activities to result increased predation of migratory birds. Trash from Project personnel has the potential to attract predators like gulls, American crows (*Corvus brachyrhynchos*), and raccoons (*Procyon lotor*), sometimes in large numbers. Transco will dispose of construction debris according to federal, state, and local regulations (GM7), and construction crews will practice good housekeeping to prevent garbage from attracting predators. Transco will also train personnel accordingly (MB4) to completely avoid and minimize the potential for these impacts, and have Environmental Inspectors on site to ensure compliance (GM1).

5.2 Habitat-related Impacts

Habitat removal and/or modification of existing habitats during Project construction would have impacts on migratory birds. The construction and operational impacts on land use types are summarized in Table 5-1. In many cases, grading, clearing, and excavation of open lands, non-forested wetlands, open water, agricultural lands, and developed lands would result in short-term impacts, as these land use types would likely be restored to pre-construction

conditions within five years. Upland and wetland forested lands would not be restored to pre-construction conditions potentially for decades, if at all. Therefore, impacts resulting from clearing of forested land would be long term or permanent. The removal of interior forests would also indirectly result in all connected interior forest within 300 feet effectively losing its function as interior, as these areas would now be subject to edge effects (see discussion of fragmentation and edge effects below for full detail). The construction of permanent structures would also result in the permanent loss of habitat. The largest permanent structures (e.g., the compressor stations) would permanently remove 17.3 acres of upland forest, 2.8 acres of open land, and 86.9 acres of agricultural land.

5.2.1 Interior Forests

Direct impacts on interior forest associated with the construction and operation of the Project are based on the direct removal of interior forest habitat. The Project would directly impact 262.6 acres of interior forest during construction, of which 118.4 acres would be permanently maintained as open habitat during operations (Table 5-2).

Transco calculated indirect impacts as a measurement of the length of the pipeline centerline crossing interior forests, and an assumed indirect impact area of 300 feet on either side of the centerline. The Project would indirectly impact 1,307.7 acres of interior forest in this manner.

Table 5-1
Land Use Acreage Affected by Construction and Operation of Pennsylvania Pipeline Facilities

Facility/County	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total[a]	
	Cons[b]	Op[c]	Cons[b]	Op[c]	Cons[b]	Op[c]	Cons[b]	Op[c]	Cons[b]	Op[c]	Cons[b]	Op[c]	Cons[b]	Op[c,d]	Cons[b]	Op[c]	Cons[b]	Op[c]
Pennsylvania																		
CPL North																		
Columbia	7.9	0.7	33.4	8.8	0	0	0.9	0.2	1.5	0.2	19.3	5.1	3.5	0	0.8	0.2	67.2	16.4
Luzerne	44.0	10.5	187.4	71.9	34.6	0.1	7.7	1.9	9.0	2.5	54.2	8.5	13.0	0.0	2.4	0.9	352.8	101.7
Wyoming	105.3	39.9	142.9	70.1	8.3	0.0	4.4	1.6	8.1	2.9	44.3	17.2	8.8	0.0	2.8	1.4	324.1	139.1
Susquehanna	43.6	13.3	31.9	15.5	0.0	0.0	1.9	0.8	4.9	2.2	15.3	7.7	3.2	0.0	0.5	0.2	100.9	41.6
Subtotal CPL North[a]	**200.7**	**64.4**	**395.6**	**166.4**	**42.9**	**0.2**	**15.3**	**4.9**	**24.1**	**7.9**	**132.0**	**38.2**	**28.2**	**13.5 (4.5)**	**6.4**	**3.2**	**846.1**	**299.0**
CPL South																		
Lancaster	548.8	181.8	66.7	27.2	0.6	0.3	10.3	3.9	14.2	5.6	19.0	6.2	2.1	0.0	2.6	1.5	666.3	227.8
Lebanon	378.5	113.0	108.9	46.9	0.5	0.2	14.1	3.2	6.4	1.9	15.0	5.9	3.9	0.0	2.7	1.3	530.2	174.6
Schuylkill	122.9	37.2	131.0	51.0	47.0	0.3	10.6	3.7	5.6	1.6	71.1	20.3	3.1	0.0	1.6	0.9	392.4	116.5
Northumberland	9.5	3.7	115.6	45.0	7.4	0.9	18.7	7.8	4.8	1.5	12.2	4.4	0.5	0.0	2.0	0.8	170.0	64.3
Columbia	362.0	119.9	132.5	57.6	2.9	0.7	10.9	3.6	12.5	3.2	47.8	16.0	3.1	0.0	4.0	2.8	569.4	205.7
Subtotal CPL South[a]	**1,421.4**	**455.5**	**554.4**	**227.6**	**58.6**	**2.3**	**64.7**	**22.5**	**43.3**	**13.8**	**166.0**	**52.6**	**12.4**	**7.0 (2.0)**	**13.1**	**7.3**	**2,333.7**	**788.8**
Chapman Loop																		
Clinton	0.0	0.0	24.0	6.0	11.4	0.0	0.5	<0.1	0.2	0.1	20.8	5.8	<0.1	0.0 (0.0)	<0.1	0.0	57.0	11.9
Subtotal Chapman Loop[a]	**0.0**	**0.0**	**24.0**	**6.0**	**11.4**	**0.0**	**0.5**	**<0.1**	**0.2**	**0.1**	**20.8**	**5.8**	**<0.1**	**0.0 (0.0)**	**<0.1**	**0.0**	**57.0**	**11.9**
Unity Loop																		
Lycoming	80.2	10.1	44.2	11.8	0.0	0.0	2.7	0.4	2.8	0.4	33.1	3.7	2.3	0.4 (0.1)	0.3	0.1	166.1	26.4
Subtotal Unity Loop[a]	**80.2**	**10.1**	**44.2**	**11.8**	**0.0**	**0.0**	**2.7**	**0.4**	**2.8**	**0.4**	**33.1**	**3.7**	**2.3**	**0.4 (0.1)**	**0.3**	**0.1**	**166.1**	**26.4**
Total	**1702.3**	**530.0**	**1018.3**	**411.8**	**112.9**	**2.5**	**83.2**	**27.9**	**70.4**	**22.2**	**9**	**100.3**	**43.0**	**20.9 (6.6)**	**19.9**	**10.6**	**3402.9**	**1126.1**

[a] All values rounded to the nearest tenth; numbers may not sum exactly due to rounding.
[b] Construction impacts include area within permanent ROW.
[c] Operation impacts associated with maintenance of permanent ROW
[d] Includes all wetlands within the permanent ROW.
Key:
Cons = construction
CPL = Central Penn Line
Op = Operation

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Table 5-2
Interior Forest Habitat Within Large Forest Patches Affected by the Project[a]

Pennsylvania County	Number of Interior Forest Patches Crossed[b]	Length of Interior Forest Crossed by Pipeline Route (miles)	Total Length of Pipeline Route (miles)	Percentage of Route Crossing Interior Forest	Area of Interior Forest Impact (acres)	
					Construction[c]	Operation[d]
Pennsylvania						
CPL North						
Columbia	0	0	5.0	0.0%	0.0	0.0
Luzerne	5	2.0	23.9	8.2%	23.7	11.9
Wyoming	11	5.0	23.0	21.6%	58.8	30.0
Susquehanna	1	0.2	6.7	3.1%	2.2	1.3
Total CPL North	17	7.2	58.7	12.2%	84.7	43.2
CPL South						
Lancaster	1	<0.1	37.1	<0.1%	0.3	0.1
Lebanon	5	3.1	28.5	10.9%	44.6	19.8
Schuylkill	7	3.2	18.5	17.2%	49.7	19.2
Northumberland	7	4.1	9.1	44.7%	60.0	25.5
Columbia	7	1.7	34.2	4.9%	21.3	10.1
Total CPL South	27	12.0	127.3	9.4%	175.9	74.7
Chapman Loop						
Clinton	1	0.0[e]	2.5	0.0%	2.1	0.6
Unity Loop						
Lycoming	0	0.0	8.5	0.0%	0.0	0.0
Project Total (PA)	**44[f]**	**19.2**	**196.9**	**9.8%**	**262.6**	**118.4**

[a] For the purposes of this analysis, large forest patches are contiguous forested areas 225 acres or greater in size, which can support nesting habitat for BCCs.

[b] Includes all interior forest patches crossed by construction and operation workspaces. Multiple crossings of a single continuous interior forest patch are counted once, but interior forests that are crossed in two counties are counted twice (i.e., once in each affected county row).

[c] Construction impacts include temporary construction workspaces and area within permanent rights-of-way.

[d] Operation impacts associated with maintenance of permanent rights-of-way.

[e] No interior forest patches crossed by centerline in Clinton County. Impact acreage reflects interior forest crossed by access road.

[f] Sum for counties does not equal Project total. Project total reflects number of unique interior forests crossed by the Project when not double-counting those that are crossed in two separate counties.

Key:
BCC = Birds of Conservation Concern
CPL = Central Penn Line
PA = Pennsylvania

While some interior forest species (e.g., hooded warblers [*Wilsonia citrina*]) would still be able or willing to traverse the cleared area to travel between patches (Norris and Stutchbury 2001); others (e.g., black-capped chickadees, ovenbird [*Seiurus aurocapilla*]) may not (Desrochers and Hannon 1997; St. Clair et al. 1998; Gobeil and Villard 2002). As discussed in Section 3.2.5.1, the six BCCs that may breed in the Project area are area-sensitive and require larger forest tracks to breed successfully. Fragmentation and reduction in the size of forest patches may impact the suitability of breeding habitat for the aforementioned species. These impacts may be short term, long term, or permanent, depending on the time required for a specific habitat type to recover to pre-construction conditions and Project land use (e.g., permanent structures).

As forest fragmentation increases, so too does the amount of forest edge habitats. Habitat edges are transition areas between two disparate plant communities or successional stages (Masters et al. 2002). Increases in forest edges may benefit or have no effect on some species, but are detrimental to others. Species such as the eastern phoebe (*Sayornis phoebe*) and rose-breasted grosbeak (*Pheucticus ludovicianus*) that require more than one habitat type or successional stage often benefit from the proximity of two habitat types at edges. Conversely, species such as the worm-eating warbler that require forest interiors or larger, contiguous tracts of forests are typically negatively impacted. Forest edges increase the likelihood of nest predation and brood parasitism (Robinson et al. 1995). Birds are also more exposed to common predators that frequent the edges (Masters et al. 2002; Kays et al. 2008). These topics are covered in detail below in Section 5.2.2.

While the removal or modification of interior forested areas would have long-term or permanent impacts on some migratory birds, the creation of new open lands would provide habitat for a different suite of species. Three BCCs that breed in the Project area may benefit from the addition of open or successional habitats: blue-winged warbler, golden-winged warbler, and prairie warbler. Early-successional habitats are also of importance to species that breed in forest interiors (Stoleson 2013). After breeding, many interior-nesting species will shift their habitat use to successional habitats, which may be a result of birds seeking out habitats with high food abundance (e.g. berries) or dense vegetation to hide from predators. Of the 262.6 acres of interior forests that will be directly impacted during construction, 144.2 acres will be allowed to return to successional habitat and eventually forested.

5.2.2 Other Habitat-Related Impacts

Project construction will require ground disturbance that could result in impacts on migratory bird habitat through erosion, contaminants, fires, and the introduction and/or spread of invasive species; however, Transco will implement a series of avoidance and minimization measures to substantially reduce the likelihood of these impacts. Transco will implement measures in the ECP (GM12) to stabilize soils and prevent erosion, develop a Spill Plan for Oil and Hazardous Materials to minimize the likelihood of spills occurring during construction and operation of the Project and to respond to any spills that do occur (GM14), and implement fire prevention planning throughout all stages of construction and maintenance to minimize the risk of accidental fires (GM15). Transco will minimize the potential for the introduction and/or spread of invasive plants by implementing a site-specific Noxious and Invasive Plant Management Plan for Project construction activities (GM13), and by inspecting and cleaning Project vehicles, equipment, and materials of soils, vegetation, and debris before they are brought to Project workspaces or moved to another work area within the Project ROW (GM19).

A longer-term impact would result from the creation of new edge habitats, which also can attract predators of migratory birds. Common predators including American crows, blue jays (*Cyanocitta cristata*), and raccoons are considered "edge species" and use edges to facilitate movement and improve hunting efficiency (Masters et al. 2002). Coyotes are often most abundant in areas of disturbance within forests (Kays et al. 2008) and may travel extensive distances on linear pathways, including utility ROWs (Way and Eatough 2006).

Brown-headed cowbirds (*Molothrus ater*) are brood parasites that may affect migratory birds in the Project area. Female cowbirds may lay 40 eggs per season in the nests of other migratory birds, which then outcompete the hosts' young for food (Lowther 1993). As such, this species can have a negative impact on host species. Brown-headed cowbirds are generally considered an "edge species" and prefer woodland and field transitional habitats. Parasitism by brown-headed cowbird has been documented in a number of breeding BCCs found in the Project area, including wood thrush (Hoover and Brittingham 1993; Dececco et al. 2000), worm-eating warbler (Dececco et al. 2000), Louisiana waterthrush (Smith and Cook 2000), golden-winged warbler (Confer et al. 2003), Kentucky warbler (Sargent et al. 1997), and cerulean warbler (Rogers 2006). Brown-headed cowbirds are currently widespread and common throughout the Project and vegetation clearing, particularly forested areas, could facilitate their expansion into new localized areas (eBird 2014). However, patterns of brown-headed cowbird parasitism can be unpredictable in different habitat types and due to other environmental

variables. The proximity to human residences and agriculture (i.e., food lots) may better correlate to brown-headed cowbird densities and parasitism rates of songbird nests (Gustafson et al. 2002; Hahn and Hatfield 2002; Tewksbury et al. 2006).

Transco made a concerted effort to limit the amount of new edge habitats created by siting the Project along existing edges where feasible (see Section 4.1). These siting efforts were accomplished, in large part, by co-locating the Project along more than 38 miles of existing utility ROWs and avoiding large patches of forest where possible. Transco's siting efforts will minimize the potential for increased predation and nest parasitism on migratory birds associated with the Project's creation of edge habitats.

5.3 Other Impacts

Collisions

Migratory birds, especially those that migrate at night (e.g., neotropical songbirds), are susceptible to collisions with man-made structures, which is a significant source of anthropogenic bird mortality in North America (Longcore et al. 2012). Susceptibility to collisions with communication towers is also influenced by FAA lighting; birds may be disoriented or attracted to tower lighting, especially during inclement weather (Gauthreaux and Belser 2006). Communication towers lit with non-flashing red FAA lights versus flashing white or red FAA lights appear to have a greater incident of bird collusions (Gehring et al. 2009). Compared to taller structures, communication towers less than 197 feet (60 meters) in height have a negligible contribution to bird mortality from collisions with communication towers (Longcore et al. 2012). However, communication towers of any height can cause major mortality events if they or surrounding facilities are improperly lit.

To avoid and minimize impacts on migratory birds, Transco will implement several guidelines as recommended by the USFWS (2000; MB3). All Project communication towers will be less than 190 feet in height. The communication towers will not be lit with FAA lighting, and any nearby facility lighting (e.g., security) will be down-shielded. Project communication towers will be free standing without the support of guy wires and will be constructed in areas co-located with other Project facilities. These measures will greatly reduce the potential for migratory bird collisions with Project communication towers.

6 MITIGATION

Transco is continuing to consult with the USFWS regarding voluntary mitigation related to removal of migratory bird habitat. Transco and the USFWS have developed a draft memorandum of understanding (MOU) which specifies the voluntary conservation measures that will be provided to offset the removal of upland forest and indirect impacts to interior forests.

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Appendix A Tables

Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Canada goose	*Branta canadensis*	Broad range of natural and man-made habitats	May 1–July 31	June 10	X	X	X	X	X	X	X	X	X	X	X
Wood duck	*Aix sponsa*	Aquatic habitats with vegetative cover	May 1–July 31	June 16	X	X	X	X	X	X	X	X	X	X	X
American black duck	*Anas rubripes*	Woody wetlands, shallow lakes with emergent vegetation, rivers, upland sites in forests	May 1–July 31	June 18	X	X	X	X	X	X	X	X	X	-	X
Mallard	*Anas platyrhynchos*	Broad range, typically uplands close to water	May 1–July 31	June 17	X	X	X	X	X	X	-	X	-	-	-
Hooded merganser	*Lophodytes cucullatus*	Forested wetlands, near water	June 1–August 15	June 13	X	X	-	-	-	-	X	X	X	-	-
Common merganser	*Mergus merganser*	Large waterbodies surrounded by conifer and mixed forests	June 1–August 15	June 22	X	X	X	X	X	X	-	X	-	-	-
Pied-billed grebe	*Podilymbus podiceps*	Ponds, other still aquatic habitats	June 1–July 31	June 22	-	X	-	-	X	X	-	X	-	-	-
Double-crested cormorant	*Phalacrocorax auritus*	Diverse open water aquatic habitats	June 1–July 31	n/a	X	X	X	X	X	X	-	X	-	-	-
American bittern	*Botaurus lentiginosus*	Wetlands with tall, emergent vegetation	June 1–July 31	July 4	-	-	-	-	X	X	X	X	X	-	-

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Great Blue blue heron	*Ardea herodias*	Broad range of aquatic habitats, nests in trees, shrubs, artificial platforms	June 1–July 15	July 8	X	X	X	X	X	X	X	X	X	X	X
Great egret	*Ardea alba*	Nests in woody vegetation, shrubs, and trees in a broad range of natural and man-made habitats	June 1–June 30	n/a	X	X	-	X	-	-	-	-	-	-	-
Green heron	*Butorides virescens*	Forest and swamp, sometimes dry woods/orchards near water	June 1–July 15	July 7	X	X	X	X	X	X	X	X	X	X	X
Black-crowned night-heron	*Nycticorax nycticorax*	Broad range of aquatic habitats	June 1–June 30	June 16	X	X	X	X	X	X	-	X	-	-	-
Yellow-crowned night-heron	*Nyctanassa violacea*	Swamps, forested wetlands, forested uplands near lakes, rivers, and creeks	June 1–June 30	n/a	X	X	-		-	-		-			
Black vulture	*Coragyps atratus*	Forested areas, caves, abandoned buildings	May 1–July 31	n/a	X	X	X	X	X	X	X	X	-	X	X
Turkey vulture	*Cathartes aura*	Forested/partly forested with rock outcrops, fallen trees, or abandoned buildings	May 1–July 31	n/a	X	X	X	X	X	X	X	X	X	X	X

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					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Osprey	*Pandion haliaetus*	Trees, cliffs, artificial sites near water with ample fish supply	June 1–July 31	July 17	X	X	X	-	X	X	X	X	X	X	X
Northern harrier	*Circus cyaneus*	Large, open wetlands, pastures, cropland, grasslands, bogs, thickets, riparian woodlands	Jun 1–July 31	July 14	X	X	X	X	X	X	X	X	X	X	X
Sharp-shinned hawk	*Accipiter striatus*	Deciduous, mixed, and coniferous forests	Jun 1–July 31	July 18	X	X	X	X	X	X	X	X	X	X	X
Cooper's hawk	*Accipiter cooperii*	Deciduous, mixed, and coniferous forests	Jun 1–July 31	July 10	X	X	X	X	X	X	X	X	X	X	X
Northern goshawk	*Accipiter gentilis*	Mature forests	May 1–July 31	July 20	X	X	X	X	X	X	X	X	X	X	X
Bald eagle	*Haliaeetus leucocephalus*	Forested areas adjacent to large bodies of water	May 1–July 15	July 15	X	X	X	-	X	X	X	X	X	X	X
Red-shouldered hawk	*Buteo lineatus*	Large, mature forest stands	May 1–August 15	July 9	X	X	X	X	X	X	X	X	X	X	X
Broad-winged hawk	*Buteo platypterus*	Deciduous and mixed forests with openings and nearby water	June 1–July 31	July 14	X	X	X	X	X	X	X	X	X	X	X
Red-tailed hawk	*Buteo jamaicensis*	Coniferous and deciduous woodlands, grasslands,	May 1–July 15	July 3	X	X	X	X	X	X	X	X	X	X	X

Table A-1
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					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
		shrublands, agriculture, urban areas													
Virginia rail	*Rallus limicola*	Freshwater marshes	May 15–August 15	July 4	X	X	X	X	X	X	X	X	X	X	X
Sora	*Porzana carolina*	Freshwater wetlands	May 15–July 31	July 17	X	X	X	X	X	X	X	X	X	X	X
Killdeer	*Charadrius vociferus*	Broad range of open areas, including sandbars, mudflats, grazed pastures, and man-made areas (e.g., airports, gravel rooftops)	May 1–July 15	June 18	X	X	X	X	X	X	X	X	X	X	X
Spotted sandpiper	*Actitis macularius*	Broad range of habitats within 300 meters of water	June 1–June 30	June 26	X	X	X	X	X	X	X	X	X	X	X
American woodcock	*Scolopax minor*	Forests with openings	April 1–July 15	June 11	X	X	X	X	X	X	X	X	X	X	X
Mourning dove	*Zenaida macroura*	Broad range of habitats, but typically avoids deep woods or extensive forests	May 1–July 15	June 22	X	X	X	X	X	X	X	X	X	X	X
Yellow-billed cuckoo	*Coccyzus americanus*	Open woodland often associated with water	June 5–July 31	July 3	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Black-billed cuckoo	*Coccyzus erythropthalmus*	Groves of trees, forest edges, thickets near water	June 5–July 31	July 6	X	X	X	-	X	X	X	X	X	X	X
Barn owl	*Tyto alba*	Broad range of open habitats, grasslands, marshes, agricultural fields, urban areas	April 20–August 15	June 30	-	X	-	-	-	-	X	-	-	-	-
Eastern screech-owl	*Megascops asio*	Most types of tree-dominated habitats	April 15–August 15	June 25	X	X	X	X	X	X	X	X	X	X	X
Great horned owl	*Bubo virginianus*	Nests in trees, snags, cliffs, and man-made structures in a broad range of habitats	December 15–July 31	June 1	X	X	X	X	X	X	X	X	X	X	X
Barred owl	*Strix varia*	Mature and old-growth forests	January 15–July 31	June 14	-	X	X	-	X	X	X	X	X	X	X
Long-eared owl	*Asio otus*	Dense vegetation adjacent to grasslands/shrublands, and open forests	April 20–August 15	May 21	-	X	X	X	X	X	X	X	X	X	X
Northern saw-whet owl	*Aegolius acadicus*	Broad range of forest types	April 20–August 15	June 24	X	X	X	X	X	X	X	X	X	X	X
Common nighthawk	*Chordeiles minor*	Logged/burned areas of forest, woodland clearings, grassland, open forests, rock outcrops, flat gravel rooftops	June 5–July 31	July 2	X	X	X	X	X	X	X	X	X	X	-

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					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Chuck-will's-widow	*Caprimulgus carolinensis*	Forests	June 1–July 31	n/a	-	X	-	-	-	-	-	-	-	-	-
Eastern whip-poor-will	*Caprimulgus vociferus*	Dry deciduous and mixed forests with minimal underbrush	June 1–July 31	n/a	X	X	X	X	X	X	X	X	X	X	X
Chimney swift	*Chaetura pelagica*	Broad range of habitats, more concentrated in urban areas	May 25–July 31	July 3	X	X	X	X	X	X	X	X	X	X	X
Ruby-throated hummingbird	*Archilochus colubris*	Mixed woodlands, deciduous forest, clearings, gardens, orchards	June 1–July 15	July 4	X	X	X	X	X	X	X	X	X	X	X
Belted kingfisher	*Megaceryle alcyon*	Streams, rivers, ponds, lakes with available burrow sites (earthen banks)	April 15–July 15	July 4	X	X	X	X	X	X	X	X	X	X	X
Red-headed woodpecker	*Melanerpes erythrocephalus*	Deciduous woodlands, riparian woodlands, orchards, parks, open agricultural land, grasslands with scattered trees, forest edges, roadsides, groves of dead/dying trees	May 25–July 31	July 9	X	X	X	X	X	X	X	X	X	X	X
Red-bellied woodpecker	*Melanerpes carolinus*	Forests, typically mature hardwoods	March 15–July 31	July 1	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Yellow-bellied sapsucker	*Sphyrapicus varius*	Early successional woodlands/forests	May 15–July 31	July 12	X	X	X	X	X	X	X	X	X	X	X
Downy woodpecker	*Picoides pubescens*	Open, deciduous woodlands, and parks and residential areas, less abundant in coniferous forests	March 15–July 31	June 27	X	X	X	X	X	X	X	X	X	X	X
Hairy woodpecker	*Picoides villosus*	Mature woodlands, wooded suburban areas, parks, cemeteries	March 15–July 31	June 30	X	X	X	X	X	X	X	X	X	X	X
Northern flicker	*Colaptes auratus*	Forest edges, open woodlands, riparian woodlands, urban areas	May 15–July 31	July 10	X	X	X	X	X	X	X	X	X	X	X
Pileated woodpecker	*Dryocopus pileatus*	Late successional stages of coniferous or deciduous forest, younger forests with large dead trees	March 15–July 31	June 28	X	X	X	X	X	X	X	X	X	X	X
American kestrel	*Falco sparverius*	Broad range of open/semi-open habitats, including meadows, grasslands, early successional communities, parks, agriculture fields, and urban areas	May 15–July 31	July 6	X	X	X	X	X	X	X	X	X	X	X

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Peregrine falcon	*Falco peregrinus*	Broad range of habitats with cliffs, and urban environments with tall structures (e.g., towers, bridges)	May 15–July 31	July 5	-	X	-	-	-	-	X	-	-	-	-
Eastern wood-pewee	*Contopus virens*	Virtually all woodland communities	June 1–July 31	July 14	X	X	X	X	X	X	X	X	X	X	X
Yellow-bellied flycatcher	*Empidonax flaviventris*	Moist conifer or mixed forests, bogs, swamps, and muskegs	June 10–July 15	July 17	-	-	-	-	-	-	-	X	-	X	-
Acadian flycatcher	*Empidonax virescens*	Undisturbed mature forest	May 25–July 31	July 9	X	X	X	X	X	X	X	X	X	X	X
Alder flycatcher	*Empidonax alnorum*	Wet thickets	June 10–July 15	July 28	X	X	X	-	X	X	X	X	X	X	X
Willow flycatcher	*Empidonax traillii*	Moist, shrubby areas near water	June 10–July 15	July 8	X	X	X	X	X	X	X	X	X	X	X
Least flycatcher	*Empidonax minimus*	Open woodlands	June 5–July 15	July 6	X	X	-	-	X	X	X	X	X	X	X
Eastern phoebe	*Sayornis phoebe*	Woodland and edge habitats	May 1–July 31	July 3	X	X	X	X	X	X	X	X	X	X	X
Great crested flycatcher	*Myiarchus crinitus*	Open deciduous or mixed woodlands and edges of clearings	May 25–July 31	July 4	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Eastern kingbird	*Tyrannus tyrannus*	Usually fields with scattered trees/shrubs, orchards, shelterbelts, woodland edges	May 25–July 31	July 11	X	X	X	X	X	X	X	X	X	X	X
White-eyed vireo	*Vireo griseus*	Secondary deciduous scrub, overgrown pastures/farmland, wood margins, streamside thickets	May 25–August 15	July 8	X	X	X	-	X	X	-	-	-	-	X
Yellow-throated vireo	*Vireo flavifrons*	Edges of mature deciduous and mixed forests	June 1–August 15	July 9	X	X	X	X	X	X	X	X	X	X	X
Blue-headed vireo	*Vireo solitarius*	Typically coniferous forests, but also mixed/deciduous with mature trees	May 25–July 31	July 19	-	X	X	X	X	X	X	X	X	X	X
Warbling vireo	*Vireo gilvus*	Mature mixed deciduous woodlands, often near water	June 1–August 15	July 8	X	X	X	X	X	X	X	X	X	X	X
Red-eyed vireo	*Vireo olivaceus*	Deciduous and mixed forests	June 1–July 31	July 14	X	X	X	X	X	X	X	X	X	X	X
Blue jay	*Cyanocitta cristata*	Deciduous, coniferous, and mixed forests and woodlands, common in urban areas	June 10–July 31	July 7	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
American crow	*Corvus brachyrhynchos*	Broad range of habitats with openareas and scattered trees	May 1–July 31	June 28	X	X	X	X	X	X	X	X	X	X	X
Fish crow	*Corvus ossifragus*	Usually near water (rivers and inland lakes), but also in farmlands in PA	May 1–July 31	June 29	X	X	X	-	X	X	X	X	X	X	-
Common raven	*Corvus corax*	Broad range of habitats, including forests, grasslands, urban, agricultural, montane	March 1–July 15	June 17	X	X	X	X	X	X	X	X	X	X	X
Horned lark	*Eremophila alpestris*	Open, generally barren habitats	May 1–July 31	June 24	X	X	X	X	X	X	X	X	-	X	X
Northern rough-winged swallow	*Stelgidopteryx serripennis*	Broad range of open habitats with suitable nesting sites (rock cavities/crevices, exposed banks, human-made structures)	June 1–June 30	July 12	X	X	X	X	X	X	X	X	X	X	X
Purple martin	*Progne subis*	Almost exclusively in urban/residential areas in east, but historically forest edges and riparian woodlands	May 25–June 30	June 23	X	X	X	X	X	X	X	X	X	X	-

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Tree swallow	*Tachycineta bicolor*	Near water in open habitats with standing dead trees	May 25–June 30	June 28	X	X	X	X	X	X	X	X	X	X	X
Bank swallow	*Riparia riparia*	Lowland areas along aquatic habitats with vertical banks, cliffs, and bluffs for nesting	June 1–June 30	June 23	X	X	X	-	X	X	X	X	X	X	-
Barn swallow	*Hirundo rustica*	Broad range of open habitats, including agricultural and urban areas	May 25–June 30	June 30	X	X	X	X	X	X	X	X	X	X	X
Cliff swallow	*Petrochelidon pyrrhonota*	Broad range of open habitats with vertical cliff faces or artificial nesting structures	June 5–July 5	July 7	X	X	X	-	X	X	X	X	X	X	X
Carolina chickadee	*Poecile carolinensis*	Forests	March 15–August 15	June 21	X	X	X	-	-	-	-	-	-	-	-
Black-capped chickadee	*Poecile atricapillus*	Deciduous and mixed woodlands, parks, willow thickets, cottonwood groves	April 15–August 15	July 3	X	X	X	X	X	X	X	X	X	X	X
Tufted titmouse	*Baeolophus bicolor*	Deciduous and mixed forests, parks, orchards, urban areas	March 15–August 15	June 30	X	X	X	X	X	X	X	X	X	X	X
Red-breasted nuthatch	*Sitta canadensis*	Typically mature coniferous forests	June 1–August 15	July 9	X	X	X	-	X	X	X	X	X	-	-

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
White-breasted nuthatch	*Sitta carolinensis*	Prefers mature deciduous woodland, but also mixed forest, and sometimes in residential areas	May 1–August 15	July 4	X	X	X	X	X	X	X	X	X	X	X
Brown creeper	*Certhia americana*	Late successional stages of coniferous, deciduous, and mixed forests	May 15–July 31	July 9	X	X	-	-	X	X	X	X	X	X	X
House wren	*Troglodytes aedon*	Open woodlands, deciduous forest edges	June 1–August 15	July 6	X	X	X	X	X	X	X	X	X	X	X
Winter wren	*Troglodytes hiemalis*	Broad range of woodland habitats often near water	May 15–August 15	July 8	X	X	X	X	X	X	X	X	X	X	X
Carolina wren	*Thryothorus ludovicianus*	Broad range of habitats with moderate to dense shrub/brush cover	April 1–September 30	June 24	X	X	X	X	X	X	X	X	X	X	X
Blue-gray gnatcatcher	*Polioptila caerulea*	Broad range of wooded habitats, including shrublands to mature forests (generally deciduous)	May 15–July 15	July 1	X	X	X	X	X	X	X	X	X	X	X
Golden-crowned kinglet	*Regulus satrapa*	Prefers mature/old-growth coniferous forest, but also mixed and deciduous forests	May 15–August 15	July 13	X	X	X	X	X	X	X	X	X	X	X

Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Eastern bluebird	*Sialia sialis*	Orchards, clearcut areas, burned areas, upland and swampy habitats near urban areas	May 1–August 15	June 29	X	X	X	X	X	X	X	X	X	X	X
Veery	*Catharus fuscescens*	Damp, deciduous forests	June 1–July 31	July 7	X	X	X	X	X	X	X	X	X	X	X
Swainson's thrush	*Catharus ustulatus*	Mostly coniferous forests, but also mixed and deciduous	June 5–July 31	July 18	X	X	X	X	X	X	X	X	-	X	-
Hermit thrush	*Catharus guttatus*	Broad range of forest types	May 15–July 31	July 9	X	X	X	X	X	X	X	X	X	X	X
Wood thrush	*Hylocichla mustelina*	Deciduous and mixed forests	June 1–July 31	July 1	X	X	X	X	X	X	X	X	X	X	X
American robin	*Turdus migratorius*	Forests, woodlands, gardens, parks, urban, agricultural	May 1–July 31	June 25	X	X	X	X	X	X	X	X	X	X	X
Gray catbird	*Dumetella carolinensis*	Dense shrubby habitat	June 1–July 31	July 7	X	X	X	X	X	X	X	X	X	X	X
Brown thrasher	*Toxostoma rufum*	Broad range of habitats, densest in shrub mid-successional forests	May 15–July 31	June 28	X	X	X	X	X	X	X	X	X	X	X
Northern mockingbird	*Mimus polyglottos*	Open habitats with scattered shrubs and trees	May 15–August 31	June 29	X	X	X	X	X	X	X	X	X	X	X

Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Cedar waxwing	*Bombycilla cedrorum*	Open woodland, old fields with numerous trees/shrubs, orchards, farms, gardens	June 15–July 31	July 17	X	X	X	X	X	X	X	X	X	X	X
Ovenbird	*Seiurus aurocapilla*	Large, contiguous tracts of mature deciduous and mixed forests	June 1–July 31	July 3	X	X	X	X	X	X	X	X	X	X	X
Worm-eating warbler	*Helmitheros vermivorum*	Large, contiguous tracts of deciduous and mixed forests	May 25–July 15	June 30	X	X	X	X	X	X	X	X	X	X	X
Louisiana waterthrush	*Parkesia motacilla*	Along streams in deciduous or mixed forests	April 15–July 15	June 21	X	X	X	X	X	X	X	X	X	X	X
Northern waterthrush	*Parkesia noveboracensis*	Wooded swamps, bogs and riparian thickets, areas of dense cover at ground level with nearby surface water	June 5–July 15	July 7	X	X	X	X	X	X	X	X	X	X	X
Blue-winged warbler	*Vermivora cyanoptera*	Early to mid-successional habitats	May 25–July 15	July 4	X	X	X	-	X	X	X	X	X	X	-
Golden-winged warbler	*Vermivora chrysoptera*	Broad range of habitats with dense herbs and shrubs with some taller trees	May 25–July 15	June 19	X	X	X	X	X	X	-	X	X	-	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Black-and-white warbler	*Mniotilta varia*	Mature and second-growth deciduous and mixed forests	June 1–July 31	July 9	X	X	X	X	X	X	X	X	X	X	X
Prothonotary warbler	*Protonotaria citrea*	Woodlands with surface water	May 25–July 15	July 2	X	X	-	-	X	X	-	-	-	-	-
Nashville warbler	*Oreothlypis ruficapilla*	Second-growth, open deciduous, or mixed forests	May 25–July 31	July 14	X	X	X	X	X	X	X	X	X	X	X
Mourning warbler	*Geothlypis philadelphia*	Early successional or shrub-scrub habitats in boreal forests, 300 m to 1,000 m in elevation along Appalachian Mountain	June 15–July 31	July 17	-	X	X	X	X	X	X	X	X	X	X
Kentucky warbler	*Geothlypis formosa*	Woodlands near streams with dense understory	May 25–July 31	July 5	X	X	X	X	X	X	X	X	X	X	X
Common yellowthroat	*Geothlypis trichas*	Broad range of habitats with dense growth of low vegetation	June 1–July 31	July 13	X	X	X	X	X	X	X	X	X	X	X
Hooded warbler	*Setophaga citrina*	Broad range of forested habitats	June 1–July 31	July 8	X	X	X	X	X	X	X	X	X	X	X
American redstart	*Setophaga ruticilla*	Deciduous, second-growth woodlands with abundant shrubs, often near water	June 1–July 31	July 14	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Cerulean warbler	*Setophaga cerulea*	Large, mature deciduous forests	June 1–July 31	June 30	-	X	X	X	X	X	X	X	-	X	X
Northern parula	*Setophaga americana*	Prefers tall, mature coniferous forest, also deciduous and mixed forests in parts of range	May 25–July 31	July 2	X	X	X	X	X	X	X	X	X	X	X
Magnolia warbler	*Setophaga magnolia*	Coniferous and mixed forests with young conifers	June 1–July 31	July 19	-	-	-	-	X	X	X	X	X	X	X
Blackburnian warbler	*Setophaga fusca*	Coniferous and mixed forests	June 1–July 31	July 15	-	-	X	-	X	X	X	X	X	X	X
Yellow warbler	*Setophaga petechia*	Wet, deciduous thickets and disturbed/early successional habitats	May 25–June 30	June 30	X	X	X	X	X	X	X	X	X	X	X
Chestnut-sided warbler	*Setophaga pensylvanica*	Early successional deciduous habitats	June 1–July 31	July 19	X	X	X	X	X	X	X	X	X	X	X
Black-throated blue warbler	*Setophaga caerulescens*	Large, contiguous tracts of deciduous and mixed forests	June 1–July 31	July 12	-	X	X	-	X	X	X	X	X	X	X
Pine warbler	*Setophaga pinus*	Broad range of pine and mixed pine-deciduous forests	May 1–August 15	July 10	-	X	-	X	X	X	X	X	X	X	X
Yellow-rumped warbler	*Setophaga coronata*	Mature conifer and mixed forests	June 1–August 15	July 15	-	X	-	-	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Yellow-throated warbler	*Setophaga dominica*	Broad range of habitats, including wooded stream bottomlands, cypress swamps, upland pine, and mixed pine-deciduous forests	May 1–July 15	July 2	X	X	X	X	X	X	X	X	X	X	X
Prairie warbler	*Setophaga discolor*	Broad range of shrubby habitats	May 25–July 31	July 6	X	X	X	X	X	X	X	X	X	X	X
Black-throated green warbler	*Setophaga virens*	Broad range of forested habitats, but primarily coniferous	June 1–July 31	July 15	-	X	X	X	X	X	X	X	X	X	X
Canada warbler	*Cardellina canadensis*	Broad range of deciduous and coniferous forest habitats	June 1–July 31	July 15	-	X	X	-	X	X	X	X	X	X	X
Yellow-breasted chat	*Icteria virens*	Low, dense deciduous and coniferous vegetation	June 1–July 31	July 12	X	X	X	X	X	X	X	X	X	X	-
Eastern towhee	*Pipilo erythrophthalmus*	Generalist, preferring edge habitats with dense shrub/small tree cover	June 1–July 31	July 10	X	X	X	X	X	X	X	X	X	X	X
Chipping sparrow	*Spizella passerina*	Early successional/low-growth woodlands with a strong	June 1–August 15	July 5	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
		preference for conifers													
Field sparrow	*Spizella pusilla*	Successional old field, woodland openings and edges, roadsides and railroads near open fields	May 15–August 15	July 7	X	X	X	X	X	X	X	X	X	X	X
Vesper sparrow	*Pooecetes gramineus*	Generalist, preferring old fields, reclaimed surface mines, crop and hayfields, weedy roadsides, meadows, and grasslands in the eastern U.S.	May 15–August 15	July 9	X	X	X	X	X	X	X	X	-	X	-
Savannah sparrow	*Passerculus sandwichensis*	Fields with some herbaceous plants/weeds, avoids extensive tree cover	May 25–August 15	July 7	X	X	X	X	X	X	X	X	X	X	X
Grasshopper sparrow	*Ammodramus savannarum*	Grasslands/prairies	June 1–August 15	July 6	X	X	X	-	X	X	X	X	X	-	-
Henslow's sparrow	*Ammodramus henslowii*	Large fields with tall, dense grass	May 25–August 15	July 12	-	X	X	-	X	X	X	X	-	-	-
Song sparrow	*Melospiza melodia*	Broad range of forest, shrub, and riparian habitats	May 15–August 15	June 30	X	X	X	X	X	X	X	X	X	X	X

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Swamp sparrow	*Melospiza georgiana*	Broad range of wetland habitats	June 1–August 15	July 8	X	X	X	X	X	X	X	X	X	X	X
White-throated sparrow	*Zonotrichia albicollis*	Generalist, preferring forests with openings, second-growth and other edge habitats	June 10–August 15	July 7	X	X	X	X	X	X	X	X	X	X	X
Dark-eyed junco	*Junco hyemalis*	Broad range of forest and woodland habitats	May 25–August 15	July 2	X	X	X	X	X	X	X	X	X	X	X
Scarlet tanager	*Piranga olivacea*	Broad range of deciduous and mixed forest types	June 1–July 31	July 13	X	X	X	X	X	X	X	X	X	X	X
Northern cardinal	*Cardinalis cardinalis*	Habitats with shrubs and/or small trees	March 15–September 30	June 30	X	X	X	X	X	X	X	X	X	X	X
Rose-breasted grosbeak	*Pheucticus ludovicianus*	Broad range of habitats, including deciduous and mixed woodlands, shrubby transitions between woodlands streams, ponds, roads, second-growth woodlands, urban, parks, orchards	June 1–July 31	July 12	X	X	X	X	X	X	X	X	X	X	X
Blue grosbeak	*Passerina caerulea*	Old fields, forest edge, utility corridors, and similar haibitats	June 1–July 31	July 5	X	X	X	-	-	-	-	-	-	-	-

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Indigo bunting	*Passerina cyanea*	Fields with vegetation succession, often at edge between fields/cultivation and woodlands	June 1–July 31	July 9	X	X	X	X	X	X	X	X	X	X	X
Dickcissel	*Spiza americana*	Broad range of grassland habitats	June 1–July 31	n/a	X	-	-	-	X	X	X	X	X	X	X
Bobolink	*Dolichonyx oryzivorus*	Grasslands, hay fields, meadows	May 15–June 30	June 30	X	X	X	-	X	X	X	X	X	-	-
Red-winged blackbird	*Agelaius phoeniceus*	Broad range of wetland and upland habitats (meadows, fields, croplands)	May 15–June 30	June 21	X	X	X	X	X	X	X	X	X	X	X
Eastern meadowlark	*Sturnella magna*	Grasslands, pastures, savannas, roadsides, cropland borders, other open areas	May 15–July 31	July 5	X	X	X	X	X	X	X	X	X	X	X
Common grackle	*Quiscalus quiscula*	Broad range of open and semi-open habitats	April 15–June 30	June 19	X	X	X	X	X	X	X	X	X	X	X
Brown-headed cowbird	*Molothrus ater*	Open grassy habitats with low or scattered trees, wood-field ecotones	May 15–July 15	June 27	X	X	X	X	X	X	X	X	X	X	X

Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
Orchard oriole	*Icterus spurius*	Broad range of habitats, but preference for open woodlands along riparian borders	June 1–July 31	June 30	X	X	X	X	X	X	X	X	X	X	X
Baltimore oriole	*Icterus galbula*	Broad range of habitats, but preference for woodland edge and open areas with scattered trees	June 1–July 31	July 3	X	X	X	X	X	X	X	X	X	X	X
House finch	*Haemorhous mexicanus*	Almost exclusively in urban areas in east	April 15–July 31	June 26	X	X	X	X	X	X	X	X	X	X	X
Purple finch	*Haemorhous purpureus*	Primarily in moist/cool coniferous forests, but also mixed forest, riparian, deciduous forest, orchards, developed areas	May 15–July 31	July 5	X	X	X	X	X	X	X	X	X	X	X
Pine siskin	*Spinus pinus*	Primarily open coniferous forests, but also parks, cemeteries, mixed and deciduous forests	June 1–July 31	June 20	X	-	-	-	-	-	X	X	-	-	-

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Table A-1
Birds Protected Under the Migratory Bird Treaty Act that Regularly Breed in the Project Area, by County

Common Name[a]	Scientific Name	Nesting Habitat	Breeding Dates[b]	Median Fledge Date	CPL South					CPL North				Unity	Chap-man
					Lancaster	Lebanon	Schuylkill	Northumberland	Columbia	Columbia	Luzerne	Wyoming	Susquehanna	Lycoming	Clinton
American goldfinch	*Spinus tristis*	Weedy/grassy fields, early successional growth, cultivated fields, roadsides, orchards, vineyards, gardens	June 10–August 31	July 29	X	X	X	X	X	X	X	X	X	X	X

Sources: Poole 2005; Wilson et al. 2012; eBird 2014; Sauer et al. 2014

[a] Species are listed by taxonomic order

[b] Breeding dates are based on Wilson et al. 2012's "Safe Dates." Safe dates were established to exclude observations of migrant and other non-breeding birds from being recorded as breeding birds.

Key:

CPL = Central Penn Line

n/a = not applicable

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Table A-2
Birds of Conservation Concern Regularly Occurring in Project Area Counties

Common Name[a]	Scientific Name	Seasonal Occurrence	Habitat	Breeding Dates[b]	Median Fledge Date	Pipeline Segment
Bald eagle	*Haliaeetus leucocephalus*	Year-round	Forested areas adjacent to large bodies of water	May 1–July 15	July 15	All
Upland sandpiper	*Bartramia longicauda*	Fall migrant	*Occurs only during migration in Project area*	*Does not breed in Project area*	*Does not breed in Project area*	CPL South
Short-eared owl	*Asio flammeus*	Winter and fall migrant	Open habitats, including agricultural fields, wetlands, reclaimed strip mines, fields/grasslands	*Does not breed in Project area*	*Does not breed in Project area*	All
Eastern whip-poor-will	*Antrostomus vociferus*	Breeder and migrant	Dry deciduous and mixed forests with minimal underbrush	June 1–July 31	n/a	All
Red-headed woodpecker	*Melanerpes erythrocephalus*	Year-round	Deciduous woodlands, riparian woodlands, orchards, parks, open agricultural land, grasslands with scattered trees, forest edges, roadsides, groves of dead/dying trees	May 25–July 31	July 9	All
Peregrine falcon	*Falco peregrinus*	Year-round	Broad range of habitats with cliffs, and urban environments with tall structures (e.g., towers, bridges)	May 15–July 31	July 5	CPL North, CPL South
Olive-sided flycatcher	*Contopus cooperi*	Migrant	*Occurs only during migration in Project area*	*Does not breed in Project area*	*Does not breed in Project area*	All
Wood thrush	*Hylocichla mustelina*	Breeder and migrant	Deciduous and mixed forests	June 1–July 31	July 1	All
Worm-eating warbler	*Helmitheros vermivorum*	Breeder and migrant	Large, contiguous tracts of deciduous and mixed forests	May 25–July 15	June 30	All
Louisiana waterthrush	*Parkesia motacilla*	Breeder and migrant	Breeds along streams in deciduous or mixed forests	April 15–July 15	June 21	All
Blue-winged warbler	*Vermivora cyanoptera*	Breeder and migrant	Early to mid-successional habitats	May 25–July 15	July 4	CPL North, CPL South, Unity Loop
Golden-winged warbler	*Vermivora chrysoptera*	Breeder and migrant	Broad range of habitats with dense herbs and shrubs with some taller trees	May 25–July 15	June 19	CPL North, CPL South, Chapman Loop
Kentucky warbler	*Geothlypis formosa*	Breeder and migrant	Woodlands near streams with dense understory	May 25–July 31	July 5	All

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Table A-2
Birds of Conservation Concern Regularly Occurring in Project Area Counties

Common Name[a]	Scientific Name	Seasonal Occurrence	Habitat	Breeding Dates[b]	Median Fledge Date	Pipeline Segment
Cerulean warbler	*Setophaga cerulea*	Breeder and migrant	Large, mature deciduous forests	June 1–July 31	June 30	All
Prairie warbler	*Setophaga discolor*	Breeder and migrant	Broad range of shrubby habitats	May 25–July 31	July 6	All
Canada warbler	*Cardellina canadensis*	Breeder and migrant	Broad range of deciduous and coniferous forest habitats	June 1–July 31	July 15	All
Henslow's sparrow	*Ammodramus henslowii*	Breeder and migrant	Large fields with tall, dense grass	May 25–August 15	July 12	CPL North, CPL South
Rusty blackbird	*Euphagus carolinus*	Winter resident and migrant	Swamps, forested wetlands, pond edges	*Does not breed in Project area*	*Does not breed in Project area*	All

Source: Poole 2005; USFWS 2008; Wilson et al. 2012; eBird 2014; Sauer et al. 2014
[a] Species are listed by taxonomic order
[b] Breeding dates are based on Wilson et al. 2012's "Safe Dates". Safe dates were established to exclude observations of migrant and other non-breeding birds from being recorded as breeding birds.
Key:
CPL = Central Penn South
n/a = not applicable

M-84

Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
Tamarack Swamp IBA/Sproul State Forest	Chapman	186.0–186.1, 187.6–187.8, 188.3–188.5	94	Wood thrush, blue-winged warbler, Canada warbler	May 25–July 31	Chapman Loop crosses portion of state forest plus connected forest; also connected to IBA. Route parallels and is co-located with the existing Transco Leidy Line right-of-way.
Ricketts Glen – Crevelling Lake Area IBA	CPL North	7.4–7.9	148	Bald eagle, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, cerulean warbler, prairie warbler, Canada warbler	April 15–July 31[2]	CPL North crosses a southern portion of the IBA. Multiple associated eBird hotspots with Ricketts Glen State Park reporting the highest number of species (148).
Lower Susquehanna River Gorge – Coowingo/Muddy Run IBA	CPL South	1.9–2.1	163	Bald eagle, red-headed woodpecker, peregrine falcon, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, Kentucky warbler, cerulean warbler, prairie warbler, Canada warbler		
Kittatinny Ridge IBA	CPL South	M0205 0.0– M0205 0.2, 58.5–M0176 0.4, M0200 0.7–60.9	230	Great egret, black-crowned night-heron, osprey, northern harrier, bald eagle, upland sandpiper, red-headed woodpecker, peregrine falcon, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, Kentucky warbler, blackpoll warbler, prairie warbler, Canada warbler	April 15–August 15[2]	CPL South crosses portion of IBA. Multiple eBird hotspots associated with or in close proximity to this area with Memorial Lake State Park reporting the highest number of species (230).

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Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
St. Anthony's Wilderness – State Game Land 211 IBA	CPL South	59.8–60.462.4–63.4, 67.9–68.5, 68.8–70.9	150	Bald eagle, eastern whip-poor-will, red-headed woodpecker, peregrine falcon, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, Kentucky warbler, cerulean warbler, prairie warbler, Canada warbler	April 15–August 15[2]	CPL South crosses IBA or connected forest/woodlands at several locations. Multiple eBird hotspots associated with or connected to this area with Second Mountain IBA being the connected hotspot with the highest reported number of species (150).
Muddy Run Connecting Habitat	CPL South	M0147 0.5–M0147 0.6	212	Bald eagle, eastern whip-poor-will, red-headed woodpecker, peregrine falcon, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, Kentucky warbler, cerulean warbler, prairie warbler, Canada warbler	April 15–July 31[2]	CPL South crosses Muddy Run, riparian trees connect to Muddy Run Reservoir (an eBird hotspot with 212 reported species). Also connected to Lower Susquehanna River Gorge - Conowingo/Muddy Run IBA.
Safe Harbor/Conestoga River Park Connecting Habitat	CPL South	12.3–12.4	163	Bald eagle, red-headed woodpecker, peregrine falcon, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, Kentucky warbler, cerulean warbler, prairie warbler, Canada warbler	April 15–July 31[2]	CPL South crosses Conestoga River and riparian woodlands that connect to Safe Harbor/Conestoga River Park (eBird hotspot).
State Game Land 206	CPL North	11.0–12.4	148	Bald eagle, wood thrush, worm-eating warbler, Louisiana waterthrush, blue-winged warbler, cerulean warbler, prairie warbler, Canada warbler	April 15–July 31	
State Game Land132	CPL South	M0213 0.0–M0213 0.8	41	Prairie warbler	May 25–July 31	CPL South crosses connected forests to the northeast of SGL 132. Forest also connected to Weiser State Forest - Taylorsville eBird hotspot reporting 41 species. Route parallels existing right-of-way (ROW).

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Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
State Game Land 84	CPL South	M0247 0.2–83.3	41	Prairie warbler	May 25–July 31	CPL South crosses the SGL and connected forest. Forest also connected to Weiser State Forest - Taylorsville eBird hotspot reporting 41 species. Route parallels existing ROW.
Interior Forest 01	CPL South	4.9, 5.1	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 02	CPL South	M0228 0.0–41.1	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 03	CPL South	41.3–41.6	n/a	Wood Thrush,Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 04	CPL South	M0205 0.2–58.5, 58.6	n/a	Wood Thrush,Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	Overlaps with Kittatinny Ridge IBA.
Interior Forest 05	CPL South	M0200 0.0, M0200 0.0–M0200 0.3, M0200 0.7	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 06	CPL South	62.6–62.7, 62.8–63.4, 64.0, 67.9, M0223 0.0–70.7	150	Wood Thrush,Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	Overlaps with St. Anthony's Wilderness–SGL 211 IBA.
Interior Forest 07	CPL South	68.9–69.0	150	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	Overlaps with St. Anthony's Wilderness - SGL 211 IBA.
Interior Forest 08	CPL South	M0181 0.2, 71.2–71.6	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	

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Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
Interior Forest 09	CPL South	72.3	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 10	CPL South	72.7–73.2, 73.3	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 11	CPL South	M03016 0.4–M0316 0.6, M0316 0.8–M0316 1.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 12	CPL South	77.4–77.6	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 14	CPL South	83.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 15	CPL South	83.8–84.3	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 16	CPL South	84.6–85.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 17	CPL South	85.4–M2400 0.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 18	CPL South	M0240 0.4–86.5	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 19	CPL South	M0372 0.2–M0235 1.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	

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Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
Interior Forest 20	CPL South	88.3–89.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 21	CPL South	89.2–89.9	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 22	CPL South	93.6–93.8	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 23	CPL South	M0236 0.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 24	CPL South	M0214 0.2–M0195 0.3	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 25	CPL South	116.5–116.9, 117.2–117.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 26	CPL South	117.8	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 27	CPL South	123.9–124.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 28	CPL South	124.1–124.7, 124.8	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 29	CPL North	(access road) 7.3	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	

Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
Interior Forest 30	CPL North	M0056 0.3–M0056 0.6	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 31	CPL North	21.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 32	CPL North	M0060 0.5, M0060 0.7–23.5, 23.8	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 33	CPL North	M0088 1.0, M0088 1.2–M0088 1.6, M0088 2.0–M0088 2.1, M0088 2.3, M0088 2.6–M0088 3.5	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 34	CPL North	30.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 36	CPL North	34.3-34.6	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 37	CPL North	35.9–36.6, 36.7–36.8, 37.0–37.1	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 38	CPL North	38.2–38.3	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 39	CPL North	41.0, 41.2–41.5, 41.6–41.8, 42.0–42.1	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	

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Table A-3
Migratory Bird Key Habitat Areas Crossed by the Project

Migratory Bird Key Habitat Area	Project Feature	Project Location (Mile Post range)	Total Species Recorded (eBird)[a]	Birds of Conservation Concern Recorded (eBird)[a]	Breeding Dates[1,b]	Notes
Interior Forest 40	CPL North	M0054 0. 5–43.6	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 41	CPL North	45.4–45.5	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 42	CPL North	46.2–M0058 0.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 43	CPL North	48.8–49.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 44	CPL North	M0080 0.7, M0080 1.2, 50.7, 50.8-50.9, 51.3-51.4	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 45	Chapman	(access road) 186.0	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	
Interior Forest 46	CPL North	M0088 0.3–M0088 0.8	n/a	Wood Thrush, Louisiana Waterthrush, Worm-eating Warbler, Kentucky Warbler, Canada Warbler[2]	April 15–July 31	

Sources: [a]eBird 2014, [b]Wilson et al. 2012
Notes:
[1] Encompasses the collective breeding date ranges for all special status species recorded at or assumed to occur at this location. Some individuals may breed earlier or later than these dates.
[2] Excludes breeding dates for bald eagle.
Key:
CPL = Central Penn Line
IBA = Important Bird Area
n/a = not applicable
ROW = right-of-way

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Appendix B Figures

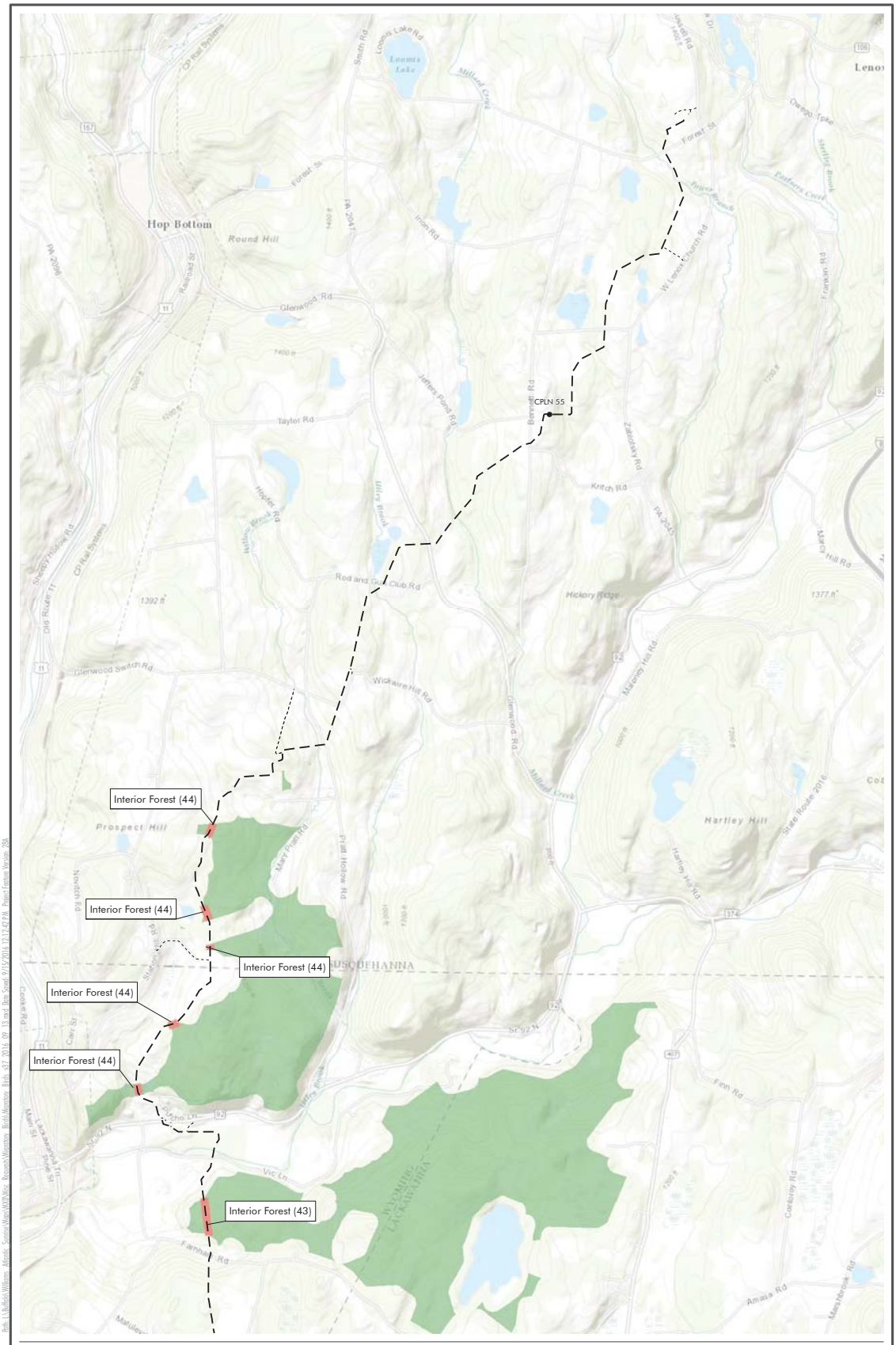

Figure B-1: Frame 1 of 19
Migratory Bird Key Habitat Areas
Crossed by the Atlantic Sunrise Project

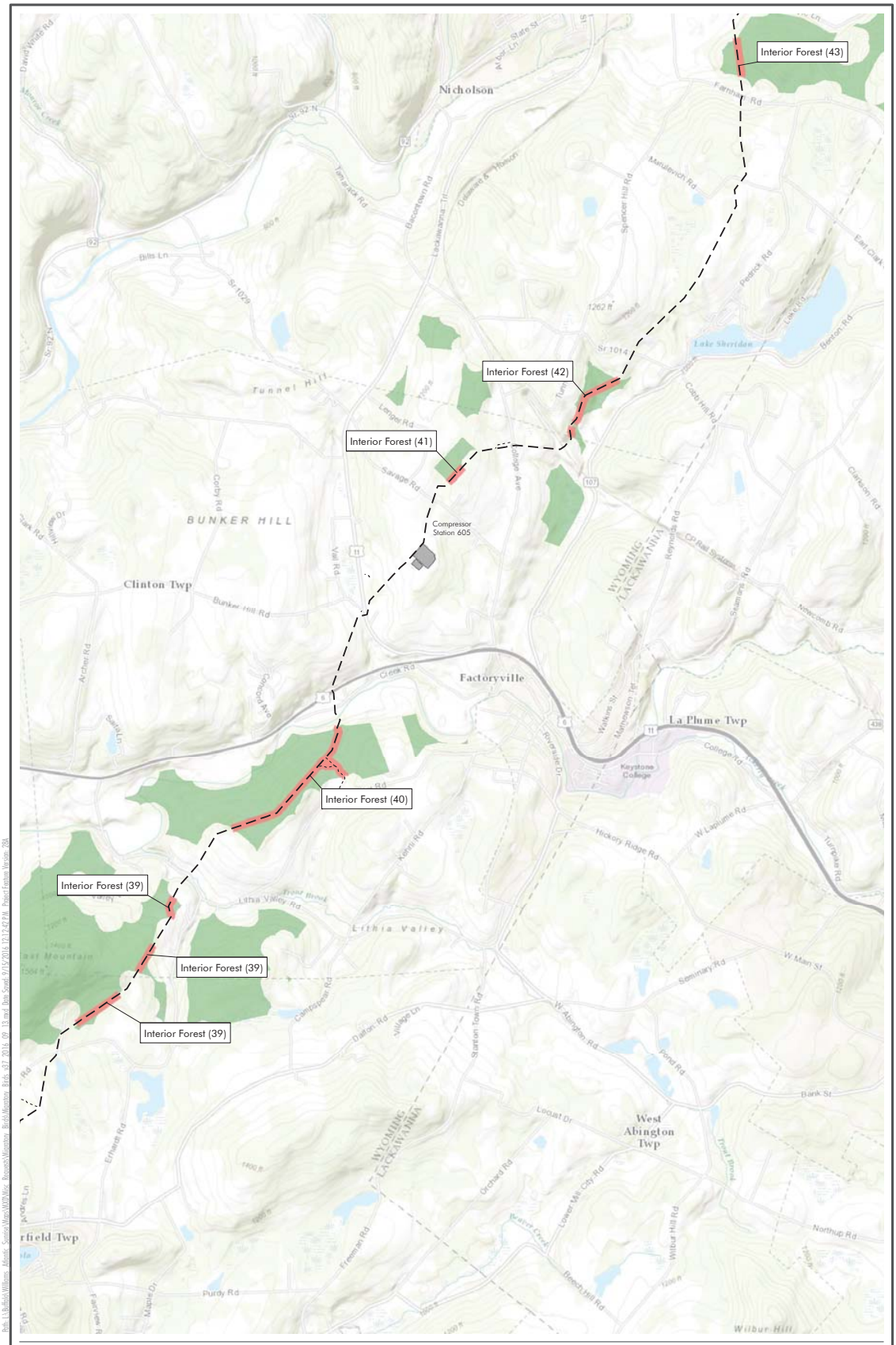

Figure B-1: Frame 2 of 19
Migratory Bird Key Habitat Areas
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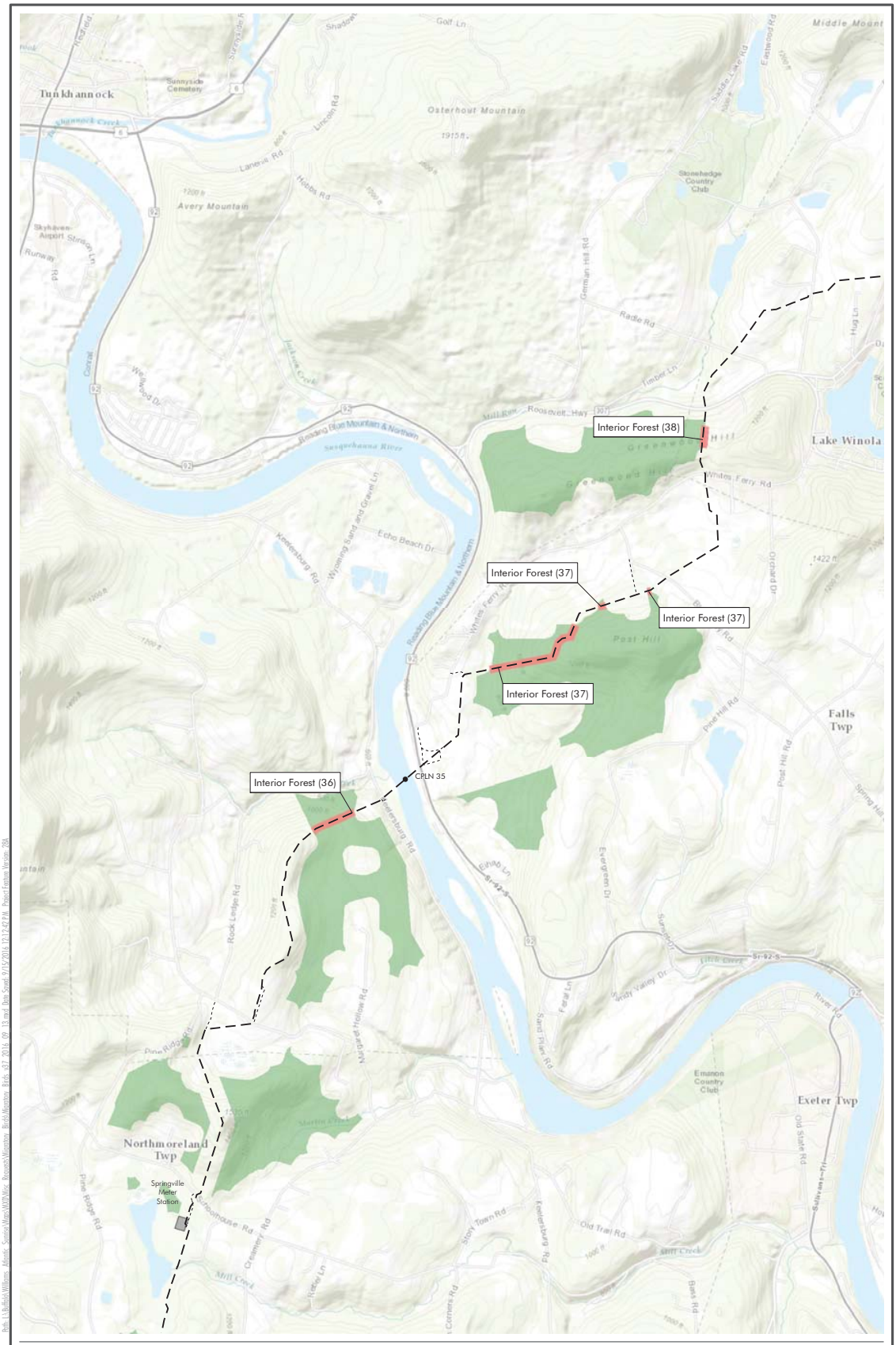

Figure B-1: Frame 3 of 19
Migratory Bird Key Habitat Areas
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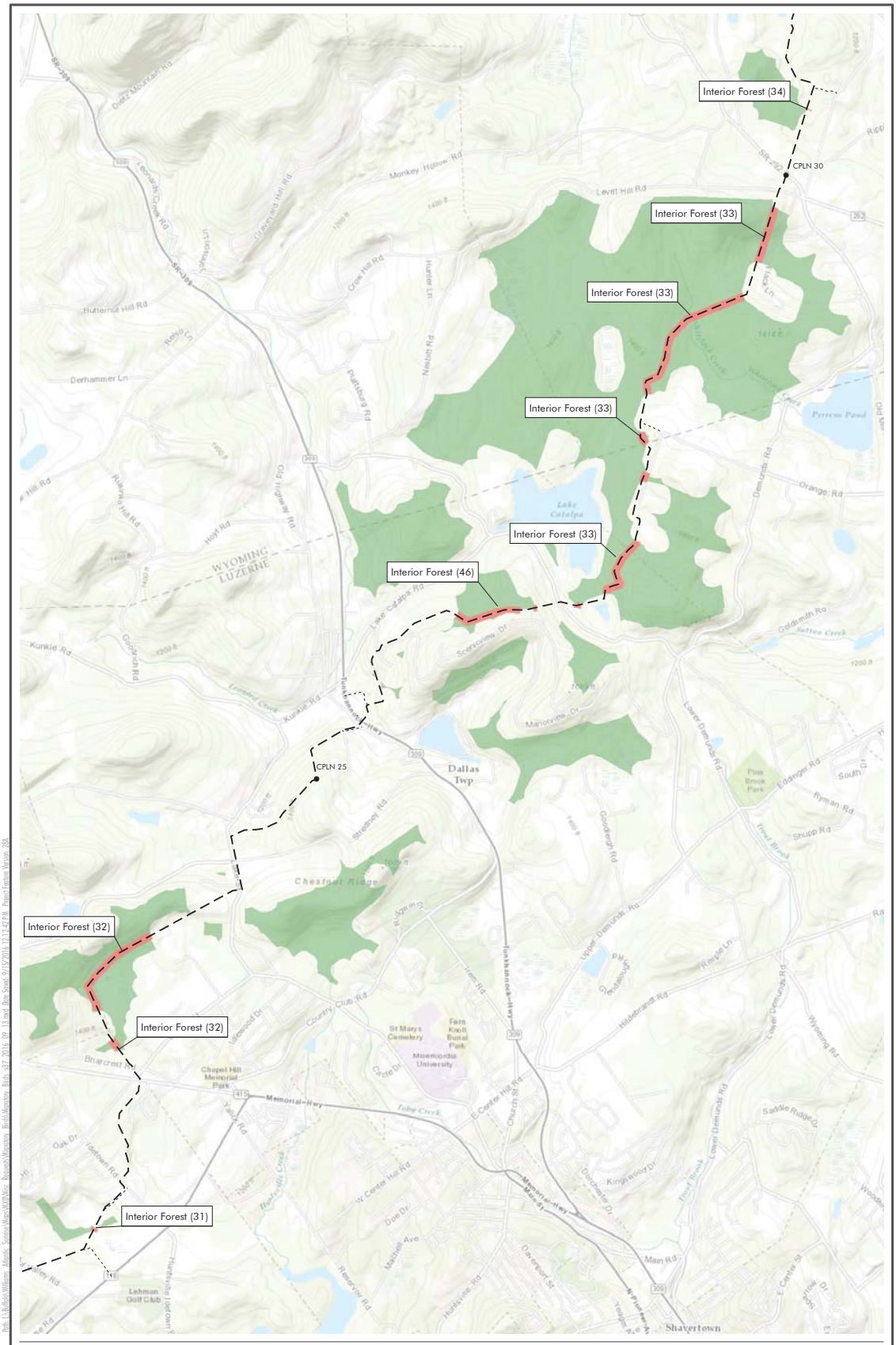

