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Admitted in: MA, ME, NH

February 28, 2019

James R. Beyer
Maine Dept. of Environmental Protection
106 Hogan Road, Suite 6
Bangor, ME 04401

Bill Hinkel
Land Use Planning Commission
22 State House Station
Augusta, ME 04333-0022

RE: NECEC – Pre-Filed Direct Testimony

Dear Jim and Bill:

Enclosed is CMP's Pre-filed Direct Testimony. Pursuant to the Third Procedural Orders, we are sending, via overnight delivery, the following:

- Original and 4 copies of CMP's Pre-Filed Direct Testimony for the DEP;
- Original and 9 copies of CMP's Pre-Filed Direct Testimony for LUPC.

Thank you.

Sincerely,

Matthew D. Manahan

Enclosure
cc: Service Lists (via email)

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)
	)
CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
SITE LAW CERTIFICATION SLC-9	)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,	)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,	)
Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY
of

CENTRAL MAINE POWER COMPANY

FEBRUARY 28, 2019

EXHIBIT LIST FOR PRE-FILED DIRECT TESTIMONY
OF CENTRAL MAINE POWER COMPANY

TAB

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
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West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF
THORN DICKINSON

Regarding

- Project Overview

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

I am Vice President - Business Development for Avangrid Networks. In this role I am responsible for creating and leading Avangrid's business development and growth initiatives. I have worked in the utility industry for thirty years in various roles including transmission and

distribution operations, resource planning, rates and regulatory, strategic planning, investor relations and risk management. I have worked on integrated resource planning, clean air compliance, industry restructuring, and mergers and acquisitions.

My CV is attached hereto as Exhibit CMP-1-A.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

The purpose of my testimony is to provide an overview to the Maine Department of Environmental Protection (DEP) and to the Maine Land Use Planning Commission (LUPC) of the New England Clean Energy Connect Project (NECEC Project, NECEC, or Project), which will be developed, constructed, and operated by Central Maine Power Company (CMP).

Attached hereto as Exhibit CMP-1-B is a Project Overview PowerPoint.

III. Discussion (Relevant to DEP and LUPC Review)

a. Project Description (Relevant to DEP and LUPC Review)

The NECEC Project is a high voltage direct current (HVDC) transmission line and related facilities which will be capable of delivering up to 1,200 megawatts of renewably generated (i.e., reservoir hydropower) electricity from the Canadian border to the ISO-New England (ISO-NE) electric grid. CMP proposed the Project in response to the March 31, 2017 Request for Proposals for Long-Term Contracts for Clean Energy Projects (RFP) issued by the Massachusetts Department of Energy Resources and the Electric Distribution Companies of Massachusetts. Since CMP filed its initial applications with the DEP and LUPC in September 2017, the Project has been selected as the winning bidder in the RFP solicitation and the associated NECEC long-term agreements have been signed and submitted for regulatory approval.

CMP is the developer of the Maine transmission portion of the Project, which is comprised of the Project components described in the Direct Testimony of CMP witness Gerry Mirabile. A map depicting the Project in relation to CMP's existing system is attached hereto as Exhibit CMP-1-C. The majority of the Project will be constructed adjacent to existing transmission lines in existing transmission corridors owned by CMP, with the remainder constructed on commercial forestland owned or controlled by CMP. A Project Overview Map is attached hereto as Exhibit CMP-1-D. A Project Segment Overview Map is attached hereto as Exhibit CMP-1-E. The Project is on schedule to achieve its December 13, 2022 commercial operation date.

b. Project Purpose and Need (Relevant to DEP and LUPC Review)

The purpose of the NECEC Project is to deliver up to 1,200 MW of renewably-generated electricity from Québec, Canada to the ISO-NE electric grid, also known as the New England Control Area. The Project is routed on private land that CMP already owns or controls, including existing transmission corridors. This route is shorter than other routes for deliveries from Québec to New England and represents the lowest-cost path for the delivery of Clean Energy Generation[1] from Québec.

The NECEC Project responds to Massachusetts' RFP seeking 9,450,000 MWh of Clean Energy Generation to be procured through cost-effective long-term contracts. The Project's selection under the RFP demonstrates that Massachusetts has concluded that the NECEC will meet this need. Furthermore, the clean energy delivered by the Project will provide firm, guaranteed, and tracked year-round energy deliveries that will reduce winter electricity price

[1] Under the terms of the RFP, "Clean Energy Generation" means either: (i) firm service hydroelectric generation from hydroelectric generation alone; (ii) new Massachusetts Class I RPS eligible resources that are firmed up with firm service hydroelectric generation; or (iii) new Massachusetts Class I RPS eligible resources.

spikes, improve system reliability and resiliency, and provide renewable energy certificates [redacted]

IV. Conclusion (Relevant to DEP and LUPC Review)

The NECEC Project was developed to ensure that it will not adversely impact the scenic beauty and unsurpassed environmental value of the area the Project crosses. It serves a crucial purpose and need.

Exhibits:
CMP-1-A: Thorn Dickinson CV
CMP-1-B: Project Overview PowerPoint
CMP-1-C: CMP System Map (Figure 1 from PUC Application)
CMP-1-D: Project Overview Map
CMP-1-E: Project Segment Overview Map

Dated: 2/27/19

Respectfully submitted,

Thorn Dickinson

STATE OF MAINE
Cumberland, ss.

The above-named Thorn Dickinson did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 2/27/19

Shari Lemar Irish
Notary Public
Name:
My Commission Expires:

SHARI LEMAR IRISH
Notary Public - Maine
My Commission Expires
September 25, 2021

Thorn C. Dickinson

Work History ***Avangrid Networks (f/k/a Iberdrola USA),*** *Portland, ME*

2011-present **Vice President – Business Development**

- Responsible for creating and supporting business development and growth initiatives for Iberdrola USA. Growth initiatives include both green field development and mergers and acquisitions.
- M&A transactions included Connecticut Natural Gas, Southern Connecticut Gas, Berkshire Gas, Hartford Steam, NYSEG Solutions, Energetix, and New Hampshire Gas.

2002-2011 **Director Risk Management**

- Assess and address the causes and effects of uncertainty and risk throughout the organization.
- Apply a variety of financial and statistical analysis and modeling approaches to accurately assess and make decisions about risk.
- Acquire adequate and cost-effective risk financing for property, casualty, professional and environmental exposures for the company and its subsidiaries and oversee the claims management process.
- Identify the company's critical processes and ensure that there are tested contingency plans in place to restore those processes in case of a disaster.

1997-2002 **Manager – Investor Relations**

- Effectively communicate corporate strategy, financial results and expected performance to the investment community.
- Provide management information on financial markets, investor perspectives and peer performance.
- Develop, coordinate and present information to the investment community.

1997-2003 **Manager of Rates and Revenue Requirements**

- Responsible for state revenue requirement issues.
- Responsible for rate design development.

New York State Electric & Gas Corp., *Binghamton, NY*

1994-1997 **Coordinator – Cost Support & Pricing**

- Responsible for cost studies that support pricing strategies, profitability analysis, and regulatory compliance.
- Responsible for the testimony related to cost analysis in state and federal proceedings.
- Led a cross-functional team charged with the development and application of models for the purposes of evaluating the risks and opportunities of a restructured competitive environment.

1991-1994 **Staff Engineer – Planning & Procurement**

- Performed financial analysis on supply and demand resources. One example of this analysis includes the analysis of how the corporation should comply with the Clean Air Act.
- Negotiated power purchase contracts with Non-Utility Generation. Kept these projects under control and moving forward from the initial contact with the developer through the contractual, engineering, construction, testing, commercial operation, and closeout phases of the project.

1988-1991 **Field Engineer**

- Managed a group responsible for the construction, operation, and maintenance of power delivery systems.
- Developed construction schedules, budgets, and determined manpower requirements for capital projects.
- Responded to customer concerns regarding voltage problems, system reliability, and equipment failure.
- Met with customers, other utilities, state, and county officials to coordinate work and to obtain permit approvals and easements.

Education

B.S. in Electrical Engineering
Union College, Schenectady, NY

Master in Business Administration
Syracuse University, Syracuse, NY

NEW ENGLAND
CLEAN ENERGY
CONNECT

New England Clean Energy Connect Project Overview

Thorn Dickinson
Exhibit CMP-1-B

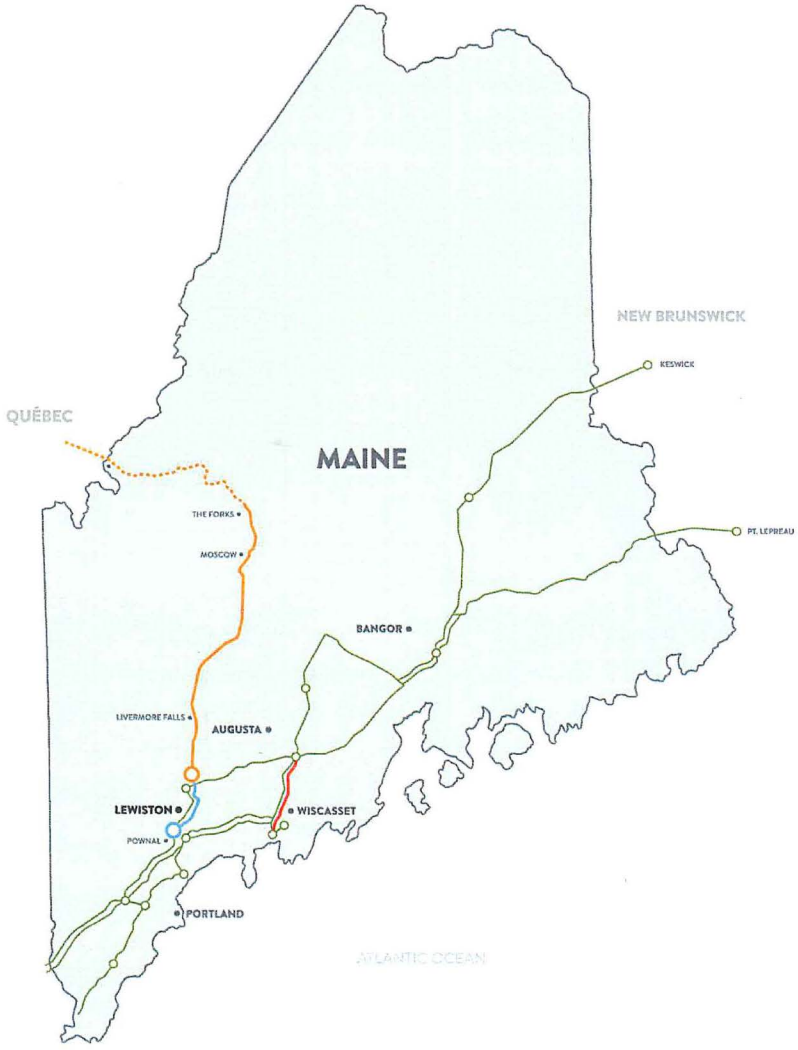
CMP-1-B

Project Purpose and Need

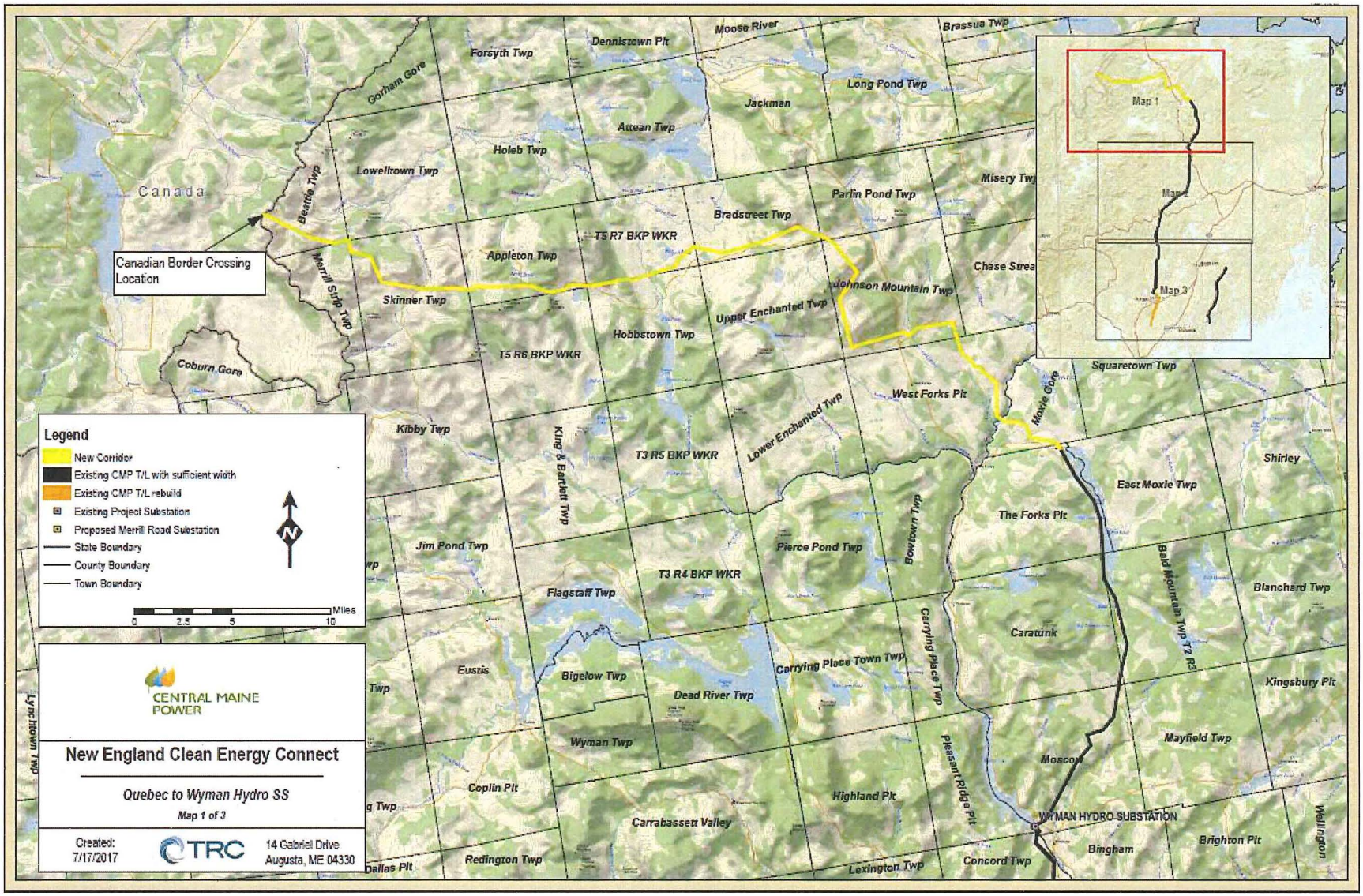
- High voltage direct current (HVDC) transmission line and related facilities
- Delivering 1,200 megawatts of renewably generated electricity from Québec to the ISO-NE electric grid
- Proposed in response to the March 31, 2017 Request for Proposals (RFP) for Long-Term Contracts for Clean Energy Projects issued by the Massachusetts Department of Energy Resources and the Electric Distribution Companies of Massachusetts
- [redacted]

Project Overview

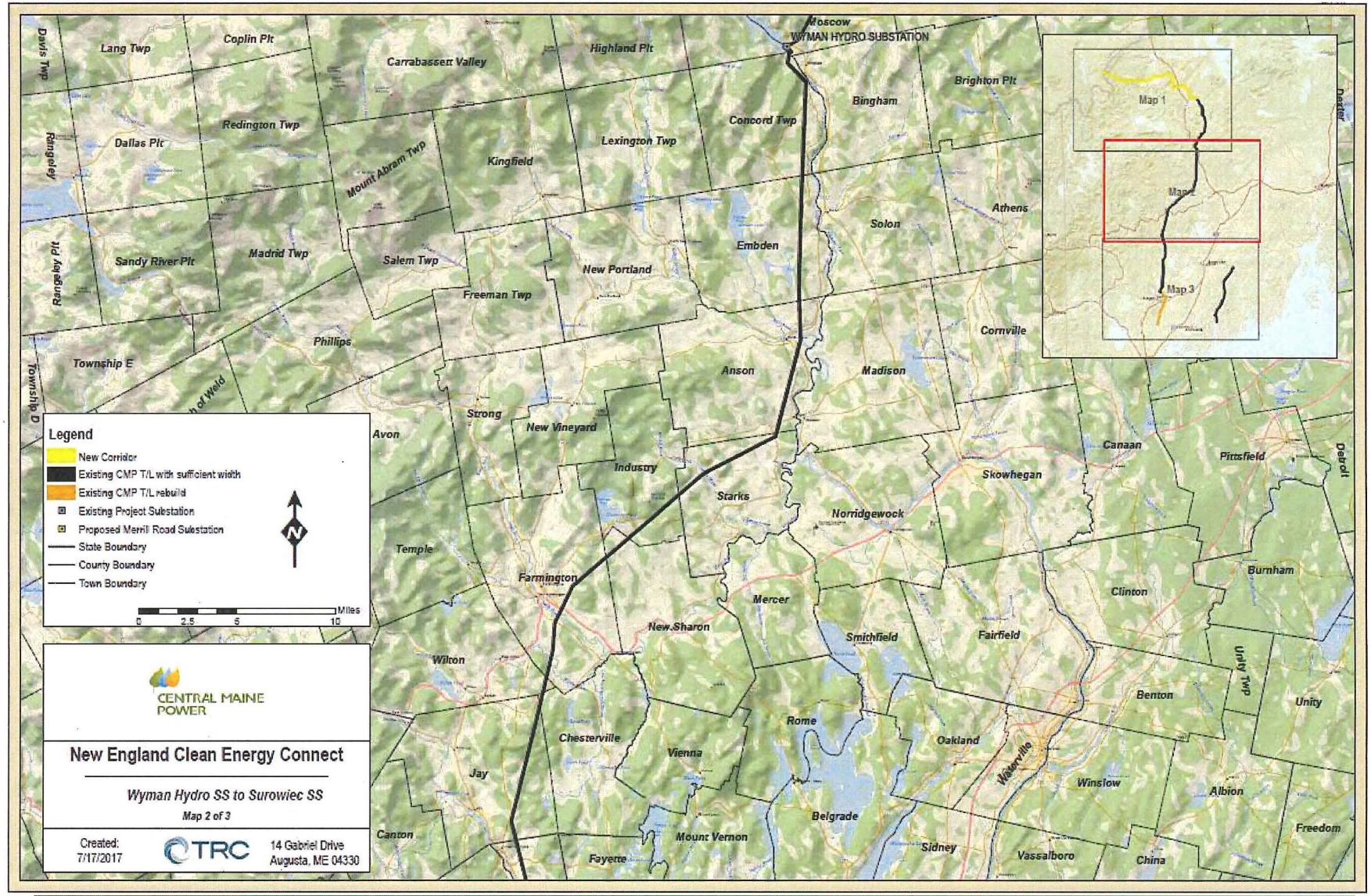
- 193 miles of transmission line corridor from Québec to Lewiston and from Windsor to Wiscasset
- Substation Upgrades: Cumberland, Lewiston, Pownal, Windsor, Wiscasset
- $950 million development
- Full control/ownership of route
- 139.5 miles of the route is within existing corridors
- Fully operational by end of 2022



Project Overview



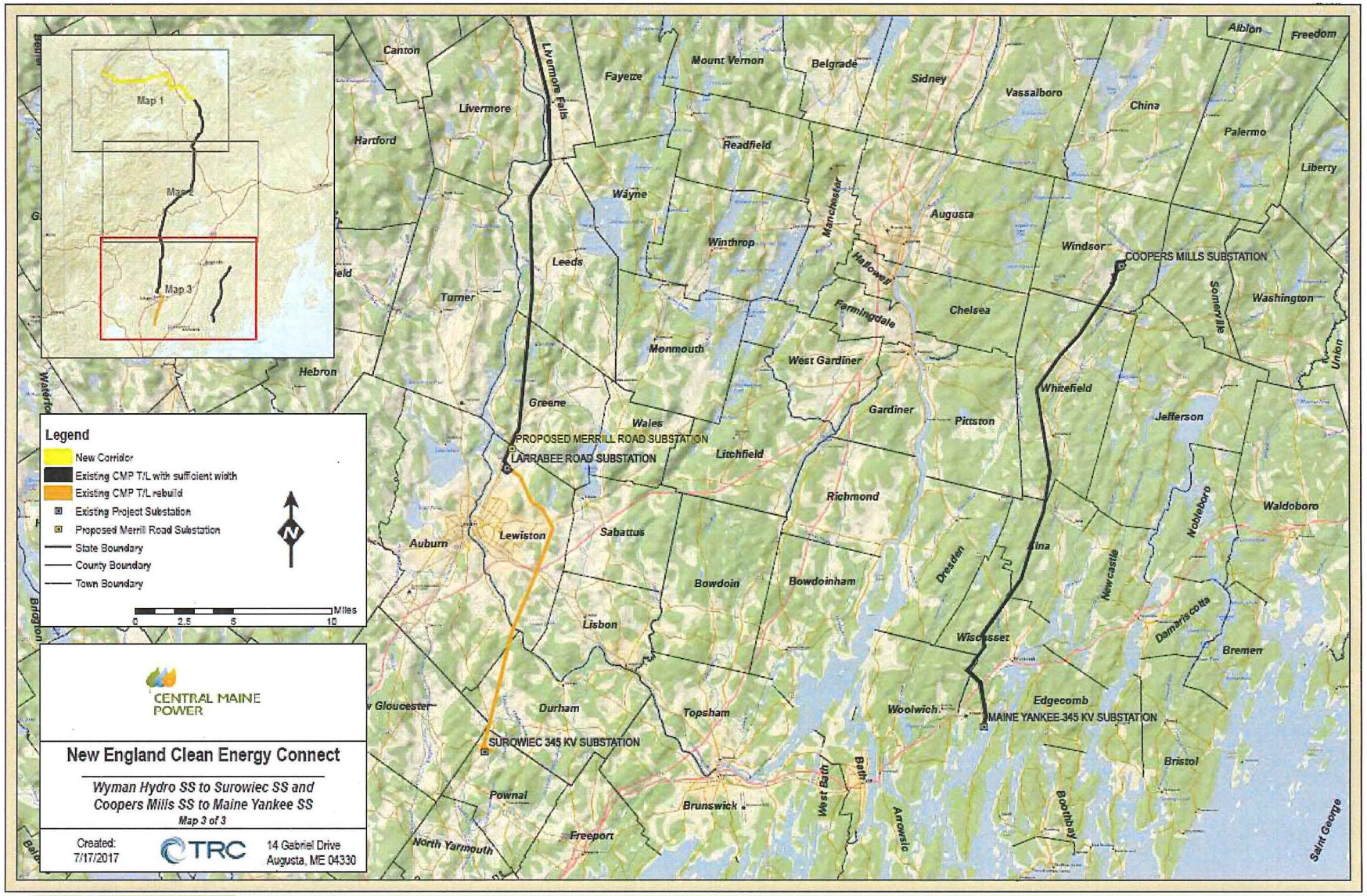
Project Overview



NECEC

necleanenergyconnect.com

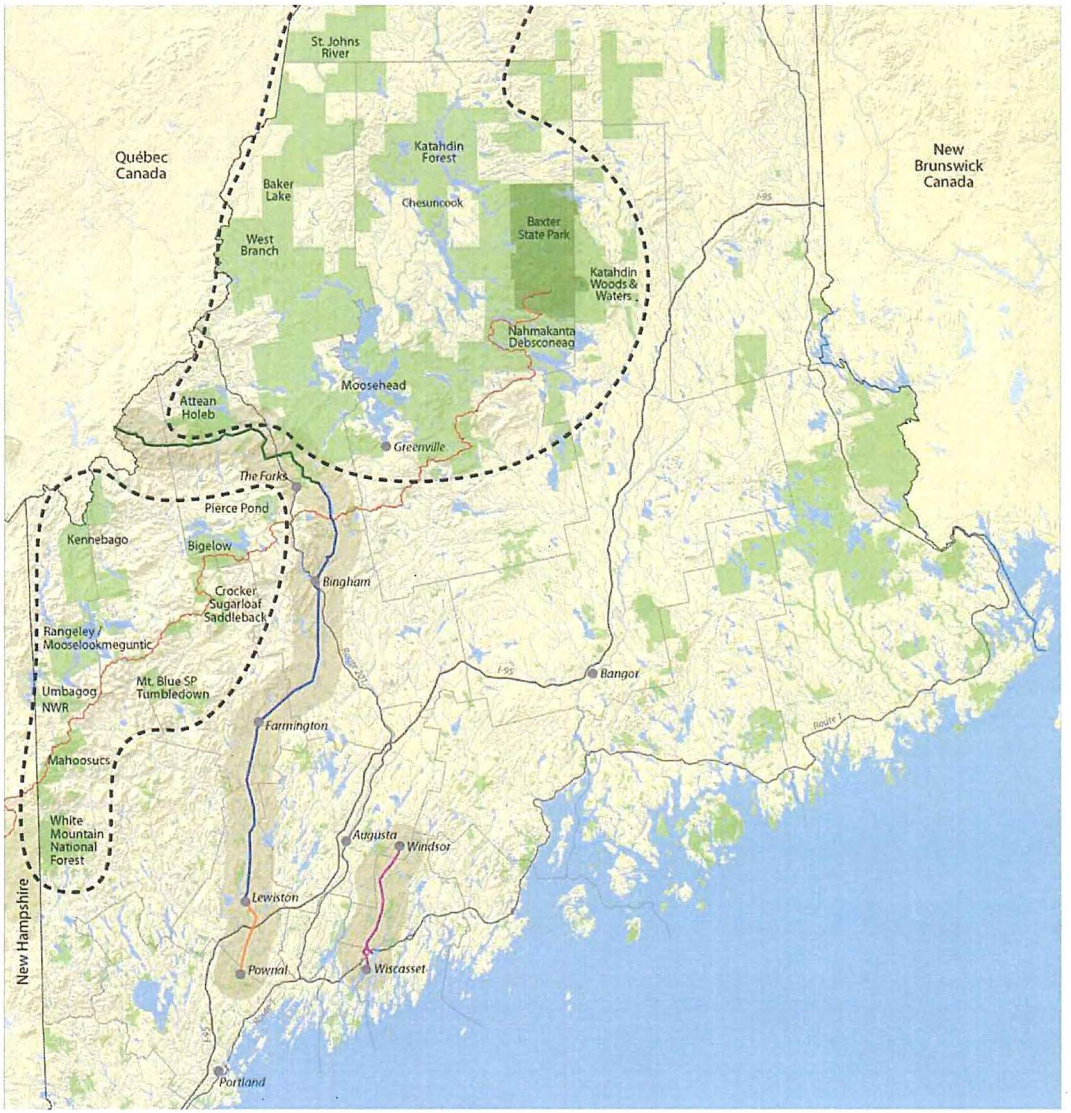
Project Overview



NECEC

necleanenergyconnect.com

Siting the NECEC



Minimize impact to the environment:

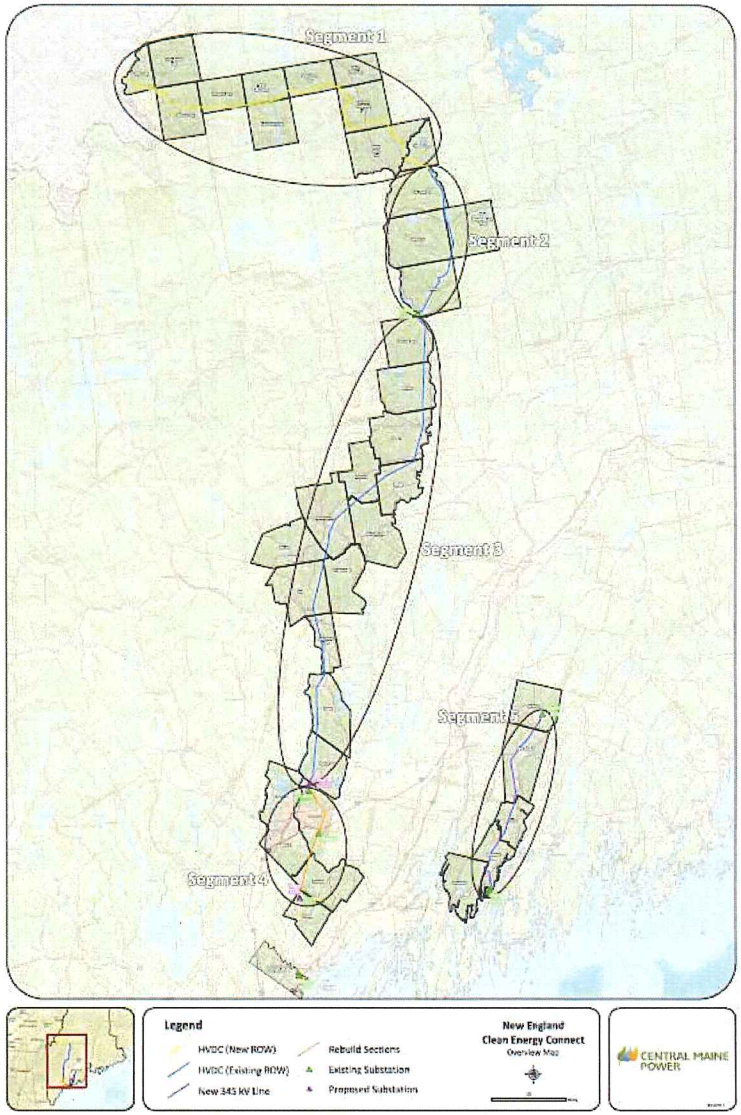
- **72%** of route in existing corridor
- **28%** in new corridor through privately-owned working forest
- 0.01% wetlands displaced
  (0.15 acres out of 2,209 acres)

Leverage existing substations:

- Larrabee Road, Lewiston
- Coopers Mills Road, Windsor
- Maine Yankee, Wiscasset

NECEC Permits and Timeline

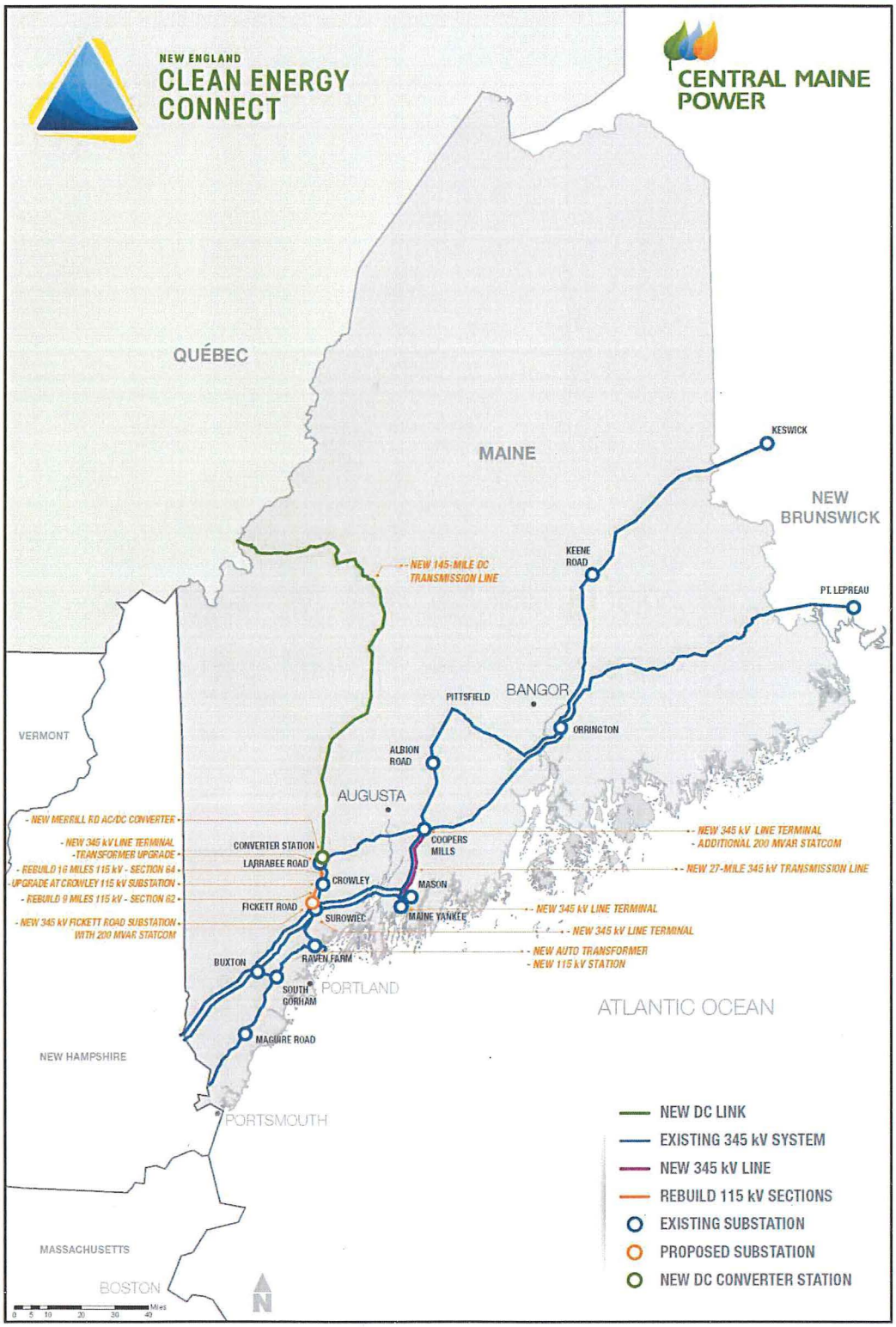
- State Approvals
  - Maine PUC CPCN
  - Maine DEP Site Law/NRPA Permit
  - Maine LUPC Certification
  - Massachusetts DPU Approvals
- Regional Approvals
  - ISO-NE Approval
- Federal Approvals
  - USACE Permit
  - US DOE Presidential Permit
  - FERC Approval
- Municipal Approvals
- **Expected Project Completion Date: December 31, 2022**

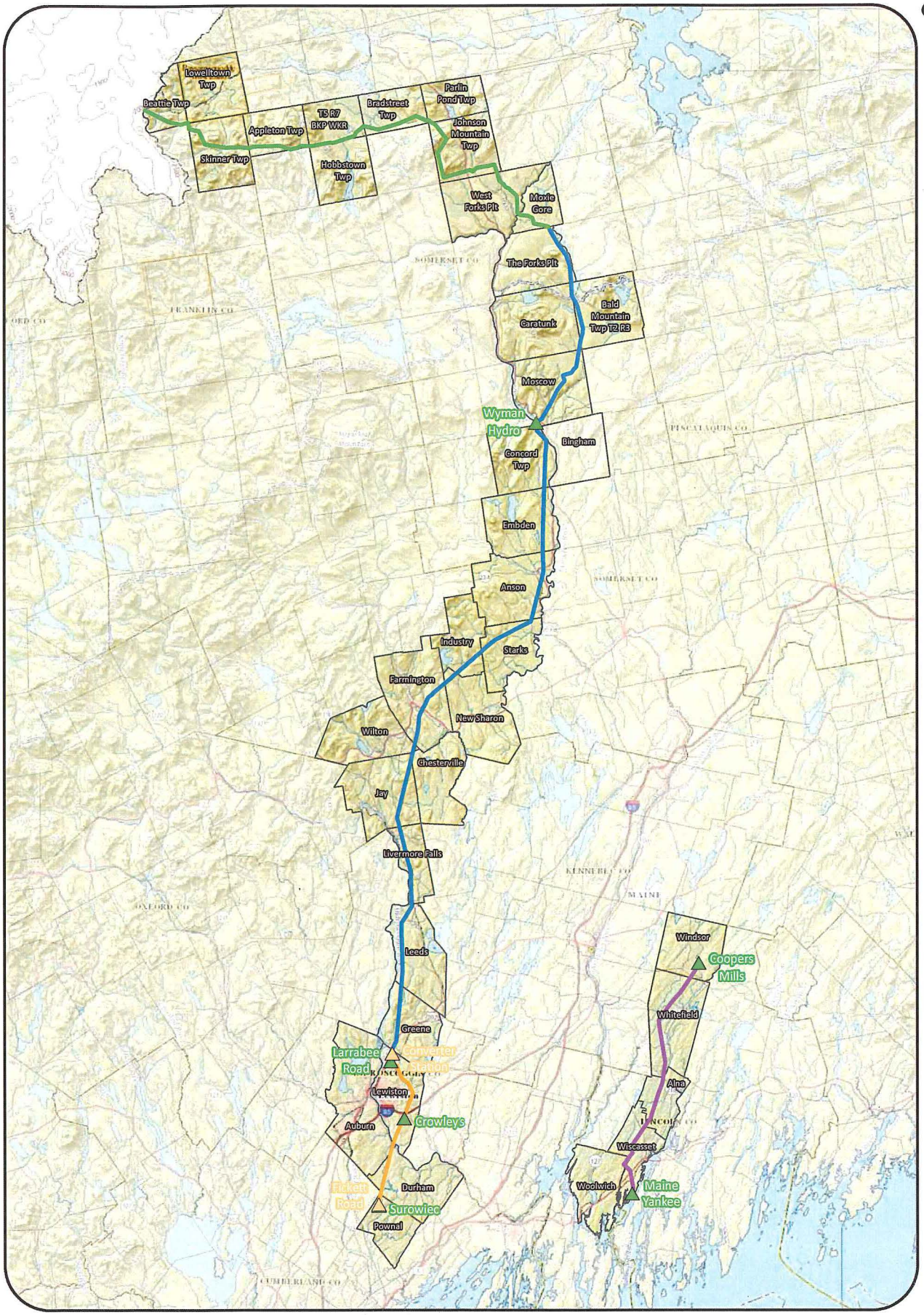


Questions?

1

Figure 1 - Map of the NECEC





Legend

- Direct Current Transmission Line (new ROW)
- Direct Current Transmission Line (existing ROW)
- New 345 kV Line
- Rebuild Sections
- Existing Substation
- Proposed Substation

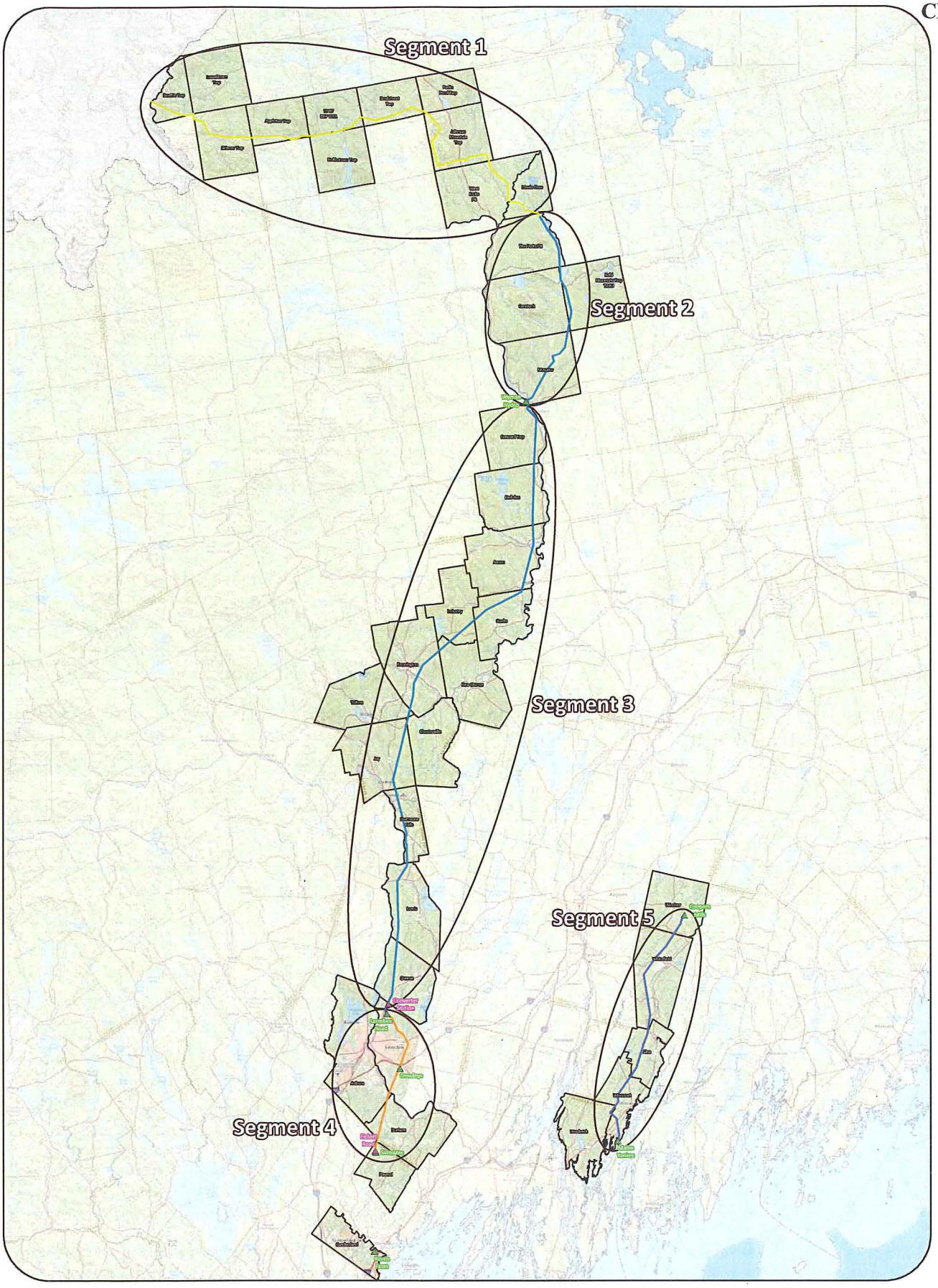
New England Clean Energy Connect

Overview Map

10 Miles

NEW ENGLAND CLEAN ENERGY CONNECT

Feb, 2018



Legend

- HVDC (New ROW)
- HVDC (Existing ROW)
- New 345 kV Line
- Rebuild Sections
- Existing Substation
- Proposed Substation

New England Clean Energy Connect
Overview Map

10 Miles

CENTRAL MAINE POWER

8/15/2017

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)
CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
SITE LAW CERTIFICATION SLC-9	)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,	)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,	)
Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF GERRY J. MIRABILE

Regarding

- Project Overview
- Issue 1: Scenic Character and Existing Uses
- Issue 2: Wildlife Habitat and Fisheries
- Issue 3: Alternatives Analysis
- Issue 4: Compensation and Mitigation

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Gerry J. Mirabile. I am employed by Central Maine Power Company (CMP) as Manager – NECEC Permitting. I am responsible for the accurate identification and procurement of all necessary federal, state, and municipal environmental and land use permits, licenses, and approvals for the New England Clean Energy Connect (NECEC) Project.

I have been employed at CMP since 1989. Since approximately 2000 I have been solely responsible for managing permitting of CMP capital projects (such as transmission lines, substations, service centers, and submerged cables). I have also been responsible for numerous environmental compliance programs at CMP including Clean Air Act compliance, oil and chemical release reporting, federal Spill Prevention, Control and Countermeasure (or SPCC) compliance, greenhouse gas emissions reporting, environmental best practices and procedures development, and training.

Prior to my employment at CMP I worked for four years at the Maine Department of Environmental Protection (DEP), administering land use and wastewater discharge statutes and regulations, evaluating the environmental impacts of permit proposals, drafting DEP orders, and educating applicants and the public on Maine environmental standards and best practices.

I earned a Bachelor of Science in Ecology degree from Johnson State College in Vermont in 1984, and was awarded the Award for Excellence in Ecology. I earned a Master of Science in Business degree from Husson College in 2000, and a Master of Business Administration degree from Husson University in 2013. My curriculum vitae is attached hereto as Exhibit CMP-2-A.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

The purpose and scope of my testimony are as follows: to provide an overview of the NECEC Project; to describe its impact on scenic character and existing uses; to describe its

impact on wildlife habitat and fisheries; to describe the process and criteria by which alternatives to the NECEC Project and route were evaluated; and to describe the basis for the NECEC compensation and mitigation proposals.

III. Summary of Testimony (Relevant to DEP and LUPC Review)

I am providing testimony on the following topics:

- Project overview: description of the NECEC Project scope and overview of Project components.
- Scenic Character and Existing Uses: overview of Project provisions for minimizing visual impacts to surrounding areas including buffering.
- Wildlife Habitat and Fisheries: description of Project impacts on certain fisheries and wildlife habitat, certain endangered species, coldwater fisheries, and habitat fragmentation.
- Alternatives Analysis: description of the alternatives to the proposed NECEC Project route, how alternative routes were evaluated, and why the preferred route was selected.
- Compensation and Mitigation: description of measures to avoid, minimize, mitigate, and compensate for unavoidable NECEC Project impacts.

IV. Discussion

a. Project Overview

i. Project Description (Relevant to DEP and LUPC Review)

The NECEC Project is a high voltage direct current (HVDC) transmission line and related facilities that will be capable of delivering up to 1,200 megawatts of renewably generated electricity from the Canadian border to the ISO-NE electric grid. The Project was proposed in response to the Request for Proposals for Long-Term Contracts for Clean Energy Projects (RFP)

dated March 31, 2017 and issued by the Massachusetts Department of Energy Resources and the Electric Distribution Companies of Massachusetts.

NECEC Project components include the following:

Project Segments 1, 2, & 3

- 145.3 miles of new +/-320kV HVDC transmission line from the Canadian border to a new DC to AC converter substation north of Merrill Road in Lewiston, including crossing beneath the upper Kennebec River via horizontal directional drilling;
- 1.2 miles of new 345kV transmission line from the new Merrill Road Converter Station to the existing Larrabee Road Substation in Lewiston;
- Partial rebuild of 0.8 mile of 34.5kV transmission line Section 72 outside of the Larrabee Road Substation to make room in the corridor for the above 1.2-mile 345kV transmission line;
- New +/- 320kV DC to 345kV AC 1,200MW converter station north of Merrill Road in Lewiston; and
- Addition of 345kV transmission line terminal at the existing Larrabee Road Substation in Lewiston.

Project Segment 4

- New 345kV +/-200MVAR STATCOM (a voltage support device) at new Fickett Road Substation in Pownal;
- New 0.3-mile 345kV AC transmission line from the existing Surowiec Substation in Pownal to the new Fickett Road Substation in Pownal;
- Rebuild of 16.1 miles of 115kV Section 64 AC transmission line from the existing Larrabee Road Substation in Lewiston to the existing Surowiec Substation in Pownal; and
- Rebuild of 9.3 miles of 115kV Section 62 AC transmission line from the existing Crowley Road Substation in Lewiston to the existing Surowiec Substation in Pownal.

Segment 5

- New 26.5-mile 345kV AC transmission line from the existing Coopers Mills Substation in Windsor to the existing Maine Yankee Substation in Wiscasset;
- Partial rebuild of 0.3 mile of 345kV Section 3025 transmission line between Larrabee Road Substation in Lewiston and Coopers Mills Substation in Windsor;
- Partial rebuild of 0.8 mile of 345kV Section 392 transmission line between Maine Yankee Substation in Wiscasset and Coopers Mills Substation in Windsor; and
- Partial rebuild of 0.8 mile each of 115kV Sections 60 and 88 outside of Coopers Mills Substation in Windsor.

Other Components

- Additional equipment will be installed, and additional upgrades will be made, at Larrabee Road Substation in Lewiston, Crowley's Substation in Lewiston, Surowiec Substation in Pownal, Raven Farm Substation in Cumberland, Coopers Mills Substation in Windsor, and Maine Yankee Substation in Wiscasset.

Exhibit CMP-2-B is an Overview Map, which divides the Project into the above-referenced segments. Exhibit CMP-2-C is an Overview Map, which designates which portions of the Project are in LUPC territory. Exhibit CMP-2-D is a Project Recreation Areas Map, which shows the siting of the Project to avoid natural and recreational resources and to locate as much of the route as possible within existing utility corridors.

ii. Project Purpose and Need (Relevant to DEP and LUPC Review)

The purpose of the NECEC Project is to deliver renewable energy from Canada to New England, which has a continuing need for such power. The Project will deliver up to 1,200 MW of renewably-generated electricity from Québec, Canada to the ISO-NE electric grid, also known as the New England Control Area. This clean energy will provide firm, guaranteed, and tracked year-round energy deliveries that will reduce winter electricity price spikes, reduce the wholesale cost of electricity for the benefit of retail customers across the region, improve system reliability and resiliency, and provide renewable energy certificates and other environmental attributes to help Massachusetts meet its renewable energy goals.

b. Issue 1 (Scenic Character and Existing Uses)

i. Buffering for Visual Impacts (Relevant to DEP and LUPC Review)

CMP sited the NECEC Project to maximize the use of natural buffers such as topography and intervening vegetation, to minimize the visibility of the Project. Examples of this include:

- Proposing to cross beneath the upper Kennebec River, an Outstanding River Segment identified in Maine statute, utilizing horizontal directional drilling (HDD) rather than an overhead crossing, to eliminate visible conductors and structures from the Kennebec River and to maintain this river segment's scenic and recreational values;
- Orienting the transmission line perpendicular to Route 201 where the corridor crosses this road, a Scenic Byway, so that the transmission line corridor is visible for the minimum amount of time to passing motorists;
- Locating the transmission line corridor along the west side of Johnson Mountain and along the shoulder of Coburn Mountain to reduce its visibility from Route 201; and

- At the request of the LUPC, proposing to shorten a structure close to Beattie Pond, a Management Class 6 remote pond in Beattie Township, to minimize its visual impact and visibility to recreational users of this pond.

CMP proposed to create and maintain buffer strips to minimize Project visual impacts, protect and maintain water quality, and facilitate movement of wildlife within and between important habitat. Examples of this include:

- Roadside buffer plantings of compatible species have been proposed in the following areas, to reduce its visibility in these areas:
    - Along both sides of Troutdale Road where the Appalachian Trail (AT) is in close proximity to the Project; and
    - Where the NECEC transmission line corridor crosses Route 201 in Moscow and in Johnson Mountain Township.
- Tapering of vegetation along the edges of transmission line corridor segments visible from the summit of Coburn Mountain in Upper Enchanted Township and from Rock Pond looking toward Three Slide Mountain in T5R6 BKP WKR and Appleton Township, to minimize the visual impact of the Project from these viewpoints.
- Proposing riparian (stream) buffers of 100 feet adjacent to all perennial streams within Project Segment 1; adjacent to all coldwater fishery streams crossed by the Project; adjacent to all streams containing threatened or endangered species; and adjacent to all four Outstanding River Segments crossed aerially by the Project (Kennebec River below Wyman Dam, Carrabassett River, Sandy River, West Branch of the Sheepscot River); within these buffers stringent vegetation clearing and management restrictions, as well as herbicide application restrictions, apply.
- At the request of the DEP and the Maine Department of Inland Fisheries and Wildlife (DIFW), expanded riparian buffers of 75 feet for all other streams.
- Within the upper Kennebec River biological deer wintering area, establish and maintain 10 deer winter travel corridors totaling approximately 1.1 linear miles. In these corridors, vegetation will be maintained either at full mature height (two segments for a distance of 2,610 feet) or at heights up to 35 feet (8 segments for a distance of 3,279 feet).

CMP buffered the NECEC Project to minimize adverse visual impacts to the maximum extent practicable by a number of means, including:

- Siting the NECEC Project route specifically to avoid proximity to and visibility from recreational areas such as state parks, wildlife preserves, and other conserved lands including: White Mountain National Forest; Mahoosuc Public Preserve; Umbagog National Wildlife Refuge; Richardson Lakes; Rangeley Lake; Kennebago Lake; Saddleback Mountain; Sugarloaf Mountain; Appalachian Trail; Bigelow Preserve;

Flagstaff Lake; Spencer Lake; Kennebec River Gorge; Moosehead Lake; and Baxter State Park/Mount Katahdin.

- To the extent possible while avoiding the above sensitive areas, choosing the straightest route between Beattie Township (where the Hydro Quebec Transenergie transmission line meets the U.S./Canada border) to the existing CMP transmission line Section 222 corridor, thus minimizing and limiting the length of new transmission line corridor to 53.5 miles.
- Co-locating more than 70% of the proposed NECEC transmission line with existing transmission lines within existing corridors, avoiding or minimizing new visual impacts that can occur with new corridors, and taking advantage of existing compatible land uses.
- CMP's proposal, in October 2018, to avoid an aerial crossing of the upper Kennebec River, and instead to cross beneath the river using HDD, preventing the stringing of conductors, shield wires, and associated aviation markers across a segment of the Kennebec River that is an Outstanding River Segment. As an Outstanding River Segment, this stretch of the Kennebec River is recognized for its "unparalleled natural and recreational values" and for providing "irreplaceable social and economic benefits to the people in their existing state." The upper Kennebec is highly valued by rafters, other boaters, and other recreationists; CMP's HDD proposal protects these values and uses.
- Use of self-weathering steel structures in most locations to support transmission line conductors (wires). This material's brown/oxidized color and dull finish are more alike visually to surrounding trees and vegetation than typical galvanized steel structures, and are therefore less obtrusive and more compatible with their natural surroundings.
- Structures proposed along the west side of Moxie Lake, to be co-located within an existing corridor adjacent to an existing transmission line, were reduced in height after their initial design to minimize their visibility.
- Maximizing the use of natural buffers such as topography and intervening vegetation, to minimize the visibility of the Project by, for example, avoiding ridgelines and siting the transmission corridor along side slopes and low points.

ii. Buffering Specific to the P-RR Subdistrict (Relevant to LUPC Review)

As noted earlier, at the request of the LUPC, CMP has proposed to reduce the height of a proposed transmission line structure close to Beattie Pond, a Management Class 6 remote pond in Beattie Township, to minimize its visual impact and visibility to recreational users of this pond. The transmission line in this area is within the LUPC Recreation Protection subdistrict (P-RR). This redesign, proposed in January 2019, utilizes existing, to be retained vegetation to

block and buffer visibility of this structure from Beattie Pond. Attached as Exhibit CMP-2-E is CMP's January 25, 2019 design modification proposal for this area, including photosimulations.

Regarding the upper Kennebec River P-RR, CMP modified its proposed aerial crossing of the Kennebec River in this area, and on October 19, 2018 proposed to cross beneath the Kennebec River using HDD. This proposal requires two termination stations (i.e., stations where the conductor transitions from aerial to underground), one on each side of the Kennebec River. Termination stations have been sited and designed to be buffered by existing vegetation and topography and therefore invisible to river users. HDD is consistent with the purpose of the P-RR subdistrict in that it buffers and protects this area from Project-related development, and conserves the primitive recreational experience by making both the transmission line and the termination stations invisible to river users. Exhibit CMP-2-F includes photosimulations of the proposed HDD termination stations and vicinity.

Regarding the area where the AT crosses the Project transmission line corridor in three locations, CMP has proposed planted vegetative buffers along the east and west side of Troutdale Road (co-located with the AT in this area) to minimize the Project's visual impact on the AT. These plantings buffer the Project transmission line from the adjacent Appalachian Trail.

iii. Issue 1 Conclusion (Relevant to DEP and LUPC Review)

CMP has made adequate provision for fitting the Project harmoniously into the existing natural environment and the development will not adversely affect scenic character in the municipality or in neighboring municipalities, and the activity will not unreasonably interfere with existing scenic and aesthetic uses. CMP has made adequate provision for buffer strips. The Project design takes into account the scenic character of the surrounding area, the Project has been located, designed, and landscaped to minimize its visual impact to the fullest extent

possible, the Project has been designed and landscaped to minimize its visual impact on the surrounding area, and the Project provides for the preservation of existing elements of the development site which contribute to the maintenance of scenic character.

Where the Project is located within the P-RR subdistrict, it will be sufficiently buffered from other uses and resources to meet the LUPC's special exception criteria.

c. Issue 2 (Wildlife Habitat and Fisheries)

i. Endangered Species – Roaring Brook Mayfly, Spring Salamanders (Relevant to DEP Review)

CMP coordinated closely with DIFW to identify streams containing the endangered Roaring Brook Mayfly and the species of special concern Northern Spring Salamander. Of these streams, DIFW prioritized those whose riparian zones were important to preserve in their natural (forested) condition, and those for which unavoidable impacts would be appropriately compensated by way of a fee.

As a result, CMP proposed, as part of its Compensation Plan, to contribute $470,000 to the Maine Endangered and Nongame Wildlife Fund. This fee was calculated using the DEP's in-lieu fee formula (not including wetland restoration and enhancement cost).

Also, CMP modified its original Project design to include a total of eight taller structures at Mountain Brook in Johnson Mountain Township and at Three Slide Mountain (adjacent to Gold Brook) in T5R6BKP WKR and Appleton Township to avoid and minimize impacts by allowing full height canopy to be retained within the 250-foot-wide conservation management areas of these water bodies. Accordingly, there will be no unreasonable disturbance or harm to this habitat. A photosimulations of the Project transmission line in the vicinity of Three Slide Mountain is attached as Exhibit CMP-2-G.

CMP's proposal includes the following measures specifically intended to protect wildlife and fisheries, including Roaring Brook Mayfly and Northern Spring Salamanders:

- Riparian (stream) buffers of 100 feet adjacent to all perennial streams within Project Segment 1; adjacent to all coldwater fishery streams crossed by the Project; adjacent to all streams containing threatened or endangered species; and adjacent to all four Outstanding River Segments crossed aerially by the Project. Within these buffers stringent vegetation clearing and management restrictions, as well as herbicide application restrictions, apply.
- At the request of the DEP and DIFW, expanded riparian buffers of 75 feet for all other streams.

Central Maine Power Company has also proposed to conduct instream work, if necessary and if approved by MDEP and USACE, only during the period from July 15 to September 15. In addition, CMP will utilize frozen ground conditions during initial vegetation clearing and project construction to the greatest extent practicable in order to reduce soil compaction, vegetation damage and the need for construction mats.

ii. Brook Trout Habitat (Relevant to DEP Review)

The NECEC Project crosses 223 rivers, streams, or brooks containing brook trout habitat. The most recognized species comprising coldwater fisheries are members of the family Salmonidae (trout and salmon). The most common coldwater species that occur in the Project area is the brook trout (Salvelinus fontinalis). While CMP does not agree that brook trout habitat is "significant wildlife habitat," as defined in 38 M.R.S. § 480-B(10), to minimize unavoidable impacts to brook trout habitat, CMP proposed widened riparian buffers of 100 feet for all coldwater fishery streams (as determined by DIFW), which include brook trout habitat. Within these buffers:

- Foliar herbicides will not be applied;
- Vehicle refueling or maintenance will not be done (unless on an existing paved road or if using secondary containment under the supervision of an environmental inspector);

- Stream crossings will be accomplished through the use of equipment spans with no in-stream disturbance;
- Initial tree clearing will be performed during frozen ground conditions whenever possible;
- Mechanized equipment will be allowed only if supported by construction matting (unless during frozen ground conditions);
- Travel lanes or reach-in techniques will be used to the greatest extent possible;
- Outside of the wire zone, non-capable species will be allowed to exceed 10 feet in height unless it is determined that they may encroach into the conductor safety zone prior to the next four-year maintenance cycle; and
- Site-specific erosion and sedimentation control plans will be developed and implemented for any structures located within these buffers.

These measures ensure that there will be no unreasonable disturbance or harm to this habitat.

In addition to the above measures, CMP proposed $200,000 to be used to replace missing, non-functional or improperly installed culverts. These replacements will be coordinated with DIFW and interested non-governmental entities to identify those culverts whose replacements will re-connect valuable brook trout habitat.

iii. Habitat Fragmentation (Relevant to DEP Review)

CMP sited the NECEC Project to minimize habitat fragmentation. CMP accomplished this by co-locating more than 70% of the new transmission line within or immediately adjacent to existing transmission line corridors, rather than creating a new corridor for the entire transmission line.

In designing the Project route, CMP first located the route from the United States/Canada border to the nearest existing transmission line right of way by the most direct and shortest (i.e., straightest) route. It then modified this route to avoid sensitive and protected areas such as water bodies, wetlands, scenic vistas, conserved areas, and vernal pools. This process resulted in a new transmission line corridor 53.5 miles long that provides for the protection of wildlife and

fisheries, and ensures that there will be no unreasonable disturbance or harm to habitat through unreasonable habitat fragmentation.

This segment of new corridor would be located within an area of Maine that is working forest, actively managed on a 30- to 50-year cycle of harvest, regrowth, and re-harvest. As aerial photographs depict, the Project route and surrounding areas are divided throughout by skidder trails, logging roads, and other breaks in the forest. Many of these existing breaks are not revegetated. Conversely, the Project corridor will revegetate with trees and shrubs generally up to 10 feet tall. The corridor will be maintained in this condition throughout the life of the Project.

While this conversion of vegetation from forested to scrub/shrub will favor some species over others, the transmission line corridor will not generally impede the movement or migration of wildlife or plant species. In contrast to this transmission corridor "soft development" (where habitat is converted but retained as functional), "hard development" (such as roads and homes) results in a total loss of habitat, and has the practical effect of fragmenting habitat as it isolates areas of habitat from surrounding areas of viable habitat.

In fact, "soft development" breaks in forested cover cause an "edge effect," which refers to the impact on plant and animal diversity where two or more different habitats meet. In many cases, edge effect results in greater species diversity, and greater population density of certain species, than that observed within individual habitats.

A wide variety of wildlife utilizes transmission line corridors. Mammals such as deer, moose, bear, fox, coyote, and rabbit, as well as snakes, birds, and amphibians, all utilize CMP corridors for reproduction, nesting, forage, cover from predators, hunting, and grazing. Animals

are attracted to transmission corridors due to the variety of food sources and habitats, and the diversity of other species.

The NECEC Project will cross 22 mapped (by the Maine Office of GIS) deer wintering areas (DWAs) of indeterminate value, totaling 44.3 acres, as well as 39 unmapped acres that are located within the upper Kennebec DWA. Construction and maintenance will not significantly affect the functional attributes of the DWAs intersected by the Project for the following reasons:

- Corridor construction will widen existing, non-forested transmission line corridors by an average of only approximately 75 feet. As such, the functional effects on these DWAs are expected to be indiscernible; after construction these DWAs are expected to function similar to the way they currently do.
- CMP maintains its transmission line corridors, and will maintain the Project, in a manner that encourages the growth of non-capable shrub species that provide important winter browse (woody plant buds and twigs) for over-wintering deer and in accordance with the CMP Post-Construction Vegetation Management Plan (Site Law Application Exhibit 10-2, revised January 2019) and CMP's Environmental Guidelines (Site Law Application Exhibit 14-1, revised June 2018).
- CMP avoided and minimized direct and temporary impacts through adjusting pole placement where possible and minimizing temporary access roads through these areas.
- CMP proposes to enhance wildlife habitat in the Project corridor adjacent to DWA by revegetating disturbed soils in upland areas with a wildlife seed mix promoted and developed by the Sportsman's Alliance of Maine ("SAM") and the Maine Seed Company.

Within the upper Kennebec River biological DWA, CMP will establish and maintain 10 deer winter travel corridors totaling approximately 1.1 linear miles. In these corridors, vegetation will be maintained either at full mature height (two segments for a distance of 2,610 feet) or at heights up to 35 feet (8 segments for a distance of 3,279 feet). This will ensure that deer have access to all areas within this DWA.

In summary, the NECEC Project will create a swath of permanently maintained scrub-shrub habitat in an area with a scarcity of such habitat, and characterized by a patchwork of clearcuts, and young and older tree (primarily softwood) regrowth. The inclusion of scrub-shrub

habitat within the larger landscape, while it will advantage some plant and animal species over others, will not adversely impact overall habitat and species diversity, and may improve it.

For these reasons, the Project will not unreasonably harm any significant wildlife habitat, or travel corridor, through habitat fragmentation. It will protect wildlife by maintaining suitable and sufficient habitat, and it will not disrupt or interfere with wildlife lifecycles. Further, a buffer strip of sufficient area will be established to provide wildlife with travel lanes between areas of available habitat. There will be no unreasonable disturbance to high and moderate value deer wintering areas or the habitat of any other species through habitat fragmentation. To the contrary, the siting of the Project ensures that it will not unreasonably degrade significant wildlife habitat, unreasonably disturb wildlife, or unreasonably affect the continued use of the site by the subject wildlife.

iv. Buffer Strips Around Cold Water Fisheries (Relevant to DEP Review)

The NECEC Project will be located in an area with rich and significant coldwater fisheries. In fact, DIFW noted that "viable brook trout habitat is not lacking in this region to the extent it might be elsewhere" [email from MDIFW's Bob Stratton to Burns & McDonnell's Mark Goodwin 7/31/2018, 8:04 AM]. While CMP does not agree that cold water fisheries are "significant wildlife habitat," as defined in 38 M.R.S. § 480-B(10), the Project proposal includes several measures to avoid, reduce, minimize, and compensate for unavoidable impacts to these important fisheries, including:

- Preserving 12.02 linear miles of coldwater fishery habitat, including 7.9 miles of habitat and frontage along the Dead River;
- Replacing missing, non-functional and improperly installed culverts – both within the Project footprint and outside of the Project – to reconnect isolated coldwater fishery habitat to downstream areas;
- Donating $180,000 to the Maine Endangered and Nongame Wildlife Fund, to pay for additional mitigation for unavoidable coldwater fishery impacts; and

- Performing stream crossings by heavy equipment during construction through the installation of equipment spans with no in-stream disturbances; streams will not be forded by heavy equipment.

Specific to buffers, CMP proposed 100-foot-wide riparian buffers on all coldwater fishery streams (as identified by DIFW), all four outstanding river segments crossed aerially by the Project (Kennebec River below Wyman Dam; Carrabassett River; Sandy River; and West Branch of the Sheepscot River), all waterbodies containing rare, threatened, or endangered species, and all perennial streams within the new (Segment 1) portion of the NECEC corridor. CMP has proposed an expanded buffer of 75 feet (rather than the standard 25 feet) for all other streams that do not meet the above criteria.

Within these riparian buffers, the following practices will apply:

- During construction, removal of capable species or dead or hazard trees within the appropriate stream buffer will typically be accomplished by hand-cutting. Mechanized harvesting equipment will be used only if supported by construction matting or during frozen conditions in a manner (i.e., use of travel lanes and reach-in techniques) that preserves non-capable vegetation less than 10 feet in height to the greatest extent possible.
- During maintenance, removal of capable species and dead or hazard trees will be accomplished by hand-cutting only. Mechanized harvesting equipment will not be used;
- Herbicides will not be stored, mixed, or transferred between containers unless done on a paved public access road;
- No refueling or maintenance of equipment, including chainsaws, will occur unless done on a paved public access road, or if secondary containment is used with oversight from an environmental inspector;
- The boundary of each stream buffer will have unique flagging installed to distinguish between the applicable 75-foot or 100-foot stream buffer prior to vegetation management activities;
- No slash will be left within 50 feet of the edge of any stream;
- Initial tree clearing will be performed during frozen ground conditions whenever practicable, and if not practicable, the recommendations of the environmental inspector will be followed regarding the appropriate techniques to minimize disturbance such as the use of selectively placed travel lanes within the stream buffer. CMP will not place any transmission line structures within the stream buffer, unless specifically authorized by the DEP and accompanied by a site specific erosion control plan; and

- Structures will not be placed within 25 feet of any stream regardless of its classification.

In addition, undisturbed buffers will be maintained on both the east and west sides of the upper Kennebec River in the vicinity of the HDD crossing. Specifically, an undisturbed buffer of 1,160 feet will be maintained along the west bank of the river in this area, and an undisturbed buffer of 1,450 feet will be maintained along the east bank of the river in this area. Within these two buffers, vegetation will not be maintained and CMP does not anticipate a need to cut these trees, and thus they will grow to their full height.

These expanded riparian buffers will protect water quality, minimizing ground disturbance and the potential for sediments or herbicides to enter coldwater fisheries (and other streams); minimize insolation and water temperature increases; and retain wildlife travel corridors within riparian zones.

CMP therefore has made adequate provision for buffer strips around cold water fisheries, given that water bodies within or adjacent to the Project will be adequately protected from sedimentation and surface runoff by buffer strips, and these buffer strips will provide adequate space for movement of wildlife between important habitats. The Project will not unreasonably harm cold water fisheries.

v. Issue 2 Conclusion (Relevant to DEP Review)

There will be no unreasonable harm to or adverse effect on the Roaring Brook Mayfly, Spring Salamanders, or Brook Trout habitat, and the Project will not unreasonably harm any significant wildlife habitat, or travel corridor, through habitat fragmentation. Alteration of such habitat and disturbance of such wildlife has been kept to the minimum amount necessary, and the Project does not unreasonably degrade such habitat, unreasonably disturb such wildlife, or

unreasonably affect the continued use of the site by such wildlife. CMP has made adequate provision for buffer strips around cold water fisheries.

d. Issue 3 (Alternatives Analysis)

i. Alternatives Analysis (Relevant to DEP and LUPC Review)

The NECEC Project was carefully and thoughtfully sited and designed to avoid, to the maximum extent practicable, protected and sensitive resources.

CMP began its alternatives analysis by considering the purpose of the NECEC Project, namely, to transmit 1,200 MW of renewably generated electricity from Canada to New England. CMP considered the no-action alternative. However, this alternative would not meet the Project purpose. For this reason, the no-action alternative was rejected.

In determining its Preferred Route alternative, CMP's primary consideration was identifying the closest existing transmission line corridor – Section 222 in The Forks Plantation – and evaluating the optimal route from the United States/Canada border to the Section 222 corridor. CMP's Project route and alternatives analysis purposely avoided siting the Project in state and national parks, recreation areas, areas with protected or sensitive natural or cultural resources, and areas with high scenic values and sensitivity.

The alternative routes considered included the HVDC line component, from the United States/Canada border to the interconnection point with the grid at Larrabee Road Substation (Segments 1, 2 and 3) and the associated substation upgrades. All other Project components (i.e., Segments 4 and 5) are being proposed in existing CMP corridors and, as such, the alternatives to these line sections would be to site these sections in new corridors, which would not meet the objective of the least environmental impact.

CMP evaluated alternate routes based on the following 11 criteria with respect to route selection. Each criterion is followed by an indication of its desirability for NECEC routing; data for criteria comparisons were derived primarily from publicly-available sources such as the Maine Office of Geographic Information Systems website:

- Conserved Lands [fewer are better]
- Undeveloped Right of Way [more is better]
- Clearing [less is better]
- Stream Crossings [fewer are better]
- Transmission Line Length [shorter is better]
- National Wetlands Inventory (NWI) Mapped Wetlands [fewer are better]
- Deer Wintering Areas [fewer are better]
- Inland Waterfowl and Wading Bird Habitat [fewer are better]
- Public Water Supplies [fewer are better]
- Significant Sand and Gravel Aquifers [fewer are better]
- Parcel Count Total [fewer are better]

CMP compared the Preferred Alternative route to two alternative routes, known as HVDC Alternative 1 and HVDC Alternative 2, based on the above parameters.

HVDC Alternative 1 was based on a route CMP had previously considered, and acquired option agreements on, for a different project. It would be located primarily in new corridor and partially in undeveloped width of existing corridors.