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Migratory Bird Key Habitat Areas
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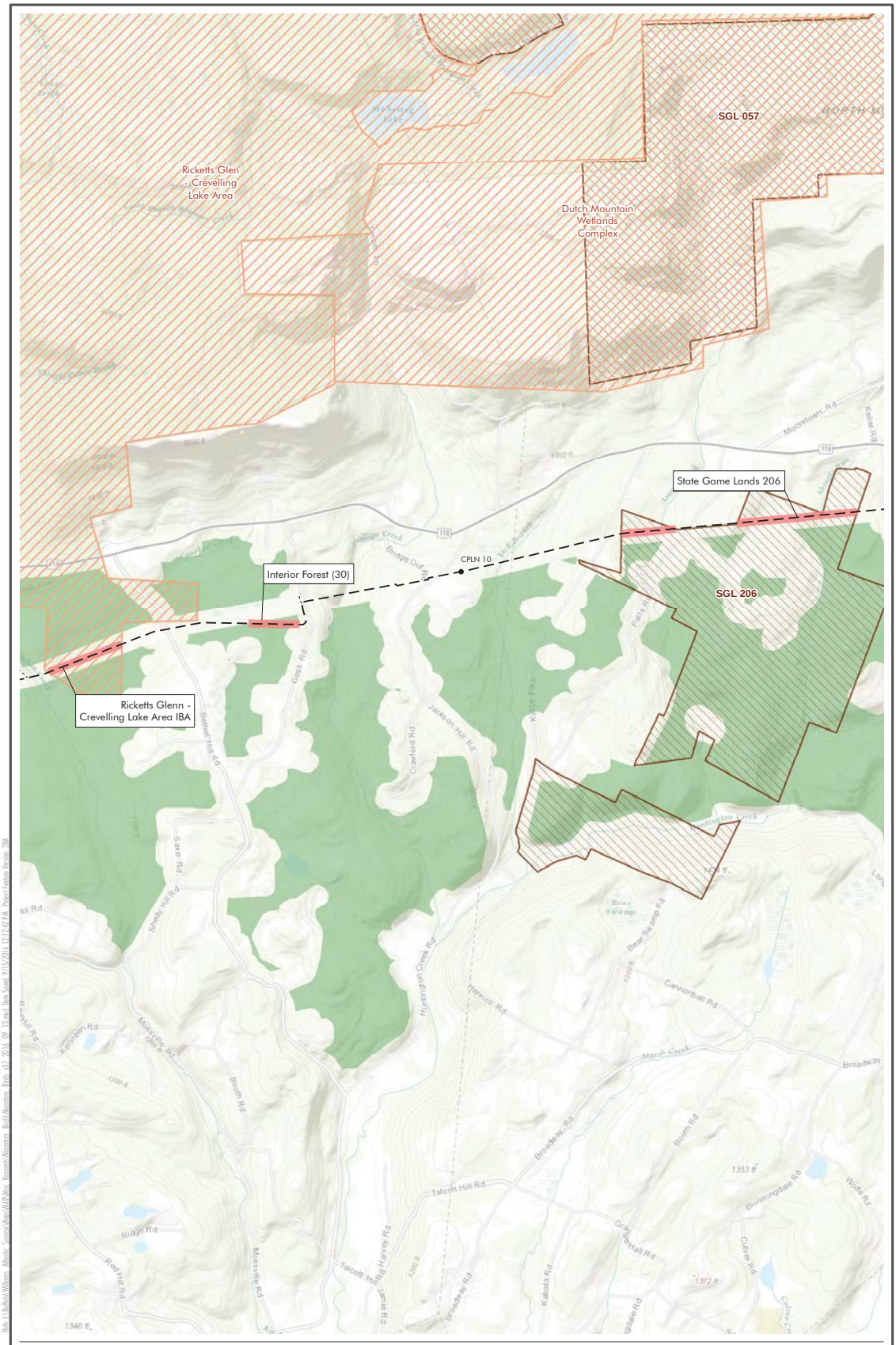

Figure B-1: Frame 5 of 19
Migratory Bird Key Habitat Areas
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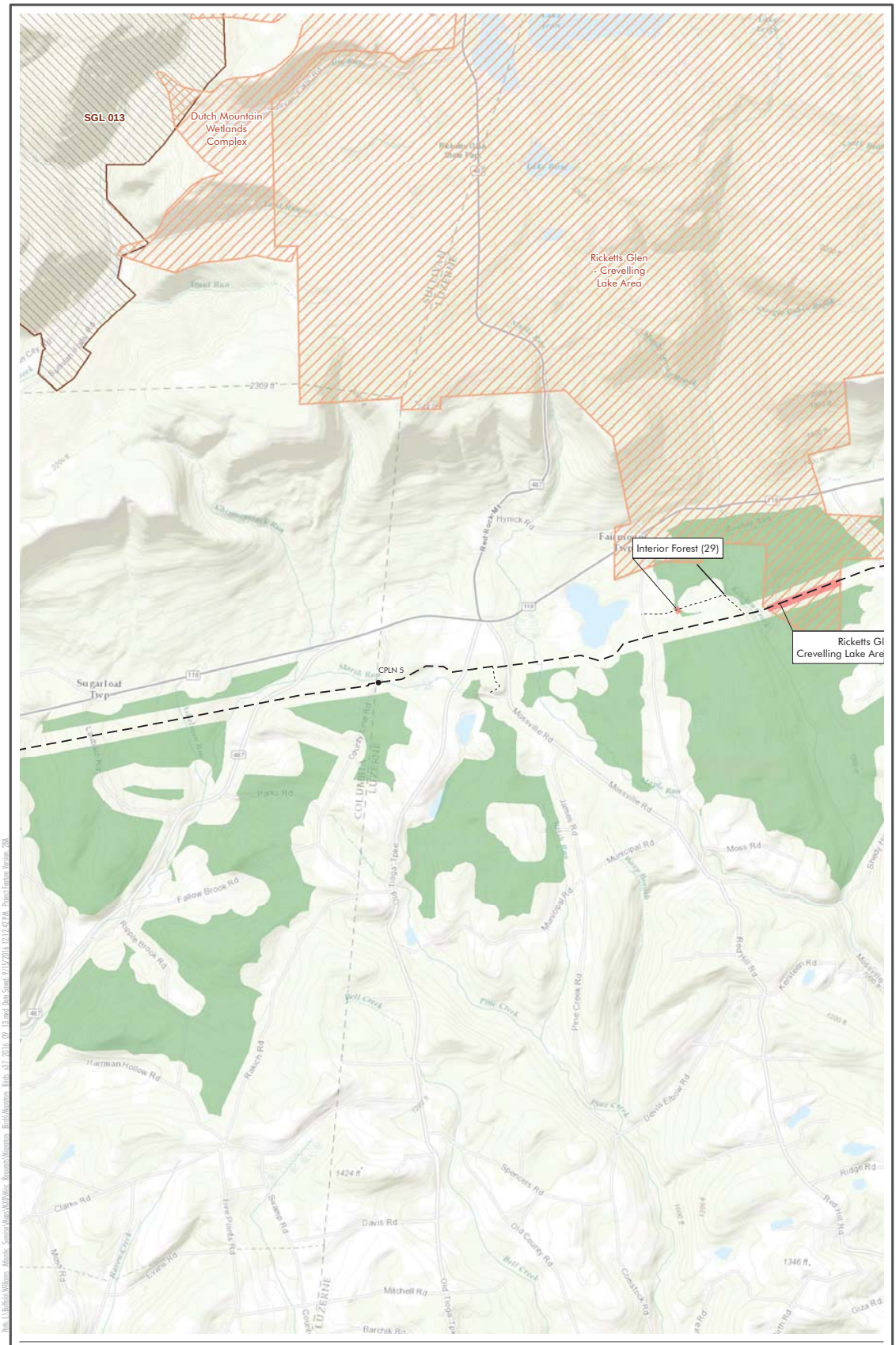

Figure B-1: Frame 6 of 19
Migratory Bird Key Habitat Areas
Crossed by the Atlantic Sunrise Project

Figure B-1: Frame 7 of 19
Migratory Bird Key Habitat Areas
Crossed by the Atlantic Sunrise Project

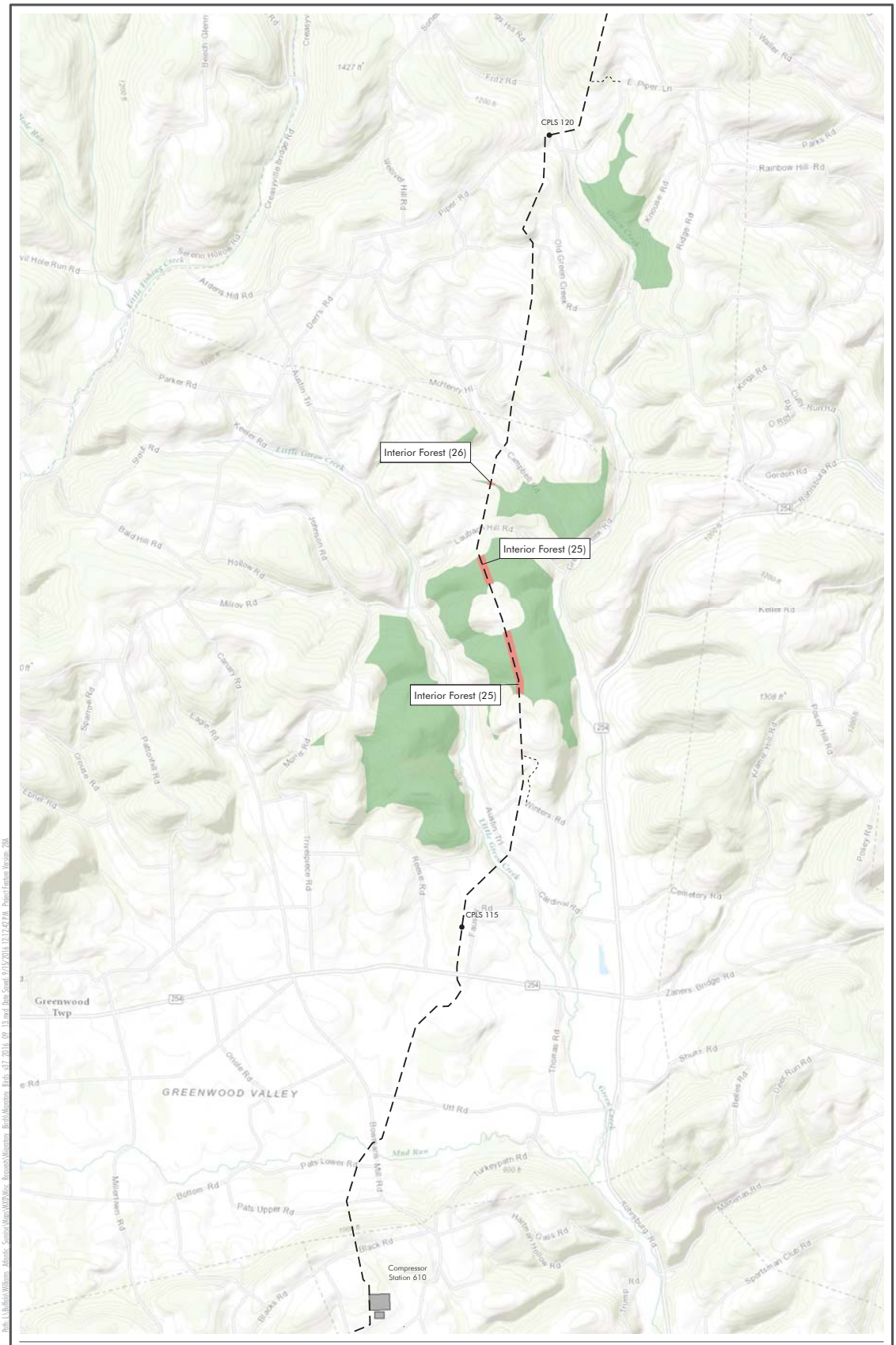

Figure B-1: Frame 8 of 19
Migratory Bird Key Habitat Areas
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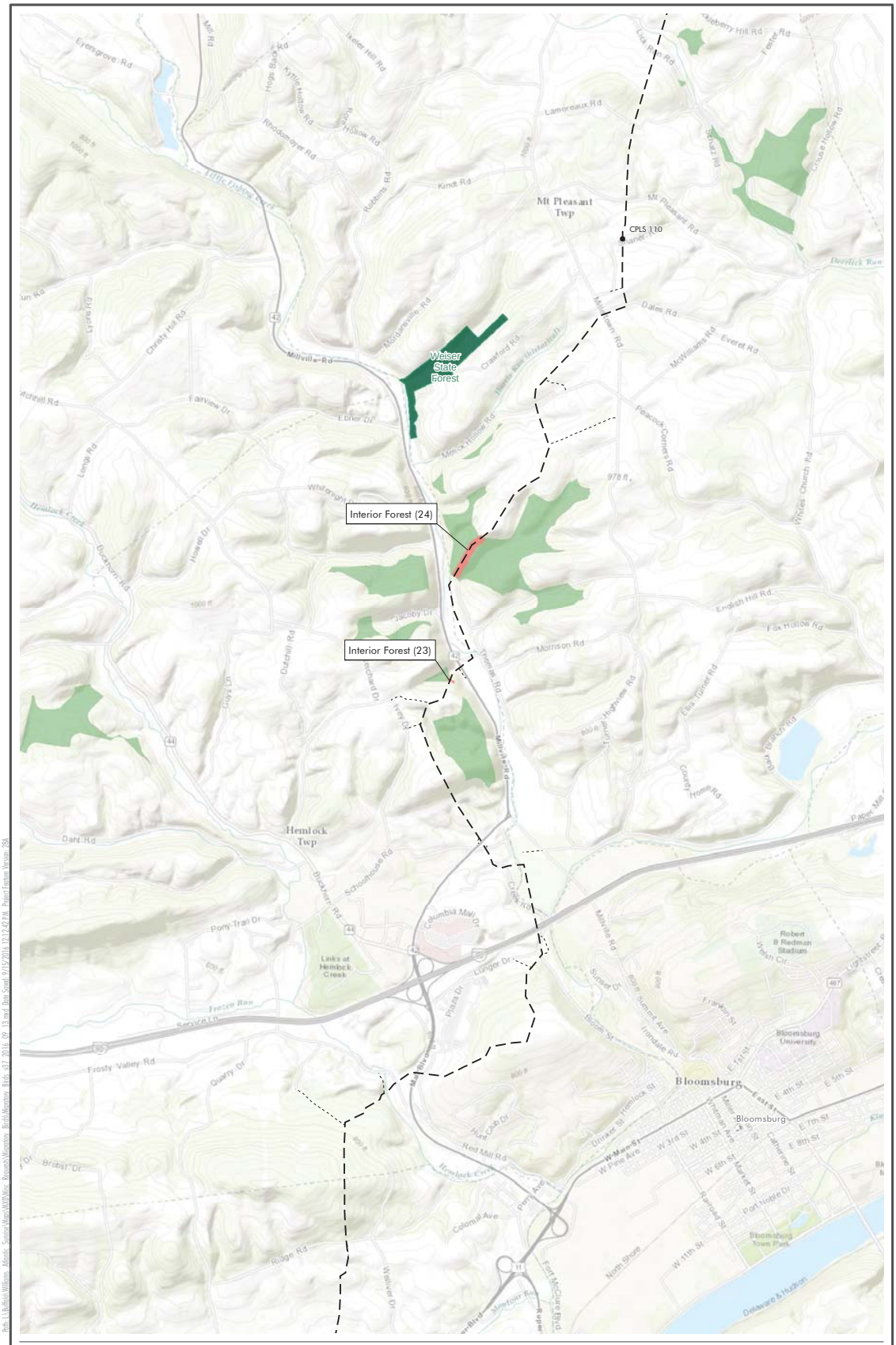

Figure B-1: Frame 9 of 19
Migratory Bird Key Habitat Areas
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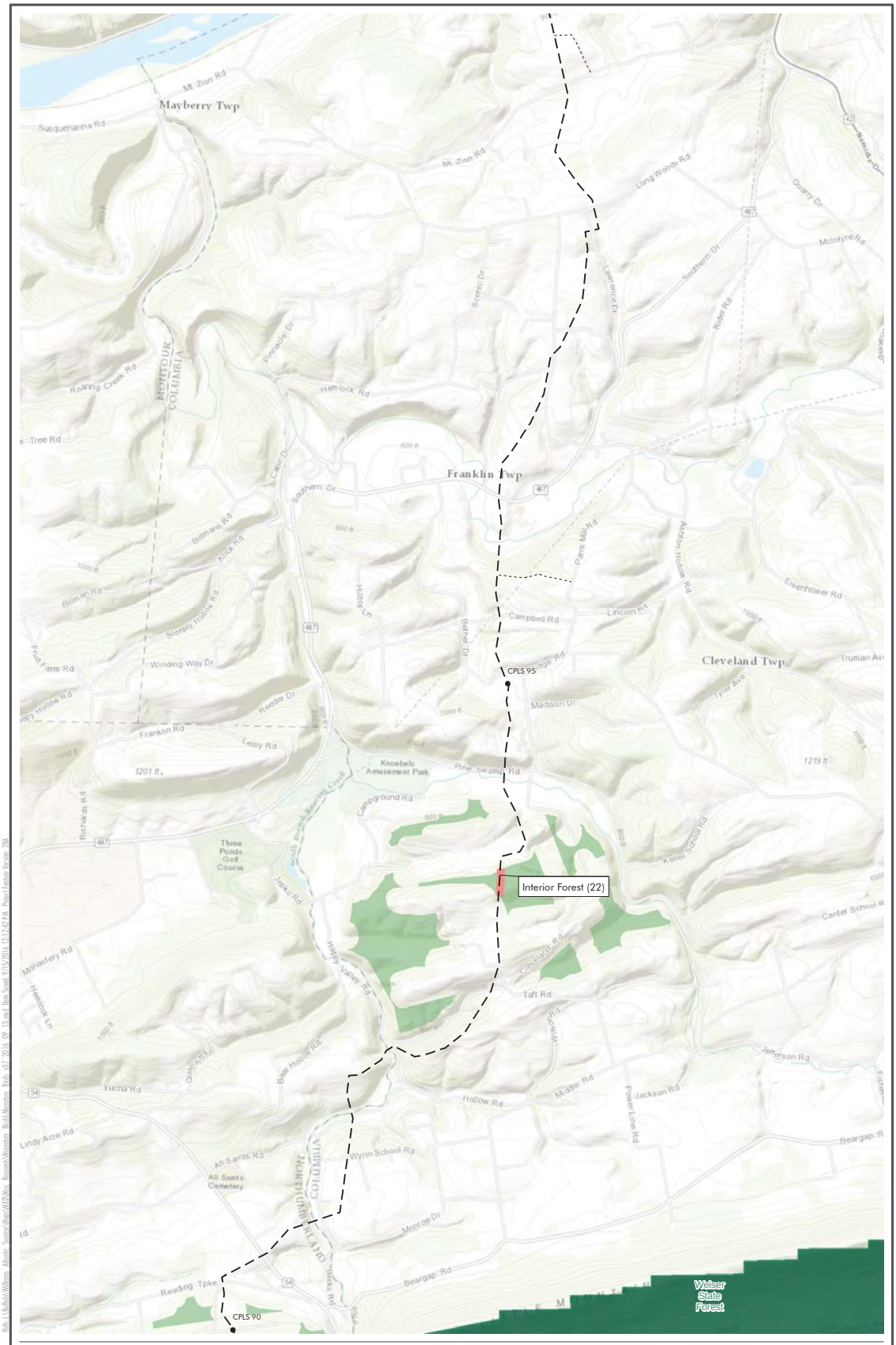

Figure B-1: Frame 10 of 19
Migratory Bird Key Habitat Areas
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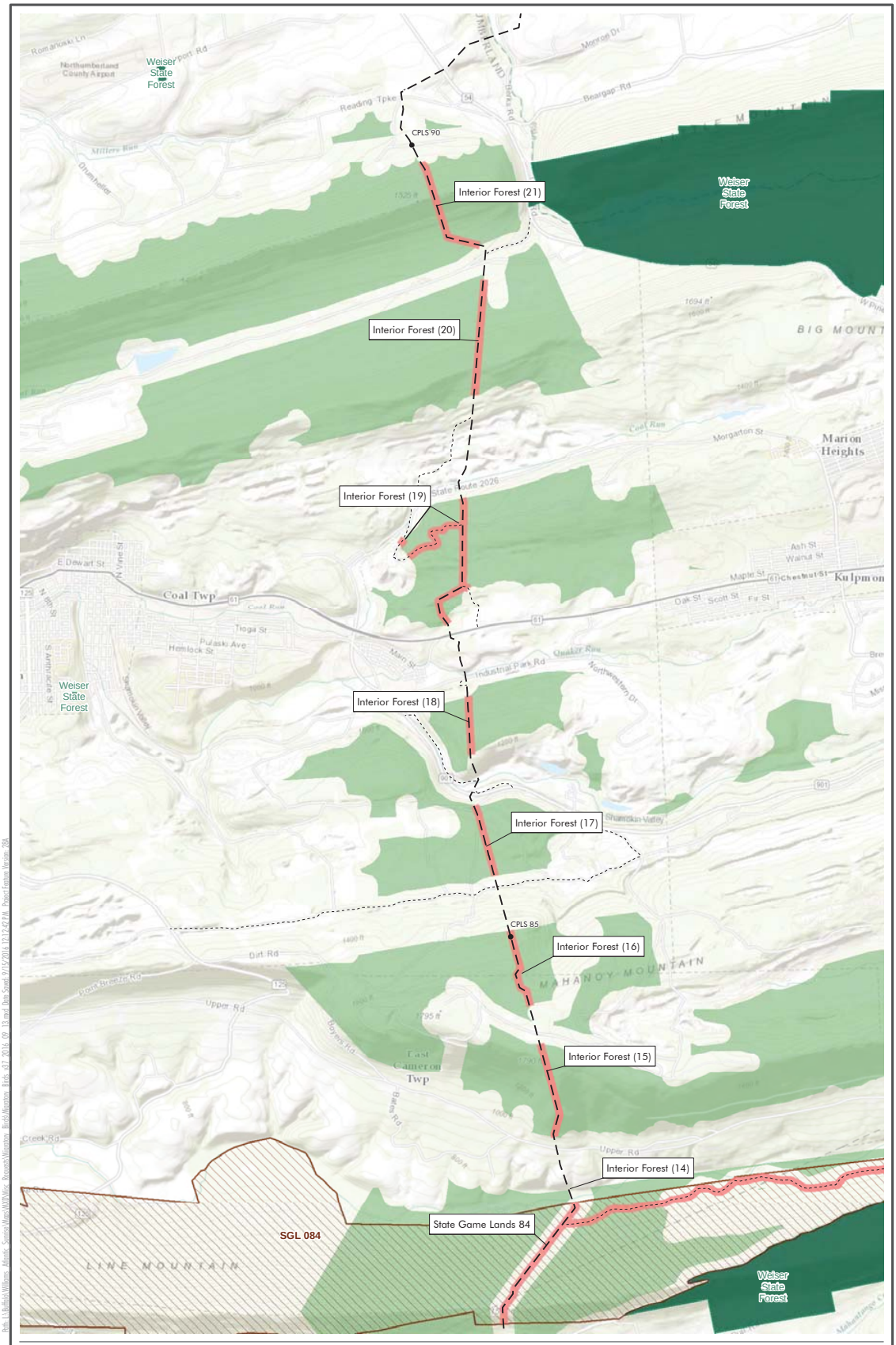

Figure B-1: Frame 11 of 19
Migratory Bird Key Habitat Areas
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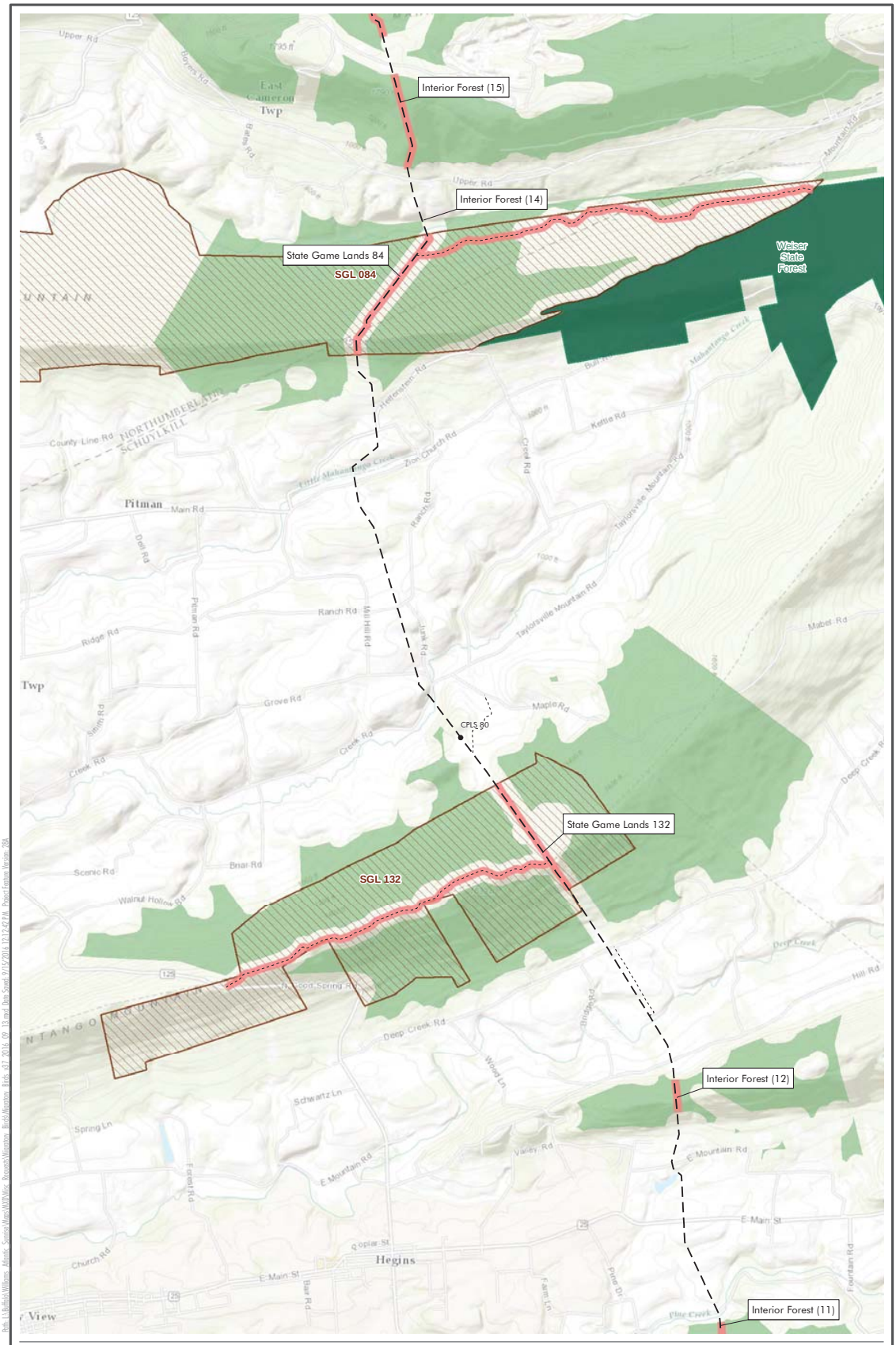

Figure B-1: Frame 12 of 19
Migratory Bird Key Habitat Areas
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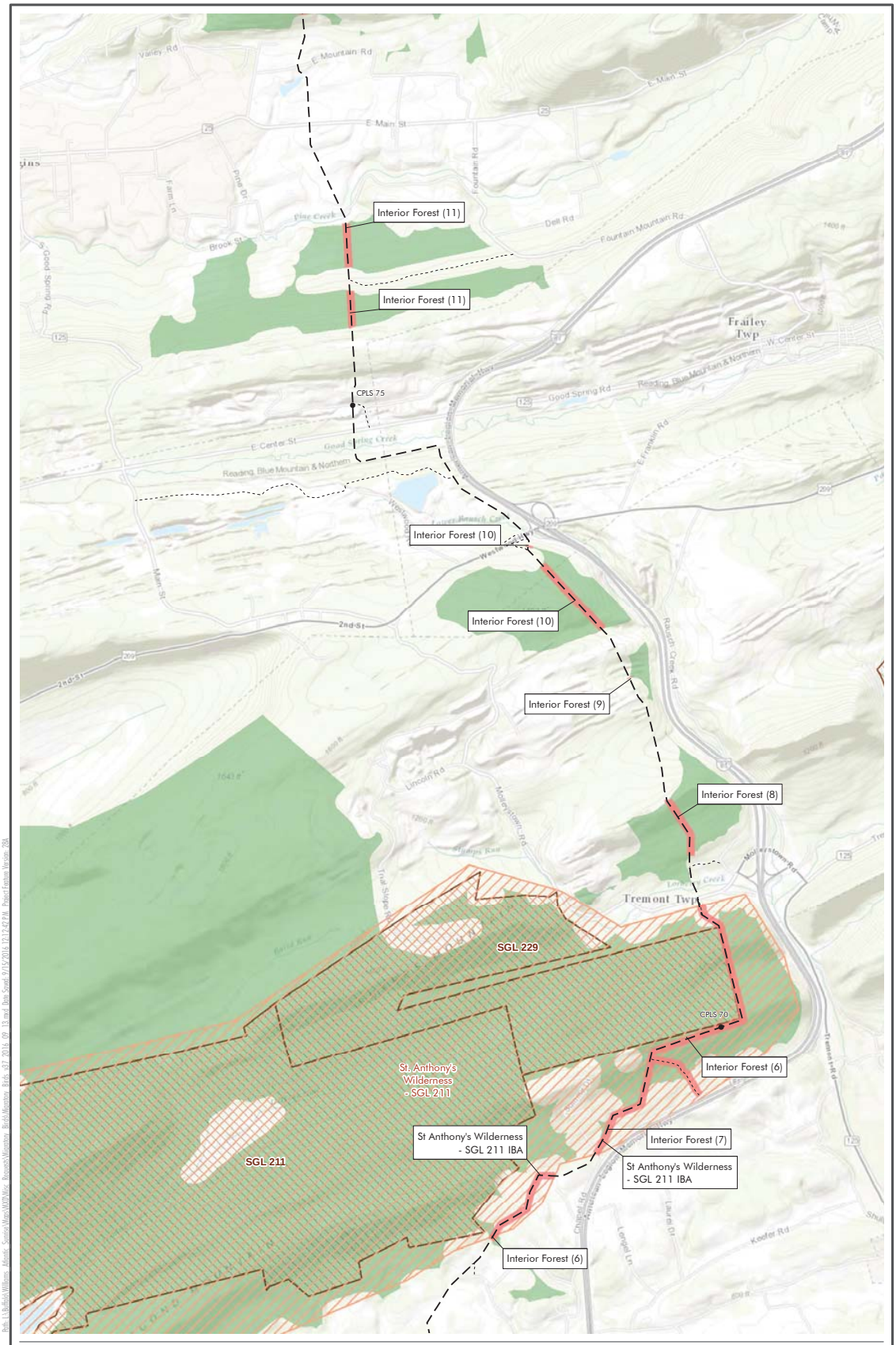

Figure B-1: Frame 13 of 19
Migratory Bird Key Habitat Areas
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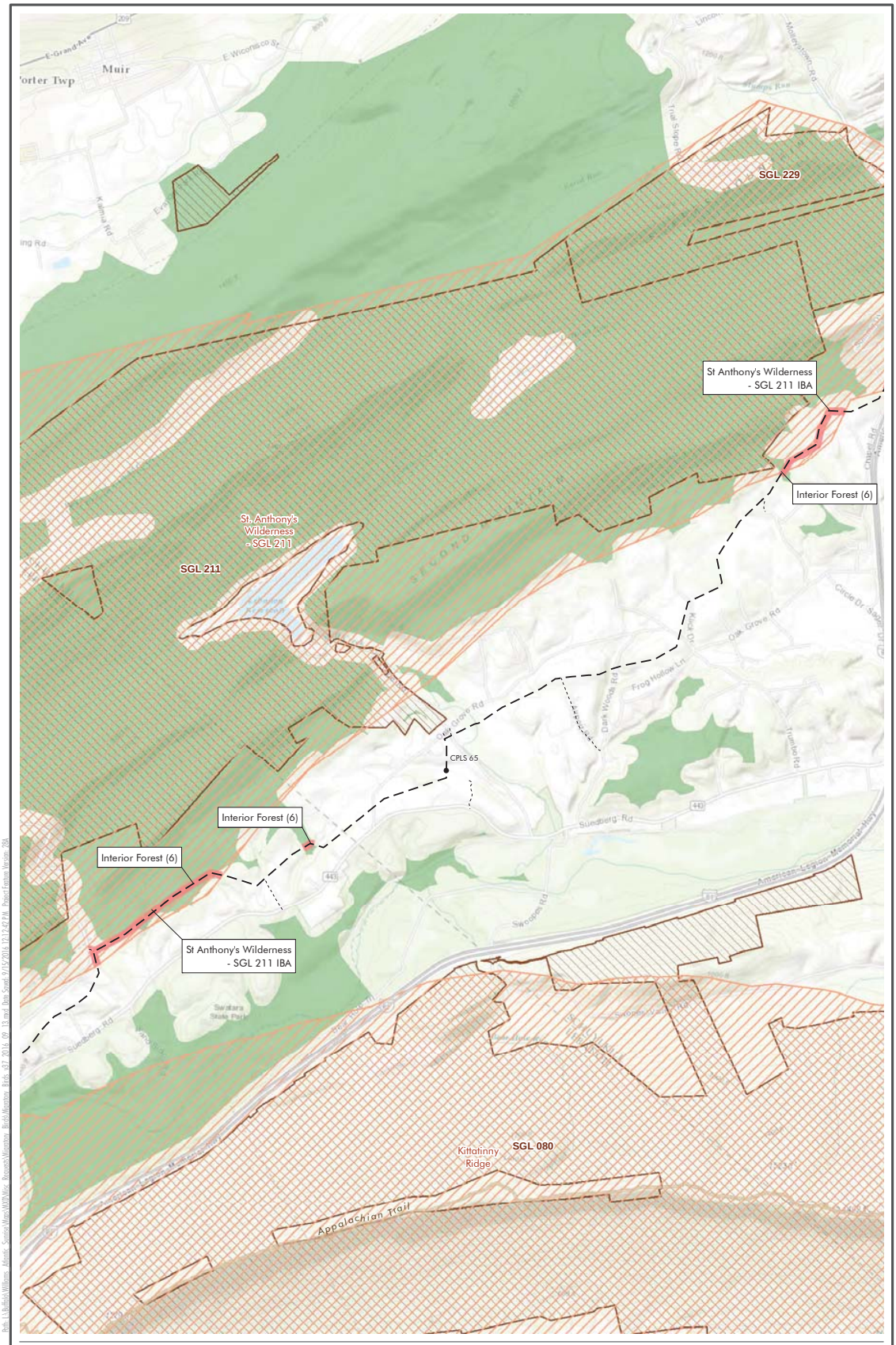