HVDC Alternative 2 would extend from the United States/Canada border to Lewiston, partially in new corridor and partially in undeveloped width of existing corridors. .Comparison of the Preferred Alternative to DC Alternative 1 demonstrated the following (from September 2017 NRPA application):

Table 2-1: Comparison of NECEC Preferred Alternative to Alternative 1

Point of Comparison	Unit	Preferred Alternative	Alternative 1
Conserved lands	no./acres	6 parcels/42 acres	8 parcels/275.3 acres
Undeveloped ROW	miles	53.5	93.1
Clearing	acres	1,823	1,934
Parcel count total	no.	7	120
Stream crossings	no.	115	88
Transmission line length	miles	146.5	119.3
NWI mapped wetlands	no./acres	263 wetlands/76.3 acres	238 wetlands/118.3 acres
Deer wintering areas	no./acres	8 DWAs/44.3 acres	8 DWAs/71.3 acres
Inland waterfowl and wading bird habitat	no./acres	12 IWWH/22.7 acres	9 IWWH/23.1 acres
Public water supplies within 500 feet	no.	1	1
Significant sand and gravel aquifers	no.	12	7

Comparison of the Preferred Alternative to DC Alternative 2 demonstrated the following (from September 2017 NRPA application):

Table 2-2: Comparison of NECEC Preferred Alternative to Alternative 2

Point of Comparison	Unit	Preferred Alternative	Alternative 2
Conserved lands	no./acres	6 parcels/42 acres	9 parcels/53.2 acres
Undeveloped ROW	miles	53.5	17.3
Clearing	acres	1,823	1,670
Parcel count total	no.	7	34
Stream crossings	no.	115	123
Transmission line length	miles	146.5	138.5
NWI mapped wetlands	no./acres	263 wetlands/ 76.3 acres	283 wetlands/ 113.3 acres
Deer wintering areas	no./acres	8 DWAs/44.3 acres	8 DWAs/44 acres
Inland waterfowl and wading bird habitat	no./acres	12 IWWH/22.7 acres	12 IWWH/16.5 acres
Public water supplies within 500 feet	no.	1	1
Significant sand and gravel aquifers	no.	12	10

These comparisons affirmed that the Preferred Alternative route is the optimal route for several reasons:

- The Preferred Alternative route crosses fewer conserved land parcels than either alternative, and therefore minimizes habitat fragmentation.
- The Preferred Alternative route requires significantly less new transmission line corridor to be developed than HVDC Alternative 1.
- The Preferred Alternative route required acquisition of significantly fewer land parcels than either alternative. This point of comparison is critical in two respects:
  - Fewer required land parcels equates to a higher likelihood of successful acquisition of all needed lands. The eventual acquisition of land rights to the Preferred Alternative made this route more feasible than either alternative; and

- Fewer required land parcels, and therefore larger land parcels owned by each entity, allowed CMP to negotiate with these same landowners to adjust the transmission line corridor route to avoid impacts to protective and sensitive natural resources.

- The Preferred Alternative has fewer wetland and stream crossings than HVDC Alternative 2.
- HVDC Alternative 2 would require land acquisition across Penobscot Indian Nation land, the Bigelow Preserve, and the Appalachian Trail corridor.
- HVDC Alternative 2 structures would likely be visible from points along the Appalachian Trail, Bigelow Preserve, and Sugarloaf Mountain ski area.

Regarding analysis of alternative locations for the Merrill Road, Lewiston converter station and the Fickett Road, Pownal new substation, I incorporate by reference the testimony of Brian Berube, CMP Real Estate Manager.

ii. Alternatives Analysis Specific to the P-RR Subdistrict (Relevant to LUPC Review)

The proposed transmission line in Beattie Township would be located approximately ¼ mile from Beattie Pond, which is an LUPC Management Class VI Lake (also referred to as a Remote Pond). There is an existing access road within 400 feet of Beattie Pond. The P-RR zoning is intended to protect the pond from permanent improvements in access that could lead to more intensive use or development. The transmission line corridor at a distance greater than existing developed road access will not include permanent improvements or promote more intensive use or development of the pond, and is therefore consistent with the intent of the P-RR zoning.

CMP attempted to negotiate an alternative alignment south of the Beattie Pond P-RR subdistrict through Merrill Strip Township, and offered landowner Bayroot LLC between 150% and 200% of fair market value, but was unable to reach mutually-acceptable terms with the landowner, which demanded almost 50 times fair market value. Re-routing north of Beattie Pond to avoid the P-RR subdistrict would result in approximately two miles of additional

corridor and associated vegetation clearing, and would lead to potentially higher visibility from the pond, due to the higher elevations associated with Caswell Mountain to the north. Neither alternative route is suitable for the proposed use, and neither is reasonably available to CMP.

The Appalachian Trail crosses the transmission line (the National Park Service holds an easement on CMP fee-owned land) at three locations close to Moxie Pond in Bald Mountain Township. The configuration of the AT within and adjacent to an approximately 3,500-foot long portion of transmission line corridor prevented CMP from avoiding direct impacts to the P-RR subdistrict in this area. Any alternative alignments of the transmission line would result in crossings of the Appalachian Trail in one or more locations where there are currently no transmission line corridors. Co-location of the new transmission line within the existing transmission line corridor is therefore the least environmentally-damaging practicable alternative. CMP has proposed buffer plantings along both the east and west sides of Troutdale Road (aka Moxie Pond Road or Trestle Road) where the AT is co-located within this road, and has thus buffered the new transmission line adequately from other uses in this area.

The upper Kennebec River is also zoned P-RR in the vicinity of the Project. After initially proposing to cross the Kennebec River aerially, CMP determined that crossing beneath the river using HDD would avoid adverse visual impacts on recreational users of this outstanding river segment and the associated concerns of environmental regulators, the host communities, and other stakeholders.

Given the need to transmit power from the Beattie Township / Canada border area to the Lewiston converter station, it was necessary to identify a feasible and optimal location at which to cross the Kennebec River. Three alternative Kennebec River crossing locations were evaluated by CMP: (1) north of Moxie Stream between Moxie Gore and West Forks Plt (the

Preferred Alternative); (2) on CMP land about one mile downstream of Harris Dam (the CMP Land Alternative); and (3) near the Harris Station powerhouse (the Brookfield Alternative). Each of the latter two alternatives had significant environmental and logistical disadvantages.

The CMP Land Alternative would have required acquisition of land from a private landowner. Also, that alternative route would be 5.1 miles longer than the Preferred Alternative, which would create significantly greater environmental impacts.

The Brookfield Alternative would require widening 900 +/- feet of the Jackman tie line corridor, which would require use of Brookfield land that is encumbered by the Moosehead Kennebec Headwaters conservation easement. This alternative would also require Federal Energy Regulatory Commission (FERC) and Brookfield approval for use of land that is within the Harris Hydropower facility FERC boundary. Finally, this alternative route would be 6.3 miles longer than the Preferred Alternative, which would create significantly greater environmental impacts.

For the above reasons only the Preferred Alternative is suitable to the proposed use and reasonably available to the applicant, and buffered from those other uses or resources within the subdistrict with which it is incompatible.

iii. Issue 3 Conclusion (Relevant to DEP and LUPC Review)

There are no alternatives to the proposed location and character of the Project that would lessen its impact on the environment or the risks it would engender to the public health or safety, without unreasonably increasing its cost. Nor is there any reasonable alternative to the crossings of the outstanding river segments discussed above that would have less adverse effect upon the natural and recreational features of those river segments. There is no practicable alternative to

the project that would be less damaging to the environment. Also, there is no practicable alternative to the proposed activity that would have less visual impact, as discussed above.

There is no alternative site to the locations where the Project is located in the P-RR subdistrict of the LUPC that is both suitable to the proposed use and reasonably available to CMP.

e. Issue 4 (Compensation and Mitigation)

i. Cold Water Fisheries Habitat (Relevant to DEP Review)

The Project proposal includes several measures to avoid, reduce, minimize and compensate for unavoidable impacts to cold water fisheries habitat, including (as described above):

- Preservation of 12.02 linear miles of coldwater fishery habitat, including 7.9 miles of habitat and frontage along the Dead River;
- Replacing missing, non-functional and improperly installed culverts – both within the Project footprint and outside of the Project – to reconnect isolated coldwater fishery habitat to downstream areas; and
- Donation of $180,000 to the Maine Endangered and Nongame Wildlife Fund, to pay for additional mitigation for unavoidable coldwater fishery impacts; stream crossings by heavy equipment during construction will be performed through the installation of equipment spans with no in-stream disturbances, and streams will not be forded by heavy equipment.

CMP has also proposed 100-foot-wide riparian buffers on all coldwater fishery streams (as identified by the DIFW), all four outstanding river segments crossed overhead by the Project, all water bodies containing rare, threatened, or endangered species, and all perennial streams within the new (Segment 1) portion of the NECEC corridor. CMP has proposed an expanded buffer of 75 feet (rather than the standard 25 feet) for all other streams that do not meet the above criteria.

In addition, undisturbed buffers will be maintained on both the east and west sides of the upper Kennebec River in the vicinity of the HDD crossing. Specifically, an undisturbed buffer of 1,160 feet will be maintained along the west bank of the river in this area, and an undisturbed buffer of 1,450 feet will be maintained along the east bank of the river in this area. Within these two buffers, vegetation will not be maintained and CMP does not anticipate the need to cut trees, and thus these will grow to their full height.

Within these riparian buffers, the following practices will apply that will avoid, minimize, rectify, reduce, or eliminate impact:

- During construction, removal of capable species or dead or hazard trees within the appropriate stream buffer will typically be accomplished by hand-cutting. Mechanized harvesting equipment will be used only if supported by construction matting or during frozen conditions in a manner (i.e., use of travel lanes and reach-in techniques) that preserves non-capable vegetation less than 10 feet in height to the greatest extent possible.
- During maintenance, removal of capable species and dead or hazard trees will be accomplished by hand-cutting only. Mechanized harvesting equipment will not be used;
- Herbicides will not be stored, mixed, or transferred between containers unless done on a paved public access road;
- No refueling or maintenance of equipment, including chainsaws, will occur unless done on a paved public access road, or if secondary containment is used with oversight from an environmental inspector;
- The boundary of each stream buffer will have unique flagging installed to distinguish between the applicable 75-foot or 100-foot stream buffer prior to vegetation management activities;
- No slash will be left within 50 feet of the edge of any stream;
- Initial tree clearing will be performed during frozen ground conditions whenever practicable, and, if not practicable, the recommendations of the environmental inspector will be followed regarding the appropriate techniques to minimize disturbance such as the use of selectively placed travel lanes within the stream buffer. CMP will not place any transmission line structures within the stream buffer, unless specifically authorized by the MDEP and accompanied by a site specific erosion control plan; and
- Structures will not be placed within 25 feet of any stream regardless of its classification.

These expanded riparian buffers will protect water quality, minimizing ground disturbance and the potential for sediments or herbicides to enter coldwater fisheries (and other streams); minimize insolation and water temperature increases; and retain wildlife travel corridors within riparian zones.

CMP has adequately mitigated and compensated for impact on cold water fisheries habitat.

ii. Outstanding River Segments (Relevant to DEP Review)

CMP protected the natural and recreational attributes of the Upper Kennebec River, an outstanding river segment, by modifying its original 2017 proposal in late 2018 to cross beneath the Upper Kennebec River utilizing HDD technology. This method retains the natural beauty of this river segment, and protects the values that qualified the Upper Kennebec River as an outstanding river segment.

The other four NECEC Project crossings of outstanding river segments (Kennebec River below Wyman Dam; Carrabassett River; Sandy River; and West Branch of the Sheepscot River) are all within existing transmission line corridors, and therefore will be co-located with other transmission lines at these crossings. As a result, the visual impacts of these new crossings will be minimal.

CMP has proposed to retain 100-foot riparian buffers along each of these four outstanding river segment aerial crossings. Within these riparian buffers, the following practices will apply to mitigate any impact:

- During construction, removal of capable species and dead or hazard trees within the appropriate stream buffer will typically be accomplished by hand-cutting. Mechanized harvesting equipment will be used only if supported by construction matting or during frozen conditions in a manner (i.e., use of travel lanes and reach-in techniques) that preserves non-capable vegetation less than 10 feet in height to the greatest extent possible.

- During maintenance, removal of capable species and dead or hazard trees will be accomplished by hand-cutting only. Mechanized harvesting equipment will not be used;
- Herbicides will not be stored, mixed, or transferred between containers unless done on a paved public access road;
- No refueling or maintenance of equipment, including chainsaws, will occur unless done on a paved public access road, or if secondary containment is used with oversight from an environmental inspector;
- The boundary of each stream buffer will have unique flagging installed to distinguish between the applicable 75-foot or 100-foot stream buffer prior to vegetation management activities;
- No slash will be left within 50 feet of the edge of any stream;
- Initial tree clearing will be performed during frozen ground conditions whenever practicable, and if not practicable, the recommendations of the environmental inspector will be followed regarding the appropriate techniques to minimize disturbance, such as the use of selectively placed travel lanes within the stream buffer. CMP will not place any transmission line structures within the stream buffer, unless specifically authorized by the MDEP and accompanied by a site specific erosion control plan; and
- Structures will not be placed within 25 feet of any stream regardless of its classification.

In addition, undisturbed buffers will be maintained on both the east and west sides of the upper Kennebec River in the vicinity of the HDD crossing. Specifically, an undisturbed buffer of 1,160 feet will be maintained along the west bank of the river in this area, and an undisturbed buffer of 1,450 feet will be maintained along the east bank of the river in this area. Within these two buffers, vegetation will not be maintained and CMP does not anticipate the need to cut these trees, thus they will grow to their full height.

These expanded riparian buffers will protect water quality, minimizing ground disturbance and the potential for sediments or herbicides to enter cold water fisheries (and other streams); minimize insolation and water temperature increases; and retain wildlife travel corridors within riparian zones. These buffers will help retain the outstanding river segments' natural and recreational values.

iii. Wetlands (Relevant to DEP Review)

CMP located and designed the Project to avoid as many wetlands as possible. However because of the pervasive nature of wetlands in Maine, the NECEC Project unavoidably crosses wetlands. Unavoidable wetland impacts include direct impacts (temporary and permanent fill) and indirect impacts (conversion of forested wetlands to scrub-shrub wetlands). Specific wetland impacts and their respective compensation include:

- *Temporary fill:* 47.7 acres of temporary wetland fill (primarily construction mats, an environmental best practice); preservation of 57 acres of wetlands plus $154,500 in-lieu fee. In practice, many wetland crossings during construction will occur during frozen ground conditions, therefore the above is a conservative, worst-case estimate. Temporary wetland fill will be in place for a typical period of 12 months, and no more than 18 months.
- *Permanent fill:*
  - 105.5 acres of permanent cover type conversion of forested wetlands;
  - 3.8 acres of permanent fill in wetlands of special significance (WOSS); and
  - 0.3 acre of permanent fill in non-WOSS wetlands.
  - Preservation of 440 acres of wetlands to compensate for the above impacts.

Wetland crossings for construction access will be located at the narrowest point of each wetland if conditions and construction access allow this.

Compensation for temporary wetland impacts, required by the U.S. Army Corps of Engineers (USACE), consists of the preservation of three compensation tracts – Flagstaff Lake Tract, Little Jimmie Pond-Harwood Tract, and Pooler Pond Tract – plus an in-lieu fee. Collectively, these tracts contain 511 acres of wetlands, and are offered to offset temporary fill in wetlands, and other wetland impacts, at the USACE required ratios and using USACE approved adjustments.

Compensation for forested wetland conversion is also required by USACE. Using the USACE ratio of 20:1 and the 15% adjustment, CMP is proposing 316 acres of wetland preservation to offset these impacts.

The conversion of wetlands from forested to scrub-shrub results in a shift in functions and values, but no net loss of functions and values. Regardless, CMP has offered significant preservation land and in-lieu fees to compensate for wetland impacts.

CMP has proposed a robust, proportionate and diverse compensation plan that includes the following components to offset unavoidable impacts to protected and sensitive natural resources:

In-Lieu Fees

- $594,000 (compensation for temporary wetland fill)
- $1,046,000 (compensation for permanent wetland fill)
- $71,000 (compensation for vernal pool upland habitat fill)
- $56,000 (compensation for vernal pool upland habitat conversion from forested to shrub)
- $2,113,000 (Army Corps jurisdictional vernal pool clearing impacts)
- Total in-lieu fees = $3,880,000

Other Compensation Fees

- $1,225,000 (conversion of unique forest communities to shrub)
- $470,000 (conversion from forested to shrub in rare invertebrate conservation management areas)
- $200,000 (culvert replacement program to enhance coldwater fisheries habitat connectivity)
- $180,000 (Maine Endangered & Nongame Wildlife Fund contribution)
- $10,000 (Goldie's wood fern (special concern species) survey funding to Maine Natural Areas Program)
- Total Other Fees = $2,085,000

Total Fees = $5.965M

Conserved Land

- 2,076 acres (to offset wetland cover type conversion, waterfowl upland habitat conversion and fill)
    - Includes 8.1 miles frontage on Dead River (Outstanding River Segment)
- 717 acres (within upper Kennebec Deer Wintering Area)

Total Conserved Land = 2,793 acres

Other Mitigation

- Redesign of transmission line and adjacent co-located transmission line to avoid State-endangered Small Whorled Pogonia in Greene. Cost: $2.3M.
- Taller structures at Gold Brook and Mountain Brook to allow full-height vegetation in threatened invertebrate habitat. Incremental cost: $1.9M.
- Vegetation tapering at Coburn Mountain and Gold Brook (visual impact mitigation). Incremental cost: $22,200/year.
- Maintenance of deer winter travel corridors in upper Kennebec DWA. Incremental cost: $9,400/year.
- Expanded riparian buffers (100' vs. 25') at all Outstanding River Segments crossed aerially by the Project, all perennial streams within 54-mile new corridor segment, all cold water fishery streams, and all rivers / streams / brooks containing threatened or endangered species.
- Revegetating disturbed soils adjacent to DWAs with wildlife seed mix specifically formulated to optimize nutritional value to wildlife during late fall and early spring when woods forage is sparse.

Vernal pool impacts have been avoided on the NECEC Project to the maximum extent practicable; however, because of the large land area of vernal pools' critical terrestrial habitat (CTH) -- 250 feet beyond the pool depression for state-regulated significant vernal pools (SVPs) and 750 feet beyond the pool depression for USACE-jurisdictional vernal pools) -- impacts from fill and conversion of forested to scrub-shrub cover types within their CTH is unavoidable.

Direct (fill) impacts to SVPs include 0.74 acre of wetland. Indirect impacts within SVPs include 3.9 acres of permanent forested wetland conversion, and 29.6 acres of permanent upland

conversion. Using the DEP's in-lieu fee formula, CMP proposes a payment of approximately $642,000 to offset these impacts.

The NECEC Project will result in direct (fill) and / or indirect (cover type conversion) impacts to 49 high value, 122 medium value, and 71 low-value USACE-jurisdictional vernal pools. CMP calculated that the existing average forested cover within the 750-foot CTH of these pools is 73.6%, and that post-construction, the average forested cover within these pools' CTH would be 68.9%, a reduction of 4.7%. Based on this, and based on data gathered and analyzed by TRC during the 2009 to 2015 Maine Power Reliability Program (MPRP) project that demonstrates a de minimis impact of tree clearing on vernal pool productivity, application of the USACE's 2016 Compensatory Mitigation Guidance resulted in an in-lieu fee of approximately $1.64M to offset these impacts. In addition, CMP has calculated and offered a fee of approximately $382,000 to offset direct (fill) impacts to these vernal pools, for a total fee of approximately $2.02M. The location, type, and amount of compensation that CMP has offered fully satisfies the DEP's rules and the USACE's Guidance.

iv. Issue 4 Conclusion (Relevant to DEP Review)

The compensation and mitigation measures proposed by CMP fully compensates for all impacts to cold water fisheries, outstanding river segments, and wetlands that cannot be avoided.

V. Conclusion (Relevant to DEP and LUPC Review)

CMP has carefully and thoughtfully sited and designed the NECEC Project to avoid impacts wherever and whenever possible, minimize unavoidable impacts, and compensate for these unavoidable impacts.

Avoidance and minimization of impacts started with route selection. CMP evaluated alternate routes and selected the route from the U.S./Canada border that avoided areas of highest

recreational, natural resource, and visual sensitivity to the greatest extent possible. Along this chosen route, CMP worked with large landowners so that if small route adjustments were necessary to avoid direct or indirect impacts to protected or sensitive natural resources, these same landowners could provide the necessary land rights to do this. As such, many resources such as rare species, significant vernal pools, wetlands, ponds, streams, and conserved lands that would otherwise have been difficult to avoid or route around, were avoided and protected.

Two examples of this effort and its results are: CMP redesigned the transmission line to avoid direct or indirect impacts to the state-endangered small whorled pogonia in Greene, at an incremental cost of $2.3 million. As well, CMP designed and proposed taller structures to allow full height vegetation at two water bodies, to protect habitat of Roaring Brook Mayfly (which is state-threatened) and Northern Spring Salamander (which is a species of special concern), at an incremental cost of $1.9 million. Expanded stream riparian buffers also help to protect water quality, reduce insolation and associated water temperature increases, and protect cold water fisheries habitat.

Compensation of unavoidable NECEC Project impacts has been offered in multiple forms and for numerous purposes. Offered in-lieu fees total $3.88 million and other compensation fees total $2,085 million. Lands proposed for permanent preservation total nearly 2,800 acres. Provisions for tapering of transmission corridor vegetation at two locations – Coburn Mountain and Gold Brook – increase vegetation maintenance costs by more than $22,000 per year, and maintenance of winter deer travel corridors in the upper Kennebec River deer wintering area increase vegetation management costs by more than $9,000 per year.

The above examples illustrate that CMP has designed and sited the NECEC Project in a manner that respects sensitive resources, and avoids significant and unreasonable impacts those resources.

Exhibits:
CMP-2-A: Gerry J. Mirabile CV
CMP-2-B: Project Overview Map with Segments
CMP-2-C: Project Overview Map
CMP-2-D: Project Recreation Areas Map
CMP-2-E: Beattie Pond Modification Proposal & Photosimulations
CMP-2-F: HDD Termination Station Photosimulations
CMP-2-G: Three Slide Mountain Photosimulation

Dated: 2/26/2019

Respectfully submitted,

Gerry Mirabile

Gerry Mirabile

STATE OF MAINE
Kennebec, ss.

The above-named Gerry Mirabile did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 2/26/2019

Patricia Ann Larrivee

Notary Public
Name:
My Commission Expires:

PATRICIA ANN LARRIVEE
Notary Public, Maine
My Commission Expires April 7, 2019

GERRY J. MIRABILE

gerry.mirabile@cmpco.com w 207-629-9717, c 207-242-1682

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL

- Broad and in-depth knowledge of environmental aspects and impacts of electric utility operations and practices.
- Manage consultants responsible for preparation of federal, state, and local permit applications for transmission/distribution lines, substations, service facilities, navigational aids, and submerged utilities.
- Advise AVANGRID staff and contractors on facility siting and permitting.
- Present project proposals to federal and state regulators, planning/zoning boards, city councils, and citizen groups.
- Monitor, evaluate, and develop testimony and comments on proposed environmental, land use, permitting, vegetation management, chemical release, regulatory reporting, wildlife and fisheries, zoning, stormwater, underground tanks, erosion control, and waste management legislation and regulations.
- Develop compliance plans and advise/train AVANGRID staff and contractors on project-specific permit conditions.
- Identify and oversee third-party inspectors and contracts; review and respond to third-party inspection reports for AVANGRID capital projects.
- Coordinate with USFWS and non-profits on New England Cottontail and American kestrel survey and enhancement efforts on CMP transmission line rights of way.
- Review and edit compensation site restoration and monitoring reports.
- Developed construction-phase and maintenance-phase sensitive and protected resource management plans for capital projects.

COMMUNICATIONS & REGULATORY

- Drafted and submitted to regulatory agencies numerous summaries of environmental studies conducted in support of FERC and other Federal, state, and regional permit applications.
- Represented CMP before Maine Legislature's Environment and Natural Resources Committee, and Energy, Utilities and Technology Committee; developed and delivered expert testimony on wind energy and utility permitting, wastewater licensing, toxics use reduction, oil spill reporting, PCB's, stormwater management, wetlands, and wetlands mitigation legislation. Developed compliance plans when bills became laws.
- Develop comments and provide written and verbal response to regulators, regulatory boards, and legislators on various draft rules and legislation.
- Represented CMP on statewide linear projects vegetation management BMPs task force.
- Represent CMP on Maine State Chamber of Commerce Environmental and Energy Policy Committee.
- Testified before State Board of Environmental Protection regarding licensing of CMP's Hazardous Waste Storage facility and on numerous regulatory and rulemaking proposals.
- Represent CMP interests, pursue approvals, and clarify compliance requirements with federal, state, and local regulators.

EMPLOYMENT HISTORY

2017 to present	AVANGRID/CENTRAL MAINE POWER COMPANY (Augusta, ME) *Manager – NECEC Permitting*
2015 to 2017	AVANGRID/CENTRAL MAINE POWER COMPANY (Augusta, ME) *Manager – Programs/Projects & Supervisor, Environmental Compliance Department*
2013 to 2015	AVANGRID/CENTRAL MAINE POWER COMPANY (Augusta, ME) *Manager – Programs/Projects, Environmental Compliance Group*
1989 to 2013	CENTRAL MAINE POWER COMPANY (Augusta, ME) *Environmental & Licensing Coordinator, Environmental Specialist, Senior Environmental Specialist, Lead Analyst – Compliance*
1985 to 1989	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION (Augusta, ME) *Conservation Aid, Environmental Specialist II/III*

EDUCATION

Husson University, Bangor, Maine

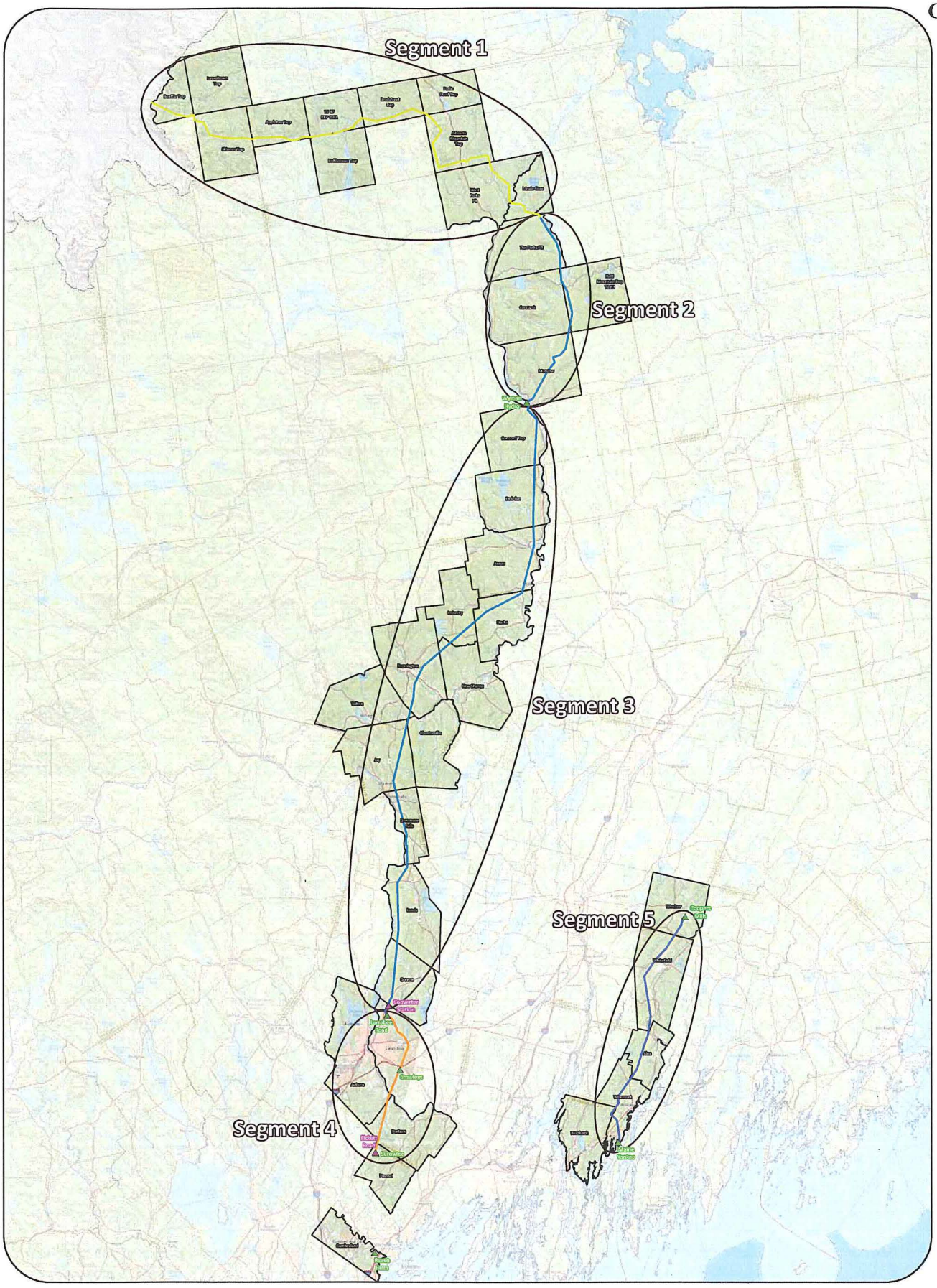
Master of Business Administration (MBA)	2013
Master of Science in Business (MSB)	2000

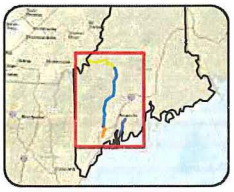
Johnson State College, Johnson, Vermont

Bachelor of Science in Ecology (BS)	1984
Recipient, Award for Excellence in Ecology	

CERTIFICATIONS

Erosion and Sedimentation Control Practices (Maine DEP)	2008 to present





Legend

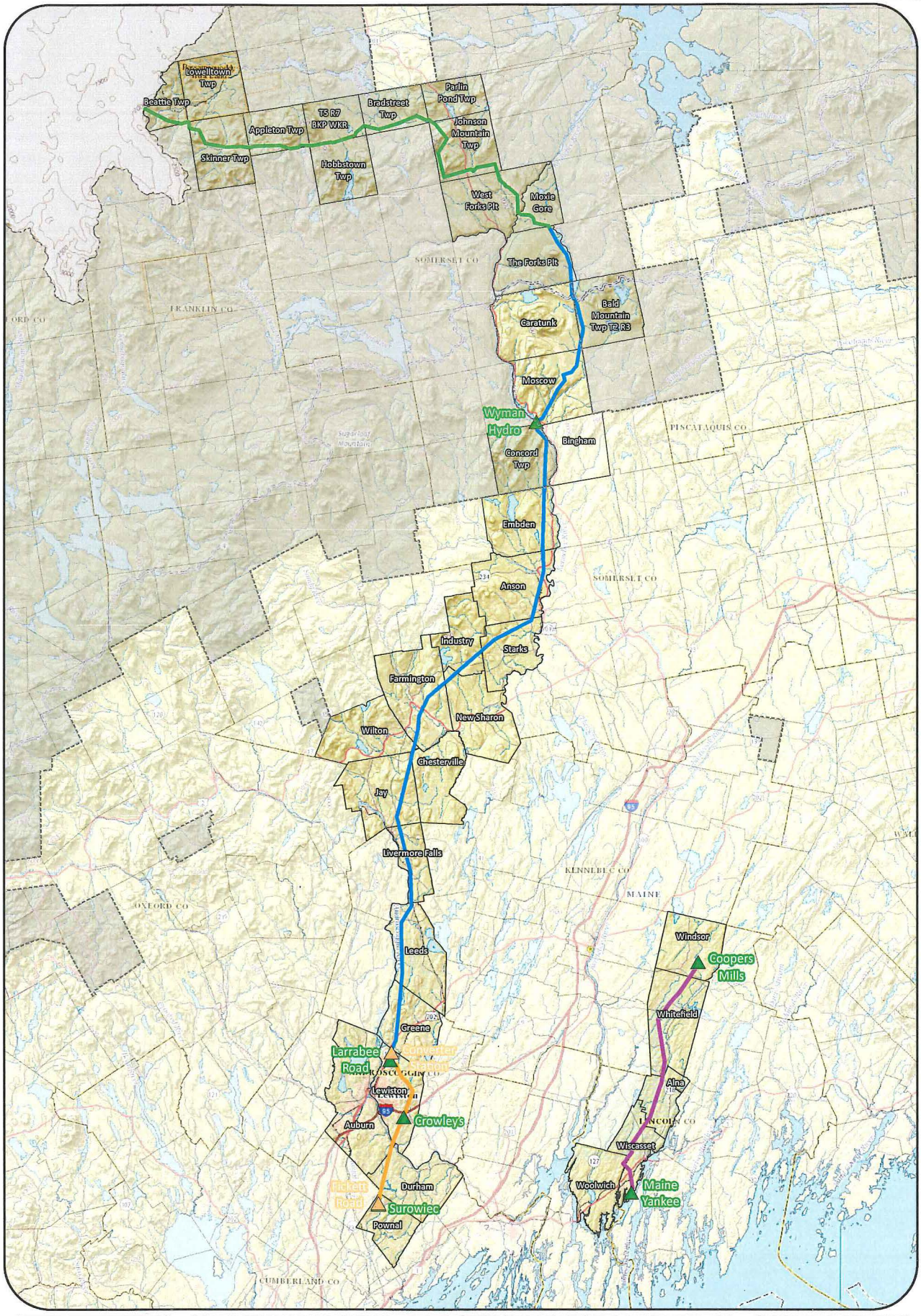
- HVDC (New ROW)
- HVDC (Existing ROW)
- New 345 kV Line
- Rebuild Sections
- Existing Substation
- Proposed Substation

New England Clean Energy Connect
Overview Map

10 Miles

CENTRAL MAINE POWER

8/15/2017



Legend

- Direct Current Transmission Line (new ROW)
- Direct Current Transmission Line (existing ROW)
- New 345 kV Line
- LUPC Zone
- Rebuild Sections
- Existing Substation
- Proposed Substation

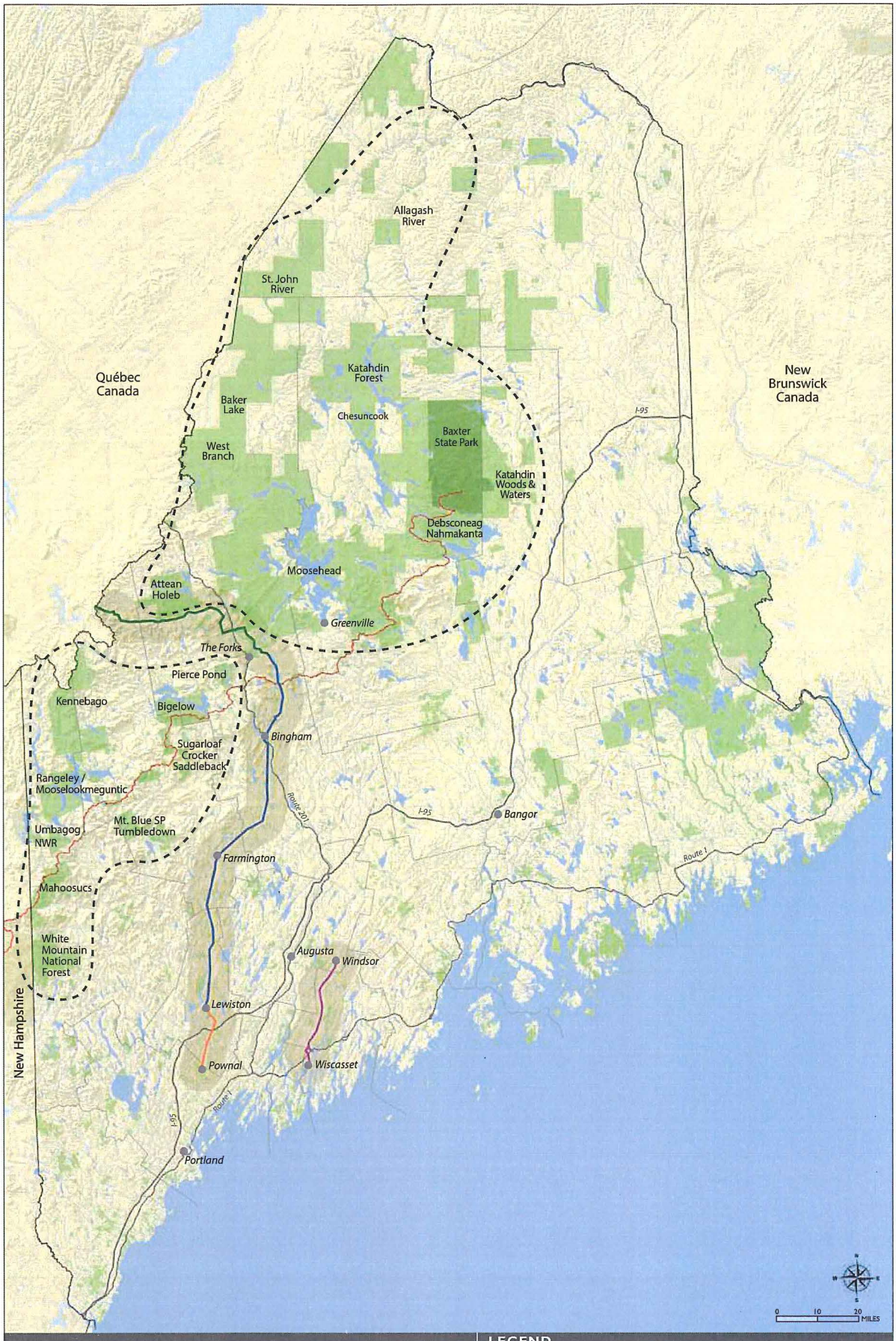
New England Clean Energy Connect

Overview Map

10 Miles

NEW ENGLAND CLEAN ENERGY CONNECT

Feb, 2018



Project Overview Map
Recreation Areas

NEW ENGLAND CLEAN ENERGY CONNECT

LEGEND

- Conservation Land
- Appalachian Trail
- Rebuild Sections
- 5-mile Study Area for Visual / Scenic Resources
- Direct Current Transmission Line (new ROW)
- Direct Current Transmission Line (existing ROW)
- New 345 kV Line

CMP-2-E

CENTRAL MAINE POWER

January 25, 2019

Mr. Bill Hinkel
Land Use Planning Commission
Department of Agriculture, Conservation and Forestry
18 Elkins Lane
Augusta, Maine 04330

Mr. James R. Beyer
Maine Department of Environmental Protection
Division of Land Resources Regulation
106 Hogan Road
Bangor, ME 04401

RE: New England Clean Energy Connect Project
Project Design Modification & Beattie Pond Photosimulations

Dear Mr. Hinkel and Mr. Beyer:

Central Maine Power Company (CMP) has evaluated the engineering design associated with transmission line structures adjacent to Beattie Pond in Lowelltown Township on the proposed New England Clean Energy Connect (NECEC) Project. CMP has determined that lowering the structure closest to Beattie Pond (a Management Class 6, remote pond) by 39 feet is feasible. CMP is proposing this redesign to reduce the overall visual impact from the pond; as a result of this redesign, the Project will be minimally visible by recreational users on the pond.

Please find the attached photo simulation package that includes views of the original (September 2017) design and views of the proposed redesign depicting the reduced visibility associated with the new design.

If you have any questions regarding this submittal, please give me a call at (207) 629-9717 or email gerry.mirabile@cmpco.com.

Sincerely,

Gerry J. Mirabile
Manager – Environmental Projects
Environmental Permitting
AVANGRID Networks, Inc.

Enclosures

cc: MDEP Service List; LUPC Service List
File: New England Clean Energy Connect

PHOTOSIMULATION 1: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

September 2017 Proposed Conditions: Panoramic view looking southeast to southwest from the northern end of Beattie Pond toward the proposed HVDC transmission line. Beattie Pond is a Management Class 6, Remote Pond. The tops of one structure and conductors will be visible at a distance of 1,300' +/- from this viewpoint. Existing topography and shoreline vegetation will screen the rest of the Project from view. Merrill Mountain is visible on the right side of the image. See Appendix B: Study Area Photographs for additional images.

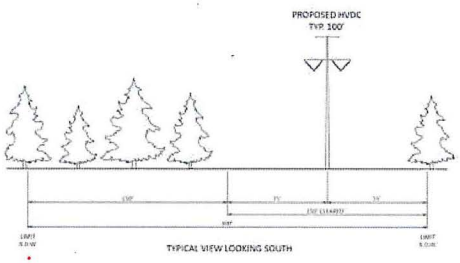
The original September 2017 caption incorrectly noted the distance between the closest structure and the viewpoint as 1,300 feet, but that distance is actually the approximate distance between the closest structure and the edge of the pond.

LOCATION MAP

CONTEXT MAP

TECHNICAL INFORMATION

Typical Cross Section



Photograph / Photosimulation Information

Location	45.503894°, -70.631858°
Viewing Direction	Southeast to Southwest
Horizontal Angle of View	86°
Date and Time	07/26/17 at 12:46 pm
Camera Focal Length	35 mm
Camera Make/Model	Nikon D5500
Photo Source	TJD&A
Proposed Structures Visible	1
Approximate Distance to Nearest Visible Structure	2,177 feet

CENTRAL MAINE POWER | tjd&a

September 22, 2017 | PAGE 1 OF 112

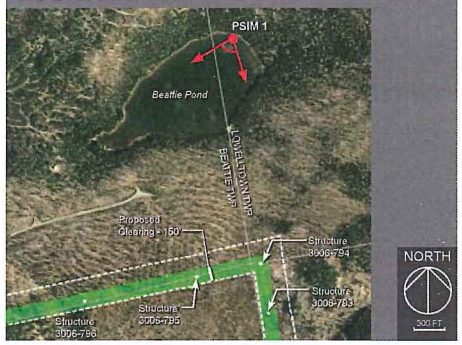
PHOTOSIMULATION 1: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

January 25, 2019 Proposed Conditions: Panoramic view looking southeast to southwest from the northern end of Beattie Pond toward the proposed HVDC transmission line as revised January 25, 2019. Beattie Pond is a Management Class 6, Remote Pond.

By re-engineering the transmission structures near Beattie Pond, the height of the closest structure (# 3006-794) has been reduced by approximately 39 feet below the structure height shown on the September 2017 original submission (see previous page). While a small portion of the top of the structure will still be visible above the treeline from a few areas on the pond, the structure will not appear above the skyline and will therefore be considerably less visually prominent, if it is noticeable at all. The top of Structure 3006-793 will be seen directly behind Structure 3006-794 from this viewpoint on the pond. Also, as a result of the re-engineering, a smaller portion of Structure 3006-795 will be visible above the treeline. In total, the tops of three HVDC structures and their shield wires will be visible just above the treeline, but will no longer be seen against the sky. The self-weathering steel used for the structures will minimize contrasts with the surrounding wooded hillside. Existing topography and shoreline vegetation will screen the rest of the Project from view. The re-engineered design will result in a reduced overall visual impact from the Pond and, as a result, the Project will be minimally noticeable from recreational users on the pond.

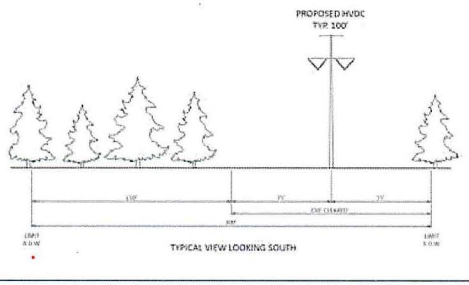
LOCATION MAP



CONTEXT MAP

TECHNICAL INFORMATION

Typical Cross Section



Photograph / Photosimulation Information

Location	45.503894°, -70.631858°
Viewing Direction	Southeast to Southwest
Horizontal Angle of View	86°
Date and Time	07/26/17 at 12:46 pm
Camera Focal Length	35 mm
Camera Make/Model	Nikon D5500
Photo Source	TJD&A
Proposed Structures Visible	3
Approximate Distance to Nearest Visible Structure	2,283 feet

CENTRAL MAINE POWER | tjd&a

September 22, 2017

Revised January 25, 2019

PHOTOSIMULATION 1A: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

Existing Conditions: Normal view looking south from Beattie Pond. One existing camp is visible through trees on right in image.

September 22, 2017

PHOTOSIMULATION 1A: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

September 2017 Proposed Conditions: Normal view looking south from Beattie Pond toward the proposed HVDC transmission line. The top of one angle structure and conductors will be visible at a distance of 1,300' +/- from this viewpoint.

The original September 2017 caption incorrectly noted the distance between the closest structure and the viewpoint as 1,300 feet, but that distance is actually the approximate distance between the closest structure and the edge of the pond.

September 22, 2017

PHOTOSIMULATION 1A: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

January 25, 2019 Proposed Conditions: Normal view looking south from Beattie Pond toward the proposed HVDC transmission line. Based on the re-engineered design, the top of two structures (Structures 3006-793 and 3006-794) and shield wires will be visible just above the treeline.

September 22, 2017

Revised January 25, 2019

PHOTOSIMULATION 1A: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

Existing Conditions: Normal view looking southwest from Beattie Pond. One existing camp is visible through trees on left in image.

THIS NORMAL VIEW WAS NOT INCLUDED IN THE ORIGINAL SUBMISSION

January 25, 2019

PHOTOSIMULATION 1A: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

January 25, 2019 Proposed Conditions: Normal view looking southwest from Beattie Pond toward the proposed HVDC transmission line. Based on the re-engineered design, the top of Structure 3006-793 will be seen directly behind Structure 3006-794 from this viewpoint on the pond (on the left in image), and the top of Structure 3006-795 and shield wires will be visible (in the center of image) just above the treeline.

PHOTOSIMULATION 1A: BEATTIE POND, LOWELLTOWN TWP

NEW ENGLAND CLEAN ENERGY CONNECT

January 25, 2019 Proposed Conditions: Normal view looking southwest from Beattie Pond toward the proposed HVDC transmission line. Based on the re-engineered design, the top of Structure 3006-793 will be seen directly behind Structure 3006-794 from this viewpoint on the pond (on the left in image), and the top of Structure 3006-795 and shield wires will be visible (in the center of image) just above the treeline.

Exhibit 6-1: Photosimulations

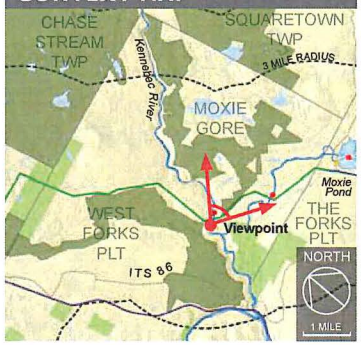
MOXIE GORE TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking East

NEW ENGLAND CLEAN ENERGY CONNECT

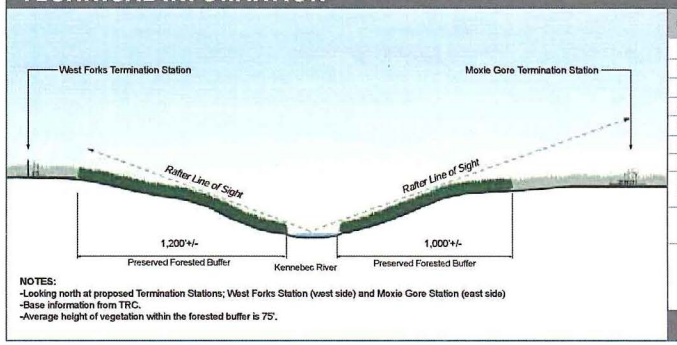
Existing Conditions: Panoramic view looking from north to east from the Kennebec River, approximately 3,600 feet west of the proposed Moxie Gore Termination Station. The Moxie Gore Termination Station will not be visible from the river. A forested buffer of approximately 1,000 in length will be preserved within the corridor between the southeast shoreline and the Station.

LOCATION MAP

CONTEXT MAP



TECHNICAL INFORMATION



NOTES:
-Looking north at proposed Termination Stations; West Forks Station (west side) and Moxie Gore Station (east side)
-Base information from TRC.
-Average height of vegetation within the forested buffer is 75'.

Photograph / Photosimulation Information	
Location	45.371014°, -69.949912°
Viewing Direction	Northeast to East
Horizontal Angle of View	84°
Date and Time	08/15/16 at 1:30 pm
Camera Focal Length	50 mm
Camera Make/Model	Canon EOS 5D Mark III
Photo Source	Powers Engineering
Proposed Structures Visible	None

CENTRAL MAINE POWER

tjd&a

MOXIE GORE TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking East

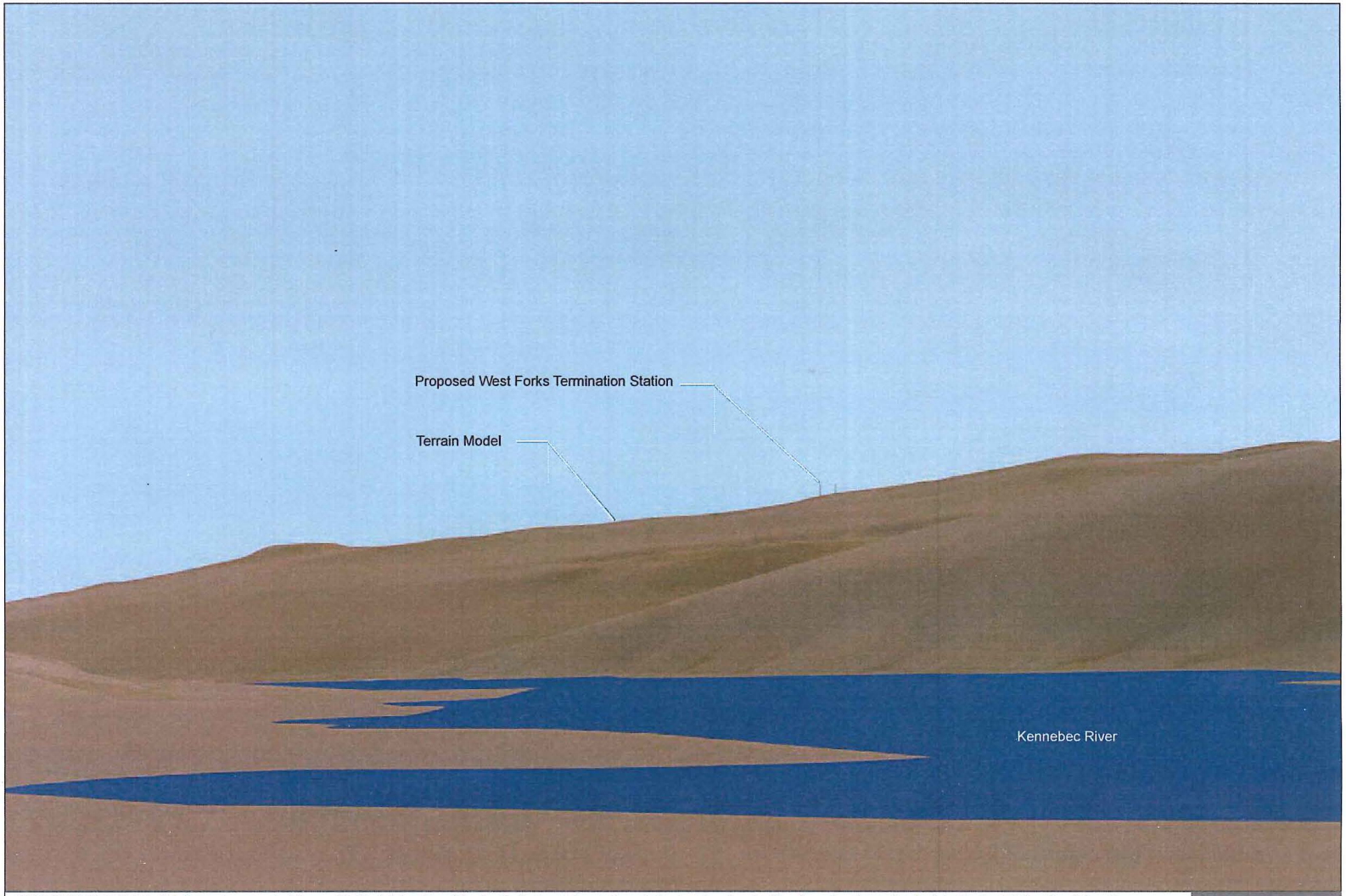
NEW ENGLAND CLEAN ENERGY CONNECT

Existing Conditions B: Normal view looking east from the Kennebec River, approximately 3,600 directly west of the proposed Moxie Gore Termination Station

October 18, 2018

MOXIE GORE TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking East

NEW ENGLAND CLEAN ENERGY CONNECT



COMPUTER MODEL B-1: This image is generated from a 3D Model developed for the Project and shows the existing terrain when looking from the viewpoint depicted in the Existing Conditions B photograph. Modeling indicates a portion of the proposed Moxie Gore Termination Station would be visible from this location if there was no vegetation on the hillside. The existing terrain would block the lower portion of the Station.

October 18, 2018

MOXIE GORE TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking East

NEW ENGLAND CLEAN ENERGY CONNECT

COMPUTER MODEL B-2: This image shows green cylinders placed on the terrain model to represent the average tree height of 75 ft as shown on the Existing Conditions B photograph. These tree representations are placed between the river's edge and the clearing limits surrounding the proposed Moxie Gore Termination Station. The modeling indicates that the 75 ft trees will screen the Termination Station from the River.

October 18, 2018

MOXIE GORE TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking East

NEW ENGLAND CLEAN ENERGY CONNECT

COMPUTER MODEL B-3: This image shows the computer model (terrain and 75' tree cylinders) overlaid and registered with the Existing Conditions photo. The preserved vegetation on the hillside will completely screen the Moxie Gore Termination Station from the Kennebec River.

October 18, 2018

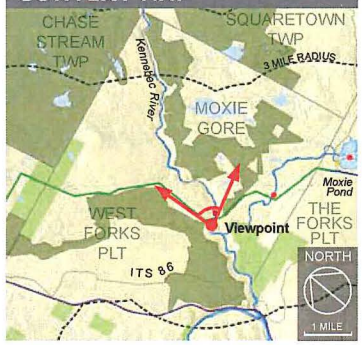
WEST FORKS TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking North

NEW ENGLAND CLEAN ENERGY CONNECT

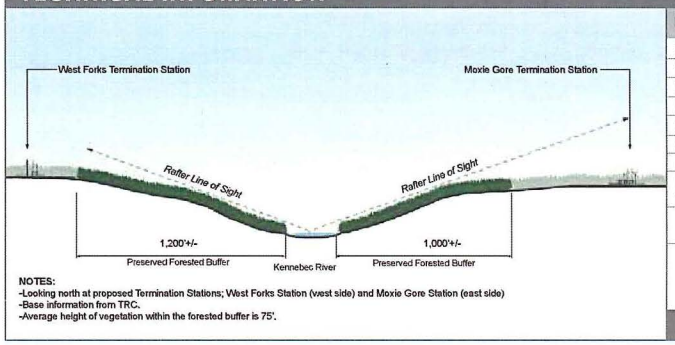
Existing Conditions: Panoramic view looking from north to east from the Kennebec River, approximately 1,900 feet south of the proposed West Forks Termination Station. The West Forks Termination Station will not be visible from the river. A forested buffer of approximately 1,200 in length will be preserved within the corridor between the northwest shoreline and the Station. This photograph was used in the previously submitted Photosimulation 11.

LOCATION MAP

CONTEXT MAP



TECHNICAL INFORMATION



NOTES:
-Looking north at proposed Termination Stations; West Forks Station (west side) and Moxie Gore Station (east side)
-Base information from TRC.
-Average height of vegetation within the forested buffer is 75'.

Photograph / Photosimulation Information	
Location	45.374107°, -69.940380°
Viewing Direction	North to East
Horizontal Angle of View	84°
Date and Time	08/15/16 at 1:21 pm
Camera Focal Length	50 mm
Camera Make/Model	Canon EOS 5D Mark III
Photo Source	Powers Engineering
Proposed Structures Visible	None

CENTRAL MAINE POWER

tjd&a

WEST FORKS TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking North

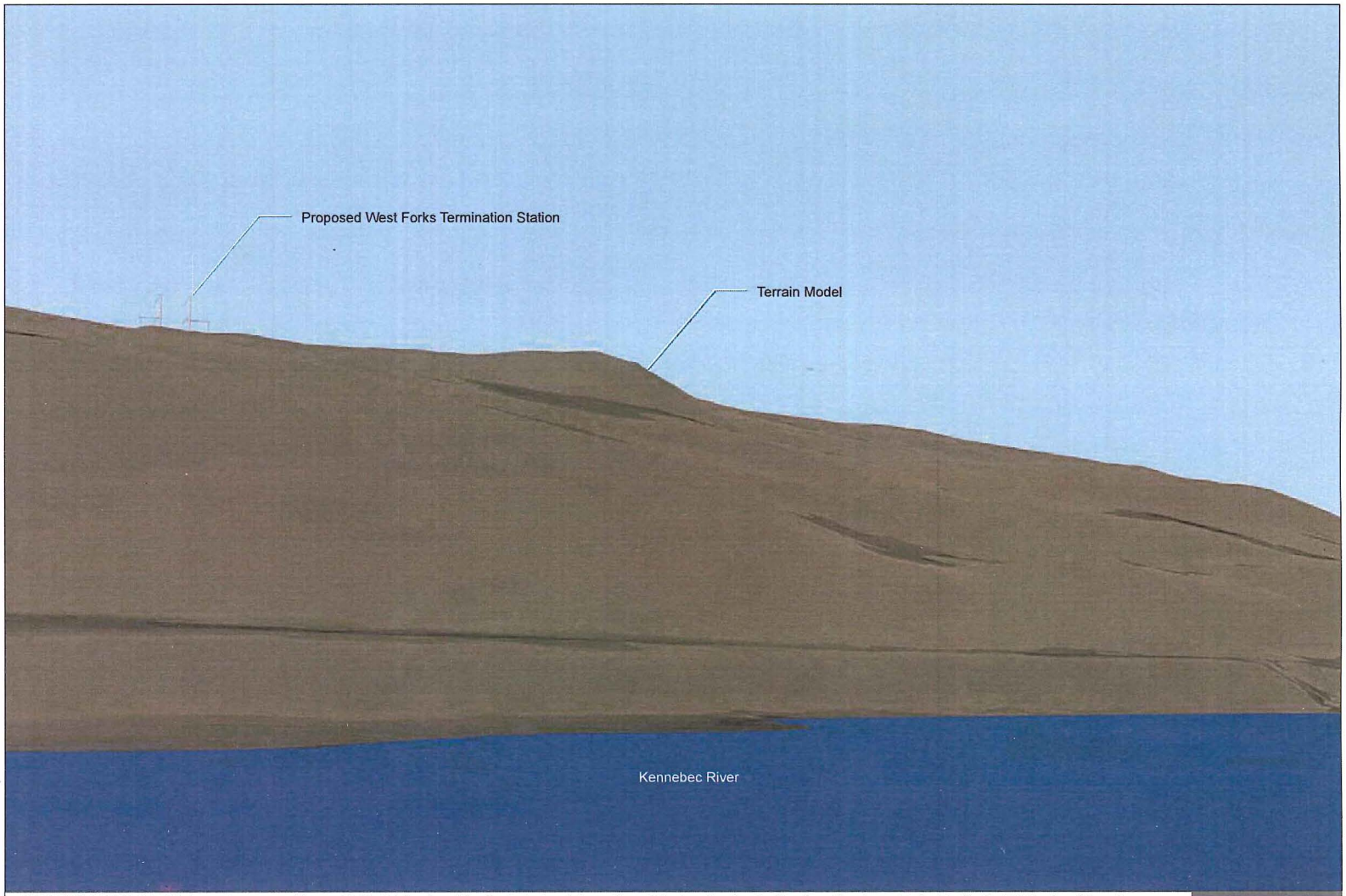
NEW ENGLAND CLEAN ENERGY CONNECT

Existing Conditions A: Normal view looking northeast from the Kennebec River, approximately 1,900 directly south of the proposed West Forks Termination Station

October 18, 2018

WEST FORKS TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking North

NEW ENGLAND CLEAN ENERGY CONNECT

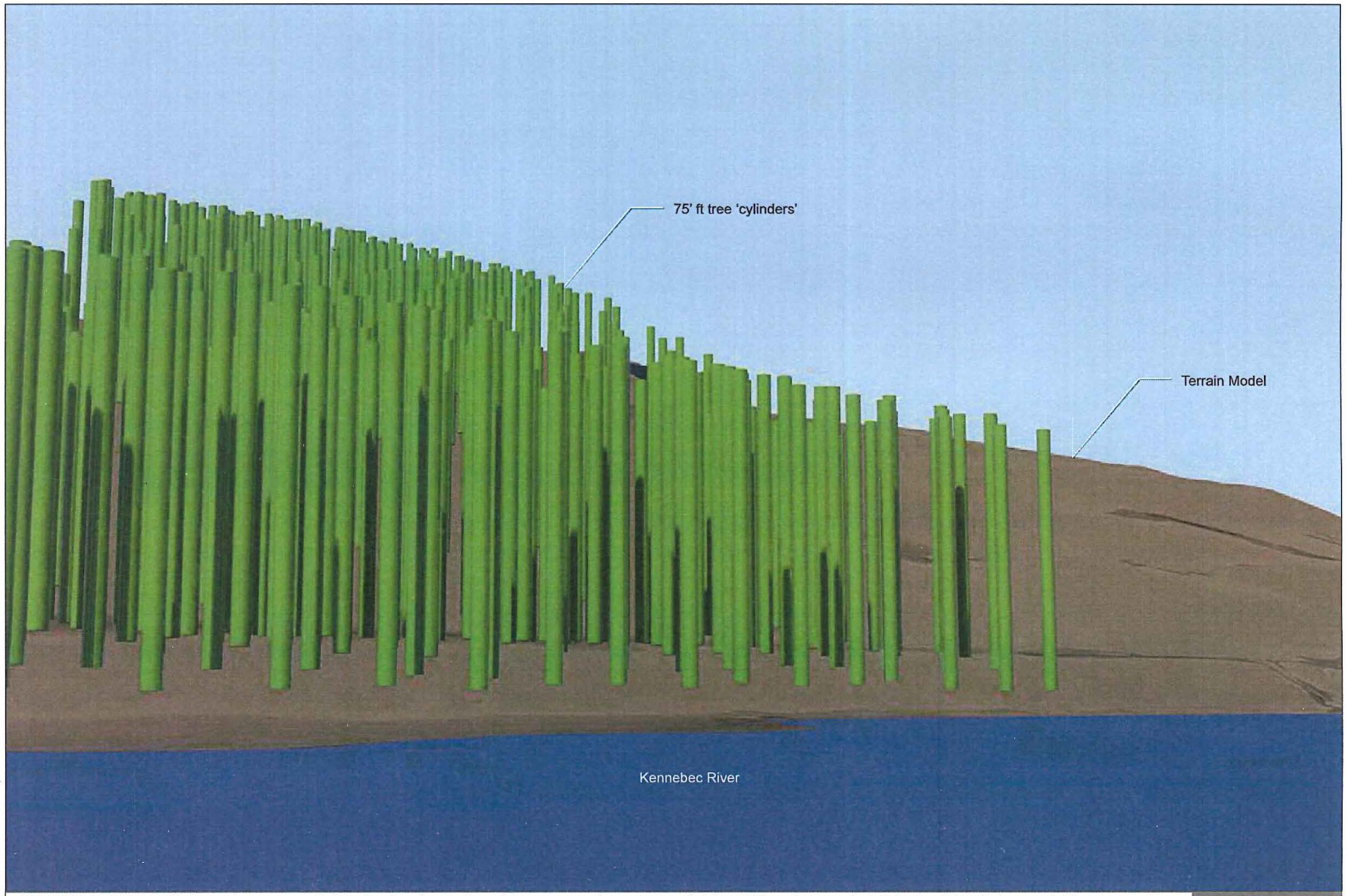


COMPUTER MODEL A-1: This image is generated from a 3D Model developed for the Project and shows the existing terrain when looking from the viewpoint depicted in the Existing Conditions A photograph. Modeling indicates a portion of the proposed West Forks Termination Station would be visible from this location if there was no vegetation on the hillside. The existing terrain would block the lower portion of the Station.

October 18, 2018

WEST FORKS TERMINATION STATION VISIBILITY EVALUATION
KENNEBEC RIVER, Looking North

NEW ENGLAND CLEAN ENERGY CONNECT



COMPUTER MODEL A-2: This image shows green cylinders placed on the terrain model to represent the average tree height of 75 ft as shown on the Existing Conditions A photograph. These tree representations are placed between the river's edge and the clearing limits surrounding the proposed West Forks Termination Station. The modeling indicates that the 75 ft trees will screen the Termination Station from the River.

October 18, 2018

TERMINATION STATIONS VISIBILITY EVALUATION,
KENNEBEC RIVER, Looking North

NEW ENGLAND CLEAN ENERGY CONNECT

COMPUTER MODEL A-3: This image shows the computer model (terrain and 75' tree cylinders) overlaid and registered with the Existing Conditions photo. The preserved vegetation on the hillside will completely screen the West Forks Termination Station from the Kennebec River.

October 18, 2018

PHOTOSIMULATION 3A: ROCK POND, T5 R6 BKP WKR, Revised Structures 731-735

NEW ENGLAND CLEAN ENERGY CONNECT

Proposed Conditions: (Revised 12.7.18) Normal view looking northwest from the southeast end of Rock Pond toward the proposed HVDC transmission line. Approximately six structures and conductors will be visible in the partially cleared corridor in the valley between Three Slide and Greenlaw Mountains. A portion of the corridor on Three Slide Mountain will include taller structures and allow full vegetation growth. The remainder of the visible corridor will be maintained with a tapered vegetation management technique to minimize the visual notch affect as viewed from Rock Pond.

December 4, 2017

Revised December 7, 2018

CMP-2-G

Goodwin, Mark (CMP-3)

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)
CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
SITE LAW CERTIFICATION SLC-9	)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,	)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,	)
Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF MARK GOODWIN

Regarding

- Project Overview
- Issue 1: Scenic Character and Existing Uses
- Issue 2: Wildlife Habitat and Fisheries
- Issue 4: Compensation and Mitigation

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Mark Goodwin and I am a Senior Environmental Scientist at Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell"). My curriculum vitae is

attached hereto as Exhibit CMP-3-A. I have been working on behalf of Central Maine Power Company ("CMP") as Environmental Project Manager associated with permitting support for the New England Clean Energy Connect Project ("NECEC" or "Project") since April of 2017.

My principal role on the NECEC permitting team consists of managing the development and submittal of the state and federal permit applications, supplemental application materials, and responses to agency information requests. Additionally, I have coordinated meetings and interfaced with regulatory staff on behalf of CMP to discuss avoidance, minimization, and compensation for unavoidable impacts on protected natural resources. I am thoroughly familiar with the NECEC Project design, plans, and documentation submitted in support of the applications, including the natural resource avoidance and mitigation measures, unavoidable natural resource impacts, and the compensation proposed for those impacts.

I have been an environmental professional for 20 years, working with a variety of clients primarily within the electrical transmission and natural gas pipeline industries. I obtained a Bachelor of Science in Natural Resources, with a concentration in Resource Economics and Environmental Policy, from the University of Maine in 1998, and became a Certified Professional in Erosion and Sediment Control ("CPESC") in 2005.

From 1998 to 2009, I was employed by Northern Ecological Associates, Inc. (now Tetra Tech, Inc.) in Portland, Maine as an environmental scientist. In that role, my responsibilities included wetlands delineation, wildlife and aquatic surveys, habitat assessments, regulatory assessments, National Environmental Policy Act ("NEPA") report preparation, Section 7 Endangered Species Act ("ESA") consultation, and state, federal, and local permitting, primarily for linear energy development projects. In addition, I provided regulatory compliance services for clients during the construction of their projects. I also provided third party environmental

compliance inspection services for the Federal Energy Regulatory Commission ("FERC") and the Massachusetts Department of Environmental Protection on natural gas pipeline projects, and for the Maine Department of Environmental Protection ("DEP") on an electric transmission line project.

In 2009, I joined Burns & McDonnell in Portland, Maine where I was the environmental permitting and compliance manager as part of the program management team on CMP's Maine Power Reliability Program ("MPRP") project. In that role, my responsibilities included managing the construction phase regulatory compliance effort, which entailed construction compliance inspection; coordination of project variances and preparation of the associated permit modification applications; and interaction with local, state, and federal regulatory staff. In that capacity, I also managed the municipal permitting effort, developed multiple interactive environmental training programs, and trained over 5,000 workers.

Since the completion of the MPRP in 2015, I have assisted with permitting and compliance on a number of energy development projects across the northeast and mid-Atlantic for a variety of clients in the electric, natural gas, and wind power industries. In addition, I assisted the City of Bangor, Maine with state and federal permitting for a coal tar remediation project in the Penobscot River, including literature review and evaluation of impacts to Atlantic salmon and Atlantic and shortnose sturgeon and preparation of a draft Not Likely to Adversely Affect letter in support of the Section 7 ESA consultation and the Department of the Army permit for the project.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

The purpose of my testimony is to discuss buffering for visual impacts; impacts to state-listed Roaring Brook Mayfly and Northern Spring Salamander, brook trout habitat, habitat

fragmentation, and cold water fisheries; and the adequacy of compensation and mitigation for unavoidable impacts to cold water fisheries habitat, outstanding river segments, and wetlands.

III. Summary of Testimony (Relevant to DEP and LUPC Review)

CMP has made adequate provision for buffering for visual impacts and the Project has been located, designed, and landscaped to minimize visual impact on the surrounding area such that it will neither adversely affect nor unreasonably interfere with scenic character. CMP also has made adequate provision for the protection of wildlife habitat and fisheries, specifically that the Project will not unreasonably harm habitats of the state-listed threatened Roaring Brook Mayfly or the species of special concern Northern Spring Salamander, brook trout, and coldwater fisheries, nor will it result in unreasonable habitat fragmentation. The Project avoids and minimizes impacts to these resources and provides adequate compensation for those impacts to cold water fisheries habitat, outstanding river segments, and wetlands that cannot be avoided, to achieve no net loss of habitat functions and values.

IV. Discussion

a. Project Overview

i. Project Description (Relevant to DEP and LUPC Review)

I hereby adopt the project description provided in the direct testimony of Gerry Mirabile as if it were my own.

ii. Project Purpose and Need (Relevant to DEP and LUPC Review)

I hereby adopt the project purpose and need description provided in the direct testimony of Gerry Mirabile as if it were my own.

b. Issue 1 (Scenic Character and Existing Uses)

i. Buffering for Visual Impacts (Relevant to DEP and LUPC Review)

The NECEC project components include transmission line poles and conductors, as well as electric substation, termination station, and converter station facilities (collectively referred to as "substations"). CMP sited the NECEC project components to fit the development into the existing natural environmental by using existing transmission line corridors as well as natural buffers, topography, and existing vegetation to minimize visibility from scenic and natural resources.

Approximately 91.8 miles of the Project's 145.3 miles of HVDC line corridor, and approximately 139.5 miles of the total 193 miles of transmission line corridor, are sited in existing transmission line corridors and average only about 75 feet of widening of existing corridors, thereby minimizing visual impact of the new HVDC line. Substations are proposed in areas where similar infrastructure already exists or is otherwise screened from adjacent uses by topography and/or intervening vegetation. Through the visual impact analysis performed by Terrence J. DeWan and Associates, Inc. ("TJDA"), CMP determined that mitigation in the form of buffer plantings is appropriate to buffer (1) one substation, Fickett Road Substation, from adjacent uses along Fickett Road in Pownal and (2) the Project from users on Moxie Stream in Moxie Gore. These visual buffer planting plans were submitted to the DEP and LUPC on August 13, 2018. Additionally, mitigation in the form of buffer planting plans was determined to be necessary to buffer the Project from users of Route 201 in Moscow and Johnson Mountain Twp (Old Canada Road Scenic Byway). These buffer planting plans were submitted to the DEP and LUPC on December 8, 2018. It should be noted that since the submission of the buffer planting plan for Moxie Stream, CMP has agreed to allow taller vegetation to persist for distances of 269

and 296 feet, respectively, for the purpose of maintaining deer travel corridors on either side of Moxie Stream. This will further minimize views of the corridor in this area.

No lighting is proposed within the transmission line corridor. Substations will include perimeter lighting, control house and converter building lighting, and work lights. The control house, converter building, and perimeter lighting will use full cut-off luminaires to reduce light spillage. The work lights will be flood-type luminaires, but only operated for maintenance or emergencies.

Furthermore, CMP proposes to cross beneath the upper Kennebec River, an Outstanding River segment, using horizontal directional drilling ("HDD") to eliminate views from the river's scenic and recreational uses. The corridor as designed minimizes visibility from Route 201, a scenic byway, by siting the line perpendicular to the road to minimize the duration of visibility for motorists, and by siting the corridor on the west side of Johnson Mountain in a topographic depression on Coburn Mountain to eliminate visibility for motorists.

CMP also proposed to shorten a structure closest to Beattie Pond, a Management Class 6 remote pond in Beattie Township, to minimize visibility from recreational users of the LUPC's P-RR subdistrict.

The transmission line components of the Project will consist of weathered steel or wooden poles and will have electric conductor that over a period of years will weather to a matte finish. This will reduce the contrast in color of the transmission line components, thereby buffering the view from adjacent uses. The transmission line will be primarily co-located with existing corridors and, in the case of the new corridor, will be sited in an area that has been dominated by industrial scale timber harvesting for over 100 years, resulting in an ever-changing mosaic of successional growth patterns across the landscape. Users of this area are aware of and

expect to see these constantly evolving visual changes to the landscape. The transmission line will fit visually with existing uses in both the co-located and new corridor portions of the Project.