Figure B-1: Frame 14 of 19
Migratory Bird Key Habitat Areas
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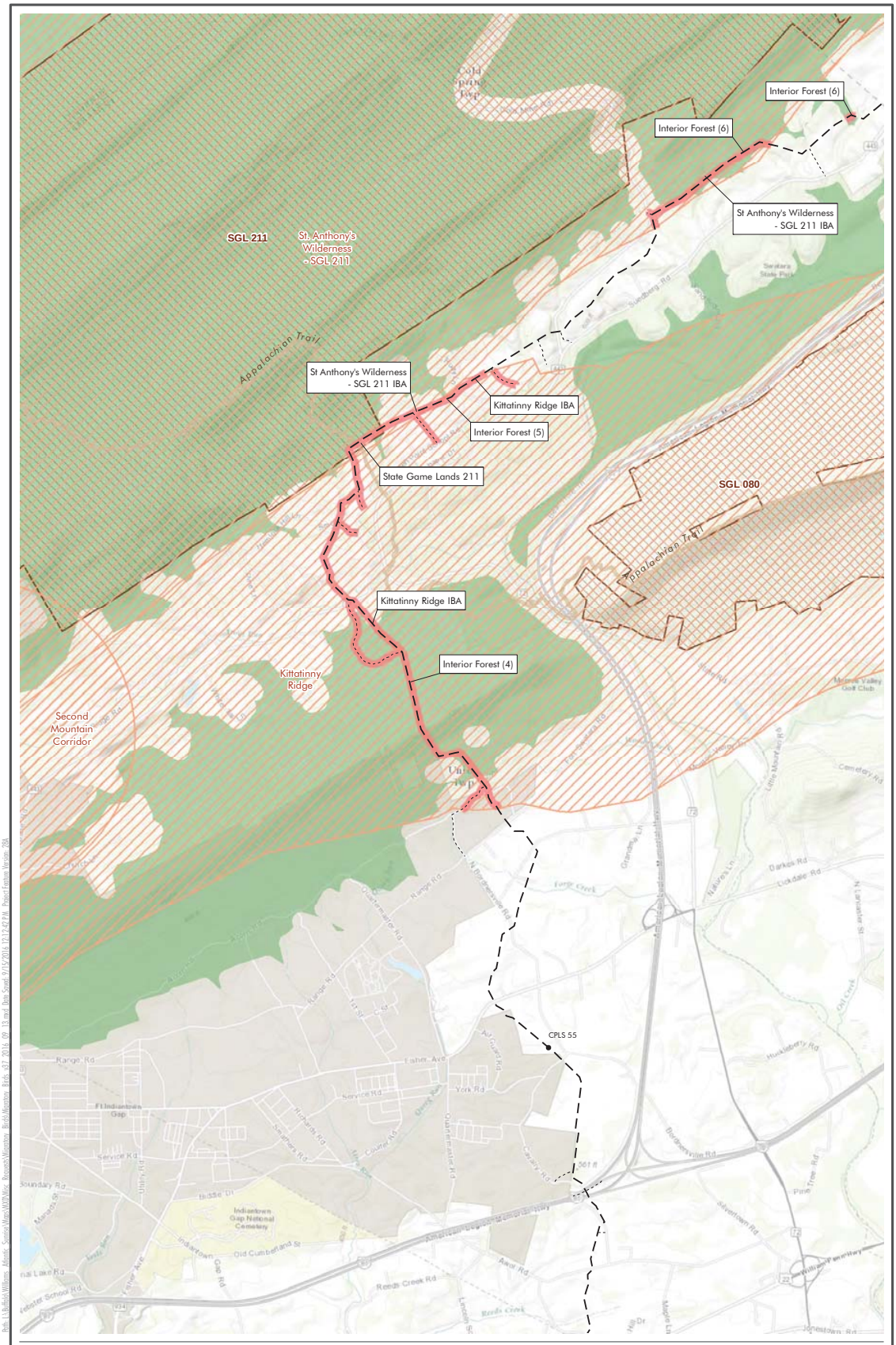

Figure B-1: Frame 15 of 19
Migratory Bird Key Habitat Areas
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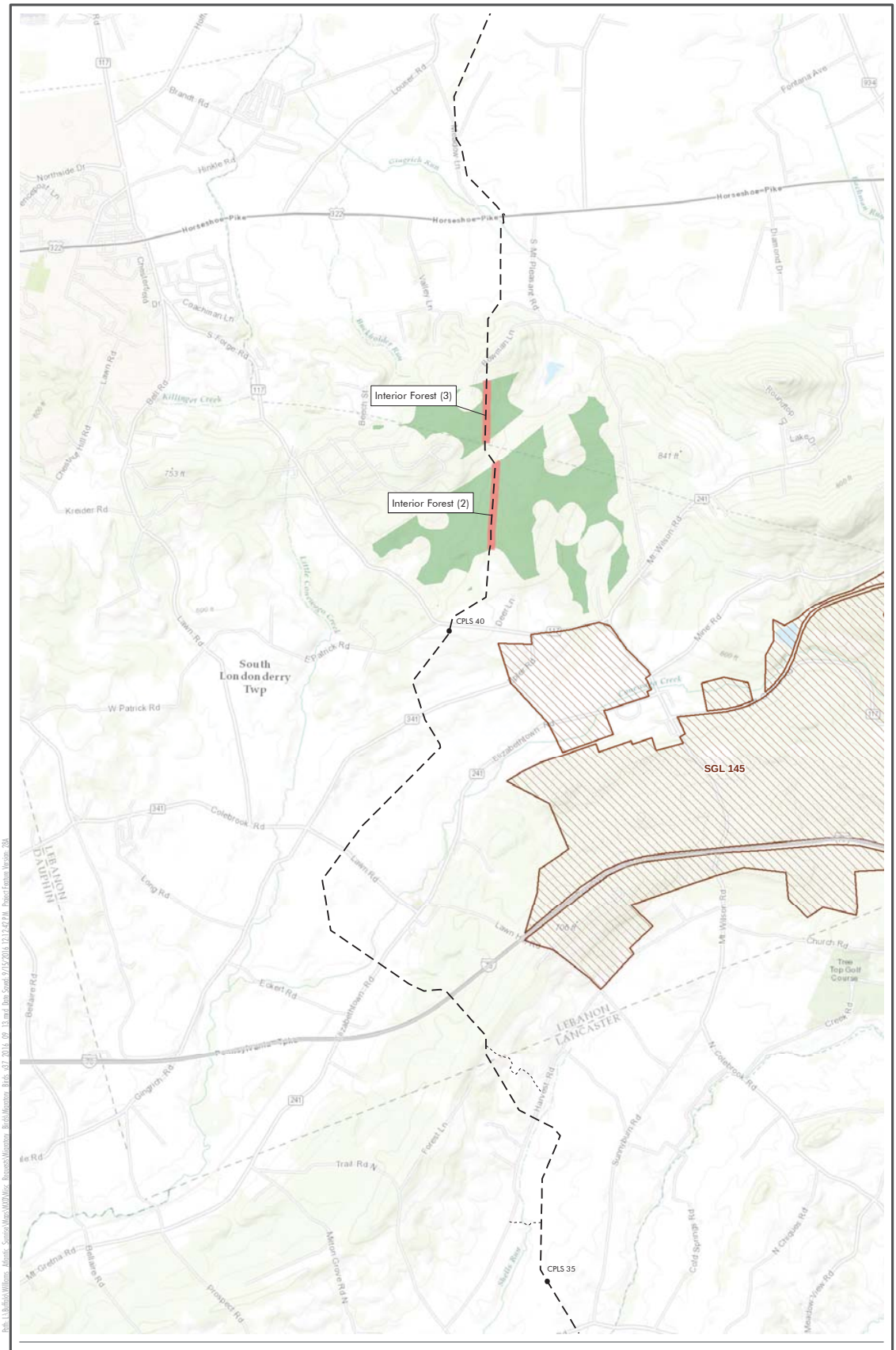

Figure B-1: Frame 16 of 19
Migratory Bird Key Habitat Areas
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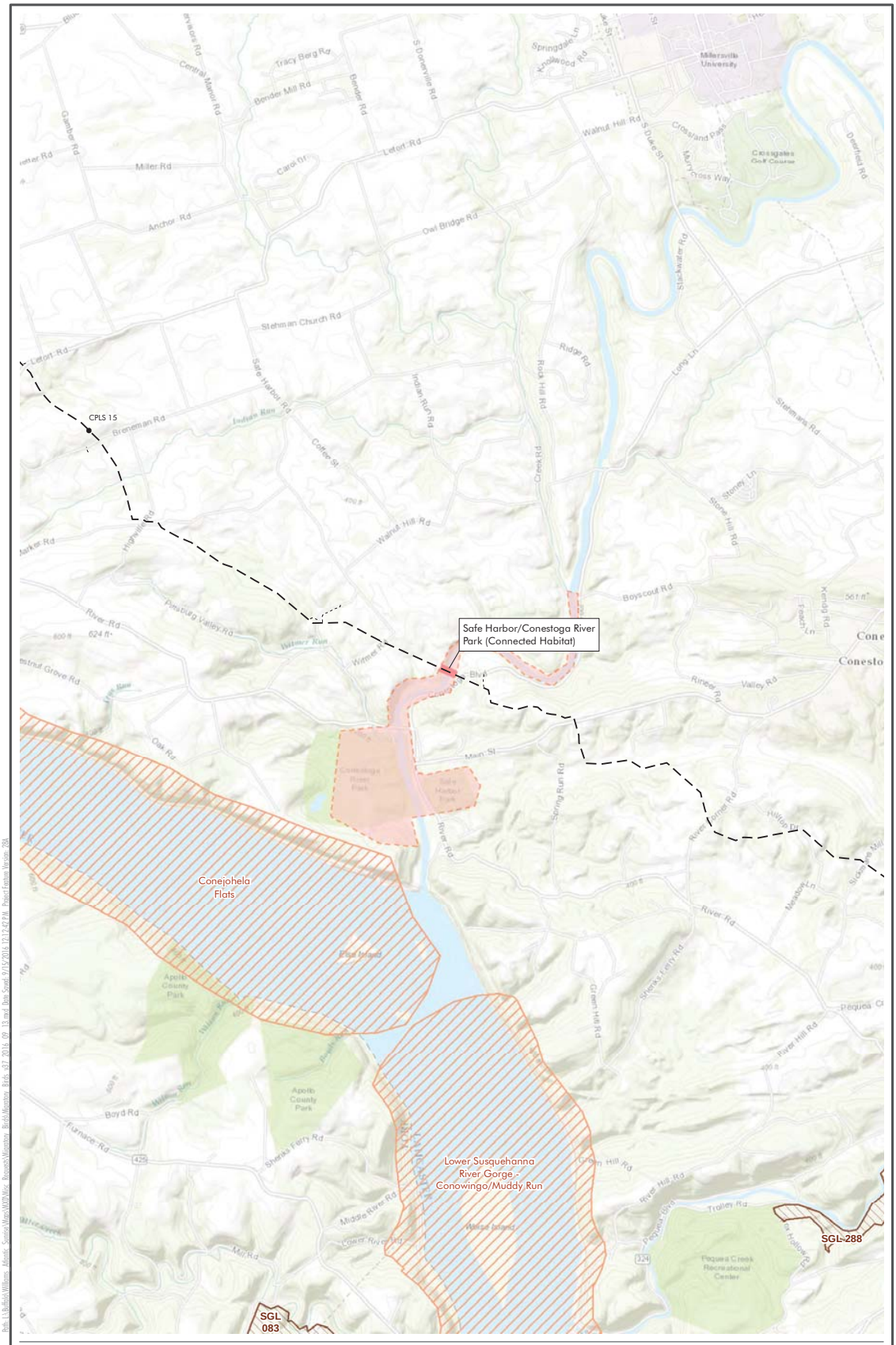

Figure B-1: Frame 17 of 19
Migratory Bird Key Habitat Areas
Crossed by the Atlantic Sunrise Project

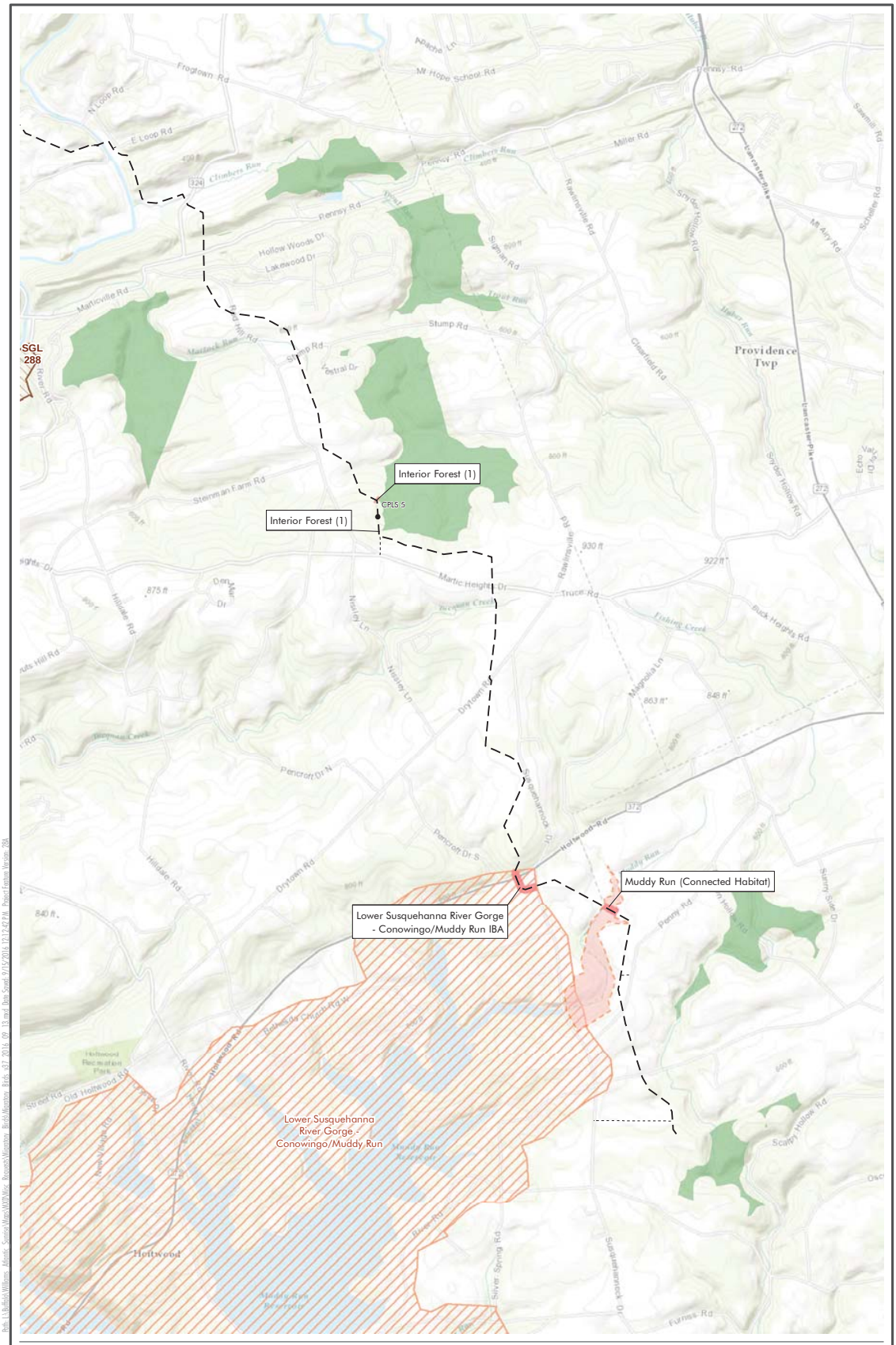

Figure B-1: Frame 18 of 19
Migratory Bird Key Habitat Areas
Crossed by the Atlantic Sunrise Project

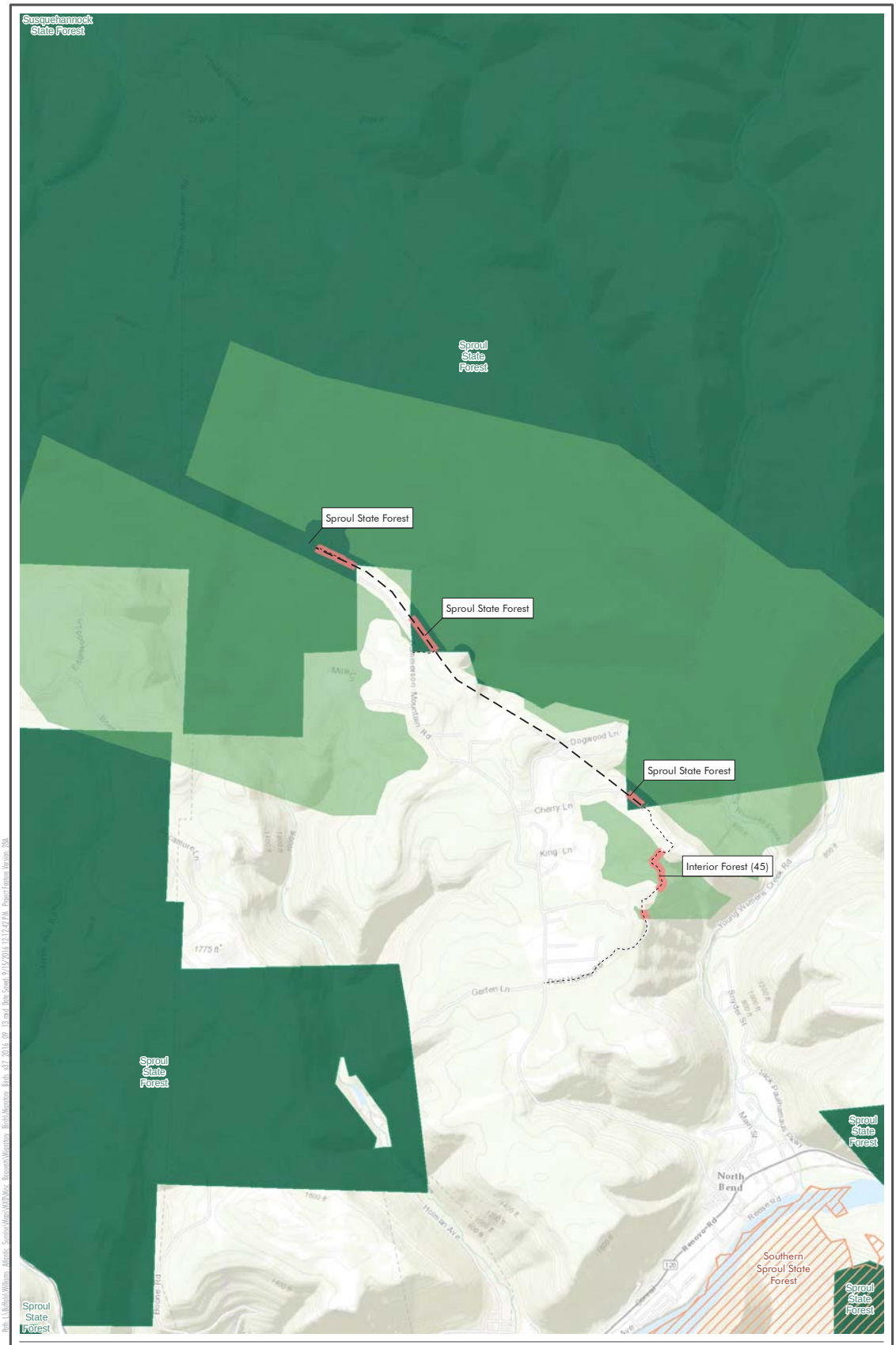

Figure B-1: Frame 19 of 19
Migratory Bird Key Habitat Areas
Crossed by the Atlantic Sunrise Project

APPENDIX N

VEGETATION COVER AFFECTED BY CONSTRUCTION AND OPERATION OF THE ATLANTIC SUNRISE PROJECT

APPENDIX N

Vegetation Cover Affected by Construction and Operation of the Atlantic Sunrise Project

	Agricultural Land		Upland Forest		Open Land		Wetlands	
Facility/County/ Workspace Type	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]
PENNSYLVANIA								
Central Penn Line (CPL) North								
Columbia								
Pipeline	2.2	0.7	28.3	8.5	18.4	5.1	3.5	1.2 (0.3)
ATWS	0.5	0.0	4.4	0.0	0.8	0.0	<0.1	0.0
Mainline valves and tie-in	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	0.0	0.0	0.7	0.3	0.1	<0.1	0.0	0.0
Contractor staging areas	5.2	0.0	<0.1	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luzerne								
Pipeline	24.9	10.5	165.8	71.8	38.9	8.0	12.2	4.9 (2.6)
ATWS	8.1	0.0	17.5	0.0	3.7	0.0	0.5	0.0
Mainline valves	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Access roads	0.9	0.0	3.9	0.1	1.8	0.4	0.0	0.0
Contractor staging areas	10.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	9.7	0.0	0.3	0.0
Wyoming								
Pipeline	69.8	39.4	129.1	70.1	27.8	16.7	8.4	5.5 (1.3)
ATWS	25.5	0.0	9.8	0.0	7.0	0.0	0.4	0.0
Mainline valves	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	5.0	0.3	4.0	0.0	2.9	0.5	<0.1	0.0
Contractor staging areas	4.8	0.0	<0.1	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0
Susquehanna								
Pipeline	24.7	12.6	28.2	15.5	11.6	7.7	3.1	2.0 (**0.3**)
ATWS	8.3	0.0	3.3	0.0	1.1	0.0	0.1	0.0
Mainline valves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	1.8	0.7	0.4	0.0	2.6	0.0	0.0	0.0
Contractor staging areas	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal CPL North	**200.7**	**64.4**	**395.6**	**166.4**	**132.0**	**38.2**	**28.2**	**13.5 (4.5)**
CPL South								
Lancaster								
Pipeline	354.6	179.9	55.4	27.2	11.3	5.9	1.9	1.1 (0.4)
ATWS	122.6	0.0	9.1	0.0	3.9	0.0	0.2	0.0
Mainline valves	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	10.7	1.4	1.7	<0.1	2.0	0.3	0.0	0.0
Contractor staging areas	37.8	0.0	0.5	0.0	1.8	0.0	0.0	0.0
Contractor and pipe yards	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cathodic protection	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Lebanon								
Pipeline	223.4	112.6	91.9	46.3	10.3	5.2	3.8	2.4 (0.9)
ATWS	74.1	0.0	11.7	0.0	2.5	0.0	0.1	0.0
Mainline valves	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	4.2	0.2	5.2	0.6	2.2	0.7	0.0	0.0
Contractor staging areas	26.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	50.2	0.0	<0.1	0.0	0.0	0.0	0.0	0.0
Schuylkill								
Pipeline	73.2	36.9	100.0	49.9	36.5	18.7	2.8	1.6 (0.2)
ATWS	22.8	0.0	16.3	0.0	5.8	0.0	0.3	0.0
Mainline valves	0.2	0.2	<0.1	<0.1	0.0	0.0	0.0	0.0

APPENDIX N (cont'd)

Vegetation Cover Affected by Construction and Operation of the Atlantic Sunrise Project

	Agricultural Land		Upland Forest		Open Land		Wetlands	
Facility/County/ Workspace Type	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]
Access roads	5.0	0.1	14.5	1.1	28.8	1.6	0.0	0.0
Contractor staging areas	21.7	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northumberland								
Pipeline	7.0	3.5	86.9	43.5	7.5	3.7	0.4	0.2 (0.1)
ATWS	2.3	0.0	9.5	0.0	1.5	0.0	0.1	0.0
Mainline valves	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	0.1	0.1	19.1	1.5	3.2	0.7	0.0	0.0
Contractor staging areas	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Columbia								
Pipeline	235.3	119.8	115.2	57.6	31.6	15.9	2.9	1.8 (0.5)
ATWS	77.1	0.0	14.3	0.0	7.5	0.0	0.2	0.0
Mainline valves	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	8.0	<0.1	2.6	0.0	2.1	0.1	0.0	0.0
Contractor staging areas	13.7	0.0	0.4	0.0	6.6	0.0	0.0	0.0
Contractor and pipe yards	27.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal CPL South	**1,421.4**	**455.5**	**554.4**	**227.6**	**166.0**	**52.6**	**12.4**	**7.0 (2.0)**
Chapman Loop								
Clinton								
Pipeline	0.0	0.0	11.7	3.2	14.5	4.7	<0.1	0.0 (0.0)
ATWS	0.0	0.0	0.8	0.0	0.6	0.0	0.0	0.0
Mainline valves and tie-in assembly	0.0	0.0	0.2	0.2	0.6	0.6	0.0	0.0
Access roads	0.0	0.0	9.9	2.6	2.6	0.5	0.0	0.0
Contractor staging areas	0.0	0.0	1.4	0.0	2.5	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Chapman Loop	**0.0**	**0.0**	**24.0**	**6.0**	**20.8**	**5.8**	**<0.1**	**0.0 (0.0)**
Unity Loop								
Lycoming								
Pipeline	33.8	9.1	39.4	11.4	23.1	3.6	2.1	0.4 (0.1)
ATWS	9.2	0.0	2.6	0.0	3.1	0.0	0.2	0.0
Mainline valves and tie-in assembly	0.6	0.6	0.0	0.0	0.1	0.1	0.0	0.0
Access roads	2.4	0.4	2.1	0.0	**2.1**	0.0	0.0	0.0
Contractor staging areas	3.5	0.0	<0.1	0.0	4.5	0.0	0.0	0.0
Contractor and pipe yards	30.8	0.0	<0.1	0.0	0.0	0.0	0.0	0.0
Subtotal Unity Loop	**80.2**	**10.1**	**44.2**	**11.8**	**33.1**	**3.7**	**2.3**	**0.4 (0.1)**
VIRGINIA								
Mainline A & B Replacements								
Prince William								
Pipeline	0.0	0.0	0.0	0.0	22.0	0.0	2.0	0.0
ATWS	0.0	0.0	0.5	0.0	0.7	0.0	0.2	0.0
Mainline valves	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0
Access roads	0.0	0.0	0.1	0.0	1.1	0.0	0.0	0.0
Contractor staging areas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Mainline A & B Replacements	**0.0**	**0.0**	**0.6**	**0.1**	**23.9**	**0.1**	**2.2**	**0.0**
PIPELINE FACILITIES TOTAL	**1,702.3**	**530.0**	**1,019.1**	**411.4**	**375.2**	**100.3**	**44.9**	**20.9 (6.6)**

APPENDIX N (cont'd)

Vegetation Cover Affected by Construction and Operation of the Atlantic Sunrise Project

	Agricultural Land		Upland Forest		Open Land		Wetlands	
Facility/County/ Workspace Type	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]
NEW ABOVEGROUND FACILITIES								
New Compressor Station 605	45.0	36.0	5.1	3.2	0.0	0.0	0.0	0.0
New Compressor Station 610	32.8	32.8	0.7	0.7	0.0	0.0	0.0	0.0
Zick Meter Station with pig launcher and receiver	9.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0
Springville Meter Station	0.0	0.0	4.8	3.1	<0.1	<0.1	0.0	0.0
North Diamond Regulator Station	0.0	0.0	1.6	1.5	0.7	0.3	0.0	0.0
West Diamond Regulator Station with pig launcher and receiver	0.0	0.0	3.0	3.0	1.8	1.4	0.0	0.0
River Road Regulator Station with pig receiver	0.0	0.0	2.1	2.1	0.3	0.3	0.0	0.0
Subtotal	**86.9**	**72.9**	**17.3**	**13.6**	**2.8**	**2.0**	**0.0**	**0.0**
MODIFIED COMPRESSOR STATIONS								
Compressor Station 517	0.0	0.0	6.3	0.8	6.7	0.6	0.0	0.0
Compressor Station 520	0.0	0.0	0.0	0.0	23.8	15.5	0.0	0.0
Compressor Station 190	0.0	0.0	0.0	0.0	5.7	3.5	0.0	0.0
Compressor Station 185	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Station 170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Station 160	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0
Compressor Station 155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Station 150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Station 145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**0.0**	**0.0**	**6.3**	**0.8**	**40.7**	**19.6**	**0.0**	**0.0**
MODIFIED M&R								
Puddlefield Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grover Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Shelby M&R Station	0.0	0.0	0. 0	0.0	0.1	<0.1	0.0	0.0
Cleveland County Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Asheville M&R Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Foote Mineral M&R Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Kings Mountain M&R Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Lithium Meter Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Gastonia Meter Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Bessemer City M&R Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stanley Meter Station	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Hickory Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Duke Lincoln Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowesville Meter Station	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
Charlotte Meter Station	0.0	0.0	0.0	0.0	0.7	<0.1	0.0	0.0
Davidson Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC Natural Tidewater Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iredell Meter Station	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Hicks Crossroads Meter Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Mooresville Meter Station	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
Linwood Road Meter Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Statesville Meter Station	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0
Park Road Power Plant Meter Station	0.0	0.0	0.0	0.0	0.3	<0.1	0.0	0.0
Salisbury M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Frontier Appalachian Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spencer Buck Meter Station	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0
West Lexington M&R Station	0.0	0.0	0.0	0.0	0.4	<0.1	0.0	0.0
Lexington M&R Station	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0
Winston Salem M&R Station	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0

APPENDIX N (cont'd)

Vegetation Cover Affected by Construction and Operation of the Atlantic Sunrise Project

	Agricultural Land		Upland Forest		Open Land		Wetlands	
Facility/County/ Workspace Type	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]
Kernersville Meter Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Greensboro M&R station	0.0	0.0	0.0	0.0	0.3	<0.1	0.0	0.0
Stokesdale Meter Station	<0.1	<0.1	0.0	0.0	0.1	0.0	0.0	0.0
Bethany M&R Station	0.0	0.0	<0.1	<0.1	0.0	<0.1	0.0	0.0
Rockingham Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Timken M&R Station	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0
Gaffney M&R Station	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0
Cherokee Co-Gen Meter Station	0.0	0.0	<0.1	0.0	0.2	<0.1	0.0	0.0
Skygen Co-Gen Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deering Milliken M&R Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blacksburg M&R Station	0.0	0.0	<0.1	<0.1	0.0	<0.1	0.0	0.0
Broad River Meter Station	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0
York Road Meter Station	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Mill Creek Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**<0.1**	**<0.1**	**0.1**	**0.0**	**5.9**	**0.4**	**0.0**	**0.0**
EXISTING MLVs								
MLV 145-10	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
MLV N545	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
MLV 145-20	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
MLV 145-21	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
MLV 150-D5	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
MLV 150-10	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
MLV 150-D15	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
MLV 150-20	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
MLV 155-D2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
MLV 155-B2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
MLV 155-B5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
MLV 155-10	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
MLV 155-20	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
MLV 140-D15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MLV 140-20	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**0.0**	**0.0**	**0.0**
ABOVEGROUND FACILITIES TOTAL	**86.9**	**72.9**	**24.1**	**14.4**	**55.4**	**22.0**	**0.0**	**0.0**
PROJECT TOTAL [b]	**1,789.2**	**602.9**	**1043.2**	**425.8**	**430.6**	**122.3**	**46.3**	**20.9 (8.3)**

[a] Total includes all wetlands with the permanent right-of-way including palustrine emergent wetlands. Values shown in parentheses include palustrine forested and scrub-shrub wetlands within a 10-foot-wide corridor centered on the pipeline centerline that would be maintained in an herbaceous state only.

[b] Totals may not match sum of addends due to rounding.