Additionally, to maintain required minimum operational safety clearances, vegetation within the corridor will be managed to ensure that it generally does not grow taller than ten feet. Natural buffering between the corridor and abutting properties, consisting primarily of native scrub-shrub non-capable species (i.e., species not capable of growing greater than ten feet in height), will be maintained. Areas that are cleared of capable species will typically become characterized by this same scrub-shrub environment. Trees within the right-of-way will be cut using logging equipment, but all roots, other than those located in areas that require excavation, will be left intact in order to hold the soil. Soil disturbance and grading will be minimized through careful planning of temporary access ways. When the temporary access ways are removed, the disturbed areas will be restored to their pre-construction grade and allowed to revegetate. Except for the areas immediately around the base of each transmission line structure, the full width and length of the transmission corridor will remain vegetated following construction of the Project. CMP also proposed a vegetation management practice of tapered vegetation to buffer the view of the transmission line corridor from Coburn Mountain and Rock Pond.

These construction and vegetation management practices are included in CMP's Site Law application, Exhibit 10-1 New England Clean Energy Connect Plan for Protection of Sensitive Natural Resources During Initial Vegetation Clearing ("VCP") and Exhibit 10-2 New England Clean Energy Connect Post-Construction Vegetation Management Plan ("VMP") (updated January 30, 2019).They will shield adjacent uses, minimize the visual impact of the Project to the

fullest extent possible, and will result in a transmission line corridor that will fit harmoniously into the existing natural environment.

ii. Buffering Specific to the P-RR Subdistrict (Relevant to LUPC Review)

Approximately 71.7 miles of NECEC corridor are located within the LUPC's jurisdiction. Utility facilities like the HVDC transmission line are an allowed use in each of the LUPC subdistricts crossed, including those by special exception for utility facilities, i.e., the Recreation Protection Subdistrict ("P-RR").

P-RR subdistricts are those areas identified by the LUPC that provide or support unusually significant primitive recreation opportunities. The special exception criteria for utility facilities in the P-RR subdistrict require the applicant to show that the use can be buffered from other uses or resources within the subdistrict. The HVDC transmission line corridor crosses the P-RR subdistrict in three locations: near Beattie Pond in Beattie Twp; at the Upper Kennebec River between Moxie Gore and West Forks Plt; and at the Appalachian Trail ("AT") in Bald Mountain Twp, as further described below and discussed by CMP witnesses Terrence DeWan and Amy Segal.

Beattie Pond is classified as a Management Class VI Lake, also referred to as a Remote Pond. The P-RR subdistrict associated with Beattie Pond encompasses a ½-mile buffer from the normal high-water mark of the waterbody (Exhibit CMP-3-B). Portions of the P-RR subdistrict are located in Beattie Twp, Lowelltown Twp, Skinner Twp, and Merrill Strip Twp. The proposed development is located within ¼-mile of the high-water mark of Beattie Pond within the P-RR subdistrict. As stated in the Site Law application and further explained by CMP witness Brian Berube, CMP attempted to negotiate an alternative alignment south of the Beattie Pond P-RR subdistrict through Merrill Strip Twp, but was unable to come to mutually-acceptable terms with

the landowner. Re-routing north of the pond to avoid the P-RR subdistrict would result in approximately two miles of additional corridor and associated vegetation clearing and would lead to potentially higher visibility from the pond due to the higher elevations associated with Caswell Mountain. Neither alternative route is suitable for the proposed use, or reasonably available to CMP. Views of the Project from uses on Beattie Pond originally included one transmission line structure. CMP submitted an application modification to the DEP and LUPC on January 25, 2019 that, at the request of the LUPC staff, reduced the height of this structure to further buffer the Project from Beattie Pond.

The P-RR subdistrict at the upper Kennebec River extends for a distance of 250 feet from the normal high-water mark on both sides of the river (Exhibit CMP-3-C). The original project design at this location included an overhead transmission line crossing of the river with no transmission line structures being placed in the P-RR subdistrict. In addition, CMP agreed to maintain forested buffers on both sides of the river to minimize visual impacts to users on the river. CMP amended its proposal on October 19, 2018 to incorporate an underground as opposed to overhead crossing of the river, using HDD technology. As a result, forested buffers on both sides of the river have been expanded to 1,450 feet and 1,160 feet, respectively, and there are no views of transmission line structures or overhead conductors or of either termination station from the P-RR subdistrict.

The NECEC Project crosses the P-RR subdistrict in three locations on the AT adjacent to Moxie Pond and Trestle Road in Bald Mountain Twp. These crossings occur in an existing CMP corridor, which already contains a 115kV transmission line (Exhibit CMP-3-D). The P-RR subdistrict in this location includes a 200-foot-wide strip centered over the AT. The configuration of the trail, within and adjacent to an approximately 3,500-foot-long portion of

existing transmission line corridor, prevented CMP from avoiding direct impacts to the subdistrict. As a result, one of five transmission line structures in this portion of the Project corridor is located within the P-RR subdistrict. Alternative alignments of the Project would result in crossings of the AT in one or more locations where there are no existing transmission line corridors. Co-location of the HVDC transmission line within the existing transmission line corridor therefore minimizes visual impacts to users in the P-RR subdistrict. In addition, CMP reduced structure heights along the length of Moxie Pond to further minimize visual impacts from viewpoints from the AT on the summits of Pleasant Pond Mountain and Bald Mountain and from Moxie Pond.

As of March 2014, there were 56 electric transmission line crossings of 230 kilovolts (kV) or more along the length of the AT, equating to one 230kV transmission line crossing for every 38 miles of trail length[1]. The portion of the AT located in Maine is crossed by five (5) 115kV transmission lines. Because hikers are aware of and expect to see utility corridors, and the Project has been co-located in existing corridor, there will be a negligible change in the visual impact of transmission line poles and overhead conductors to hikers using the trail. However, the visual impact assessment completed by TJDA concluded that open views of the corridor from the Appalachian Trail at Troutdale Road justified mitigation in the form of a buffer planting plan. CMP prepared a plan that buffers views of the project and submitted it to the DEP and LUPC on August 13, 2018.

[1] Argonne National Laboratory. 2014. Electricity Transmission, Pipelines, and National Trails: An Analysis of Current and Potential Intersections on Federal Lands in the Eastern United States, Alaska, and Hawaii. Prepared for the United States Department of Energy, Office of Electricity Delivery and Energy Reliability, Washington, D.C.

iii. Issue 1 Conclusion (Relevant to DEP and LUPC Review)

It is my opinion that the development will not adversely affect scenic character; CMP has made adequate provision for buffering for visual impacts. The Project has been located, designed, and landscaped to minimize its visual impact to the fullest extent possible, and the Project provides for the preservation of existing elements of the development site which contribute to the maintenance of scenic character.

Where the Project is located within the P-RR subdistrict, it will be sufficiently buffered from other uses and resources to meet the LUPC's special exception criteria.

c. Issue 2 (Wildlife Habitat and Fisheries)

On behalf of CMP, Burns & McDonnell consulted with the Maine Department of Inland Fisheries and Wildlife ("MDIFW") and requested that MDIFW conduct a project review and provide existing data on wildlife and fisheries resources, including the identification of significant habitats, rare or listed species, and significant communities that may be present on or within the impact area. CMP met extensively with the MDIFW to discuss the Project's effect on endangered species, brook trout habitat, habitat fragmentation, and buffer strips around cold water fisheries; avoidance of impacts to wildlife and fisheries; and compensation for unavoidable impacts (discussed in the next section). Through this consultation and by careful evaluation of Project impacts, CMP developed proposed avoidance, mitigation, and compensation to address those impacts.

i. Endangered Species – Roaring Brook Mayfly, Spring Salamanders (Relevant to DEP Review)

MDIFW identified the presence of Roaring Brook Mayfly, a state threatened species, and the likely presence of Northern Spring Salamander, a special concern species, within the NECEC Project area in its March 15, 2018 environmental permit review letter to DEP Project Manager

James Beyer. It should be noted that species of "special concern" are not protected under the Maine Endangered Species Act ("Maine ESA"), but are administrative categories established by policy for planning and information purposes.

To protect these species, MDIFW recommended a 250-foot riparian management zone for all streams draining slopes above 1,000 feet elevation mean sea level with course substrates and bordered by relatively undisturbed mixed or hardwood forest. As allowed by MDIFW, CMP alternatively chose to conduct field survey for these species in streams meeting these habitat preferences within the NECEC corridor from the Maine/Quebec border through Johnson Mountain Twp. Burns & McDonnell evaluated all perennial water bodies within the survey area and submitted a subset of these water bodies (75 streams), including stream characterizations developed through evaluation of the original natural resource survey field data forms, to the MDIFW on August 7, 2018.

Upon its review of the data provided, MDIFW eliminated 34 streams from consideration due to inadequate habitat conditions for Roaring Brook Mayfly and Northern Spring Salamander. Environmental scientists from Burns & McDonnell, accompanied by MDIFW-recommended (Exhibit CMP-3-E) entomologist Marcia Siebenmann and herpetologist Trevor Persons, conducted the field survey effort during the weeks of September 10-14 and September 17-21, 2018 and submitted the results of the survey to MDIFW on October 19, 2018. Further evaluation of laboratory samples by entomologist Dr. Steve Burian at the Southern Connecticut State University confirmed the presence of Roaring Brook Mayfly in two of the water bodies, Mountain Brook and Gold Brook, surveyed. Samples from the South Branch of the Moose River could not be positively identified, however MDIFW determined that for this waterbody Roaring Brook Mayfly should be considered present. Eleven of the water bodies surveyed confirmed the

presence of Northern Spring Salamander. In addition, a number of water bodies located outside of CMP's 300-foot wide corridor but within 250 feet of the proposed clearing limits, meeting the aforementioned habitat parameters, were not surveyed due to a lack of survey permission from the landowner. In these instances, CMP assumed presence of Roaring Brook Mayfly and Northern Spring Salamander.

Following the completion of the presence/absence surveys, MDIFW informed CMP that it considered two locations, Mountain Brook in Johnson Mountain Twp and Gold Brook in Appleton Twp, to be ecologically significant. Accordingly, and upon consultation with MDIFW, CMP revised its proposal to incorporate taller structures and avoid clearing by allowing full height canopy within the 250-foot riparian management zone for Mountain Brook and Gold Brook as shown in Exhibit CMP-3-F. For all other streams with presence of Northern Spring Salamander and/or Roaring Brook Mayfly, assumed or known, MDIFW agreed that CMP's vegetation management practices and a contribution to the Maine Endangered and Non-game Wildlife Fund would adequately protect the habitat and species.

ii. Brook Trout Habitat (Relevant to DEP Review)

Of the 743 waterbodies located within the NECEC corridor, 223 have been identified by the MDIFW as containing brook trout (*Salvelinus fontinalis*). Brook trout are pervasive in the Project area and found in some portion of many of the water bodies within that area. The brook trout populations in some of these streams are natural and self-supporting, particularly those associated with the smaller, colder streams that are sustained by groundwater input.

Potential indirect impacts to brook trout habitat include sedimentation and turbidity, introduction of pollutants, and stream insolation. A study by N.C. Gleason[2] on the impacts of power line rights-of-way ("ROW") on forested stream habitat found that despite the open canopy condition, water temperatures were slightly lower than in off-ROW areas and that none of the water quality parameters was significantly different between the on-ROW and off-ROW study areas. Gleason's study also found no correlation between percent canopy cover and mean percentage of fines and found no significant difference in the Benthic Index of Biotic Integrity scores between on-ROW and upstream areas.

With the exception of culvert removals and replacements intended to improve habitat quality and connectivity proposed as part of CMP's Compensation Plan, the Project will have no direct impact (i.e., in-stream construction) on brook trout habitat. All equipment crossings are temporary, completely span each stream, and will be constructed and maintained in a manner that will prevent sediment from entering water bodies. Additionally, CMP will follow its *Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects* (Site Law application Exhibit 14-1), provided in the Basic Standards Submission Section of the Site Law application, which contains effective and proven erosion and sedimentation control best management practices that will be used to protect soil and water resources during construction of the various NECEC Project components.

To minimize the potential adverse impact to water quality from spills, no fuel storage, refueling, vehicle parking, or vehicle maintenance will be performed within 100 feet of protected wetlands or water bodies, unless no practicable alternative exists and sufficient secondary containment is provided. CMP will also implement its *Environmental Control Requirements for*

[2] Gleason, N.C. 2008. Impacts of Power Line Rights-of-Way on Forested Stream Habitat in Western Washington. Environmental Symposium in Rights-of-Way Management, 8th International Symposium, pages 665-678.

Contractors and Subcontractors - Oil and Hazardous Material Contingency Plan (Site Law application Exhibit 15-1), which establishes minimum requirements for effective spill prevention, response, and reporting.

Sun exposure on smaller water bodies can result in a negative impact due to an increase in water temperature (insolation), which can pose problems for cold water fisheries. A.M. Peterson[3] has reported that the removal of tree canopy (on new transmission line corridors) increases stream insolation during the short term, but within two years the areas are bordered by dense shrubs and emergent vegetation and water temperatures are not significantly higher than upstream forested reaches. Similarly, Peterson found that stream reaches in electric transmission ROWs were exposed to more light, had denser stream bank vegetation, were deeper and narrower, and had a greater area composed of pools. Peterson's study found that trout were more abundant in stream reaches within ROWs and concluded that the increase in incident sunshine resulted in a denser forb and shrub root mass, which further stabilized stream banks, resulting in less stream bank erosion, deeper channels, and higher populations of trout.

CMP's vegetation maintenance will be implemented on a four-year cycle following the initial clearing effort, which encourages the dense forb and shrub root mass found by Peterson to minimize impacts to trout and sustain a viable trout population.

iii. Habitat Fragmentation (Relevant to DEP Review)

CMP minimized and avoided habitat fragmentation impacts in several ways including co-locating the majority of the transmission line components within existing corridors and locating the remainder of the transmission line components primarily within areas already subject to intensive industrial forestry practices; implementing vegetation management practices that are

[3] Peterson, A.M. 1993. Effects of Electric Transmission Rights-of-Way on Trout in Forested Headwater Streams in New York. North American Journal of Fisheries Management, vol. 13 pp. 581-585.

wildlife friendly and promote early successional habitat throughout its corridors; and allowing for taller vegetative growth to be maintained in select locations of the NECEC ROW to address species-specific concerns.

Co-location of energy infrastructure is a primary consideration when minimizing impacts to existing land uses and the environment. The proposed development minimizes habitat fragmentation in this manner by utilizing existing transmission line corridors for approximately 73% of the Project. CMP's siting strategy was to identify a corridor that utilized the greatest amount of existing transmission line corridor with the least amount of environmental impact. CMP, through its alternatives analysis that is discussed in detail by CMP witnesses Gerry Mirabile, Brian Berube, Amy Segal, and Terrance DeWan, identified the proposed route consisting of existing transmission line corridor between Lewiston and the northern terminus of Lake Moxie and the portion of new corridor located between the northern terminus of Lake Moxie to the Maine/Quebec border, a "working forest" that is routinely disturbed by forestry activities, as the preferred alternative.

CMP manages vegetation within its line corridors consistent with techniques promoted as part of a 2016 Memorandum of Understanding ("MOU")[4] between the Environmental Protection Agency ("EPA"), Edison Electric Institute, U.S. Department of Agriculture (specifically, the Forest Service), and U.S. Department of the Interior (specifically, the Bureau of Land Management, Fish and Wildlife Service, and National Park Service). Integrated vegetation management ("IVM") practices have been adopted by federal agencies as the best practices standard within utility rights-of-way. IVM promotes the development of early successional growth and resists the growth of vegetation into taller strata (trees) through the application of

[4] EPA et al. 2016. Memorandum of Understanding on Vegetation Management for Powerline Rights-of-Way. 14pp.

environmentally friendly manual, mechanical, and chemical treatments on a four-year maintenance cycle. IVM is recognized as a practice that reduces impacts on land, water, habitat and wildlife while meeting the goals of providing reliable and safe electrical service.

According to the EPA[5], "the IVM approach can create natural, diverse, and sustaining ecosystems, such as a meadow transition habitat. These transition landscapes, in turn, reduce wildlife habitat fragmentation and allow species to be geographically diverse, remaining in areas from which they might otherwise be excluded. A variety of wildlife species (including threatened and endangered species) consider these habitats home, such as butterflies, songbirds, small mammals, and deer. These habitats also encourage the growth of native plant species and can increase plant diversity." IVM optimizes wildlife habitat potential and produces a soft edge effect which lessens the impact of fragmentation[6].

CMP's vegetation management practices will avoid the hard edge impact generally associated with habitat fragmentation and negative impacts on species resiliency by creating a soft edge that maintains landscape permeability and establishes areas of dense shrubby vegetation and taller vegetation where topographic conditions allow (e.g., steep ravines), thereby providing a vegetation bridge for wildlife movement across the NECEC corridor. Further, CMP's vegetation management practices require riparian buffers, ranging from 75 to 100 feet in width measured from the top of bank, to be maintained at all stream crossings in a manner that will allow taller non-capable vegetation to persist, promoting the movement of wildlife across the corridor and increasing habitat connectivity in these areas.

[5] https://www.epa.gov/pesp/benefits-integrated-vegetation-management-ivm-rights-way#benefit
[6] Bramble, W.C., and W.R. Byrnes. 1996. Integrated vegetation management of an electric utility right-of-way ecosystem. Down to Earth 51(1):29–34.

CMP's proposed development will not create a "hard" edge, i.e., the change in habitat is primarily restricted to a change in vegetation cover type from forested to scrub-shrub, as opposed to the permanent removal of habitat (e.g., roads and impervious surfaces associated residential and commercial developments). An evaluation of vernal pool habitat by TRC Engineers, LLC (TRC), based on an extensive survey of over 620 miles of electric transmission corridor on the MPRP project (Exhibit 1-7 of the Compensation Plan, revised January 30, 2019), found that habitat conditions permeable to amphibian migration, including the presence of leaf litter, coarse woody debris, mammal burrows, and dense herbaceous and shrub vegetation cover, were present in CMP's transmission corridors. CMP's construction and vegetation management practices proposed for the NECEC Project will encourage early successional growth supporting these permeable habitat conditions.

TRC's evaluation concluded that "no measurable loss of vernal pool functions is apparent in and along electric utility transmission corridors; in fact, significant vernal pools remain abundant and highly productive in the typical scrub/shrub habitat found in most transmission line corridors, even after multiple decades." Although the Project will not create an urbanized environment, according to Windmiller and Calhoun[7] vernal pool wildlife species are known to exhibit some resistance and resilience even to urbanization. This acknowledgment, in addition to the hundreds, if not thousands, of functioning vernal pools located within CMP corridors, supports the conclusion that the "soft" development associated with the Project will not unreasonably impact vernal pools through habitat fragmentation.

The impact of habitat fragmentation on vernal pools is further mitigated by the fact that the majority of vernal pools, significant or otherwise, within the Project ROW are located within

[7] Windmiller, Bryan & J. K. Calhoun, Aram. (2007). 12 Conserving Vernal Pool Wildlife in Urbanizing Landscapes. 10.1201/9781420005394.ch12.

1,000 feet of another vernal pool. As described by the USACE 2016 New England District Compensatory Mitigation Guidance, clusters of vernal pools that vary in size, hydroperiod, and spatial proximity provide each resident species with a variety of potential breeding sites.

In addition to the minimization and avoidance of habitat fragmentation through co-location and IVM practices, CMP has incorporated allowances for taller vegetation to persist in select locations to address habitat fragmentation concerns identified through consultation with MDIFW. These include: deer travel corridors in the biologically significant Upper Kennebec Deer Wintering Area ("DWA") and in Rusty Blackbird habitat in Johnson Mountain Twp./Parlin Pond Twp. Through consultation with the MDIFW, CMP developed a series of ten (10) deer travel corridors (Exhibit CMP-3-G), ranging in size from 247 to 1,450 linear feet, that will allow taller trees to persist in the ROW to promote habitat connectivity and minimize fragmentation of the Upper Kennebec DWA. Also, through consultation with MDIFW, CMP proposes to allow softwoods up to 15 feet in height to grow within the ROW in locations where it overlaps Rusty Blackbird habitat (Exhibit CMP-3-H).

iv. Buffer Strips Around Cold Water Fisheries (Relevant to DEP Review)

The construction and vegetation management practices described in Exhibit 10-1 VCP and Exhibit 10-2 VMP of CMP's September 27, 2017 Site Law application establish protections for stream buffers within the NECEC Project area. Riparian natural buffers or stream buffers were expanded from CMP's initial proposal in September 2017. In a meeting held between CMP, DEP, and MDIFW on January 22, 2019, DEP recommended that for CMP to adequately protect cold water fisheries, protections of riparian buffers for vegetation management and maintenance activities should be expanded to100 feet for cold water fishery habitats, outstanding river segments, threatened or endangered species water bodies, and all perennial streams in the

new corridor portion (Segment 1) of the Project. For all other water bodies, DEP recommended an expanded buffer of 75 feet. Based on this guidance, CMP incorporated these changes into Exhibit 10-1 VCP and Exhibit 10-2 VMP of CMP's amended Site Law application, filed with the DEP on January 30, 2019. The following is a summary of the restrictions and protections for work in riparian buffers as provided in amended Exhibits 10-1 and 10-2.

Prior to initial clearing for construction stream buffers will be flagged with unique flagging so contractors can distinguish between the applicable 75-foot or 100-foot stream buffer and apply the appropriate protections and restrictions. Flagging will be maintained throughout construction. CMP will avoid placing any transmission structures within the stream buffers, unless specifically authorized by DEP and accompanied by a site specific erosion and sediment control plan. No structures will be placed within 25 feet of any stream regardless of classification. Additionally, CMP will use erosion and sedimentation control practices described in its *Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects* (Site Law application Exhibit 14-1).

To protect water quality, during construction and during post-construction vegetation maintenance, foliar herbicides will be prohibited within the applicable stream buffers and there will be no refueling/maintenance of equipment in these areas unless it occurs on a paved road or if adequate secondary containment is used with oversight from an environmental inspector.

To minimize ground disturbance and limit the potential for erosion and sedimentation, initial clearing efforts will be performed during frozen ground conditions whenever practicable, and, if not practicable, the recommendations of the environmental inspector will be followed regarding the appropriate techniques to minimize disturbance, such as the use of selectively placed travel lanes within the stream buffer. Removal of capable species or dead or hazard trees

within the stream buffer will typically be accomplished by hand-cutting, but the use of mechanized equipment is allowed if supported by construction matting or during frozen conditions in a manner (i.e., use of travel lanes and reach-in techniques) that preserves non-capable vegetation less than 10 feet in height to the greatest extent possible.

Prior to routine vegetation maintenance of the transmission corridors, which is typically conducted on a 4-year cycle, all buffers will be flagged with unique flagging to distinguish between their applicable buffers, 75 feet or 100 feet. Within that portion of the stream buffer that is within the wire zone (i.e., within 15 feet, horizontally, of any conductor) all woody vegetation over 10 feet in height, whether capable or non-capable, will be cut back to ground level (Exhibit CMP-3-I). Resulting slash will be removed within 50 feet of the stream and managed in accordance with the Maine Slash Law. No other vegetation will be removed, other than dead or hazard trees. Removal of capable species within the stream buffers will be accomplished by hand cutting only. Mechanized equipment will not be used.

Allowing non-capable vegetation to remain as described within the appropriate buffer will provide shading and reduce the warming effect of direct sunlight (insolation). Low ground cover will also remain within these buffers to filter any sediment or other pollutants in surface runoff. These restrictions will allow the stream buffers to provide functions and values similar to those prior to transmission line construction.

As discussed in my testimony on habitat fragmentation above, the maintenance of these buffers will provide adequate space for movement of wildlife between important habitats. The expansion of CMP's original buffer proposals, to further ensure protection of cold water fisheries (as determined by DEP and MDIFW), accompanied by the restrictions and protections described above, provide that no unreasonable harm will occur to cold water fisheries.

v. Issue 2 Conclusion (Relevant to DEP Review)

For the foregoing reasons, it is my opinion that there will be no unreasonable disturbance to or unreasonable impact on the Roaring Brook Mayfly, Northern Spring Salamanders, or Brook Trout habitat, and the Project will not result in unreasonable habitat fragmentation. Alteration of such habitat and disturbance of such wildlife has been kept to the minimum amount necessary, and the Project does not unreasonably degrade such habitat, unreasonably disturb such wildlife, or unreasonably affect the continued use of the site by such wildlife. CMP has made adequate provision for buffer strips around cold water fisheries.

d. Issue 4 (Compensation and Mitigation)

CMP's Compensation Plan achieves a no-net-loss of ecological functions and values through a combination of: use of the In-Lieu-Fee ("ILF") Program by the DEP and the U.S. Army Corps of Engineers ("USACE") as a compensatory mitigation option for permit applicants; preservation of regionally significant natural resources; and implementation of a number of wildlife habitat enhancement projects. This Plan meets, and in the case of compensation for wetlands and other impact types, exceeds the applicable compensation requirements, as demonstrated further below. For reference, Exhibit CMP-3-J includes the summary tables provided in the Compensation Plan.

i. Cold Water Fisheries Habitat (Relevant to DEP Review)

The DEP noted in its December 12, 2017 Environmental Information Request that the mitigation package should compensate for impacts to cold water fisheries (and recreational uses of the outstanding river segments) and that "The Department envisions this mitigation package will be the responsibility of CMP to implement, not simply providing ILF monies." As such,

CMP has proposed a variety of mitigation and compensation measures in its Compensation Plan, submitted on January 30, 2019.

As previously discussed in this testimony, CMP incorporated adequate protections by expanding buffers to 100 feet for the cold water fishery resources, so the Project will not result in an unreasonable disturbance of this habitat.

Nonetheless, in a January 22, 2019 meeting DEP and MDIFW asked CMP to quantify linear miles of streams within the Project that will be subject to forested conversion and evaluate the indirect impact to these resources. The Plan, as described below, is robust and addresses the various requests made by the agencies to compensate for the indirect impact of forest conversion of riparian areas within the NECEC ROW.

The NECEC will have 11.02 linear miles of streams that will be subject to forested conversion impact; this includes all streams regardless of classification or value. While the DEP did not offer specific guidance or compensation ratios, the Compensation Plan offers a comprehensive package with a variety of mitigation and compensation measures, as previously recommended by DEP:

1. Preservation of 12.02 linear miles of stream contained within the Grand Falls Tract, Lower Enchanted Tract, and Basin Tract, which is greater than a 1:1 ratio.
2. A contribution of $180,000 to the Maine Endangered and Nongame Wildlife Fund to protect cold water fishery habitat. The contribution amount was based on the estimated labor cost to implement "chop and drop," a cold water fisheries habitat enhancement and mitigation proposal on perennial streams in the new corridor portion of the Project (Segment 1). "Chop and drop," which refers to the implementation of the Maine Forest Service Rule Chapter 25 "Standard for Placing Wood into Stream Channels to Enhance

Cold water Fisheries Habitat," was removed from the Compensation Plan at the request of MDIFW and replaced with the fee contribution. The contribution that replaced the "chop and drop" was included to offset the partial loss of course woody debris resulting from tree clearing in riparian areas.

3. Implementation of the Culvert Replacement Program, which includes the repair, removal, or replacement of culverts within CMP-controlled lands as well as $200,000 of funding to replace culverts on lands outside CMP's ownership. The intent of the culvert replacement program is to provide habitat enhancement and connectivity for cold water fisheries to offset lost functions and values of these resources, however minor.

ii. Outstanding River Segments (Relevant to DEP Review)

The NECEC crosses five locations that are protected as outstanding river segments:

- Upper Kennebec River
- Kennebec River below Wyman Dam
- Carrabassett River
- Sandy River
- West Branch of the Sheepscot River

CMP proposes to cross under the upper Kennebec River using HDD to preserve the aesthetic value of this river segment. Crossing beneath the Kennebec River will eliminate views of any NECEC Project components from recreational and other river users.

In the other four outstanding river locations, CMP minimized impact by co-locating the HVDC line within existing rights-of-way. By utilizing existing rights-of-way, CMP minimized additional clearing to an average width of 75 feet, and minimized additional natural resources impacts by proposing crossing in locations where developed transmission line corridors exist.

Additionally, in response to MDIFW's environmental review comments (submitted July 13, 2018), CMP committed to retaining 100-foot riparian buffers at all outstanding river segments.

Because approximately 425 linear feet, or 850 feet of outstanding river frontage (on each bank), will be permanently impacted by forest conversion during construction of the NECEC, CMP's Compensation Plan also includes land preservation of three tracts along the Dead River which collectively will add 1,053.5 acres to Maine's conserved lands and provide protection in perpetuity for 7.9 miles of river frontage along the Dead River, an outstanding river segment. In addition to the wealth of recreational opportunities (which include hiking, fishing, whitewater rafting, canoeing, snowmobiling, wildlife viewing, and hunting), these tracts include the protection of Grand Falls waterfall, the largest horseshoe waterfall in the State, in perpetuity.

Impacts to outstanding river segments will not unreasonably impact existing recreational uses of these rivers, and the preservation value of the parcels along the Dead River far exceeds the 850 feet of river frontage that will be impacted by the Project.

iii. Wetlands (Relevant to DEP Review)

CMP first sought to avoid and then minimize impacts to wetlands where practicable through a thorough alternatives analysis and engineering design. Unavoidable fill will result from structures, soil mounding associated with pole placement, and, where necessary, concrete foundations. The area of disturbance for each pole varies based on structure type. Installations will range from approximately 30 to 185 square feet of permanent fill per structure, depending on structure type (e.g., steel monopole or wood H-frame). Following installation, the areas around each pole will naturally revegetate to herbaceous or shrub wetland communities. The small loss of wetland area from the structure fill equates to a negligible loss of wetland functions

and values relative to the remaining wetland area at each structure site. Impacts from transmission line structures will have a de minimis permanent impact to wetlands.

The Merrill Road Converter Station, Fickett Road Substation, and HDD termination stations will have permanent wetland impacts from fill of approximately 3.130 acres, 1.328 acres, and 0.259 acres, respectively. Permanent fill impact from transmission line structures total approximately 0.150 acre.

Wetlands within the NECEC Project area were classified as either wetlands that are not of special significance or as wetlands of special significance ("WOSS"). Habitats reviewed to determine freshwater WOSS include:

- mapped habitats for state and federally listed threatened and endangered species;
- high and moderate value inland waterfowl and wading bird habitat ("IWWH");
- presence of significant vernal pool habitat ("SVPH");
- areas within 250 feet of a great pond;
- wetland containing more than 20,000 square feet of open water or aquatic or emergent marsh;
- areas located within a flood plain;
- areas designated as a peatland; or
- areas located within 25 feet of a river stream or brook.

Of the 4.868 acres of permanent wetland fill, fill in non-WOSS and WOSS wetlands totals 0.307 acre and 4.561 acres, respectively. The 4.561 acres of direct fill in WOSS include wetland areas in SVPH and IWWH. CMP's Compensation Plan proposes to use the preservation of lands of comparable habitat to compensate for permanent fill within wetlands. For wetlands

within SVPH and IWWH, CMP's Plan proposes using the ILF. Permanent fill in WOSS, excluding SVPH and IWWH, is 3.814 acres.

For impacts that require compensation by both DEP and USACE, such as direct wetland fill, CMP used the higher USACE ratio of 20:1 in determining the appropriate compensation. In fact, the NECEC Compensation Plan offers a ratio of 30:1 for permanent fill in wetlands, which exceeds the 8:1 ratio required by the DEP and the 20:1 ratio required by the USACE for land preservation. When applying 30:1 to both WOSS (excluding SVPH and IWWH) and non-WOSS, this yielded a total preservation amount of 123.65 acres. The three proposed preservation parcels -- Flagstaff Lake Tract, Little Jimmie Pond-Harwood Tract , and Pooler Pond Tract -- contain 510.75 acres of wetland, a portion of which will be used to offset the 4.122 acres of permanent fill in wetlands.

For wetlands within SVPH and IWWH, CMP's Plan proposes using the ILF. Direct impacts to IWWH will total approximately 0.017 acre (747 square feet). Of the 0.017 acre, 0.003 acre (149 square feet) is wetland and 0.014 acre (598 square feet) is upland. Consistent with the ILF Program guidance for WOSS, CMP proposes to compensate for the unavoidable impacts to wetland areas in IWWH using 100% compensation and a resource multiplier of two. The fee for wetlands within IWWH was calculated using the Natural Resource Enhancement & Restoration Cost and the average assessed land value per square foot of impact. Thus, the fee proposed to compensate to permanent wetland fill in IWWH is $1,165.18.

Direct impacts to SVPH total approximately 1.463 acres. Of the 1.463 acres, 0.743 acre is wetland and 0.720 acre is upland areas. Wetland areas in SVPH are defined as WOSS and, consistent with the ILF Program, CMP proposes to compensate for the unavoidable impacts to wetland areas in SVPH using 100% compensation and a resource multiplier of two. The fee for

wetlands within SVPH was calculated using the Natural Resource Enhancement & Restoration Cost and the average assessed land value per square foot of impact. Thus, the fee proposed to compensate to Permanent Wetland Fill in SVPH is $224,669.00.

In summary, 123.65 acres of wetland preservation of comparable habitat types was calculated at a ratio of 30:1, significantly more than 8:1 ratio required by the DEP. The ILF for permanent wetland fill in IWWH and SVPH was calculated using the ILF Program's wetland compensation formula for WOSS (resource multiplier of two). CMP's Compensation Plan exceeds the compensation requirements for wetlands under NRPA.

iv. Issue 4 Conclusion (Relevant to DEP Review)

It is my opinion that CMP's compensation and mitigation measures fully address all impacts that cannot be avoided to cold water fisheries, outstanding river segments, and wetlands.

V. Conclusion (Relevant to DEP and LUPC Review)

The Project will not adversely affect scenic character and has been sited to fit with existing uses, i.e., within existing transmission line corridors and in areas that undergo an ongoing pattern of timber harvesting. In P-RR zones the Project avoids and minimizes visual impact and has been sufficiently buffered from existing uses and resources to meet the LUPC's special exception criteria.

The Project will not unreasonably harm the Roaring Brook Mayfly, Northern Spring Salamander, or brook trout habitat and adequate provision has been provided for buffer strips around cold water fisheries. Similarly, CMP's vegetation management practices provide adequate provision for the maintenance of wildlife travel lanes and connectivity of adjacent habitats; are consistent with techniques promoted by the EPA and other federal agencies to

minimize impacts to wildlife and habitat; and, will not result in unreasonable disturbance or harm resulting from habitat fragmentation.

The Project has been designed and sited in a manner that avoids and minimizes impacts to the greatest extent possible and, where impacts are unavoidable, has proposed mitigation measures and provided a robust and comprehensive compensation plan, which not only accounts for lost functions and values, but exceeds the requirements under NRPA.

Exhibits:
CMP-3-A: Goodwin CV
CMP-3-B: LUPC P-RR Beattie Pond Figure
CMP 3-C: LUPC P-RR Upper Kennebec River Figure
CMP-3-D: LUPC P-RR AT Moxie Pond Figure
CMP-3-E: MDIFW Recommendations for Entomologist and Herpetologist
CMP-3-F: Gold Brook and Mountain Brook Figures
CMP-3-G: Kennebec DWA Travel Corridor Figure
CMP-3-H: Rusty Blackbird Habitat Figure
CMP-3-I: Typical HVDC Tangent Vegetation Maintenance Figure
CMP-3-J: Compensation Plan Summary Tables

Dated: 2.27.2019

Respectfully submitted,

Mark Goodwin

STATE OF MAINE

CUMBERLAND COUNTY, ss.

The above-named Mark Goodwin did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Dated: 2/27/19

Before,

Notary Public

Name: NICKOLE GAGNE

My Commission Expires:

NICKOLE GAGNE
Notary Public-Maine
My Commission Expires
October 02, 2020

MARK A. GOODWIN, CPESC

Senior Environmental Scientist

Mr. Goodwin serves Burns & McDonnell as a senior environmental scientist. He has extensive experience in all phases of energy development projects, from environmental field surveys, environmental assessment, alternatives analysis, permitting, environmental training, and environmental compliance inspection, to post-construction monitoring and mitigation. As such, he possesses an extensive knowledge of the process of project planning, permitting, and construction, as well as a thorough understanding of the implications of regulatory requirements on construction activities.

A summary of his experience is provided below.

EDUCATION

- B.S., Natural Resources, University of Maine, 1998

REGISTRATIONS

- Certified Professional Erosion & Sediment Control (CPESC)
- DEP Certification in Erosion & Sediment Control Practices (ME)
- OSHA 30-Hour Certification

9 YEARS WITH BURNS & MCDONNELL

20 YEARS OF EXPERIENCE

New England Clean Energy Connect Project | Central Maine Power Company
ME | April 2017-Present

Environmental Project Manager Mr. Goodwin was responsible for managing a team of environmental scientists, permitting specialists, noise specialists, archeologists, visual impact specialists, geologists, and GIS specialists and coordinating the preparation of permit applications to the Maine Department of Environmental Protection, Maine Land Use Planning Commission, and the United States Army Corps of Engineers for this high-voltage direct current transmission line project which includes approximately 200 miles of transmission line and associated facilities. In addition, Mr. Goodwin managed and assisted with the preparation of the environmental portions of the Presidential Permit application submitted to the United States Department of Energy. Mr. Goodwin facilitated multiple meetings with the regulatory agencies and was a subject matter expert at three public informational meetings. Mr. Goodwin continues to provide Central Maine Power Company with post-filing support during the agency review period.

Section 388/3023 Replacement Project – Phase I | Maine Electric Power Company
ME | July 2016-January 2017

Environmental Manager Mr. Goodwin coordinated a series of agency consultation meetings with the Maine Department of Environmental Protection to determine the applicability of the Site Location of Development Act Law for the reconstruction of 55 miles of 345kV transmission line. Additionally, Mr. Goodwin was responsible for completing the federal permitting for this project.

Darnestown Substation Project | Potomac Electric Power Company
MD | January 2016-September 2016

Environmental Project Manager Mr. Goodwin was responsible for coordinating with project management and engineering to identify the deliverables and information needed to prepare and submit applications to the Department of Permitting Services in Montgomery County, Maryland for the construction of an electric substation. Mr. Goodwin applied for and received building permits and right-of-way permits for the project.

MARK A. GOODWIN, CPESC

(continued)

Bangor Landing Coal Tar Capping Project | City of Bangor, Maine

ME | June 2016-October 2016

Senior Environmental Scientist Mr. Goodwin performed a regulatory analysis to determine the permitting required to construct a non-aqueous phase liquid (NAPL) trapping cap over coal tar contaminated sediments in the Penobscot River associated with historic manufactured gas plant operation. Mr. Goodwin consulted with the National Marine Fisheries Service and the Army Corps of Engineers and researched and drafted a Not Likely to Adversely Affect (NLAA) letter in support of the project.

Jericho Rise Wind Farm Project | EDP Renewables, NA

NY | February 2016-May 2018

Project Manager Mr. Goodwin's project management duties included the development of the construction environmental monitoring manual, compliance implementation training program, archeological awareness and unanticipated discovery plan, and compliance site assessments during the construction of this 37 turbine wind farm in upstate New York. Mr. Goodwin presented the initial environmental training program prior to the start of construction of this project.

Access Northeast Project | Spectra Energy| Algonquin Pipeline

NY, CT, MA | August 2015

Subject Matter Expert Mr. Goodwin assisted Spectra Energy during landowner informational meetings and the FERC open house meetings in support of the FERC pre-filing process for this pipeline and LNG storage infrastructure expansion project designed to support natural gas-fired electrical generation in New England. Mr. Goodwin provided project information to stakeholders from the public during these meetings including route identification and responded to questions specific to construction practices and environmental impacts as a subject matter expert.

Maine Power Reliability Program/T&D Project | Central Maine Power Company

ME | October 2009-December 2015

Environmental Project Manager Mr. Goodwin served as environmental project manager. His responsibilities included managing the local permitting effort for more than 70 municipalities as well as managing the construction phase regulatory compliance effort during construction of this electric reliability program consisting of over 350 miles of transmission line and multiple substation development sites. In this role, he participated in numerous public meetings and organized and coordinated multiple meetings with agency personnel. Mr. Goodwin coordinated with numerous outside consultants and managed the preparation and QA/QC of state and federal permit modification applications. He also managed the variance process for the approval of post-permit project design modifications. He was responsible for coordinating the compliance effort with the contractor's environmental representatives, Maine Department of Environmental Protection (DEP) staff and inspection personnel, and local codes enforcement officers during construction. He also developed multiple interactive environmental training programs and trained over 5,000 workers on the Program.

MARK A. GOODWIN, CPESC

(continued)

Southern York County System Reinforcement and Section 219/220 Rebuild Projects | Central Maine Power Company/Tetra Tech Inc. (formerly Northern Ecological Associates Inc.)*

ME | September 2007-March 2008

Environmental Inspector Mr. Goodwin served as an environmental inspector. He provided third party environmental inspection for the Maine DEP on a 10-mile 115-kV electric transmission line project. He managed the Maine DEP third party inspection effort on two electric transmission rebuild projects.

Jewel Ridge Pipeline Lateral Project | Duke Energy (Spectra)*

VA | May 2006-August 2006

Environmental Inspector Mr. Goodwin served as an environmental inspector. He acted as a FERC third party environmental compliance monitor. He assisted FERC and USFWS with developing innovative strategies for erosion and sediment control in mountainous terrain.

Petal Gas Storage 100-Line and Cavern 3 and 8 Storage Field | El Paso Corporation*

MS | April 2004

Wetlands Delineation/Permitting Support Mr. Goodwin performed wetland and waterbody surveys. He prepared the FERC wetland and wildlife resource reports, the biological assessment, and he performed the NPDES permitting for a natural gas storage cavern project.

Third Party Technical Review of Notices of Intent Submitted by Weaver's Cove Energy, LLC, and Mill River Pipeline, LLC | Town of Somerset Conservation Commission*

MA | May 2004-September 2004

Third Party Technical Reviewer Mr. Goodwin served as a third-party technical reviewer. He prepared a comprehensive regulatory review of Notices of Intent filed under the Massachusetts Wetlands Protection Act. The regulatory review assessed whether the applicant had met the performance standards required and included an assessment of impacts and proposed mitigation. He provided the results of the technical review at multiple public hearings with the conservation commission.

Stony Brook Natural Gas Pipeline Project | Massachusetts Municipal Wholesale Electric Company*

MA |May 2002-July 2002

Environmental Inspector Mr. Goodwin served as an environmental inspector. He was a Massachusetts DEP third party environmental compliance monitor. He prepared an invasive species eradication and control program for the project. He prepared a planting plan as mitigation for unavoidable tree loss along the project corridor.

Londonderry 20-inch Replacement Project | Tennessee Gas Pipeline Company

NH and MA | April 2001-September 2001

Environmental Compliance Inspector/Field Coordinator/Report Manager Mr. Goodwin served as an environmental compliance inspector/field coordinator/report manager. He performed inspection, reports, and field coordination for a comprehensive Turbidity Monitoring Program along a 19.3-mile pipeline replacement project. His responsibilities included

MARK A. GOODWIN, CPESC

(continued)

preparing and providing reports to the local conservation commissions, conducting rare plant species surveys, removal, and post-construction transplantation, and performing post-construction wetlands and waterbody restoration assessments.

Portland Natural Gas Transmission System (PNGTS) and PNGTS/Maritimes & Northeast Joint Facilities*

ME, NH, MA | July 1998 – December 1998

Environmental Inspector Mr. Goodwin served as an environmental inspector. He conducted waterbody crossing inspections and turbidity monitoring during construction, post-construction wetland assessments, and he prepared the wetlands monitoring report submitted to state and federal agencies.

**denotes experience prior to joining Burns & McDonnell*

Legend

- CMP Ownership / Easement Extent
- Project Centerline
- Proposed Structures
- Town Boundary

LUPC Zone

- none
- d-gn
- d-rs
- p-fp
- p-fw
- p-gp
- p-ma
- p-rr; p-rr200
- p-sg
- p-sl1; p-sl2
- p-wl1; p-wl1ow; p-wl2; p-wl3

New England Clean Energy Connect

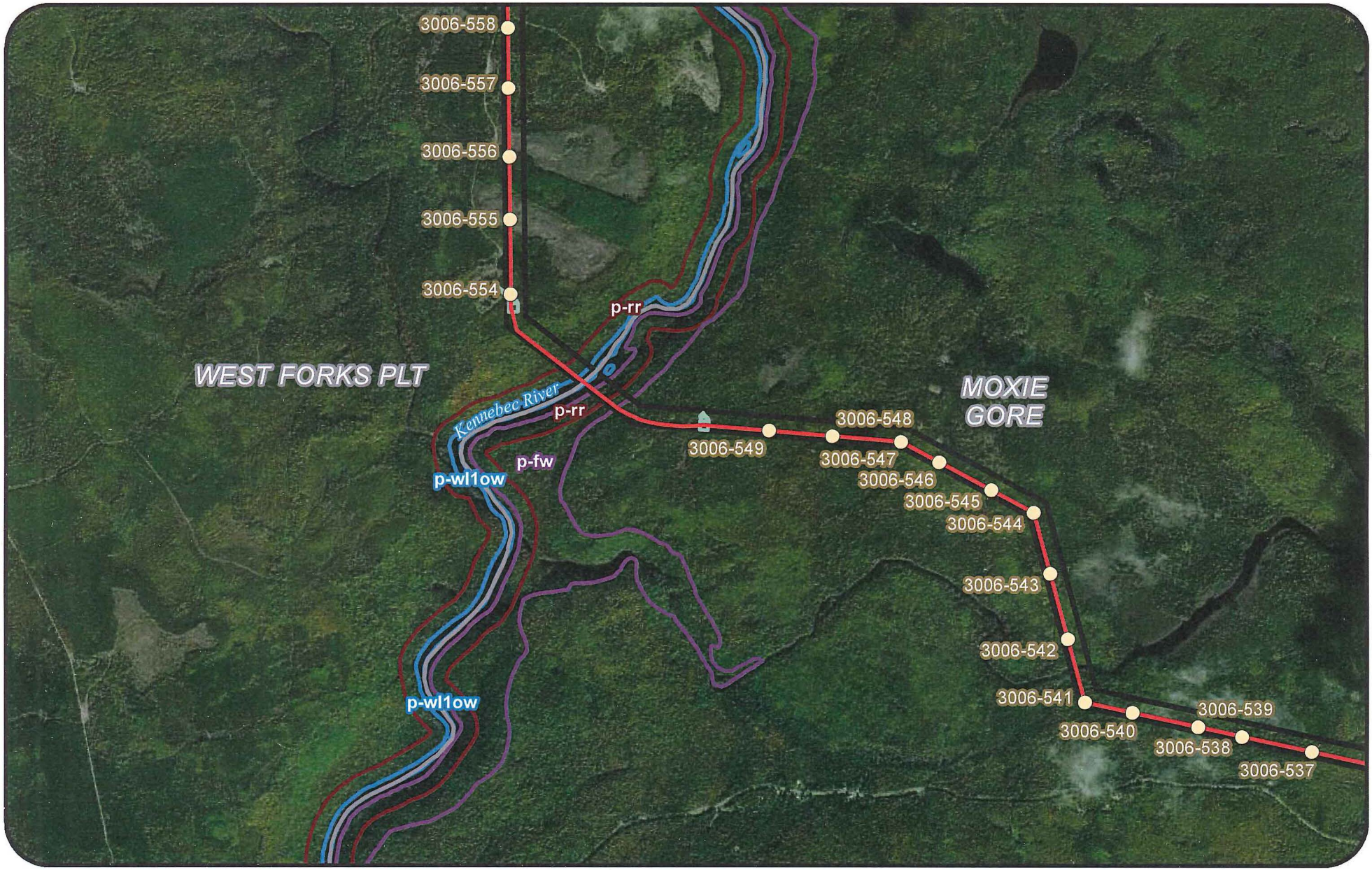
Figure 25-1 Beattie Pond

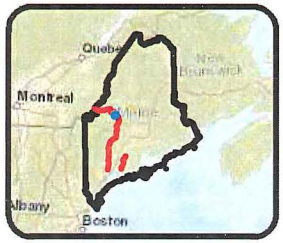
1,000 Feet

CENTRAL MAINE POWER

CMP-3-B

9/20/2017





Legend

- CMP Ownership / Easement Extent
- Project Centerline
- Proposed Structures
- Town Boundary

LUPC Zone

- p-wl1; p-wl1ow; p-wl2; p-wl3
- p-rr
- p-fw

- HDD Station LOD

New England Clean Energy Connect

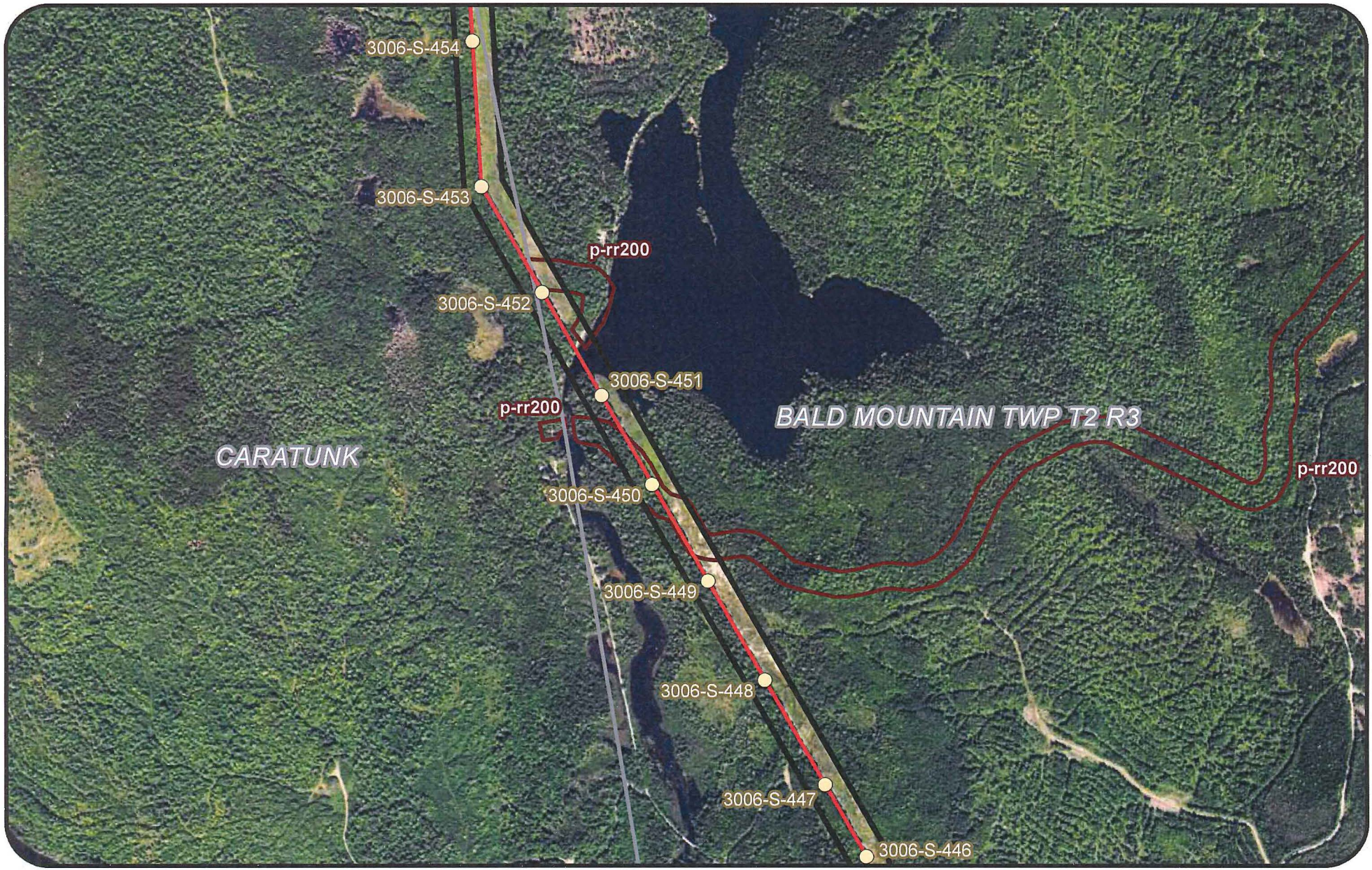
Kennebec HDD

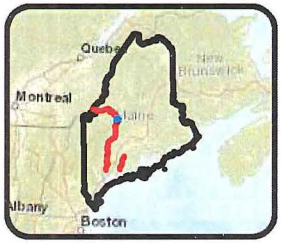
2,000 Feet

CENTRAL MAINE POWER

CMP-3-C

10/19/2018





Legend

- CMP Ownership / Easement Extent
- Project Centerline
- Proposed Structures
- Town Boundary

LUPC Zone

- p-rr; p-rr200

New England Clean Energy Connect

Figure 25-4 Appalachian Trail

1,000 Feet

CENTRAL MAINE POWER

CMP-3-D

9/19/2017

Goodwin, Mark

From: Swartz, Beth <Beth.Swartz@maine.gov>
Sent: Tuesday, August 21, 2018 10:36 AM
To: Goodwin, Mark
Cc: Perry, John
Subject: RE: Roaring Brook Mayfly Survey - Entomologist

Hi Mark,

I have spoken with Marcia Siebenmann, who MDIFW has contracted to do our Roaring Brook Mayfly surveys in the past, and she is interested and available to do the work. I think her preference would be to take the lead on a subset of the sites while using that as an opportunity to train someone on your team to assist and then independently do the remainder of the sites (i.e., the more difficult access sites). If this is an arrangement that can work for you folks, I will put you in contact with each other. Marcia would definitely be the most experienced person to conduct these surveys, and MDIFW would have full confidence in her ability to further assess potential habitat in the field and perform adequate survey coverage following MDIFW protocol.

I'm not in the office today but will review the shape files you sent when I'm back in tomorrow and finalize a narrowed down list of your original stream inspections by the end of the day. Then we will have a better idea of how many sites will need to be visited in the field and potentially surveyed.

I've also been in touch with Steve Burian and he is on board to do the identifications of any samples that are submitted. MDIFW will contract Dr. Burian for this work on behalf of the applicant and submit an invoice to the applicant for re-imbursement. We should touch base about this to make sure this arrangement is acceptable and facilitated on both ends.

beth

Beth I. Swartz
Wildlife Biologist
Reptile, Amphibian, and Invertebrate Group
Maine Department of Inland Fisheries and Wildlife
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Bangor, ME 04401
(207) 941-4476
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From: Goodwin, Mark [mailto:magoodwin@burnsmcd.com]
Sent: Monday, August 20, 2018 11:38 AM
To: Swartz, Beth <Beth.Swartz@maine.gov>
Cc: Perry, John <John.Perry@maine.gov>
Subject: Roaring Brook Mayfly Survey - Entomologist

Hi Beth:

As you might imagine, it has been difficult locating an entomologist on short notice and for a short duration assignment. I have identified an entomologist at UMass that is available to assist with the surveys on the NECEC project (his resume does not include mayfly experience but I'm sure he knows his taxonomy, etc.). You had mentioned that you know someone who might be interested as well. If this person is interested I would need to know soon enough to get the paperwork in place.

I'll be sending the most up to date project shapefiles and .kmz file later today (~2:00-3:00pm)

Thanks again,

Mark Goodwin, CPESC \ Burns & McDonnell
Senior Environmental Scientist
207-517-8482 \ **Mobile** 207-416-5707
magoodwin@burnsmcd.com \ burnsmcd.com
27 Pearl Street \ Portland, ME 04101

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Goodwin, Mark

From: deMaynadier, Phillip <Phillip.deMaynadier@maine.gov>
Sent: Wednesday, August 01, 2018 9:45 AM
To: Goodwin, Mark
Subject: RE: Herpetologists

Hi Mark,
Yes, Trevor would be excellent.

Here is his contact information: trevor.persons@nau.edu; cell: 207-313-2940.

He is at a conference this week in MA but should be back on Friday.

Phillip

Phillip deMaynadier. Ph.D.
Wildlife Biologist, Wildlife Research Assessment Section
Maine Department of Inland Fisheries and Wildlife
Office: 207-941-4239 / Cell: 207-692-3364

From: Goodwin, Mark [mailto:magoodwin@burnsmcd.com]
Sent: Tuesday, July 31, 2018 8:56 AM
To: deMaynadier, Phillip <Phillip.deMaynadier@maine.gov>
Subject: Herpetologists

Good morning Phillip:

In our June 4th meeting to discuss state-listed species on the NECEC project, you mentioned Trevor Persons could be a good candidate for salamander surveys. Do you happen to have his contact information?

Thank you,

Mark Goodwin, CPESC \ Burns & McDonnell
Senior Environmental Scientist
207-517-8482 \ **Mobile** 207-416-5707
magoodwin@burnsmcd.com \ burnsmcd.com
27 Pearl Street \ Portland, ME 04101

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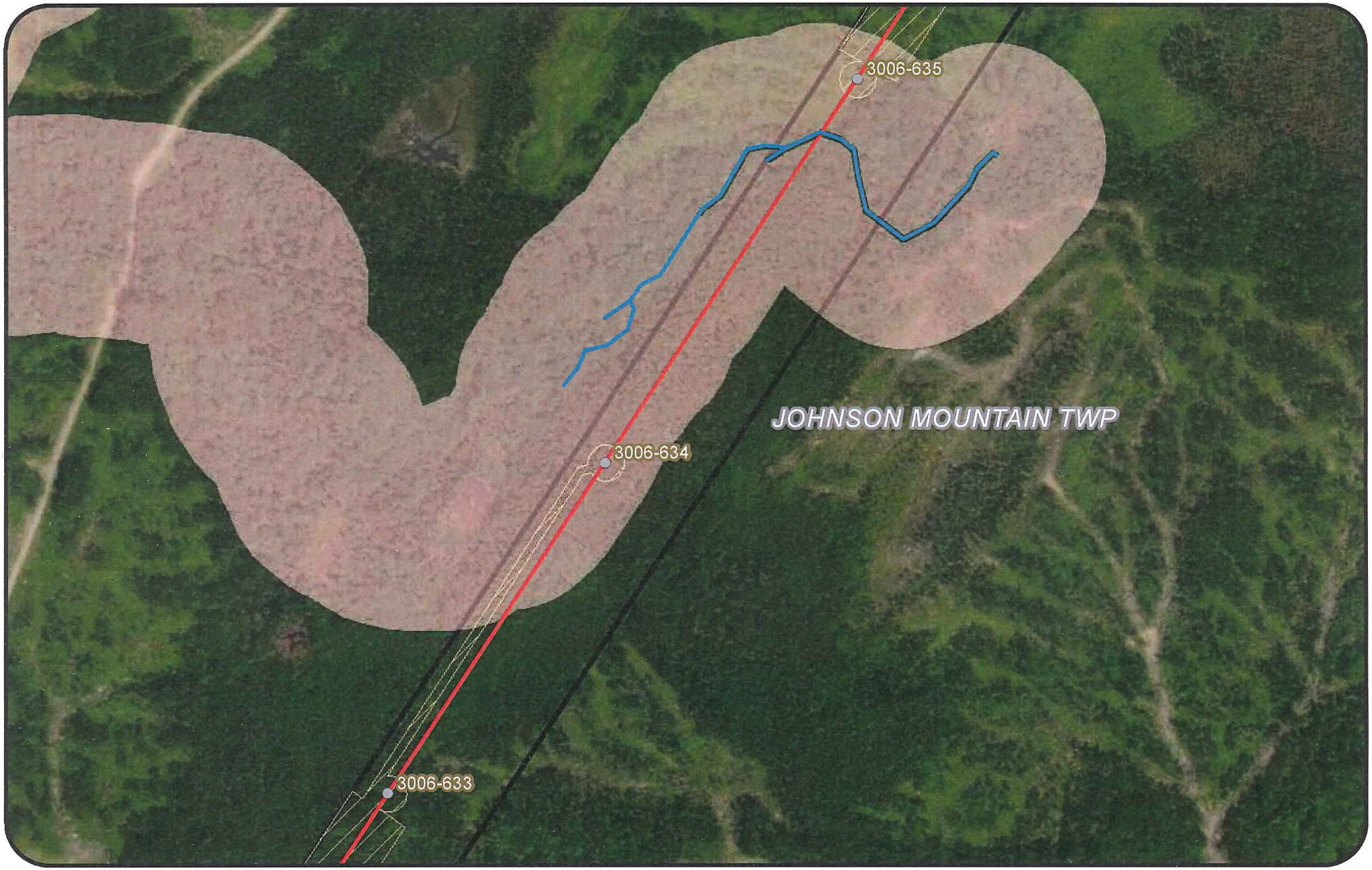
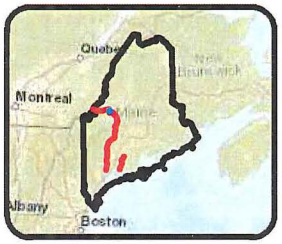




Legend

- CMP Ownership / Easement Extent
- Project Centerline
- Proposed Structure
- Town Boundary
- Mountain Brook and Tributaries
- Conservation Management Area
- Clearing Limit

New England Clean Energy Connect

Figure 3

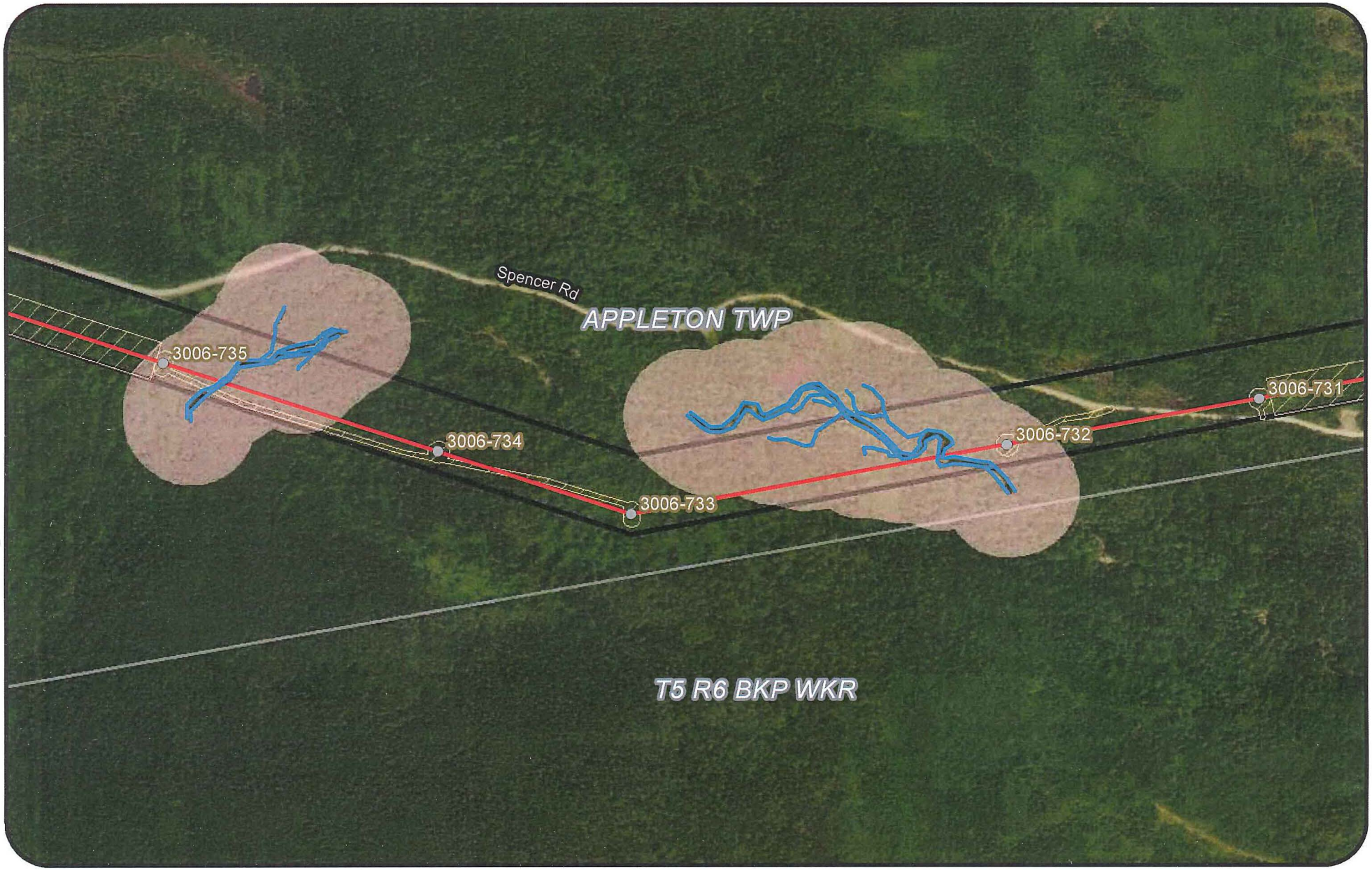
Mountain Brook Rare Species CMA

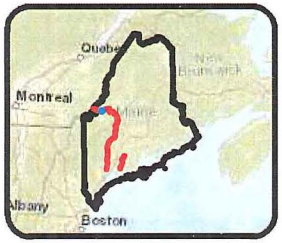
300 Feet

CENTRAL MAINE POWER

CMP-3-F

12/7/2018





Legend

- CMP Ownership / Easement Extent
- Project Centerline
- Proposed Structure
- Town Boundary
- Gold Brook and Tributaries
- Conservation Management Area
- Clearing Limit

New England Clean Energy Connect

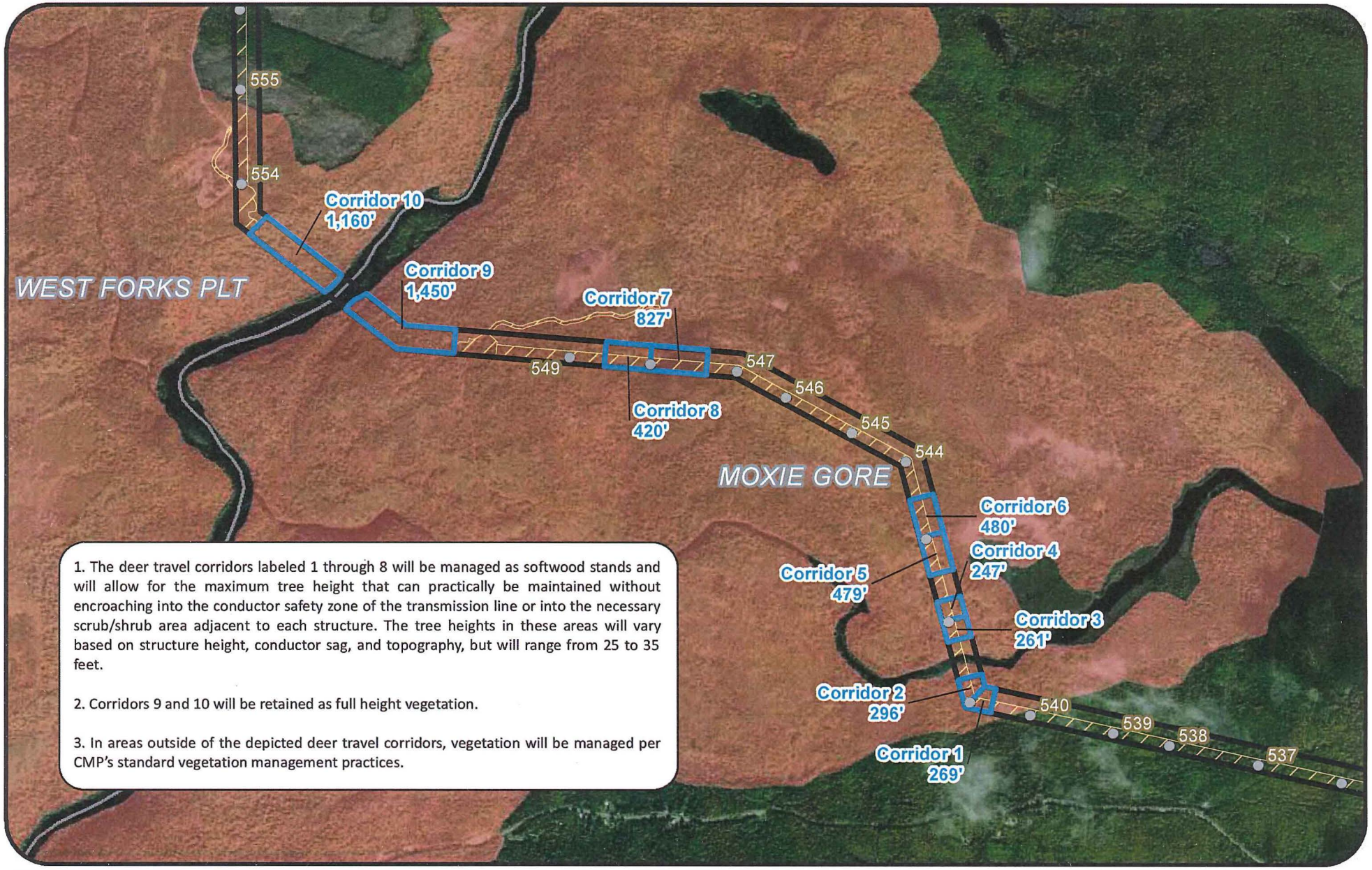
Figure 2

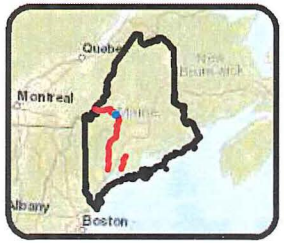
Gold Brook Rare Species CMA

500 Feet

CENTRAL MAINE POWER

12/7/2018





Legend

- CMP Ownership
- Proposed Structure
- Town Boundary
- Clearing Limit
- Deer Travel Corridor
- Deer Wintering Area

New England Clean Energy Connect

Figure 4

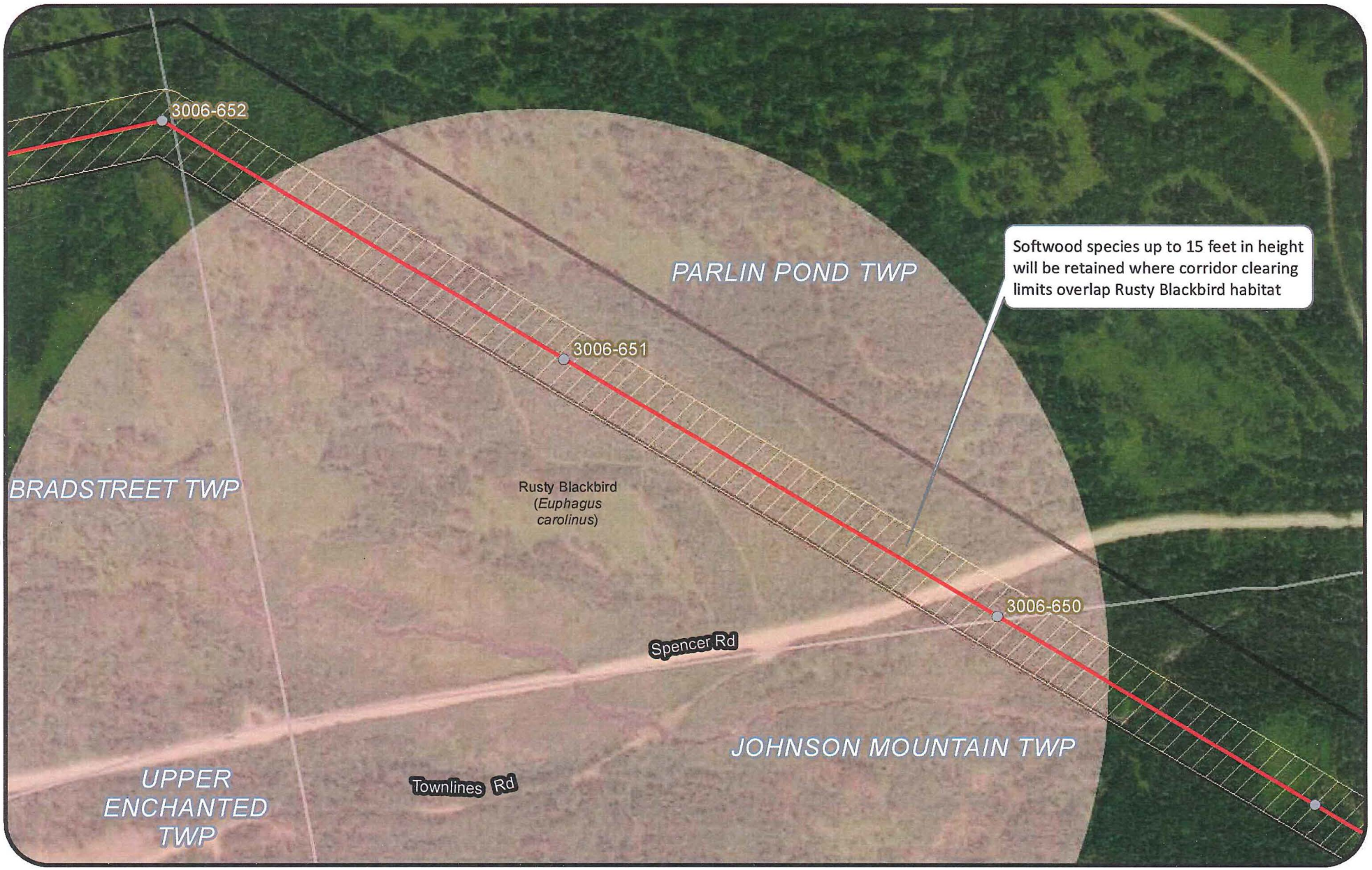
Upper Kennebec Deer Travel Corridors

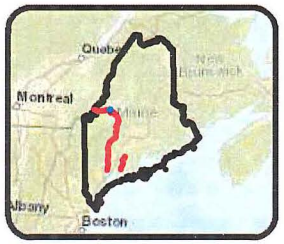
1,500 Feet

CENTRAL MAINE POWER

CMP-3-G

12/7/2018





Legend

- CMP Ownership
- Project Centerline
- Proposed Structure
- Town Boundary
- Rusty Blackbird Habitat
- Clearing Limit

New England Clean Energy Connect

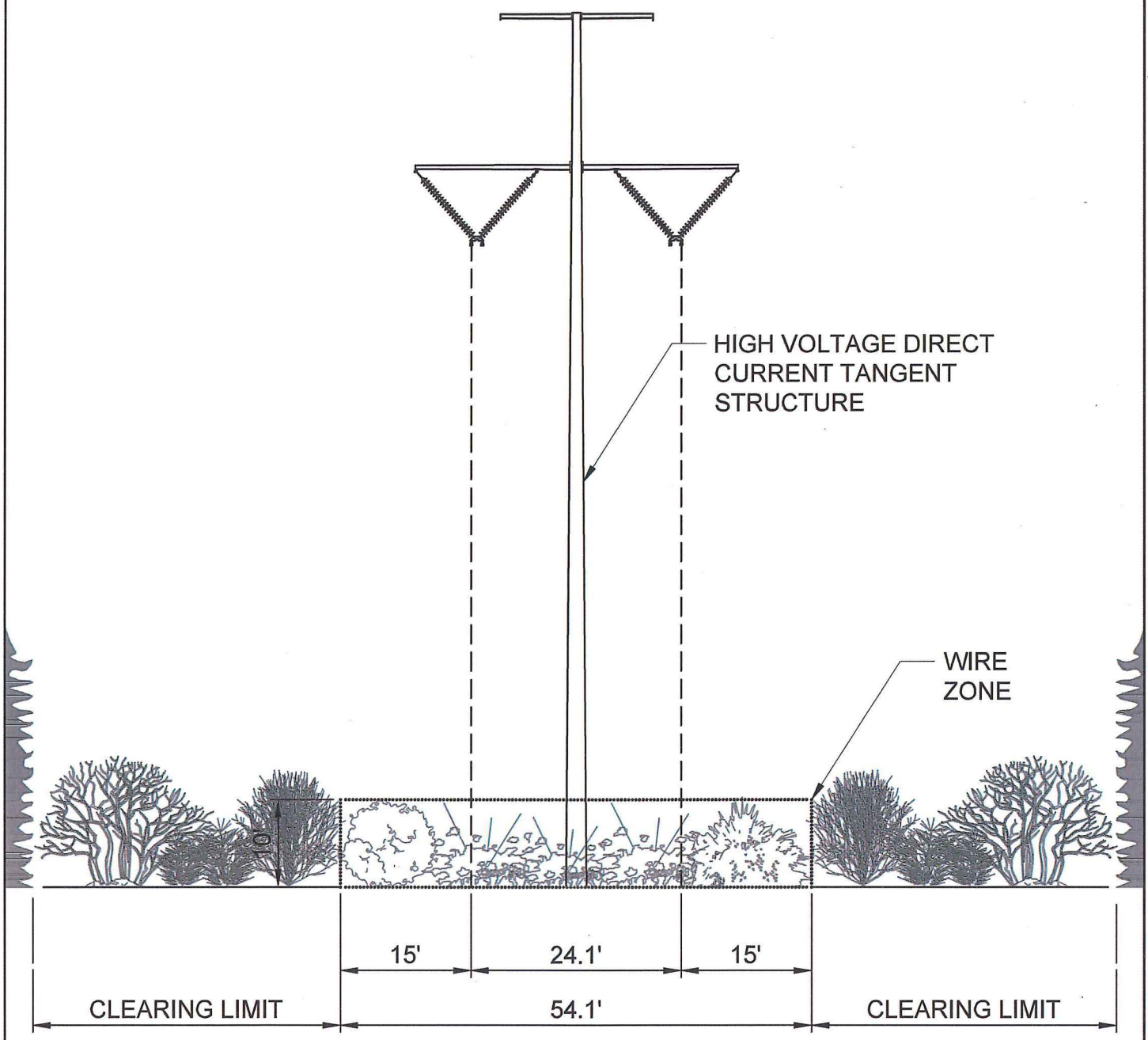
Figure 5: Rusty Blackbird Vegetation Management Area

250 Feet

CENTRAL MAINE POWER

CMP-3-H

12/7/2018



SCALE: N.T.S.

CENTRAL MAINE POWER COMPANY

CENTRAL MAINE POWER

VEGETATION MAINTENANCE -
HIGH VOLTAGE DIRECT CURRENT
TANGENT STRUCTURE DETAIL

Exhibit 1-4 Compensation Package Summary as Required by USACE and NRPA

Project Impact				Compensation Required[1]			Compensation Sites			
Activity		Square feet	Acres	Agency Required by	Compensation Ratio X Adjustment[2]	Estimated Quantity Required	Flagstaff Lake Tract Total Acres= 831.39	Little Jimmie Pond-Harwood Tract Total Acres= 109.77	Pooler Pond Tract Total Acres= 81.24	Total Compensation Total Area= 1022.40
Impact to Wetlands	Permanent Fill in Wetlands (Non-WOSS)	13,389	0.307	USACE & MDEP	30:1 [6] USACE ratio applied	9.22	423.96 of wetland preservation	68.46 of wetland preservation	18.33 of wetland preservation	510.75 acres of wetland preservation to offset 4.12 acres of Permanent Fill in Wetlands (WOSS and Non-WOSS), 28.51 acres of Temporary Wetland Fill in PSS, and 105.55 of Permanent Forested Wetland Conversion, which is 13.45 acres over the amount of compensation required. $154,535.04 ILF for Temporary Wetland Fill in PEM.
	Permanent Fill in WOSS[3]	166,146	3.814	USACE & MDEP	30:1 [6] USACE ratio applied	114.43				
	Temporary Wetland Fill in PEM (<18 months)	835,486	19.180	USACE	See Exhibit 1-5A In-Lieu Fee Summary					
	Temporary Wetland Fill in PSS[4] (<18 months)	1,241,744	28.507	USACE	20:1 x 0.10 USACE ratio applied	57.01				
	Permanent Forested Wetland Conversion[5]	4,597,680	105.548	USACE	20:1 x 0.15 USACE ratio applied	316.64				
	Total Impact:	6,854,445	157.356		**Total Ac. Required:**	497.30				
Impact to Significant Vernal Pool Habitat (250')	Permanent Wetland Fill in SVPH	32,365	0.743	USACE & MDEP	See Exhibit 1-5A In-Lieu Fee Summary		See Exhibit 1-5A In-Lieu Fee Summary			$641,653.12 ILF amount
	Permanent Forested Wetland Conversion SVPH	169,670	3.895	USACE & MDEP						
	Permanent Upland Fill in SVPH	31,370	0.720	MDEP						
	Permanent Upland Conversion in SVPH	1,289,691	29.607	MDEP						
	Total Impact:	1,523,096	34.965		**Total Ac. Required:**	n/a				
Impact to USACE Jurisdictional Vernal Pools	Direct Fill in Vernal Pool Depression or 100' Envelope	96,610	2.218	USACE	See Exhibit 1-5A In-Lieu Fee Summary		See Exhibit 1-5A In-Lieu Fee Summary			$2,024,875.37 ILF amount
	High Value Vernal Pools[7]	49		USACE						
	Medium Value Vernal Pools	122		USACE						
	Low Value Vernal Pools	71		USACE						
	Total Impact:	2.22 acres of direct fill / 242 vernal pools								
Impact to Inland Wading Bird & Waterfowl	Permanent Wetland Fill in IWWH	149	0.003	USACE & MDEP	See Exhibit 1-5A In-Lieu Fee Summary		See Exhibit 1-5A In-Lieu Fee Summary			$253,352.53 ILF amount
	Permanent Forested Wetland Conversion IWWH	114,232	2.622	USACE & MDEP						
	Permanent Upland Fill in IWWH	598	0.014	MDEP						
	Permanent Upland Conversion in IWWH	539,556	12.387	MDEP						
	Total Impact:	654,535	15.026		**Total Ac. Required:**	n/a				
									Total In-Lieu Fee Payment	**$3,074,416.06**
									Total Compensation Land	**1022.40 Acres**

[1] Based on ratios and adjustments within the DEP Fact Sheet-In-Lieu Fee Compensation Program, 2016 USACE New England District Compensatory Mitigation Guidance and discussions held during the Compensation Working Session on 4/3/18, with the USACE and MDEP, as shown in Exhibit 1-1.

[2] In each case where compensation is required by both the MDEP and USACE, the higher ratio and adjustment was applied.

[3] Permanent wetland fill to PEM and PSS wetlands within SVPH and IWWH are excluded from this calculation and are calculated separately within their own respective categories.

[4] Given that hydrology or significant soil disturbance will not result, all forested wetlands will convert to scrub-shrub wetland.

[5] Conversion of forested wetlands excludes clearing within SVPH or IWWH and are calculated separately within their own respective categories.

[6] CMP offered a ratio of 30:1 to the USACE, which is above the 20:1 required, for land preservation for their consideration of the compensation parcels offered as part of this plan.

[7] Excludes impacts to SVPH.

Exhibit 1-5A: In-Lieu Fee Summary

Impact Type		Resource Impact		In Lieu (ILF) Fee Compensation (MDEP & USACE)[1]		Adjustments to Standard Ratios/Amounts[2]		ILF Payment
		Sq ft	Acres	Formula	Multiplier	DEP	USACE	
Wetland Impact	**Permanent Fill in Wetlands (Non-WOSS)** See Exhibit 1-4	13,389	0.307	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	100%	100%	Preservation, See Exhibit 1-4
	Permanent Fill in WOSS[3] See Exhibit 1-4	166,146	3.814	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	2	100%	100%	Preservation, See Exhibit 1-4
	Temporary Wetland Fill in PEM (<18 months) See Table 1-5.1	835,486	19.180	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	USACE only	5%	$154,535.04
	Temporary Wetland Fill in PSS[4] (<18 months) See Exhibit 1-4	1,241,744	28.507	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	USACE only	10%	Preservation, See Exhibit 1-4
	Permanent Forested Wetland Conversion[5] See Exhibit 1-4	4,597,680	105.548	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	USACE only	15%	Preservation, See Exhibit 1-4
Impact to MDEP Significant Vernal Pool Habitat (250')	**Permanent Wetland Fill in SVPH** See Table 1-5.2	32,365	0.743	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	2	100%	100%	$244,669.00
	Permanent Forested Wetland Conversion SVPH See Table 1-5.3	169,670	3.895	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	60%	15%	$335,360.93
	Permanent Upland Fill in SVPH See Table 1-5.4	31,370	0.720	Avg. Assessed Land Value/Sq. Ft	1	100%	DEP only	$5,294.90
	Permanent Upland Conversion in SVPH See Table 1-5.5	1,289,691	29.607	Avg. Assessed Land Value/Sq. Ft	1	60%	DEP only	$56,328.29
Impact to USACE Jurisdictional Vernal Pool Habitat[7] (750')	**Direct Fill in Vernal Pool Depression or 100' Envelope** See Table 1.5.6a	96,610	2.218	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	USACE only	100%	$382,331.87
	High Value Vernal Pools[7] See Table 1.5.6b	49 High Value Vernal Pools		(13,000 Sq. ft x 5) X (Natural Resource Enhancement & Restoration Cost + Avg. Assessed Land Value)	1	USACE only	5%	$586,592.50
	Medium Value Vernal Pools See Table 1.5.6c	122 Medium Value Vernal Pools		(13,000 Sq. ft x 3) X (Natural Resource Enhancement & Restoration Cost + Avg. Assessed Land Value)	1	USACE only	5%	$889,219.50
	Low Value Vernal Pools See Table 1-5.6d	71 Low Value Vernal Pools		(13,000 Sq. ft x 1) X (Natural Resource Enhancement & Restoration Cost + Avg. Assessed Land Value)	1	USACE only	5%	$166,731.50
Inland Wading Bird & Waterfowl Habitat (IWWH)	**Permanent Wetland Fill in IWWH** Table 1-5.7	149	0.003	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	2	100%	100%	$1,165.18
	Permanent Forested Wetland Conversion IWWH Table 1-5.8	114,232	2.622	Natural Resource Enhancement & Restoration Cost/Sq. Ft. X Avg. Assessed Land Value/Sq. Ft	1	60%	15%	$238,446.60
	Permanent Upland Fill in IWWH See Table 1-5.9	598	0.014	Avg. Assessed Land Value/Sq. Ft	1	100%	DEP only	$56.80
	Permanent Upland Conversion in IWWH See Table 1-5.10	539,556	12.387	Avg. Assessed Land Value/Sq. Ft	1	60%	DEP only	$13,683.95
					Total In-Lieu Fee Payment			**$3,074,416.06**

[1] In each case where compensation is required by both the MDEP and USACE, the higher ratio and adjustment was applied.

[2] Ratios and adjustments are based in part on the DEP Fact Sheet-In-Lieu Fee Compensation Program, 2016 USACE New England District Compensatory Mitigation Guidance and discussions held during the Compensation Working Session on 4/3/18, with the USACE and MDEP, as shown in Exhibit 1-1.

[3] Permanent wetland fill to PEM and PSS wetlands within SVPH and IWWH are excluded from this calculation and are calculated separately in their own respective categories.

[4] Given that hydrology or significant soil disturbance will not result, all forested wetlands will convert to scrub-shrub wetland.

[5] Conversion of forested wetlands excludes clearing within SVPH or IWWH, and are calculated separately in their own respective categories.

[6] Permanent wetland fill and forested wetland conversion impacts (shaded gray) in SVPH are included in the calculations provided in the Wetland Impact section of the table.

[7] Excludes impacts to SVPH.

[8] Permanent wetland fill and forested wetland conversion impacts (shaded gray) in IWWH are included in the calculations provided in the Wetland Impact section of the table.

Exhibit 1-5B: Summary of Compensation Resulting from Consultation with Resource Agencies

Impact Type		Resource Impact		Compensation Rationale	Resource Agency/Fund	Monetary Contribution/Land Preservation
		Sq ft	Acres			
Impact to Unique Natural Communities (MNAP)	Forested Conversion in Unique Natural Communities See Table 1-5.11	402,008	9.229	(Area of impact + MNAP identified directional buffers) x Avg. Assessed Land Value/Sq. Ft [1] x Multiplier of 8	Maine Natural Areas Conservation Fund	$1,224,526.82
	Forested Conversion to Goldie's Wood Fern	Goldie's Wood Fern		MNAP determined that adequate compensation for clearing impacts to the Goldie's Wood Fern is funding for rare plant surveys. The amount of funding was mutually agreed upon by MNAP and CMP.	Maine Natural Areas Conservation Fund	$10,000.00
Impact to Rare Species Streams (MDIFW)	Forested Conversion in the Roaring Brook Mayfly and Northern Spring Salamander Conservation Management Areas See Table 1-5.12	1,150,681	26.416	Avg. Assessed Land Value/Sq. Ft[1] x Multiplier of 8[2]	Maine Endangered and Nongame Wildlife Fund	$469,771.95
Impact to Coldwater Fisheries (MDEP / MDIFW)	Forested Conversion in Riparian Buffers	11.02 linear miles of all waterbodies within the NECEC project area will be impacted by forested conversion.		The Grand Falls Tract, Lower Enchanted Tract, and Basin Tract total 1053.50 acres, and contain 12.02 linear miles of stream to offset forest conversion impacts to riparian buffers within the NECEC project area.	Conservation recipient to be determined	1053.50 acres of Land Preservation containing 12.02 linear miles of stream.
				The Culvert Replacement Program includes repair, removal or replacement of culverts within CMP-controlled lands during construction of the NECEC. Additionally, CMP will provide funding sufficient to replace approximately 20-35 culverts on lands outside of CMP's ownership.	Grant recipient to be determined	$200,000.00
				The monetary contribution amount was based on the estimated labor and equipment costs to implement Chop and Drop on 87 perennial streams (Segment 1), which has been removed from the Compensation Plan at the request of MDIFW.	Maine Endangered and Nongame Wildlife Fund	$180,000.00
Impact to Outstanding River Segments[3] (MDEP)	Four Outstanding River Segments will be impacted by forested conversion.	425 linear feet or 850 feet of river frontage (both banks)		The Grand Falls Tract, Lower Enchanted Tract, and Basin Tract, collectively offer 7.9 miles of frontage on the Dead River, an Outstanding River Segment.	Conservation recipient to be determined	7.9 miles of frontage preserved on an Outstanding River Segment
Impact to Deer Wintering Areas (DWA) (MDIFW)	Forested Conversion in the Upper Kennebec DWA	1,707,943	39.209	Preservation of 717 aces within the Upper Kennebec DWA, which is sufficiently more than the recommended 8:1, an excess of 402 acres, and at a ratio of greater than 18:1.	Conservation recipient to be determined	717 acres of Land Preservation within the Upper Kennebec DWA
				Total Additional Monetary Contributions		**$2,084,298.76**
				Total Additional Land Preservation		**1770.50 Acres**

[1] Source: MDEP Fact Sheet- In Lieu Fee Compensation Program (rev 2017).

[2] On 11/8/2018, MDIFW recommended a resource multiplier of 8 be applied to the fee calculation for each species present, where both species are present a multiplier of 16 was applied.

[3] Outstanding River Segments, as identified in 38 M.R.S. § 480-P and 12 M.R.S § 403

Table 1-5.1 ILF Compensation for Temporary Wetland Fill in Emergent Wetlands

			Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[2]			
NECEC Project Component[1]	Total Acres of Fill	Resource Impact (sq. ft.)	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission Structures	6.213	270,648	Androscoggin	3.61	0.17	$51,152.47
Transmission Structures	0.834	36,336	Cumberland	3.61	0.69	$7,812.24
Transmission Structures	2.058	89,641	Franklin	2.86	0.03	$12,953.12
Transmission Structures	0.097	4,221	Kennebec	3.61	0.16	$795.66
Transmission Structures	3.941	171,670	Lincoln	3.61	0.3	$33,561.49
Transmission Structures	0.535	23,307	Sagadahoc	3.61	0.27	$4,521.56
Transmission Structures	5.502	239,663	Somerset	3.61	0.04	$43,738.50
Total	**19.180 Acres**	**835,486 Sq. ft.**			**Total In-Lieu Fee**	**$154,535.04**

[1] Impacts are restricted to the temporary access for transmission line structures. There is no temporary wetland fill associated with substation development.

[2] Resource multiplier of 1 and an adjustment of 5%.

Table 1-5.2 ILF Compensation for Permanent Wetland Fill in SVPH

		Permanent Wetland Fill in SVPH[1]						Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[2]			
			Cowardin Cover Type (Sq. Ft.)								
NECEC Project Component	Total Acres of Fill	Resource Impact (sq. ft.)	PEM	PFO	PSS	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	0.001	40	0	0	40	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$302.40
Transmission	0.000	0	0	0	0	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$0.00
Transmission	0.000	0	0	0	0	NA	Western Foothills and Central Mountains	Franklin	2.86	0.03	$0.00
Transmission	0.000	0	0	0	0	NA	Central Interior	Kennebec	3.61	0.16	$0.00
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Lincoln	3.61	0.3	$0.00
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Sagadahoc	3.61	0.27	$0.00
Transmission	0.001	40	0	40	0	NA	Western Mountains	Somerset	3.61	0.04	$292.00
Merrill Road Converter	0.741	32,285	1,397	1,308	29,580	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$244,074.60
Fickett Road Substation	0.000	0	0	0	0	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
HDD Termination Stations	0.000	0	0	0	0	NA	Western Mountains	Somerset	3.61	0.04	$0.00
Total	**0.743 Acres**	**32,365 Sq. ft.**								**Total In-Lieu Fee**	**$244,669.00**

[1] Wetlands within SVPH are WOSS. For purposes of evaluating compensation, WOSS impacts shown in Exhibit 1-4 exclude WOSS associated with SVPH.

[2] Resource multiplier of 2.

Table 1-5.3 ILF Compensation for Permanent Forested Wetland Conversion in SVPH

		Permanent Wetland Conversion in SVPH						Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
			Cowardin Cover Type (Sq. Ft.)								
NECEC Project Component	Total Acres of Fill	Resource Impact (sq. ft.)[1]	PEM	PFO	PSS	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	0.670	29,198	0	29,198	0	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$66,221.06
Transmission	0.000	0	0	0	0	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$0.00
Transmission	1.943	84,640	0	84,640	0	NA	Western Foothills and Central Mountains	Franklin	2.86	0.03	$146,765.76
Transmission	0.000	0	0	0	0	NA	Central Interior	Kennebec	3.61	0.16	$0.00
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Lincoln	3.61	0.3	$0.00
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Sagadahoc	3.61	0.27	$0.00
Transmission	1.252	54,524	0	54,524	0	NA	Western Mountains	Somerset	3.61	0.04	$119,407.56
Merrill Road Converter	0.030	1,308	0	1,308	0	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$2,966.54
Fickett Road Substation	0.000	0	0	0	0	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
HDD Termination Stations	0.000	0	0	0	0	NA	Western Mountains	Somerset	3.61	0.04	$0.00
Total	**3.895 Acres**	**169,670 Sq. ft.**								**Total In-Lieu Fee**	**$335,360.93**

[1] Resource multiplier of 1 and a 60% adjustment.

Table 1-5.4: ILF Compensation for Permanent Upland Fill in SVPH

			Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	**Total Acres of Fill**	**Resource Impact (sq. ft.)**	**County**	**Natural Resource Enhancement and Restoration Cost ($)**	**Assessed Land Value ($)**	**In-Lieu Fee ($)**
Transmission Structures	0.012	537	Androscoggin	0	0.17	$91.29
Transmission Structures	0.001	60	Cumberland	0	0.69	$41.40
Transmission Structures	0.005	199	Franklin	0	0.03	$5.97
Transmission Structures	0.000	0	Kennebec	0	0.16	$0.00
Transmission Structures	0.003	119	Lincoln	0	0.3	$35.70
Transmission Structures	0.000	0	Sagadahoc	0	0.27	$0.00
Transmission Structures	0.010	437	Somerset	0	0.04	$17.48
Merrill Road Converter Station	0.689	30,018	Androscoggin	0	0.17	$5,103.06
Fickett Road Substation	0.000	0	Cumberland	0	0.69	$0.00
HDD Termination Stations	0.000	0	Somerset	0	0.04	$0.00
Total	**0.720 Acres**	**31,370 Sq. ft.**			**Total In-Lieu Fee**	**$5,294.90**

[1] Resource multiplier of 1.

Table 1-5.5: ILF Compensation for Permanent Upland Conversion in SVPH

			Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	**Total Acres of Conversion**	**Resource Impact (sq. ft.)**	**County**	**Natural Resource Enhancement and Restoration Cost ($)[2]**	**Assessed Land Value ($)**	**In-Lieu Fee ($)**
Transmission Structures	7.512	327,223	Androscoggin	0	0.17	$33,376.75
Transmission Structures	0.000	0	Cumberland	0	0.69	$0.00
Transmission Structures	8.765	381,802	Franklin	0	0.03	$6,872.44
Transmission Structures	0.000	0	Kennebec	0	0.16	$0.00
Transmission Structures	0.000	0	Lincoln	0	0.3	$0.00
Transmission Structures	0.000	0	Sagadahoc	0	0.27	$0.00
Transmission Structures	12.699	553,190	Somerset	0	0.04	$13,276.56
Merrill Road Converter Station	0.631	27,476	Androscoggin	0	0.17	$2,802.55
Fickett Road Substation	0.000	0	Cumberland	0	0.69	$0.00
HDD Termination Stations	0.000	0	Somerset	3.61	0.04	$0.00
Total	**29.607 Acres**	**1,289,691 Sq. ft.**			**Total In-Lieu Fee**	**$56,328.29**

[1] Resource multiplier of 1 and an adjustment of 60%.

[2] For upland portions of SVPH, no restoration cost is associated with conversion impact to non-wetland resources.

Table 1-5.6a: ILF Compensation for Direct Fill in USACE Jurisdictional Vernal Pools (Depression or 100-foot Envelope)

			Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	**Total Acres of Fill**	**Resource Impact (sq. ft.)**	**County**	**Natural Resource Enhancement and Restoration Cost ($)**	**Assessed Land Value ($)**	**In-Lieu Fee ($)[2]**
Transmission Structures/Station	1.392	60,640	Androscoggin	3.61	0.17	$229,219.20
Transmission Structures/Station	0.765	33,317	Cumberland	3.61	0.69	$143,263.10
Transmission Structures	0.007	297	Franklin	2.86	0.03	$858.33
Transmission Structures	0.000	0	Kennebec	3.61	0.16	$0.00
Transmission Structures	0.033	1,454	Lincoln	3.61	0.3	$5,685.14
Transmission Structures	0.001	60	Sagadahoc	3.61	0.27	$232.80
Transmission Structures/Stations	0.019	842	Somerset	3.61	0.04	$3,073.30
Total	**2.218 Acres**	**96,610 Sq. ft.**			**Total In-Lieu Fee**	**$382,331.87**

[1] Resource multiplier of 1.

Table 1-5.6b ILF Compensation for USACE High Value Jurisdictional Vernal Pools

					Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	High Value Pools (#)	Multiplier x Standard Sq Ft[2]	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	26	65,000	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$319,410.00
Transmission	0	65,000	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$0.00
Transmission	4	65,000	NA	Foothills and Central	Franklin	2.86	0.03	$37,570.00
Transmission	0	65,000	NA	Central Interior	Kennebec	3.61	0.16	$0.00
Transmission	4	65,000	NA	Midcoast Region	Lincoln	3.61	0.3	$50,830.00
Transmission	0	65,000	NA	Midcoast Region	Sagadahoc	3.61	0.27	$0.00
Transmission	13	65,000	NA	Western Mountains	Somerset	3.61	0.04	$154,212.50
Merrill Road Converter	2	65,000	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$24,570.00
Fickett Road Substation	0	65,000	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
Total No.	**49**						**Total In-Lieu Fee**	**$586,592.50**

[1] Resource multiplier of 1 and an adjustment of 5%.

[2] USACE 2016 Corps Mitigation Guidance: Standard of 13,000 sq.ft. x 5 for high value pools.

Table 1-5.6c ILF Compensation for USACE Medium Value Jurisdictional Vernal Pools

					Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	Medium Value Pools (#)	Multiplier x Standard Sq Ft[2]	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	55	39,000	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$405,405.00
Transmission	7	39,000	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$58,695.00
Transmission	10	39,000	NA	Foothills and Central	Franklin	2.86	0.03	$56,355.00
Transmission	1	39,000	NA	Central Interior	Kennebec	3.61	0.16	$7,351.50
Transmission	17	39,000	NA	Midcoast Region	Lincoln	3.61	0.3	$129,616.50
Transmission	9	39,000	NA	Midcoast Region	Sagadahoc	3.61	0.27	$68,094.00
Transmission	23	39,000	NA	Western Mountains	Somerset	3.61	0.04	$163,702.50
Merrill Road Converter	0	39,000	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$0.00
Fickett Road Substation	0	39,000	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
Total No.	**122**						**Total In-Lieu Fee**	**$889,219.50**

[1] Resource multiplier of 1 and an adjustment of 5%.

[2] USACE 2016 Corps Mitigation Guidance: Standard of 13,000 sq.ft. x 3 for medium value pools.

Table 1-5.6d ILF Compensation for USACE Low Value Jurisdictional Vernal Pools

					Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	Low Value Pools (#)	Multiplier x Standard Sq Ft[2]	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	29	13,000	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$71,253.00
Transmission	0	13,000	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$0.00
Transmission	11	13,000	NA	Foothills and Central	Franklin	2.86	0.03	$20,663.50
Transmission	0	13,000	NA	Central Interior	Kennebec	3.61	0.16	$0.00
Transmission	6	13,000	NA	Midcoast Region	Lincoln	3.61	0.3	$15,249.00
Transmission	0	13,000	NA	Midcoast Region	Sagadahoc	3.61	0.27	$0.00
Transmission	22	13,000	NA	Western Mountains	Somerset	3.61	0.04	$52,195.00
Merrill Road Converter	3	13,000	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$7,371.00
Fickett Road Substation	0	13,000	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
Total No.	**71**						**Total In-Lieu Fee**	**$166,731.50**

[1] Resource multiplier of 1 and an adjustment of 5%.

[2] USACE 2016 Corps Mitigation Guidance: Standard of 13,000 sq.ft. x 1 for low value pools.

Table 1-5.7 ILF Compensation for Permanent Wetland Fill in IWWH

		Permanent Wetland Fill in IWWH[1]						Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[2]			
			Cowardin Cover Type (Sq. Ft.)								
NECEC Project Component	Total Acres of Fill	Resource Impact (sq. ft.)[1]	PEM	PFO	PSS	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	0.000	0	0	0	0	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$0.00
Transmission	0.000	0	0	0	0	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$0.00
Transmission	0.000	0	0	0	0	NA	Western Foothills and Central Mountains	Franklin	2.86	0.03	$0.00
Transmission	0.000	0	0	0	0	NA	Central Interior	Kennebec	3.61	0.16	$0.00
Transmission	0.003	149	149	0	0	NA	Midcoast Region	Lincoln	3.61	0.3	$1,165.18
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Sagadahoc	3.61	0.27	$0.00
Transmission	0.000	0	0	0	0	NA	Western Mountains	Somerset	3.61	0.04	$0.00
Merrill Road Converter	0.000	0	0	0	0	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$0.00
Fickett Road Substation	0.000	0	0	0	0	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
HDD Termination Stations	0.000	0	0	0	0	NA	Western Mountains	Somerset	3.61	0.04	$0.00
Total	**0.003 Acres**	**149 Sq. ft.**								**Total In-Lieu Fee**	**$1,165.18**

[1] Wetlands within IWWH are WOSS. For purposes of evaluating compensation, WOSS impacts shown in Exhibit 1-4 exclude WOSS associated with IWWH.

[2] Resource multiplier of 2.

Table 1-5.8 ILF Compensation for Permanent Forested Wetland Conversion in IWWH

		Permanent Wetland Conversion in IWWH						Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
			Cowardin Cover Type (Sq. Ft.)								
NECEC Project Component	Total Acres of Fill	Resource Impact (sq. ft.)	PEM	PFO	PSS	HUC8 Watershed	Bailey and Keys Ecoregion	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission	0.000	0	0	0	0	NA	Central Maine Embayment	Androscoggin	3.61	0.17	$0.00
Transmission	0.000	0	0	0	0	NA	Presumpscot River and Casco Bay	Cumberland	3.61	0.69	$0.00
Transmission	0.590	25,705	0	25,705	0	NA	Western Foothills and Central Mountains	Franklin	2.86	0.03	$44,572.47
Transmission	0.000	0	0	0	0	NA	Central Interior	Kennebec	3.61	0.16	$0.00
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Lincoln	3.61	0.3	$0.00
Transmission	0.000	0	0	0	0	NA	Midcoast Region	Sagadahoc	3.61	0.27	$0.00
Transmission	2.032	88,527	0	88,527	0	NA	Western Mountains	Somerset	3.61	0.04	$193,874.13
Merrill Road Converter	0.000	0	0	0	0	Lower Androscoggin River	Central Maine Embayment	Androscoggin	3.61	0.17	$0.00
Fickett Road Substation	0.000	0	0	0	0	Presumpscot River and Casco Bay	Casco Bay Coast	Cumberland	3.61	0.69	$0.00
HDD Termination Stations	0.000	0	0	0	0	NA	Western Mountains	Somerset	3.61	0.04	$0.00
Total	**2.622 Acres**	**114,232 Sq. ft.**								**Total In-Lieu Fee**	**$238,446.60**

[1] Resource multiplier of 1 and an adjustment of 60%.

Table 1-5.9: ILF Compensation for Permanent Upland Fill in IWWH

			Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	**Total Acres of Fill**	**Resource Impact (sq. ft.)**	**County**	**Natural Resource Enhancement and Restoration Cost ($)**	**Assessed Land Value ($)**	**In-Lieu Fee ($)**
Transmission Structures	0.005	199	Androscoggin	0	0.17	$33.83
Transmission Structures	0.000	0	Cumberland	0	0.69	$0.00
Transmission Structures	0.002	79	Franklin	0	0.03	$2.37
Transmission Structures	0.000	0	Kennebec	0	0.16	$0.00
Transmission Structures	0.001	30	Lincoln	0	0.3	$9.00
Transmission Structures	0.000	0	Sagadahoc	0	0.27	$0.00
Transmission Structures	0.007	290	Somerset	0	0.04	$11.60
Merrill Road Converter Station	0.000	0	Androscoggin	0	0.17	$0.00
Fickett Road Substation	0.000	0	Cumberland	0	0.69	$0.00
HDD Termination Stations	0.000	0	Somerset	0	0.04	$0.00
Total	**0.014 Acres**	**598 Sq. ft.**			**Total In-Lieu Fee**	**$56.80**

[1] Resource multiplier of 1.

Table 1-5.10: ILF Compensation for Permanent Upland Conversion in IWWH

			Wetland Compensation Formula: Sq. Ft. of Wetland Impacted X (Natural Resource Enhancement and Restoration Cost + Assessed Land Value) x (Resource Multiplier)[1]			
NECEC Project Component	**Total Acres of Conversion**	**Resource Impact (sq. ft.)**	**County**	**Natural Resource Enhancement and Restoration Cost ($)[2]**	**Assessed Land Value ($)**	**In-Lieu Fee ($)**
Transmission Structures	0.387	16,877	Androscoggin	0	0.17	$1,721.45
Transmission Structures	0.000	0	Cumberland	0	0.69	$0.00
Transmission Structures	2.226	96,966	Franklin	0	0.03	$1,745.39
Transmission Structures	0.000	0	Kennebec	0	0.16	$0.00
Transmission Structures	0.000	0	Lincoln	0	0.3	$0.00
Transmission Structures	0.000	0	Sagadahoc	0	0.27	$0.00
Transmission Structures	9.773	425,713	Somerset	0	0.04	$10,217.11
Merrill Road Converter Station	0.000	0	Androscoggin	0	0.17	$0.00
Fickett Road Substation	0.000	0	Cumberland	0	0.69	$0.00
HDD Termination Stations	0.000	0	Somerset	0	0.04	$0.00
Total	**12.387 Acres**	**539,556 Sq. ft.**			**Total In-Lieu Fee**	**$13,683.95**

[1] Resource multiplier of 1 and an adjustment of 60%.

[2] For upland portions of IWWH, no restoration cost is associated with conversion impact to non-wetland resources.

Table 1-5.11: Compensation for Conversion in Unique Natural Communities

			Assessed Land Value x Resource Multiplier[1]			
NECEC Project Component	Total Acres of Conversion with 250' Directional Buffer [2]	Resource Impact (sq. ft.)	County	Natural Resource Enhancement and Restoration Cost ($)	Assessed Land Value ($)	In-Lieu Fee ($)
Transmission Structures	0.000	0	Androscoggin	0	0.17	$0.00
Transmission Structures	0.000	0	Cumberland	0	0.69	$0.00
Transmission Structures	0.000	0	Franklin	0	0.03	$0.00
Transmission Structures	0.000	0	Kennebec	0	0.16	$0.00
Transmission Structures	0.000	0	Lincoln	0	0.3	$0.00
Transmission Structures	0.000	0	Sagadahoc	0	0.27	$0.00
Transmission Structures	87.848	3,826,646	Somerset	0	0.04	$1,224,526.82
Merrill Road Converter Station	0.000	0	Androscoggin	0	0.17	$0.00
Fickett Road Substation	0.000	0	Cumberland	0	0.69	$0.00
HDD Termination Stations	0.000	0	Somerset	0	0.04	$0.00
Total	**87.848 Acres**	**3,826,646 Sq. Ft.**			**Total In-Lieu Fee**	**$1,224,526.82**

[1] Resource multiplier of 8.

[2] Permanent conversion impact to MNAP natural communities is 9.229 acres (402,008 sq.ft.). MNAP determined that it was appropriate to apply a 250' buffer in considering the area of which compensation would be provided. MNAP defined the 250' directional buffers for each occurrence, which totals the impact area presented in this table.

Table 1-5.12 Compensation for Conversion in Roaring Brook Mayfly and Northern Spring Salamander Conservation Management Areas

Township	County	Stream Name	Feature ID	Surveyed? (Y/N)	Species Present[1]	Clearing Impact within the Management Areas[2] (ac)	Clearing Impact (sq ft)	Assessed Land Value ($/sq ft)[3]	Resource Multiplier Applied to Fee[4]	Calculated Fee
Skinner Twp	Franklin	S. Branch Moose River	PSTR-09-11	Y	RBM	1.84	80,107	0.03	8	$19,225.64
Skinner Twp	Franklin	Trib to Bog Brook	PSTR-11-01	Y	NSS	2.75	119,659	0.03	8	$28,718.24
Appleton Twp	Somerset	Trib to Bog Brook	PSTR-12-07	Y	NSS	1.90	82,590	0.04	8	$26,428.72
Appleton Twp	Somerset	Gold Brook	PSTR-15-06	Y	RBM					
Appleton TWP	Somerset	Trib. to Gold Brook	PSTR-16-07	N	RBM					
Appleton TWP	Somerset	Trib. to Gold Brook	PSTR-16-10	N	RBM					n/a, mitigation being proposed[5]
Appleton TWP	Somerset	Trib. to Gold Brook	PSTR-16-15	N	RBM					
Appleton Twp	Somerset	Baker Stream	PSTR-17-07	Y	NSS	3.10	135,036	0.04	8	$43,211.52
Appleton Twp	Somerset	Baker Stream	PSTR-17R-04	Y	NSS					
Bradstreet TWP	Somerset	Unnamed Stream	PSTR-24-02	N	RBM/NSS	0.06	2,788	0.04	16	$1,784.22
Bradstreet TWP	Somerset	Trib. to Horse Brook	PSTR-26-05	N	RBM/NSS	1.32	57,456	0.04	16	$36,771.61
Johnson Mtn TWP	Somerset	Mountain Brook	PSTR-33-01	Y	RBM/NSS					
Johnson Mtn TWP	Somerset	Mountain Brook	PSTR-EM-34-01	Y	RBM/NSS					n/a, mitigation being proposed[5]
Johnson Mtn TWP	Somerset	Trib to Mountain Brook	PSTR-EM-34-02	Y	RBM/NSS					
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-02	Y	NSS	4.30	187,308	0.04	8	$59,938.56
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-06	Y	NSS					
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-10	Y	NSS	2.25	97,792	0.04	8	$31,293.50
Johnson Mtn TWP	Somerset	Trib. To East Branch Salmon Stream	PSTR-38-15	Y	NSS	1.86	80,891	0.04	8	$25,885.09
Johnson Mtn TWP	Somerset	Trib. to Cold Stream	PSTR-40-07	N	RBM/NSS	4.08	177,855	0.04	16	$113,827.51
Johnson Mtn TWP	Somerset	Trib. to Cold Stream	PSTR-41-04	N	RBM/NSS					
Bradstreet TWP	Somerset	Trib to Piel Brook	PSTR-SRD1-02	N	RBM/NSS	1.48	64,599	0.04	16	$41,343.67
Bradstreet TWP	Somerset	Unnamed Stream	PSTR-SRD1-28-02	N	RBM/NSS	1.48	64,599	0.04	16	$41,343.67
Bradstreet TWP	Somerset	Unnamed Stream	PSTR-SRD1-28-05	N	RBM/NSS					
					Total Impact	**26.416 Acres**	**1,150,681 Sq. ft.**		**Total Fee**	**$469,771.95**

[1] For those streams outside of CMP's ownership and on lands which permission to survey was not granted from landowners, and unless the waterbody is hydrologically connected to another stream which presence/absence surveys were conducted, the presence of both species is assumed.

[2] The clearing impact includes the area extending 250 feet on both sides of the stream channel. The management areas were mapped according to "Notes on Mapping Protocol for Roaring Brook Mayfly Habitat Polygons in ETSC (12/22/10)" provided by MDIFW. This mapping protocol was applied to RBB and NSS waterbodies, as recommended by MDIFW. Where mapped management area polygons overlapped, the impact area was combined.

[3] Source: MDEP Fact Sheet- In Lieu Fee Compensation Program (rev 2017).

[4] On 11/8/2018, MDIFW recommended a resource multiplier of 8 be applied to the fee calculation for each species present, where both species are present a multiplier of 16 was applied.

[5] CMP will retain full height vegetation in the CMA's for these resources.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)
CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
SITE LAW CERTIFICATION SLC-9	)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,	)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,	)
Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF
LAUREN JOHNSTON

Regarding

- Project Overview
- Issue 1: Scenic Character and Existing Uses
- Issue 2: Wildlife Habitat and Fisheries
- Issue 4: Compensation and Mitigation

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Lauren Johnston and I am a Senior Environmental Scientist at Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell). My curriculum vitae is attached

hereto as Exhibit CMP-4-A. I have been working on behalf of Central Maine Power Company (CMP) as a Senior Environmental Permitting Specialist for the New England Clean Energy Connect (NECEC) Project since April of 2017.

As part of the NECEC Project permitting team, I served a principal role in developing the state and federal permit applications and supplemental applications and interfaced on behalf of CMP directly with the regulatory agencies as part of the consultation process, application development and supplementation, and post-filing data requests. I am intimately familiar with the NECEC Project design and development, natural resources avoidance and mitigation measures, unavoidable natural resources impacts, and the compensation proposed for those unavoidable impacts. I have also served as a subject matter expert at three public information meetings at various locations in Maine.

I have been an environmental professional for 13 years, working with a variety of clients in the electrical transmission, wind power, and telecommunications industries. I obtained a Bachelor of Science in Natural Resource Studies, with minors in Resource Economics and Sociology, from the University of Massachusetts-Amherst in 2005 and became a Certified Professional in Erosion and Sediment Control (CPESC) in 2015. From 2006 to 2011, I was employed by EBI Consulting in Burlington, Massachusetts as an environmental scientist primarily conducting Phase I environmental site assessments, National Environmental Policy Act environmental reviews, and Section 106 of the National Historic Preservation Act consultation for the telecommunications and real estate industries. In 2011, I joined Burns & McDonnell in New Gloucester, Maine where I was an environmental specialist and construction compliance inspector as part of the program management team on CMP's Maine Power Reliability Program (MPRP). Since the completion of MPRP in 2015, the majority of my project work has been with

CMP where I oversaw permit and construction compliance on CMP's Lewiston Loop Project (2015-2018) and state and federal permit application development, submission, and post-filing support for the NECEC Project (2017-present).

II. Discussion (Relevant to DEP and LUPC Review)

I hereby adopt the Pre-Filed Direct Testimony of Mark Goodwin as if it were my own, with the exception of his qualifications section.

Exhibits:
CMP-4-A: Johnston CV

Dated: 2/27/2019

Respectfully submitted,

Lauren Johnston

STATE OF MAINE
CUMBERLAND, ss.
COUNTY

The above-named Lauren Johnston did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 2/27/19

Notary Public
Name: NICKOLE GAGNE
My Commission Expires:

NICKOLE GAGNE
Notary Public-Maine
My Commission Expires
October 02, 2020

LAUREN JOHNSTON, CPESC

Senior Environmental Scientist

Lauren serves Burns & McDonnell as a senior environmental scientist in the Environmental Services division. She has more than 13 years of experience specializing in regulatory permitting, reporting and environmental compliance monitoring. Lauren has also completed numerous regulatory site assessments for a wide variety of properties and client types. A summary of her experience is provided below.

EDUCATION

- Natural Resource Management University of Massachusetts- Amherst, 2005

REGISTRATIONS/CERTIFICATIONS

- Certified Professional in Erosion and Sediment Control (CPESC)
- Certification in Erosion and Sedimentation Control Practices- Maine DEP
- Adult CPR/AED
- Standard First Aid
- OSHA 30 hour CS&H

7 YEARS WITH BURNS & MCDONNELL

13 YEARS OF EXPERIENCE

New England Clean Energy Connect | Central Maine Power

Portland, Maine | April 2017 – Present

Senior environmental permitting specialist- Lauren served a principal role in the preparation and filing of federal and state environmental permit applications for the New England Clean Energy Connect (NECEC) Project. The NECEC Project includes approximately 146.5-miles of High Voltage Direct Current (HVDC) transmission line and associated substation facilities. Lauren worked closely with Central Maine Power and agency personnel to develop several aspects of the U.S. Department of Energy Presidential Permit for Border Crossings application, U.S. Army Corps of Engineers Individual Permit application, Maine Department of Environmental Protection (MDEP) Site Location of Development (Site Law) permit application, and MDEP Natural Resources Protection Act (NRPA) permit application. Under this effort, Lauren was a subject matter expert in three public information meetings at various locations in Maine. Lauren continues to provide permitting support services, including responses to agency information requests for Central Maine Power.

Bay State Wind Offshore Wind Farm Project | Bay State Wind, LLC

Massachusetts, various locations | November 2018 - Present

Senior environmental permitting specialist - Lauren provided review and edits of draft sections of the Construction and Operations Plan, a requirement of the Bureau of Ocean Energy Management (BOEM) as part of the lease awarded to Bay State Wind, LLC. Bay State Wind, LLC is a joint venture between Ørsted and Eversource, which proposes to construct, own, and operate the Bay State Wind Offshore Wind Project within a 14-mile offshore lease area, approximately 12 miles south of Martha's Vineyard, Massachusetts. Onshore components consist of a transmission corridor, interconnection cable corridor, one new onshore substation site, and improvements to an existing National Grid substation, all located in Somerset, Massachusetts. Offshore design is anticipated to be up to 110 wind turbines, two offshore substations, an inter-array cable, and two export cables, located in the BOEM lease area and in state and federal waters. Lauren's review of the Construction and Operations Plan offered expert knowledge of the project design; federal, state and local regulatory requirements; and best management practices.

LAUREN JOHNSTON, CPESC

(continued)

Footprint Salem Harbor Power Plant Project | Footprint Power Salem Harbor Development LP

Salem, Massachusetts | October 2018 - Present

Environmental inspection services- Lauren was responsible for monitoring compliance with environmental permits issued by various federal, state, and local regulatory agencies, specifically to actions associated with the EPA Remediation General Permit, Construction General Permit, and associated Stormwater Pollution Prevention Plan (SWPPP) and the Salem Conservation Commission Order of Conditions. The redevelopment plan for the Footprint Power Plant included demolition of the existing coal-fired electric generation facility and construction of a new Combined Cycle Gas (CCG) fired electric generation facility. The project site consists of approximately 65 acres, with approximately 20 acres being redeveloped as an electric generation facility. Inspections were conducted in accordance with regulatory and reporting requirements. Lauren regularly interfaced with the construction subcontractors to promote and confirm environmental compliance, specifically with remediation, erosion control, and mitigation measures during construction activities.

Jericho Rise Wind Project | EDP Renewables NA

Franklin County, New York | February 2017

Environmental compliance services- Lauren developed a construction environmental monitoring manual for the Jericho Rise Wind Project, which included the development of 37 turbines, a new substation, electrical collection lines and associated infrastructure. After a comprehensive review of project documents, permits, and plans, Lauren developed the compliance manual for use by the owner and developed pre-construction and construction compliance checklists. Lauren also assisted with the development of the environmental compliance training program that was presented to the project construction crew prior to the start of construction.

Lewiston Loop Project | Central Maine Power

New Gloucester, Maine | 2015 to 2018

Environmental compliance coordinator and inspector- Lauren provided environmental coordination and inspection on this multi-component upgrade to the Lewiston/Auburn area electrical transmission system. The project includes the construction of a new substation, six miles of 115kV overhead transmission lines, one mile of underground 115kV line though an urban area of Lewiston, decommissioning of an existing substation, and various other upgrades to the supporting grid. Lauren interfaced between the owner, contractors, and governmental agencies regarding permitting and environmental needs. Lauren provided weekly environmental inspections during construction of the various project components. In this role, Lauren was also responsible for preparing the MDEP Construction General Permit Notice of Intent and an application for a minor revision to the NRPA permit for the project.

Maine Power Reliability Program | Central Maine Power

New Gloucester, Maine | 2011 to 2015

Environmental compliance inspector- Lauren served as an environmental compliance inspector on this $1.4 billion modernization of Maine's bulk power system. She coordinated preconstruction site walks and attended preconstruction meetings with agency staff, DEP third party inspectors, and involved contractors. The MPRP consisted of nearly 450 miles of linear transmission line construction, so Lauren's work involved variable site conditions and required knowledge of appropriate application of erosion and sediment controls and proper dewatering techniques. The MPRP included the construction of six new substations as well major upgrades to an additional six substations. Lauren provided environmental inspection of the stormwater system construction at many of these substation sites. She also reviewed restoration of the

LAUREN JOHNSTON, CPESC

(continued)

project sites for final stabilization and established re-vegetation. Lauren worked closely with the client, contractors, and DEP third party inspectors to monitor project compliance.

EBI Consulting*

Burlington, Maine | 2006-2011

Staff environmental scientist- Lauren served as a staff environmental scientist, specializing in environmental investigations, site assessments, National Environmental Policy Act (NEPA) environmental reviews, and State Historic Preservation Office (SHPO) evaluation and submittals for the telecommunications industry. She conducted numerous pre-acquisition assessments/due diligence assignments for a wide range of properties throughout the northeast. The assessments were performed to evaluate site conditions, potential off-site liabilities, historic site and vicinity use, and site remediation recommendations to prospective buyers, owners, and operators. She performed sampling of soils, lead paint, and asbestos as part of her onsite field work.

**denotes experience prior to joining Burns & McDonnell*

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)
CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
SITE LAW CERTIFICATION SLC-9	)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,	)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,	)
Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF
AMY BELL SEGAL

Regarding

- Issue 1: Scenic Character and Existing Uses
- Issue 3: Alternatives Analysis

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Amy Bell Segal. I am a licensed landscape architect in Maine and a Senior Associate at Terrence J. DeWan & Associates. My twenty-six years of experience include visual impact assessments; recreation and trail planning; site design for commercial and industrial

properties; and permitting and construction management. During this time, I have gained considerable experience with energy-related projects, including over 20 wind projects, numerous transmission line upgrades, LNG pipeline and storage facilities, substations, solar installations, and quarry and landfill end use planning. My responsibilities for Central Maine Power Company's ("CMP's") Visual Impact Assessment ("VIA") for the New England Clean Energy Connect Project ("NECEC" or the "Project") include research, inventory, leading fieldwork, agency review meetings and site walks, overseeing production of modeling and photosimulations, and authoring the VIA report and supplemental submissions. I was also the project manager for the VIA for CMP's Maine Power Reliability Program ("MPRP"). My resume is attached as Exhibit CMP-5-A.

Terrence J. DeWan & Associates ("TJD&A") is one of three firms, and the only one in Maine, that are pre-qualified to perform peer reviews of visual impact assessments for the Maine Department of Environmental Protection ("MDEP"). Over the past four decades TJD&A has prepared close to 100 VIAs for a wide variety of projects throughout New England, including hydroelectric dams, port improvements, power generation facilities, electrical transmission lines, substations, liquefied natural gas facilities, industrial buildings, sanitary landfills, roads and bridges, mining operations, wind energy facilities, and new community development.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

This testimony provides my assessment of the potential effect the Project may have on scenic and aesthetic uses. A presentation that illustrates my testimony is attached as Exhibit CMP-5-B. A compilation of our methodology and findings is attached as Exhibit CMP-5-C.

I conclude with my opinion that the Project will not unreasonably interfere with existing scenic and aesthetic uses, and does not diminish the public enjoyment and appreciation of the

qualities of the scenic resources, and any potential impacts have been minimized. The activity will not have an unreasonable impact on the visual quality of protected natural resources as viewed from a scenic resource. The development will not adversely affect scenic character. There are no practicable alternatives to the proposed activity that will have less visual impact, and there is no reasonable alternative to the outstanding river segment crossings that would have less adverse effect upon the natural and recreational features of these river segments. With respect to portions of the Project located in LUPC's P-RR subdistricts, the Project will be buffered from those uses within the vicinity or area likely to be affected by the proposal with which it is or may be incompatible, and there is no alternative site which is both suitable to the proposed use and reasonably available to CMP.

III. Summary of Testimony (Relevant to DEP and LUPC Review)

Visual Impact Assessment Overview

The NECEC Project is a High Voltage Direct Current ("HVDC") transmission line and related facilities with the capacity to deliver up to 1,200 MW of electric generation, starting in Beattie Township at the Canadian Border and connecting to the New England Control Area through the new Merrill Road Converter Station and existing Larrabee Road Substation in Lewiston, Maine.

TJD&A prepared a VIA of the NECEC using standard visual impact assessment methodologies, following the standards described in the MDEP's Natural Resources Protection Act ("NRPA") Chapter 315 regulations, as well as addressing the standards in the Site Location of Development Law's applicable rule, Chapter 375.14 (Scenic Character). TJD&A also considered the criteria applicable to crossings of outstanding river segments, and buffering of the Project and alternatives to the Project within LUPC's P-RR subdistricts.

The NRPA and Chapter 315 require an applicant to demonstrate that a proposed activity will not unreasonably interfere with existing scenic and aesthetic uses of a scenic resource, as defined by Chapter 315. This regulation applies to activities in, on, over, or adjacent to a protected natural resource. More broadly, the Site Law and Chapter 375.14 require an applicant to demonstrate that the development will not have an unreasonable adverse effect on the scenic character of the surrounding area. Potential impacts to identified scenic resources, and other points of local sensitivity, have been assessed within each segment.

The VIA that we conducted for NECEC contains the elements that are common to all VIAs that are conducted for Maine regulatory agencies. We became very familiar with the viewshed area and the surrounding region; we identified scenic resources and the groups that use them that may be affected by the Project; we determined where the transmission line would be visible; we developed accurate photosimulations that enabled us to visualize and describe potential changes to scenic resources resulting from the transmission line's visibility; we presented recommendations to the design team on possible measures to avoid and minimize such impacts; and, finally, we determined whether the Project would have an unreasonable adverse effect on aesthetics.

The VIA describes in both a narrative and graphic form the changes to the visual environment that may result from the construction of the Project as well as the measures that have been and are being taken to avoid, minimize, and mitigate adverse visual effects. We determined the visual effects of the Project, based on our experience with objective criteria, to analyze potential contrast in color, form, line, texture, scale, and dominance between the existing landscape setting and the proposed Project components. The VIA evaluates effects on individual

scenic resources and provides the basis for rendering an overall judgment as to whether the Project as a whole would have an unreasonable adverse effect on aesthetics.

Our VIA is a systematic analysis of possible changes to the visible landscape resulting from the proposed NECEC, and the investigation of possible means to avoid, minimize, or mitigate the effects of the change. The methodology for preparing a VIA in Maine is guided by Chapter 315 and includes the following steps:

- Develop Project understanding
- Determine viewshed study Area of Potential Effect ("APE" also referred to as "Study Area") based on viewing distances
- Research, inventory, and identify Scenic Resources
- Prepare Viewshed Analysis to determine potential Project visibility
- Perform fieldwork to document regional and local landscape character and site context
- Determine Project visibility from identified Scenic Resources
- Prepare photosimulations from key observation points and other identified locations
- Rate potential visual impacts based on evaluation of photosimulations and other analysis
- Determine sensitivity levels of user groups
- Determine Visual Impact
- Develop mitigation recommendations

Scenic Resource Identification: Data Collection

Prior to starting field investigations, TJD&A staff examined a wide variety of data sources to determine the location, extent, and significance of scenic resources within five miles of the Project corridor. Three to five miles is considered to be the outer of limit of the midground viewing distance; objects beyond this distance will only be visible if they have

significant contrasts in form or line. This outer limit was approved by the MDEP at the beginning of the VIA process, recognizing that the proposed activity would not have the potential to create an unreasonable adverse impact on scenic resources beyond the five-mile threshold. In many of the photosimulations, where the existing transmission line is located beyond five miles from the viewpoint, the proposed structures are not visible, and the additional 75 feet of clearing is barely recognizable.

Data sources included United States Geological Survey ("USGS") maps; substation grading plans provided by engineering consultants; 3D PLS CADD models, cross-sections, and elevations provided by Project engineers; Maine Office of GIS; maps and other documentation from municipal comprehensive plans; Land for Maine's Future Board; Maine Department of Agriculture, Conservation and Forestry ("MDACF") information on state parks, wildlife refuges, and other state lands; Maine Department of Inland Fisheries & Wildlife (MDIFW) lake survey maps; Interconnected Trail Systems ("ITS") maps; Maine Land Use Planning Commission; National Park Services' National Natural Landmark program; The Nature Conservancy; The Trust for Public Land; The Forest Society of Maine; local/regional land trusts; National Register of Historic Places; Maine Historic Preservation Commission; Maine Lakes Study; Maine Wildlands Lake Assessment; Maine Rivers Study; DeLorme Atlas and Gazetteer; Google Earth; Maine Trail Finder; and other secondary data sources.

Viewshed Analysis

TJD&A prepared a computerized viewshed analysis of the APE to identify locations that may have views of the Project. One of the primary purposes of the analysis was to guide fieldwork to scenic resources and other areas where there may be potential visibility.

Two types of viewshed analyses were created. A topographic viewshed analysis was

prepared using Digital Elevation Model ("DEM") data from the USGS National Elevation Data ("NED") website. This produced a Digital Terrain Model ("DTM") ground surface model for the entire Study Area, which shows where any portion of at least one structure would be visible, if there were no trees, buildings, or other obstructions. While this is a highly exaggerated and unrealistic model, it does show where there is no possible Project visibility due to the screening effects of topography.

To gain a more realistic understanding of potential project visibility, an additional viewshed analysis was prepared to show the effect of tree cover and buildings on Project visibility. The DTM surface was converted to a Digital Surface Model ("DSM") using Maine Land Cover Data Classifications from the Maine Office of GIS. A land cover height raster was developed using specific heights for land covers in the Study Area. This raster file was overlaid on the base map to indicate where Project visibility is unlikely due to the screening effects of 40-foot tall woody vegetation, which is a conservative height estimate.

Fieldwork

TJD&A staff collected field data by driving, walking, hiking, boating, flying (float plane), and photographing the Study Area in order to assess visibility from scenic resources, public roads, trails, conservation lands, water bodies, and other publicly accessible viewpoints. We conducted our fieldwork from June 2017 to February 2019. Fieldwork was designed to visit and photograph scenic resources as well as characteristic landscapes in every segment. While the majority of the site visits were during the summer of 2018, additional fieldwork was completed during the late fall and winter of 2018 /2019 to evaluate many of the same landscapes during leaf-off conditions. Representative photographs of each segment are included in the VIA to document the field study, supplement the narrative, and provide additional context images for

the photosimulation locations.

Fieldwork typically involved teams of two people from TJD&A who visited, photographed, and analyzed the scenic resources and surrounding landscapes throughout the APE. Field visits were designed to provide us with first-hand knowledge of existing conditions at the identified resource, to evaluate the scenic quality of the resource, to observe human use patterns, to photograph views from key observation points ("KOPs"), and to record site conditions and other factors that may affect Project visibility.

For each site one member of the team photographed the landscape, using a high quality digital camera equipped with a GPS device that captured the location of each image. Photographs were taken for several purposes: to document the characteristic landscape in the vicinity of the scenic resource; to provide images that illustrate the context of the viewpoint(s); and to record images that would be used in photosimulations. Photographs were taken from a number of viewpoints, depending on tree cover, evidence of public use, accessibility, and visibility of the existing and proposed transmission lines. The other member(s) of the site team reviewed maps and recorded observations on weather conditions, user activities, visibility of existing transmission line(s), and the character of the surrounding landscape.

Photographs used in the photosimulations were taken by TJD&A staff during field work with either a Nikon D7100 or Nikon D5500 digital camera, set to shoot at a focal length equivalent to a 50 mm ('normal') lens. The locations of all photographs were recorded with a GPS unit that allowed the image to be registered in the computer model.

Site Context

The VIA describes the physical context of each segment in terms of existing land use patterns, vegetation cover, topography, and water bodies within the Study Area. The narrative

evaluates existing vegetative buffers (where present) and their effectiveness in screening the facilities within the corridor from nearby land uses and scenic resources. Representative photographs are included for each segment to supplement the narrative and illustrate the context of the Project. The VIA concentrated on views from publicly accessible scenic resources, primarily roads, trails, public lands, and water bodies.

Project Visibility / Distance Zones

The concept of distance zones is based on the United States Department of Agriculture Forest Service's visual analysis criteria for forested landscapes. The concept is found in most governmental visual assessment systems and is based on the amount of detail that the human eye can differentiate at different distances and the experience people will have when they see human development in landscape settings. Distance zones provide a frame of reference for describing existing landscape conditions and evaluating the relative visibility of transmission lines from scenic resources, and therefore the visual effect they may have on those resources at varying distances. The distance zones used for the study of the NECEC Project are defined as:

- **Foreground** (within 1/2 mile from an observer). In the foreground, observers are able to detect surface textures, details, and a full spectrum of color. Examples of foreground views include locations where transmission lines cross public roads, streams, and rivers, or where substations are adjacent to public roads or other scenic resources.
- **Midground** (1/2 mile to 3 miles from an observer): In the midground, the details found in the landscape become subordinate to the patterns observed in the larger landscape as a whole. Individual trees lose their identities and become forests; buildings are seen as simple geometric forms; roads and rivers become lines. Development patterns are readily apparent, especially where there is noticeable contrast in scale, form, texture, or line.

Colors become somewhat muted (especially noticeable as the distance from the observer increases), an effect that is more pronounced in hazy or rainy weather conditions, which tend to reduce color intensity and de-sharpen outlines even further. In panoramic views, the midground landscape is the most important element in the composition in determining visual impact.

- **Background** (greater than 3 miles from an observer): Changes to the landscape seen at this distance are highly visible only if they present a noticeable contrast in form or line. In the background the effects of distance and haze will obliterate surface textures, detailing, and forms of individual structures. The effects of atmospheric haze can also significantly reduce visibility of clearings and structures. Most transmission structures and conductors cease to be uniquely recognizable at distances greater than 3 miles. Visual effects from the Project will primarily be from new or expanded corridor clearings, which present noticeable contrasts in color, form, and line.

Photosimulations

Photographs are used extensively in the VIA to illustrate a) where views will not be altered by the Project; b) where post-construction views will include relatively small portions of the transmission structures and/or conductors; or c) where post-construction views may change more significantly. TJD&A has prepared an extensive series of photosimulations (computer-altered photographs) to illustrate the third situation. A total of 32 viewpoints from scenic resources (as defined in MDEP Chapter 315) and locally sensitive resources were selected for analysis and the development of photosimulations in the initial September 2017 Site Law Application. An additional 8 photosimulations were provided in the June 29, 2018 post-application submittal to MDEP. Finally, an addition 13 photosimulations were provided on

December 7, 2018 to illustrate leaf-off conditions throughout the Study Area.

Photosimulations were prepared by 1) creating a three dimensional DTM base of the Study Area landscape using National Elevation Data from USGS; 2) inserting three dimensional computer models of the proposed transmission structures generated in PLS CADD provided by Project engineers into the base model; 3) aligning the computer model of the Project with GPS located photographs in 3D Studio Max; 4) rendering a simulated perspective of the Project using 3D Studio Max; 5) exporting the resultant image into Photoshop and merging with the selected photograph to create a photorealistic representation; and 6) altering the vegetation in Photoshop to reflect new or widened corridor clearings, based on the limit of clearing information provided by project engineers.

Panoramic views were also created for each viewpoint by using several 'normal' photographs merged in Photoshop to provide a more contextual view of the landscape. These views are included as the title page for each location, along with a location map, a context map, a typical cross section, and technical information (viewpoint location, viewing direction, angle of view, date and time of photograph, camera focal length, camera type, photo source, number of proposed structures visible, and approximate distance to the nearest visible structure or corridor clearing).

Selecting Photosimulation Locations

Photosimulations are provided to illustrate to the general public and the permitting agencies how the Project will appear. Since they are key to understanding potential visual impacts, it is important that the photographs selected for simulations be representative of the Project as a whole and that they give the reviewers an accurate picture of Project effects. The NECEC

extends for 145 miles through very diverse landscapes that include commercial forests, agricultural lands, rural villages, and urban communities.

The methodology that was employed to evaluate this Project is the standard professional practice referenced in Chapter 315.7 that TJD&A typically uses in preparing a VIA. The objective is to visit, analyze, and present data on representative sites within the APE. These are selected to illustrate a) the diversity of the scenic resources and viewing opportunities within the Study Area, b) characteristic views from scenic resources that visitors now encounter, and c) potential visual effects of the Project when viewed from the varied distances, elevations, and existing use patterns within the Study Area. TJD&A has identified and photographically documented representative worst-case viewpoints from all of the identified scenic resources.

Scenic resources and potential viewpoints are evaluated as either: **points** (e.g., scenic overlooks, mountaintops, historic structures), **lines** (e.g., scenic byways, river segments, hiking trails), or **areas** (e.g., lakes, historic districts, state parks). The methodology included a sampling of all these types of viewpoints and resources.

Selection of viewpoints at **point locations** are self-evident, i.e., there is typically a single viewpoint from a mountaintop or scenic overlook. Where there are a limited number of viewpoints, as is the case in most point locations, there is no distinction between representative and worst-case conditions.

With **linear resources** the decision as to where to evaluate and photograph considers many factors: direction of viewer travel; representative nature of the viewpoint; typical viewer experience; maximum potential Project visibility; amount of time that the project would be in view along the route; viewer speed and mode of travel; orientation of the viewer; other scenic/cultural features visible; etc.

In the case of **planar resources** the considerations as to where to evaluate and photograph is similar to linear resources: ability to move within the resource; concentration points of viewer activity (e.g., boat launches on a lake, a central green in a historic district, activity area in parks); varying degrees of impact at different viewpoints; maximum potential Project visibility (worst-case conditions initially guided by the viewshed analysis); viewer speed and mode of travel; focal points within the viewshed; other scenic/cultural features visible; etc.

For most linear and planar resources, TJD&A photographed the landscape from a number of viewpoints, guided by the viewshed map. Locations in the field were selected based on existing vegetation, elevation, evidence of public use, visibility of existing transmission lines, discordant features within the view, and other site-specific factors. The final selection of worst-case viewpoints used for the photosimulations considered many factors including, but not limited to: presence or absence of an existing transmission corridor; viewer elevation; distance from the observer; the number of structures visible in the photograph; and the amount of the structure(s) and conductors that may be visible based on the computer model.

Moxie Pond is a representative example of a planar resource. We first determined where the Project would be most visible, based on viewshed mapping. Field investigations helped us select and photograph representative viewpoints from the north end of the pond near the boat launch, and a worst-case viewpoint from the south end where the existing transmission line is most visible and where the Project would be most visible. **Route 201** is an example of a linear resource where we selected viewpoints based on viewshed mapping and fieldwork. The Attean View Rest Area, where the Project would be seen in the background, was selected as a representative view where people gather, while the location where the transmission line crosses the highway in Moscow was used as an example of a worst-case viewpoint. From elevated

viewpoints, such as **Coburn Mountain**, we selected a point with the most potential Project visibility and highest degree of apparent use, based on viewshed mapping, field observation, and guidebook research.

During the course of the fieldwork for NECEC, TJD&A visited hundreds of sites throughout the Study Area and collected thousands of photographs to illustrate existing conditions. The fieldwork concentrated on the scenic resources that were identified during the office research phase of the visual analysis, i.e., those public natural resources or public lands visited by the general public, in part for the use, observation, enjoyment, and appreciation of natural or cultural visual qualities, generally within three miles of the transmission corridor. Since it would be virtually impossible to use every photograph, or to portray the potential effect of the Project on every scenic resource, TJD&A used the following filtering process to select a representative sampling to use as the basis for photosimulations.

- **Segments**. The number of photosimulations should be roughly proportional to the length of each of the five segments that were identified. Segment 1 (new 53.5 mile HVDC line) has 16 simulations (including 4 at the Kennebec Gorge); Segment 2 (22 miles of co-located HVDC line) has 11 simulations (including 3 at the Appalachian Trail); Segment 3 (70 miles of co-located HVDC line) has 6 simulations; Segment 4 (25.4 mile rebuild section) has 2 simulations; and Segment 5 (26.5 mile 345 kV section) has 5 simulations.
- **Scenic Resources**. Photosimulations should be provided at the most significant scenic resources identified by TJD&A and DEP throughout the Study Area. The simulations should include views from great ponds, rivers and streams, mountain peaks, scenic byways, and other scenic resources.

- **Landscape Diversity**. Simulations should include views of characteristic landscapes within each of the segments to illustrate the diversity of landscapes, vegetation types, water bodies, landforms, and settlement patterns found throughout the Study Area.
- **Viewing Distances**. The majority of the photosimulations (approximately 70-75%) should be within the foreground viewing distance (up to 0.5 mile from the observer), and approximately 20-25% should be in the mid-ground (between 0.5 mile and 3.0 miles). Background views (beyond 3 miles) should illustrate those places where the transmission corridor might be visible from significant viewpoints, based on field identification.
- **Elevations**. The simulations should include views from relatively level areas as well as elevated viewpoints, assuming that the latter category will be mostly in the mid-ground and background viewing distances.

TJD&A selected an initial collection of photographs from the fieldwork to represent the geographic diversity of the Study Area, with particular attention to those areas where post-construction views may be most noticeable. The filtering process outlined above was used to focus on the most significant candidate sites and photographs. In making the final selection, the process also considered whether the scenic resources were either: points (e.g., scenic overlooks, mountaintops, historic structures), lines (e.g., scenic byways, river segments, hiking trails), or areas (e.g., lakes, historic districts, state parks).

As part of the VIA we prepared a Photosimulation Summary in matrix form that categorizes each photosimulation by distance zones (foreground, midground, background), viewpoint type/scenic resource (rated waterbodies, remote ponds, elevated viewpoints, recreation areas/parks/trails, scenic byway, and road crossing), and surrounding land use (commercial working forestland, non-forested land/agriculture, low density rural residential/camps along

ponds, and village/suburban residential). As evidenced by the matrix, the viewpoints selected provide the reviewer with an understanding of the diversity of the landscape and the potential effect that the Project may have on representative and worst-case viewpoints.

Visual Impact Assessments

TJD&A developed a VIA for each of the five Project segments and the substations to evaluate potential impacts on scenic resources and existing public scenic and aesthetic uses. The evaluation is based on knowledge of the Project gained from fieldwork, background research, viewshed analysis, resource mapping, and a review of the photosimulations and other data sources.

The narrative for each segment follows the MDEP Chapter 315 regulations, starting with the completion of the MDEP Basic Visual Impact Assessment Form (VIA Form) to determine the potential visual effect of the Project on scenic resources. The VIA Form is based on an evaluation of the Project's visual elements (i.e., landscape compatibility, scale contrast, and spatial dominance). The narrative also includes a description of the a) significance of scenic resources based on state or local designations and b) visual quality observed during field visits (landform, vegetation, water bodies, color, views, human development and character.)