Notes: ATWS = additional temporary workspace, M&R = metering and regulating, MLV = mainline valve

APPENDIX O

LAND USE TABLES

TABLE O-1

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
PENNSYLVANIA																		
Central Penn Line (CPL) North																		
Columbia																		
Pipeline	2.2	0.7	28.3	8.5	0.0	0.0	0.8	0.2	0.7	0.2	18.4	5.1	3.5	1.2 (0.3)	0.8	0.2	54.6	16.1
ATWS	0.5	0.0	4.4	0.0	0.0	0.0	<0.1	0.0	0.4	0.0	0.8	0.0	<0.1	0.0	<0.1	0.0	6.1	0.0
Mainline valves and tie-in	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	0.0	0.0	0.7	0.3	0.0	0.0	0.1	<0.1	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.8	0.3
Contractor staging areas	5.2	0.0	<0.1	0.0	<0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luzerne																		
Pipeline	24.9	10.5	165.8	71.8	0.4	0.1	4.9	1.7	7.1	2.5	38.9	8.0	12.2	4.9 (2.6)	2.4	0.9	257.6	100.9
ATWS	8.1	0.0	17.5	0.0	0.4	0.0	0.4	0.0	1.1	0.0	3.7	0.0	0.5	0.0	<0.1	0.0	31.5	0.0
Mainline valves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Access roads	0.9	0.0	3.9	0.1	<0.1	0.0	2.4	0.2	0.8	0.0	1.8	0.4	0.0	0.0	<0.1	0.0	9.8	0.7
Contractor staging areas	10.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	33.8	0.0	0.0	0.0	0.0	0.0	9.7	0.0	0.3	0.0	0.0	0.0	43.5	0.0
Wyoming																		
Pipeline	69.8	39.4	129.1	70.1	<0.1	<0.1	2.5	1.4	5.2	2.9	27.8	16.7	8.4	5.5 (1.3)	2.6	1.9	245.3	137.9
ATWS	25.5	0.0	9.8	0.0	0.1	0.0	0.2	0.0	1.2	0.0	7.0	0.0	0.4	0.0	0.2	0.0	44.3	0.0
Mainline valves	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Access roads	5.0	0.3	4.0	0.0	0.3	<0.1	1.7	0.2	1.7	<0.1	2.9	0.5	<0.1	0.0	0.0	0.0	15.0	1.0
Contractor staging areas	4.8	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0	14.5	0.0
Susquehanna																		
Pipeline	24.7	12.6	28.2	15.5	0.0	0.0	0.7	0.4	3.8	2.2	11.6	7.7	3.1	2.0 (**0.3**)	**0.5**	0.2	72.3	40.5
ATWS	8.3	0.0	3.3	0.0	0.0	0.0	0.1	0.0	1.1	0.0	1.1	0.0	0.1	0.0	0.0	0.0	14.0	0.0
Mainline valves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Access roads	1.8	0.7	0.4	0.0	<0.1	<0.1	1.1	0.4	<0.1	0.0	2.6	0.0	0.0	0.0	0.0	0.0	5.8	1.1

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
Contractor staging areas	8.8	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal CPL North	**200.7**	**64.4**	**395.6**	**166.4**	**42.9**	**0.2**	**15.3**	**4.9**	**24.1**	**7.9**	**132.0**	**38.2**	**28.2**	**13.5 (4.5)**	**6.4**	**3.2**	**846.1**	**299.0**
CPL South																		
Lancaster																		
Pipeline	354.6	179.9	55.4	27.2	0.5	0.3	6.7	3.1	10.2	5.3	11.3	5.9	1.9	1.1 (0.4)	2.6	1.5	443.2	224.5
ATWS	122.6	0.0	9.1	0.0	0.1	0.0	0.2	0.0	2.3	0.0	3.9	0.0	0.2	0.0	0.0	0.0	139.7	0.0
Mainline valves	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
Access roads	10.7	1.4	1.7	<0.1	0.0	0.0	2.7	0.8	1.7	0.3	2.0	0.3	0.0	0.0	0.0	0.0	19.5	2.8
Contractor staging areas	37.8	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	40.2	0.0
Contractor and pipe yards	22.4	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	0.0
Cathodic protection	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
Lebanon																		
Pipeline	223.4	112.6	91.9	46.3	0.4	0.2	7.1	3.0	4.0	1.7	10.3	5.2	3.8	2.4 (0.9)	2.5	1.3	343.4	172.6
ATWS	74.1	0.0	11.7	0.0	0.0	0.0	1.8	0.0	1.7	0.0	2.5	0.0	0.1	0.0	0.2	0.0	92.2	0.0
Mainline valves	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Access roads	4.2	0.2	5.2	0.6	0.1	0.0	4.7	0.2	0.7	0.2	2.2	0.7	0.0	0.0	0.0	0.0	17.1	1.8
Contractor staging areas	26.4	0.0	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.1	0.0
Contractor and pipe yards	50.2	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.2	0.0
Schuylkill																		
Pipeline	73.2	36.9	100.0	49.9	0.6	0.3	4.5	2.2	3.3	1.6	36.5	18.7	2.8	1.6 (0.2)	1.6	0.9	221.9	112.0
ATWS	22.8	0.0	16.3	0.0	0.3	0.0	0.4	0.0	1.5	0.0	5.8	0.0	0.3	0.0	<0.1	0.0	47.4	0.0
Mainline valves	0.2	0.2	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Access roads	5.0	0.1	14.5	1.1	0.3	0.0	5.7	1.5	0.8	0.0	28.8	1.6	0.0	0.0	0.0	0.0	55.2	4.3
Contractor staging areas	21.7	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.9	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	45.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.8	0.0

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
Northumberland																		
Pipeline	7.0	3.5	86.9	43.5	1.4	0.8	2.9	1.0	3.0	1.5	7.5	3.7	0.4	0.2 (0.1)	1.8	0.8	110.0	55.0
ATWS	2.3	0.0	9.5	0.0	0.2	0.0	<0.1	0.0	1.2	0.0	1.5	0.0	0.1	0.0	0.2	0.0	15.2	0.0
Mainline valves	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Access roads	0.1	0.1	19.1	1.5	5.8	0.1	15.8	6.8	0.3	0.0	3.2	0.7	0.0	0.0	<0.1	0.0	44.3	9.2
Contractor staging areas	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Columbia																		
Pipeline	235.3	119.8	115.2	57.6	1.4	0.7	6.8	3.6	5.9	3.2	31.6	15.9	2.9	1.8 (0.5)	4.0	2.7	403.0	205.5
ATWS	77.1	0.0	14.3	0.0	0.6	0.0	0.8	0.0	3.2	0.0	7.5	0.0	0.2	0.0	0.0	0.1	94.3	0.0
Mainline valves	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Access roads	8.0	<0.1	2.6	0.0	<0.1	0.0	2.8	<0.1	2.3	0.0	2.1	0.1	0.0	0.0	0.0	0.0	17.9	0.1
Contractor staging areas	13.7	0.0	0.4	0.0	0.9	0.0	0.5	0.0	1.1	0.0	6.6	0.0	0.0	0.0	0.0	0.0	26.3	0.0
Contractor and pipe yards	27.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8	0.0
Subtotal CPL South	**1,421.4**	**455.5**	**554.4**	**227.6**	**58.6**	**2.3**	**64.7**	**22.5**	**43.3**	**13.8**	**166.0**	**52.6**	**12.4**	**7.0 (2.0)**	**13.1**	**7.3**	**2,333.7**	**788.8**
Chapman Loop																		
Clinton																		
Pipeline	0.0	0.0	11.7	3.2	0.0	0.0	0.1	<0.1	0.0	0.0	14.5	4.7	<0.1	0.0 (0.0)	<0.1	0.0	26.4	7.8
ATWS	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.4	0.0
Mainline valves and tie-in assembly	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.8	0.8
Access roads	0.0	0.0	9.9	2.6	0.0	0.0	0.4	0.0	0.2	0.1	2.6	0.5	0.0	0.0	0.0	0.0	13.1	3.2
Contractor staging areas	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	4.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4	0.0
Subtotal Chapman Loop	**0.0**	**0.0**	**24.0**	**6.0**	**11.4**	**0.0**	**0.5**	**<0.1**	**0.2**	**0.1**	**20.8**	**5.8**	**<0.1**	**0.0 (0.0)**	**<0.1**	**0.0**	**57.0**	**11.9**

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
Unity Loop																		
Lycoming																		
Pipeline	33.8	9.1	39.4	11.4	0.0	0.0	1.5	0.4	1.3	0.4	23.1	3.6	2.1	0.4 (0.1)	0.3	0.1	101.8	25.3
ATWS	9.2	0.0	2.6	0.0	0.0	0.0	0.2	0.0	0.3	0.0	3.1	0.0	0.2	0.0	0.0	0.0	15.8	0.0
Mainline valves and tie-in assembly	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.7	0.7
Access roads	2.4	0.4	2.1	0.0	0.0	0.0	1.0	0.0	1.1	0.0	**2.1**	0.0	0.0	0.0	0.0	0.0	8.9	0.4
Contractor staging areas	3.5	0.0	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	8.0	0.0
Contractor and pipe yards	30.8	0.0	<0.1	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0	0.0
Subtotal Unity Loop	**80.2**	**10.1**	**44.2**	**11.8**	**0.0**	**0.0**	**2.7**	**0.4**	**2.8**	**0.4**	**33.1**	**3.7**	**2.3**	**0.4 (0.1)**	**0.3**	**0.1**	**166.1**	**26.4**
VIRGINIA																		
Mainline A & B Replacements																		
Prince William																		
Pipeline	0.0	0.0	0.0	0.0	1.4	0.0	1.6	0.0	0.2	0.0	22.0	0.0	2.0	0.0	0.2	0.0	27.0	0.0
ATWS	0.0	0.0	0.5	0.0	0.1	0.0	0.1	0.0	0.5	0.0	0.7	0.0	0.2	0.0	0.0	0.0	2.0	0.0
Mainline valves	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2
Access roads	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	1.2	0.0
Contractor staging areas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contractor and pipe yards	0.0	0.0	0.0	0.0	1.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0
Subtotal Mainline A & B Replacements	**0.0**	**0.0**	**0.6**	**0.1**	**2.8**	**0.0**	**2.1**	**0.0**	**0.7**	**0.0**	**23.9**	**0.1**	**2.2**	**0.0**	**0.2**	**0.0**	**32.0**	**0.2**
PIPELINE FACILITIES TOTAL	**1,702.3**	**530.0**	**1,019.1**	**411.4**	**115.6**	**2.7**	**85.5**	**27.8**	**70.9**	**22.1**	**375.2**	**100.3**	**44.9**	**20.9 (6.6)**	**20.4**	**10.7**	**3,434.9**	**1,126.3**
NEW ABOVEGROUND FACILITIES																		
New Compressor Station 605	45.0	36.0	5.1	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**50.1**	**39.2**
New Compressor Station 610	32.8	32.8	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**33.5**	**33.5**
Zick Meter Station with pig launcher and receiver	9.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	4.1

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
Springville Meter Station	0.0	0.0	4.8	3.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	4.8	3.1
North Diamond Regulator Station	0.0	0.0	1.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	2.3	1.8
West Diamond Regulator Station with pig launcher and receiver	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.4	0.0	0.0	0.0	0.0	4.8	4.4
River Road Regulator Station with pig receiver	0.0	0.0	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	2.4	2.4
Subtotal	**86.9**	**72.9**	**17.3**	**13.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.8**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**107.0**	**88.5**
MODIFIED COMPRESSOR STATIONS																		
Compressor Station 517	0.0	0.0	6.3	0.8	19.0	0.0	0.0	0.0	0.0	0.0	6.7	0.6	0.0	0.0	0.0	0.0	32.0	1.4
Compressor Station 520	0.0	0.0	0.0	0.0	12.3	0.0	0.0	0.0	0.0	0.0	23.8	15.5	0.0	0.0	0.0	0.0	36.1	15.5
Compressor Station 190	0.0	0.0	0.0	0.0	24.3	0.0	0.0	0.0	0.0	0.0	5.7	3.5	0.0	0.0	0.0	0.0	30.0	3.5
Compressor Station 185	0.0	0.0	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	0.0
Compressor Station 170	0.0	0.0	0.0	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	0.0
Compressor Station 160	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	10.5	0.0
Compressor Station 155	0.0	0.0	0.0	0.0	17.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	0.0
Compressor Station 150	0.0	0.0	0.0	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0
Compressor Station 145	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0
Subtotal	**0.0**	**0.0**	**6.3**	**0.8**	**123.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**40.7**	**19.6**	**0.0**	**0.0**	**0.0**	**0.0**	**170.9**	**20.4**
MODIFIED M&R																		
Puddlefield Meter Station	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Grover Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Shelby M&R Station	0.0	0.0	0. 0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	0.1
Cleveland County Meter Station	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Asheville M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1
Foote Mineral M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1
Kings Mountain M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1
Lithium Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	0.0

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
Gastonia Meter Station	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
Bessemer City M&R Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stanley Meter Station	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Hickory Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Duke Lincoln Meter Station	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Lowesville Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.3	0.1
Charlotte Meter Station	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.7	<0.1	0.0	0.0	0.0	0.0	1.7	<0.1
Davidson Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC Natural Tidewater Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iredell Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Hicks Crossroads Meter Station	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	1.1	<0.1
Mooresville Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.3	0.1
Linwood Road Meter Station	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Statesville Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.6	0.1
Park Road Power Plant Meter Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	<0.1	0.0	0.0	0.0	0.0	0.6	<0.1
Salisbury M&R Station	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Frontier Appalachian Meter Station	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spencer Buck Meter Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.5	<0.1
West Lexington M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	<0.1	0.0	0.0	0.0	0.0	0.5	<0.1
Lexington M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
Winston Salem M&R Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
Kernersville Meter Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.4	<0.1

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
Greensboro M&R station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	<0.1	0.0	0.0	0.0	0.0	0.4	<0.1
Stokesdale Meter Station	<0.1	<0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	<0.1
Bethany M&R Station	0.0	0.0	<0.1	<0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
Rockingham Meter Station	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Timken M&R Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
Gaffney M&R Station	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1
Cherokee Co-Gen Meter Station	0.0	0.0	<0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
Skygen Co-Gen Meter Station	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Deering Milliken M&R Station	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Blacksburg M&R Station	0.0	0.0	<0.1	<0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1
Broad River Meter Station	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1
York Road Meter Station	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Mill Creek Meter Station	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Subtotal	**<0.1**	**<0.1**	**0.1**	**0.0**	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.9**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**16.8**	**0.5**
EXISTING MLVs																		
MLV 145-10	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.0	0.0
MLV N545	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.8	0.0
MLV 145-20	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.9	0.0
MLV 145-21	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.2	0.0
MLV 150-D5	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.8	0.0
MLV 150-10	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.6	0.0
MLV 150-D15	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
MLV 150-20	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.9	0.0
MLV 155-D2	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.7	0.0
MLV 155-B2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0
MLV 155-B5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0

TABLE O-1 (cont'd)

Land Use Acreage Affected by Construction and Operation of the Atlantic Sunrise Project

Facility/County/ Workspace Type	Agricultural Land		Upland Forest		Industrial / Commercial Land		Transportation		Residential Land		Open Land		Wetlands		Open Water		Total [b]	
	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper.	Cons.	Oper. [a]	Cons.	Oper.	Cons.	Oper.
MLV 155-10	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.6	0.0
MLV 155-20	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.9	0.0
MLV 140-D15	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
MLV 140-20	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**5.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**11.4**	**0.0**
ABOVEGROUND FACILITIES TOTAL	**86.9**	**72.9**	**24.1**	**14.4**	**139.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**55.4**	**22.0**	**0.0**	**0.0**	**0.0**	**0.0**	**306.1**	**109.4**
PROJECT TOTAL [b]	**1,789.2**	**602.9**	**1,043.2**	**425.8**	**255.0**	**2.7**	**88.5**	**27.8**	**70.9**	**22.1**	**430.6**	**122.3**	**44.9**	**20.9 (6.6)**	**20.4**	**10.7**	**3,741.0**	**1,235.4**

[a] Total includes all wetlands with the permanent right-of-way including palustrine emergent wetlands. Values shown in parentheses include palustrine forested and scrub-shrub wetlands within a 10-foot-wide corridor centered on the pipeline centerline that would be maintained in an herbaceous state only.

[b] Total may not match sum of addends due to rounding.

Notes: ATWS = additional temporary workspace, M&R = metering and regulating, MLV = mainline valve

TABLE O-2

Existing Residences and Buildings Within 50 Feet of the Proposed Construction Workspace Associated with the Atlantic Sunrise Project

State/Facility/County/ Approximate Milepost	Tract Number	Building Type	Distance From Proposed Pipeline (feet)	Direction from Proposed Pipeline	Distance from Structure to Edge of Construction Workspace (feet)
PENNSYLVANIA					
Central Penn Line North					
Columbia County					
1.1	PA-CO-260.000	House	90	South	5
1.1	PA-CO-261.000	House	200	North	19
1.2	PA-CO-262.000	Unidentified structures	0	Within	0
1.26	PA-CO-262.000	Trailer house	128	South	18
1.29	PA-CO-262.000	Trailer house	57	North	26
Luzerne County					
8.20	PA-LU-023.000	Shed next to house	128	South	42
M-0056 0.8	PA-LU-028.000	House	98	South	43
9.7	PA-LU-031.100	House	98	South	38
9.7	PA-LU-031.000	House	67	North	37
9.7	PA-LU-031.000	Outside pool	46	North	14
13.4	PA-LU-074.000	House and pool	54	North	38
13.4	PA-LU-078.000	Shed	58	North	0
13.4	PA-LU-075.000	House	108	South	53
13.8	PA-LU-083.000	House	58	North	33
14.2	PA-LU-097.000	House	86	South	21
16.0	PA-LU-122.000	House	92	South	37
16.0	PA-LU-123.000	House	65	North	15
16.5	PA-LU-137.000	Garage	60	North	7
16.5	PA-LU-137.000	House	129	North	044
17.1	PA-LU-141.000	House	94	North	25
17.1	PA-LU-141.000	House	31	South	14
17.1	PA-LU-141.000	Structure	9	Within	0
17.1	PA-LU-143.000	House	139	North	9
17.1	PA-LU-143.000	Garage	113	North	0
17.2	PA-LU-144.000	House	88	North	28
17.5	PA-LU-150.000	House	96	North	36
17.5	PA-LU-150.000	Garage	76	North	16
18.3	PA-LU-158.000	House	68	South	38
20.0	PA-LU-183.000	House	72	South	32
20.0	PA-LU-183.000/ PA-LU-184.000	Shed	0	Within	0
20.9	PA-LU-192.000	House	53	South	5
21.0	PA-LU-192.000	Existing building	103	South	22
M-0060 0.3	Unknown	Trailers store	70–90	West	0–31
M-0141 0.05	PA-LU-233.000	Barn	0	Over	0
M-0141 0.4	PA-LU-233.000	Garage	111	North	30

TABLE O-2 (cont'd)

Existing Residences and Buildings Within 50 Feet of the Proposed Construction Workspace Associated with the Atlantic Sunrise Project

State/Facility/County/ Approximate Milepost	Tract Number	Building Type	Distance From Proposed Pipeline (feet)	Direction from Proposed Pipeline	Distance from Structure to Edge of Construction Workspace (feet)
Wyoming County					
30.0	PA-WY-009.000	House	68	East	38
30.0	PA-WY-009.000	Shed	42	East	12
30.0	PA-WY-009.000	Shed	42	East	12
30.1	PA-WY-009.000	Shed	72	East	42
M-0071 2.5	PA-WY-033.000	Garage	14	West	2
M-0071 2.7	PA-WY-031.000	Mobile home	65	East	34
M-0071 3.6	PA-WY-042.000	House	0	Within	0
38.0	PA-WY-071.000	House	68	East	13
38.0	PA-WY-071.001	House	63	West	20
38.0	PA-WY-076.200	Garage	75	West	6
38.8	Not applicable	Garage	65	East	34
39.4	PA-WY-091.000	Building	62	North Within ATWS	0
39.5	PA-WY-091.000	House	91	North	31
39.5	PA-WY-091.000	House	155	North	50
M-0051 0.07	PA-WY-165.000	Shed	150	West	42
M-0080 0.3	PA-WY-167.000	Garage	79	West	19
M-0080 0.3	PA-WY-167.000	House	69	West	9
Susquehanna County					
54.8	PA-SU-028.001	Shed	79	South-East	23
55.0	PA-SU-031.000	Shed	12	West	0
57.0	PA-SU-046.000	Shed	113	Southwest	43
57.0	PA-SU-048.000	Shed	73	Southwest	13
57.0	PA-SU-048.000	Shed	106	Southwest	22
Central Penn Line South					
Lancaster County					
0.8	PA-LA-009-B.000	Garage	69	West	36
M-0147 0.1	PA-LA-010-B.000	Garage	79	East	14
2.0	PA-LA-018-B.200	Shed	105	North	14
2.0	PA-LA-018-B.200	Building	122	North	32
2.0	PA-LA-018-B.100	Building	104	South	48
2.0	PA-LA-018-B.100	Shed	74	South	24
2.1	PA-LA-018-B.200	Barn	84	East	20
2.1	PA-LA-018-B.500	Building	99	East	8
2.8	Unknown	House	108	East	44
M-0184 0.9	PA-LA-055-B.200	House	129	East	39
M-0184 0.9	PA-LA-055-B.200	Shed	112	East	32
5.6	PA-LA-073-B.000	House	78	West	43
5.6	PA-LA-074-B.000	House	111	East	46
6.9	PA-LA-081-B.000	Shed/Barn	135	East	42
11.3	PA-LA-129-B.000	House	94	West	38
11.4	PA-LA-128-B.000	House	79	East	14
12.1	PA-LA-135-B.000	Barn	78	North	21
12.7	PA-LA-142-B.000	Garage	43	South	16
M-0188 0.1	PA-LA-187.400	House	108	South	48

TABLE O-2 (cont'd)

Existing Residences and Buildings Within 50 Feet of the Proposed Construction Workspace Associated with the Atlantic Sunrise Project

State/Facility/County/ Approximate Milepost	Tract Number	Building Type	Distance From Proposed Pipeline (feet)	Direction from Proposed Pipeline	Distance from Structure to Edge of Construction Workspace (feet)
M-0188 0.2	PA-LA-187.400	House	76	South	41
M-0188 0.2	PA-LA-187.400	Shed	63	South	28
M-0188 0.2	Unknown	Shed	82	West	47
15.5	PA-LA-197.000	House	115	South	25
20.7	Unknown	Trailer House	106	West	47
22.3	PA-LA-257.000	Garage	85	West	21
22.3	PA-LA-257.000	House	111	West	47
22.3	PA-LA-261.100	House	76	West	11
22.4	PA-LA-261.000	Shed	18	East	0
22.6	PA-LA-268.001	House	80	East	15
22.8	PA-LA-282.000	House	100	North	35
23.0	PA-LA-286.001	House	73	West	38
27.4	PA-LA-313.001	Grain loading	207	Southeast	43
M-0350 0.0	PA-LA-323-B.000	House	82	West	33
29.7	PA-LA-335-B.000	House	72	West	37
30.0	PA-LA-339-B.000	House	90	East	29
33.9	PA-LA-370-B.000	Garage	143	Northeast	28
M-0278 0.1	PA-LA-379-B.000	Building	91	West	27
Lebanon County					
37.4	PA-LE-011.200	House	83	North	18
42.6	PA-LE-051.110	House	123	East	33
M-0183 1.6	PA-LE-078.200	House	81	North	45
47.0	PA-LE-083.000	House	60	West	24
47.9	PA-LE-088.000	House	97	West	37
51.1	PA-LE-116.000	House	80	West	17
51.3	PA-LE-119.000	Building	5	West	Within
52.7	PA-LE-129.000	Shed	112	East	25
52.7	PA-LE-129.000	Shed	118	East	28
53.3	PA-LE-136.000	House	64	West	29
53.3	PA-LE-136.000	Garage	43	West	7
53.4	PA-LE-139.000	House	70	West	35
53.8	PA-LE-146.000	Garage	51	East	8
54.9	PA-LE-155.100	House	86	East	21
54.9	PA-LE-155.100	Shed	8	East	Within
M-01810 0.1	PA-LE-167-100	Garage	69	North	34
56.8	Unknown	Shed	121	East	31
58.7	PA-LE-195.000	House	89	North	24
59.2	PA-LE-201.000	Shed	71	West	36
61.4	PA-LE-214.000	Mobile home	79	South	0Within
62.0	PA-LE-224.000	House	100	South	35
62.0	PA-LE-224.000	House	80	North	45
62.0	PA-LE-224.000	Shed	26	South	Within
Schuylkill County					
65.2	PA-SC-004.100	House	111	North	39
65.2	PA-SC-004.200	Shed	16	South	0
65.2	PA-SC-004.200	Shed	0	North	Within

TABLE O-2 (cont'd)

Existing Residences and Buildings Within 50 Feet of the Proposed Construction Workspace Associated with the Atlantic Sunrise Project

State/Facility/County/ Approximate Milepost	Tract Number	Building Type	Distance From Proposed Pipeline (feet)	Direction from Proposed Pipeline	Distance from Structure to Edge of Construction Workspace (feet)
65.2	PA-SC-004.200	Shed	29	North	61
65.2	PA-SC-004.200	Shed	86	North	Within
65.2	PA-SC-004.200	Shed	107	North	17
65.3	PA-SC-006.201	Building	94	South	37
M-0181 0.1	PA-SC-054.101	House	64	West	Within
M-0181 0.1	PA-SC-058.100	House	76	East	37
M-0181 0.1	PA SC-059.200	House	96	West	2528
M-0181 0.2	PA-SC-060.100	House/mobile home	49	Within	Within
78.5	PA-SC-092.001	Commercial structure	62	West	37
Columbia County					
M-0285 0.1	PA-C0-43.100	House	99	West	32
96.3	PA-C0-43.400	Mobile home	85	West	Within
M-0423 1.7	PA-CO-093-A.000	Barn	0	South	0
M-0423 1.8	PA-CO-090-A.000	Barn	124	North	9
M-0423 3.1	PA-CO-100-A.000	House	55	East	37
M-0423 3.9	PA-CO-105-A.000	Commercial Building	54	East	17
M-0423 4.7	PA-CO-109-A.000	Shed	0	West	0
107.0	PA-CO-137.000	House	90	North	25
108.6	PA-CO-146.000	House	103	West	37
114.7	Unknown	House	82	East	51
Chapman Loop					
Clinton County					
L186.4	PA-CL-016.000	House	60	South	13
L186.6	PA-CL-024.000	House	87	North	43
L187.4	PA-CL-034.000	House	31	South	6
Unity Loop					
Lycoming County					
L120.7	PA-LY-008.000	House	192	North	47
L123.2	PA-LY-024.000	House	105	North	50
L125.4	PA-LY-048.000	House	130	South	43
126.0	PA-LY-054.000	Shed	0	Over	Within
VIRGINIA					
Mainline A and B Replacements					
Prince William County					
1,579.0	VA-PW-003.000	Townhouse	84	South	22
1,579.0	VA-PW-004.000	Townhouse	129	North	39
1,579.0	VA-PW-003.000	Townhouse	82	South	20
1,579.1	VA-PW-004.000	Townhouse	122	North	39
1,579.1	VA-PW-003.000	Townhouse	82	South	20
1,580.9	VA-PW-010.000	Commercial	124	North	33

TABLE O-3

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
Central Penn Line North					
Columbia County					
PA-CO-254.000	0.0	0.1	0.1	8.2	1.9
PA-CO-255.000	0.1	0.2	0.1	0.9	0.5
PA-CO-256.000	0.5	0.6	0.1	1.9	0.5
PA-CO-257.000	0.6	0.7	0.1	0.3	0.1
PA-CO-258.000	0.7	0.9	0.3	3.1	1.2
PA-CO-273.000	M-0086 0.0	M-0086 0.1	0.1	4.6	0.8
PA-CO-274.000	MP-0086 0.1	2.3	0.1	3.1	0.4
PA-CO-275.000	2.4	2.6	0.2	2.7	0.7
PA-CO-278.000	3.0	3.6	0.6	6.6	1.8
PA-CO-279.000	3.6	4.1	0.5	6.4	2.4
PA-CO-284.000	4.4	4.4	<0.1	0.6	0.2
PA-CO-285.000	4.4	4.5	0.1	1.1	0.3
PA-CO-286.000	4.5	5.0	0.4	5.0	1.4
Luzerne County					
PA-LU-003.000	5.0	5.5	0.5	3.4	1.9
PA-LU-006.000	5.7	5.8	0.1	1.1	0.2
PA-LU-007.000	5.7	5.8	<0.1	5.0	0.3
PA-LU-009.000	6.4	6.4	<0.1	0.3	0.2
PA-LU-012.000	6.4	6.7	0.3	3.0	1.2
PA-LU-015.000	6.7	6.7	<0.1	0.2	<0.1
PA-LU-018.000	7.1	7.4	0.3	5.4	1.2
PA-LU-019.000	7.4	7.4	<0.1	0.1	0
PA-LU-022.000	7.9	8.1	0.2	3.0	0.8
PA-LU-023.000	8.2	8.4	0.2	2.4	0.6
PA-LU-027.000	M-0056 0.0	M-0056 0.7	0.7	9.2	4.4
PA-LU-028.000	9.0	9.3	0.2	3.3	0.4
PA-LU-029.000	9.3	9.3	<0.1	0.7	0.1
PA-LU-036.000	10.1	10.7	0.6	6.3	1.8
PA-LU-037.000	10.7	10.7	0.1	0.8	0.2
PA-LU-050.000	12.4	12.5	0.1	0.9	0.3
PA-LU-070.000	13.2	13.3	0.1	1.2	0.4
PA-LU-098.000	14.3	14.4	0.2	1.8	0.5
PA-LU-102.000	14.4	14.4	<0.1	0.4	0.1
PA-LU-103.000	14.4	14.6	0.2	1.9	0.5
PA-LU-104.000	14.6	14.7	0.1	1.3	0.4
PA-LU-106.000	14.8	15.1	0.2	1.3	0.5
PA-LU-111.000	15.1	15.4	0.2	2.6	0.7
PA-LU-116.000	15.7	15.8	0.2	2.0	0.5
PA-LU-119.000	15.8	16.0	0.2	3.3	0.7
PA-LU-126.000	16.1	16.2	0.1	1.52	0.4
PA-LU-128.000	16.2	16.3	0.1	1.4	0.4
PA-LU-129.000	16.3	16.4	0.1	1.3	0.3
PA-LU-141.000	16.9	17.1	0.2	1.9	0.5
PA-LU-142.000	17.2	17.2	<0.1	0.8	0.1
PA-LU-149.000	17.5	17.6	0.2	1.9	0.5

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-LU-153.000	17.6	18.1	0.5	5.4	1.5
PA-LU-154.000	18.1	18.2	0.1	0.8	0.2
PA-LU-155.000	18.2	18.3	0.1	1.3	0.3
PA-LU-158.000	18.3	18.3	0.1	0.6	0.1
PA-LU-157.000	18.3	18.4	0.1	1.2	0.3
PA-LU-161.000	18.4	18.6	0.2	2.0	0.6
PA-LU-165.000	18.7	18.8	0.1	1.1	0.3
PA-LU-167.000	18.8	19.0	0.2	3.4	0.9
PA-LU-172.000	19.0	19.3	0.3	2.3	0.6
PA-LU-174.000	19.3	19.3	<0.1	0.4	0.1
PA-LU-175.000	19.3	19.4	0.1	1.5	0.3
PA-LU-176.000	19.4	19.5	0.1	0.6	0.2
PA-LU-180.000	19.5	19.9	0.4	6.0	1.3
PA-LU-181.000	19.9	20.0	0.1	1.4	0.4
PA-LU-187.000	20.2	20.7	0.4	5.2	1.3
PA-LU-193.000	21.1	21.3	0.2	2.0	0.5
PA-LU-194.000	21.3	21.4	0.1	2.7	0.9
PA-LU-195.000	21.4	21.5	0.1	1.0	0.5
PA-LU-217.000	M-0060 0.2	M-0060 0.6	0.2	3.9	1.8
PA-LU-224.000	23.3	23.9	0.5	5.8	3.2
PA-LU-233.000	24.1	MP-0141 0.5	<0.1	7.2	3.2
PA-LU-234.000	M-0141 0.5	MP-0141 0.6	0.1	1.3	0.7
PA-LU-254.000	M-0142 0.0	M-0142 0.2	0.2	3.4	1.3
Wyoming County					
PA-WY-008.000	M-0088 4.2	30.5	0.7	8.1	4.0
PA-WY-023.000	M-0071 0.8	M-0071 0.9	0.2	2.1	1.1
PA-WY-025.000	M-0071 1.2	M-0071 1.5	0.3	2.6	1.2
PA-WY-028.000	M-0071 1.5	M-0071 1.6	0.2	1.9	1.0
PA-WY-027.000	M-0071 1.6	M-0071 1.7	<0.1	0.9	0.3
PA-WY-029.000	M-0071 1.7	M-0071 2.1	0.4	8.3	4.0
PA-WY-030.000	M-0071 2.1	M-0071 2.2	0.2	1.6	0.5
PA-WY-029.000	M-0071 2.2	M-0071 2.4	0.2	1.7	0.5
PA-WY-031.000	M-0071 2.4	M-0071 3.0	0.5	8.5	3.3
PA-WY-035.000	M-0071 2.8	M-0071 2.8	<0.1	0.2	<0.1
PA-WY-037.000	M-0071 3.0	M-0071 3.0	0.2	2.0	1.1
PA-WY-040.000	M-0071 3.2	M-0071 3.3	0.1	1.1	0.6
PA-WY-042.000	M-0071 3.3	M-0071 3.7	0.4	4.6	2.5
PA-WY-043.000	M-0071 3.7	M-0071 3.7	<0.1	0.4	0.1
PA-WY-044.000	34.3	34.5	0.2	2.2	1.2
PA-WY-050.000	35.0	36.6	1.6	29.5	10.5
PA-WY-059.000	36.6	36.9	0.3	3.9	2.0
PA-WY-065.000	37.0	37.1	0.1	1.6	0.5
PA-WY-071.000	37.6	38.0	0.4	4.8	2.4
PA-WY-076.200	38.0	38.1	0.1	1.4	0.6
PA-WY-084.000	38.7	38.7	0.1	0.7	0.4
PA-WY-084.100	38.6	38.8	0.2	2.1	1.1
PA-WY-090.000	38.8	39.1	0.3	4.4	2.0

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-WY-091.000	39.1	39.7	0.6	8.0	3.7
PA-WY-100.000	39.7	40.1	0.4	4.8	2.2
PA-WY-114.000	41.1	41.4	0.3	3.3	1.8
PA-WY-115.000	41.4	41.7	0.3	3.2	1.6
PA-WY-118.000	M-0054 0.0	M-0054 0.4	0.4	9.0	4.1
PA-WY-120.001	M-0054 0.4	M-0054 0.8	0.3	3.8	2.1
PA-WY-124.000	43.2	43.7	0.4	7.2	2.7
PA-WY-127.000	43.7	44.3	0.6	9.3	3.6
PA-WY-131.000	44.3	44.8	0.6	10.5	2.7
PA-WY-132.000	45.1	45.3	0.2	4.1	1.9
PA-WY-137.000	45.3	45.7	0.4	4.2	2.3
PA-WY-144.000	M-0058 0.0	M-0058 0.1	0.1	2.3	1.2
PA-WY-156.000	47.2	47.2	<0.1	0.7	0.1
PA-WY-157.000	47.4	47.5	0.1	1.5	0.7
PA-WY-158.000	47.5	47.8	0.3	3.9	1.8
PA-WY-159.000	47.8	48.0	0.2	2.8	1.2
PA-WY-160.000	48.0	48.6	0.4	5.4	2.7
PA-WY-162.000	M-0051 0.0	M-0051 0.0	<0.1	8.2	3.9
PA-WY-171.000	M-0088 0.5	M-0088 1.3	0.8		4.7
Susquehanna County					
PA-SU-001.000	M-0080 1.2	50.7	0.3	2.6	1.2
PA-SU-002.000	50.7	50.8	0.1	1.6	0.8
PA-SU-003.000	50.8	51.1	0.3	3.2	1.7
PA-SU-004.000	51.1	51.5	0.4	5.4	2.6
PA-SU-008.000	51.7	51.8	0.1	1.2	0.6
PA-SU-009.000	51.8	52.9	0.11	17.0	7.0
PA-SU-016.000	52.9	53.0	0.1	1.5	0.8
PA-SU-018.000	53.0	53.5	0.4	5.4	2.6
PA-SU-020.000	53.5	54.1	0.4	8.6	3.7
PA-SU-021.000	53.8	53.9	0.1	1.1	0.4
PA-SU-023.000	54.1	54.2	0.1	0.1	0.5
PA-SU-025.000	54.2	54.3	0.1	0.8	0.4
PA-SU-027.000	54.4	54.8	0.4	4.5	2.2
PA-SU-030.000	54.8	55.1	0.2	2.9	1.4
PA-SU-035.000	55.4	55.5	0.1	0.8	0.4
PA-SU-036.000	M-0061 0.1	M-0061 0.2	0.1	1.6	0.8
PA-SU-039.000	M-0062 0.0	M-0062 0.0	<0.1	1.7	0.9
PA-SU-040.000	M-0062 0.0	M-0062 0.3	0.3	4.8	2.4
PA-SU-041.000	56.3	56.6	0.4	5.5	2.5
PA-SU-044.000	56.8	56.9	0.1	0.9	0.5
PA-SU-050.000	57.2	M-0119 0.0	0.1	5.8	0.9
Central Penn Line South					
Lancaster County					
PA-LA-002-B.000	0.0	0.1	0.1	9.8	0.3
PA-LA-003-B.000	0.1	0.3	0.2	5.7	1.9
PA-LA-007-B.000	0.4	0.5	<0.1	2.2	0.2
PA-LA-052-B.100	M-0184 0.9	M-0184 1.0	0.1	1.5	0.6