Observations and researched data are provided, when available, to address user expectation of scenic quality; extent, nature, and duration of public use; and continued use and enjoyment. The following two questions were asked for each identified resource: 1) will the Project affect the way the scenic resource is currently being used, and 2) will the Project have an effect on the public's enjoyment of the resource?

The sections *in italics* below are quotes from the Chapter 315 regulations:

***Landscape compatibility**, which is a function of the sub-elements of color, form, line, and*

texture. Compatibility is determined by whether the proposed activity differs significantly from its existing surroundings and the context from which they are viewed such that it becomes an unreasonable adverse impact on the visual quality of a protected natural resource as viewed from a scenic resource.

Each sub-element is evaluated for how compatible the change resulting from the NECEC activity will be with its surroundings and whether there will be no, minimal, moderate, strong, or severe contrast.

Color: This section describes anticipated color contrasts between existing conditions and proposed materials to be used for the Project. Moderate contrasts in color may occur in segments that use self-weathering steel structures, which are typically darker in color than weathered wooden poles that are light gray in color. Where no other structures exist, the self-weathering steel may be more similar in color to surrounding wooded landscape. Most of the electrical equipment used in substations will be galvanized, which should match the existing equipment used in adjacent substations.

Form: The form (three-dimensional shape) of the transmission structures being proposed are similar to single pole structures currently found in transmission line corridors. The new transmission structures are expected to result in minimal to moderate contrasts in form with the surrounding trees and existing transmission structures.

Line: The VIA describes the anticipated changes to the landscape resulting from the introduction of new linear elements in the landscape, i.e., new or expanded transmission corridors, conductors, and transmission structures. The degree of contrast in line is a function of the distance from the observer, the relative length of the structure that is visible above the horizon, and the magnitude of other new lines introduced into the

landscape. Substations are typically composed of very linear elements – vertical, horizontal, and angular components – in addition to the lines of the conductors entering the facility. In the existing substations where new equipment will be added, there should be minimal to moderate contrast in line, depending on whether the new components will be visible above the horizon. New substations could have a moderate to strong contrast between the lines found in nature and the lines introduced by the substation.

Texture: The HVDC structures will be single pole self-weathering steel, which has a smoother (and darker) texture than the standard wooden poles. There may be moderate contrasts in texture in situations where the HVDC structures are viewed adjacent to wooden structures. The standard wooden structures have a texture similar to the existing H-frame poles and monopoles used throughout the corridors. There is generally no contrast in texture for new transmission structures made of the same material. The texture of the improved substations should be similar to the existing facilities, so there should be virtually no contrast in texture. In the case of new substations, the electrical equipment could have a moderate to strong contrast in texture with the surrounding vegetation and abutting land uses.

Scale contrast *is determined by the size and scope of the proposed activity given its specific location within the viewshed of a scenic resource*. The VIA describes the change in scale between the existing and proposed transmission structures, how the structures fit into the maintained corridor, and how they relate to the size of trees that line the corridor (where appropriate). The VIA describes the relative size of the new or upgraded substations in comparison to their surroundings (transmission structures, existing trees, nearby buildings, or other adjacent land uses). The VIA also describes whether the substation components will be

visible above the surrounding trees.

Spatial Dominance *is the degree to which an activity dominates the whole landscape composition or dominates landform, water, or sky backdrop as viewed from a scenic resource.* The VIA describes whether the proposed transmission line(s) or substations dominate or are prominent in the whole landscape composition, or dominates the surrounding landforms, nearby water bodies, or the sky. It also determines if any of the transmission structures (vertical lines) or conductors (horizontal lines) will be seen against the sky from prominent viewpoints or scenic resources. Spatial dominance also considers the presence or absence of screening vegetation between observers and the transmission structures or substations, the type and character of viewpoints (both roadside and from scenic resources), and the relative number of viewers and their respective sensitivity. The dominance of the Project components is described in terms of its relative prominence in the landscape: insignificant; subordinate to the surrounding natural and cultural elements in the landscape; co-dominate the landscape; or dominate the landscape, the immediate setting, or the backdrop.

Evaluation

The severity of potential visual impact is based on Landscape Compatibility (color, form, line, and texture), Scale Contrast, and Spatial Dominance to determine whether the visual impact will be negligible, moderate, strong, or severe. The evaluation is based on first-hand knowledge of the specific site; a review of site photography and aerial photographs; Project design parameters for the individual transmission lines (cross-sections, areas of tree clearing) and substations; and photosimulations of the transmission lines.

IV. Discussion (Relevant to DEP and LUPC Review)

a. Issue 1 (Scenic Character and Existing Uses)

i. Visual Impact Assessment and Scenic/Aesthetic Uses, Recreational and Navigational Uses (Relevant to DEP and LUPC Review)

Project Planning and Siting

Minimizing potential visual and other environmental impacts on scenic and other natural resources was a key driver in the evaluation of route options. CMP's rigorous approach to siting considered a wide range of factors, including: ownership patterns, conserved lands, stream crossings, location of existing rights of way, clearing requirements, transmission line length, mapped wetlands (NWI data), deer wintering areas, inland waterfowl and wading bird habitats, public water supplies, and significant sand and gravel aquifers.

In siting Segment 1, CMP considered the presence of publicly owned conservation lands (e.g., the Appalachian National Scenic Trail and Maine Bureau of Parks and Lands properties) as well as those held by private conservation organizations such as The Nature Conservancy and the New England Forestry Foundation. The paramount goal of the route selection was to avoid iconic scenic and recreational areas that characterize this part of western Maine, including the Bigelow Preserve, the Crocker Mountain High Peaks area, Mount Abraham, Saddleback Mountain, the Moosehead Region Conservation Easement, Grace Pond in Upper Enchanted TWP, the Leuthold Forest Preserve, the Number 5 Bog Ecological Reserve, and the Moose River/Attean and Holeb Ponds. Care was also taken to site the new corridor and individual transmission structures to avoid visual impacts to smaller but visually sensitive areas such as the Moxie Falls Scenic Area and the Cold Stream Forest.

Landowner Requirements. Siting also considered specific landowner requirements. For example, Spencer Road is a private road owned by Weyerhaeuser Co. and is actively used for

timber harvesting and transporting. Weyerhaeuser required the proposed corridor to be located away from the road to allow room for future harvesting operations and lay down areas. CMP sited Segment 1 to the north of the road to comply with Weyerhaeuser's request, which resulted in a substantial buffer between the Project and recreational users/camp owners who also use the road to access Grace Pond, Fish Pond, and Spencer Lake.

Lakes and Ponds. There are approximately 48 lakes and ponds within 3 miles of Segments 1 and 2. The Project corridor was sited to avoid visual impacts to the extent possible to the 9 lakes and ponds rated for Scenic Resources in the Maine Wildlands Lake Assessment. Of these rated water bodies in Segments 1 and 2, five will have some views of the Project (Rock Pond, Fish Pond, Parlin Pond, Moxie Pond, and Wyman Lake).

Old Canada Road Scenic Byway. Route 201 is designated as the Old Canada National Scenic Byway; 49 miles of the Byway are within five miles of the Project. Many steps were taken to site Segment 1 to minimize visibility and potential impact to the Byway. For example, the crossing location selected was between Weyerhaeuser's Capitol Road and Judd Road, near the existing Jackman tie line transmission line corridor, in order to cluster transmission and transportation corridors. On Coburn Mountain the transmission corridor was sited in a pronounced notch to minimize visibility when viewed from the highway. As a result of this careful planning, the Project will be intermittently visible for only up to 95 seconds for northbound motorists and up to 48 seconds for southbound traffic traveling at 45 MPH.

Appalachian Trail. Locating the new transmission line in the vicinity of the AT required similar careful siting. The transmission line route is within an existing transmission line corridor where it will be co-located with an existing transmission line adjacent to Joe's Hole at the southern end of Moxie Pond. CMP has owned the land that the AT is located on in this area

since circa 1950. CMP conveyed an easement to the National Park Service for the AT but retained fee ownership and reserved the right to construct overhead transmission and communication lines within the entire 300-foot wide corridor.

Mitigation Measures

Mitigation is defined as any action taken or not taken to avoid, minimize, rectify, reduce, eliminate, or compensate for actual or potential adverse environmental impact. A significant number of mitigation measures have been incorporated into the planning and design of the Project, including:

- **Selecting a project route** in Segment 1 that avoids the majority of the sensitive scenic resources that gives this area a distinctive character.
- **Using Horizontal Directional Drilling** (HDD) to go under the Upper Kennebec River to avoid visual impacts to a segment of the river that has been designated as an Outstanding River Segment. The river is a recreational resource used by whitewater rafters/kayakers and anglers. This measure will fully preserve the aesthetic character of this section of the Kennebec River by eliminating views of an overhead transmission line and warning balls that would have been visible to recreational users of the river. The HDD work has been designed so none of the activities associated with the drilling (i.e., the Moxie Gore and West Forks Termination Stations) will be visible from the river. TJD&A developed computer models to illustrate how existing vegetation and topography will prevent views of the Project from the river.
- **Locating the HVDC transmission line in Segment 1 in private timberland**, which has been – and continues to be – actively harvested.

- **Co-locating the HVDC transmission line** in an existing corridor in Segments 2 and 3 to minimize the amount of new corridors that would be required for the installation of the Project, rather than acquiring and developing an entirely separate transmission line corridor. This co-location strategy significantly reduces potential visual impacts.
- **Using weathering steel** monopole structures to minimize visual contrast, especially when viewed from elevated viewpoints and where the structure is seen against a wooded backdrop. Weathering steel monopoles are generally darker in color and have a hue that is more commonly found in the landscape, resulting in a decrease in color contrasts with the surrounding landscape. Monopole structures are simpler in appearance than traditional lattice structures, thus reducing the contrast in form. Monopole structures are also considerably thinner than lattice structures (i.e., they occupy a smaller horizontal field of view) so they will appear less dominant than lattice structures. This is particularly effective in Segment 1, where the majority of the transmission line will be seen in the context of commercial timberland.
- **Use of non-specular conductors** at Rock Pond to reduce potential glare from conductors for users of the pond
- **Reducing the structure heights** in a section of the Project adjacent to the existing corridor west of Moxie Pond and in proximity to Beattie Pond to minimize Project visibility.
- **Maintaining vegetation** at road crossings where possible by careful layout of access roads and monitoring of construction practices during installation to minimize or screen the view down transmission corridors. There are many areas where favorable growing conditions and CMP's maintenance procedures have resulted in effective stands of non-

capable species near the roadside that act as visual buffers. (Non capable vegetation is not capable of achieving a height tall enough to interfere with the electrical conductors.) Clear paths will be left for inspection and maintenance.

- **Preserving riparian vegetation** at river and stream crossings to minimize views down transmission corridors from the water. Riparian vegetation likewise has to be non-capable, i.e., it cannot be capable of achieving a height tall enough to interfere with the electrical conductors.
- **Locating transmission structures** as far back from the edge of rivers, streams, and other areas of visual and/or habitat sensitivity to the greatest extent possible to minimize the scale of the structures relative to the heights of the surrounding trees.
- **Making the most effective use of existing transmission corridors** and rebuilding existing transmission lines in Segment 4 and locating a 345kV transmission line between two existing transmission lines in Segment 5 to minimize additional clearing and the need for land acquisition.
- **Upgrading existing substations** within the existing facility footprint to minimize the need for additional clearing.
- **Developing buffer screening plans** for the crossings of Route 201 (in Johnson Mtn twp and Moscow), Moxie Stream, Troutdale road/Appalachian Trail, and at the Fickett Road substation.
- **Siting the Merrill Road Converter Station** to avoid visibility from public roads. The preserved vegetation around the station will screen it from view from Merrill Road.

Site-Specific Mitigation

In many instances, CMP analyzed site-specific measures to address situations where the Project may affect scenic resources within the foreground or near midground. Some examples include:

- **Rock Pond**. The initial photosimulation indicated that the clearing required for the proposed transmission corridor would cause significant contrast in color, form, line, and texture within a portion of the view looking north from the pond. After developing and evaluating several alternatives, CMP determined that it would propose tapering of the vegetation within the transmission corridor, maintaining trees and shrubs at heights ranging from 15 to 35 feet rather than removing all trees and shrubs. Specifically, trees would be maintained up to 35 feet in height at the outer edge of the corridor, tapering down to vegetation maintained at 10 to 15 feet directly under the conductors. The overall effect is a softening of the cut profile as viewed from the lake and the retention of vegetation of similar color and texture as the surrounding landscape. This is demonstrated in Photosimulation 3 from Rock Pond. Non-specular conductors are also being proposed for the conductors located along the north side of Rock Pond to minimize potential glare from the sun for users on the pond.
- **Coburn Mountain.** From the observation tower at the summit of Coburn Mountain, the proposed HVDC transmission line will be visible in the midground and background viewing distances in context with active timber harvesting operations. While the closest HVDC structure would be one mile from the summit, the most visible component of the Project would be the 2.2-mile portion of the 150-foot-wide corridor clearing on the shoulder of Johnson Mountain. To minimize the potential visual impact in both leaf-on

and leaf-off conditions to recreational users (primarily snowmobilers), CMP has proposed to utilize tapered vegetation management (as described for Rock Pond) for the visible portion of the corridor. Also, through the use of self-weathering steel, the structures will blend with the working forest landscape on either side of the corridor.

- **Beattie Pond**. By re-engineering the transmission structures near Beattie Pond, the height of the closest structure (3006-794) has been reduced by approximately 39 feet below the structure height shown on the September 2017 original submission. While a small portion of the top of the structure will still be visible above the treeline from a few areas on the pond, the structure will not appear above the skyline and will therefore be considerably less visually prominent, if it is noticeable at all. The top of Structure 3006-793 will be seen directly behind Structure 3006-794 from this viewpoint on the pond. Also, as a result of the re-engineering, a smaller portion of Structure 3006-795 will be visible above the treeline. In total, the tops of three HVDC structures and their shield wires will be visible just above the treeline, but will no longer be seen against the sky. The self-weathering steel used for the structures will minimize contrasts with the surrounding wooded hillside. Existing topography and shoreline vegetation will screen the rest of the Project from view. The re-engineered design will result in a reduced overall visual impact from the Pond and, as a result, the Project will be minimally noticeable from recreational users on the pond.
- **Moxie Pond.** After the initial photosimulations were developed from two locations on Moxie Pond, it was determined that the tops of numerous structures would be visible from the majority of Moxie Pond. Because the Pond is a designated scenic resource with an 'Outstanding' rating in the Maine Wildlands Lake Assessment, we recommended

CMP and the Project engineers consider a redesign to reduce the overall average structure heights. As a result of the re-design, the majority of the structures and conductors will be screened from the pond by shoreline vegetation. Portions of the widened corridor will continue to be visible in two areas of the pond where the existing corridor is already visible; at the southern end north of Joes Hole and near Black Narrows.

Cumulative Visual Effects

Cumulative visual impact is the effect of seeing the Project from multiple viewpoints or multiple scenic resources (sequential observation). When evaluating the potential for cumulative impacts, we primarily consider the distance and travel time between viewpoints, and other forms of development that may affect the user's expectation for a particular scenic resource.

- **Appalachian National Scenic Trail**. The Project would be visible from three general areas that are part of the Appalachian Trail: the summit of Pleasant Pond Mountain, from which it will be seen intermittently at a distance of 2.9 to 7 miles; the site near Joe's Hole/Moxie Pond (3.6 miles from Pleasant Pond Mountain) where the AT crosses the existing transmission corridor in three locations; and Bald Mountain (4.0 miles from Moxie Pond), where the Project will be visible at distances of 2.8 to 7.5 miles. The Project will be minimally visible from the summits of both Pleasant Pond Mountain and Bald Mountain. Project impacts would be most noticeable adjacent to the co-located section crossings where the cleared corridor will increase from 150 feet to 225 feet in width. The cumulative visual impact on the AT will be minimal.
- **Route 201 (Old Canada Road National Scenic Byway).** The Old Canada Road Scenic Byway extends for a total of 78 miles from Madison to Jackman. While 49 miles of the Project are within 5 miles of the Byway, it will be visible in only four locations over a

distance of 30 miles: a) Johnson Mtn Twp, where it crosses the Byway, b) a 1,000-foot section west of Parlin Pond, c) the Attean View Rest Area, and d) a second crossing near Wyman Dam in Moscow. The distances between these four viewpoints are 6.2 miles, 6.7 miles, and 17.1 miles. The cumulative impact of these occasional views of the Project will be minor, given the relatively minor visual effect at each occurrence, the distances between each occurrence, and the working forest context in which they occur.

ii. Buffering for Visual Impacts (Relevant to DEP and LUPC Review)

Road Buffer Evaluation

The VIA describes the physical context within each Segment in terms of land use, vegetation patterns, land form, and water bodies adjacent to the transmission line corridor or substation site. The narrative evaluates existing vegetative buffers where present and their effectiveness in screening the facilities within the corridor from nearby land uses and scenic resources.

There are many areas where favorable growing conditions and CMP's maintenance procedures have resulted in effective stands of non-capable species near the roadside, which act as visual buffers. Wherever practicable, existing vegetation will be preserved within the transmission line corridor by careful layout of access roads and monitoring of construction practices during the installation process.

As a supplement to the VIA, TJD&A evaluated the need for buffer plantings on all roads that would be crossed by the Project. The NECEC Project Road Buffer Evaluation resulted in a determination of where visual buffers would be appropriate and effective. The Evaluation considered a number of factors: type of road, degree of visible change that would result, length of time a motorist would be exposed to the Project, existing screening, corridor visibility at the

crossing location, scenic quality, community character, land use within the corridor, environmental or other factors that could limit the ability to install buffers, appropriateness, existing scenic views, and potential benefits.

In some situations, removing roadside vegetation could be considered beneficial if it opens up more distant views to mountains or water bodies. The final determination of whether to use vegetative screening considers a range of factors on a case-by-case basis; the decision is not a simple If/Then type of analysis.

This process evaluated 46 crossings in Segment 1 (all but Route 201 and Lake Moxie Road were private); 21 crossings in Segment 2 (7 were public, the rest were private roads; 76 crossings in Segment 3 (14 were private, the rest public); 25 crossings in Segment 4 (all public roads); and 25 crossings in Segment 5 (all public roads.) The NECEC Project Road Buffer Evaluation resulted in recommendations for roadside buffers at the following areas.

- Where the Project crosses Route 201 in Johnson Mountain TWP, due to its designation as a National Scenic Byway and high traffic volume.
- Where the Project crosses Troutdale / Trestle Road near Joe's Hole in Moxie Pond in Bald Mountain Twp. At this location the Appalachian National Scenic Trail is co-located with Troutdale Road. Buffer plantings will be installed to partially screen the widened transmission corridor for hikers on the Appalachian Trail.
- On the south side of Fickett Road in conjunction with the Fickett Road Substation to minimize adverse effects on the scenic character of the surrounding area.

Converter Station and Substations

In addition to the new Merrill Road Converter Substation, several substations will require the installation of additional equipment as part of the NECEC Project. The VIA examines

whether the components for both new and improved substations will be visible above the surrounding forest cover or from public viewpoints. The VIA takes into consideration the presence of existing trees, topography, or other natural or man-made features that would block the view of the facility. The VIA also recognizes the potential of visual buffer plantings and earthen berms in certain locations to minimize the visual impact of the substations by reducing its visible mass and introducing naturalistic forms in the immediate foreground. The VIA evaluated each location to determine if additional buffer plantings or other measures were required to minimize potential visual impacts.

- **Coopers Mills Substation, Windsor.** The infrastructure for the NECEC Project will be sited within the existing Coopers Mills substation. No additional tree removal will be required. Earth berms and preserved vegetation provide partial screening of the facility from Coopers Mills Road.
- **Crowley Road Substation, Lewiston**. The NECEC Project involves an upgrade within the existing Crowley Road substation. No additional tree removal will be required.
- **Larrabee Road Substation, Lewiston**. The infrastructure for the NECEC Project will be sited within the existing Larrabee Road Substation facility. No additional tree removal will be required. Buffer plantings have been installed and provide partial screening of the facility from the end of Larrabee Road. Vegetation surrounding the Substation will screen the NECEC Project components from most public views.
- **Merrill Road Converter Substation, Lewiston.** The Converter Substation is sited in a wooded area that provides the opportunity to preserve a significant vegetative buffer on all sides where there is minimal potential for public viewpoints or roads.
- **Raven Farms Substation, Cumberland**. The proposed NECEC components will be

located within a cleared/developed area west of the existing Raven Farms Substation. No additional tree removal will be necessary. Existing earthen berm and buffer plantings will screen the majority of the expansion from Greely Road.

- **Surowiec Substation, Pownal.** The infrastructure for the NECEC Project will be an expansion of the existing Surowiec Substation. Buffer plantings screen a portion of the Substation.
- **Fickett Road Substation, Pownal.** This substation has been sited within a landscape filled with electrical infrastructure in an area that requires minimal additional clearing. Buffer plantings will be installed on the south side of Fickett Road to minimize adverse effects on the scenic character of the surrounding area. This additional buffer will also minimize views of the Surowiec Substation. Buffer plantings will take into consideration the need for proper setbacks, avoiding wetland impacts, limitations on planting within and adjacent to transmission line corridors, and visibility requirements for security around the proposed Substation.

iii. Buffering for Visual Impacts (Specific to LUPC Review)

The Project crosses three areas designated by LUPC as P-RR (Recreation Protection Subdistrict), which allows utility facilities as a special exception. These are Beattie Pond, the Appalachian National Scenic Trail crossing near Joe's Hole in Moxie Pond, and the Kennebec River Crossing in Moxie Gore/West Forks.

The special exception criteria for utility facilities in the P-RR subdistrict require the applicant to show that the use can be buffered from those other uses or resources within the subdistrict with which it is incompatible.

Beattie Pond, partially located in Beattie Twp and Lowelltown Twp, is classified as a

remote pond (Management Class VI), surrounded by a half-mile P-RR subdistrict. The Maine Wildlands Lake Assessment designated Beattie Pond as Resource Class 2: a lake of regional significance, primarily for its fisheries resource. Scenic resources were not considered unique or significant.

In the September 2017 application submission, one of the Project's angle structures appeared prominently visible above the horizon when seen from the northern portion of the pond. By re-engineering this structure, the height has been reduced by approximately 39 feet, allowing the majority of the structure to be buffered by existing vegetation. The top of the weathering steel structure will still be minimally visible above the tree line from a few areas on the pond but will not appear above the horizon.

In a similar manner the height of other structures was reduced, so none will be seen against the sky. The self-weathering steel will minimize contrasts with the surrounding wooded hillside. The redesigned structures will be considerably less prominent, if noticeable at all, to recreational users on the pond.

At the **Upper Kennebec River** the P-RR subdistrict extends 250' from the normal high-water mark on each side of the river. The original project design called for an overhead transmission line to cross the river, placing transmission structures outside the 250'-wide P-RR subdistrict and maintaining forested buffers to minimize visual impacts on the river. The amended plan uses HDD technology to drill under the river, thus avoiding any visual impact to the resource and expanding the forested buffers on both sides of the river to 1,450 feet and 1,160 feet. This approach means there will be no views of transmission structures, overhead conductors, warning balls, or termination stations from the P-RR subdistrict.

The **Appalachian Trail** is located within a 200'-wide P-RR subdistrict in three locations on the southwest side of Moxie Pond in Bald Mountain Twp. The crossings all occur in an existing CMP corridor that contains a 115kV transmission line. The second crossing, where the trail is co-located with Troutdale Road, is partially in the P-RR subdistrict and partially in a D-RS subdistrict. The location of the trail throughout this 3,500' section of existing transmission corridor prevented CMP from avoiding impacts within the subdistrict. Five transmission structures will be installed in this area; one will be located within the P-RR subdistrict as a result of the trail alignment. Co-locating the Project within the existing transmission corridor minimizes visual impacts to hikers and other users in this P-RR subdistrict. In addition, CMP reduced structure heights throughout the west side of Moxie Pond to minimize potential visual impacts to the trail from the summits of Pleasant Pond Mountain and Bald Mountain.

Based upon our photosimulations, we concluded that the views of the expanded transmission corridor from a 400-foot section of the AT where it is co-located with Troutdale Road justified mitigation. A planting plan using native plantings to buffer views of the expanded transmission corridor has been proposed by CMP.

iv. Issue 1 Conclusion (Relevant to DEP and LUPC Review)

In my opinion, for the foregoing reasons, the development will not adversely affect scenic character. The design of the Project takes into account the scenic character of the surrounding area, and it will be located, designed and landscaped to minimize its visual impact to the fullest extent possible. Structures have been designed and landscaped to minimize their visual impact on the surrounding area, and the plans for the proposed development provide for the preservation of existing elements of the development site which contribute to the

maintenance of scenic character. So too has the Project been adequately buffered to screen the Project from adjacent uses.

The Project will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses, as demonstrated by the Visual Impact Assessment. CMP has incorporated environmentally sensitive design principles and components, including planning and siting the Project to mitigate potential visual impacts and designing the Project in such a way that reduces or eliminates visual impacts to the area in which is located, as viewed from a scenic resource.

Finally, CMP has made adequate provision for buffer strips, and the Project can be buffered from other uses and resources within the P-RR subdistrict.

b. Issue 3 (Alternatives Analysis) (Relevant to DEP and LUPC Review)

As discussed above, CMP's evaluation of route options resulted in a siting of the Project that minimized its potential visual and other environmental impacts on scenic and other natural resources. CMP's rigorous approach to siting, which included consideration of practicable alternatives, culminated in a Project design that does not unreasonably interfere with existing scenic and aesthetic uses. There is no practicable alternative to the Project as designed that will have less visual impact.

This is best exemplified by the efforts CMP made in siting the Project with regard to the five locations it will cross that have been designated as outstanding river segments:

- Upper Kennebec River
- Kennebec River below Wyman Dam
- Carrabassett River
- Sandy River
- West Branch of the Sheepscot River

CMP proposes to use HDD to go under the Upper Kennebec River to avoid visual impacts to that Outstanding River Segment. This measure will fully preserve the aesthetic character of this section of the Kennebec River by eliminating views of an overhead transmission line and warning balls that would have been visible to recreational users of the river. The HDD work has been designed so none of the activities associated with the drilling (i.e., the Moxie Gore and West Forks Termination Stations) will be visible from the river.

The other four outstanding river segments are the Kennebec River below Wyman Dam, Carrabassett River, Sandy River, and the West Branch of the Sheepscot River. The Lower Kennebec River, like the Upper Kennebec River, is noted for its scenic value in the Maine Rivers Study. The Project will cross the Kennebec immediately below the Wyman Dam, in a location that is visually dominated by the dam, electrical substation, access roads, and existing transmission lines. The Carrabasset River, Sandy River, and the West Branch of the Sheepscot River, on the other hand, are not noted for their scenic value in the Maine Rivers Study.

In all four of these river segments CMP has minimized visual impacts by co-locating the HVDC line within an existing transmission corridor. By using the existing rights-of-way, additional clearing will be limited to a typical width of 75' and impacts will be concentrated in locations where transmission lines already cross the rivers.

Further, in response to environmental review comments from MDIFW, CMP will retain 100-foot riparian buffers at all outstanding river segments, which will minimize views of the corridor for anglers, duck hunters, boaters, and other recreational users. Given the minimal visual impact on these outstanding river segments, CMP has demonstrated that no reasonable alternative exists which would have less adverse effect upon the natural and recreational features of the outstanding river segments it crosses. There are no practicable alternatives to the Project that

will have less visual impact, nor is there an alternative site to the locations within the P-RR subdistrict that are both suitable to the proposed use and reasonably available to CMP.

V. Conclusion (Relevant to DEP and LUPC Review)

It is my opinion that the Project will not unreasonably interfere with existing scenic and aesthetic uses, and does not diminish the public enjoyment and appreciation of the qualities of the scenic resources, and any potential impacts have been minimized. The activity will not have an unreasonable impact on the visual quality of protected natural resources as viewed from a scenic resource. The development will not adversely affect scenic character. There is no practicable alternative to the proposed activity that will have less visual impact, and no reasonable alternative to the outstanding river segment crossings that would have less adverse effect upon the natural and recreational features of these river segments. With respect to portions of the Project located in LUPC's P-RR subdistricts, the Project will be buffered from those uses within the vicinity or area likely to be affected by the proposal with which it is or may be incompatible, and there is no alternative site which is both suitable to the proposed use and reasonably available to CMP.

Exhibits:
CMP-5-A: Segal CV
CMP-5-B: Summary Presentation
CMP-5-C: Compilation of Methodology and Findings

Dated: Feb. 26, 2019

Respectfully submitted,

Amy Bell Segal

STATE OF MAINE
York, ss.

The above-named Amy Bell Segal did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 2.26.19

Notary Public
Name: Lauren Hayes
My Commission Expires:

LAUREN HAYES
Notary
Public
EXP. 09-29-2023
STATE OF MAINE

AMY BELL SEGAL RLA, ASLA

SENIOR ASSOCIATE | LANDSCAPE ARCHITECT

PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #2265

CLARB Certified

EDUCATION

BSLA Cornell University
Denmark International Study Program

SPECIAL TRAINING

- MaineDOT LAP Certified
- MeDEP Low Impact Development Stormwater BMP training
- Courses in ADA standards, Complete Streets, Sustainable Sites (ASLA LEED equiv)
- National Park Service Scenic Inventory Methodology workshop, ATC Conference, Colby College, 2017

PROFESSIONAL EMPLOYMENT

1992 - present Terrence J Dewan & Associates
Landscape Architects & Planners
Yarmouth, ME

1990 Summer Roger Trancik, FASLA,
Ithaca, NY

1988 - 1992 Bell & Spina Architects
Camillus, NY

PROFESSIONAL ORGANIZATIONS

Parks Commision, City of Portland

Chairperson/Treasurer for the Maine Section of the American Society of Landscape Architects, 2002 - present

Consultant to Portland Trails Land Trust for the Schoolyard Greening Initiative, 1999 - present.

Amy's twenty six years of experience includes scenic resources and visual resource assessments, downtown master planning, urban design, recreation and trail planning, playspace design, urban agriculture, site planning for residential, commercial, and industrial properties, shoreland zoning permitting and construction management.

SELECTED PROJECT EXPERIENCE

NEW ENGLAND CLEAN ENERGY CONNECT Visual Impact Assessment of 145 miles of new HVDC Transmission line and associated upgrades, 16 miles of Rebuilt 115 kV transmission line, and 26 miles of co-located 345 kV transmission line proposed to deliver electric generation from the Canadian Border through Maine to the New England Control Area for Central Maine Power / Avangrid, Sub-consultant to Burns & McDonnell.

ROXWIND, ROXWIND LLC, ***Roxbury, ME.*** Visual Impact Assessment for a four turbine wind project south of Record Hill.

NUMBER NINE WIND FARM, EDP RENEWABLES, ***Aroostook County, ME.*** Visual Impact Assessment for 129 turbine wind farm and 50 mile generator lead line.

BULL HILL AND HANCOCK WIND PROJECTS, Blue Sky East LLC, ***Hancock County, ME.*** Visual Impact Assessment for adjacent wind projects with total of 37 turbines.

SPRUCE MOUNTAIN WIND PROJECT, PATRIOT RENEWABLES, ***Woodstock, ME.*** Prepared Visual Impact Assessment for proposed 11 turbine wind project.

SADDLEBACK MOUNTAIN WIND PROJECT, PATRIOT RENEWABLES, ***Carthage, ME.*** Visual Impact Assessment for 12 turbine wind project.

MAINE POWER RELIABILITY PROGRAM. Visual Impact Assessment for 352 miles of new 115 kV and 345 kV transmission line corridor system upgrades in 82 Maine towns, for Central Maine Power.

LEMPSTER MOUNTAIN WIND POWER PROJECT, COMMUNITY ENERGY, ***Lempster, NH.*** Photosimulations for a 12 turbine wind project.

STETSON I & II WIND PROJECT, EVERGREEN WIND V, LLC, ***Washington County, ME.*** Visual Impact Assessment including 3D Modeling and photosimulations for a 38 turbine wind project.

JAMER MATERIALS, LTD. BAYSIDE, New Brunswick, Canada. Visual Assessment for proposed quarry expansion and conceptual design of Eco-Industrial Park.

RECORD HILL WIND PROJECT, ***Roxbury, ME.*** Visual Impact Assessment for a 22 turbine wind project submitted to MEDEP.

DOWNEAST LNG, ***Robbinston, ME.*** Visual Impact Assessment for LNG terminal submitted to Maine DEP for Downeast LNG, Inc.

METHUEN COMPRESSOR STATION, DUKE ENERGY, ***Methuen, MA.*** Created 3D Model and photosimulations to illustrate visibility of proposed project and possible buffering options.

AWARDS AND DISTINCTIONS

American Society of Landscape Architects
Merit Award for Communications
Los Angeles River Study.

American Society of Landscape Architects
Merit Award for Communications
Chattahoochee River Greenway, Atlanta, GA.

National Association for Interpretation
Interpretive Media Award
Great Bay National Estuarine Research Reserve,
Sandy Point, NH.

PRESENTATIONS

Co-Presenter, Using Photoshop as a Design Tool,
ASLA, Portland, OR 1998

Co-presenter at LABASH, Creating Visualizations
with Computers, University of West Virginia, 1998

Co-Presenter, Creating Visualizations with

Computers, AEC Conference, Philadelphia, 1997

BLACK NUBBLE WIND PROJECT, ***Redington Township, ME.*** Visual Impact Assessment and photosimulations of proposed 18 wind turbines as seen from various viewpoints, including the Appalachian Trail, for Maine Mountain Power.

RICHMOND COMPRESSOR STATION, MARITIMES AND NORTHEAST PIPELINE, ***Richmond, ME.*** Photosimulations and buffer plan for the Pitts Center Road compressor station.

BYPASS VISUALIZATIONS, ***Wiscasset, ME.*** MEDOT. Photosimulations of proposed Route One bypass options. Images used for evaluation of options, public meetings, and website.

BATH IRON WORKS, NAVAL SECURITY PLANNING, ***Bath, ME.*** New security access, fencing and parking lot improvements.

BATH IRON WORKS, LAND LEVEL TRANSFER FACILITY, ***Bath, ME.*** Visual Impact Assessment and photosimulations for BIW's new shipbuilding facility on the Kennebec River.

WASHINGTON STREET PLANTINGS, ***Bath, ME.*** Bath Iron Works was required for LLTF permitting with City and State to develop site specific buffer and enhancement plan for Washington Street.

DRAGON PRODUCTS, ***Thomaston, ME.*** A landscape enhancement plan for a one-mile stretch of coastal Route One adjacent to a large open pit mine.

SADDLEBACK MOUNTAIN, ***Rangeley, ME.*** National Park Service. Photosimulations of ski area expansion plans to show potential impact on Appalachian Trail.

NEW ENGLAND WIND ENERGY STATION, ***Boundary Mountains, ME.*** Kennetech Windpower, Livermore, CA. Visual Impact Assessment and photosimulations for an industrial scale wind energy facility planned for 250,000 acres in western Maine.

SAWYER ENVIRONMENTAL LANDFILL, ***Hampden, ME.*** Photosimulations of landscape treatment and landform adjustments for the expansion of a highly visible landfill adjacent to the Maine Turnpike.

LIQUEFIED NATURAL GAS FACILITY, ***Wells, ME.*** Visual impact assessment and photosimulations of a proposed LNG tank in rural Wells.

VISUAL RESOURCE ASSESSMENT, RT. 27 ***Carrabassett Valley, ME, MEDOT.*** Visual resource assessment and improvements to one of Maine's Scenic Byways.

HALLOWELL INTERPRETIVE TURNOUT, MEDOT. Lead design team in production of construction documents for the first turnout to be installed along the Kennebec Chaudière Corridor. Site includes interpretive panels, railing, seating and paving, and landscaping.

KANCAMAGUS SCENIC BYWAY, WHITE MOUNTAIN NATIONAL FOREST, ***Conway to Lincoln, NH.*** Preliminary Facilities and Interpretive Media Plan. Redesigning Cleveland Digitally, Cleveland, OH. Site planning and computer illustrations for a former mill site in Cleveland. Presented at the 1995 Annual Meeting of ASLA.

LOS ANGELES RIVER STUDY, ***Los Angeles, CA.*** A study of aesthetic treatments for the 50-mile concrete channel lining the Los Angeles River. Illustrations of murals, parks, walkways, and gardens. Presented at the Computer Design Charrette at the 1996 ASLA Annual Meeting.

Central Maine Power Company

New England Clean Energy Connect

April 1 - 5, 2019

Visual Impact Assessment

Amy Bell Segal

Terrence J. DeWan

CMP-5-B

INTRODUCTION

AMY BELL SEGAL

Project tasks included research, inventory, leading fieldwork, agency review meetings and site walks, overseeing production of modeling and photosimulations, coordination with environmental and engineering team, and authoring the VIA report and supplemental submissions

TERRENCE J. DEWAN

Project oversight post submittal, and authoring of supplemental submissions

INTRODUCTION

TJD&A is one of three firms, and the only one in Maine, who are pre-qualified to perform peer reviews of visual assessments for the Maine Department of Environmental Protection.

Over the past four decades the firm has prepared close to 100 Visual Impact Assessments (VIAs) for a wide variety of projects throughout New England.

TESTIMONY PURPOSE

This testimony provides our assessment of the potential effect that the New England Clean Energy Connect may have on:

a) **Scenic Resources**

b) **Scenic and Aesthetic Uses**

Conclusion:

The Project will not unreasonably interfere with existing scenic and aesthetic uses, and does not diminish the public enjoyment and appreciation of the qualities of the scenic resources, and any potential impacts have been minimized. The activity will not have an unreasonable impact on the visual quality of protected natural resources as viewed from a scenic resource.

CHAPTER 315 and 375.14

The **NRPA and Chapter 315** require an applicant to demonstrate that a proposed activity will not unreasonably interfere with existing scenic and aesthetic uses of a scenic resource. Applies to activities in, on, over, or adjacent to a protected natural resource. Avoid unreasonable, adverse, visual impacts to existing scenic and aesthetic uses.

More broadly, the **Site Law and Chapter 375.14** require an applicant to demonstrate that the development will not have an unreasonable adverse effect on the scenic character of the surrounding area. Potential impacts to identified scenic resources, and other points of local sensitivity, have been assessed within each segment.

OUTSTANDING RIVER SEGMENTS

The NECEC crosses the following five locations which are afforded special protection as outstanding river segments, as identified in 38 M.R.S. 480-P and Title 12: M.R.S. § 403: Special Protection for outstanding rivers:

- Upper Kennebec River (underground)
- Kennebec River below Wyman Dam, Moscow
- Carrabassett River, Anson
- Sandy River, Farmington
- West Branch of the Sheepscot River, Windsor

The applicant shall demonstrate that no reasonable alternative exists which would have less adverse effect upon the natural and recreational features of the river segment 38 M.R.S. § 480- D (8).

LUPC RECREATION PROTECTION SUBDISTRICT (P-RR)

Utility facilities may be allowed within P-RR subdistricts as special exceptions upon issuance of a permit from the Commission pursuant to 12 M.R.S.A. § 685-A(10), and subject to the applicable requirements set forth in Sub-Chapter III, provided that the applicant shows by substantial evidence that

(a) there is no alternative site which is both suitable to the proposed use and reasonably available to the applicant;

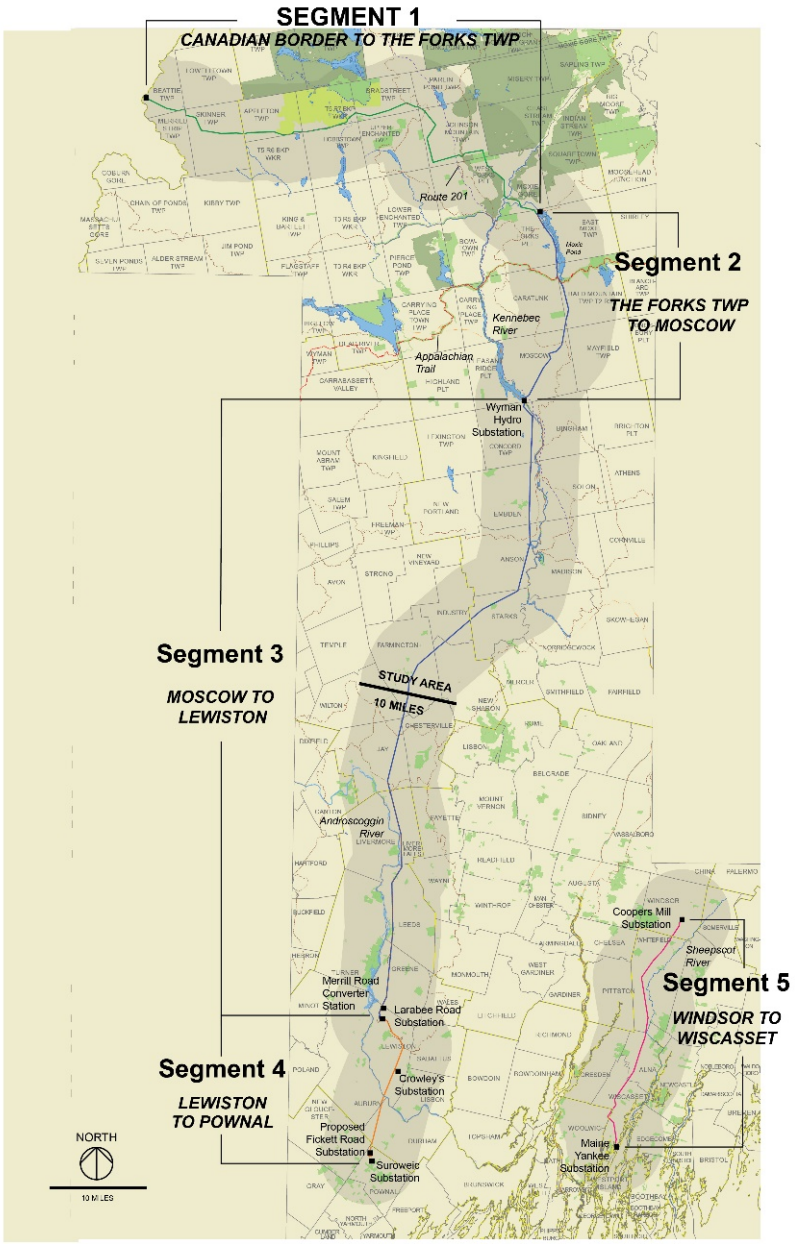
(b) the use can be buffered from those other uses and resources within the subdistrict with which it is incompatible; and

(c) such other conditions are met that the Commission may reasonably impose in accordance with the policies of the Comprehensive Land Use Plan

Overview of Visual Impact Assessment

- Develop Project Understanding
- Determine Study Area (APE)
- Research, Inventory and Identify Scenic Resources
- Prepare Viewshed Analysis
- Perform Fieldwork and Photographic Documentation
- Assess Project Visibility with Computer Analysis Techniques
- Prepare Photosimulations
- Determine Visual Impact
- Develop Mitigation Recommendations

Determine Study Area (Area of Potential Affect)



Segment 1: Quebec border to north end of Moxie Pond in The Forks - 53.5 miles of HVDC transmission line within a new 150' wide cleared corridor within a 300' right-of-way. Single pole self-weathering steel structures with an average height of 100'.

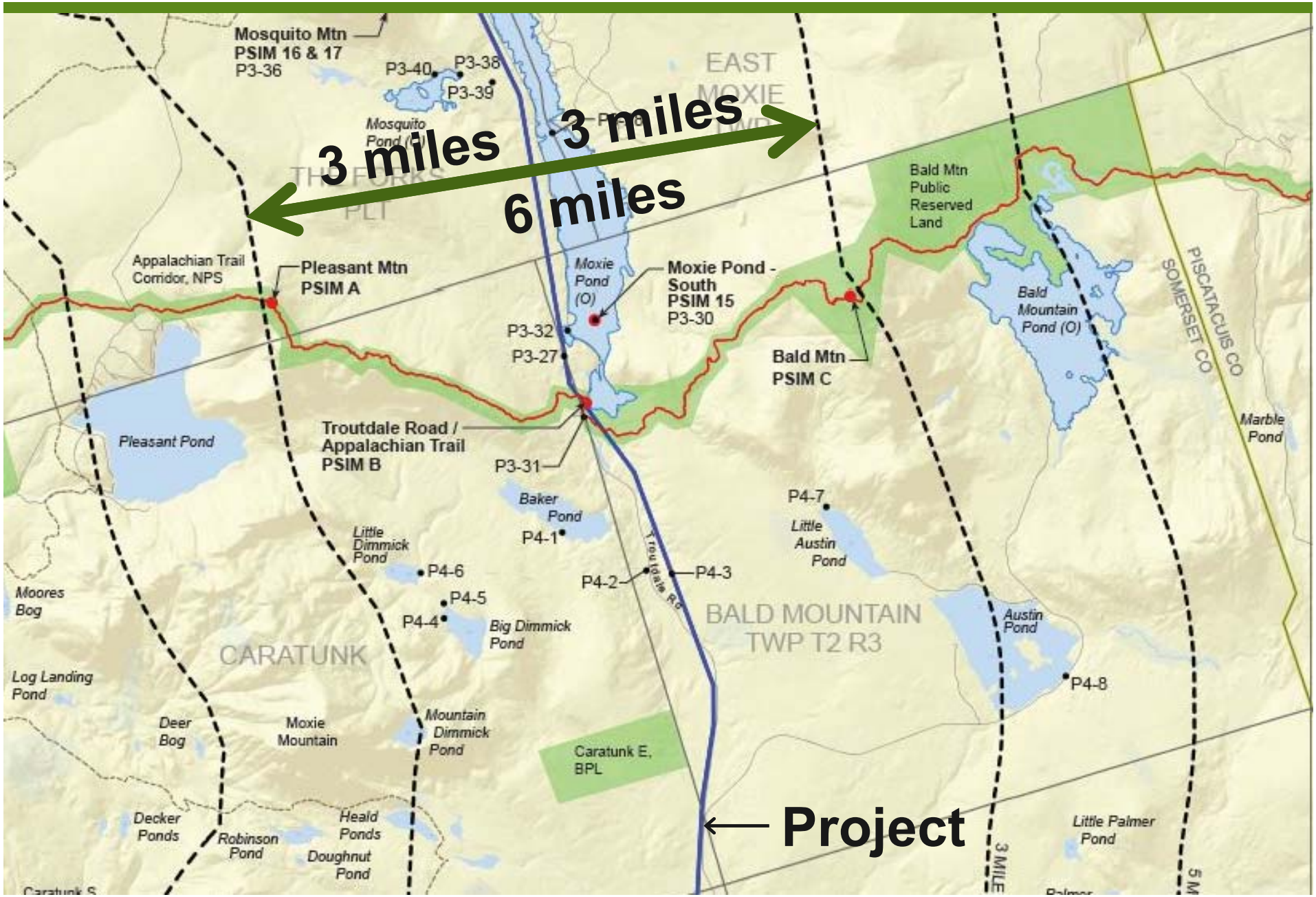
Segment 2: Northern end of Moxie Pond to Wyman Hydro in Moscow - 22± miles of a HVDC transmission line. Co-located within an existing 115kV transmission corridor. Existing 150' wide corridor clearing increased by 75' on the western side. Single pole self-weathering steel structures with an average height of 100'.

Segment 3: Wyman Hydro in Moscow to Larrabee Road Substation in Lewiston - 70 miles+/- . Co-located within an existing 115kV transmission corridor. Existing 150' wide corridor clearing increased by 75' on the western side.

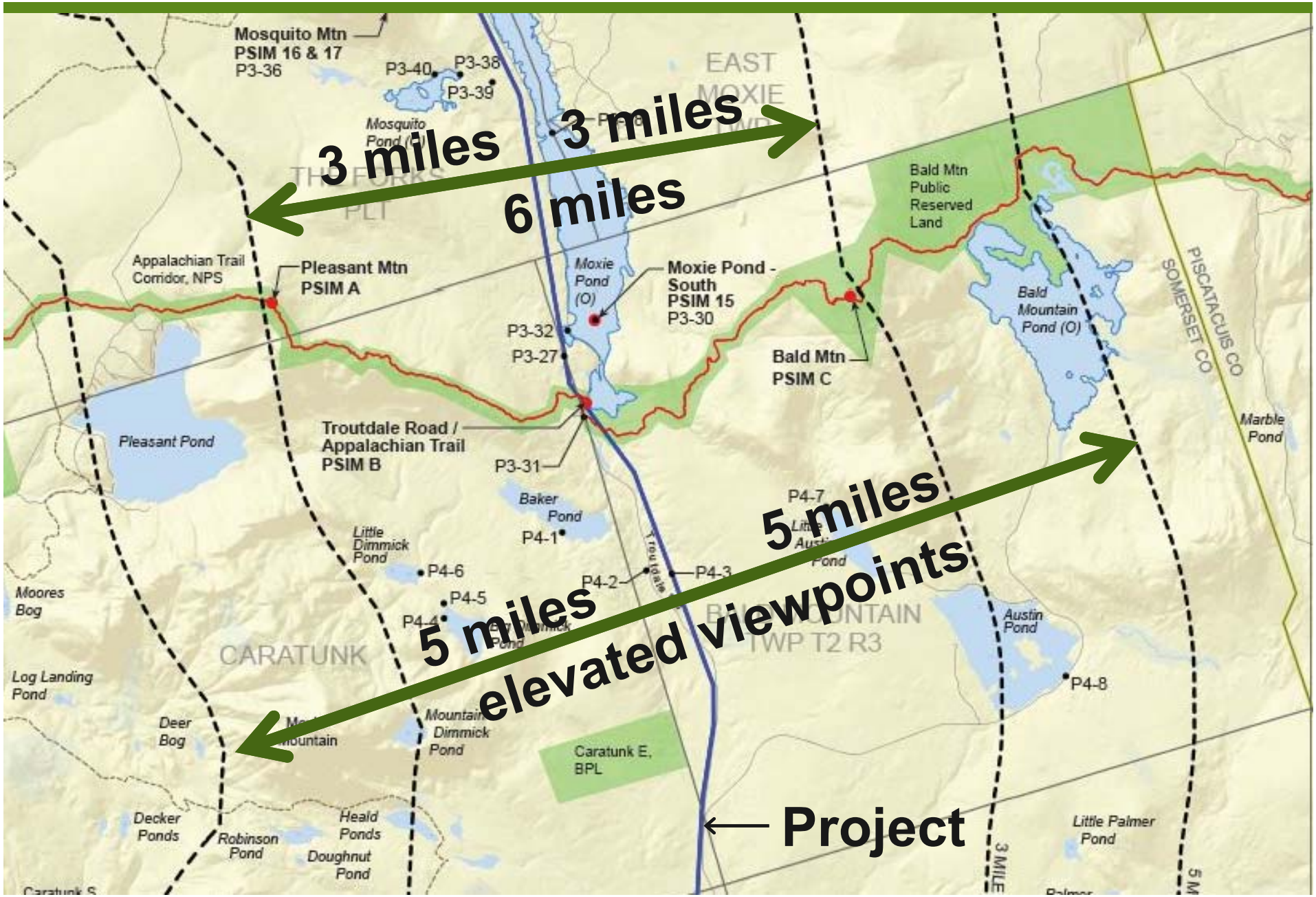
Segment 4: Larrabee Road Substation in Lewiston to the proposed Fickett Road Substation in Pownal - 16 miles. Rebuild of Sections 62 and 64.

Segment 5: Coopers Mill Substation in Windsor to Maine Yankee Substation in Wiscassett - 26.5 miles. Co-located 345kV transmission line.

Determine Study Area (Area of Potential Affect)



Determine Study Area (Area of Potential Affect)

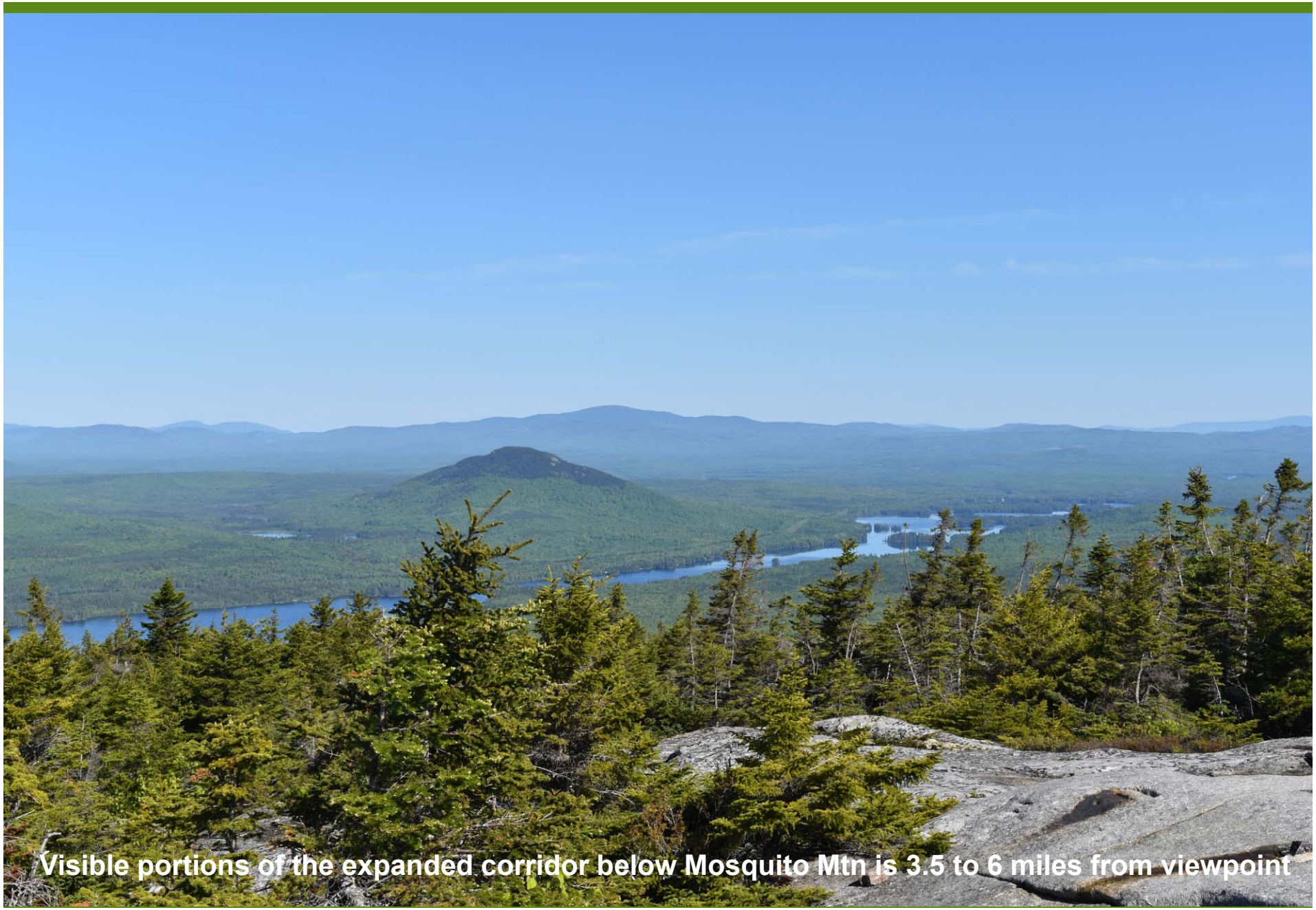


Viewing Distance – Foreground – within 0.5 mile

Viewing Distance – Midground – 0.5 to 3 miles

Structure on shoulder of Coburn Mountain is 2 miles from viewpoint

Viewing Distance – Background beyond 3 miles



Research, Inventory, and Identify Scenic Resources

- World Street Maps, USGS maps
- 3D PLS CADD models, cross-sections, and elevations, substation grading plans provided by POWER Engineers…etc.
- Maine Office of GIS data files
- Maps and other documentation from municipal plans
- Land for Maine's Future Board
- Maine Department of Agriculture, Conservation and Forestry (MDACF) information on State Parks, Wildlife Refuges, and other state lands
- Maine Department of Inland Fisheries & Wildlife (MDIFW) Lake Survey Maps Interconnected Trail Systems (ITS) mapping
- Maine Land Use Planning Commission
- National Park Service, National Natural Landmark program
- The Nature Conservancy
- Trust for Public Land
- The Forest Society of Maine
- Local/regional land trusts
- National Register of Historic Places; Maine Historic Preservation Commission
- Maine Lakes Study; Maine Wildlands Lake Assessment; Maine Rivers Study
- DeLorme Atlas and Gazetteer; Google Earth; Maine Trail Finder; and other secondary data sources

Summary of Scenic Resources, Chapter 315

A. National Natural Landmark or other outstanding natural and cultural features

B. State or National Wildlife Refuges, Sanctuaries, or Preserves or State Game Refuges

C. State or Federal Designated Trail

D. A property on or eligible for inclusion in the National Register of Historic Places

E. National or State Parks

F1. Municipal Park or Public Open Space

F2. Publicly owned land visited, in part, for the use, observation, enjoyment, and appreciation of natural or man-made visual qualities

F3. Public Resource, such as the Atlantic Ocean, a great pond, or a navigable river

A. National Natural Landmark or Other Outstanding Natural and Cultural Features

- **No. 5 Bog and Jack Pine Stand –** Minimal to negligible Project visibility, beyond 3 miles

B. State or National Wildlife Refuges, Sanctuaries, or Preserves or State Game Refuges

- **Holeb PRL/Attean Pond/Moose River** – No Project visibility within 3 miles
- **Number 5 Bog Ecological Preserve** - Project visibility Minimal/negligible
- **Fahi Pond WMA** – Minimal Project views, top of one structure
- **Chesterville WMA** –No Project views
- **Thurston WMA** – No Project views
- **Tolla Wolla WMA** – No Project views
- **Alonzo H. Garcelon WMA** – No Project views
- **Earle R. Kelly WMA** – No Project views

C. State or Federal Designated Trail

- **Appalachian National Scenic Trail** – Foreground Project visibility adjacent to three existing transmission line crossings. Background views from Pleasant Pond Mountain and Bald Mountain

- **ITS Routes 89, 87, 86, 84, 82, 115** – Project visibility at crossings and from trails within existing transmission line corridors

- **Androscoggin Riverlands State Park (Trails)** – Project visibility from motorized trail crossing / access road within existing transmission line corridor

- **Kennebec Valley Trail/ITS 84** – Project visibility at co-located transmission line crossing in North Anson

D. A property on or eligible for inclusion in the National Register of Historic Places

- There are 66 sites or structures **Listed** on NRHP within 3 miles.

  The only resource with Project views is the **Arnold Trail** at the crossing of the Lower Kennebec River below Wyman Hydro and from the southern portion of Wyman Lake

- There are 4 Properties **Eligible** for Listing with potential Project views:

  Bingham Union in Bingham, Valley Cemetery in Greene, Maine Central Railroad, and Garfield School in Concord Twp

- There are 3 Publically owned **Cemeteries** with potential Project views:

  Village Cemetery in Bingham, Athearn Cemetery in Anson, and Bradbury Cemetery in Durham.

E. National or State Parks

- **Appalachian National Scenic Trail** – Project visibility at three crossings and from Pleasant Pond Mountain and Bald Mountain summits

- **Androscoggin Riverlands State Park** – Project visibility within existing transmission line corridor on East side of Androscoggin River

- There will be **NO** Project views from Bradbury Mountain State Park

F1. Municipal Parks and Public Open Space

- **Pleasant Ridge Swim Area/Wyman Lake Recreation** Lake (Pleasant Ridge Plt) – Project views adjacent to Wyman Dam
- **Carrabec High School** (Anson) – Project visibility adjacent to co-located transmission line
- **Monument Hill** (Leeds) – Background view of Larrabee Road Substation
- Minor visibility in leaf off conditions from Runaround Pond Recreation Area

F2. Publicly owned land visited, in part, for the use, observation, enjoyment, and appreciation of natural or man-made visual qualities

- **Coburn Mountain, (Bureau of Parks & Lands Parcel parcel in Upper Enchanted Twp) –** Midground Project view occupies 24 degrees or 9% of 360 degree view from the summit

- **Cold Stream Forest Parcel -** Project visibility from crossing adjacent to Capital Road in Johnson Mountain Twp

- **Route 201 Old Canada Road National Scenic Byway –** Project visibility in Attean Rest Area (7+ miles), Parlin Pond Twp, crossing at Johnson Mountain Twp, crossing in Moscow, and Bingham. 49 miles within Study Area

F3. Public Resource, such as the Atlantic Ocean, a great pond, or a navigable river

SEGMENT 1 RESOURCE TYPE	Total Number	Total No. With Project Views	Resource with Project Visibility
Great Pond Rated for Scenic Resources	6	3	**Rock Pond** (T5 R6 BKP WKR) 'Significant' rating **Fish Pond** (Hobbstown Twp) 'Significant' rating **Parlin Pond** (Parlin Pond Twp) 'Significant' rating
Remote Pond	6	2	**Beattie Pond** (Beattie Twp) **Wing Pond** (Lowelltown Twp/Skinner)
Great Pond (Non-rated)	23	3	**Little Wilson Hill Pond** (Johnson Mtn Twp), **Iron Pond** (T5 R6 BKP WKR) **Egg Pond** (Bradstreet Twp),
River/Stream rated for Scenic Resources / Outstanding River Segment	2	2	**Cold Stream** (Johnson Mtn Twp), **Moxie Stream** (Moxie Gore),
Other Rivers, Brooks, Streams	1+	1+	**So. Branch Moose River** (Lowelltown Twp/ Skinner Twp), Gold Brook, Mountain Brook

F3. Public Resource, such as the Atlantic Ocean, a great pond, or a navigable river

SEGMENT 2 RESOURCE TYPE	Total Number	Total No. With Project Views	Resource with Project Visibility
Great Pond Rated for Scenic Resources	3	2	**Moxie Pond** (East Moxie Twp, The Forks Plt, Bald Mountain Twp) - 'Outstanding' rating **Wyman Lake** (Moscow) - 'Significant' rating
Remote Pond	0	0	-
Great Pond (Non-rated)	13	1	**Temple Pond** (Moscow)
River/Stream rated for Scenic Resources / Outstanding River Segment	0	0	-
Other Rivers, Brooks, Streams	1+	1+	**Baker Stream** (Bald Mountain Twp T2 R3), and other small stream crossings

F3. Public Resource, such as the Atlantic Ocean, a great pond, or a navigable river

SEGMENT 3 RESOURCE TYPE	Total Number	Total No. With Project Views	Resource with Project Visibility
Great Pond Rated for Scenic Resources	1	0	-
Great Pond (Non-rated) with visibility	31	4	**Fahi Pond** (Embden), **Allen Pond** (Greene), **Berry Pond** (Greene), **Clearwater Pond** (Industry),
Great Pond (Non-rated) Negligible Visibility		6	**Androscoggin Lake** (Leeds), **Cold Pond** (Starks), **Pease Pond** (Wilton), **Locke Pond** (Chesterville), **North Pond** (Chesterville), **Parker Pond** (Jay)
River/Stream rated for Scenic Resources / Outstanding River Segment	3	3	**Lower Kennebec River** (Moscow), **Carrabassett River** (North Anson) **Sandy River** (Farmington)
Other Rivers, Brooks, Streams	2+	2+	**Dead River** (Leeds), **Stetson Brook** (Greene), and other small stream crossings

F3. Public Resource, such as the Atlantic Ocean, a great pond, or a navigable river

SEGMENT 4 RESOURCE TYPE	Total Number	Total No. With Project Views	Resource with Project Visibility
Great Pond Rated for Scenic Resources	0	0	-
Great Pond (Non-rated) with visibility	3	2	**Runaround Pond** (Durham) – leaf off **No Name Pond** (Lewiston)
River/Stream rated for Scenic Resources / Outstanding River Segment	0	0	-
Other Rivers, Brooks, Streams	3+	3+	**Androscoggin River** (Auburn), **Runaround Brook** (Durham) at ex. crossing **Libby River** (Auburn) and other small stream crossings

F3. Public Resource, such as the Atlantic Ocean, a great pond, or a navigable river

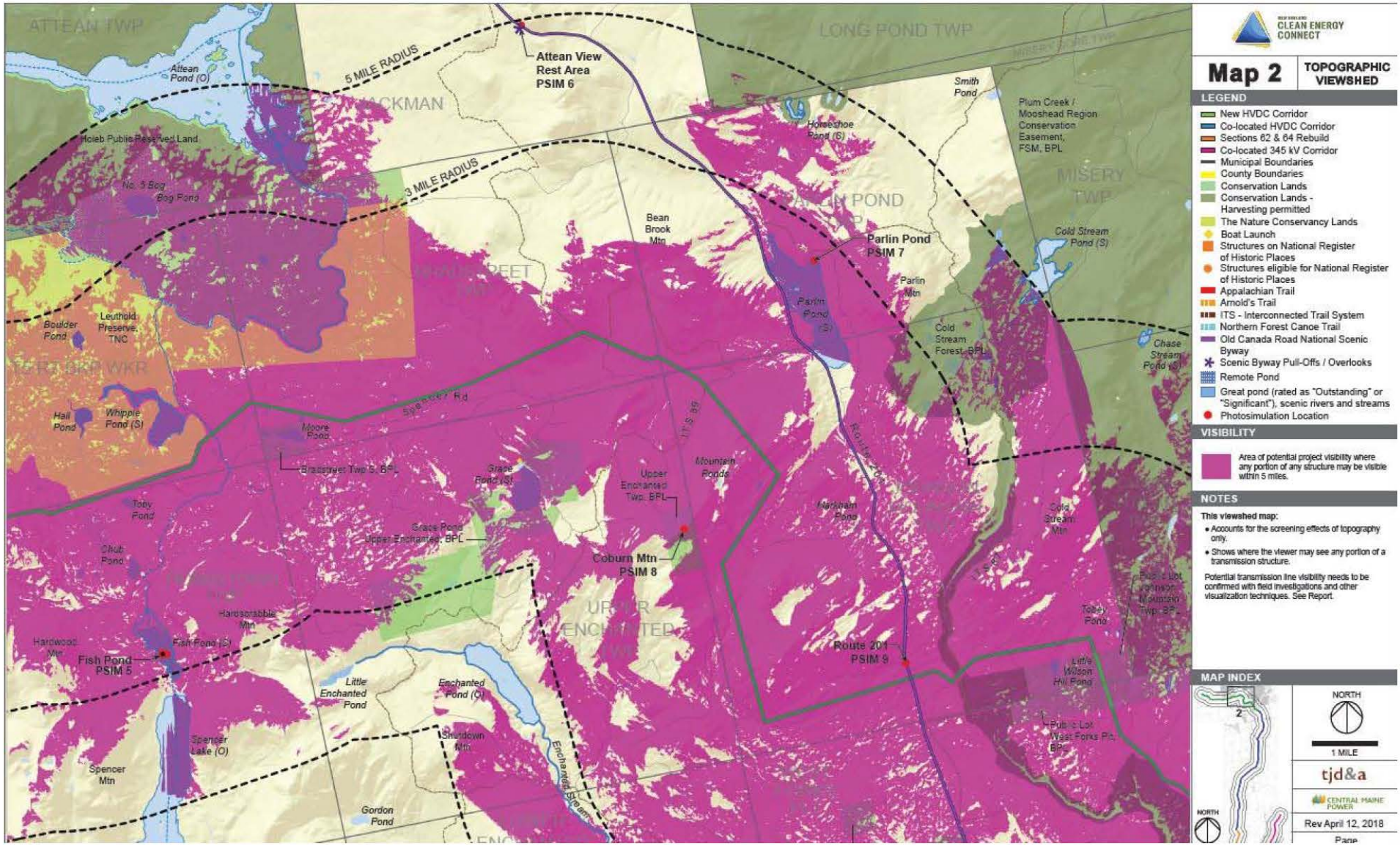
SEGMENT 5 RESOURCE TYPE	Total Number	Total No. With Project Views	Resource with Project Visibility
Great Pond Rated for Scenic Resources	0	0	-
Great Pond (Non-rated) with visibility	12	0	-
River/Stream rated for Scenic Resources / Outstanding River Segment	2	1	**West Branch of the Sheepscot River** (Windsor)
Rivers, Brooks, Streams	1+	1+	**Montsweag Brook** (Wiscassett, Woolwich)

Scenic Resource Summary Chart - Excerpt

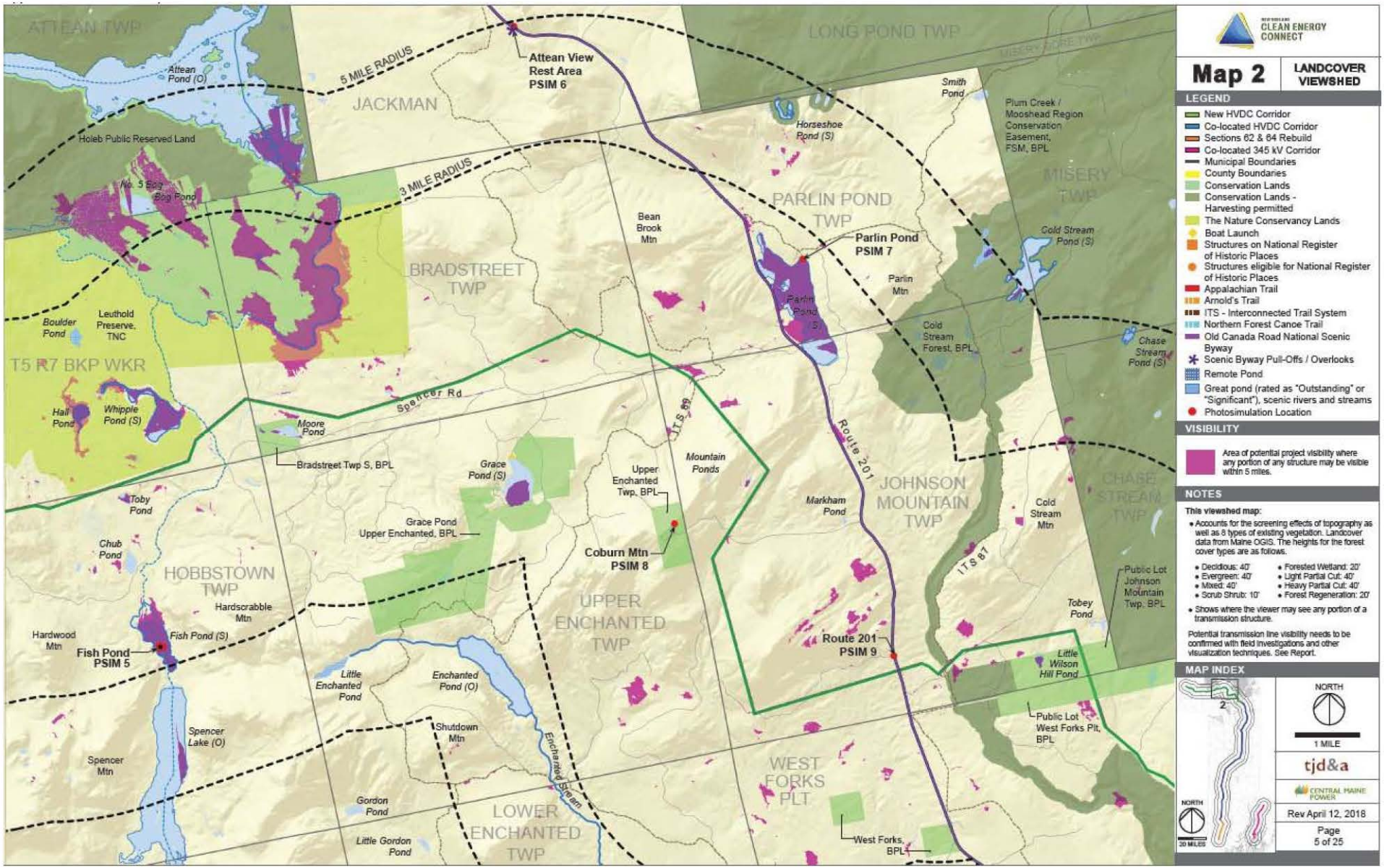
Attachment F – Scenic Resource Chart
January 30, 2019

Scenic Resource	Town	County	Type	Topo Visibility	Forest Visibility	TJDA Field Visit	TJDA Computer Analysis	Project Visibility Determination	Visual Impact
Table 1. National Natural Landmarks and other Outstanding Natural and Cultural Features within 3 Miles of NECEC									
Moose River-Number 5 Bog	Bradstreet Twp., T5 R7 BKP WKR	Somerset	NNL	Y	Y	Y	N	Viewshed map indicates potential but fieldwork confirmed intervening evergreen vegetation will screen within 3 miles of the Project	No Impact
Number 5 Bog CE	T5 R7 BKP WKR	Somerset	NNL	Y	N	Y	N	Minimal/ Negligible, limited access	Negligible Impact
Table 2. State or National Wildlife Refuges, Sanctuaries, or Preserves and State Game Refuges within 3 Miles of NECEC									
Chesterville WMA	Jay	Chesterville	WMA	Y	N	Y	Y	No visibility due to intervening terrain/vegetation	No Impact
Chesterville WMA	Jay, Chesterville	Chesterville	WMA	Y	Y	Y	Y	No visibility due to intervening terrain/vegetation	No Impact
Fahi Pond WMA	Embden	Somerset	WMA	Y	Y	Y	Y	Minimal/ Negligible, tip of one structure potential	Negligible Impact. See overlays included with submission
Thurston WMA	New Gloucester	Cumberland	WMA	N	N	N	N	No visibility due to intervening terrain/vegetation	No Impact
Tolla Wolla WMA	Livermore	Androscoggin	WMA	Y	Y	Y	Y	Overlays determined no views due to intervening vegetation	No Impact
Androscoggin Lake	Leeds	Androscoggin	Focus Area	Y	Y	N	Y	Not likely due to intervening terrain/vegetation	Negligible Impact
Attean Pond - Moose River	Appleton Twp., Bradstreet Twp., T5 R7 BKP WKR	Somerset	Focus Area	Y	Y	Y	Y	Attean Pond - Not likely or heavily filtered due to intervening vegetation Moose River - Viewshed map indicates potential but fieldwork confirmed intervening vegetation will screen within 3 miles of the Project	No Impact
Bald Mountain	East Moxie Twp.	Somerset	Focus Area	Y	N	Y	Y	Summit of Bald Mountain is in Bald Mtn Twp	Minimal Impact
Bald Mountain	Bald Mountain Twp. T2 R3	Somerset	Focus Area	Y	Y	Y	Y	Yes (See Psim C in Appendix E, and Psim 52 Leaf Off/Snow Cover Conditions)	Minimal Impact
Cold Stream - West Forks	West Forks Plt., Moxie Gore	Somerset	Focus Area	Y	Y	Y	Y	Yes, along Wilson Hill Road, also visible in Johnson Mountain TWP (See Psim 46)	Minimal Impact
Kennebec Estuary	Dresden, Pittston, Westport Island, Wiscasset, Woolwich	Lincoln, Kennebec, Sagadahoc	Focus Area	N	N	N	N	No visibility due to intervening terrain/vegetation	No Impact
Kennebec Floodplain - Madison and Anson	Anson, Madison	Somerset	Focus Area	Y	Y	Y	Y	Yes, at the junction of the Kennebec and Carrabassett River in North Anson, co-located with existing 115 kV transmission line (See Psim 33)	Minimal Impact Floodplains are not Scenic Resources
Table 3. State or Federally Designated Trails within 3 Miles of NECEC									
Appalachian National Scenic Trail	The Forks Plt.	Somerset	NPS	Y	N	Y	Y	Yes (See Psim A from Pleasant Pond Mountain in Appendix E)	Minimal Impact
Appalachian National Scenic Trail	Bald Mountain Twp. T2 R3, Caratunk	Somerset	NPS	Y	Y	Y	Y	Yes (See Psim B from Bald Mountain and C from Troutdale Road in Appendix E, and Psim 52 Leaf Off/Snow Cover Conditions)	Minimal Impact – Bald Mountain Moderate/Strong Impact where AT is co-located with Troutdale Road (private road). A buffer planting plan has been developed to mitigate views toward the widened clearing

Viewshed Analysis - topography only (no vegetation) - Excerpt



Viewshed Analysis - with 40’ vegetation - Excerpt



Fieldwork and Photographic Documentation

Assess Project Visibility with Computer Analysis Techniques

Attachment E: Evaluation of River / Stream Visibility

Viewpoint 7 (model overlay) - View looking northwest from the Route 201 Overlook in Solon toward the Project. The top of one structure may be visible from this viewpoint. Red lines represent conductors that are located behind the existing vegetation, except in one location as noted.

Kennebec River, Embden, Concord Twp, Solon & Bingham

Summary of Photosimulations

SUMMARY OF PHOTOSIMULATIONS																
			Viewing Distance Zone			Viewpoint Type							Surrounding Land use			
No.	Photosimulation	Location	Foreground (within 0.5 mile)	Midground (between 0.5 and 3.0 miles)	Background (beyond 3 miles)	Rated* Great Ponds	Remote Ponds	Rated** Rivers Streams	Elevated Viewpoint	Recreation Area/Park/ Trail	Scenic Byway	Road Crossing	Working Forest	Non-Forested Land/ Agriculture	Rural Residential / Camp	Village/ Sub-urban Residential
SEGMENT 1 NEW HVDC																
1	Beattie Pond	Lowelltown Twp	•				•						•		•	
2	Wing Pond	Lowelltown Twp		•			•						•			
3	Rock Pond	T5 R6 BKP WKR		•		•							•		•	
4	No 5 Mountain/Leuthold Preserve	T5 R7 BKP WKR			•				•	•			•			
5	Fish Pond	Hobbstown Twp			•	•							•		•	
6	Attean View Rest Area	Jackman			•				•		•		•			
7	Parlin Pond	Parlin Pond Twp		•		•							•		•	
8	Coburn Mtn	Upper Enchanted Twp.		•					•	•			•			
9	Route 201	Johnson Mountain Twp	•								•	•	•			
10	Upper Kennebec River	Moxie Gore	•					•		•			•			
11	Upper Kennebec River	Moxie Gore	•					•		•			•			
12	Moxie Stream	Moxie Gore	•					•		•			•			
30	Kennebec Gorge Crossing, Looking Northwest, 3 structure option	Moxie Gore	•					•		•			•			
31	Kennebec Gorge Crossing, Looking Southeast, 3 structure option	Moxie Gore	•					•		•			•			
32	Kennebec Gorge Picnic Area, Looking Southwest, 3 structure Option,	Moxie Gore	•					•		•			•			
33	Kennebec Gorge North of Picnic Area, Looking Southwest, 3 Structure Option.	Moxie Gore	•					•		•			•			
SEGMENT 2 CO-LOCATED HVDC																
13	Moxie Pond north	East Moxie Twp	•	•		•							•		•	
14	Moxie Pond north continued view	East Moxie Twp	•	•		•							•		•	
15	Moxie Pond south	Bald Mtn Twp T2 R3	•			•							•		•	
16	Mosquito Mountain	The Forks Plt		•					•	•			•		•	
17	Mosquito Mountain	The Forks Plt		•					•	•			•		•	

2018-09-17

Summary of Photosimulations

SUMMARY OF PHOTOSIMULATIONS																
			Viewing Distance Zone			Viewpoint Type							Surrounding Land use			
No.	Photosimulation	Location	Foreground (within 0.5 mile)	Midground (between 0.5 and 3.0 miles)	Background Beyond 3 miles	Rated* Great Ponds	Remote Ponds	Rated** Rivers Streams	Elevated Viewpoint	Recreation Area/Park/ Trail	Scenic Byway	Road Crossing	Working Forest/ Forested	Non-Forested Land/ Agriculture	Rural Residential / Camp	Village/ Sub-urban Residential
18	Troutdale Road	The Forks Plt	•									•	•		•	
A	Appalachian Trail – Pleasant Pond Mountain	The Forks, Plt			•				•	•			•			
B	Appalachian Trail – Troutdale Road	Bald Mountain Twp	•						•	•		•	•		•	
C	Appalachian Trail – Bald Mountain	Bald Mountain Twp			•				•	•			•			
34	Carrabassett River	Anson	•											•	•	
35	Sandy River	Farmington	•											•	•	
SEGMENT 3 CO-LOCATED HVDC																
19	Route 201	Moscow	•								•	•		•		•
20	Wyman Lake Recreation Area	Pleasant Ridge Plt		•						•				•	•	
21	Route 8	North Anson	•									•		•		•
22	Route 2	Farmington	•									•		•		•
23	Androscoggin Riverlands State Park	Leeds	•							•		•	•	•	•	
24	Merrill Road	Lewiston	•									•		•		•
SEGMENT 4 REBUILD																
25	Riverside Drive	Auburn	•									•			•	
26	Fickett Road Substation	Pownal	•											•	•	
SEGMENT 5 345 kV																
27	Route 1	Wiscasset	•									•				•
28	Route 27	Wiscasset	•									•		•	•	
29	Route 194	Whitefield	•									•		•	•	
36	West Branch Sheepscot River (Looking West)	Windsor	•											•	•	
37	West Branch Sheepscot River (Looking North)	Windsor	•											•	•	

2018-09-17

Summary of Visual Impact Ratings - *based on Chapter 315 Appendix A*

2018-08.10

Photosimulation No. Resource/Location	Reviewer	Landscape Compatibility				Scale Contrast	Spatial Dominance	Total Visual Impact Severity Rating	Average	Visual Impact
		Color	Form	Line	Texture					
1. Beattie Pond	A	1	1	1	0	2	2	7	8.5	Minimal/Moderate
Lowelltown Twp	B	1	2	2	0	3	2	10		
2. Wing Pond	A	1	1	1	0	0	0	3	3.5	Minimal
Lowelltown Twp	B	0	1	1	0	2	0	4		
3. Rock Pond	A	2	2	2	1	4	4	15	16.5	Moderate
T5 R6 BKP WKR	B	2	1	2	1	8	4	18		
4. NO.5 Mountain	A	0	1	2	0	1	2	6	8.5	Minimal/Moderate
T5 R7 BKP WKR	B	1	2	2	0	3	3	11		
5. Fish Pond	A	0	1	0	0	0	0	1	1	Negligible
Hobbstown Twp	B	0	0	1	0	1	1	3		
6. Attean View Rest Area	A	0	0	1	0	0	1	2	1	Negligible
Jackman	B	0	0	0	0	0	0	0		
7. Parlin Pond	A	1	1	1	1	2	4	10	9	Moderate
Parlin Pond TWP	B	1	1	1	0	2	3	8		
8. Coburn Mountain	A	1	2	2	0	2	4	11	12.5	Moderate
Upper Enchanted Twp.	B	1	2	2	1	4	4	14		
9. Route 201	A	1	1	1	1	4	4	12	12.5	Moderate
Johnson Mountain Twp	B	2	1	1	1	4	4	13		
10. Upper Kennebec River 5 Structure Option, Sept 2017 (see Psim 30 for 3 structure option)	A	1	2	2	1	4	4	14	14.5	Moderate
Moxie Gore	B	1	2	2	1	4	5	15		
11. Upper Kennebec River 5 Structure Option, Sept 2017	A	1	2	2	0	5	6	16	15	Moderate
Moxie Gore	B	1	2	2	1	4	4	14		
11. Upper Kennebec River 3 Structure Option, Dec 2017	A	1	1	2	0	6	4	14	15.5	Moderate
Moxie Gore	B	1	1	2	1	6	6	17		
12. Moxie Stream	A	1	2	3	2	8	6	22	21	Strong*
Moxie Gore	B	2	2	2	2	6	6	20		
13. Moxie Pond North	A	1	1	1	0	2	2	7	4	Minimal
East Moxie Twp	B	0	0	0	0	1	0	1		
14. Moxie Pond North	A	1	1	1	0	2	2	7	5.5	Minimal
East Moxie Twp	B	0	1	1	0	1	1	4		

Summary of Visual Impact Ratings - *based on Chapter 315 Appendix A*

2018-08.10

Photosimulation No. Resource/Location	Reviewer	Landscape Compatibility				Scale Contrast	Spatial Dominance	Total Visual Impact Severity Rating	Average	Visual Impact
		Color	Form	Line	Texture					
15. Moxie Pond South (Dec 2017)	A	1	1	1	1	2	2	8	9.5	Moderate
Bald Mountain TWP T2 R3	B	1	1	1	0	4	4	11		
16. Mosquito Mountain	A	1	1	1	1	4	2	10	11	Moderate
The Forks PLT	B	1	1	1	1	6	2	12		
17. Mosquito Mountain	A	1	1	1	1	4	2	10	12	Moderate
The Forks PLT	B	1	1	1	1	6	4	14		
18. Troutdale Road	A	1	2	1	1	4	6	15	14.5	Moderate
The Forks PLT	B	1	2	2	1	4	4	14		
19. Route 201	A	2	2	1	1	4	4	14	14	Moderate
Moscow	B	1	2	2	1	4	4	14		
20. Wyman Lake Recreation Area	A	1	1	1	0	1	1	5	7	Minimal
Pleasant Ridge Plt	B	1	1	1	0	2	4	9		
21. Route 8	A	1	2	1	1	4	6	15	14.5	Moderate
Anson	B	1	2	2	1	4	4	14		
22. Route 2	A	1	1	2	1	4	6	15	14	Moderate
Farmington	B	1	1	2	1	4	4	13		
23. Androscoggin Riverlands State Park	A	1	1	1	1	2	2	8	10	Moderate
Leeds	B	1	1	1	1	4	4	12		
24. Merrill Road	A	1	1	1	1	4	4	12	10.5	Moderate
Lewiston	B	0	0	1	0	4	4	9		
25. Riverside Drive	A	2	1	1	1	2	2	9	12	Moderate
Auburn	B	2	2	2	1	4	4	15		
26. Fickett Road Substation	A	1	2	2	1	8	6	20	16.5	Moderate*
Pownal	B	1	1	1	0	6	4	13		
27. Route 1	A	0	0	1	0	0	0	1	1.5	Negligible
Wiscasset	B	0	0	1	0	1	0	2		
28. Route 27	A	0	0	1	0	4	2	7	11.5	Moderate
Wiscasset	B	0	0	2	0	6	8	16		
29. Route 194	A	0	0	1	0	4	2	7	11.5	Moderate
Whitefield	B	0	0	2	0	6	8	16		
30. Upper Kennebec River NW within corridor- 3 Structure option	A	1	1	2	1	6	4	15	14.5	Moderate
Moxie Gore	B	1	2	2	1	4	4	14		

Summary of Visual Impact Ratings - *based on Chapter 315 Appendix A*

2018-08.10

Photosimulation No. Resource/Location	Reviewer	Landscape Compatibility				Scale Contrast	Spatial Dominance	Total Visual Impact Severity Rating	Average	Visual Impact
		Color	Form	Line	Texture					
31. Upper Kennebec River SE within corridor - 3 structure option	A	1	1	2	1	4	4	13	13.5	Moderate
Moxie Gore	B	1	2	2	1	4	4	14		
32. Upper Kennebec River Picnic Area - SW - 3 structure option	A	2	2	2	1	6	4	17	16.5	Moderate
Moxie Gore	B	1	2	2	1	4	6	16		
33. Upper Kennebec River - North of the Picnic Area - 3 structure option	A	1	2	2	1	6	4	16	15.5	Moderate
Moxie Gore	B	1	2	2	1	4	5	15		
A. Appalachian Trail _ Pleasant Pond Mountain	A	0	0	1	0	1	0	2	3.5	Minimal
The Forks PLT	B	1	1	0	0	1	2	5		
B. Appalachian Trail -Troutdale Road, Joes Hole	A	2	2	2	1	6	8	21	22	Strong*
Bald Mountain TWP	B	2	2	2	1	8	8	23		
C. Appalachian Trail - Bald Mountain	A	0	0	1	0	1	0	2	4	Minimal
Bald Mountain TWP	B	1	0	1	0	2	2	6		

* Locations have been described further in the attached memo from TJD&A, dated August 10, 2018. Conceptual Buffer Planting Plans will be provided for these (*) locations by Central Maine Power Company as additional mitigation.

Summary of Visual Impact Ratings - Leaf Off Snow Cover

2019.01.02

LEAF-OFF SNOW COVER Photosimulation No. Resource/Location	Reviewer	Landscape Compatibility				Scale Contrast	Spatial Dominance	Total Visual Impact Severity Rating	Average	Visual Impact
		Color	Form	Line	Texture					
42. Parlin Pond, northern end Parlin Pond TWP	A	1	1	2	1	4	4	13	12.5	Moderate
	B	1	1	1	1	4	4	12		
43. Route 201, West of Parlin Pond Parlin Pond TWP	A	1	1	2	1	4	4	13	12.5	Moderate
	B	1	1	1	1	4	4	12		Overall low impact to Route 201 due to limited duration
44. Coburn Mountain Upper Enchanted Twp.	A	2.5	3	3	2	10	8	28.5	25.75	Strong
	B	2	2	3	2	8	6	23		Overall impact moderated when considering 360 degree view.
44. Coburn Mountain Upper Enchanted Twp. updated with selective vegetation management	A	2	2	1.5	1.5	4	4	15	14	Moderate
	B	1	1	2	1	4	4	13		Reduced impact with proposed vegetation management
45. ITS 89, North of Spencer Rd Parlin Pond Twp (on Weyerhaeuser land)	A	2	2	3	2	6	4	19	16.5	Moderate
	B	1	2	2	1	4	4	14		Moderate impact to one point on ITS trail, Overall low impact to trail due to limited duration of exposure
46. ITS 87, Cold Stream Forest Parcel Johnson Mountain Twp	A	1.5	2	2	2	4	4	15.5	15.75	Moderate
	B	2	1	1	2	6	4	16		View from bridge is limited, adjacent to Capital Road

Summary of Visual Impact Ratings - Leaf Off Snow Cover

2019.01.02

LEAF-OFF SNOW COVER Photosimulation No. Resource/Location	Reviewer	Landscape Compatibility				Scale Contrast	Spatial Dominance	Total Visual Impact Severity Rating	Average	Visual Impact
		Color	Form	Line	Texture					
47. Cold Stream Mountain (local snowmobile trail) Johnson Mtn Twp (on Weyerhaeuser land)	A	2	2	2	1	4	2	13	11	Moderate
	B	1	1	2	1	2	2	9		View will be significantly reduced within a few years with growth of foreground vegetation.
48. Mosquito Mtn - Northeast The Forks Plt (on Bayroot LLC land)	A	1	2	2.5	1.5	6	6	19	19	Strong
	B	1	2	3	1	6	6	19		High Moderate overall due to visibility of the existing transmission line
49. Mosquito Mtn - Southeast	A	1	1.5	1.5	1	4	4	13	13.5	Moderate
The Forks Plt (on Bayroot LLC land)	B	1	2	2	1	4	4	14		
50. Troutdale Road Bald Mountain Twp	A	1	1.5	2	1	8	8	21.5	19.25	Strong
	B	1	2	1	1	6	6	17		Moderated with proposed with road side buffering
51. Appalachian Trail - Bald Mountain - Southwest Bald Mountain TWP	A	1	1	2	1	6	6	17	15	Moderate
	B	1	1	2	1	4	4	13		Moderate incremental increase of transmission line visibility in the background, overall minimal impact
52. Appalachian Trail - Bald Mountain - Northwest	A	1.5	1.5	2	1	2	4	12	10	Moderate
Bald Mountain TWP	B	1	1	1	1	2	2	8		
53. Route 201	A	1	1	1	1	4	4	12	13	Moderate
Moscow	B	1	1	1	1	4	6	14		

Mitigation Recommendations

1. Overall Project Siting
    - Siting of Segment 1 in commercial forest
    - Co-locating in Segments 2 and 3
    - Rebuilding of Segment 4 - Effective use of existing transmission corridors
    - Co-locating Segment 5 345 kV transmission line
2. HDD under Kennebec River, siting of Termination Stations
3. Use of self-weathering steel structure
4. Re-engineering to reduce structure heights
5. Non-specular conductors (Rock Pond)
6. Tapered vegetation management (Rock Pond and Coburn Mtn)
7. Preserving riparian vegetation
8. Maintaining roadside vegetation
9. Buffer Plantings (Route 201, Troutdale/AT, Moxie Stream)
10. Maximizing structure setbacks from roads and streams
11. Upgrade existing substations within footprints
12. Siting the Merrill Road Converter Station setback from road

Road Buffer Evaluation Summary - Excerpt

ROAD BUFFER EVALUATION SUMMARY SEGMENT 1			A. Type of Road / Number of Viewers	B. Degree of Visible Change to Existing Conditions	C. Length of Exposure Following Installation/ Rebuild/Upgrade	D. Existing Screening Vegetation to be Removed	E. Corridor Alignment	TOTAL POINTS	Scenic Quality / Community Character (High, Medium, Common, Low)	Prelim Buffer Recommendation: (Full, Light (L) Further Assess of Need /Effectiveness, (FA) or None (N)	1. Present land uses preclude effective buffers.	2. Environmental factors preclude buffers.	3. Other factors preclude buffers.	4. Buffer plantings would seem out of place.	5. Buffers would block views of scenic resources.	6. Possible to minimize visual impacts by buffers?	Buffer Recommendation: Yes / No	Notes
TOWN	**ROAD**	**Ownership**																
	Unnamed haul road 3	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 4	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
Parlin Pond Twp	Spencer Road (Hardscrabble Road)	Private	1	4	3	3	3	14	M	N	-	-	-	-	-	-	NO	Regenerating forest on either side, close to Piet Brook
Johnson Mountain Twp	Coburn Mountain access road / Enchanted Mountain Road	Private	1	4	3	3	5	16	M	FA	Yes	No	No	Yes	No	No	NO	In between Coburn and Johnson Mtn, ITS trail, Private road primarily used for timber harvesting operations, buffers would be out of place and potentially sited in locations of future lay down areas.
	Judd Road	Private	1	4	3	3	5	16	M	FA	Yes	No	No	Yes	No	No	NO	South of Johnson Mtn, Private road primarily used for timber harvesting operations, buffers would be out of place and potentially sited in locations of future lay down areas.
	Route 201	Public	4	5	5	5	5	24	H	Full	No	No	No	No	No	Yes	YES	Rated as High because it is Scenic Quality, A full buffer of non-capable vegetation is recommended on both sides of Route 201 due to its high volume and designation as a National Scenic Byway.
	Capital Road	Private	1	4	5	3	3	16	M	FA	Yes	No	No	Yes	No	No	NO	Timber Harvesting haul road. View of Cold Stream, Cold Stream Forest, surrounding hills, active harvesting area precludes a buffer, Riparian stream buffer will remain
	Wilson Hill Road	Private	1	4	3	3	5	16	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Mountain Brook Road	Private	0	4	3	3	3	13	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 1	Private	0	4	3	3	3	13	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 2	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 3	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 4	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 5	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 6	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
	Unnamed haul road 7	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road
West Forks Twp	Unnamed haul road 1	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road, close to Cold Stream Forest
	Unnamed haul road 2	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road, close to Cold Stream Forest
	Unnamed haul road 3	Private	0	4	3	3	5	15	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road, close to Cold Stream Forest
	Unnamed haul road 4	Private	0	4	3	3	3	13	C	N	-	-	-	-	-	-	NO	Timber Harvesting haul road, close to Cold Stream Forest
Moxie Gore	Fish Pond Road	Private	1	4	3	3	3	14	C	N	-	-	-	-	-	-	NO	Crossing location is not in view of Moxie Stream

A. Type of Road / Number of Viewers
0: Unimproved road / Lightly traveled
1: Other Passable Road / Lightly traveled
2. Local Road / Moderately traveled
3: Secondary State Route / Moderately traveled
4: Primary Route / High traffic volume
5: Limited Access Highway / High traffic volume

B. Degree of Visible Change to Existing Conditions
0: 0: No visible change to the transmission corridor or transmission structures
1: Minor change with minimal vegetation clearing, or only conductors change
2: Minor change: a new or replacement structure within existing cleared corridor
3: Moderate change: one existing 115 kV line and a new HVDC/345kV, or existing corridor widened by 75–150'
4. Significant change: new HVDC structures within existing clearing/clear cut
5. Significant change: new 150' wide cleared corridor, new HVDC structures

C. Length of Exposure Following Upgrade
1: Transmission corridor visible for < 3 seconds
3: Transmission corridor visible for 3 - 8 seconds
5: Transmission corridor visible for > 8 seconds

D. Existing Screening Vegetation to be Removed
0: No vegetation would be lost by proposed activity
1: Minor shrubby/woody vegetation would be removed
2: Scattered clumps of trees/large shrubs which now screen the ROW would be lost
3: Active timber harvesting area/regenerating forest cover
4: Removal of 75' of vegetation that screens the existing cleared corridor
5: Significant loss of effective screening vegetation

E. Corridor Alignment
0: Abrupt change in alignment or topography within one structure or within 1/4 mile
3: Significant change in alignment or topography within 1/4 to one mile
5: No visible change in corridor alignment (straight line alignment)

2018.10.19

Road Buffer Evaluation Summary - Excerpt

ROAD BUFFER EVALUATION SUMMARY SEGMENT 2			A. Type of Road / Number of Viewers	B. Degree of Visible Change to Existing Conditions	C. Length of Exposure Following Installation/ Rebuild/Upgrade	D. Existing Screening Vegetation to be Removed	E. Corridor Alignment	TOTAL POINTS	Scenic Quality / Community Character (High, Medium, Common, Low)	Prelim Buffer Recommendation: (Full, Light (L) Further Assess of Need /Effectiveness, (FA) or None (N)	1. Present land uses preclude effective buffers.	2. Environmental factors preclude buffers.	3. Other factors preclude buffers.	4. Buffer plantings would seem out of place.	5. Buffers would block views of scenic resources.	6. Possible to minimize visual impacts with buffers?	Buffer Recommendation: Yes / No	Notes
TOWN	**ROAD**	Ownership																
The Forks Plt	Hodges Road	Private	0	3	3	3	3	12	C	N	-	-	-	-	-	-	NO	Access road to timber harvesting area.
	Troutdale Road	Public	1	3	5	3	3	15	C	N	-	-	-	-	-	-	NO	Road within existing corridor for approximately 1,000 ft
	Unnamed haul road 1	Private	0	3	3	3	3	12	C	N	-	-	-	-	-	-	NO	Access road to timber harvesting area.
	Unnamed haul road 2	Private	0	3	3	3	3	12	M	N	-	-	-	-	-	-	NO	Access road to timber harvesting area.
	Mosquito Pond Road	Private	0	3	3	3	3	12	M	N	-	-	-	-	-	-	NO	Access road to timber harvesting area and Mosquito Pond which is a rated great pond, proximate to Mosquito Mtn but can't see from roads, Can see distant ridge.
	Unnamed haul road 4	Private	0	3	3	3	3	12	M	N	-	-	-	-	-	-	NO	Access road to timber harvesting area, adjacent to stream
Bald Mountain Twp	Little Sandy Stream Rd	Private	1	3	3	3	5	15	M	FA	Yes	Yes	No	No	Yes	No	NO	Access road to timber harvesting areas, adjacent to Sandy Stream and views down ex transmission line toward south end of Moxie Pond, buffer not effective because of topography and stream.
	Troutdale/Trestle Road near Joe's Hole	Public	1	3	3	4	3	14	H	L	No	Maybe	No	No	Yes	Yes	YES	Rated as High because adjacent to Moxie Pond/Joe's Hole, and co-located with the Appalachian Trail, topography limits views to the north. Light buffer recommended on southeast side of Road. Will reduce view of Joe's Hole from the road. Limited area between road and Joes Hole will limit buffer width.
	Little Austin Pond Access Road	Private?	1	3	3	4	5	16	C	N	-	-	-	-	-	-	NO	Access to timber harvesting and Austin Pond, no camps
	Troutdale/Trestle Road	Public	1	3	3	4	5	16	C	N	-	-	-	-	-	-	NO	Access road to timber harvesting areas, east of Baker Stream
	Unnamed haul road 1	Private	0	3	3	3	3	12	C	N	-	-	-	-	-	-	NO	Access road to timber harvesting area.
Moscow	Heald Pond Road	Private	1	3	3	3	5	15	C	N	-	-	-	-	-	-	NO	Access to timber harvesting, Heald Ponds (1+/- camp on pond) and Moxie Mtn trail
	Chase Pond Road	Private	1	3	3	3	5	15	C	N	-	-	-	-	-	-	NO	Access to timber harvesting and camps on Chase Pond (13+/- camps)
	Stream Rd #1	Public	1	3	5	4	3	16	C	N	-	-	-	-	-	-	NO	Adjacent to Moscow Air Force Radar fields, access timber harvesting roads, Bingham Wind Project visible, existing transmission line
	Stream Rd #2/Chase Pond Road	Public	1	3	5	4	5	18	C	N	-	-	-	-	-	-	NO	Project Parallel to Stream Road, access timber harvesting roads
	Wolf Mountain Pass Rd	Private	0	3	3	4	5	15	C	N	-	-	-	-	-	-	NO	Woods road to top of hill, no houses, ex transmission line cleared corridor right up to edge of road. Not possible to buffer
	Bassett Ln	Private	1	3	3	4	5	16	C	N	-	-	-	-	-	-	NO	No adjacent houses, dead end
	Henry Beadoin Rd	Private	1	3	3	4	5	16	C	N	-	-	-	-	-	-	NO	No adjacent houses, road leads to a farmstead, dead end, ex transmission line allows views to nearby hills.
	Burns Rd	Public	1	3	3	4	5	16	C	N	-	-	-	-	-	-	NO	One house adjacent, connects t Pierce Hill Road
	Donigan Road	Public	2	3	3	4	5	17	C	N	-	-	-	-	-	-	NO	An existing wooded buffer would remain between 15+/- house and the transmission corridor
	Route 201	Public	4	3	3	4	3	17	H	L	No	No	No	No	No	Yes	YES	Rated as High because it is a Scenic Byway, though this area is of less Scenic Quality because of existing utility infrastructure, Light buffer recommended

A. Type of Road / Number of Viewers
0: Unimproved road / Lightly traveled
1: Other Passable Road / Lightly traveled
2. Local Road / Moderately traveled
3: Secondary State Route / Moderately traveled
4: Primary Route / High traffic volume
5: Limited Access Highway / High traffic volume

B. Degree of Visible Change to Existing Conditions
0: No visible change to the transmission corridor or transmission structures
1: Minor change: a new structure within existing cleared corridor
2: Minor change with minimal vegetation clearing
3: Moderate change: one existing 115 kV line and a new HVDC/345 kV, or existing corridor widened by 75–150'
4. Significant change: new HVDC structures within existing clearing/clear cut
5. Significant change: new 150' wide cleared corridor, new HVDC structures

C. Length of Exposure Following Upgrade
1: Transmission corridor visible for < 3 seconds
3: Transmission corridor visible for 3 - 8 seconds
5: Transmission corridor visible for > 8 seconds

D. Existing Screening Vegetation to be Removed
0: No vegetation would be lost by proposed activity
1: Minor shrubby/woody vegetation would be removed
2: Scattered clumps of trees/large shrubs which now screen the ROW would be lost
3: Active timber harvesting area/regenerating forest cover
4: Removal of 75' of vegetation that screens the existing cleared corridor
5: Significant loss of effective screening vegetation

E. Corridor Alignment
0: Abrupt change in alignment or topography within one structure or within 1/4 mile
3: Significant change in alignment or topography within 1/4 to one mile
5: No visible change in corridor alignment (straight line alignment)

2018.10.19

Road Buffer Evaluation Summary - Excerpt

ROAD BUFFER EVALUATION SUMMARY SEGMENT 3			A. Type of Road / Number of Viewers	B. Degree of Visible Change to Existing Conditions	C. Length of Exposure Following Installation/ Rebuild/Upgrade	D. Existing Screening Vegetation to be Removed	E. Corridor Alignment	TOTAL POINTS	Scenic Quality / Community Character (High, Medium, Common, Low)	Prelim Buffer Recommendation (Full, Light (L) Further Assess of Need /Effectiveness, (FA) or None (N)	1. Present land uses preclude effective buffers.	2. Environmental factors preclude buffers	3. Other factors preclude buffers.	4. Buffer plantings would seem out of place.	5. Buffers would block views of scenic resources.	6. Not Possible to minimize visual impacts by buffers?	Buffer Recommendation Yes / No	Notes
TOWN	ROAD	Ownership																
Starks	Redneck Road	Private	1	3	5	4	5	18	C	N	-	-	-	-	-	-	No	Gravel private road to several homes, wooded area
	Mayhew Road	Public	1	3	5	4	5	18	C	N	-	-	-	-	-	-	No	Gravel public road crossing, wooded area
	W. Mills Road	Public	1	3	5	4	5	18	C	N	-	-	-	-	-	-	No	Gravel public road crossing, wooded area
Industry	Industry Road (Route 43)	Public	3	3	3	4	5	18	C	N	-	-	-	-	-	-	No	Paved secondary route crossing, wooded area, scattered houses
	Bailey Road	Public	1	3	3	4	5	16	C	N	-	-	-	-	-	-	No	Gravel public road crossing, wooded area, scattered houses
New Sharon	Goodrich Road	Public?	0	3	5	4	5	17	C	N	-	-	-	-	-	-	No	Rough backwoods road, wooded area, scattered houses
	Clearwater Road	Public	1	3	3	4	5	16	C	N	-	-	-	-	-	-	No	Gravel public road crossing, wooded area, scattered houses
Farmington	Unnamed drive	Private	1	3	5	4	5	18	C	N	-	-	-	-	-	-	No	Gravel private road to 2 homes and out buildings, open fields and woods
	Perham Hill Road	Public	2	3	5	4	5	19	C	N	-	-	-	-	-	-	No	Paved local road crossing, fields and woods nearby, scattered farm houses
	Osborne Road	Public	1	3	5	4	5	18	C	N	-	-	-	-	-	-	No	Gravel local road crossing, eastern views, agricultural fields directly adjacent. and woods nearby, scattered houses. Buffer would be out of place in fields and block views
	Bailey Hill Road	Public	2	3	5	4	5	19	C	N	-	-	-	-	-	-	No	Paved local road crossing, fields and woods nearby, NE farm character area
	Davis Road	Public	1	3	5	2	5	16	C	N	-	-	-	-	-	-	No	Gravel local road crossing, fields and woods nearby, NE farm character area
	Farmington Falls Road (US Route 2)	Public	4	3	3	4	5	19	C	N	-	-	-	-	-	-	No	Paved secondary route crossing, developed area, mixed fields and woods, views to north of substation 600' from road. While scoring doesn't result in a buffer recommendation, consider vegetation management that allows non-capable roadside vegetation to grow to screen view toward existing substation
	Whittier Road	Public	2	3	5	4	3	17	C	N							No	Paved local road crossing, views of distant hills, agricultural fields adjacent, woods nearby, NE farm character, Buffer would block views of distant hills
	Knowlton Corner Road	Public	2	3	5	4	5	19	C	N	-	-	-	-	-	-	No	Paved local road crossing, fields and woods nearby, nice NE farm character area
	Webster Road	Public	1	3	5	4	5	18	C	N	-	-	-	-	-	-	No	Gravel local road crossing, wooded area with fields nearby
Wilton	McCrillis Corner Road	Public	2	3	5	2	5	17	C	N							No	Paved local road crossing, views of distant hills looking over road to south, open fields and woods adjacent, NE farm character area,
Chesterville	Wilton Road (Route 156)	Public	2	3	5	2	5	17	C	N	-	-	-	-	-	-	No	Paved local road crossing, fields and woods nearby
Jay	Soules Hill Road	Public	2	3	5	4	5	19	M	FA	No	No	Yes	Yes	No	No	No	Paved local road crossing, expansive northern vista, fields and woods nearby, buffer would block distant views as seen from road, No Buffer Recommended
	Plaisted Road	Public	2	3	3	4	5	17	C	N	-	-	-	-	-	-	No	Paved local road crossing, wooded area, scattered houses
	Belanger Road	Public	2	3	3	4	5	17	C	N	-	-	-	-	-	-	No	Paved local road crossing, wooded area, scattered houses

A. Type of Road / Number of Viewers
0: Unimproved road / Lightly traveled
1: Other Passable Road / Lightly traveled
2. Local Road / Moderately traveled
3: Secondary State Route / Moderately traveled
4: Primary Route / High traffic volume
5: Limited Access Highway / High traffic volume

B. Degree of Visible Change to Existing Conditions
0: No visible change to the transmission corridor or transmission structures
1: Minor change with minimal vegetation clearing, or only conductors change
2: Minor change: a new or replacement structure within existing cleared corridor
3: Moderate change: one existing 115 kV line and a new HVDC/345 kV, or existing corridor widened by 75–150'
4. Significant change: new HVDC structures within existing clearing/clear cut
5. Significant change: new 150' wide cleared corridor, new HVDC structures

C. Length of Exposure Following Upgrade
1: Transmission corridor visible for < 3 seconds
3: Transmission corridor visible for 3 - 8 seconds
5: Transmission corridor visible for > 8 seconds

D. Existing Screening Vegetation to be Removed
0: No vegetation would be lost by proposed activity
1: Minor shrubby/woody vegetation would be removed
2: Scattered clumps of trees/large shrubs which now screen the ROW would be lost
3: Active timber harvesting area/regenerating forest cover
4: Removal of 75' of vegetation that screens the existing cleared corridor
5: Significant loss of effective screening vegetation

E. Corridor Alignment
0: Abrupt change in alignment or topography within one structure or within ¼ mile
3: Significant change in alignment or topography within ¼ to one mile
5: No visible change in corridor alignment (straight line alignment)

2018.10.19

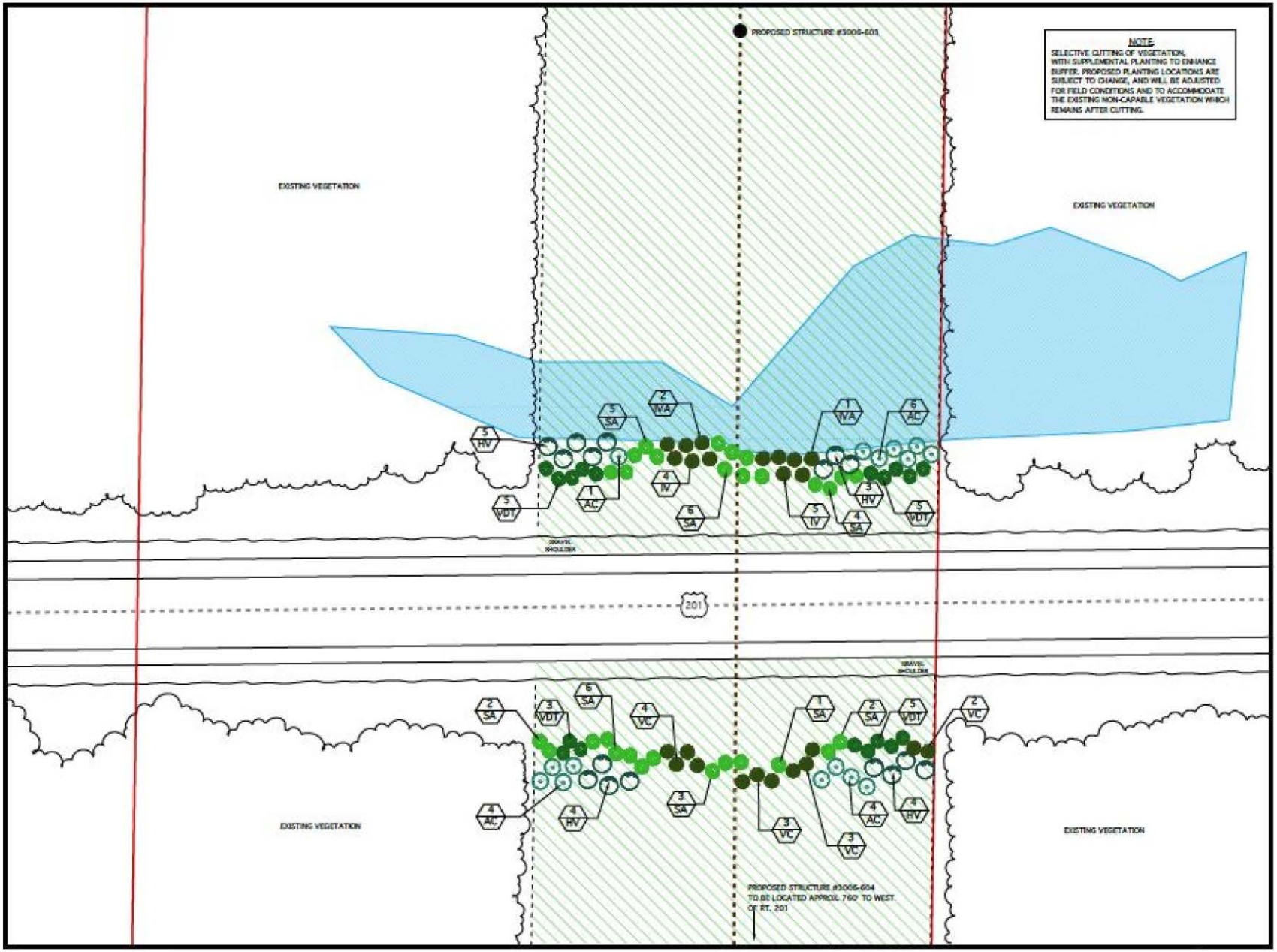
Road Buffer Evaluation Summary - Excerpt

ROAD BUFFER EVALUATION SUMMARY SEGMENT 4			A. Type of Road / Number of Viewers	B. Degree of Visible Change to Existing Conditions	C. Length of Exposure Following Installation/ Rebuild/Upgrade	D. Existing Screening Vegetation to be Removed	E. Corridor Alignment	TOTAL POINTS	Scenic Quality / Community Character (High, Medium, Common, Low)	Prelim. Buffer Recommendation: (Full, Light (L) Further Assess of Need /Effectiveness, (FA) or None (N)	1. Present land uses preclude effective buffers.	2. Environmental factors preclude buffers.	3. Other factors preclude buffers.	4. Buffer plantings would seem out of place.	5. Buffers would block views of scenic resources.	6. Not Possible to minimize visual impacts by buffers?	Buffer Recommendation: Yes / No	Notes
TOWN	ROAD	Ownership																
	Auburn Pownal Road	Public	2	2	3	0	5	12	C	N	-	-	-	-	-	-	No	Ex 350 ft wide corridor
	Durham Road	Public	1	2	3	0	5	11	C	N	-	-	-	-	-	-	No	Ex 350 ft wide corridor.
Pownal	Fickett Road	Public	2	2	5	2	5	16	L	N	-	-	-	-	-	-	No	From crossing of Fickett, view of proposed Fickett Road Substation. Filtered view of corridor east of crossing.
	Fickett Road – north of Proposed Substation	Public	2	4	5	2	5	18	L	N*							Yes	From north of Fickett Road Substation. Minimal deciduous vegetation exists. Proposed substation creates a Significant change but seen in context of existing Surowiec Substation and transmission lines. *This evaluation does not result in the need for a buffer primarily due to the 'Low' Scenic Quality designation, however, CMP has prepared and submitted a Buffer Planting Plan to respond to potential impacts to immediate abutters to the north of the proposed substation site and because the MPRP established a precedent for screening new substations.
	Allen Road	Public	2	2	5	0	5	14	L	N	-	-	-	-	-	-	No	Passes through and adjacent to Fickett Road Substation. Runs adjacent to corridor.

A. Type of Road / Number of Viewers	B. Degree of Visible Change to Existing Conditions	C. Length of Exposure Following Upgrade	D. Existing Screening Vegetation to be Removed	E. Corridor Alignment
0: Unimproved road / Lightly traveled 1: Other Passable Road / Lightly traveled 2. Local Road / Moderately traveled 3: Secondary State Route / Moderately traveled 4: Primary Route / High traffic volume 5: Limited Access Highway / High traffic volume	0: No visible change to the transmission corridor or transmission structures 1: Minor change with minimal vegetation clearing, or only conductors change 2: Minor change: a new or replacement structure within existing cleared corridor 3: Moderate change: one existing 115 kV line and a new HVDC/345 kV, or existing corridor widened by 75–150' 4. Significant change: new HVDC structures within existing clearing/clear cut 5. Significant change: new 150' wide cleared corridor, new HVDC structures	1: Transmission corridor visible for < 3 seconds 3: Transmission corridor visible for 3 - 8 seconds 5: Transmission corridor visible for > 8 seconds	0: No vegetation would be lost by proposed activity 1: Minor shrubby/woody vegetation would be removed 2: Scattered clumps of trees/large shrubs which now screen the ROW would be lost 3: Active timber harvesting area/regenerating forest cover 4: Removal of 75' of vegetation that screens the existing cleared corridor 5: Significant loss of effective screening vegetation	0: Abrupt change in alignment or topography within one structure or within 1/4 mile 3: Significant change in alignment or topography within 1/4 to one mile 5: No visible change in corridor alignment (straight line alignment)

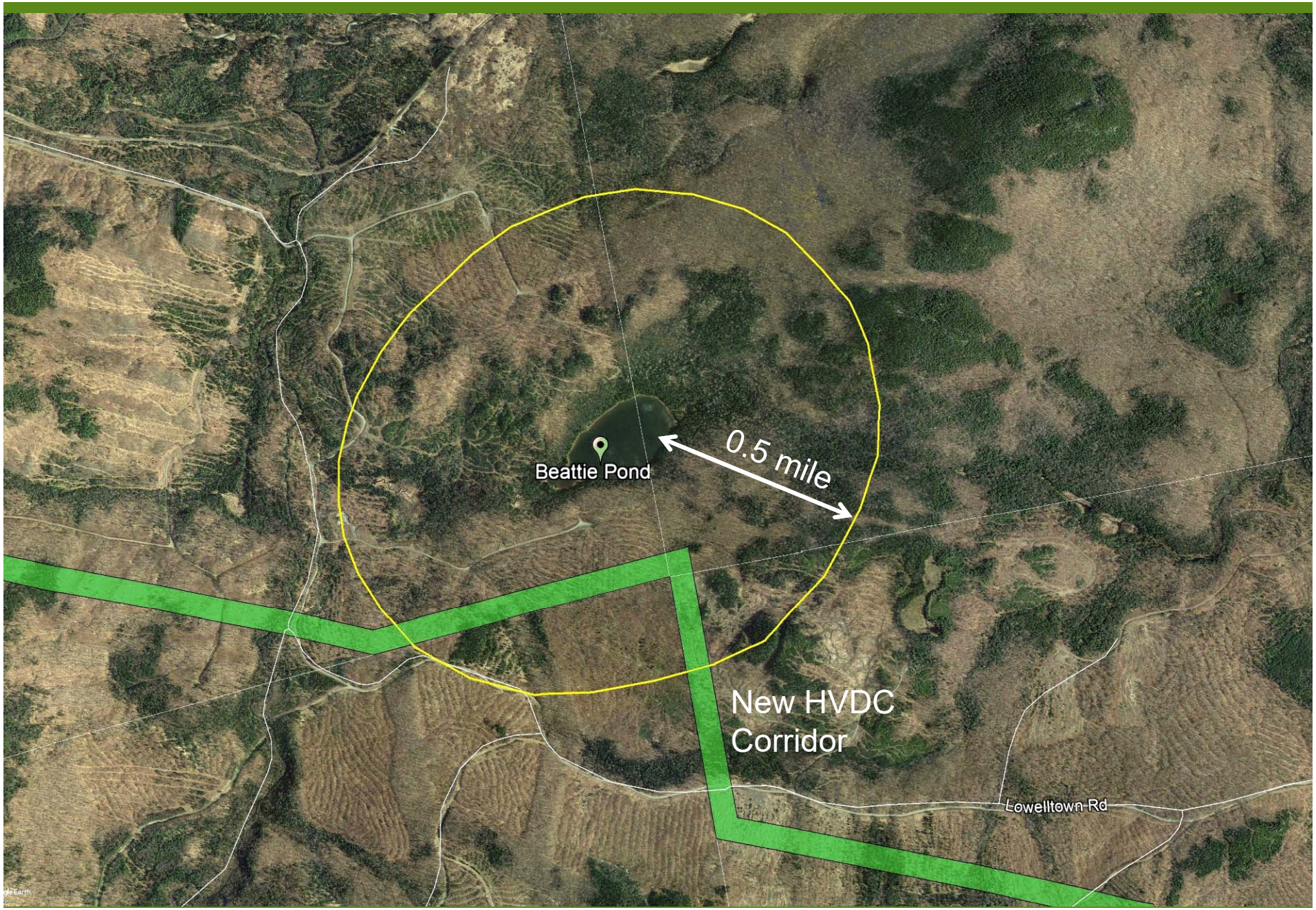
2018.10.19

Buffer Planting Plan

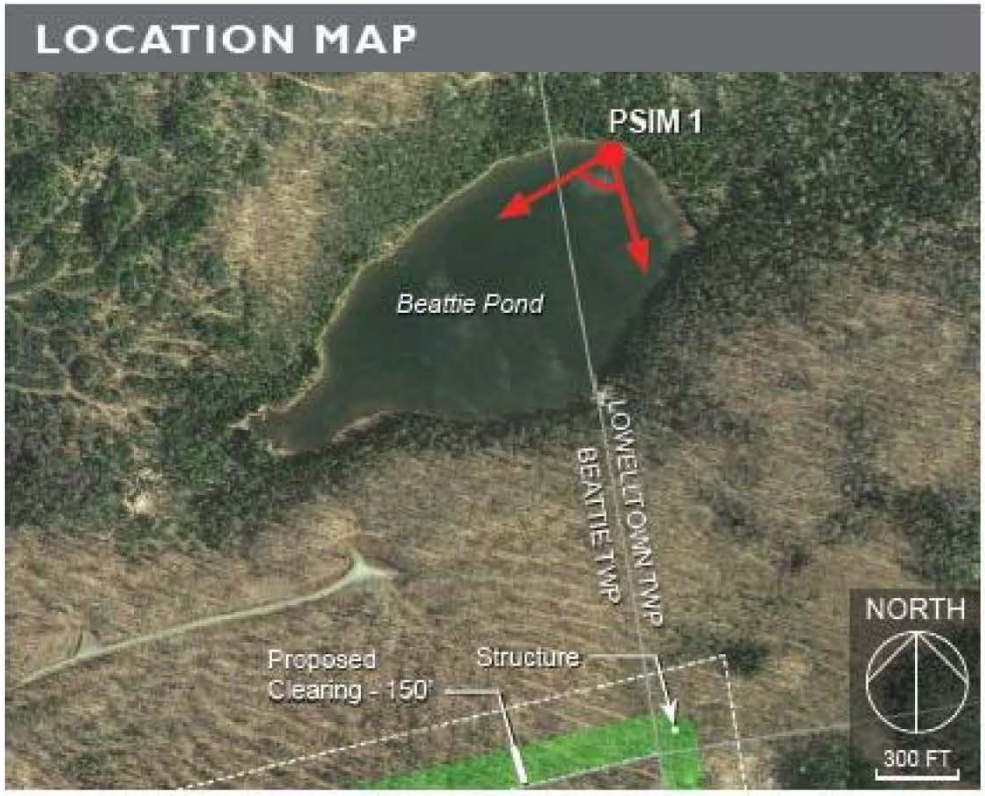


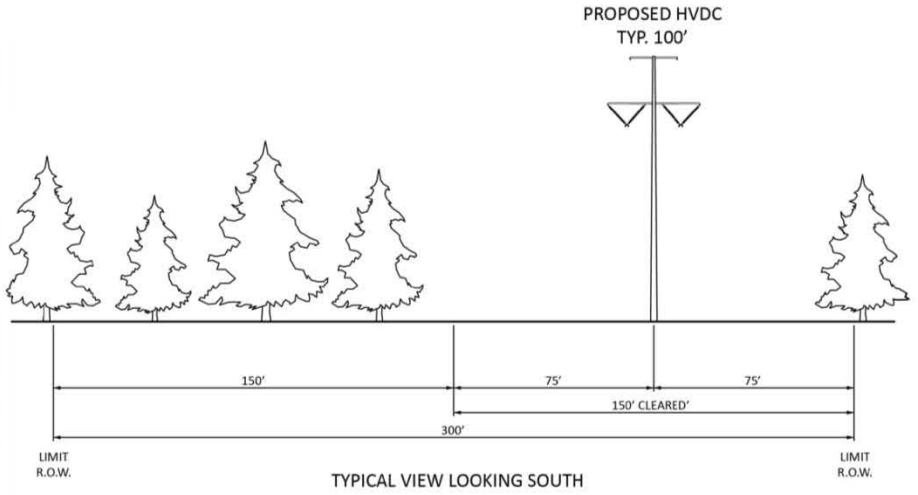
Beattie Pond - Lowelltown twp

Beattie Pond - LUPC Zoning - P-RR Subdistrict



Beattie Pond - Lowelltown Twp





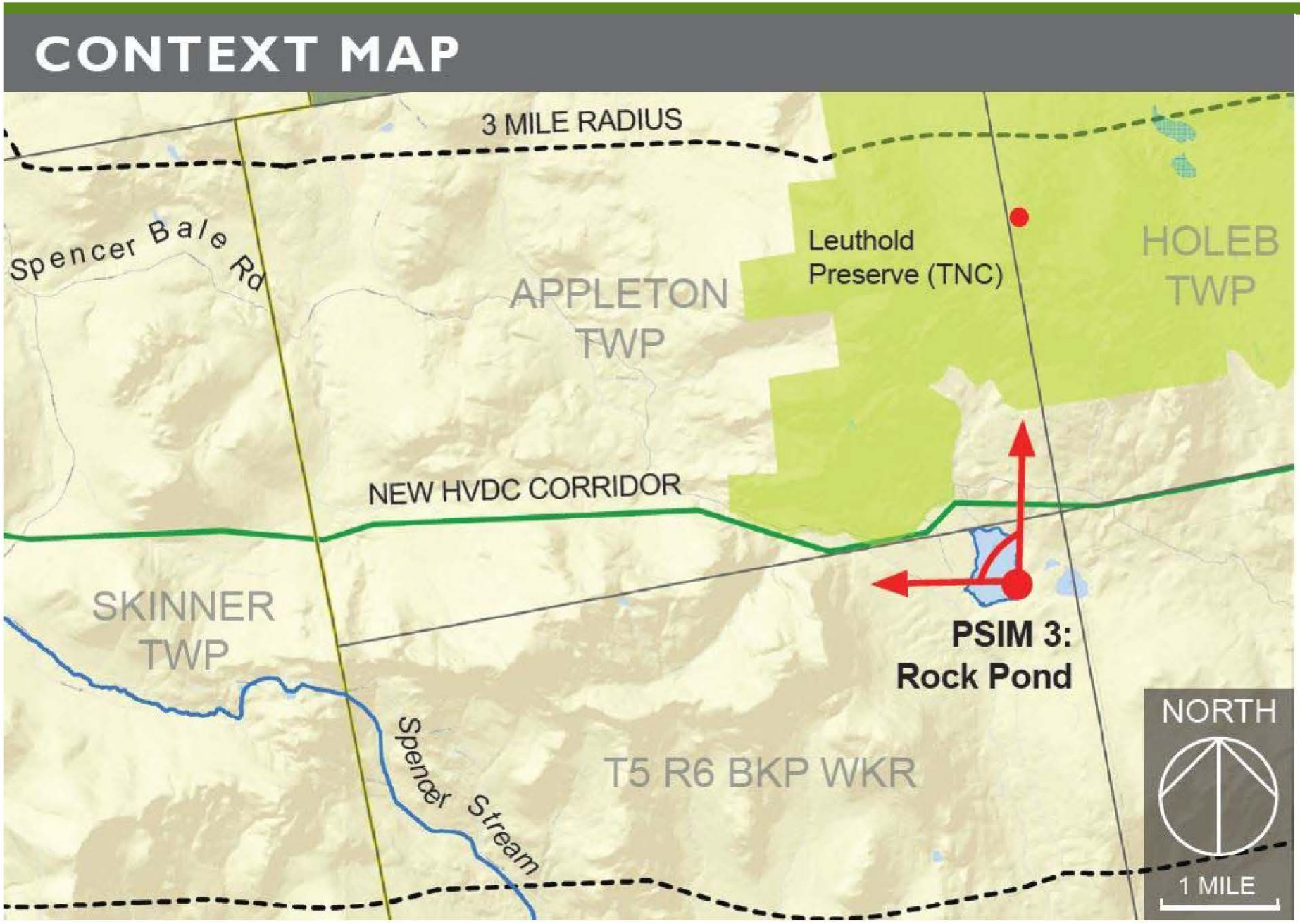
Beattie Pond - Lowelltown Twp

Beattie Pond - Existing Conditions

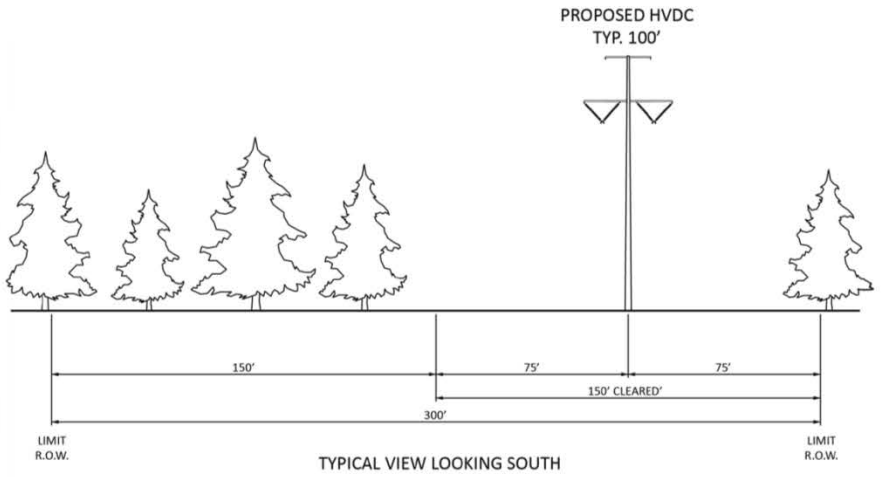
Beattie Pond - Photosimulation - September 2017

Beattie Pond - Photosimulation - Re-Engineered January 2019

Rock Pond - T5 R6 BKP WKR



Rock Pond - T5 R6 BKP WKR



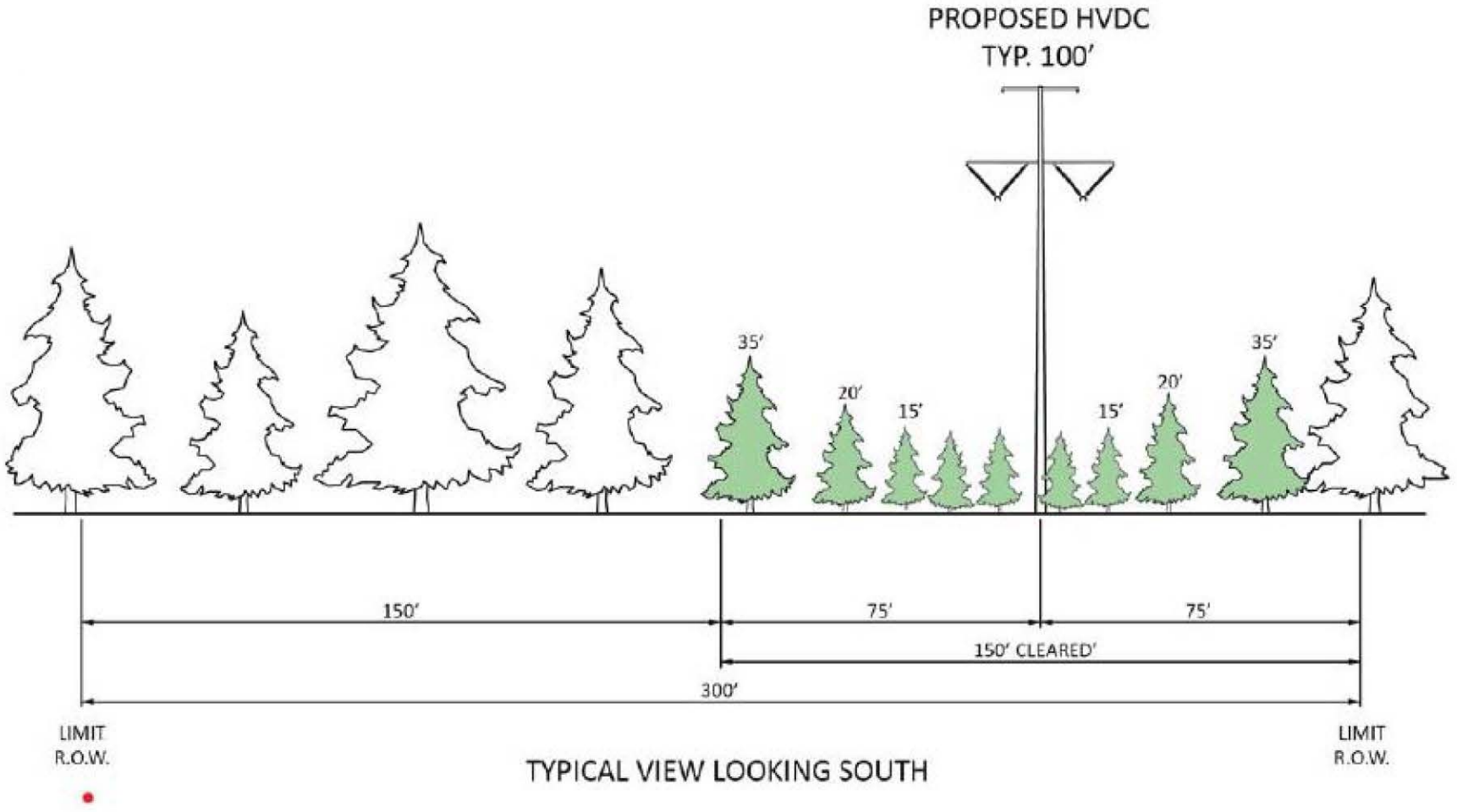
Rock Pond - T5 R6 BKP WKR

Rock Pond - Existing Conditions - looking Northwest

Rock Pond - Photosimulation - Full Height Vegetation/Gold Brook

Rock Pond - Photosimulation - Tapered Vegetation Management

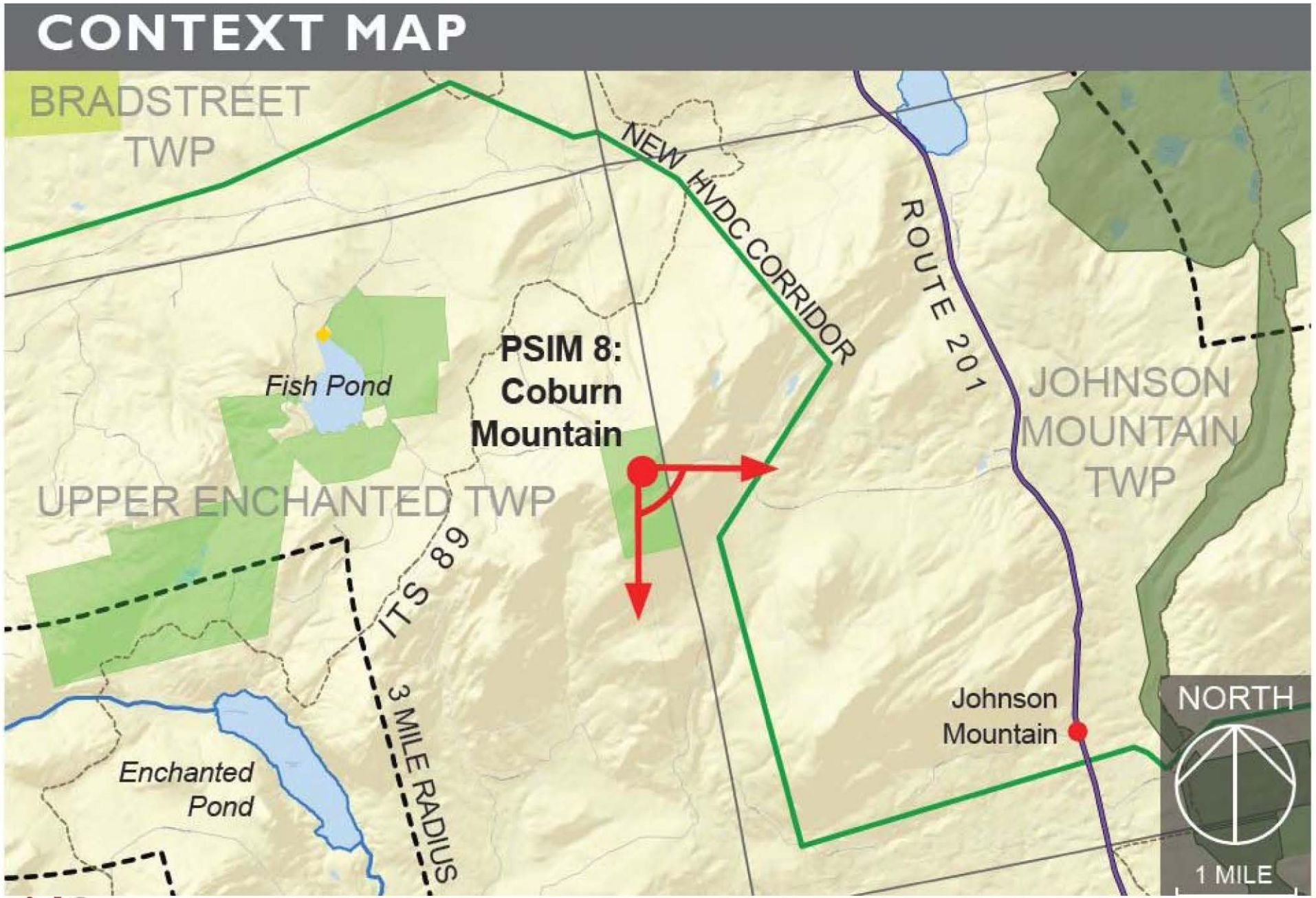
Cross Section of Tapered Vegetation Management



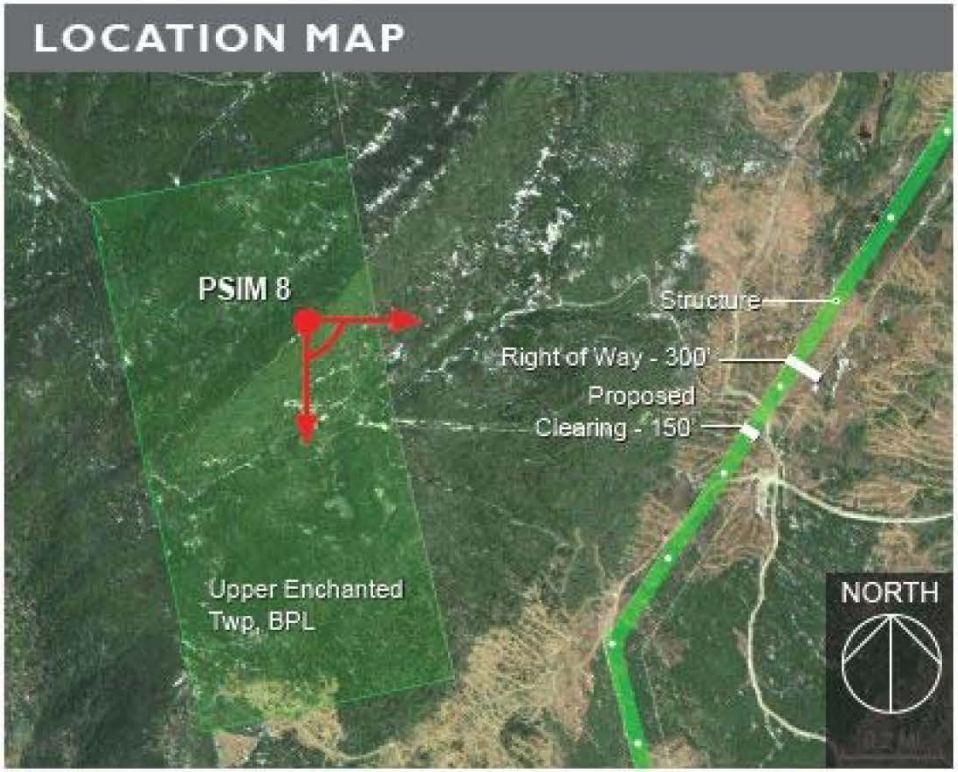
Rock Pond - Existing Conditions - looking North

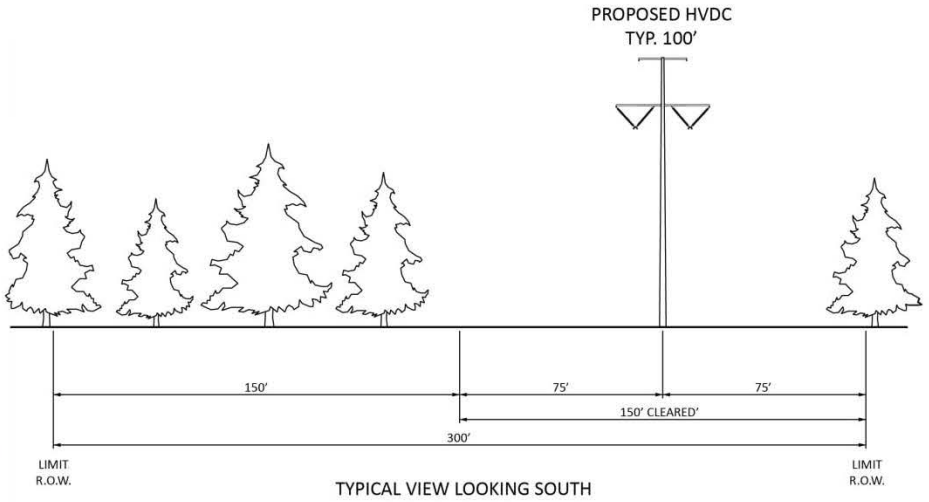
Rock Pond - Photosimulation with Non-Specular Conductors

Coburn Mountain - Upper Enchanted Twp.

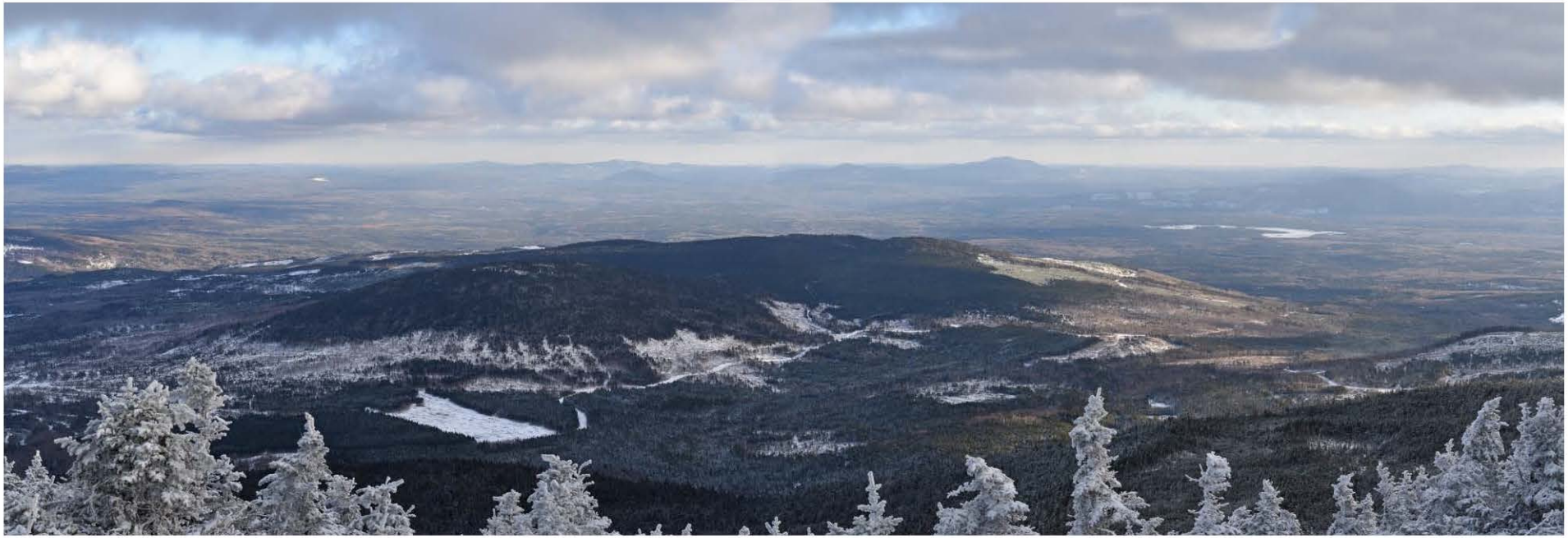


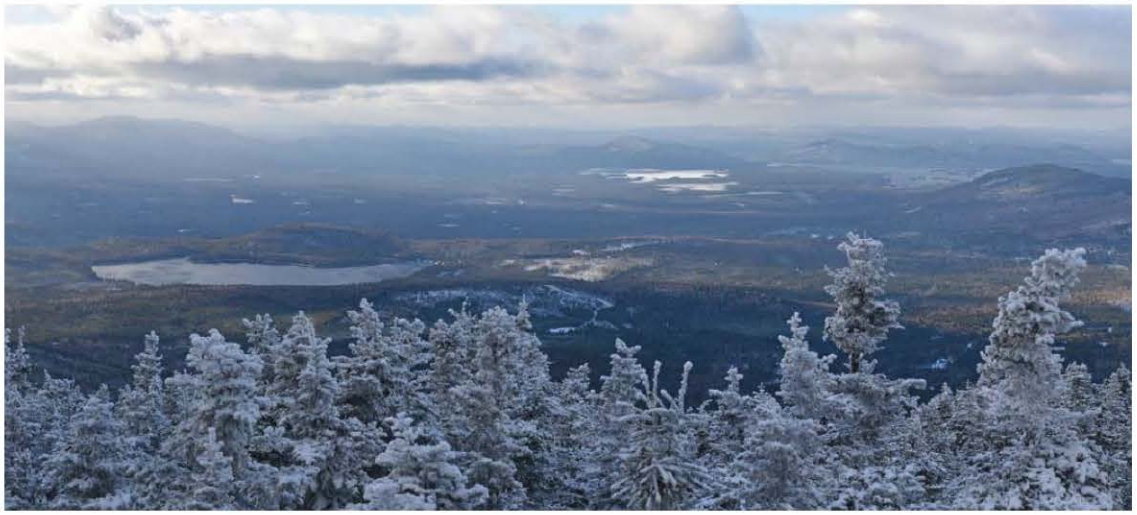
Coburn Mountain - Upper Enchanted Twp.