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-LA-056-B.200	M-0184 1.0	M-0184 1.1	0.2	4.4	2.0
PA-LA-056-B.300	4.2	4.4	0.2	0.6	0.0
PA-LA-062-B.000	4.6	4.8	0.2	2.6	1.0
PA-LA-063-B.000	4.8	4.9	0.1	2.2	0.4
PA-LA-068-B.000	5.1	5.2	0.1	2.1	0.7
PA-LA-075-B.000	5.7	6.1	0.4	6.3	2.4
PA-LA-078-B.000	6.1	6.6	0.5	8.0	3.0
PA-LA-091-B.000	7.3	7.3	<0.1	1.9	0.8
PA-LA-095-B.000	7.5	7.9	0.4	6.1	2.5
PA-LA-099-B.000	8.2	8.4	0.2	7.6	3.0
PA-LA-118-B.000	10.1	10.2	0.2	2.8	1.1
PA-LA-122-B.000	10.2	10.3	0.1	1.5	0.6
PA-LA-123-B.000	10.3	10.6	0.3	4.6	1.9
PA-LA-124-B.000	10.7	11.1	0.4	6.9	2.6
PA-LA-125-B.000	11.1	11.2	0.1	1.0	0.5
PA-LA-133-B.000	11.4	11.7	0.2	3.6	1.3
PA-LA-135-B.000	11.7	12.2	0.6	9.8	3.5
PA-LA-139-B.000	12.4	12.4	<0.1	<0.1	<0.1
PA-LA-140-B.000	12.4	12.7	0.4	2.1	2.1
PA-LA-145-B.000	12.7	M-04-248 0.1	0.3	11.2	2.4
PA-LA-155-B.000	M-0248 0.2	13.6	0.2	4.6	2.0
PA-LA-187.000	13.8	14.2	0.4	6.1	2.4
PA-LA-193.000	14.9	15.3	0.4	6.2	2.3
PA-LA-195.001	15.3	15.5	0.2	3.0	1.3
PA-LA-209.100	16.2	16.2	<0.1	1.3	0.8
PA-LA-209.200	16.1	16.2	0.1	2.0	0.5
PA-LA-215.000	16.9	16.9	<0.1	4.0	1.6
PA-LA-221.000	17.5	17.7	0.2	4.5	1.7
PA-LA-224.000	17.8	18.3	0.4	6.8	2.6
PA-LA-225.000	18.3	18.8	0.5	8.5	3.3
PA-LA-227.000	18.8	19.3	0.5	7.4	2.9
PA-LA-236.000	19.3	19.6	0.2	3.8	1.5
PA-LA-236.001	19.6	19.6	<0.1	0.7	0.3
PA-LA-236.002	19.6	19.9	0.2	4.1	1.6
PA-LA-246.000	20.5	21.0	0.5	15.1	3.3
PA-LA-298-B.000	24.5	24.8	0.3	4.6	1.7
PA-LA-299-B.000	24.8	25.1	0.3	5.1	2.0
PA-LA-302-B.000	25.1	25.7	0.6	12.4	3.9
PA-LA-304-B.000	25.7	26.1	0.3	5.4	2.1
PA-LA-308-B.000	26.1	26.4	0.4	5.9	2.3
PA-LA-309-B.000	26.4	26.8	0.3	5.2	2.0
PA-LA-310-B.000	26.8	27.0	0.2	3.0	1.2
PA-LA-312-B.000	27.0	27.3	0.3	5.2	1.8
PA-LA-329-B.000	M-0162 0.5	M-0162 1.0	0.5	8.4	3.2
PA-LA-334-B.000	29.7	29.9	0.2	3.7	1.3
PA-LA-342-B.000	30.0	30.1	0.1	1.5	0.6
PA-LA-366-B.000	33.1	33.4	0.3	5.5	2.0

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-LA-368-B.000	33.4	33.6	0.1	2.3	0.8
PA-LA-370-B.000	33.6	34.0	0.5	6.8	2.8
PA-LA-372-B.000	M-0164 0.0	M-0164 0.4	0.4	7.5	2.8
PA-LA-373-B.000	34.5	34.5	<0.1	0.1	<0.1
PA-LA-374-B.000	34.5	34.6	0.1	1.4	0.6
PA-LA-375-B.000	34.6	34.8	0.2	3.8	1.4
PA-LA-376-B.000	34.8	35.1	0.3	4.1	1.6
PA-LA-377-B.000	35.1	35.5	0.4	6.6	2.5
PA-LA-379-B.000	35.5	35.6	0.1	4.4	1.2
PA-LA-380-B.000	35.6	36.1	0.5	4.8	2.4
PA-LA-381-B.000	36.1	36.2	0.2	2.9	1.0
Lebanon County					
PA-LE-011.000	37.2	37.9	0.7	25.0	3.9
PA-LE-014.000	37.9	38.5	0.6	10	3.8
PA-LE-016.200	38.5	39.2	0.7	10	4
PA-LE-026.000	39.6	40.0	0.4	13.1	5
PA-LE-026.100	39.2	39.2	<0.1	0.3	0.1
PA-LE-031.000	40.0	40.1	<0.1	4.1	1.6
PA-LE-033.000	40.3	40.6	0.3	4.9	2.0
PA-LE-037.000	40.6	40.7	0.1	0.9	0.4
PA-LE-043.000	41.0	41.0	<0.1	0.6	0.3
PA-LE-046.000	41.1	41.7	0.6	7.5	3.4
PA-LE-048.000	41.7	41.9	0.2	3.7	1.6
PA-LE-051.000	41.9	42.5	0.6	8.2	3.4
PA-LE-062.000	43.2	43.8	0.6	9.5	3.7
PA-LE-063.000	43.8	44.3	0.4	6.7	2.7
PA-LE-067.000	44.4	45.0	0.5	8.4	3.2
PA-LE-082.000	M-0183 1.9	M-0183 2.0	0.1	0.7	0.3
PA-LE-080.001	47.0	47.0	<0.1	1.9	0.6
PA-LE-086.000	47.1	47.6	0.5	9.3	3.2
PA-LE-092.000	48.0	48.5	0.6	8.5	3.3
PA-LE-094.000	48.5	48.6	<0.1	0.2	0.1
PA-LE-096.000	48.6	49.2	0.7	10.3	4
PA-LE-097.100	49.2	49.3	0.1	1.3	0.5
PA-LE-100.000	49.3	50.1	0.1	13.2	1.7
PA-LE-101.000	49.6	50.0	0.4	6.9	2.6
PA-LE-108.000	50.1	50.5	0.4	6.1	2.3
PA-LE-109.000	50.5	50.6	0.1	1.4	0.5
PA-LE-110.000	50.6	50.8	0.2	3.4	1.3
PA-LE-112.000	50.8	51.1	0.3	5	2
PA-LE-119.000	51.2	51.4	0.1	2.2	0.9
PA-LE-120.000	51.4	51.5	0.1	2.5	0.9
PA-LE-123.000	M-0165 0.0	M-0165 0.1	0.1	1.5	0.6
PA-LE-124.000	M-0165 0.1	52.1	0.4	7.4	2.8
PA-LE-125.000	52.1	52.4	0.3	5.6	2
PA-LE-128.000	52.4	52.5	0.1	1.7	0.6

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-LE-129.000	52.5	52.9	0.3	6.5	2.1
PA-LE-132.000	52.9	53.1	0.2	3.9	1.5
PA-LE-133.000	53.1	53.2	0.1	1.1	0.5
PA-LE-137.000	53.2	53.4	0.1	2.3	0.9
PA-LE-143.000	53.5	53.7	0.1	1.8	0.6
PA-LE-146.000	53.7	M-0199 0.1	0.1	3.5	1.3
PA-LE-153.000	54.1	54.2	0.1	0.8	0.4
PA-LE-154.000	54.2	54.3	0.1	2.8	1.2
PA-LE-154.100	54.7	54.9	0.2	8.3	3.1
PA-LE-173.000	56.3	56.5	0.2	10	3.5
PA-LE-183.100	57.4	57.4	<0.1	5.2	2.2
PA-LE-183.200	57.4	57.5	0.1	1.5	0.4
PA-LE-188.000	57.7	58.2	0.5	6.3	3.1
PA-LE-190.000	58.2	58.4	0.2	4.9	1.9
PA-LE-197.000	58.8	58.9	0.1	1	0.5
PA-LE-208.000	M-0200 0.2	M-0200 0.5	0.2	4.3	1.4
PA-LE-209.000	M-0200 0.5	M-0200 0.6	0.1	3.1	1
PA-LE-210.000	M-0200 0.6	M-0200 0.8	0.1	2	0.9
PA-LE-212.000	61.2	61.4	0.2	4.8	1.4
PA-LE-228.200	62.5	62.5	<0.1	0.5	0.2
PA-LE-229.100	62.5	63.0	0.5	6.6	3.1
PA-LE-230.100	63.0	63.2	0.2	2.7	1.3
PA-LE-230.200	63.2	63.4	0.2	2.1	1
Schuylkill County					
PA-SC-001.000	64.2	64.5	0.3	3.1	1.2
PA-SC-001.001	64.5	64.9	0.4	6.1	2.4
PA-SC-009.000	65.4	65.8	0.4	6	2.6
PA-SC-013.200	M-0177 0.4	M-0177 0.5	0.1	2.4	0.9
PA-SC-014.100	M-0177 0.5	66.8	0.1	4.9	1.8
PA-SC-017.000	66.8	M-0.19 0.0	0.1	3.7	1.3
PA-SC-019.000	M-0196 0.0	M-0196 0.4	0.4	3.7	1.3
PA-SC-020.000	67.3	67.8	0.4	7	3
PA-SC-025.000	68.0	68.2	0.2	3.3	1.3
PA-SC-030.000	68.2	68.8	0.6	8.4	3.5
PA-SC-041.000	69.3	69.7	0.4	10	2.5
PA-SC-077.000	M-0316 0.7	M-0316 1.0	0.3	5.1	1.8
PA-SC-079.000	76.1	76.1	<0.1	0.9	0.5
PA-SC-079.001	76.1	76.6	0.5	7.4	2.8
PA-SC-082.000	76.6	76.7	0.1	7.1	0.7
PA-SC-082.001	76.7	76.8	0.1	1.7	0.6
PA-SC-084.000	76.8	M-0170 0.1	0.2	3.4	1.2
PA-SC-084.001	M-0170 0.1	M-0170 0.2	0.1	2.5	0.8
PA-SC-087.000	M-0170 0.2	77.5	0.1	3.8	1.7
PA-SC-089.000	77.5	77.5	<0.1	0.2	0.1

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-SC-090.000	77.5	77.7	0.2	2.5	1.1
PA-SC-090.001	77.7	78.5	0.8	16.4	4.6
PA-SC-090.002	78.5	78.8	0.4	5.1	2.5
PA-SC-101.000	79.9	79.9	<0.1	2.5	0.1
PA-SC-102.000	79.9	80.3	0.4	5.5	2.5
PA-SC-108.000	80.4	80.5	<0.1	2.9	1
PA-SC-109.000	80.5	80.7	0.2	2.9	1.1
PA-SC-111.000	80.7	80.9	0.2	3.7	1.5
PA-SC-111.001	80.9	81.0	0.1	2	0.8
PA-SC-114.000	81.0	81.4	0.3	4.9	2.1
PA-SC-115.000	81.4	M-0194 0.1	0.1	4.8	1.9
PA-SC-115.001	M-0194 0.1	0194 0.3	0.2	2.5	0.8
PA-SC-118.000	M-0194 0.5	M-0194 0.6	0.1	1.6	0.6
PA-SC-118.001	M-0194 0.6	M-0194 0.8	0.2	2.4	1.0
PA-SC-120.000	M-0247 0.0	M-0247 0.2	0.2	3.0	1.4
Columbia County					
PA-CO-002.000	91.0	91.2	0.3	4.1	1.5
PA-CO-004.000	91.2	91.5	0.2	3.8	1.5
PA-CO-004.200	91.5	92.0	0.6	8.6	3.3
PA-CO-016.000	92.4	92.4	<0.1	1.4	0.5
PA-CO-017.000	92.4	92.8	0.3	4.8	2.0
PA-CO-020.000	93.0	93.1	0.1	1.3	0.5
PA-CO-021.000	92.9	93.3	0.2	4.7	~~1.8~~
PA-CO-022.000	93.3	93.4	0.1	1.6	0.7
PA-CO-023.000	93.4	93.5	0.1	1.4	0.5
PA-CO-026.000	93.5	93.7	0.3	3.2	1.6
PA-CO-027.000	93.7	94.0	0.3	4.7	1.8
PA-CO-028.000	94.0	94.2	0.1	2.3	1.0
PA-CO-030.000	94.5	94.7	0.2	3.1	1.2
PA-CO-032.000	94.7	94.8	0.1	1.6	0.7
PA-CO-033.000	94.8	94.9	0.2	2.4	1.0
PA-CO-036.000	94.9	95.2	0.3	9.6	1.5
PA-CO-040.200	95.7	96.2	0.5	7.0	2.8
PA-CO-043.400	96.2	96.3	0.1	2.0	0.8
PA-CO-046.000	M-0197 0.0	M-0197 0.5	0.5	10.5	4.1
PA-CO-050.000	97.0	97.4	0.4	6.5	2.4
PA-CO-054.000	97.5	97.9	0.4	5.3	2.1
PA-CO-056.000	M-0174 0.0	M-0174 0.1	0.1	5.3	2.0
PA-CO-057.000	M-0174 0.4	M-0174 0.7	0.3	6.2	2.4
PA-CO-058.000	98.8	99.1	0.3	4.7	1.8
PA-CO-060.000	99.1	99.5	0.5	6.0	2.7
PA-CO-062.000	99.7	99.8	0.1	0.6	0.6
PA-CO-064.000	99.9	100.5	0.6	10.2	3.9
PA-CO-067.000	100.5	101.0	0.5	6.6	2.6
PA-CO-069.000	M-0179 0.0	M-0179 0.1	0.1	3.3	0.8
PA-CO-070.000	M-0179 0.0	M-0179 0.0	<0.1	2.0	1.3
PA-CO-082.000	101.9	102.0	0.1	1.7	0.8

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-CO-083.000	102.0	M-0423 0.1	0.2	2.7	1.2
PA-CO-104-A.000	M-0423 3.3	M-0423 3.6	0.3	8.6	1.8
PA-CO-108-A.000	M-0423 4.3	M-0423 4.7	0.4	6.6	2.5
PA-CO-109-A.000	M-0423 4.7	M-0423 4.8	0.1	1.8	0.7
PA-CO-133.000	M-0423 4.8	M-0236 0.5	0.3	6.0	1.7
PA-CO-135.000	106.8	106.9	<0.1	0.9	0.3
PA-CO-137.000	106.9	107.3	0.4	7.8	3.2
PA-CO-143.001	M-0195 0.3	M-0214 0.4	0.7	13.1	5.5
PA-CO-144.001	108.5	108.6	0.1	2.4	0.6
PA-CO-146.000	108.6	108.7	0.2	1.9	0.9
PA-CO-148.000	108.7	109.0	0.2	4.9	1.5
PA-CO-149.000	109.0	109.4	0.5	6.9	2.8
PA-CO-154.000	109.5	109.6	0.1	2.4	0.9
PA-CO-159.000	110.0	110.5	0.4	6.6	2.5
PA-CO-161.000	110.5	110.6	0.1	1.3	0.7
PA-CO-163.000	110.6	110.9	0.4	5.3	2.1
PA-CO-165.000	110.9	111.1	0.2	3.1	1.1
PA-CO-167.000	111.2	111.3	0.1	1.3	0.7
PA-CO-168.000	111.3	111.5	0.2	4.0	1.5
PA-CO-170.000	111.6	111.8	0.3	4.0	1.7
PA-CO-175.000	111.8	112.3	0.5	5.7	1.2
PA-CO-175.100	112.3	112.6	<0.1	>0.1	>0.1
PA-CO-176.000	112.6	112.9	0.3	4.4	1.7
PA-CO-177.000	112.9	113.0	<0.1	0.7	0.3
PA-CO-178.000	113.0	113.1	0.1	2.4	0.8
PA-CO-181.000	113.1	113.3	0.2	3.5	1.3
PA-CO-184.000	113.3	113.6	0.3	4.0	1.5
PA-CO-185.000	113.6	114.0	0.4	6.4	2.4
PA-CO-186.000	114.0	114.2	0.2	3.5	1.5
PA-CO-188.000	114.2	114.7	0.5	9.3	2.9
PA-CO-197.000	114.7	115.2	0.5	7.2	2.8
PA-CO-198.000	115.2	115.4	0.2	2.9	1.1
PA-CO-199.000	115.4	115.5	0.2	2.7	1.0
PA-CO-201.000	115.5	115.9	0.3	5.3	2.0
PA-CO-204.000	115.9	116.2	0.4	7.9	2.2
PA-CO-205.000	116.2	116.6	0.4	5.0	2.2
PA-CO-206.000	116.6	116.7	0.1	1.7	0.9
PA-CO-207.000	116.7	117.1	0.4	5.4	2.5
PA-CO-208.000	117.1	117.4	0.2	2.8	1.5
PA-CO-211.000	117.5	117.7	0.2	3.2	1.2
PA-CO-212.000	117.7	118.0	0.3	4.3	1.8
PA-CO-214.000	118.0	118.2	0.2	2.0	0.9
PA-CO-213.000	118.2	118.3	0.1	1.8	0.7
PA-CO-215.000	118.3	118.6	0.2	3.7	1.5
PA-CO-216.000	118.6	118.9	0.3	5.2	2.0
PA-CO-217.000	118.9	119.0	0.1	0.7	0.4
PA-CO-218.000	118.9	119.2	0.2	2.8	1.3

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-CO-218.001	M-0159 0.0	M-0159 0.2	0.2	6.7	2.7
PA-CO-219.000	M-0159 0.2	M-0159 0.3	0.1	2.7	1.1
PA-CO-220.000	119.8	120.2	0.4	5.6	2.2
PA-CO-222.000	120.2	120.4	0.3	3.9	1.6
PA-CO-224.001	120.4	121.1	0.6	10.0	3.9
PA-CO-228.000	121.1	121.4	0.3	5.3	2.0
PA-CO-229.000	121.4	121.8	0.3	4.8	1.9
PA-CO-230.000	121.8	121.9	0.2	2.6	1.1
PA-CO-231.000	121.9	122.0	0.1	1.5	0.5
PA-CO-234.000	122.0	122.2	0.2	5.4	1.0
PA-CO-236.000	122.2	122.7	0.5	7.2	3.1
PA-CO-238.000	122.7	122.9	0.2	2.1	1.2
PA-CO-239.000	122.9	123.1	0.2	3.8	1.3
PA-CO-243.000	123.1	123.2	0.1	1.6	0.4
PA-CO-242.000	123.2	123.4	0.2	2.7	1.1
PA-CO-245.000	123.4	123.5	0.1	1.7	0.8
PA-CO-246.000	123.5	123.7	0.2	2.5	1.0
PA-CO-248.000	123.7	124.1	0.3	5.1	2.1
PA-CO-249.001	124.0	124.1	0.1	0.9	0.4
PA-CO-251.000	124.1	124.7	0.6	7.9	3.7
PA-CO-252.000	124.7	125.0	0.2	9.8	1.6
PA-CO-254.000	125.0	125.2	0.1	8.1	1.9
Unity Loop					
Lycoming County					
PA-LY-004.000	L120.4	L 120.6	0.1	7.9	1.6
PA-LY-007.000	L 120.6	L 120.6	0.1	1.5	0.5
PA-LY-010.000	L 120.7	L 120.8	0.2	1.9	0.5
PA-LY-011.000	L 120.8	L 121.1	0.3	17.8	0.8
PA-LY-012.000	L 121.1	L 121.4	0.2	3.1	0.8
PA-LY-012.001	L 121.3	L 121.4	0.1	1.4	0.3
PA-LY-014.000	L 121.4	L 121.7	0.3	4.5	1.6
PA-LY-017.000	L 122.2	L 122.2	0.1	0.9	0.2
PA-LY-018.000	L 122.2	L 122.5	0.3	20.9	0.8
PA-LY-021.000	L 122.5	L 122.7	0.1	1.8	0.4
PA-LY-021.200	L 122.7	L 122.9	0.2	3.3	0.7
PA-LY-022.000	L 122.9	L 123.1	0.2	2.6	0.7
PA-LY-023.000	L 123.1	L 123.6	0.5	8.4	1.1
PA-LY-029.000	L 123.6	L 123.8	0.2	2.8	0.7
PA-LY-032.000	L 123.8	L 124.1	0.3	3.6	0.9
PA-LY-034.000	L 124.2	L 124.4	0.2	2.2	0.5
PA-LY-037.000	L 124.4	L 124.6	0.2	1.9	0.5
PA-LY-038.000	L 124.6	L 124.7	0.1	0.7	0.2
PA-LY-036.000	L 124.7	L 124.7	<0.1	0.1	0.0
PA-LY-039.000	L 124.7	L 124.7	0.1	1.0	0.3
PA-LY-040.000	L 124.7	L 124.8	0.1	1.3	0.3
PA-LY-041.000	L 124.8	L 124.9	0.1	1.4	0.3

TABLE O-3 (cont'd)

Pennsylvania Clean and Green Program Land Crossed by the Atlantic Sunrise Project Facilities

Facility/County/ Tract Number	Begin Milepost	End Milepost	Length Crossed (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PA-LY-048.000	L 125.4	L 125.4	<0.1	0.8	>0.1
PA-LY-052.000	L 125.6	L 125.9	0.3	5.7	0.8
PA-LY-054.000	L 125.9	L 126.1	0.1	2.5	0.5
PA-LY-055.000	L 126.0	L 126.2	0.1	2.0	0.4
PA-LY-057.000	L 126.2	L 126.7	0.5	7.4	1.5
PA-LY-058.000	L 126.7	L 127.2	0.3	6.1	0.8
PA-LY-058.001	L 126.9	L 127.2	0.3	4.1	0.9
PA-LY-060.000	L 127.2	L 127.7	0.5	6.9	1.4
PA-LY-061.000	L 127.7	L 127.8	0.1	1.8	0.3
PA-LY-062.000	L 127.8	L 128.0	0.2	3.1	0.6
PA-LY-064.000	L 128.0	L 128.1	0.1	0.5	0.1
PA-LY-066.000	L 128.1	L 128.7	0.6	7.0	1.7
PA-LY-069.000	L 128.8	L 128.9	0.1	4.4	0.2
Chapman Loop					
Clinton County					
PA-CL-003.000	L 186.0	L 186.0	<0.1	5.0	1.0
PA-CL-004.000	L 186.0	L 186.1	<0.1	0.9	0.3
PA-CL-029.000	L 186.8	L 186.8	<0.1	0.4	0.1
PA-CL-030.000	L 186.8	L 186.9	0.1	1.1	0.3
PA-CL-031.000	L 186.9	L 187.3	0.2	3.4	0.8
PA-CL-034.000	L 187.3	L 187.6	0.3	3.9	0.9
Compressor Station 605					
Wyoming					
PA-WY-131.000	M-0063 0.0	M-0063 0.2	N/A	10.5	2.7
Compressor Station 610					
Columbia County					
PA-CO-175.100	M-0207 0.0	M-0.30 0.3	N/A	33.5	33.5
North Diamond Regulator Station					
Luzerne County					
PA-LU-193.000	N/A	N/A	N/A	2.0	0.5
Zick Receipt Meter Station					
Susquehanna County					
PA-SU-050.000	N/A	N/A	N/A	5.8	0.9
River Road Regulator Station					
Lancaster County					
PA-LA-002-B.000	N/A	N/A	N/A	0.8	0.8
West Diamond Regulator Station					
Columbia County					
PA-CO-254.000	N/A	N/A	N/A	8.1	1.9

Note: N/A = Not applicable

APPENDIX P

AIR QUALITY MONITORING FOR COMPRESSOR STATIONS 517, 520, AND 190

Background

Transcontinental Gas Pipeline Company, LLC (Transco) is proposing to expand its current interstate natural gas pipeline system connecting producing regions in northeastern Pennsylvania to markets in the Mid-Atlantic and southeastern states. The Atlantic Sunrise Project is designated to add 1,700,000 dekatherms per day (dth/day) of pipeline capacity to the Transco system. The Pennsylvania portion of the Atlantic Sunrise Project will consist of a new (greenfield) pipeline segment, referred to as the Central Penn Line, connecting the northeastern Pennsylvania Marcellus producing region to the Transco mainline near Station 195 in southeastern Pennsylvania, as well as additional compression and looping of the Leidy Line in Pennsylvania. To compensate this increase in capacity additional compression will be added at Station 517 located in Jackson Township, Columbia County, Pennsylvania. Station 517 currently operates under Title V operating permit number 19-00007, which became effective on April 2, 2010 and expired on April 1, 2015. A Title V renewal application was submitted in September 2014. Station 517 is an existing major source for both PSD (greenhouse gases) and NNSR (nitrogen oxide).

Project Description

Station 517 is currently permitted to operate the following equipment:

- Two (2) Solar Centaur turbines (P101 and P102)
- Two (2) Solar Mars turbines (P110 and P114)
- One (1) Solar Titan turbines (P113)
- Two (2) emergency generators (P104 and P115)
- One (1) glycol heater (S034)
- One (1) heater (Z031)
- One (1) pipeline liquids tank (P105)
- Various fugitive/de minimis emission sources

The proposed changes to Station 517 involve the following:

- Install one (1) Solar Mars turbine rated at 16,000 hp (ISO) (P116)
- Install one (1) 1,065 bhp emergency generator (P117)

National Ambient Air Quality Standards (NAAQS) Modeling

Description

ERM has conducted an air dispersion modeling analysis to determine the impact of NO_X, CO, $PM_{2.5}$, PM_{10}, and SO_2 using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) software, version 15181. The following settings were used in this analysis:

- Complex terrain – receptor elevations and hill scales
- Rural dispersion coefficients
- Regulatory default model parameters, including:
    - Calm correction
    - Buoyancy induced dispersion
    - Final plume rise
    - Default wind profile coefficients
    - Default vertical potential temperature gradients
    - Stack-tip downwash
    - Direction specific building downwash

AERMOD allows for simulation of multiple sources simultaneously, while making the correct accounting for building downwash and building cavity effects. The BPBPPRM program (04274) will be used to determine the wind direction specific building parameters used by the AERMOD model to account for downwash effects of nearby structures, including cavity effects.

Existing and proposed sources at the facility were included in the analyses. Impacts from the sources were then added to the ambient concentrations believed to represent the background ambient air quality of the area. The total ambient impact concentrations are compared to the National Ambient Air Quality Standards (NAAQS).

Databases for Air Quality Evaluation

The databases required for input to the dispersion model included source emission data, meteorological data, receptor points, and terrain heights for all sources, buildings, tanks, and receptors.

Stack parameters and emission rates used for the modeling analysis are presented in Tables 1.1 and 1.2 below.

Table 1.1 – Station 517 Stack Parameters

Source ID	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elev. (m)	Stack Height (ft)	Temp. (°F)	Exit Velocity (fps)	Stack Diam. (ft)
P101	Solar Centaur 50 Turbine	380201.5	4569943.4	370.59	50.2	908	143.10	3.50
P102	Solar Centaur 50 Turbine	380205.8	4569943.3	370.59	50.3	908	143.10	3050
P110	Solar Mars 100S Turbine	380246.8	4569943.3	370.59	42.0	942	78.20	7.50
P114	Solar Mars 100 Turbine	380226.2	4569934.7	370.59	43.0	827	67.50	8.00
P113	Solar Titan 250 Turbine	380303.1	4569932.5	370.59	50.0	839	106.21	8.00
S034	Glycol Heater	380228.0	4569913.7	370.59	10.0	400	29.30	0.78
P104	Waukesha Emergency Generator	380231.1	4569968.0	370.59	12.0	700	0.33	0.78
P115	Emergency Generator	380233.0	4569880.7	370.59	25.0	250	20.00	1.00
P116	Solar Mars 100 Turbine	380191.1	4569944.9	370.59	43.0	863	68.43	8.00
P117	Waukesha P48GL Emergency Generator	380324.0	4570014.3	370.59	25.0	250	20.02	0.98

Table 1.2 – Station 517 Emissions Inventory

Source ID	Source Description	NO_2 (lb/hr)	SO_2 (lb/hr)	CO (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)
P101	Solar Centaur 50 Turbine	15.44	0.16	0.29	0.31	0.31
P102	Solar Centaur 50 Turbine	17.19	0.16	0.30	0.31	0.31
P110	Solar Mars 100S Turbine	8.01	0.41	0.53	0.80	0.80
P114	Solar Mars 100 Turbine	1.74	0.0002	0.09	0.003	0.003
P113	Solar Titan 250 Turbine	6.22	0.14	0.17	0.27	0.27
S034	Glycol Heater	0.25	0.001	0.03	0.02	0.02
P104	Waukesha Emergency Generator	2.68	0.002	2.68	0.03	0.03
P115	Emergency Generator	1.27	0.002	1.39	0.03	0.03
P116	Solar Mars 100 Turbine	7.51	0.16	5.41	0.89	0.89
P117	Waukesha P48GL Emergency Generator	0.27	0.0002	0.18	0.005	0.005

The Solar Mars 100 Turbine (P116) and the Waukesah P48GL Emergency Generator are proposed new equipment at Station 517.

Meteorological data used in the dispersion modeling analysis consisted of 5 years (2011-2015) of surface air observations at the Williamsport/Lycoming, PA (Station ID: 14778) and upper air observations at the Pittsburgh/Moon

Township, PA station (Station ID: 94823). These meteorological data were processed by Lakes Environmental Software in 2016 to create the necessary surface data and atmospheric profile data for use by AERMOD.

The modeling analysis used 1,510 receptor grids for this facility. The receptor spacing is as follows:

1. 100 m spacing along the facility fence-line and to 1,000 m from the fence line.

2. 500 m spacing from 1,000 m to 5,000 m.

3. 1,000 m spacing from 5,000 m to 10,000 m.

The latest version of the AERMAP program (version 11103) with 1 arc second resolution NED terrain files were used to develop hill scale and terrain elevation inputs for each receptor. All coordinates are based on the NAD 83 datum.

Background Concentrations

Background concentrations were calculated using monitoring data from A420692006LAT/LON (ID: 42-069-2006) and A420791101LAT/LON (ID: 42-079-1101) monitors. This data was obtained from the EPA Outdoor Air Quality Data Monitor Values Reports (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report). A three year average was calculated for each pollutant and averaging time using data from 2013, 2014, and 2015. Background concentrations used in this dispersion modeling analysis are presented in Table 1.3 below.

Table 1.3 – Background Concentrations

Pollutant	Average Time	2013 ($\mu g/m^3$)	2014 ($\mu g/m^3$)	2015 ($\mu g/m^3$)	3-Year Average ($\mu g/m^3$)	Monitor ID	Monitor Name
$PM_{2.5}$	24-Hour	24.00	23.00	25.00	24.00	42-069-2006	A420692006LAT/LON
	Annual	9.20	11.10	10.40	10.23	42-069-2006	A420692006LAT/LON
PM_{10}	24-Hour	45.00	32.00	34.00	37.00	42-079-1101	A420791101LAT/LON
NO_2	1-Hour	75.27	84.68	92.21	84.05	42-069-2006	A420692006LAT/LON
	Annual	15.41	20.06	20.29	18.59	42-069-2006	A420692006LAT/LON
SO_2	1-Hour	18.34	23.59	26.21	22.71	42-079-1101	A420791101LAT/LON
	3-Hour	20.97	23.59	28.83	24.46	42-079-1101	A420791101LAT/LON
CO	1-Hour	1,489.39	1,145.68	1,374.82	1,336.63	42-069-2006	A420692006LAT/LON
	8-Hour	2,062.23	1,718.52	1,718.52	1,833.09	42-069-2006	A420692006LAT/LON

These three year averages were added to the predicted impacts from Station 517 and compared to the National Ambient Air Quality Standards.

Summary of NAAQS Modeling Results

Table 1.4 below summarizes the modeling results for Station 517 only including equipment currently operating at the station (P116 and P117 not included).

Table 1.4 – Existing Conditions NAAQS Modeling Results

Pollutant	Average Time	Rank	Conc. ($\mu g/m^3$)	Background Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	% of NAAQS
$PM_{2.5}$	24-Hour	8th	1.62	24.00	25.62	35	73.20%
	Annual	1st	0.46	10.23	10.69	12	89.10%
PM_{10}	24-Hour	6th	2.85	37.00	39.85	150	26.57%
NO_2	1-Hour	8th*	217.54	84.05	301.59	188	160.42%
		8th**	141.19	84.05	225.24	188	119.81%
	Annual	1st	23.04	18.59	41.63	100	41.63%
SO_2	1-Hour	4th	3.22	22.71	25.93	196	13.23%
	3-Hour	2nd	3.17	24.46	27.63	1,300	2.13%
CO	1-Hour	2nd	310.23	1,336.63	1,646.86	40,000	4.12%
	8-Hour	2nd	154.59	1,833.09	1,987.68	10,000	19.88%

* ARM 1 Applied
** ARM 2 Applied

Emissions from existing sources at Station 517 do not create air quality impacts that exceed the NAAQS except for 1-hour nitrogen dioxide. Model results utilizing the ambient ratio method adjustments, ARM 1 and ARM 2, (including background) show 1-hour nitrogen dioxide concentrations of 301.59 $\mu g/m^3$ (ARM 1) and 225.24 $\mu g/m^3$ (ARM 2), respectively, both of which exceed the NAAQS of 188 $\mu g/m^3$.

Table 1.5 below summarizes the modeling results for Station 517 including existing and proposed/new equipment (P116 and P117 included).

Table 1.5 –NAAQS Modeling Results

Pollutant	Average Time	Rank	Conc. (µg/m³)	Background Conc. (µg/m³)	Total Conc. (µg/m³)	NAAQS (µg/m³)	% of NAAQS
$PM_{2.5}$	24-Hour	8th	2.34	24.00	26.34	35	75.26%
	Annual	1st	0.52	10.23	10.75	12	89.59%
PM_{10}	24-Hour	6th	3.66	37.00	40.66	150	27.11%
NO_2	1-Hour	8th*	217.57	84.05	301.62	188	160.44%
		8th**	141.19	84.05	225.24	188	119.81%
	Annual	1st	23.87	18.59	42.46	100	42.46%
SO_2	1-Hour	4th	3.40	22.71	26.11	196	13.32%
	3-Hour	2nd	3.18	24.46	27.64	1,300	2.13%
CO	1-Hour	2nd	310.25	1,336.63	1,646.88	40,000	4.12%
	8-Hour	2nd	154.61	1,833.09	1,987.70	10,000	19.88%

* ARM 1 Applied
** ARM 2 Applied

Emissions from existing and proposed sources at Station 517 do not create air quality impacts that exceed the NAAQS except for 1-hour nitrogen dioxide.