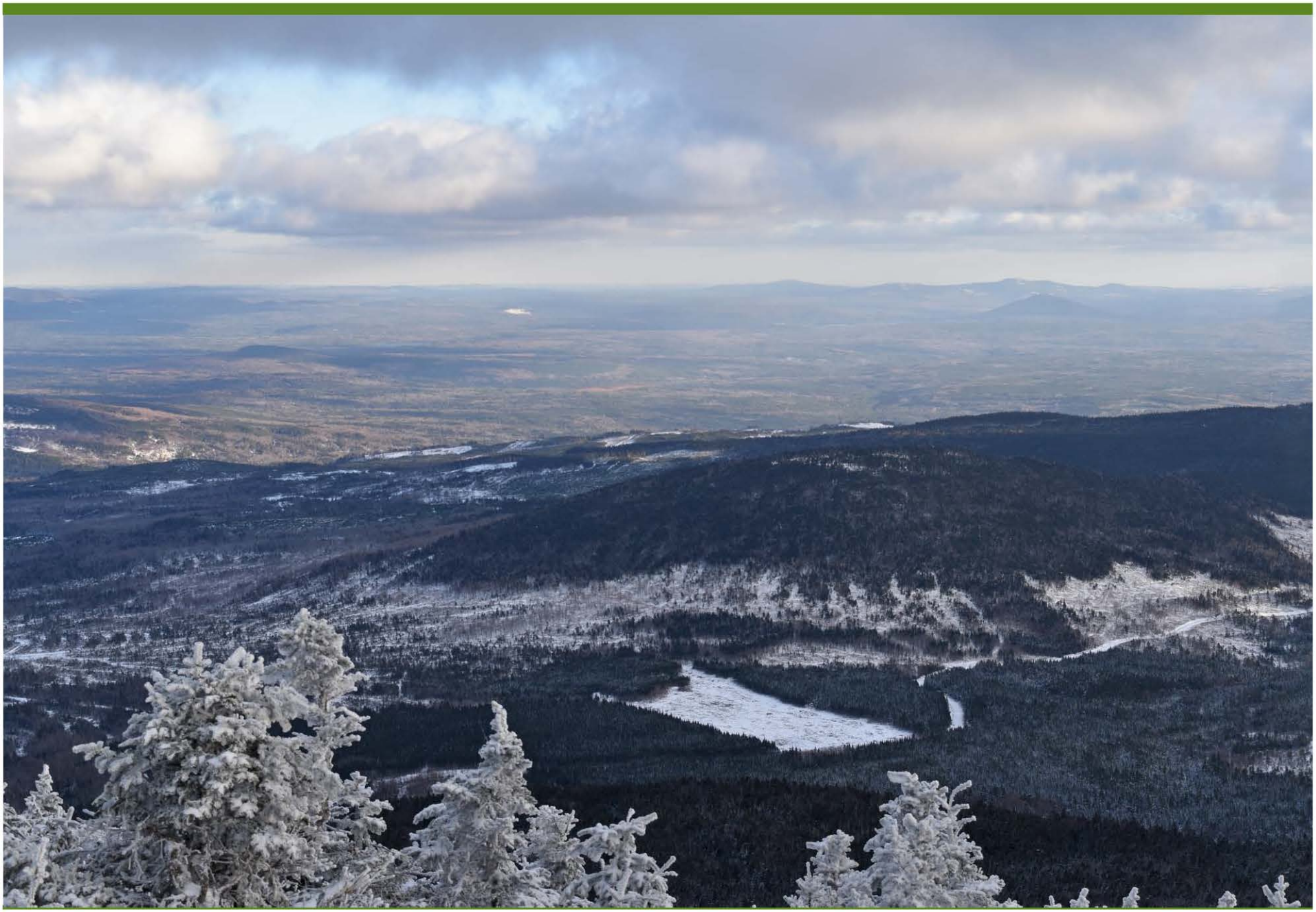


Coburn Mountain - BPL Parcel in Upper Enchanted Twp

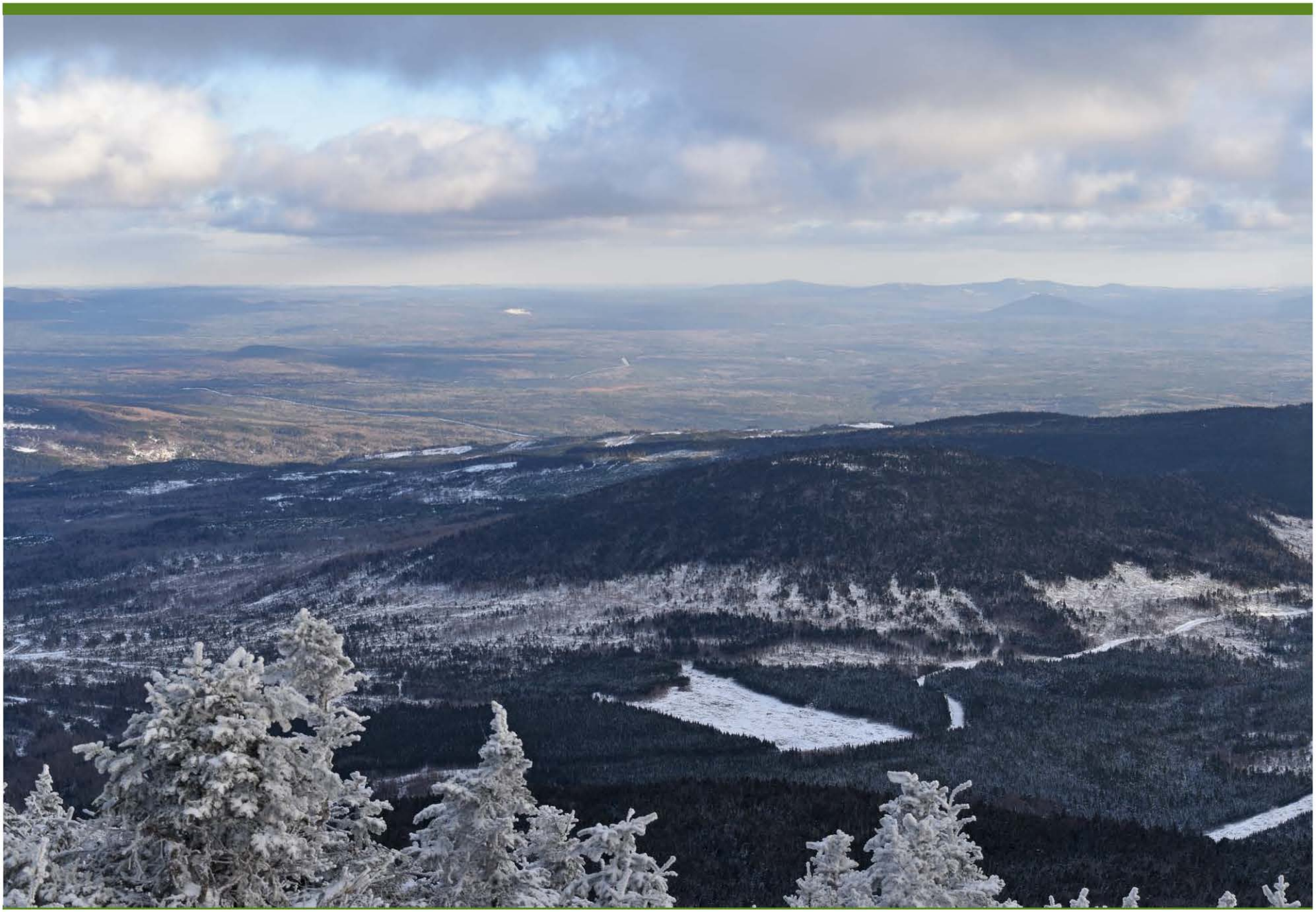




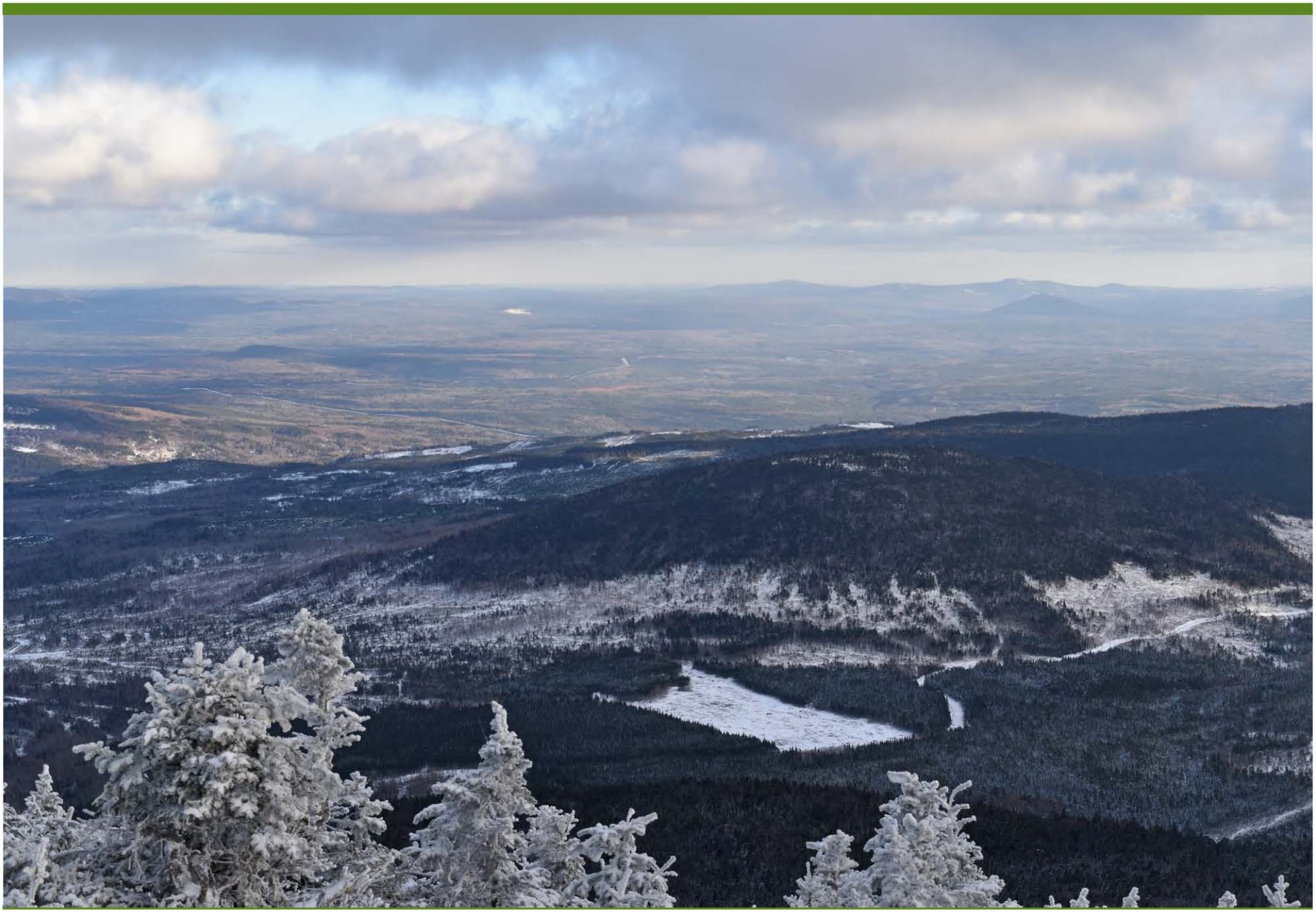
Coburn Mountain - Existing Conditions - looking East



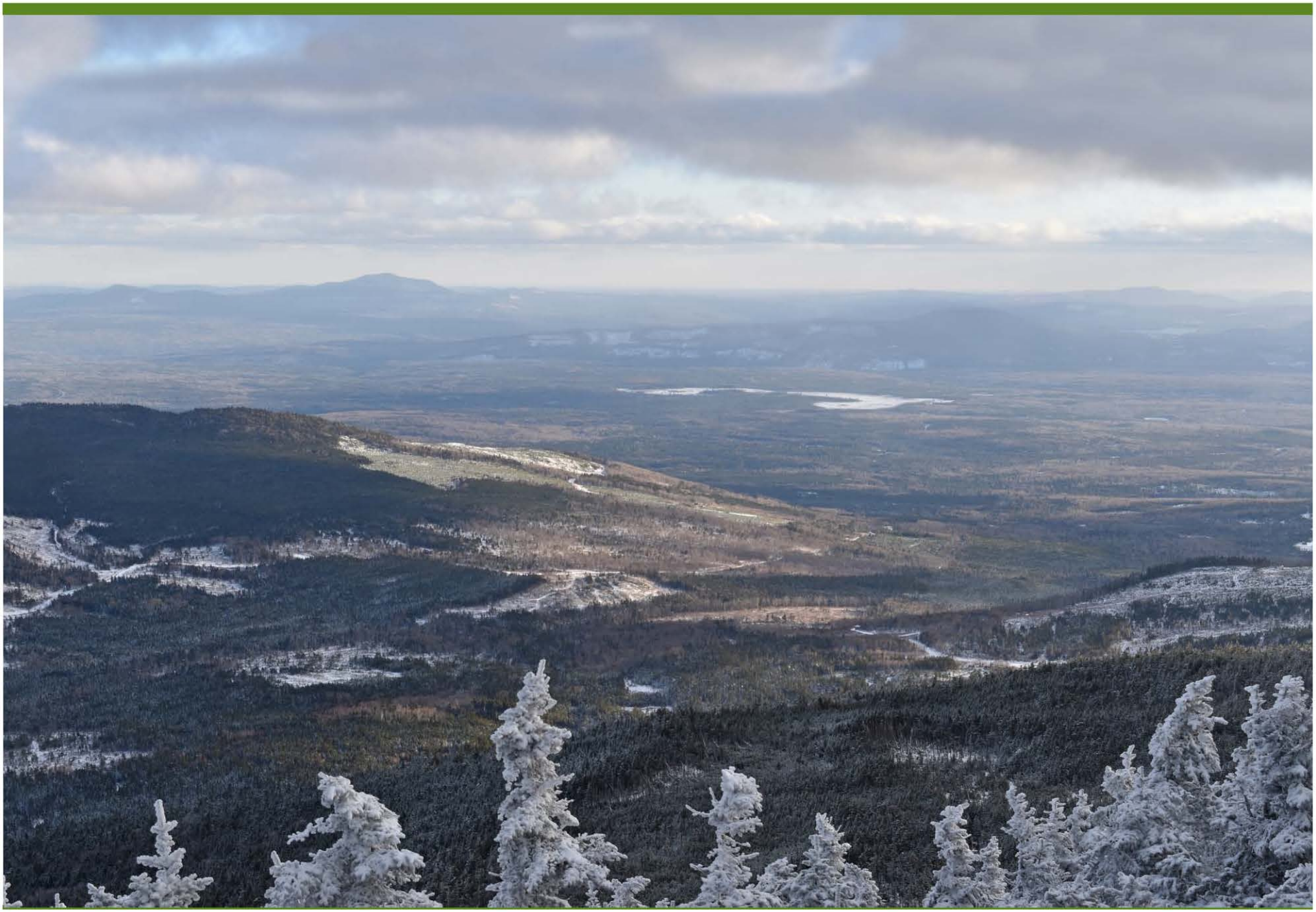
Coburn Mountain - Photosimulation



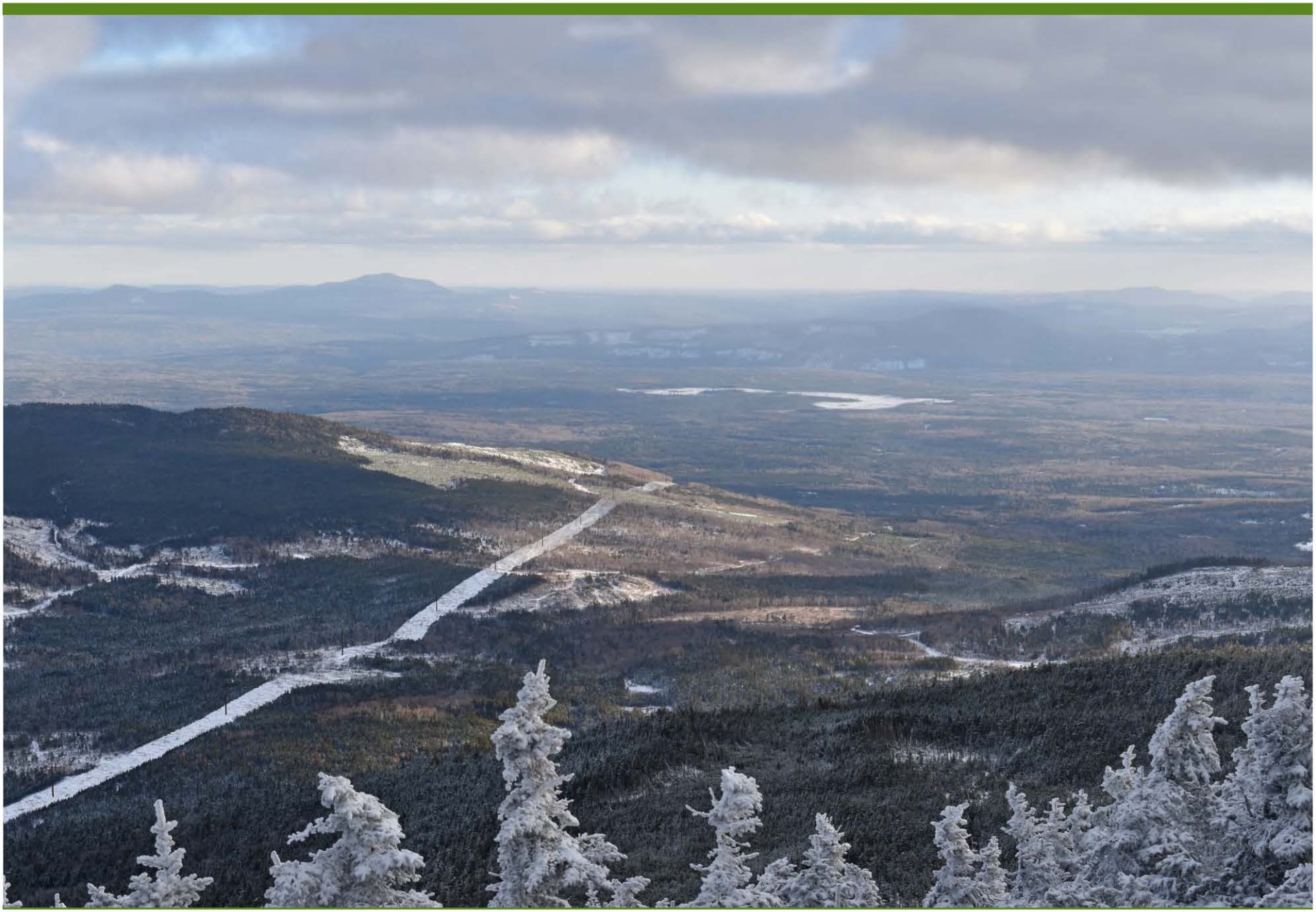
Coburn Mountain - Photosimulation - Tapered Vegetation Management



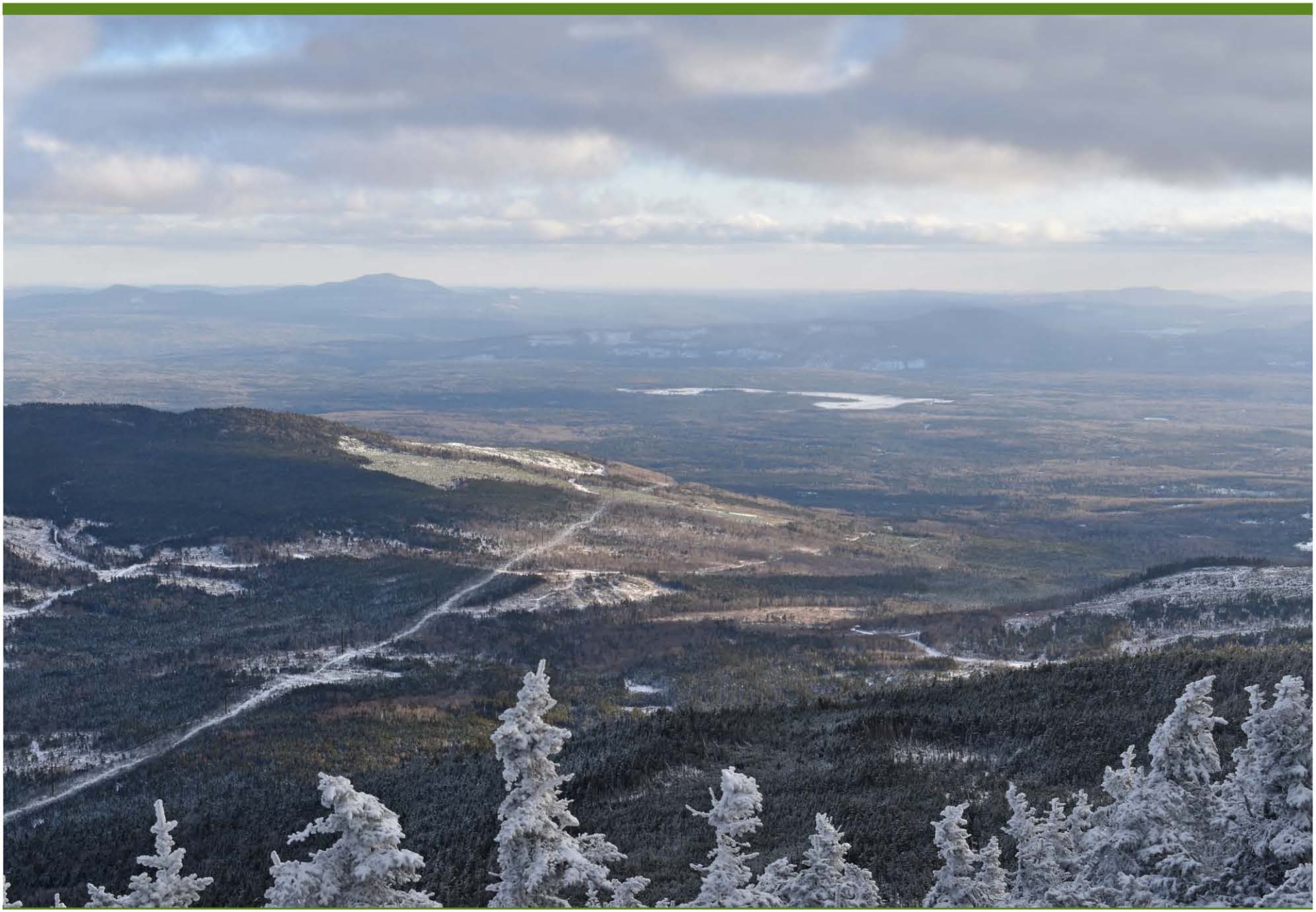
Coburn Mountain - Existing Conditions



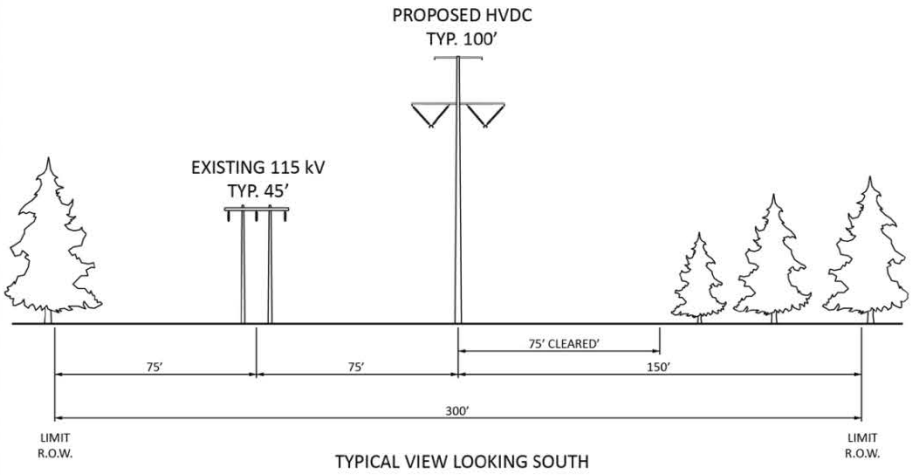
Coburn Mountain - Photosimulation



Coburn Mountain - Photosimulation - Tapered Vegetation Management



Moxie Pond - Bald Mtn Twp T2 R3

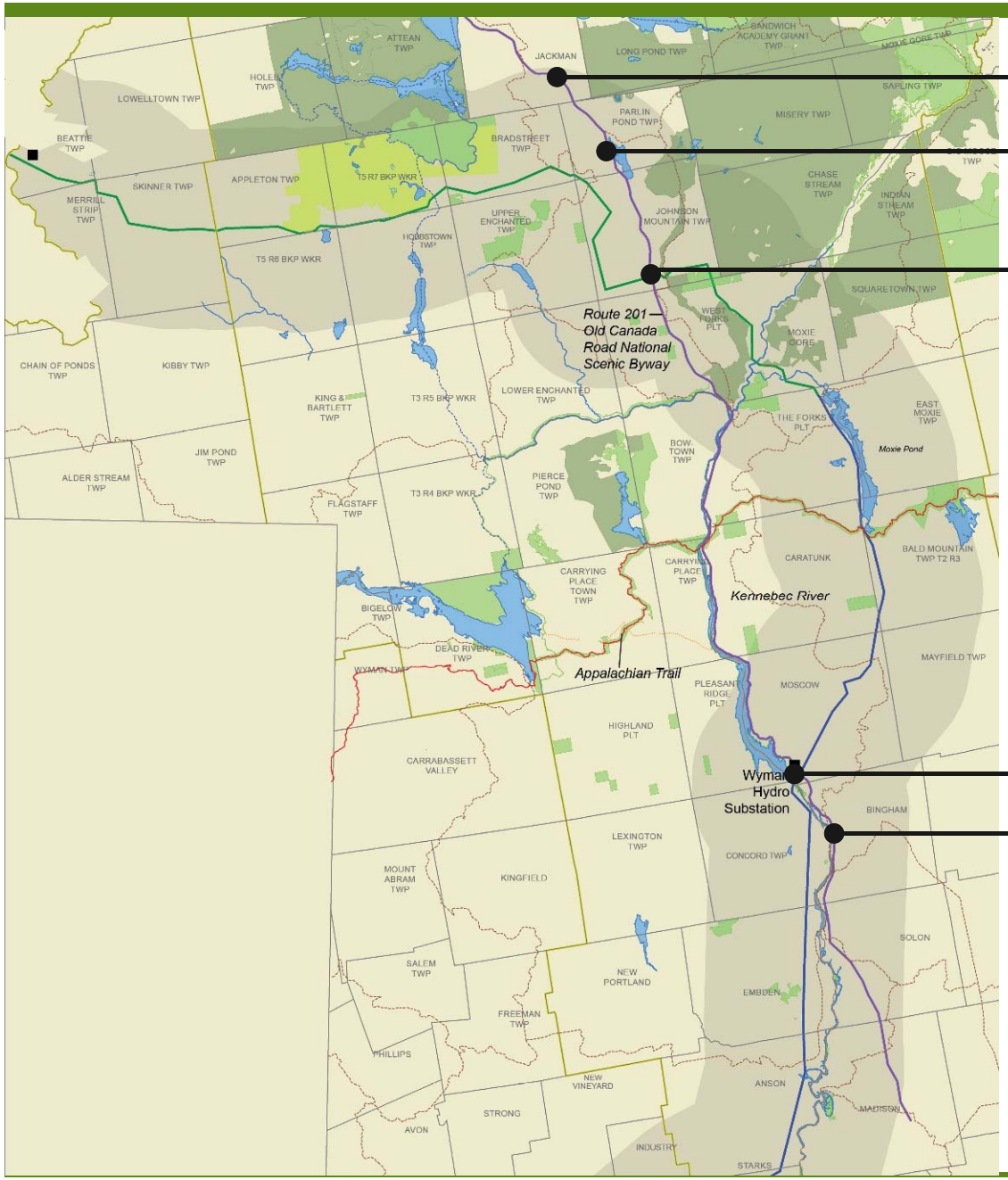


Moxie Pond - Existing Conditions - southern end looking West

Moxie Pond - Photosimulation - September 2017

Moxie Pond - Photosimulation of Re-Engineered December 2017

Route 201 - Old Canada Road National Scenic Byway



Attean View Rest Area

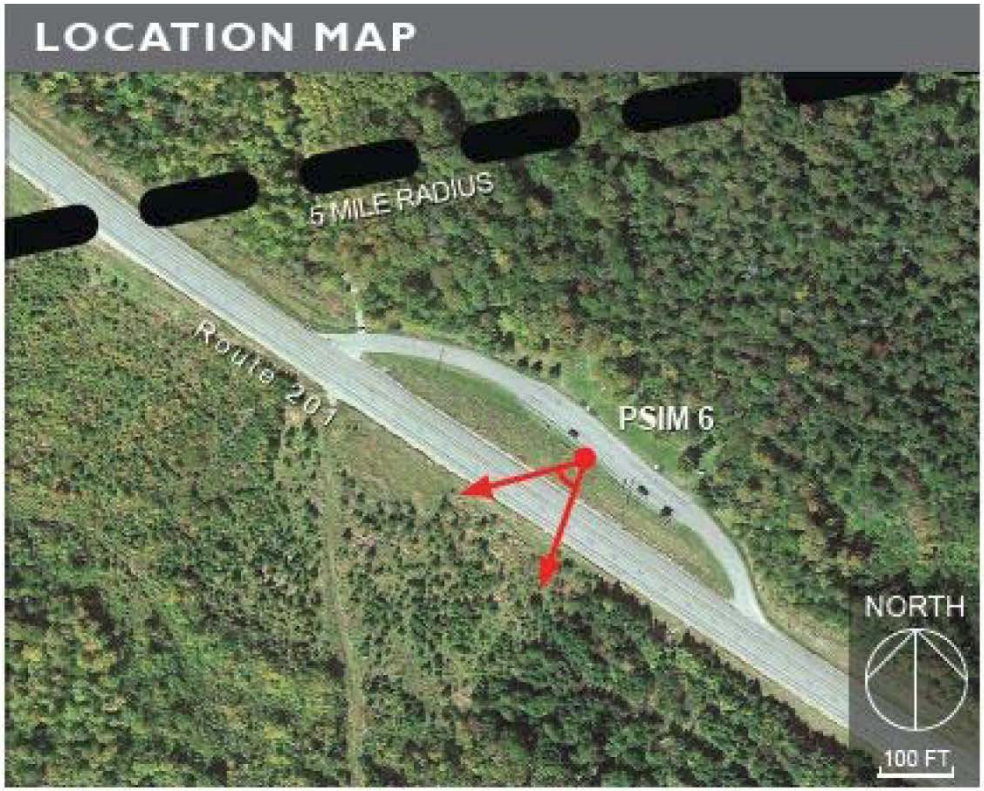
Parlin Pond Twp

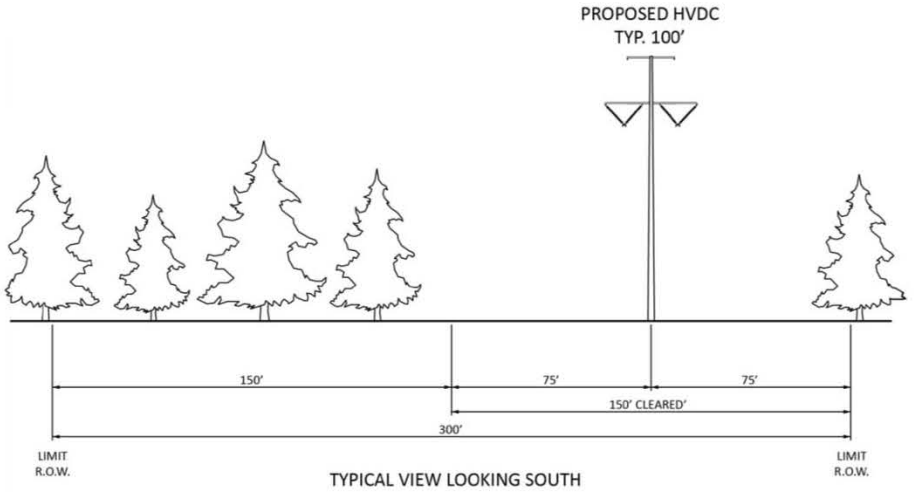
Johnson Mountain Twp crossing

Moscow crossing

Bingham

Route 201 - Attean View Rest Area, Jackman





Route 201 - Attean View Rest Area, Jackman

Route 201 - Attean View Rest Area – Existing Conditions

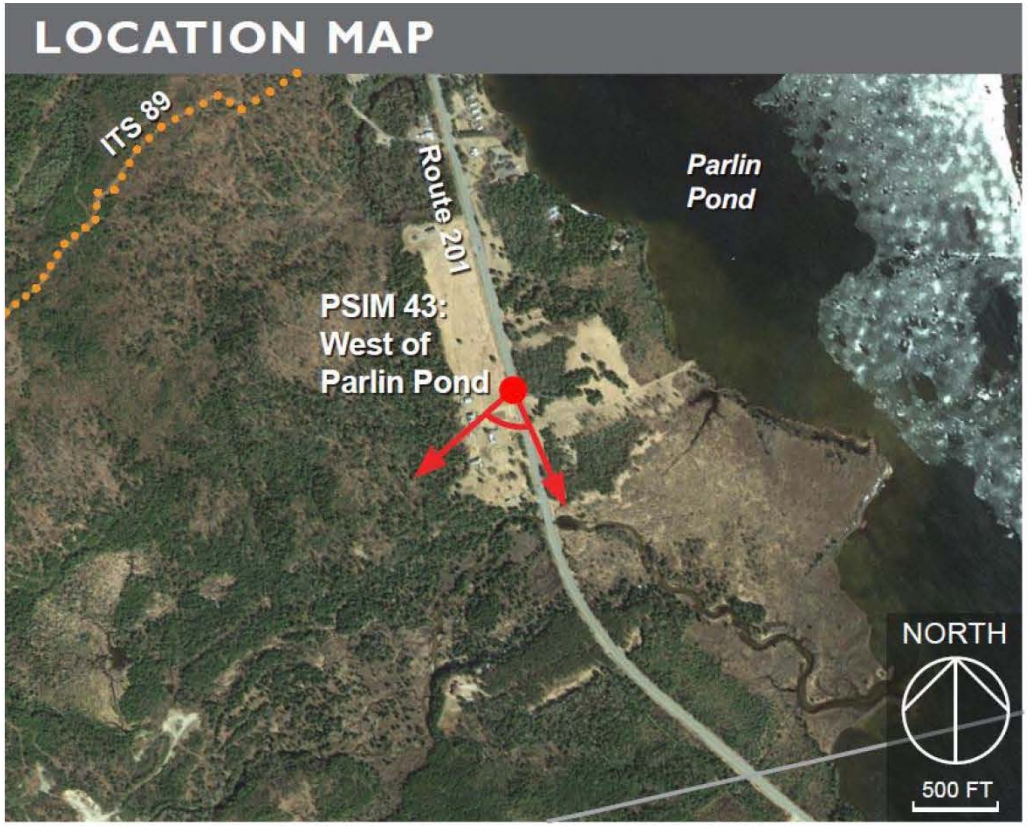
Route 201 - Attean View Rest Area – Photosimulation

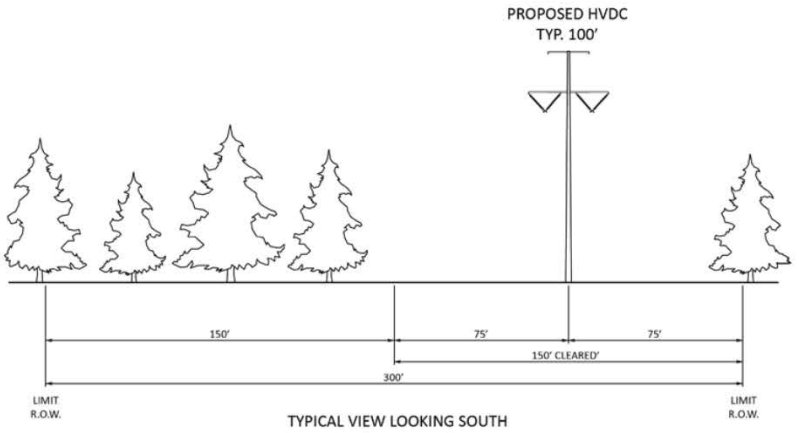
Route 201 – views of commercial forestland

Route 201 – views of commercial forestland

Route 201 – snowmobile trail adjacent to road

Route 201 – Parlin Pond Twp

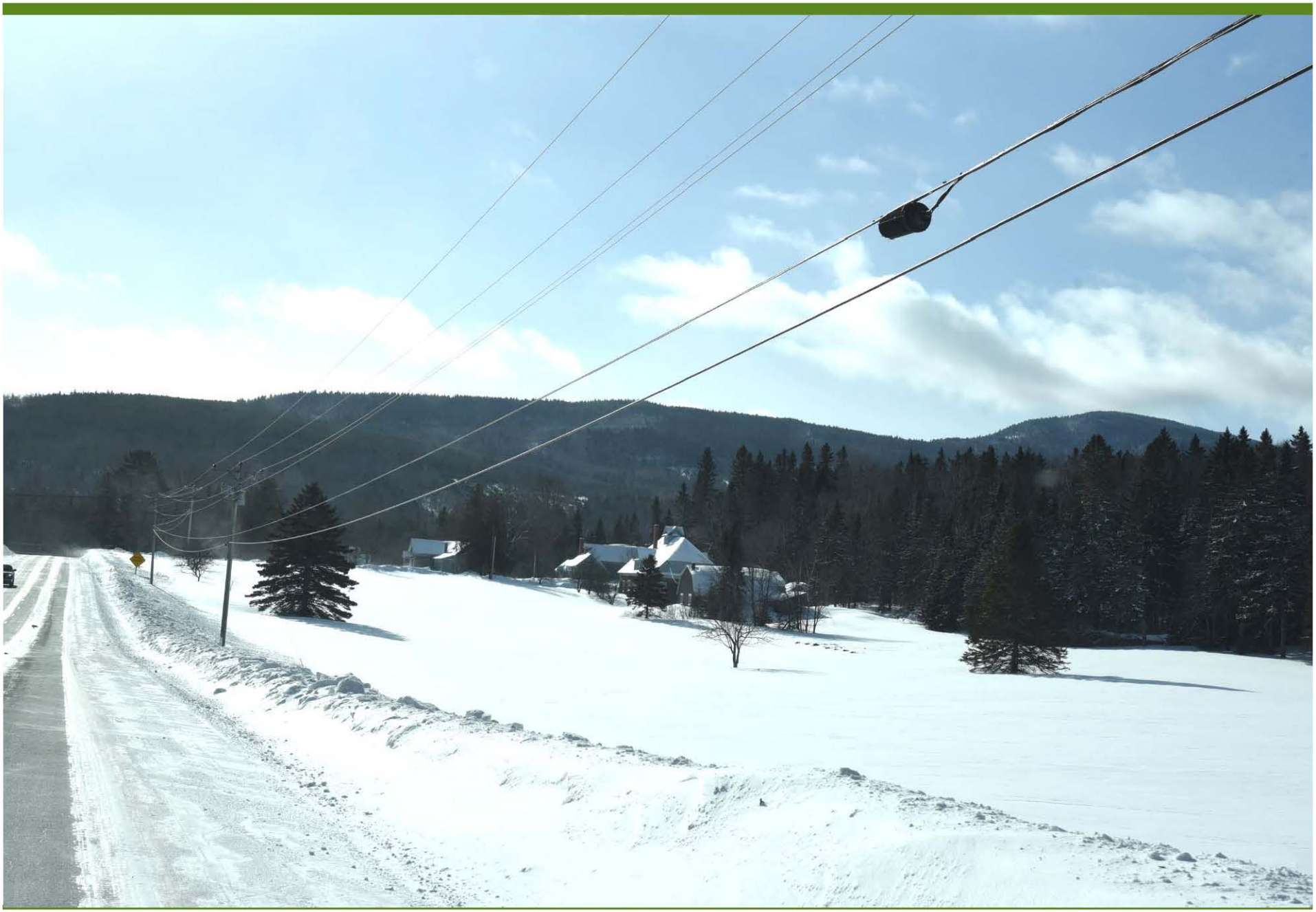




Route 201 – traveling south in Parlin Pond Twp

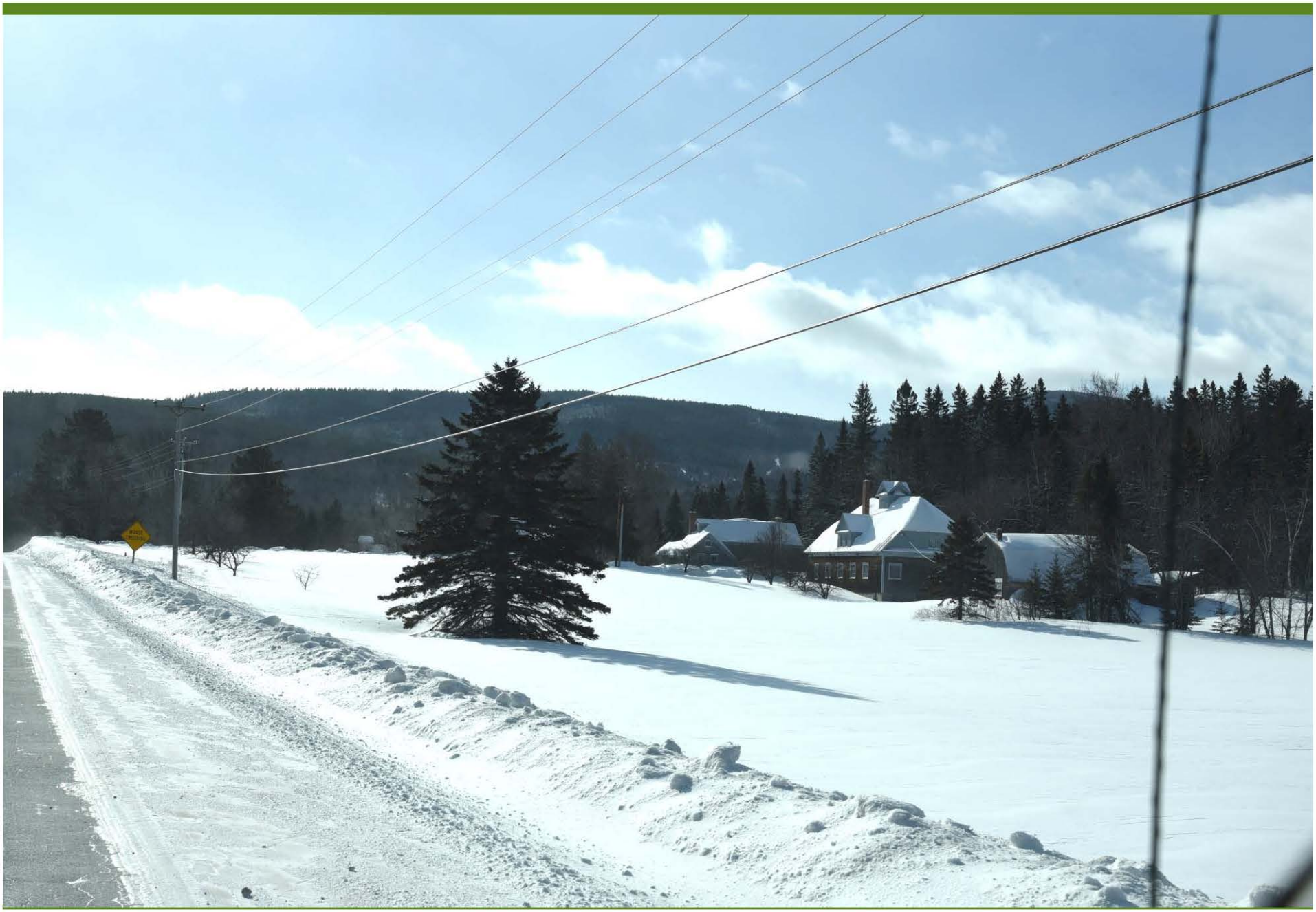
Route 201 – traveling south in Parlin Pond Twp

Route 201 – traveling south in Parlin Pond Twp



Route 201 – traveling south in Parlin Pond Twp

Route 201 – traveling south in Parlin Pond Twp



Route 201 – traveling south in Parlin Pond Twp

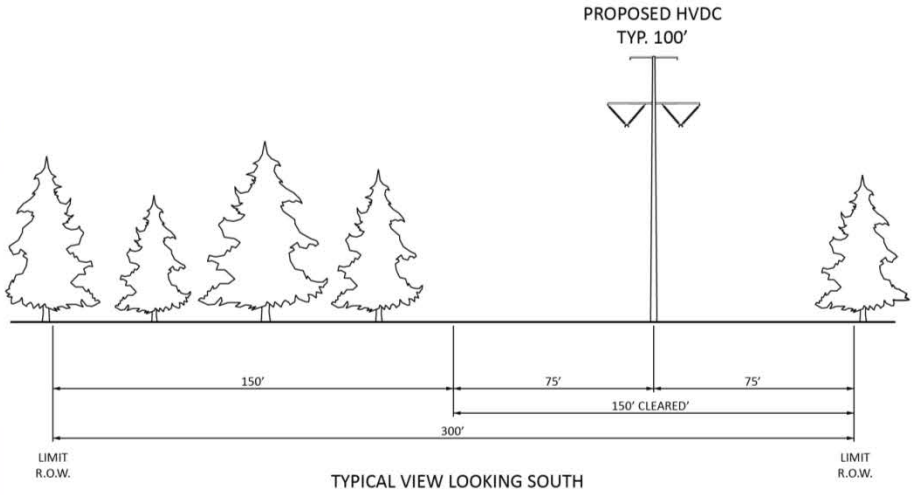
Route 201 – traveling south in Parlin Pond Twp

Route 201 – traveling south in Parlin Pond Twp

Route 201 - Parlin Pond Twp – Existing Conditions

Route 201 - Parlin Pond Twp – Photosimulation

Route 201 - Johnson Mountain Twp

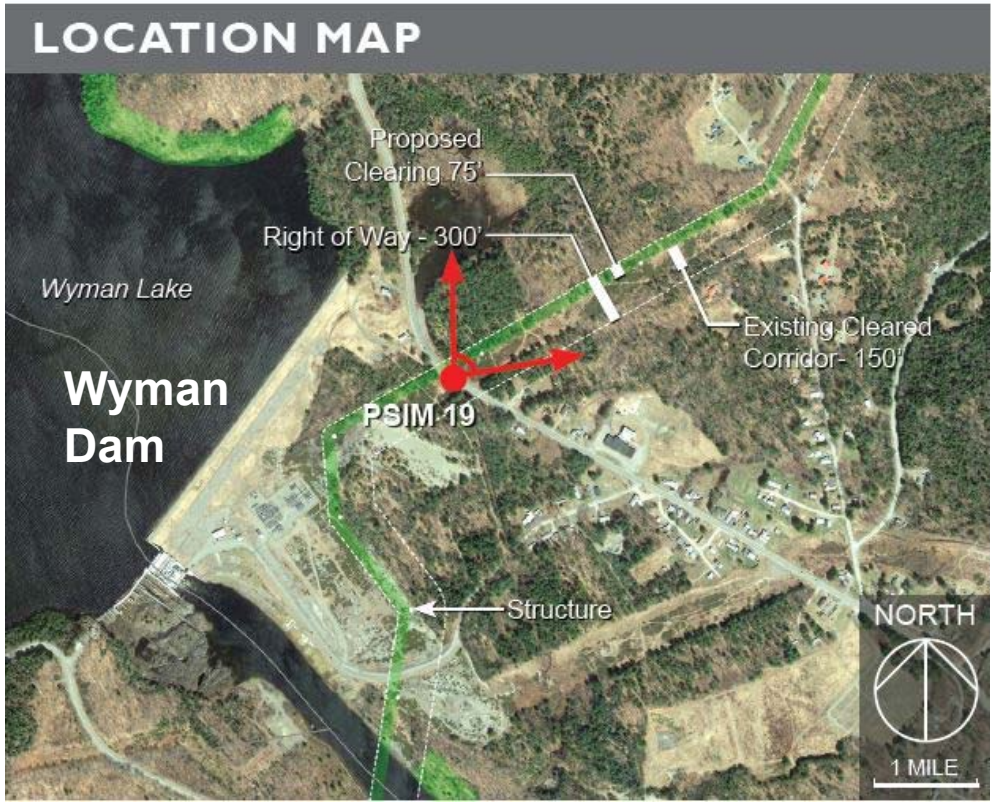


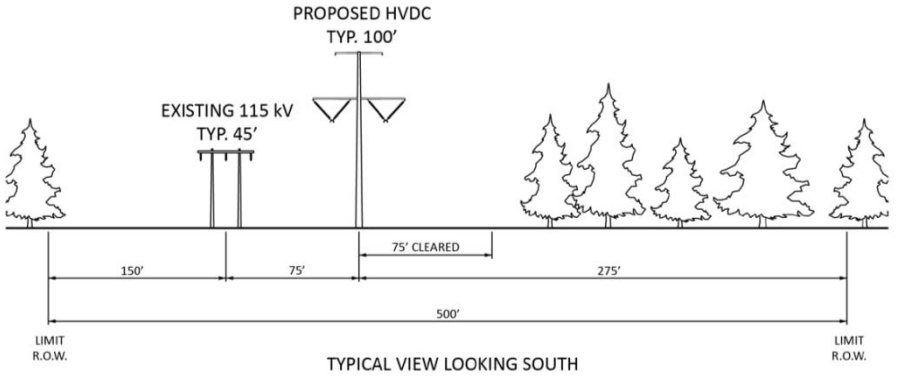
Route 201 - Johnson Mountain Twp – Existing Conditions

Route 201 - Johnson Mountain Twp – Photosimulation

Route 201 – Jackman Tieline

Route 201 - Moscow





Route 201 - Moscow – Existing Conditions

Route 201 - Moscow – Photosimulation

Route 201 - Moscow – Existing Conditions

Route 201 - Moscow – Photosimulation

Route 201 - Bingham

Route 201 - Bingham

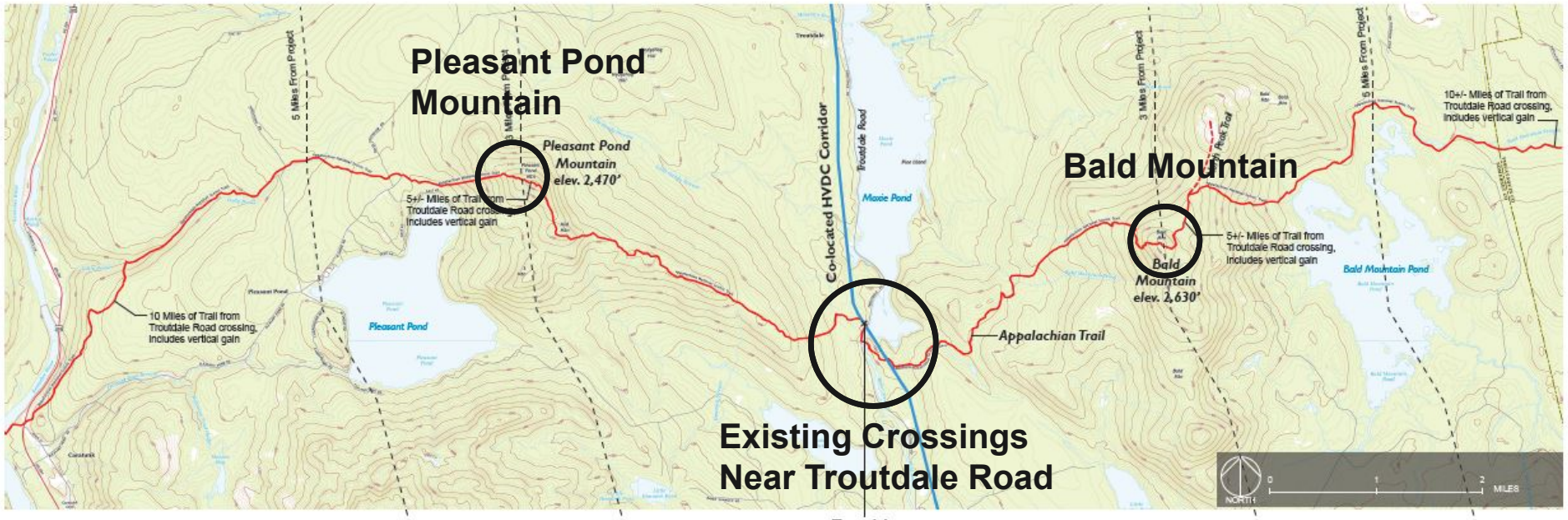
Route 201 - Bingham Village Cemetery

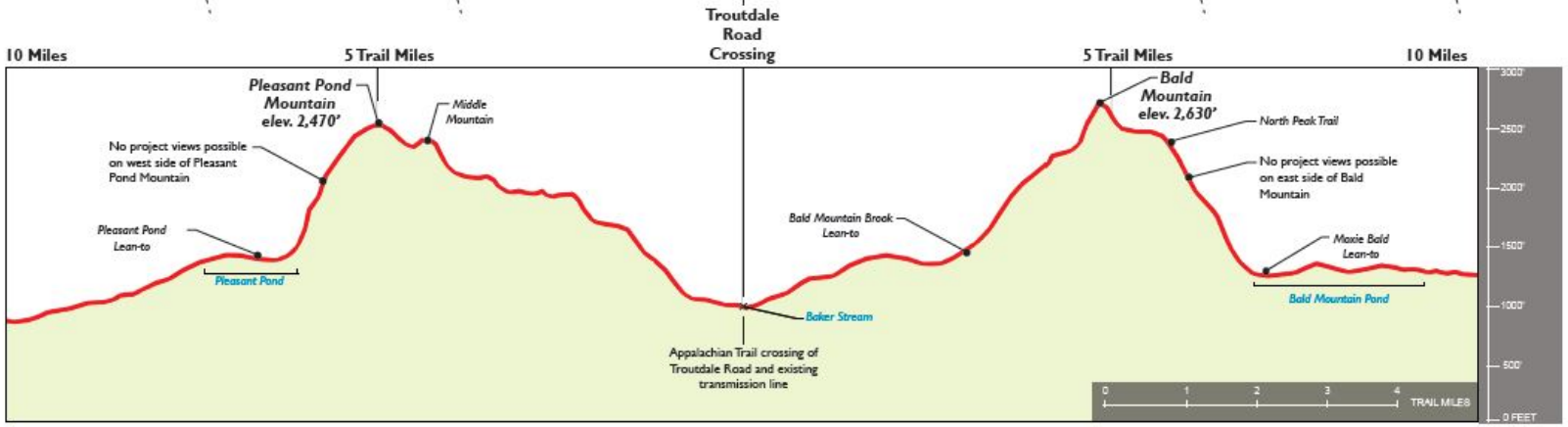
Appalachian Trail – Map

Appendix E: Appalachian Trail

Trail Map and Cross Section

NEW ENGLAND CLEAN ENERGY CONNECT





10 Mile Appalachian Trail Section

September 27, 2017

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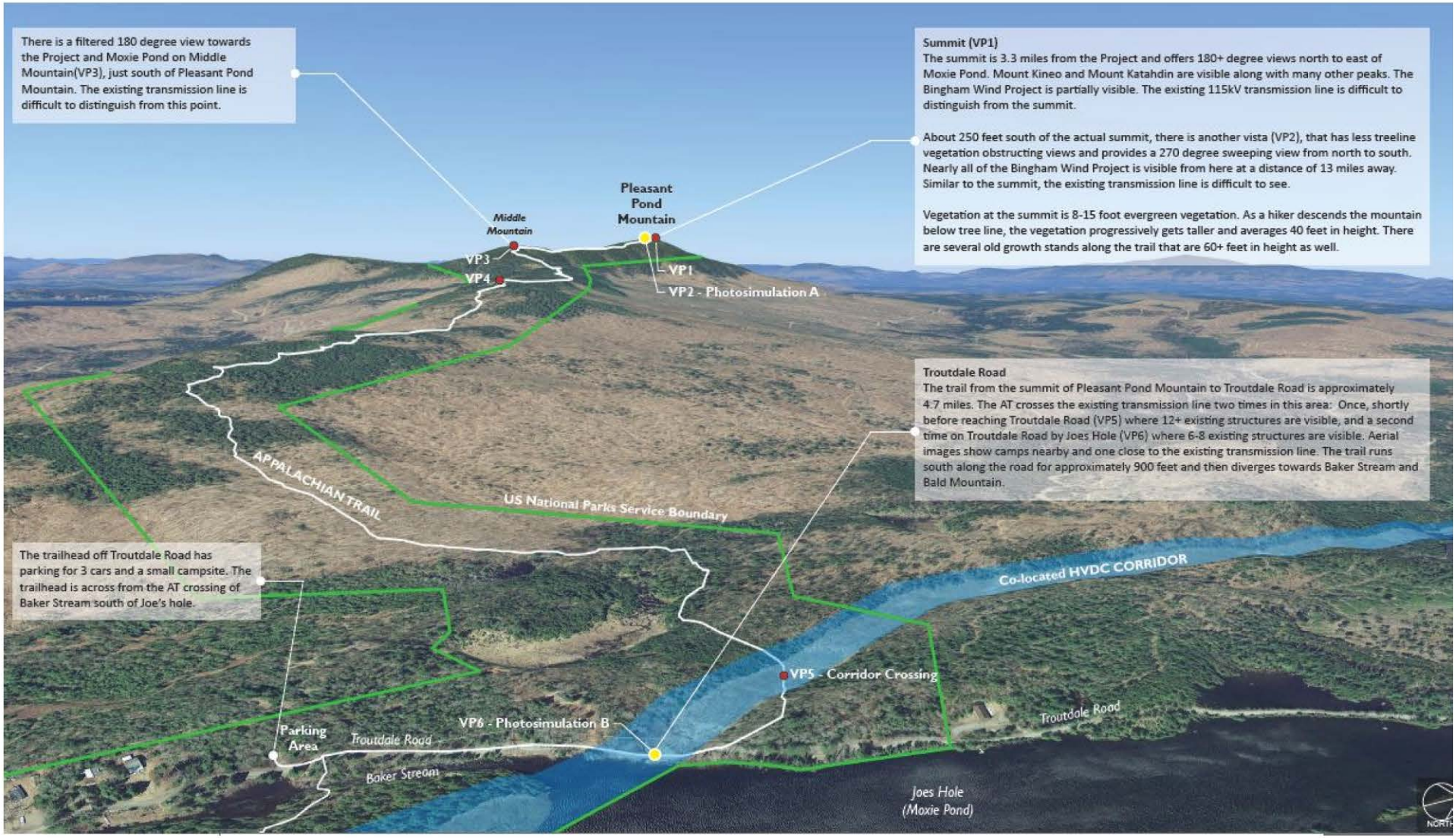
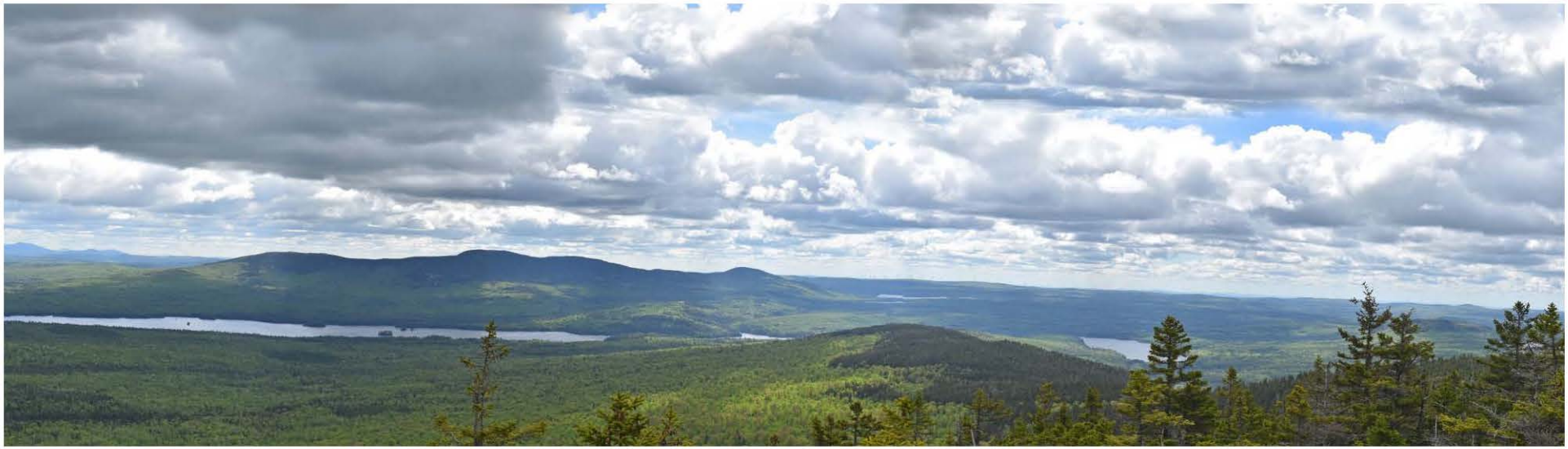
Appalachian Trail – Aerial Map

Appendix E: Appalachian Trail

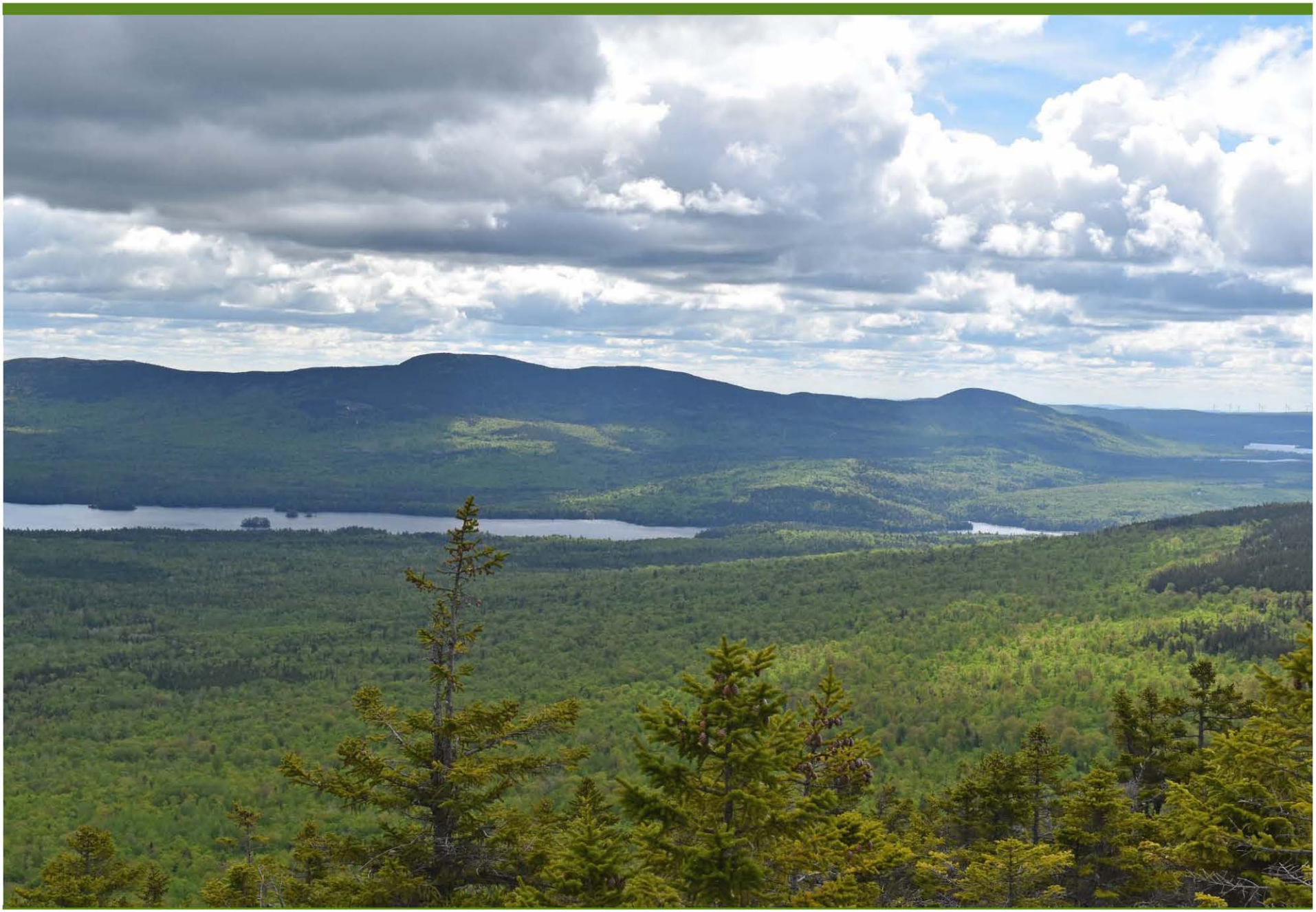
Google Earth Aerial - Troutdale Road to Pleasant Mountain



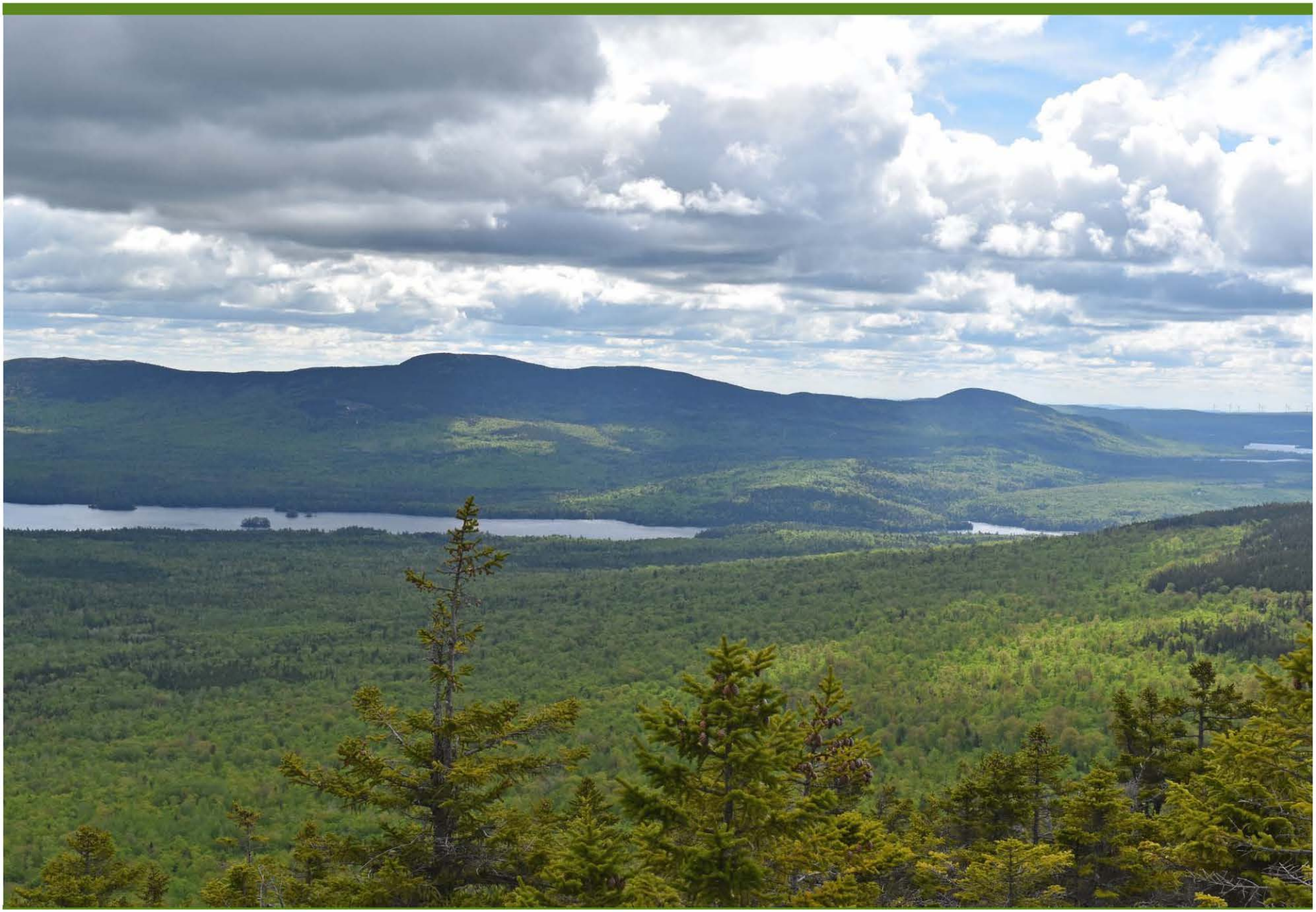
Appalachian Trail – Pleasant Pond Mountain