The ambient ratio method (ARM) adjustment that has been used historically is known as ARM1; this adjustment makes the assumption that (for the 1-hr average NO_2 impacts) only 80% of the NO_X converts to NO_2. So the model predicted concentration for 1-hr NO_X is multiplied by 0.80 to obtain the 1-hr NO_2 concentration. Background is then added and the result is compared to the applicable standard. An alternative ARM method is available – known as ARM2 – which is (as of this writing) still classified as a non-default option in AERMOD. ARM2 adjustments are made within the model computations.

The Default ARM (ARM1) and non-Default/BETA ARM2 options, incorporated in AERMOD beginning with version 13350, are both based on applying an ambient ratio of NO_2/NO_X to a modeled NO_X concentration to estimate ambient NO2 concentrations. The ARM option utilizes separate ambient ratios for modeling 1-hr and annual NO_2 impacts, whereas the ARM2 option applies an ambient ratio to the 1-hr modeled NOx concentrations based on a formula derived empirically from ambient monitored ratios of NO_2/NO_X. Default values based on EPA recommendations for the 1-hr and annual ambient ratios under the ARM option are 0.80 (EPA, 2011) and 0.75 (EPA, 2005), respectively. The current non-default ARM2 option includes default upper and lower limits on the ambient ratio applied to the modeled NO_X concentration of 0.9 and 0.2, respectively.

Once the pending update to EPA Model guidance and associated AERMOD changes are implemented, ARM1 methods will be abandoned in favor of ARM2

as the new DEFAULT model option. The proposed ARM2 default upper and lower limits on the ambient ratio methods applied to modeling NO_X concentrations will be 0.9 and 0.5, respectively.

Model results utilizing the ambient ratio method adjustments, ARM1 and ARM2, (including background) show 1-hour nitrogen dioxide concentrations of 301.62 $\mu g/m^3$ (ARM 1) and 225.24 $\mu g/m^3$ (ARM 2), respectively, both of which exceed the NAAQS of 188 $\mu g/m^3$.

Ambient Ratio Method Adjustments were not made to Annual NO_2 predictions presented here because predicted concentrations without any adjustments were well below the ambient standard.

Background

Transcontinental Gas Pipeline Company, LLC (Transco) is proposing to expand its current interstate natural gas pipeline system connecting producing regions in northeastern Pennsylvania to markets in the Mid-Atlantic and southeastern states. The Atlantic Sunrise Project is designated to add 1,700,000 dekatherms per day (dth/day) of pipeline capacity to the Transco system. The Pennsylvania portion of the Atlantic Sunrise Project will consist of a new (greenfield) pipeline segment, referred to as the Central Penn Line, connecting the northeastern Pennsylvania Marcellus producing region to the Transco mainline near Station 195 in southeastern Pennsylvania, as well as additional compression and looping of the Leidy Line in Pennsylvania. To compensate this increase in capacity additional compression will be added at Station 520 located Mifflin Township, Lycoming County, Pennsylvania. Station 520 currently operates under Title V operating permit number 41-00001, which became effective on April 14, 2010 and expired on April 13, 2015. A Title V renewal application was submitted in August 2014. Station 520 is an existing major source for both PSD (greenhouse gases) and NNSR (nitrogen oxide).

Project Description

Station 520 is currently permitted to operate the following equipment:

- Five (5) Ingersoll rand natural gas-fired engines (P101 - P105
- Two (2) Solar Mars turbines (P106 and P107)
- One (1) Solar Titan turbines (P116)
- Two (2) emergency generators (P110 and P117)
- One (1) Cyclotherm boiler (036)
- Fifteen (15) space heaters (037)
- One (1) parts washer (P112)
- Five (5) storage tanks (P114)
- Various fugitive/de minimis emission sources

The proposed changes to Station 520 involve the following:

- Install one (1) Solar Mars 100 turbine rated at 16,000 hp (ISO) (P118)

- Install one (1) 1,065 bhp emergency generator (P119)

National Ambient Air Quality Standards (NAAQS) Modeling

Description

ERM has conducted an air dispersion modeling analysis to determine the impact of NO_X, CO, $PM_{2.5}$, PM_{10}, and SO_2 using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) software, version 15181. The following settings were used in this analysis:

- Complex terrain – receptor elevations and hill scales
- Rural dispersion coefficients
- Regulatory default model parameters, including:
    - Calm correction
    - Buoyancy induced dispersion
    - Final plume rise
    - Default wind profile coefficients
    - Default vertical potential temperature gradients
    - Stack-tip downwash
    - Direction specific building downwash

AERMOD allows for simulation of multiple sources simultaneously, while making the correct accounting for building downwash and building cavity effects. The BPBPPRM program (04274) will be used to determine the wind direction specific building parameters used by the AERMOD model to account for downwash effects of nearby structures, including cavity effects.

Existing and proposed sources at the facility were included in the analyses. Impacts from the sources were then added to the ambient concentrations believed to represent the background ambient air quality of the area. The total ambient impact concentrations are compared to the National Ambient Air Quality Standards (NAAQS).

Databases for Air Quality Evaluation

The databases required for input to the dispersion model included source emission data, meteorological data, receptor points, and terrain heights for all sources, buildings, tanks, and receptors.

Stack parameters and emission rates used for the modeling analysis are presented in Tables 1.1 and 1.2 below.

Table 1.1 – Station 520 Stack Parameters

Source ID	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elev. (m)	Stack Height (ft)	Temp. (°F)	Exit Velocity (fps)	Stack Diam. (ft)
P101	I-R Engine 1 412-KVS 2050 HP LEC Retro	313243.8	4570034.3	213.15	28.0	700	108.80	2.50
P102	I-R Engine 2 412-KVS 2050 HP LEC Retro	313252.7	4570034.8	213.15	28.0	700	108.80	2.50
P103	I-R Engine 3 412-KVS 2050 HP LEC Retro	313260.7	4570035.2	213.15	28.0	700	108.80	2.50
P104	I-R Engine 4 CLN BRN/LEC 412-KVS	313267.7	4570035.8	213.15	28.0	700	108.80	2.50
P105	I-R Engine 5 CLN BRN/LEC 412-KVS	313274.7	4570036.2	213.15	28.0	700	108.80	2.50
P106	Solar Mars Turbine 1	313263.0	4570010.0	213.15	43.0	860	58.70	8.50
P107	Solar Mars Turbine 2	313274.0	4570010.0	213.15	43.0	860	58.70	8.50
P110	Waukesha 2895GL Generator	313275.0	4570054.5	213.15	29.0	708	77.70	1.00
S036	Cyclotherm 2800-L-N Boiler	313252.3	4570037.5	213.15	24.0	300	9.40	1.30
P116	Solar Titan 130	313286.4	4569888.0	213.15	45.7	864	120.10	6.70
P117	Emergency Generator	313263.2	4569888.0	213.15	25.0	250	20.00	1.00
P118	Solar Mars 100 Turbine	313284.6	4569907.9	213.15	45.7	863	68.44	8.00
P119	Waukesha P48GL Emergency Generator	313352.4	4570249.4	213.15	25.0	250	20.02	0.98

Table 1.2 – Station 520 Emissions Inventory

Source ID	Source Description	NO_2 (lb/hr)	SO_2 (lb/hr)	CO (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)
P101	I-R Engine 1 412-KVS 2050 HP LEC Retro	4.66	0.01	9.54	0.15	0.15
P102	I-R Engine 2 412-KVS 2050 HP LEC Retro	9.60	0.01	7.67	0.15	0.15
P103	I-R Engine 3 412-KVS 2050 HP LEC Retro	5.52	0.01	7.71	0.15	0.15
P104	I-R Engine 4 CLN BRN/LEC 412-KVS	8.47	0.01	9.44	0.15	0.15
P105	I-R Engine 5 CLN BRN/LEC 412-KVS	6.10	0.01	8.34	0.15	0.15
P106	Solar Mars Turbine 1	65.90	0.36	0.775	0.69	0.69
P107	Solar Mars Turbine 2	63.58	0.36	0.82	0.69	0.69
P110	Waukesha 2895GL Generator	19.58	0.003	1.52	0.05	0.05
S036	Cyclotherm 2800-L-N Boiler	0.38	0.002	0.32	0.03	0.03
P116	Solar Titan 130	8.65	0.19	7.04	1.04	1.04
P117	Waukesha Emergency Generator	0.30	0.0003	0.59	0.02	0.02
P118	Solar Mars 100 Turbine	7.65	0.16	5.43	0.91	0.91
P119	Waukesha P48GL Emergency Generator	0.27	0.0002	0.18	0.005	0.005

The Solar Mars 100 Turbine (P118) and Waukesah P48GL Emergency Generator (P119) are proposed new equipment at Station 520.

Meteorological data used in the dispersion modeling analysis consisted of 5 years (2011-2015) of surface air observations at the Williamsport/Lycoming, PA (Station ID: 14778) and upper air observations at the Pittsburgh/Moon Township, PA station (Station ID: 94823). These meteorological data were processed by Lakes Environmental Software in 2016 to create the necessary surface data and atmospheric profile data for use by AERMOD.

The modeling analysis used 1,558 receptor grids for this facility. The receptor spacing is as follows:

1. 100 m spacing along the facility fence-line and to 1,000 m from the fence line.

2. 500 m spacing from 1,000 m to 5,000 m.

3. 1,000 m spacing from 5,000 m to 10,000 m.

The latest version of the AERMAP program (version 11103) with 1 arc second resolution NED terrain files were used to develop hill scale and terrain elevation inputs for each receptor. All coordinates are based on the NAD 83 datum.

Background Concentrations

Background concentrations were calculated using monitoring data from A420692006LAT/LON (ID: 42-069-2006) and A420791101LAT/LON (ID: 42-079-1101) monitors. This data was obtained from the EPA Outdoor Air Quality Data Monitor Values Reports (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report). A three year average was calculated for each pollutant and averaging time using data from 2013, 2014, and 2015. Background concentrations used in this dispersion modeling analysis are presented in Table 1.3 below.

Table 1.3 – Background Concentrations

Pollutant	Average Time	2013 ($\mu g/m^3$)	2014 ($\mu g/m^3$)	2015 ($\mu g/m^3$)	3-Year Average ($\mu g/m^3$)	Monitor ID	Monitor Name
$PM_{2.5}$	24-Hour	24.00	23.00	25.00	24.00	42-069-2006	A420692006LAT/LON
	Annual	9.20	11.10	10.40	10.23	42-069-2006	A420692006LAT/LON
PM_{10}	24-Hour	45.00	32.00	34.00	37.00	42-079-1101	A420791101LAT/LON
NO_2	1-Hour	75.27	84.68	92.21	84.05	42-069-2006	A420692006LAT/LON
	Annual	15.41	20.06	20.29	18.59	42-069-2006	A420692006LAT/LON
SO_2	1-Hour	18.34	23.59	26.21	22.71	42-079-1101	A420791101LAT/LON
	3-Hour	20.97	23.59	28.83	24.46	42-079-1101	A420791101LAT/LON
CO	1-Hour	1,489.39	1,145.68	1,374.82	1,336.63	42-069-2006	A420692006LAT/LON
	8-Hour	2,062.23	1,718.52	1,718.52	1,833.09	42-069-2006	A420692006LAT/LON

These three year averages were added to the predicted impacts from Station 520 and compared to the National Ambient Air Quality Standards.

Summary of NAAQS Modeling Results

Table 1.4 below summarizes the modeling results for Station 520 only including equipment currently operating at the station (P118 and P119 not included).

Table 1.4 – Existing Conditions NAAQS Modeling Results

Pollutant	Average Time	Rank	Conc. ($\mu g/m^3$)	Background Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	% of NAAQS
$PM_{2.5}$	24-Hour	8th	3.81	24.00	27.81	35	79.47%
	Annual	1st	0.67	10.23	10.90	12	90.82%
PM_{10}	24-Hour	6th	6.33	37.00	43.33	150	28.89%
NO_2	1-Hour	8th*	807.91	84.05	891.96	188	474.45%
		8th**	204.07	84.05	288.12	188	153.26%
	Annual	1st	55.09	18.59	73.68	100	73.68%
SO_2	1-Hour	4th	4.31	22.71	27.02	196	13.79%
	3-Hour	2nd	3.27	24.46	27.73	1,300	2.13%
CO	1-Hour	2nd	853.49	1,336.63	2,190.12	40,000	5.48%
	8-Hour	2nd	401.10	1,833.09	2,234.19	10,000	22.34%

Emissions from existing sources at Station 520 do not create air quality impacts that exceed the NAAQS except for 1-hour nitrogen dioxide. Model results utilizing the ambient ratio method adjustments, ARM 1 and ARM 2, (including background) show 1-hour nitrogen dioxide concentrations of 891.96 $\mu g/m^3$ (ARM 1) and 288.12 $\mu g/m^3$ (ARM 2), respectively, both of which exceed the NAAQS of 188 $\mu g/m^3$.

Table 1.5 below summarizes the modeling results for Station 520 including existing and proposed/new equipment (P118 and P119 included).

Table 1.5 –NAAQS Modeling Results

Pollutant	Average Time	Rank	Conc. ($\mu g/m^3$)	Background Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	% of NAAQS
$PM_{2.5}$	24-Hour	8th	3.81	24.00	27.81	35	79.47%
	Annual	1st	0.67	10.23	10.90	12	90.86%
PM_{10}	24-Hour	6th	6.33	37.00	43.33	150	28.89%
NO_2	1-Hour	8th*	808.02	84.05	892.07	188	474.50%
		8th**	204.10	84.05	288.15	188	153.27%
	Annual	1st	55.39	18.59	73.98	100	73.98%
SO_2	1-Hour	4th	4.94	22.71	27.65	196	14.11%
	3-Hour	2nd	4.00	24.46	28.46	1,300	2.19%
CO	1-Hour	2nd	854.25	1,336.63	2,190.88	40,000	5.48%
	8-Hour	2nd	401.11	1,833.09	2,234.20	10,000	22.34%

Emissions from existing and proposed sources at Station 520 do not create air quality impacts that exceed the NAAQS except for 1-hour nitrogen dioxide.

The ambient ratio method (ARM) adjustment that has been used historically is known as ARM1; this adjustment makes the assumption that (for the 1-hr average NO_2 impacts) only 80% of the NO_X converts to NO_2. So the model predicted concentration for 1-hr NO_X is multiplied by 0.80 to obtain the 1-hr NO_2 concentration. Background is then added and the result is compared to the applicable standard. An alternative ARM method is available – known as ARM2 – which is (as of this writing) still classified as a non-default option in AERMOD. ARM2 adjustments are made within the model computations.

The Default ARM (ARM1) and non-Default/BETA ARM2 options, incorporated in AERMOD beginning with version 13350, are both based on applying an ambient ratio of NO_2/NO_X to a modeled NO_X concentration to estimate ambient NO2 concentrations. The ARM option utilizes separate ambient ratios for modeling 1-hr and annual NO_2 impacts, whereas the ARM2 option applies an ambient ratio to the 1-hr modeled NOx concentrations based on a formula derived empirically from ambient monitored ratios of NO_2/NO_X. Default values based on EPA recommendations for the 1-hr and annual ambient ratios under the ARM option are 0.80 (EPA, 2011) and 0.75 (EPA, 2005), respectively. The current non-default ARM2 option includes default upper and lower limits on the ambient ratio applied to the modeled NO_X concentration of 0.9 and 0.2, respectively.

Once the pending update to EPA Model guidance and associated AERMOD changes are implemented, ARM1 methods will be abandoned in favor of ARM2 as the new DEFAULT model option. The proposed ARM2 default upper and lower limits on the ambient ratio methods applied to modeling NO_X concentrations will be 0.9 and 0.5, respectively.

Model results utilizing the ambient ratio method adjustments, ARM 1 and ARM 2, (including background) show 1-hour nitrogen dioxide concentrations of 892.07 $\mu g/m^3$ (ARM 1) and 288.15 $\mu g/m^3$ (ARM 2), respectively, both of which exceed the NAAQS of 188 $\mu g/m^3$.

Ambient Ratio Method adjustments were not made to Annual NO_2 predictions presented here because predicted concentrations without any adjustments were well below the ambient standard.

Background

Transcontinental Gas Pipeline Company, LLC (Transco) is proposing to expand its current interstate natural gas pipeline system connecting producing regions in northeastern Pennsylvania to markets in the Mid-Atlantic and southeastern states. The Atlantic Sunrise Project is designated to add 1,700,000 dekatherms per day (dth/day) of pipeline capacity to the Transco system. The Atlantic Sunrise Project will consist of a new (greenfield) pipeline segment, referred to as the Central Penn Line, connecting the northeastern Pennsylvania Marcellus producing region to the Transco mainline near Station 195 in southeastern Pennsylvania, as well as additional compression and looping of the Leidy Line in Pennsylvania. To compensate this increase in capacity additional compression will be added at Station 190 in Ellicott City, Howard County, Maryland. Station 190 currently operates under Title V operating permit number 24-027-00223, which became effective on September 1, 2014 and will expire on November 30, 2018. Station 190 is an existing major source for both PSD (greenhouse gases, carbon monoxide, nitrogen oxides) and NNSR (nitrogen oxides, volatile organic compounds).

Project Description

Station 190 is currently permitted to operate the following equipment:

- Twelve (12) existing natural gas-fired stationary

- reciprocating internal combustion (IC) engine gas
- compressors:
    - Seven (7) Clark HBA-8T (M/L Unit 1-7)
    - Three (3) Clark TLA-6 (M/L Unit 8-10)
    - One (1) Clark TCV-10 (M/L Unit 11)
    - One (1) Clark TCV-16 (M/L Unit 12)

- One (1) natural gas-fired auxiliary generator:
    - Waukesha 7042GL (AUX1)

- Two (2) existing natural gas-fired boilers:
    - One (1) Holmar Vulcan A60 boiler (BLR1)
    - One (1) Cyclotherm C2800 (BLR2)

- Various fugitive/de minimis emission sources

The proposed changes to Station 190 involve the following:

- Install one (1) natural gas-fired Solar Titan 250 combustion turbine gas compressor rated at 30,000 hp (ISO) (M/L Unit 13)

- Install one (1) natural gas-fired 1,065 bhp emergency generator (AUX2)

National Ambient Air Quality Standards (NAAQS) Modeling

Description

ERM has conducted an air dispersion modeling analysis to determine the impact of NO_X, CO, $PM_{2.5}$, PM_{10}, and SO_2 using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) software, version 15181. The following settings were used in this analysis:

- Complex terrain – receptor elevations and hill scales
- Rural dispersion coefficients
- Regulatory default model parameters, including:
    - Calm correction
    - Buoyancy induced dispersion
    - Final plume rise
    - Default wind profile coefficients
    - Default vertical potential temperature gradients
    - Stack-tip downwash
    - Direction specific building downwash

AERMOD allows for simulation of multiple sources simultaneously, while making the correct accounting for building downwash and building cavity effects. The BPBPPRM program (04274) will be used to determine the wind direction specific building parameters used by the AERMOD model to account for downwash effects of nearby structures, including cavity effects.

Existing and proposed sources at the facility were included in the analyses. Impacts from the sources were then added to the ambient concentrations believed to represent the background ambient air quality of the area. The total ambient impact concentrations are compared to the National Ambient Air Quality Standards (NAAQS).

Databases for Air Quality Evaluation

The databases required for input to the dispersion model included source emission data, meteorological data, receptor points, and terrain heights for all sources, buildings, tanks, and receptors.

Stack parameters and emission rates used for the modeling analysis are presented in Tables 1.1 and 1.2 below.

Table 1.1 – Station 190 Stack Parameters

Source ID	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elev. (m)	Stack Height (ft)	Temp. (°F)	Exit Velocity (fps)	Stack Diam. (ft)
ML1	Clark HBA-8T	333832.1	4348057.7	114.24	31.2	782	170.80	4.92
ML2	Clark HBA-8T	333835.2	4348067.4	114.24	31.2	782	170.80	4.92
ML3	Clark HBA-8T	333839.7	4348073.6	114.24	31.2	782	170.80	4.92
ML4	Clark HBA-8T	333843.2	4348081.6	114.24	31.2	782	170.80	4.92
ML5	Clark HBA-8T	333847.7	4348088.6	114.24	31.2	782	170.80	4.92
ML6	Clark HBA-8T	333852.9	4348095.9	114.24	31.2	782	170.80	4.92
ML7	Clark HBA-8T	333857.1	4348103.5	114.24	31.2	782	170.80	4.92
ML8	Clark TLA-6	333860.5	4348109.8	114.24	31.2	750	98.40	6.56
ML9	Clark TLA-6	333863.7	4348117.1	114.24	31.2	750	98.40	6.56
ML10	Clark TLA-6	333868.2	4348124.4	114.24	31.2	750	98.40	6.56
ML11	Clark TCV-10	333882.4	4348156.3	114.24	72.0	750	107.10	9.84
ML12	Clark TCV-16	333888.7	4348167.8	114.24	72.0	750	43.80	9.84
AUX1	Waukesha 7042GL Generator	333876.5	4348145.9	114.24	17.0	810	115.00	4.10
BLR1	Holmar Vulcan A60 Boiler	333891.1	4348153.5	114.24	24.0	350	0.33	0.83
BLR2	Cyclotherm C2800 Boiler	333870.9	4348116.0	114.24	24.0	350	0.33	1.17
ML13	Solar Titan 250 Turbine	333942.1	4348212.5	114.24	49.0	839	72.99	9.75
AUX2	Waukesha P48GL Emergency Generator	333945.9	4348177.7	114.24	25.0	250	20.02	0.98

Table 1.2 – Station 190 Emissions Inventory

Source ID	Source Description	NO_2 (lb/hr)	SO_2 (lb/hr)	CO (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)
ML1	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML2	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML3	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML4	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML5	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML6	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML7	Clark HBA-8T	2.26	0.01	16.41	0.74	0.74
ML8	Clark TLA-6	3.24	0.01	14.59	0.76	0.76
ML9	Clark TLA-6	3.24	0.01	14.59	0.76	0.76
ML10	Clark TLA-6	3.24	0.01	14.59	0.76	0.76
ML11	Clark TCV-10	7.30	0.01	7.70	1.23	1.23
ML12	Clark TCV-16	8.00	0.02	12.37	1.99	1.99

Source ID	Source Description	NO_2 (lb/hr)	SO_2 (lb/hr)	CO (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)
AUX1	Waukesha 7042GL Generator	5.59	0.01	16.29	0.54	0.54
BLR1	Holmar Vulcan A60 Boiler	0.25	0.001	0.21	0.02	0.02
BLR2	Cyclotherm C2800 Boiler	0.33	0.002	0.28	0.02	0.02
ML13	Solar Titan 250 Turbine	56.10	1.20	59.90	6.80	6.80
AUX2	Waukesha P48GL Emergency Generator	1.20	0.001	0.80	0.02	0.02

The Solar Titan 250 Turbine (ML13) and Waukesha P48GL Emergency Generator (AUX2) are proposed new equipment at Station 190.

Meteorological data used in the dispersion modeling analysis consisted of 5 years (2011-2015) of surface air observations at the Baltimore-Washington, MD (Station ID: 93721) and upper air observations at the Sterling (Wash Dulles), VA station (Station ID: 93734). These meteorological data were processed by Lakes Environmental Software in 2016 to create the necessary surface data and atmospheric profile data for use by AERMOD.

The modeling analysis used 1,618 receptor grids for this facility. The receptor spacing is as follows:

1. 100 m spacing along the facility fence-line and to 1,000 m from the fence line.

2. 500 m spacing from 1,000 m to 5,000 m.

3. 1,000 m spacing from 5,000 m to 10,000 m.

The latest version of the AERMAP program (version 11103) with 1 arc second resolution NED terrain files were used to develop hill scale and terrain elevation inputs for each receptor. All coordinates are based on the NAD 83 datum.

Background Concentrations

Background concentrations were calculated using monitoring data from the Glen Burnie (ID: 24-003-1003) and HU-Beltsville (ID: 24-033-0030) monitors. This data was obtained from the EPA Outdoor Air Quality Data Monitor Values Reports (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report). A three year average was calculated for each pollutant and averaging time using data from 2013, 2014, and 2015. Background concentrations used in this dispersion modeling analysis are presented in Table 1.3 below.

Table 1.3 – Background Concentrations

Pollutant	Average Time	2013 (µg/m³)	2014 (µg/m³)	2015 (µg/m³)	3-Year Average (µg/m³)	Monitor ID	Monitor Name
$PM_{2.5}$	24-Hour	22.00	23.00	24.00	23.00	24-003-1003	Glen Burnie
	Annual	9.10	9.10	9.70	9.30	24-003-1003	Glen Burnie
PM_{10}	24-Hour	25.00	21.00	29.00	25.00	24-003-1003	Glen Burnie
NO_2	1-Hour	69.62	73.39	79.03	74.02	24-033-0030	HU-Beltsville
	Annual	15.02	14.96	15.37	15.12	24-033-0030	HU-Beltsville
SO_2	1-Hour	18.34	36.69	23.59	26.21	24-033-0030	HU-Beltsville
	3-Hour	32.23	46.65	29.09	35.99	24-033-0030	HU-Beltsville
CO	1-Hour	1,031.11	915.55	1,031.11	992.93	24-033-0030	HU-Beltsville
	8-Hour	1,031.11	1,145.68	1,145.68	1,107.49	24-033-0030	HU-Beltsville

These three year averages were added to the predicted impacts from Station 190 and compared to the National Ambient Air Quality Standards.

Summary of NAAQS Modeling Results

Table 1.4 below summarizes the modeling results for Station 190 only including equipment currently operating at the station (ML13 and AUX2 not included).

Table 1.4 – Existing Conditions NAAQS Modeling Results

Pollutant	Average Time	Rank	Conc. (µg/m³)	Background Conc. (µg/m³)	Total Conc. (µg/m³)	NAAQS (µg/m³)	% of NAAQS
$PM_{2.5}$	24-Hour	8th	3.95	23.00	26.95	35	77.01%
	Annual	1st	0.79	9.30	10.09	12	84.11%
PM_{10}	24-Hour	6th	8.02	25.00	33.02	150	22.02%
NO_2	1-Hour	8th*	107.41	74.02	181.43	188	95.51%
		8th**	113.02	74.02	187.04	188	99.49%
	Annual	1st	8.81	15.12	23.93	100	23.93%
SO_2	1-Hour	4th	0.82	26.21	27.03	196	13.79%
	3-Hour	2nd	0.62	35.99	36.61	1,300	2.82%
CO	1-Hour	2nd	392.79	992.93	1,385.72	40,000	3.46%
	8-Hour	2nd	293.24	1,107.49	1,400.73	10,000	14.01%

* ARM 1 Applied
** ARM 2 Applied

Emissions from existing sources at Station 190 do not create air quality impacts that exceed the NAAQS.

Table 1.5 below summarizes the modeling results for Station 190 including existing and proposed/new equipment (ML13 and AUX2 included).

Table 1.5 – NAAQS Modeling Results

Pollutant	Average Time	Rank	Conc. (µg/m³)	Background Conc. (µg/m³)	Total Conc. (µg/m³)	NAAQS (µg/m³)	% of NAAQS
$PM_{2.5}$	24-Hour	8th	4.05	23.00	27.05	35	77.29%
	Annual	1st	0.85	9.30	10.15	12	84.55%
PM_{10}	24-Hour	6th	8.10	25.00	33.10	150	22.07%
NO_2	1-Hour	8th*	107.45	74.02	181.47	188	96.52%
		8th**	113.04	74.02	187.06	188	99.50%
	Annual	1st	11.37	15.12	26.49	100	26.49%
SO_2	1-Hour	4th	0.82	26.21	27.03	196	13.79%
	3-Hour	2nd	1.22	35.99	37.21	1,300	2.86%
CO	1-Hour	2nd	393.22	992.93	1,386.15	40,000	3.47%
	8-Hour	2nd	296.42	1,107.49	1,403.91	10,000	14.04%

* ARM 1 Applied
** ARM 2 Applied

Emissions from existing and proposed sources at Station 190 do not create air quality impacts that exceed the NAAQS for 1-hour nitrogen dioxide when the concentrations are adjusted by applying the ambient ratio method.

The ambient ratio method (ARM) adjustment that has been used historically is known as ARM1; this adjustment makes the assumption that (for the 1-hr average NO_2 impacts) only 80% of the NO_X converts to NO_2. So the model predicted concentration for 1-hr NO_X is multiplied by 0.80 to obtain the 1-hr NO_2 concentration. Background is then added and the result is compared to the applicable standard. An alternative ARM method is available – known as ARM2 – which is (as of this writing) still classified as a non-default option in AERMOD. ARM2 adjustments are made within the model computations.

The Default ARM (ARM1) and non-Default/BETA ARM2 options, incorporated in AERMOD beginning with version 13350, are both based on applying an ambient ratio of NO_2/NO_X to a modeled NO_X concentration to estimate ambient NO2 concentrations. The ARM option utilizes separate ambient ratios for modeling 1-hr and annual NO_2 impacts, whereas the ARM2 option applies an ambient ratio to the 1-hr modeled NOx concentrations based on a formula derived empirically from ambient monitored ratios of NO_2/NO_X. Default values based on EPA recommendations for the 1-hr and annual ambient ratios under the ARM option are 0.80 (EPA, 2011) and 0.75 (EPA, 2005), respectively. The current non-default ARM2 option includes default upper and lower limits on the ambient ratio applied to the modeled NO_X concentration of 0.9 and 0.2, respectively.

Once the pending update to EPA Model guidance and associated AERMOD changes are implemented, ARM1 methods will be abandoned in favor of ARM2 as the new DEFAULT model option. The proposed ARM2 default upper and lower limits on the ambient ratio methods applied to modeling NO_X concentrations will be 0.9 and 0.5, respectively.

Applying ARM1 or ARM2 reduces the NO_2 concentration to below the NAAQS. Model results utilizing ARM 1 (including background) show 1-hour nitrogen dioxide concentrations of 181.47 $\mu g/m^3$ which is below the NAAQS of 188 $\mu g/m^3$. Model results utilizing ARM 2 (including background) show 1-hour nitrogen dioxide concentrations of 187.06 $\mu g/m^3$ which is below the NAAQS of 188 $\mu g/m^3$.

APPENDIX Q

PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS EVALUATED FOR POTENTIAL CUMULATIVE EFFECTS WITH THE ATLANTIC SUNRISE PROJECT

APPENDIX Q

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
CPL NORTH										
FERC-Jurisdictional Natural Gas Pipeline Projects										
	Central New York Oil & Gas Company (CNYOG), LLC MARC II Pipeline	Sullivan, Wyoming, and Luzerne, PA	30-mile-long pipeline extending CNYOG's system to the proposed PennEast Pipeline	Construction planned for 2017	0.0, crosses pipeline	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT,VG, WD, L, C, VI, T, A, N	No air permit information available on Pennsylvania Department of Environmental Protection (PADEP) eFACTS	No sufficient detailed information about project to assess cumulative impact potential
	Constitution Pipeline Company, LLC Constitution Pipeline (CP13-499-000)	Susquehanna, PA; Broome, Chenango, Delaware, and Schoharie, NY	122 miles of new 30-inch-diameter natural gas pipeline and additional facilities that include two new meter stations, two pipe interconnections, ten communication towers, eleven mainline valves, and one pig launcher and receiver	Approved by the Federal Energy Regulatory Commission (FERC), December 2014/ Construction delayed	6.5 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD, A	No air permit listed on PADEP eFACTS	Construction period will not overlap; no compressor station engine/gas turbine modifications
	PennEast Pipeline Company's Penn East Pipeline Project (CP15-558-000)	Luzerne, Carbon, Northampton, and Bucks, PA; Hunterdon and Mercer, NJ	114 miles of new 36-inch-diameter pipeline, originating near Dallas, Luzerne County, Pennsylvania, and terminating near Pennington, Mercer County, New Jersey; a 2.1-mile-long, 24-inch-diameter new pipeline lateral; a 0.6-mile-long, 12-inch-diameter new pipeline lateral; a 1.4-mile-long, 36-inch-diameter new pipeline lateral and appurtenant facilities	Application filed September 24, 2015/ Construction to begin in summer 2018	3.6 (southeast)	Upper Susquehanna	Northeast Pennsylvania-Upper Delaware Valley; Metropolitan Philadelphia	GW, SW, WT, VG, WD, A	No air permit information available on PADEP eFACTS	Site of new PennEast compressor station near Blakeslee, PA is 40 miles east of Transcontinental Gas Pipe Line Corporation's (Transco) existing CS 517

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Tennessee Gas Pipeline (TGP) Northeast Upgrade (CP11-161-000)	Bradford, Wayne, Pike, and Susquehanna, PA; Sussex, Passaic and Bergen, NJ	39.5 miles of 30-inch-diameter pipeline loops (5); Six new mainline valves, four pig launcher/receivers and the modification of four existing compression stations and one meter station	Operational/ in service November 2013	5.5 (southeast); compressor station modification >30 miles northeast	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	PADEP issued AQ Permit GP5-58-329-037 on 4/11/13; major facility operating permit renewal pending	Added one Taurus 70 compressor to existing TGP Compressor Station 321
	TGP Uniondale Expansion Project (CP13-526-000)	Susquehanna, PA	Modifications to Compressor Station 321 and Uniondale Meter Station	Operational/ in service September 2014	5.6 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	PADEP issued determination on 12/19/12; plan approval not required for modification	Added inlet air cooling to engines; no emissions change
	Transco Leidy Southeast Expansion (CP13-551-000)	Luzerne, Monroe, Lycoming, and Columbia, PA; Somerset, Hunterdon, and Mercer, NJ; Howard, MD; Cleveland, NC; and various VA counties	5.3 miles of pipeline loop (Dorrance Loop in Luzerne, PA); 11.5 miles of pipeline loop (Franklin Loop in Luzerne and Monroe, PA); 6.9 miles of pipeline loop (Pleasant Run Loop in Somerset and Hunterdon, NJ); 6.3 miles of pipeline loop (Skillman Loop in Somerset, NJ); various compressor station upgrades including adding 69,900 horsepower (hp) of additional compression at three existing compressor stations in Lycoming, Columbia, and Luzerne Counties, PA, as well as other minor facilities	Operational/ in service January 2016	0.0–8.0	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley; Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, C, T, L, VI, A, N	Station 515 (Luzerne) Major facility plan approval 40-00002A issued 11/3/2014; Station 520 (Lycoming) Major facility plan approval 41-00001A issued 9/5/2014 Station 517 (Columbia) Major Facility plan approval 19-00007A issued 9/5/2014	Although construction periods would not overlap, Leidy Southeast Expansion will produce stationary source emissions; Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise Project

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
Other Natural Gas and Mineral Resource Facilities [d]										
Wells/Shale Development										
	Various	Clinton, Columbia, Lackawanna, Sullivan Susquehanna, and Wyoming, PA	PADEP issued 2,676 natural gas production well drilling permits from July 2011 through April 11, 2016	Ongoing/ Various	Various	Various	Northeast Pennsylvania – Upper Delaware Valley; Central Pennsylvania Intrastate	G/S, GW, SW, WT,VG, WD, C, T, L, VI, A, N for wells closest to proposed facilities that would be constructed around the same timeframe	Air permits would be issued as needed under AQ General Permit GP5	Most well sites are >10 miles from Compressor Stations 190, 517, 520
Mineral Resources										
	Various	Luzerne, Wyoming, and Susquehanna Counties	Various quarries and coal mining operations	Ongoing/ Various	Various	Various	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT,VG, WD, C, T, L, VI, A, N for quarries closest to proposed facilities that would be constructed/operated around the same timeframe	State specific air permits as required	No sufficient detailed information about project to assess cumulative impact potential

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
Pipeline Gathering Systems										
	Aldrich WC	Susquehanna, PA	400 feet of 8-inch-diameter pipeline	Operational/ in service 2014	7.5 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Alford and Reynolds	Susquehanna, PA	3.3 miles of 16-inch-diameter pipeline	Construction in 2015	6.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction under way and will be completed prior to Atlantic Sunrise; No operational emission sources
	Baker WC	Susquehanna, PA	561 feet of 6-inch-diameter pipeline	Operational/ in service 2012	8.5 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Black	Susquehanna, PA	936 feet of 10-inch-diameter pipeline	Operational/ in service 2012	6.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Blanding	Susquehanna, PA	2.3 miles of 16-inch-diameter pipeline	Operational/ in service 2014	5.2 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Bridgewater	Susquehanna, PA	1.3 miles of 8-inch diameter-pipeline	Operational/ in service 2013	9.8 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Bunnell WC	Susquehanna, PA	824 feet of 8-inch-diameter pipeline	Operational/ in service 2013	8.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Clark	Susquehanna, PA	4,076 feet of 10-inch-diameter pipeline	Operational/ in service 2014	0.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, VI	Air permit not required	Construction completed and no operational emission sources
	Deckertown	Susquehanna, PA	1.5 miles of 10-inch-diameter pipeline	Operational/ in service 2013	3.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Diamond	Susquehanna, PA	2.3 miles, pipeline diameter unknown	Construction in 2015	10 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Ely Lake	Susquehanna, PA	2.3 miles of 10-inch-diameter pipeline	Operational/ in service 2012	7.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Empet WC	Susquehanna, PA	140 feet of 8-inch-diameter pipeline	Operational/ in service 2013	1.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Gardner WC	Susquehanna, PA	2,090 feet of 6-inch-diameter pipeline	Construction in 2015	2.5 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Geliatt	Susquehanna, PA	1.8 miles of 12-inch-diameter pipeline	Under Construction/ To be completed in 2015	9.8 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Gesford WC	Susquehanna, PA	56 feet of 6-inch-diameter pipeline	Operational/ in service 2013	8.0 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Gibson Suction and Discharge	Susquehanna, PA	3.2 miles of 20-inch diameter pipeline and 0.7 mile of 24-inch-diameter pipeline	Operational/ in service 2014	5.9 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Harford	Susquehanna, PA	0.6 mile of 16-inch-diameter pipeline	Construction in 2015	3.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD	Air permit not required	Construction completed and no operational emission sources
	Hartley	Susquehanna, PA	0.7 mile of 10-inch-diameter pipeline	Operational/ in service 2014	0.2 (southeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S. GW, SW, WT, VG, WD, L, VI	Air permit not required	Construction completed and no operational emission sources
	Hathaway	Susquehanna, PA	2.7 miles of 16-inch-diameter pipeline	Operational/ in service 2014	8.7 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Hess WC	Susquehanna, PA	507 feet of 8-inch-diameter pipeline	Operational/ in service 2011	8.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Hibbard WC	Susquehanna, PA	359 feet of 10-inch-diameter pipeline	Operational/ in service 2013	9.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Hickory Ridge	Susquehanna, PA	5.2 miles of 12-inch-diameter pipeline	Operational/ in service 2014	0.0[a] Crosses the centerline	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, C, VI	Air permit not required	Construction completed and no operational emission sources
	Hillsdale	Susquehanna, PA	1.9 miles of 24-inch-diameter pipeline and 2.5 miles of 12-inch-diameter pipeline	Construction in 2015	2.8 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD	Air permit not required	Construction completed and no operational emission sources
	Hop Bottom	Susquehanna, PA	2.0 miles of 16-inch diameter pipeline	Operational/ in service 2014	5.0 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Horton	Susquehanna, PA	1.3 miles of 8-inch diameter-pipeline	Operational/ in service 2013	2.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Jeffers Farm	Susquehanna, PA	0.6 mile of 8-inch-diameter pipeline	Operational/ in service 2013	1.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Johnson	Susquehanna, PA	0.9 mile of 16-inch-diameter pipeline	Operational/ in service 2014	9.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Kennedy	Susquehanna, PA	1.6 miles of 10-inch-diameter pipeline	Operational/ in service 2014	5.2 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Kinner	Susquehanna, PA	2.8 miles of 12-inch-diameter pipeline	Operational/ in service 2013	3.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Kropa WC	Susquehanna, PA	797 feet of 8-inch-diameter pipeline	Operational/ in service 2013	8.5 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Lackawanna	Susquehanna, PA	2.5 miles of 12-inch-diameter pipeline and 0.9 mile of 24-inch-diameter pipeline	Construction in 2015	1.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT,VG, WD	Air permit not required	Construction completed and no operational emission sources
	Leslie	Susquehanna, PA	2.5 miles of 12-inch-diameter pipeline	Operational/ in service 2013	3.8 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Lewis	Susquehanna, PA	1,300 feet of 10-inch-diameter pipeline	Planning/ Construction to begin in 2017	8.9 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD, A	Air permit not required	Construction completed and no operational emission sources
	Lippencott WC	Susquehanna, PA	529 feet of 8-inch-diameter pipeline	Operational/ in service 2012	5.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Loffredo	Susquehanna, PA	1.0 mile of 10-inch-diameter pipeline	Operational/ in service 2013	3.9 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Loffredo	Wyoming, PA	2.5 miles of 10-inch-diameter pipeline	Operational/ in service 2013	2.9 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Lynn	Susquehanna, PA	2.2 miles of 12-inch-diameter pipeline and 0.8 mile of 8-inch-diameter pipeline	Operational/ in service 2012	7.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Maplewood	Susquehanna, PA	2.5 miles of 24-inch-diameter pipeline	Operational/ in service 2015	3.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD	Air permit not required	Construction completed and no operational emission sources
	McCarthy	Susquehanna, PA	1.6 miles of 12-inch-diameter pipeline	Operational/ in service 2013	0.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Meshoppen Creek	Wyoming, PA	1.9 miles of 10-inch-diameter pipeline	Operational/ in service 2012	8.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Meshoppen Creek	Wyoming, PA	1.2 miles of 16-inch-diameter pipeline	Operational/ in service 2012	8.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Millard	Susquehanna, PA	3.6 miles of 12-inch-diameter pipeline	Operational/ in service 2013	0.0 Crosses the centerline	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, C, VI	Air permit not required	Construction completed and no operational emission sources
	Molner	Susquehanna, PA	2.0 miles of 8-inch-diameter pipeline	Operational/ in service 2013	4.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Moxley	Susquehanna, PA	1.8 miles of 16-inch-diameter pipeline	Construction in 2015	5.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT,VG, WD	Air permit not required	Construction completed and no operational emission sources
	Mulligan	Susquehanna, PA	2.0 miles of 10-inch-diameter pipeline	Operational/ in service 2012	3.9 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	PA-06-035	Susquehanna, PA	245 feet of 6-inch-diameter pipeline	Operational/ in service 2010	6.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	PA-10-014	Susquehanna, PA	1.2 miles of 10-inch-diameter pipeline	Operational/ in service 2010	6.3 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Payne	Susquehanna, PA	2.5 miles of 16-inch-diameter pipeline	Operational/ in service 2014	4.0 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Peterson WC	Susquehanna, PA	1,065 feet of 8-inch-diameter pipeline	Operational/ in service 2013	8.3 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Pijanowski	Susquehanna, PA	1.8 miles of 16-inch-diameter pipeline	Operational/ in service 2014	5.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Plonski WC	Susquehanna, PA	1,840 feet of 10-inch-diameter pipeline	Operational/ in service 2014	6.5 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Quarry	Susquehanna, PA	2.5 miles of 10-inch-diameter pipeline	Operational/ in service 2013	6.9 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Reynolds	Susquehanna, PA	1.6 miles of 20-inch-diameter pipeline	Construction in 2015	5.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT,VG, WD	Air permit not required	Construction completed and no operational emission sources
	RSmith WC	Susquehanna, PA	750 feet of 4-inch-diameter pipeline	Operational/ in service 2011	8.3 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Severcool WC	Susquehanna, PA	1,179 feet of 8-inch-diameter pipeline	Operational/ in service 2013	9.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Squire	Susquehanna, PA	1.1 miles of 8-inch-diameter pipeline	Operational/ in service 2013	7.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	States Mill	Susquehanna, PA	1.6 miles of 12-inch-diameter pipeline	Construction anticipated to begin in 2016	6.8 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT,VG, WD, A	Air permit not required	Construction expected to be underway prior to Atlantic Sunrise initiation, no operation emission sources
	Strickland	Susquehanna, PA	1.7 miles of 12-inch-diameter pipeline	Operational/ in service 2014	9.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	T.Flower WC	Susquehanna, PA	233 feet of 8-inch-diameter pipeline	Operational/ in service 2013	9.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Teddick	Susquehanna, PA	1.0 mile of 8-inch diameter pipeline	Operational/ in service 2013	7.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Teddick WC	Susquehanna, PA	828 feet of 10-inch-diameter pipeline	Operational/ in service 2013	7.3 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Teel Station	Susquehanna, PA	14,156 hp compressor station composed of reciprocating engine compression packages, dehydration and metering facilities	Operational/ in service 2011	6.8 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	A	PADEP issued AQ General Permit GP5-58-002 on 5/24/13	Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise Project
	Thomas	Susquehanna, PA	1.5 miles of 8-inch-diameter pipeline	Operational/ in service 2014	1.0 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT,VG, WD	Air permit not required	Construction completed and no operational emission sources
	Tiffany	Susquehanna, PA	3.3 miles of 16-inch-diameter pipeline	Operational/ in service 2013	8.9 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Tingley	Susquehanna, PA	3.0 miles of 16-inch-diameter pipeline	Operational/ in service 2013	3.8 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	UGI Energy Services Auburn Pipeline Expansion Project	Wyoming and Luzerne, PA	20-inch-diameter 28-mile-long gathering pipeline and compressor station	Operational/ in service January 2014	0.0, Crosses the centerline	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, WD, VG, L, C, VI, A	PADEQ issued AQ General Permit GP5-66-001 on 5/13/2013	UGI Manning Compressor Station located 30 miles to northeast of Station 517
	Union Hill	Susquehanna, PA	1.8 miles of 16-inch-diameter pipeline	Operational/ in service 2014	4.9 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Vandermark WC	Susquehanna, PA	660 feet of 6-inch-diameter pipeline	Operational/ in service 2013	8.6 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Williams Field Services (midstream) Owego	Susquehanna, PA	24-inch-diameter Owego pipeline (5.9 miles) and associated Zick Compressor Station discharge piping (742 feet) to connect to the proposed Transco Zick Meter Station	Planning Stage/ Construction to begin July 2016; Anticipated in-service June 2017	0.0	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, T, VI, C, A, N	Air permit not required	No compressor engine modifications
	Williams Field Services (midstream): Gibson	Susquehanna, PA	20,120 hp compressor station composed of reciprocating engine compression packages and dehydration facilities	Operational/ in service 2014	5.3 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	A	AQ General Permit GP5-58-011A issued by PADEP 11/19/2014	Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise project
	Williams Field Services (midstream): Gibson Meter Station	Susquehanna, PA	Meter Station	Operational/ in service 2014	6.5 (southeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air Permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Williams Field Services (midstream): Lathrop	Susquehanna, PA	14,200 hp compressor station composed of reciprocating engine compression packages; station will be upgraded to 15,600 hp in May 2015	Operational/ in service 2011	9.0 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	A	PADEP issued AQ General Permit GP5-58-399-009 on 1/26/10	Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise project
	Williams Field Services (midstream): Miller	Susquehanna, PA	20,120-hp compressor station composed of reciprocating engine compression packages and dehydration facilities	Operational/ in service 2014	5.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	A	PADEP issued AQ General Permit GP5-58-009A on 11/19/14	Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise project
	Williams Field Services (midstream): Puddlefield Meter Station	Wyoming, PA	Meter Station	Operational/ in service 2012	< 0.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, VI, C, N	Air permit not required	Construction completed and no operational emission sources
	Williams Field Services (midstream): Sickler	Wyoming, PA	Dehydration Facility	Operational/ in service 2012	8.3 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Williams Field Services (midstream): White	Susquehanna, PA	20,120 hp recip. compressor station composed of dehydration facilities	Operational/ in service 2014	6.3 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	A	PADEP issued AQ General Permit GP5-58-008A on 11/19/14	Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise project
	Williams Field Services (midstream): White Meter Station	Susquehanna, PA	Dehydration only; no metering	Operational/ in service 2012	6.2 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Williams Field Services (midstream): Wilcox	Wyoming, PA	25,948 hp compressor station composed of reciprocating engine and turbine compression packages	Operational/ in service 2012	4.5 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	A	PADEP issued Minor Source Operating Permit 73-1591878-1 on 1/9/14	Impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise project

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Williams Field Services (midstream): Zick	Susquehanna, PA	28,512 hp compressor station composed of reciprocating compression packages and dehydration facilities	Operational/ in service 2013	0.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, VI, A, N, C	PADEP issued Minor Facility Plan Approval 58-399-037 on 3/25/13; PADEP reviewing AQ General Permit application GP5-58-018 that was submitted on 1/13/14	Zick Compressor Station is located >31 miles from Compressor Stations 190, 517, and 520
	Williams Field Services (midstream): Zick Meter Station	Susquehanna, PA	Meter station	Operational/ in service 2012	< 0.1 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, VI, N, C	Air permit not required	Construction completed and no operational emission sources
	Wilmarth (2)	Susquehanna, PA	1. 6 miles of 16-inch-diameter pipeline	Operational/ in service 2013	2.6 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Wood	Susquehanna, PA	0.6 mile of 8-inch-diameter pipeline	Operational/ in service 2012	9.7 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	Wyoming (4)	Susquehanna, PA Luzerne, PA Wyoming, PA	10 miles of 16-inch-diameter pipeline	Operational/ in service 2011	0.0-9.0 (various directions)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, L, VI, C	Air permit not required	Construction completed and no operational emission sources
	Zaverton	Susquehanna, PA	12,200 feet of 12-inch-diameter pipeline	Operational/ in service 2012	8.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Zupp	Susquehanna, PA	13,580 feet of 20-inch-diameter pipeline	Operational/ in service 2013	1.0 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
Other Actions										
Other Energy Facilities										
	Mehoopany Wind Farm	Wyoming, PA	141-megawatt (MW) wind farm (~88 wind turbines) on 9,000-acre site	Operational/ Construction completed 2012	7.1 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
	PPL Susquehanna-Roseland Power Line Project	Luzerne and Lackawanna, PA	Susquehanna to Stanton Section	Construction in 2015	4.9 (southeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	Negligible	Air permit not required	Construction completed and no operational emission sources
			Stanton to Lackawanna Section		7.2 (southeast)	Upper Susquehanna		Negligible	Air permit not required	Construction completed and no operational emission sources
	Transmission Lines to supply power to the proposed Transco Compressor Stations 605	Lackawanna and Wyoming, PA	3.5-mile new electrical transmission line for Compressor Station 605	Planning Stage/ Anticipated in-service 2017	0.0 (east)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, SW, GW, WT, VG, WD, L, VI, A, N, C	Air permit not required	No permanent stationary emission, minimal overlap of construction periods
	Distribution Lines at Compressor Station 517	Columbia, PA	Approximately 1000 feet of distribution line	Planning Stage/ Anticipated in-service 2017	No route determined	n/a	n/a	G/S, SW, GW, WT, VG, WD, L, VI, A, N (depending on route)	Air permit not required	No permanent stationary emission, minimal overlap of construction periods

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
Transportation Projects										
	Oxbow Creek Bridge	Wyoming, PA	Bridge replacement and/or rehabilitation	In development/ Construction to begin November 2018	3.4 (northwest)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW,SW, WT, VG, WD, A	Air permit not required	Minor construction emissions, no overlap in construction periods
	State Route (SR) 106 over Tunhannock Creek	Susquehanna, PA	Bridge replacement	Construction completed in 2016	1.7 (northeast)	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	GW, SW, WT, VG, WD, A	Air permit not required	Minimal construction emissions, no overlap in construction periods
Other Development										
Goodleigh Manor		Luzerne, PA	Planned residential development	Roads and other infrastructure in place. Lots for sale	Crossed from mileposts (MP) 26.0 to 26.2	Upper Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, SW, GW, WT, VG, WD, T, L, C, A, N, VI	Air permit not required	Undetermined but likely minor
CPL SOUTH										
FERC-Jurisdictional Natural Gas Pipeline Projects										
	Spectra Texas Eastern Appalachia to Market 2014 (CP13-84-000)	Lebanon, PA	Grantville East Discharge	Operational/ in service November 2014	4.6 (southeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	Negligible	Air permit not required	Construction completed and no operational emission sources
			Grantville West Discharge		Crosses the centerline	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, L, C, VI	Air permit not required	Construction completed and no operational emission sources

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	Transco Proposed Rock Springs Expansion Project (CP14-504-000)	Lancaster, PA; Cecil, MD	Proposed 11.2 miles of new pipe (10.1 miles in Lancaster County, PA, and 1.1 in Cecil County, MD) and construction of a 4,000-horsepower, electric motor-driven compressor and metering facility	Operational/ in service August 2016	0.0	Lower Susquehanna	South Central Pennsylvania Intrastate - Eastern Shore	G/S, GW, SW, WT,VG, WD, T, L, C, VI, A, N	Air permit not required (electric motor drive compressor only)	Construction period will not overlap and compressor drive is electric motor (no direct emissions)
Other Natural Gas and Mineral Resource Facilities [d]										
Mineral Resources										
	Various	Lancaster, Lebanon, Schuylkill, and Northumberland Counties	Various quarries and coal mining operations [d]	Ongoing/ Various	Various	Various	Northeast Pennsylvania – Upper Delaware Valley; South Central Pennsylvania Intrastate; Central Pennsylvania Intrastate	G/S, GW, SW, WT,VG, WD, C, T, L, VI, A, N for quarries closest to proposed facilities that would be constructed/operated around the same timeframe	State specific air permits as required	No sufficient detailed information about project to assess cumulative impact potential

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
Other Actions										
Other Energy Facilities										
	Tenaska Lebanon Valley Generation Station	Lebanon, PA	Proposed clean-burning, natural gas-fueled electric generating station with a capacity of 950 MWs of electricity	Planning/site evaluation stage/ Start date 2015	6.1 (southeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	GW, SW, WT, VG, WD, A	PADEP issued major facility plan approval on 4/1/15	Major emission source; however site is in Westmoreland County >30 miles from Compressor Stations 190,517,and 520
	Sunoco Logistics Mariner East 1 and Mariner East 2 Pipeline Projects	Lebanon and Lancaster, PA	Propane and ethane pipeline in Pennsylvania	Mariner East 1 in service February 2016 Mariner East 2 planned to be completed in 2017	Crosses the centerline	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, WT,VG, WD, T, L, C, VI, A, N	PADEP minor source operating permit 22-03094 pending; PADEP technical review ongoing	Minor emission source in Londonderry Township >30 miles from stations 190, 517, and 520
	Good Spring Natural Gas Combined Cycle (NGCC) power plant (EmberClear [formerly Future Power])	Schuylkill, PA	Construction of two 337 MW natural gas combined cycle power plants (NGCC 1 and NGCC 2)	Construction of NGCC 1 planned to start in 2016; NGCC 2 to be determined	0.0 (north)	Lower Susquehanna	Northeast Pennsylvania – Upper Delaware Valley	G/S, GW, SW, WT, VG, WD, T, L, C, VI, A, N	PADEP issued major facility plan approval on 03/04/14 and minor facility plan approval on 10/14/15; Permit no. 54-0082A	Site is located 33 miles south of Transco's CS 610; minimal overlap of construction periods
	Transmission Lines to supply power to the proposed Transco Compressor Stations 610	Columbia, PA	1.8-mile new electrical transmission line for Compressor Station 610	Planning Stage/ Anticipated in-service 2017	0.0 (east)	Upper Susquehanna	Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, T, L, C, VI, A, N	Air permit not required	No permanent stationary emission, minimal overlap of construction periods

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
Transportation Projects										
	Bainbridge Road Bridge #2	Lancaster, PA	Bridge replacement	In development/ Construction to begin March 2016	6.1 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Bridgeville Road	York, PA	Road widening (shoulders)	Construction began in 2015	3.6 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Bull Run Road Bridge	York, PA	Bridge replacement	Construction began in 2015	3.2 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Colebrook Road Bridge	Lebanon, PA	Bridge replacement	Construction in 2015	0.4 (northwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, T, A	Air permit not required	Undetermined but likely minor
	Mountain Road Bridge	Lebanon, PA	Bridge replacement	Construction began in August 2016	3.3 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	SR 1020 over Fishing Creek	Columbia, PA	Bridge rehabilitation	In development/ No dates provided	4.5 (southeast)	Upper Susquehanna	Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minimal
	SR 339 over Beaver Run	Columbia, PA	Bridge replacement	Future development/ No dates provided	9.3 (northeast)	Upper Susquehanna	Central Pennsylvania Intrastate	Negligible	Air permit not required	Undetermined but likely minor
	SR 4002 over Tb Wilson Creek	Northumberland, PA	Bridge replacement	In development/ Construction to begin December 2016	7.8 (southwest)	Upper Susquehanna	Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	SR 442 over West Branch Run	Columbia, PA	Bridge replacement	In development/ Construction to begin October 2016	4.7 (northwest)	Upper Susquehanna	Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	SR 54/3009	Montour, PA	Intersection improvement	Under construction/	6.7 (southwest)	Upper Susquehanna	Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	SR 1013 over Strong Brook	Columbia, PA	Bridge replacement	Future development/ No dates provided	3.7 (southeast)	Upper Susquehanna	Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Veteran's Memorial Bridge	Lancaster, PA	Bridge rehabilitation	In development/ No dates provided	1.8 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
Other Development										
	114 Lakewood Drive, Martic, PA, 17565	Lancaster, PA	Residential	No additional status provided/ No dates provided	0.3 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	1213 Holtwood Road, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued July 2014/ No dates provided	0.2 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	166 Lakewood Drive, Martic, PA, 17565	Lancaster, PA	Residential	No additional status provided/ No dates provided	0.5 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	181 Magnolia Drive, Martic, PA, 17565	Lancaster PA	Residential	No additional status provided/ No dates provided	0.4 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	20 Venture Drive, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued September 2013/ No dates provided	0.2 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	3 Vestral Drive, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued April 2014/ No dates provided	0.2 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	53 Drytown Road, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued November 2013/ No dates provided	0.2 (southeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	76 Red Hill Road, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued May 2014/ No dates provided	0.2 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	91 Oak Glen Drive, Martic, PA, 17565	Lancaster, PA	Residential	No additional status provided/ No dates provided	0.3 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	968F Susquehannock Drive, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued April 2014/ No dates provided	0.2 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	1213 Holtwood Road, Martic, PA 17565	Lancaster, PA	Residential	Building Permit issued April 2014	0.2 mile (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	20 Venture Drive, Martic PA, 17565	Lancaster, PA	Residential	Building Permit issued July 2014	0.2 mile (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	99 Drytown Road, Martic, PA, 17565	Lancaster, PA	Residential	Building permit issued June 2014/ No dates provided	0.1 (southeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	53 Drytown Road, Martic PA, 17565	Lancaster, PA	Residential	Building Permit issued November 2013	0.2 mile (southeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	3 Vestral Drive, Martic PA, 17565,	Lancaster, PA	Residential	Building Permit issued April 2014	0.2 mile (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	76 Red Hill Road, Martic, PA 17565	Lancaster, PA	Residential	Building Permit issued May 2014	0.2 mile (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor
	Eastern Land Resources	Lebanon, PA	Potential mixed use development	Eastern Land and Resources Company owns large parcels of land in Pennsylvania and sells them to developers; this land is currently zoned commercial, and no construction date is set/ no dates provided	Crossed from MPs 45.5 to 45.9	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Mixed use development usually does not require air permit	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	MFS, Inc. d/b/a Eastern Land and Resources Company	Lebanon, PA	Commercial	No status provided/ No dates provided	Crosses the centerline from MP 45.3 to M-0183 0.6	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	No air permit listed on PADEP eFACTS	Undetermined but likely minor
	Prologis-A4 PA IV, LLC (No. 1)	Lebanon, PA	Commercial	No status provided/ No dates provided	0.5 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	No air permit listed on PADEP eFACTS	Undetermined but likely minor
	Prologis-A4 PA IV, LLC (No. 2)	Lebanon, PA	Commercial	No status provided/ No dates provided	0.2 (southeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	No air permit listed on PADEP eFACTS	Undetermined but likely minor
	SID Tool Company, Inc.	Lebanon, PA	Commercial	No status provided/ No dates provided	0.1 (northeast)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	No air permit listed on PADEP eFACTS	Undetermined but likely minor
	Skupics, LLC	Lebanon, PA	Commercial	No status provided/ No dates provided	0.2 (southwest)	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	No air permit listed on PADEP eFACTS	Undetermined but likely minor
	Stone Hill Village LLC	Lebanon, PA	Residential	Construction of Phase 1 is underway	Crossed from MPs 46.2 to 46.3	Lower Susquehanna	South Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
CHAPMAN LOOP										
Other Natural Gas and Mineral Resource Facilities [d]										
Wells/Shale Development										
	Cabot Oil and Gas Corporation	Clinton, PA	Three proposed wellheads on site and four inactive wellheads on site	Undetermined	0.2 (northeast)	West Branch Susquehanna	Central Pennsylvania Intrastate	G/S, GW, SW, VG, WT, WD, T, L, VI, A, N	Air permits would be issued as needed under AQ General Permit GP5	The well sites are located >10 miles from Compressor Stations 190, 517, and 520
UNITY LOOP										
FERC-Jurisdictional Natural Gas Pipeline Projects										
	Transco Northeast Supply Link (CP12-30-000)	Lycoming, PA	Muncy Loop 2.2 miles	Operational/ in service November 2013	0.04 (northeast)	West Branch Susquehanna	Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, L, C, VI	Air permit not required	Construction completed and no operational emission sources
Other Natural Gas and Mineral Resource Facilities [d]										
Wells/Shale Development										
	Various	Lycoming, PA	PADEP has issued 1,254 natural gas production well drilling permits from July 2011 through April 16, 2016	Ongoing/ Various	Various	West Branch Susquehanna	Central Pennsylvania Intrastate	G/S, GW, SW, WT,VG, WD, L, VI, C, A, N	PADEP would issue AQ General Permit GP5 air permits as needed	Most well sites are located >10 miles from Compressor Stations 190, 517, and 520
Other Actions										
Transportation Projects										
	SR 2019 over German Run	Lycoming, PA	Bridge replacement	Under construction	3.6 (southwest)	West Branch Susquehanna	Central Pennsylvania Intrastate	GW, SW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
MAINLINE A&B REPLACEMENTS										
FERC-Jurisdictional Natural Gas Pipeline Projects										
	Dominion Transmission TL-465 Pipeline Replacement Project (CP13-26-000)	Prince William, VA	Replacement of approximately 9,200 linear feet of 24-inch-diameter natural gas transmission pipeline	Operational/ in service December 2013	1.6 (southwest)	Potomac	National Capital	Negligible	Air permit not required	Construction completed and no operational emission sources
Other Natural Gas and Mineral Resource Facilities [d]										
Mineral Resources										
	Various	Prince William County	Various	Various	Various	Various	Various	G/S, GW, SW, WT,VG, WD, C, T, L, VI, A, N for quarries closest to proposed facilities that would be constructed/operated around the same timeframe	Various	No sufficient detailed information about project to assess cumulative impact potential
Other Actions										
Transportation Projects										
	Brentsville Road	Prince William, VA	Major Bridge Rehabilitation over Broad Run	Construction completed 2015	5.4 (southeast)	Potomac	National Capital	Negligible	Air permit not required	Undetermined but likely minor
	I-66	Prince William, VA	Widening (3.5 miles); from milepost 39.6 to milepost 44.3	Construction completed in 2016	4.2 (northwest)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
	I-66 and Route 15	Prince William, VA	Interchange reconstruction	Construction began 2013; to be completed August 2017	6.1 (northwest)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Interstate 66 (I-66) and Route 28	Fairfax, VA	Interchange improvements	Construction to occur 2017-2019	6.7 (northeast)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Nokesville Road	Prince William, VA	Widening	Construction to occur 2017-2018	2.0 (southeast)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Nokesville Road	Prince William, VA	Widening to six lanes	Construction began in 2014; to be completed November 2016	1.5 (southeast)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Old Centreville Road	Prince William, VA	Major Bridge Rehabilitation over Bull Run	Construction anticipated 2016-2017	4.1 (northeast)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Route 29	Fairfax, VA	Bridge replacement over Little Rocky Run	Construction completed in 2015	7.4 (northeast)	Potomac	National Capital	Negligible	Air permit not required	Undetermined but likely minor
	Stringfellow Road	Fairfax, VA	Widening (2 miles) from Fair Lakes Boulevard to Lee Jackson Memorial Highway	Construction completed	8.8 (northeast)	Potomac	National Capital	Negligible	Air permit not required	Undetermined but likely minor
	Walney Road	Fairfax, VA	Bridge replacement and widening	Construction completed	8.7 (northeast)	Potomac	National Capital	Negligible	Air permit not required	Undetermined but likely minor
	Walney Road	Fairfax, VA	Widen to four lanes	Construction completed	8.9 (northeast)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor
	Walney Road	Fairfax, VA	Bridge rehabilitation over Flatlick Branch	Design underway/ No dates provided	8.8 (northeast)	Potomac	National Capital	SW, GW, WT, VG, WD, A	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
Other Development										
	Non-Residential Inventory	Prince William, VA	The non-residential inventory is part of the build-out analysis completed by Prince William County; these areas have received zoning approval by the Board of Supervisors, and may be at any stage of development	Non-Residential inventory areas PLN2003-00250 and REZ1976-0020 is crossed by the Project; no further status provided/ No dates provided	Crosses the Centerline	Potomac	National Capital	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Air permit not required	Undetermined but likely minor
	Residential Inventory	Prince William, VA	The residential inventory is part of the build-out analysis completed by Prince William County; these areas have received zoning approval by the Board of Supervisors, and may be at any stage of development	Residential inventory area REZ1996-0029 is crossed by the Project; as of 2012, this townhome development was under construction/ No dates provided	Crossed from MPs 1579.2 to 1579.3 and MPs 1576.4 to 1579.6	Potomac	National Capital	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Air permit not required	Undetermined but likely minor

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
COMPRESSOR STATION 610										
Other Actions										
Other Energy Facilities										
	Transmission Lines to supply power to the proposed Transco Compressor Stations 610	Columbia, PA	1.8-mile-long new electrical transmission line for Compressor Station 610	Planning Stage/ Anticipated in-service 2017	0.0 (east)	Upper Susquehanna	Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Air permit not required	No permanent stationary emission, minimal overlap of construction periods
COMPRESSOR STATION 520										
Other Actions										
Other Energy Facilities										
	Distribution Lines at Compressor Station 520	Lycoming, PA	Approximately 1000 feet of distribution line	Planning Stage/ No dates provided	No route determined	n/a	n/a	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Air permit not required	No permanent stationary emission, minimal overlap of construction periods
	Transco Leidy Southeast Expansion (CP13-551-000)	Luzerne, Monroe, Lycoming, and Columbia, PA; Somerset, Hunterdon, and Mercer, NJ; Howard, MD, Cleveland, NC; and various VA counties	Project includes the addition of a 20,500-hp compressor unit at Compressor Station 520 in Lycoming County	Construction completed in 2015	0.0	Upper Susquehanna	Northeast Pennsylvania –Upper Delaware Valley; Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Station 520 (Lycoming) major facility plan approval 41-00001A issued 9/5/2014	Although construction periods would not overlap, Leidy Southeast Expansion will produce stationary source emissions; impact from upgrades would be reflected in data from the proposed ambient air monitoring program for the Atlantic Sunrise Project

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
COMPRESSOR STATION 517										
Other Actions										
Other Energy Facilities										
	Distribution Lines at Compressor Station 517	Columbia, PA	Approximately 1000 feet of distribution line	Planning Stage/ No dates provided	No route determined	n/a	n/a	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Air permit not required	No permanent stationary emission, minimal overlap of construction periods
	Transco Leidy Southeast Expansion (CP13-551-000)	Luzerne, Monroe, Lycoming, and Columbia, PA; Somerset, Hunterdon, and Mercer, NJ; Howard, MD; Cleveland, NC; and various VA counties	Project includes the addition of a 30,000-hp compressor unit and replacement of one 12,600-hp compressor unit with a new 16,000-hp compressor in Columbia County	Construction completed in 2015	0.0	Upper Susquehanna	Northeast Pennsylvania –Upper Delaware Valley; Central Pennsylvania Intrastate	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Station 517 (Columbia) major facility plan approval 19-00007A issued 9/5/2014	Although construction periods would not overlap, Leidy Southeast Expansion will produce stationary source emissions; impact of emissions from compressor station upgrades would be reflected in data from Transco's proposed ambient air monitoring program for the Atlantic Sunrise Project

APPENDIX Q (cont'd)

Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Effects with the Atlantic Sunrise Project [a]

Facility/ Type of Project	Project (Company Name as appropriate)	Location (County, Commonwealth, or State)	Description	Status/ Estimated Construction Date	Approximate Closest Distance (miles) (Direction to Project) [b]	Watershed	Air Quality Control Region (AQCR)	Resources Potentially Cumula-tively Affected [a,c]	Air Permits	Potential for Air Cumulative Impacts
COMPRESSOR STATION 190										
Other Actions										
Other Energy Facilities										
	Distribution Electrical Service at Compressor Station 190	Howard, MD	Approximately 700 feet of buried line	Planning Stage/ No dates provided	No route determined	n/a	n/a	G/S, GW, SW, WT, VG, WD, T, L, VI, C, A, N	Air permit not required	No permanent stationary emission, minimal overlap of construction periods

[a] This table lists the projects that have the most potential to contribute to the cumulative impacts within the vicinity of the proposed Atlantic Sunrise Project; it is not intended to provide an all-inclusive listing of projects in the region.

G/S = Geology and Soils
GW = Groundwater
SW = Surface Water
WT = Wetlands
VG = Vegetation
WD = Wildlife
C = Cultural
T = Traffic
L = Land Use
VI = Visual
A = Air
N = Noise

[b] Distance indicates the shortest distance between the project and the nearest Atlantic Sunrise facility. 0.0 indicates that the project either intersects or terminates somewhere along the Atlantic Sunrise Project centerline.

[c] Cumulative impacts are likely negligible either because there is a substantial gap in time between the construction of the listed project and the anticipated Atlantic Sunrise Project schedule and/or because of the substantial distance between the listed project and the Atlantic Sunrise Project.

[d] For more information on these facilities refer to Appendix I

Key: NTP = Notice to Proceed
PADEP = Pennsylvania Department of Environmental Protection
SR = State Route