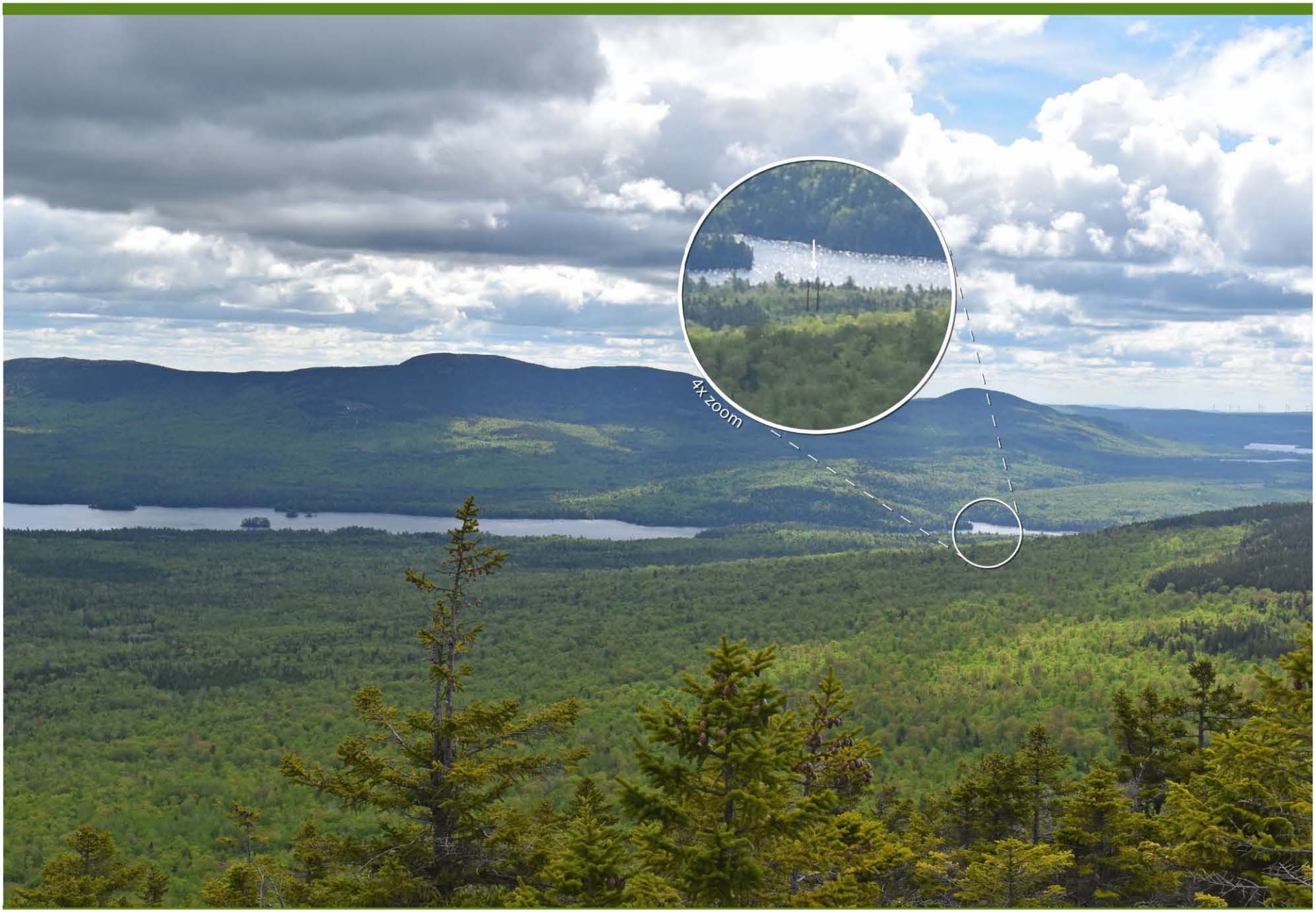
Appalachian Trail – Pleasant Pond Mountain – Existing Conditions



Appalachian Trail – Pleasant Pond Mountain - Photosimulation



Appalachian Trail – Pleasant Pond Mountain - Photosimulation



Appalachian Trail – Existing crossing west of Troutdale Road

Appalachian Trail – Existing crossing west of Troutdale Road

Appalachian Trail – Existing crossing on Troutdale Road

Appalachian Trail – Troutdale Road - Photosimulation

Appalachian Trail – Existing crossing on Troutdale Road

Appalachian Trail –Troutdale Road - Photosimulation

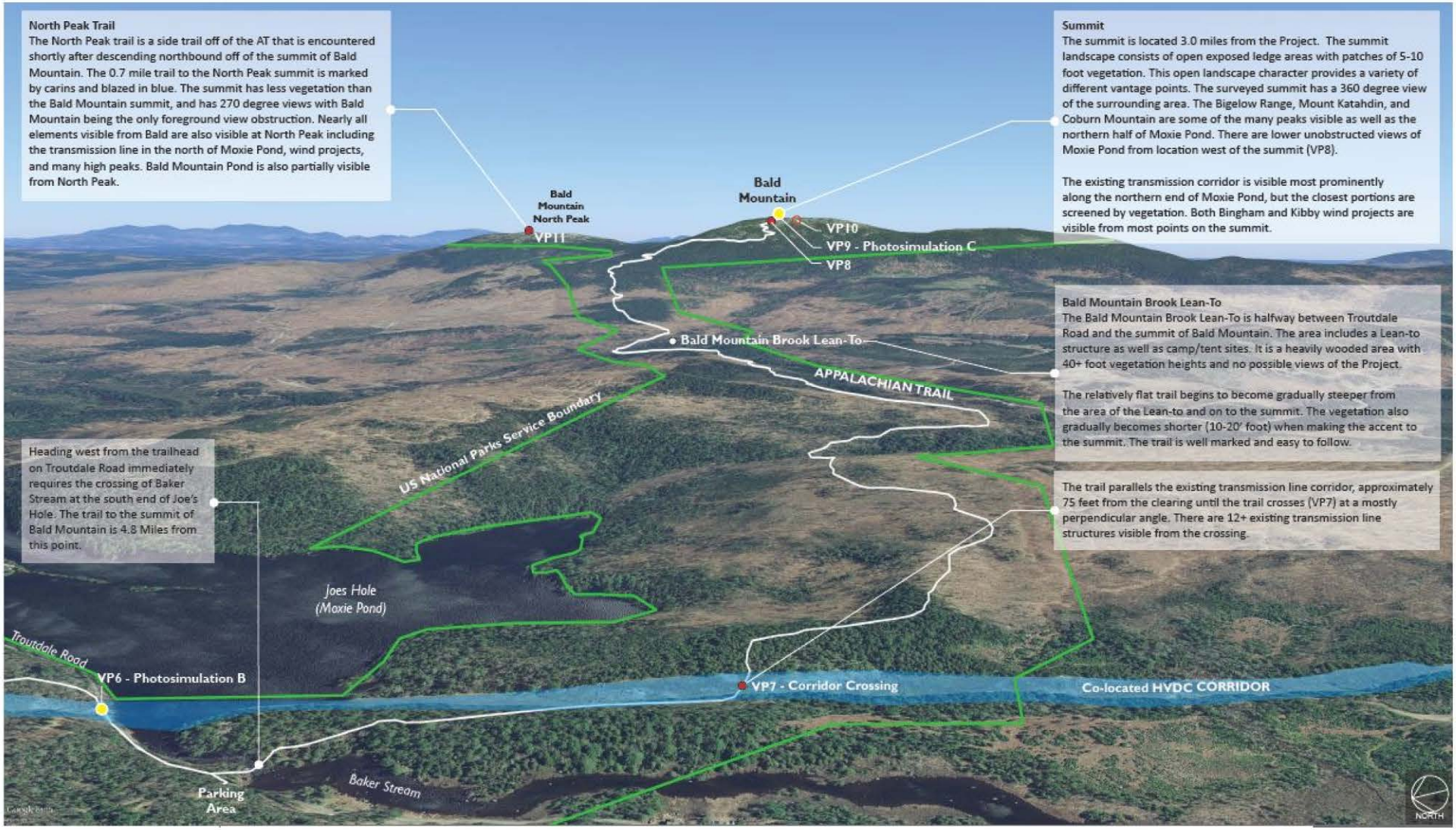
Appalachian Trail –Troutdale Road - Photosimulation with plantings

Appalachian Trail – Aerial Map

Appendix E: Appalachian Trail

TROUTDALE ROAD TO BALD MOUNTAIN

NEW ENGLAND CLEAN ENERGY CONNECT

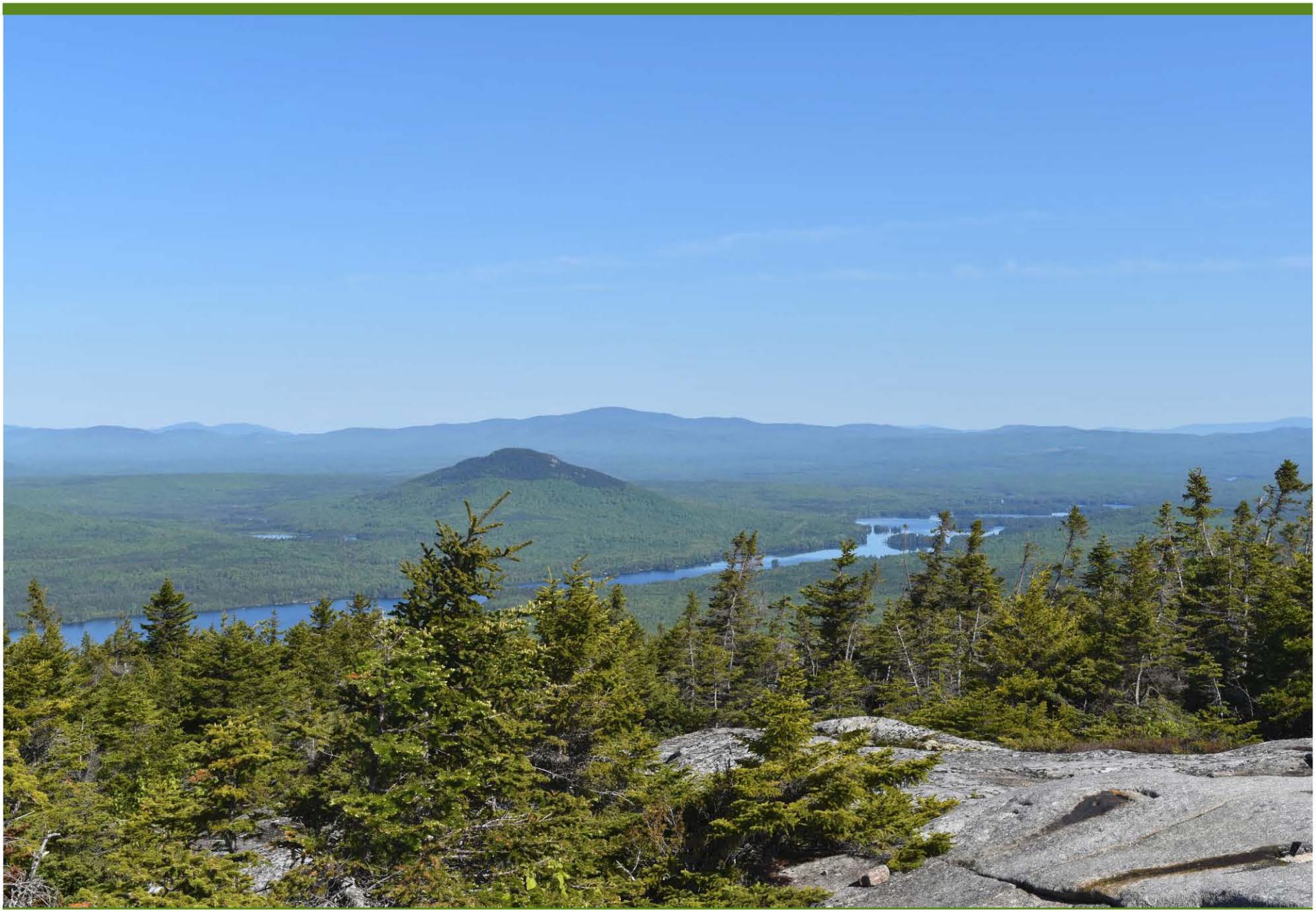


Appalachian Trail – Existing crossing East of Troutdale Road

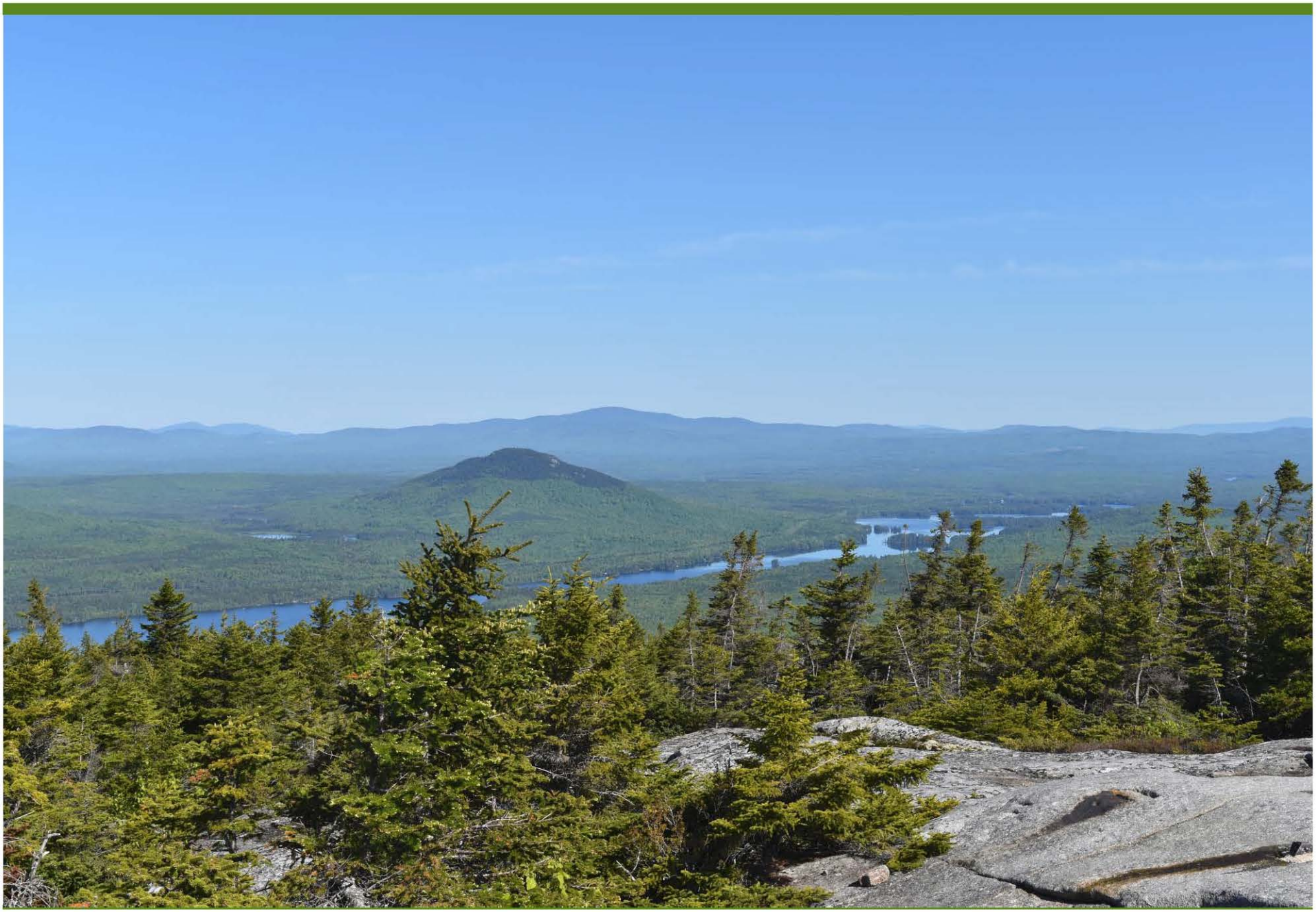
Appalachian Trail – Existing crossing East of Troutdale Road

Appalachian Trail – Bald Mountain

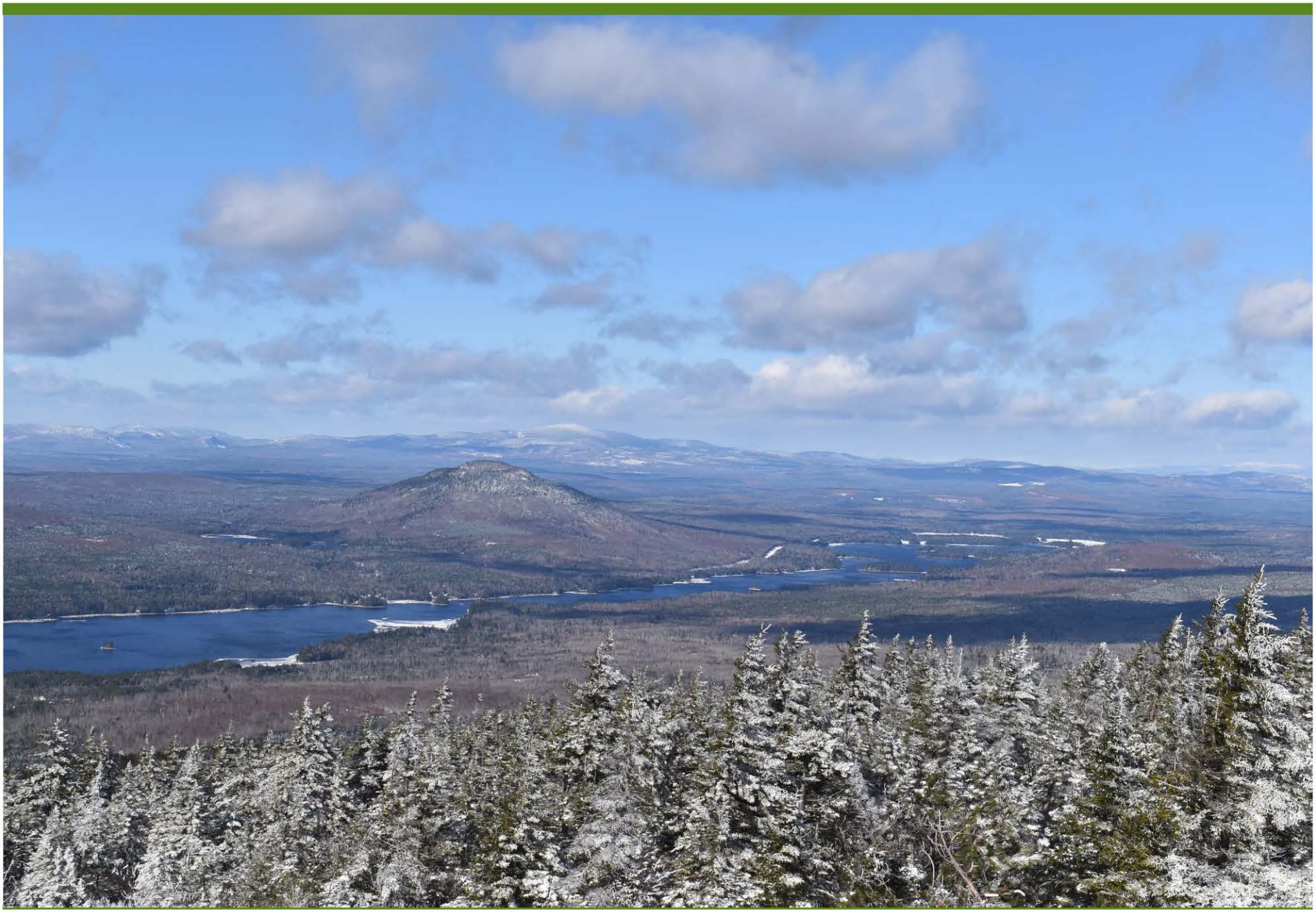
Appalachian Trail – Bald Mountain – Existing Conditions



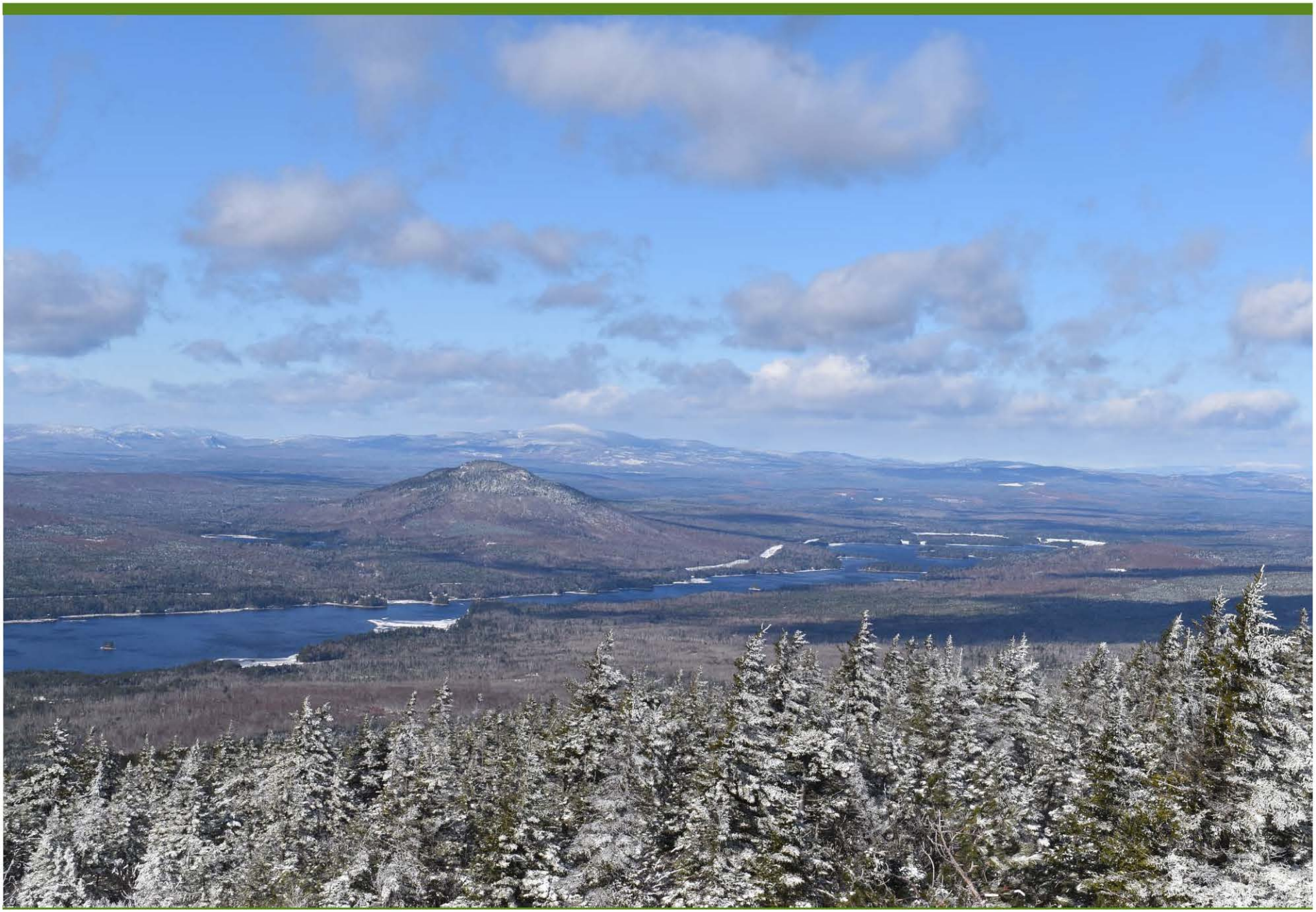
Appalachian Trail – Bald Mountain - Photosimulation



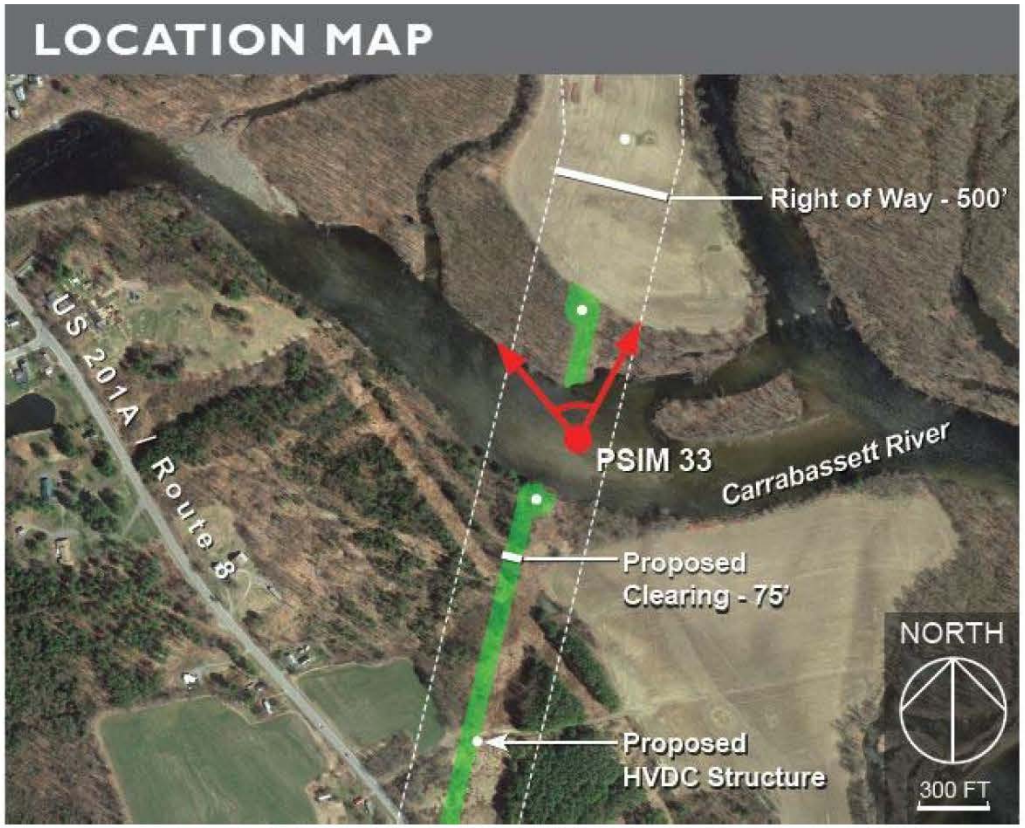
Appalachian Trail – Bald Mountain – Existing Conditions

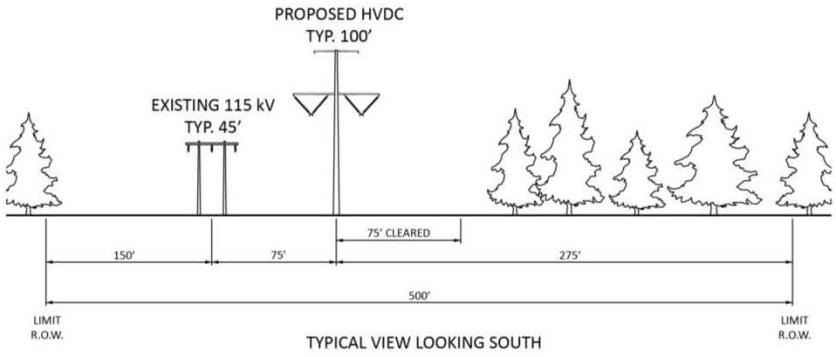


Appalachian Trail – Bald Mountain - Photosimulation



Carrabassett River, Anson

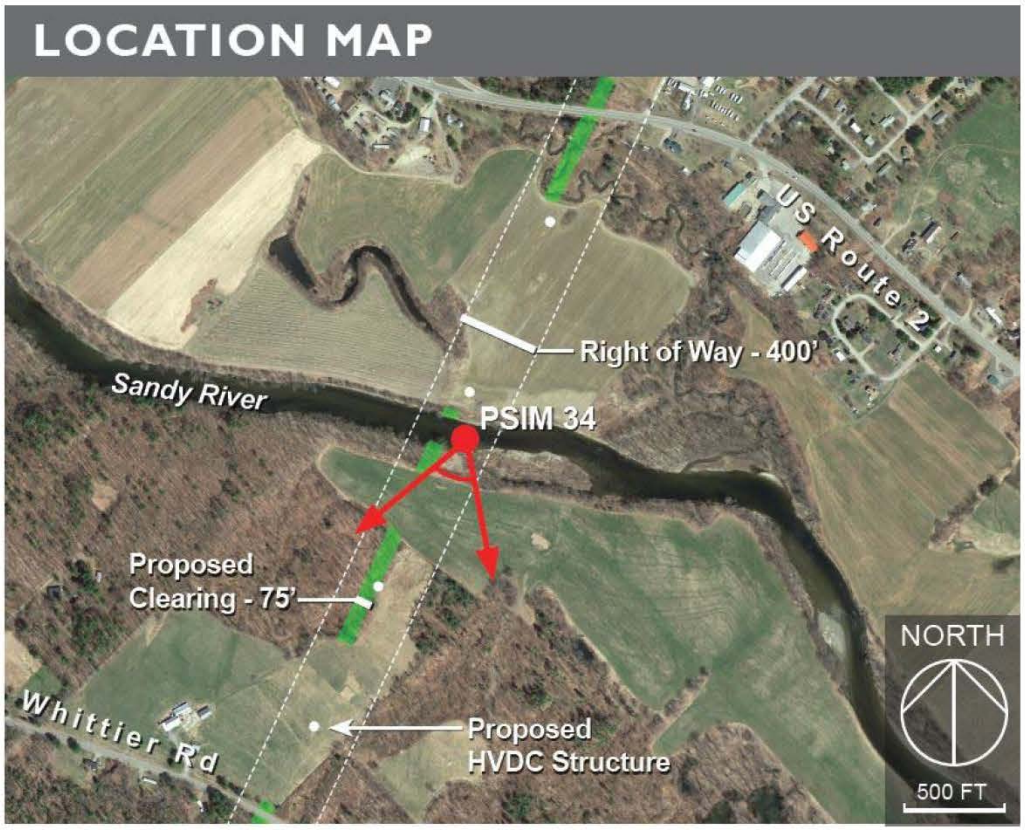


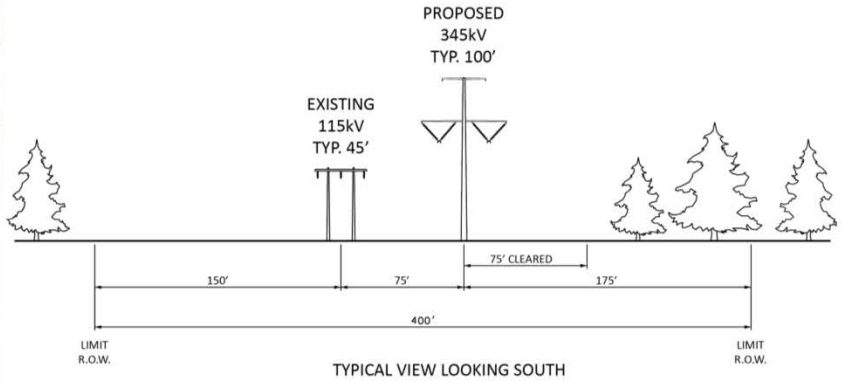


Carrabassett River – Existing Conditions

Carrabassett River – Photosimulation

Sandy River, Farmington

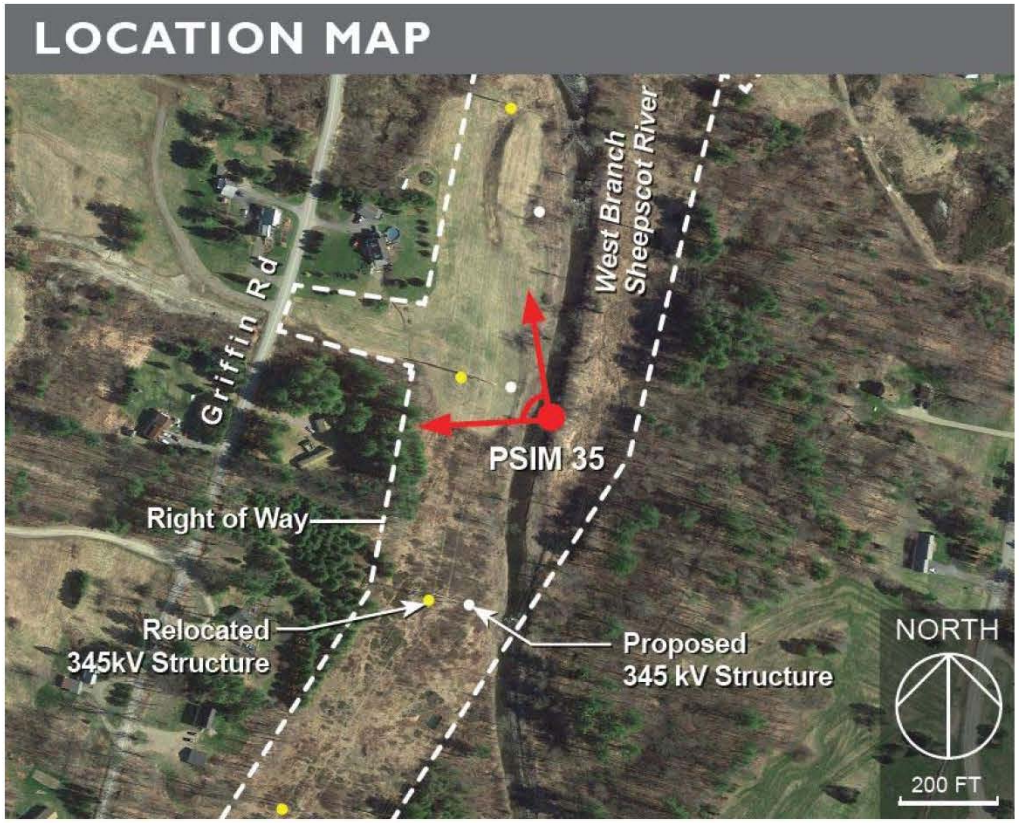


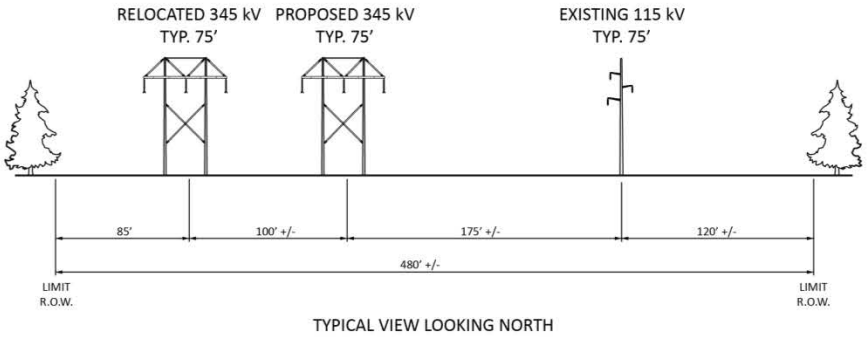


Sandy River – Existing Conditions

Sandy River – Photosimulation

West Branch Sheepscot River, Windsor





TYPICAL VIEW LOOKING NORTH

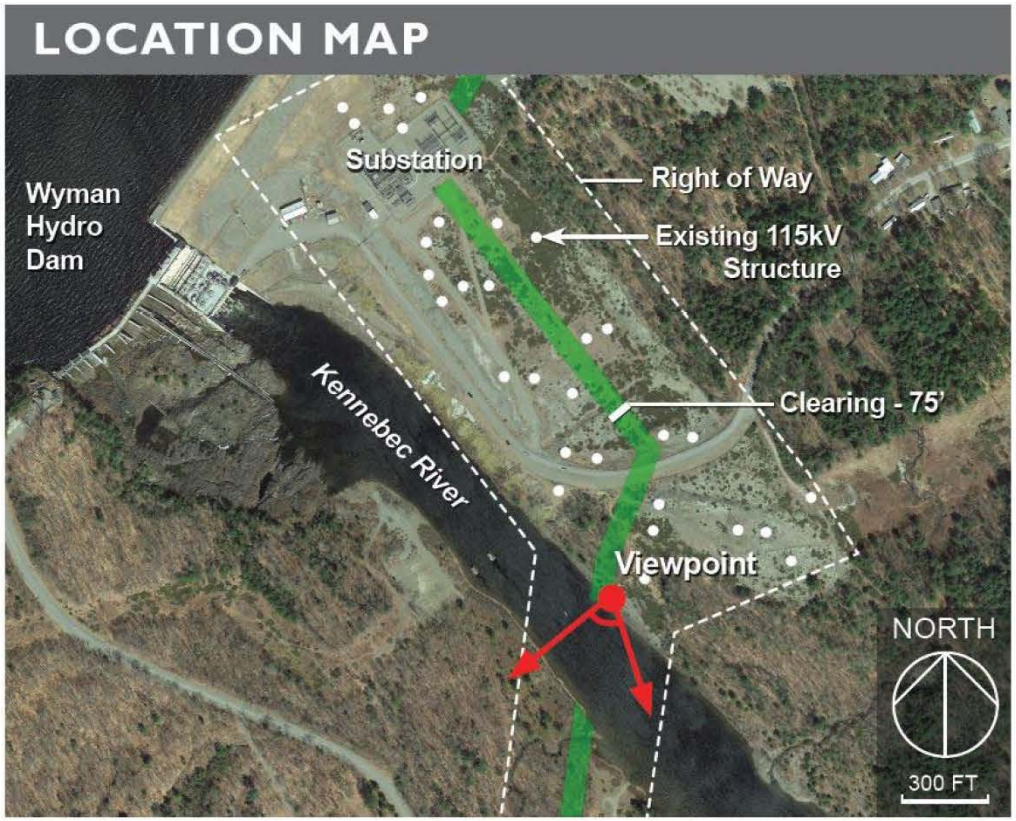
West Branch Sheepscot River – Existing Conditions

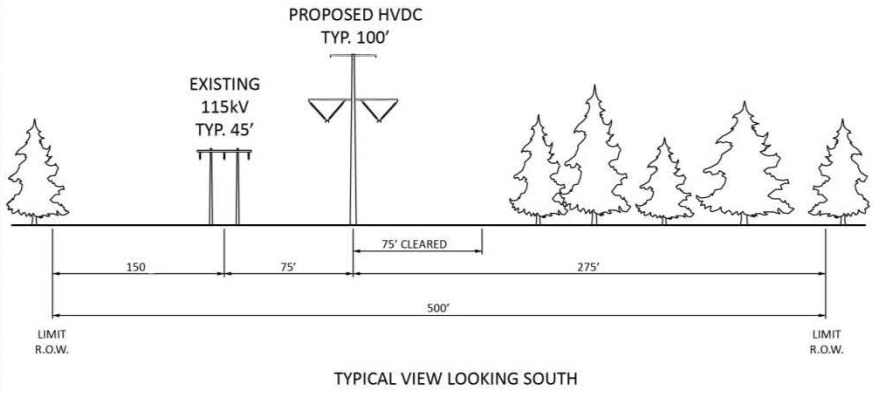
West Branch Sheepscot River – Photosimulation

West Branch Sheepscot River – Existing Conditions

West Branch Sheepscot River – Photosimulation

Lower Kennebec River – Wyman Dam, Moscow



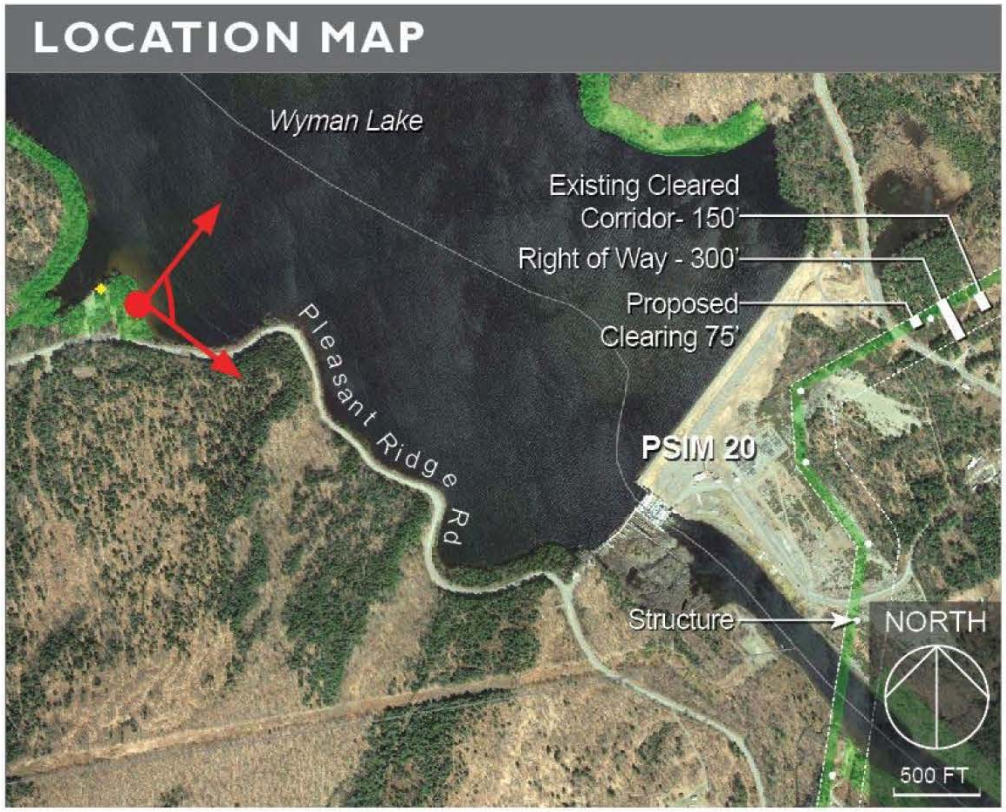


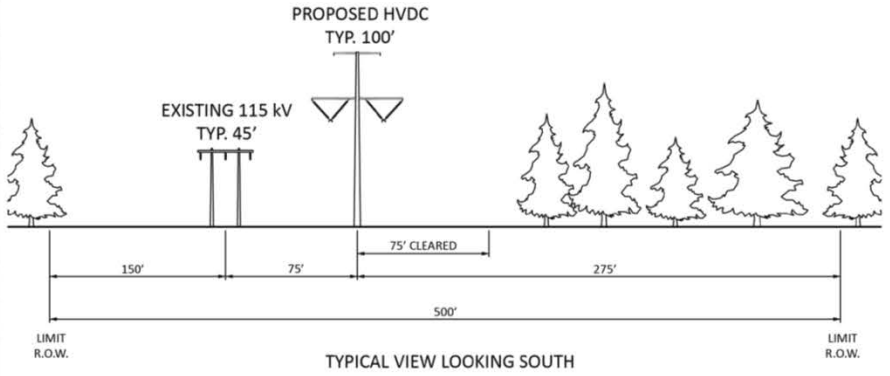
TYPICAL VIEW LOOKING SOUTH

Lower Kennebec River – Existing Conditions

Lower Kennebec River – Wyman Hydro

Wyman Lake Recreation Area, Pleasant Ridge Plt.

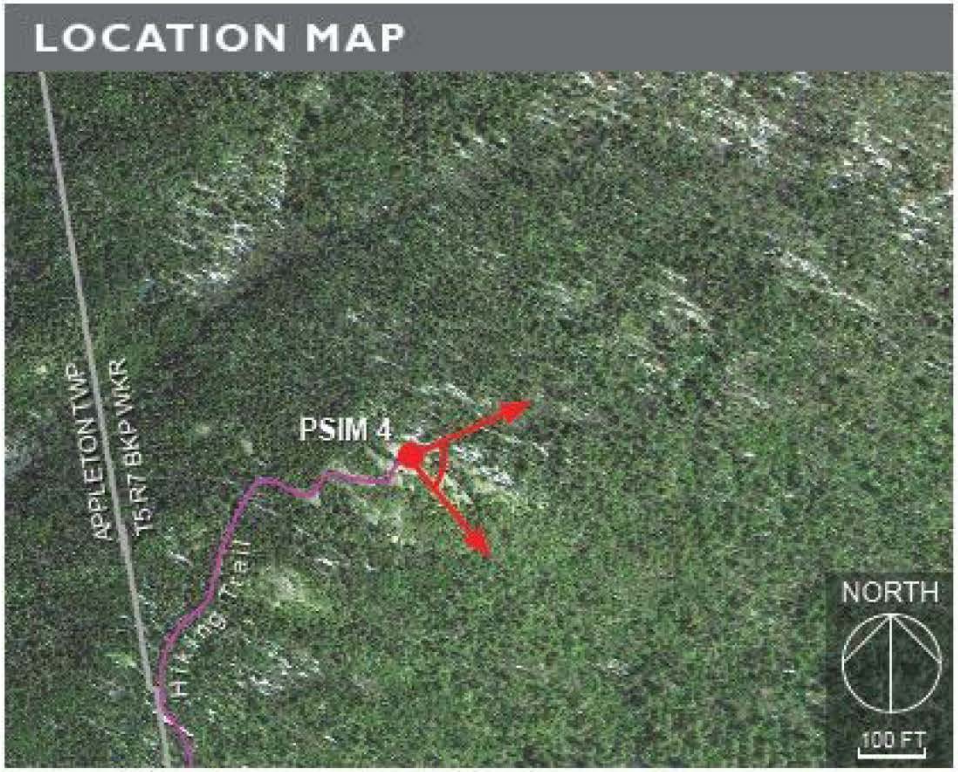


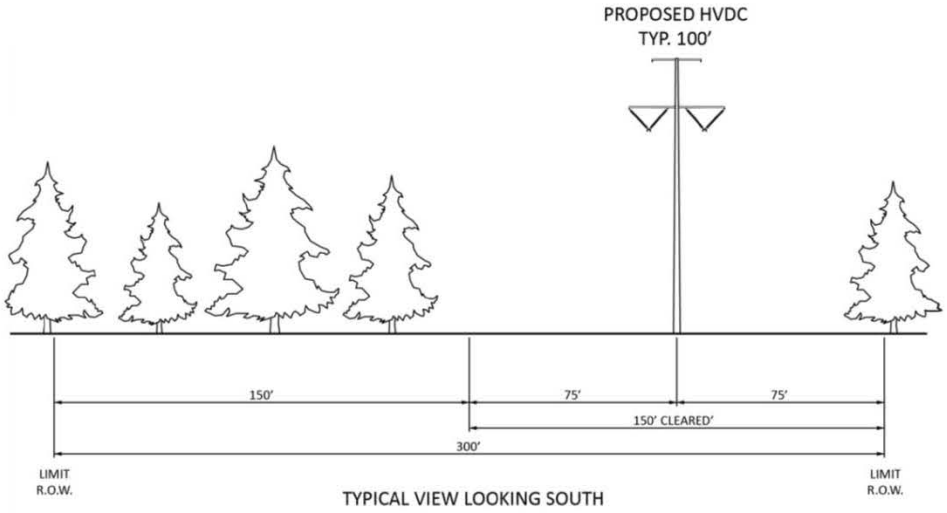


Wyman Lake Recreation Area – Existing Conditions

Wyman Lake Recreation Area – Photosimulation

No 5 Mountain, T5 R7 BKP WKR - Leuthold Preserve

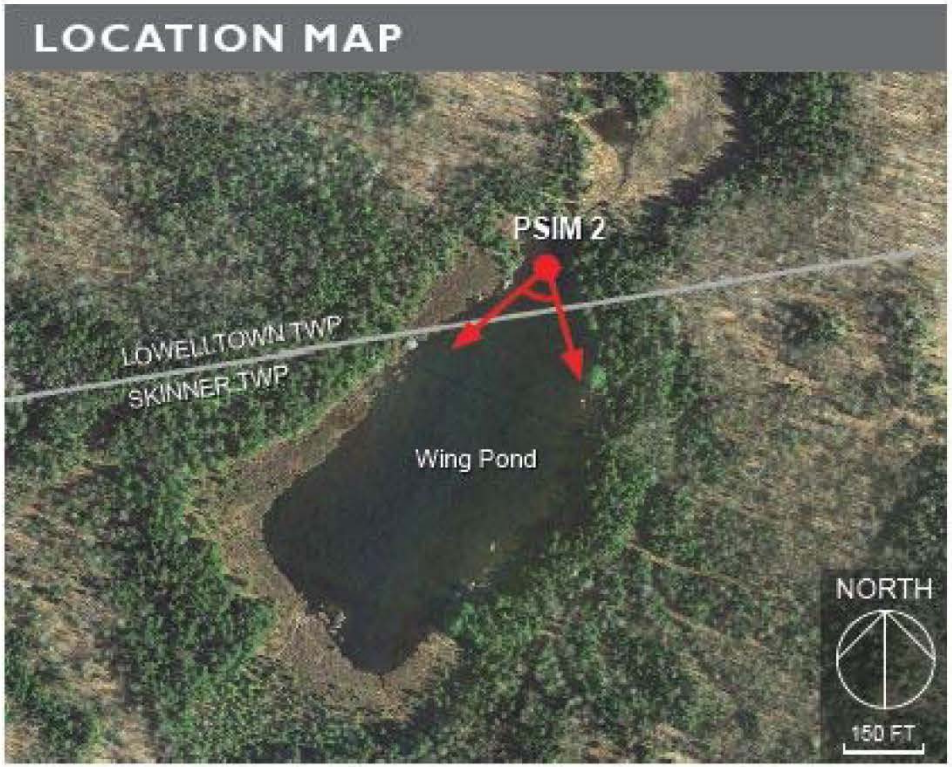


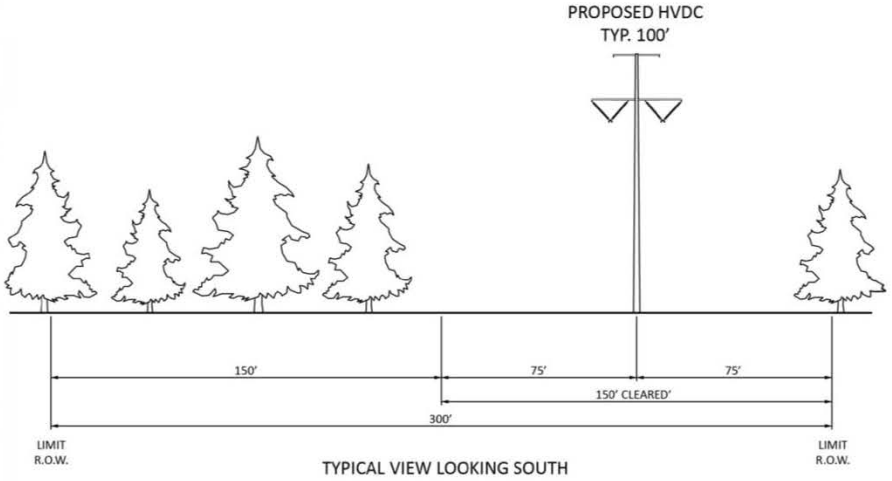


No 5 Mountain – Existing Conditions

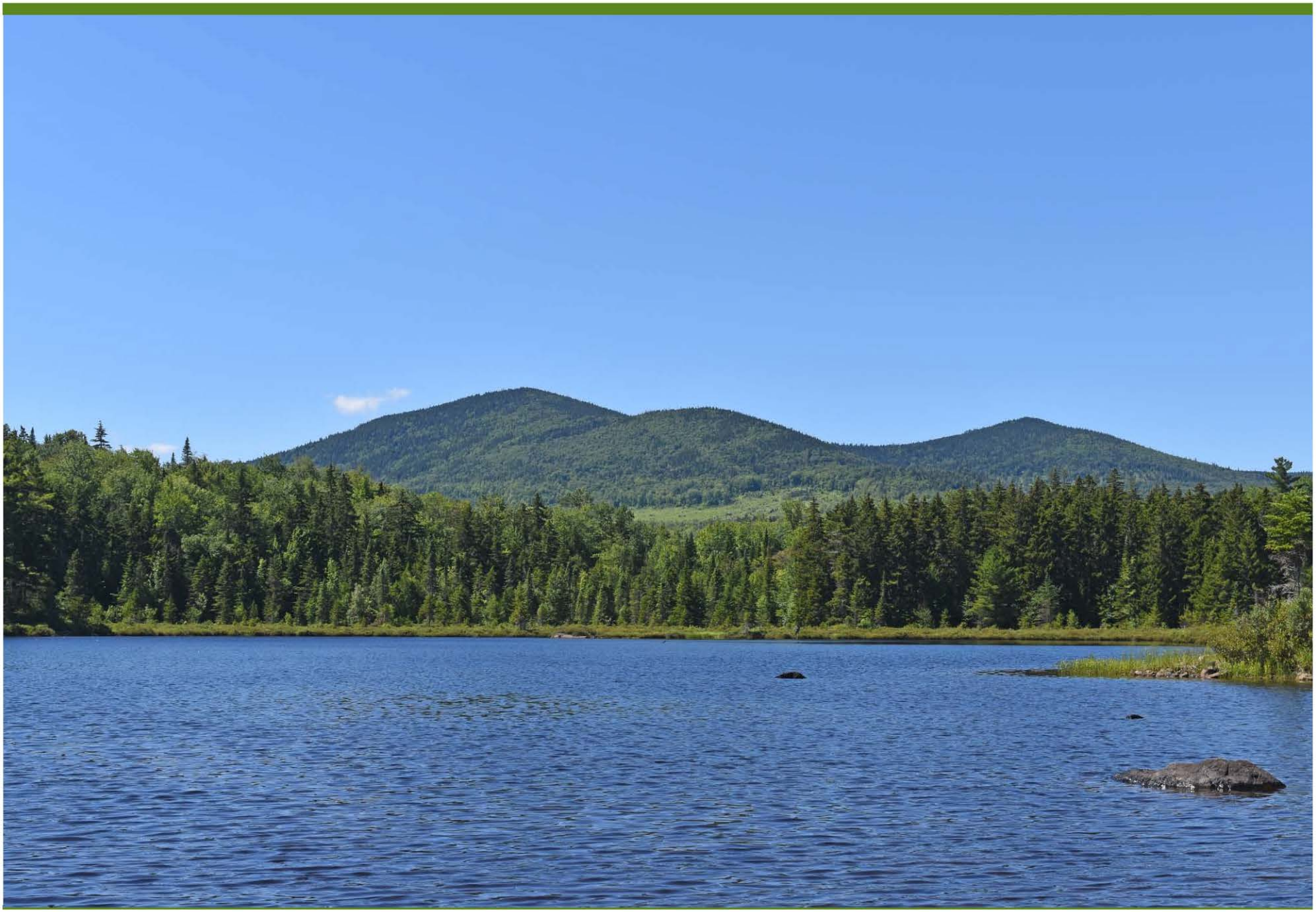
No 5 Mountain – Photosimulation

Wing Pond, Lowelltown Twp.

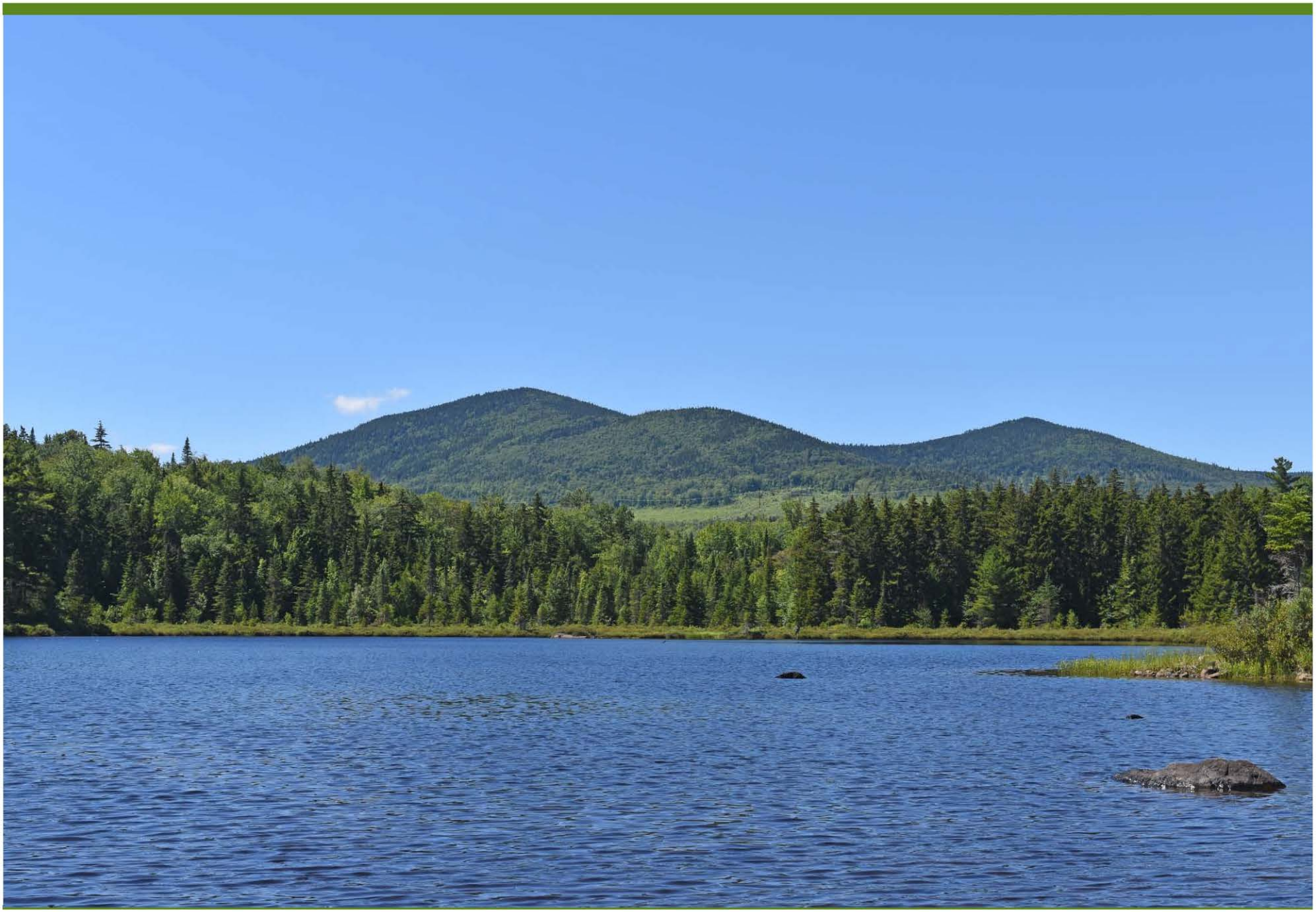




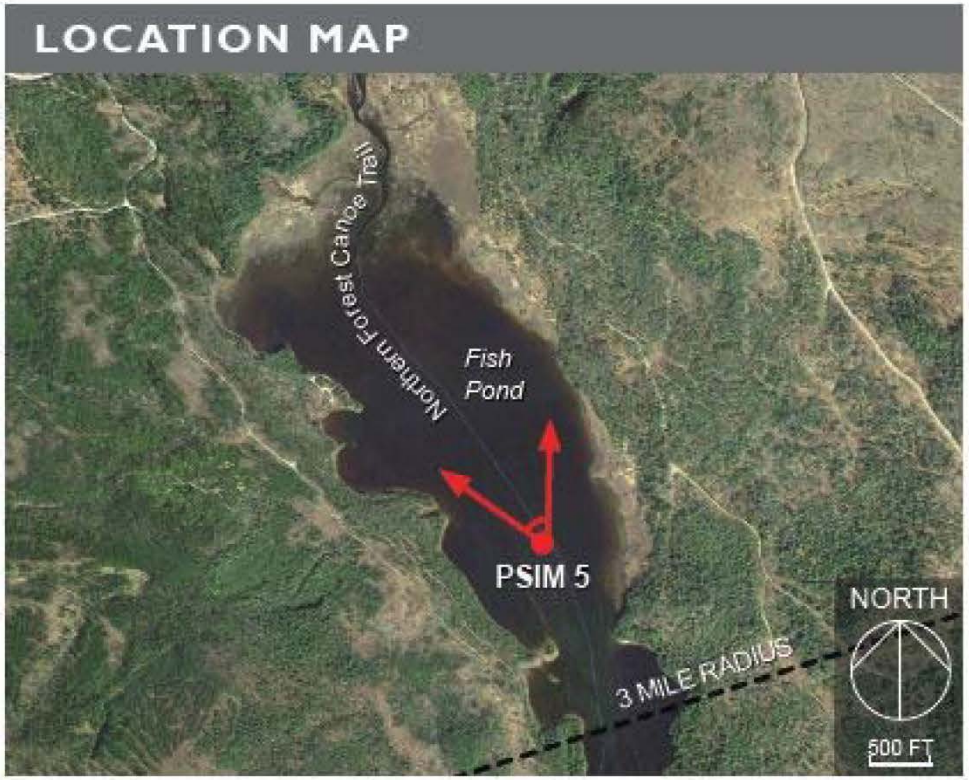
Wing Pond - Existing Conditions

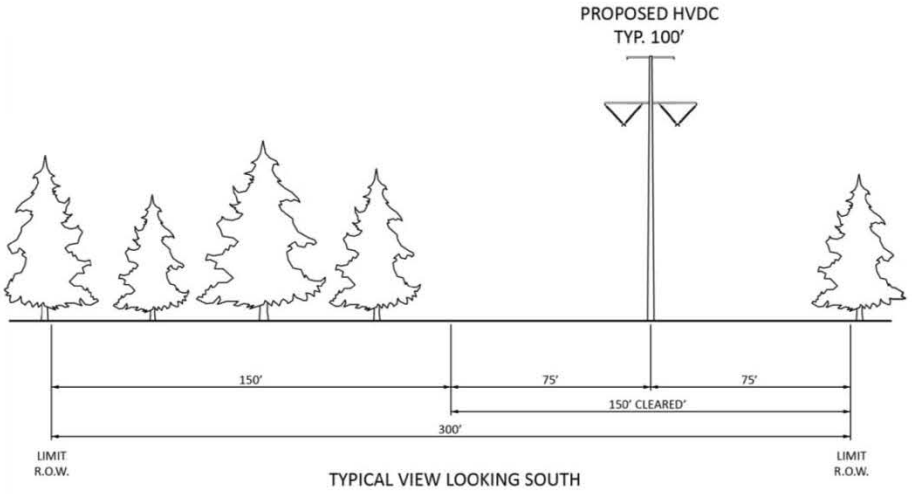


Wing Pond - Photosimulations

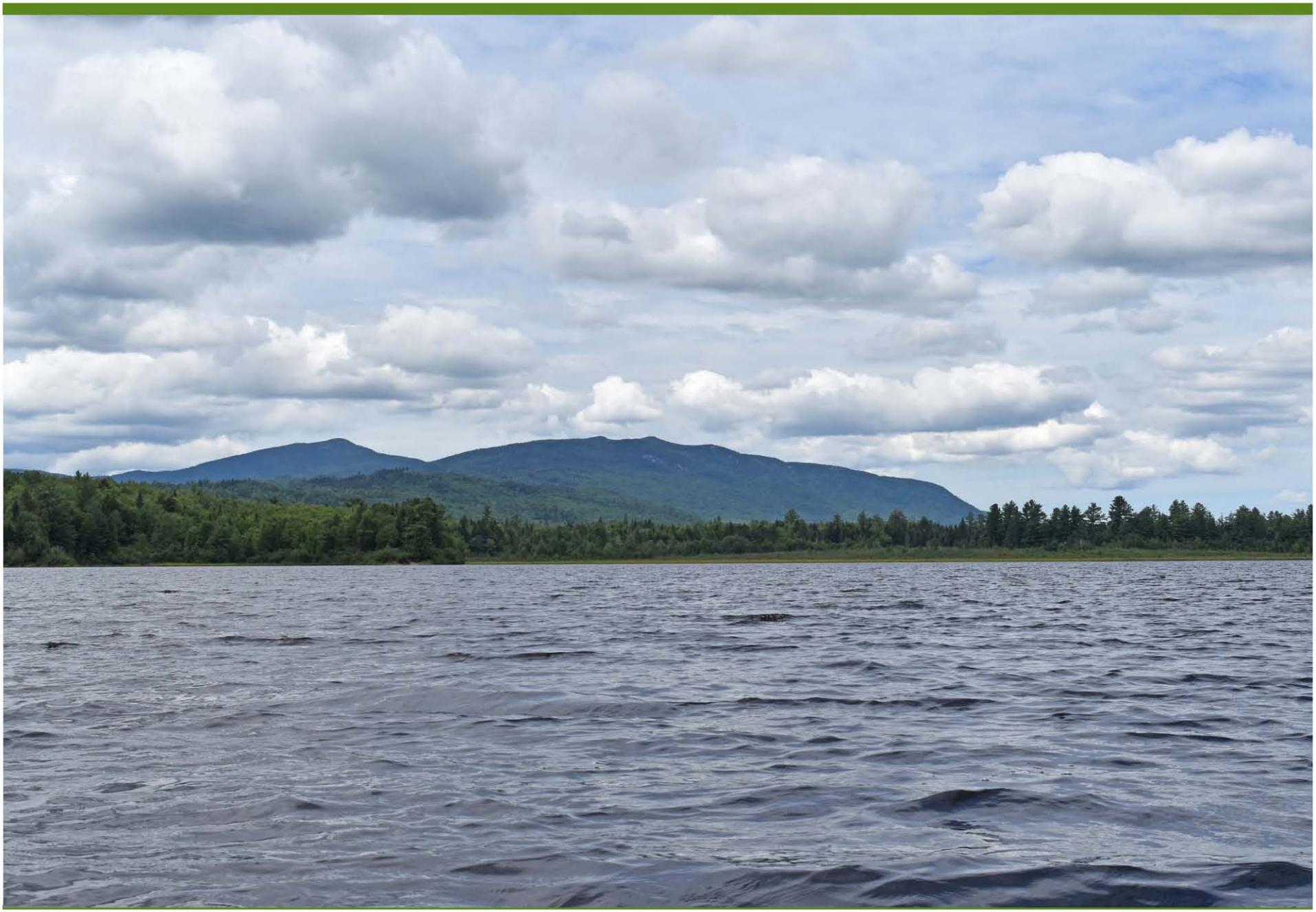


Fish Pond, Hobbstown Twp

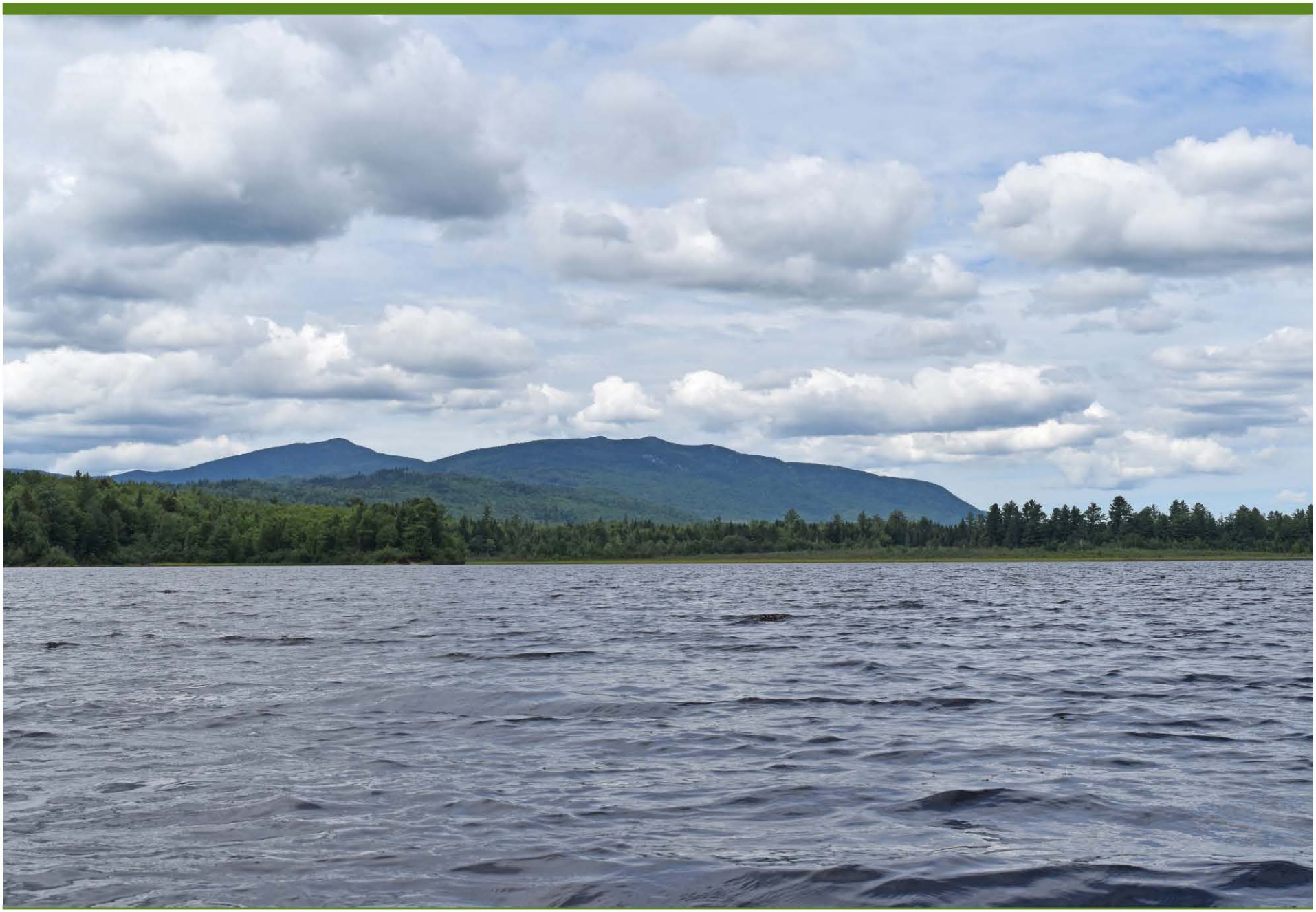




Fish Pond – Existing Conditions

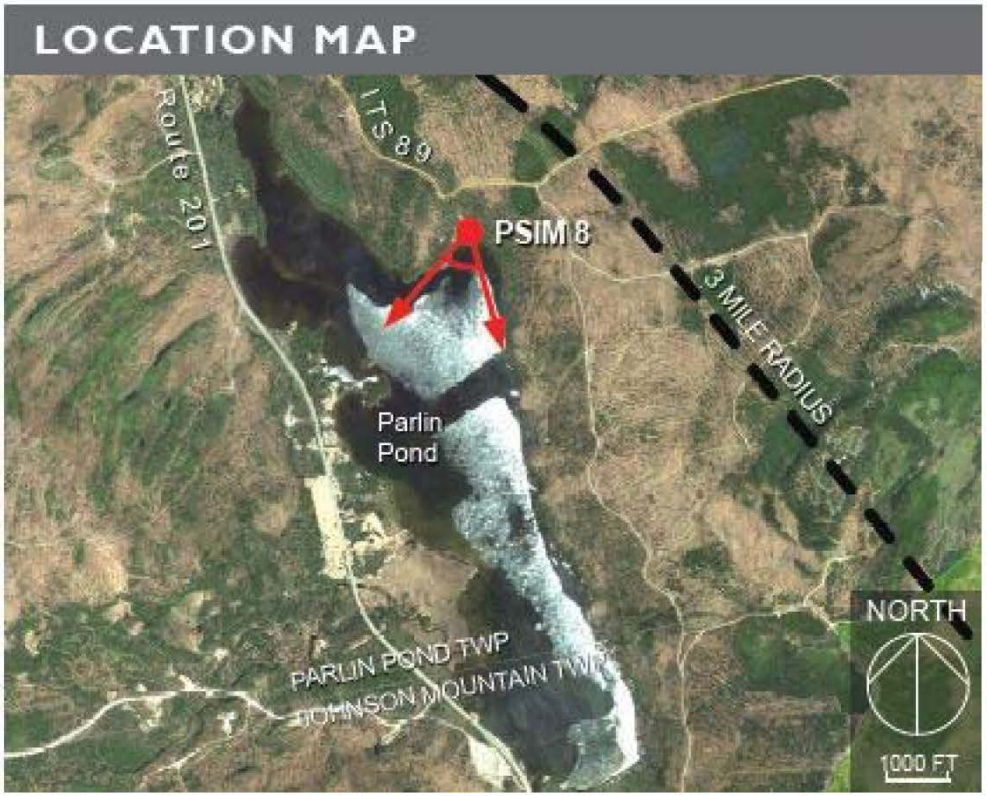


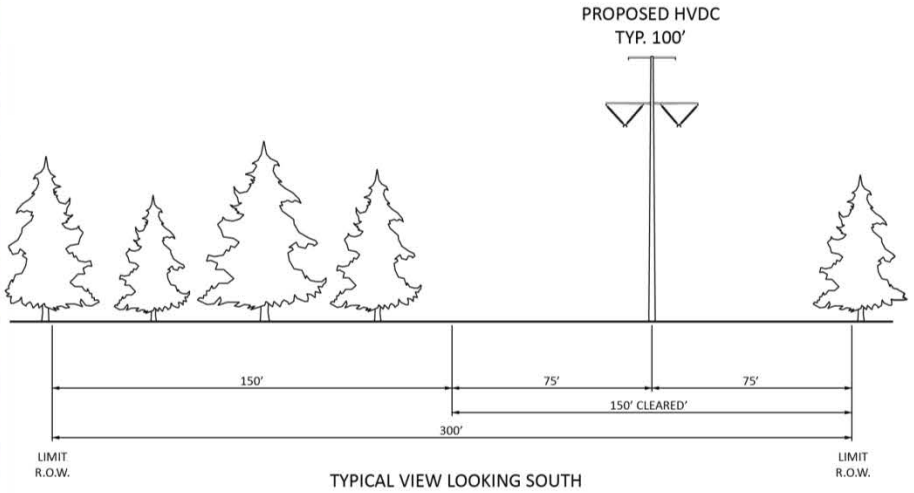
Fish Pond – Photosimulation



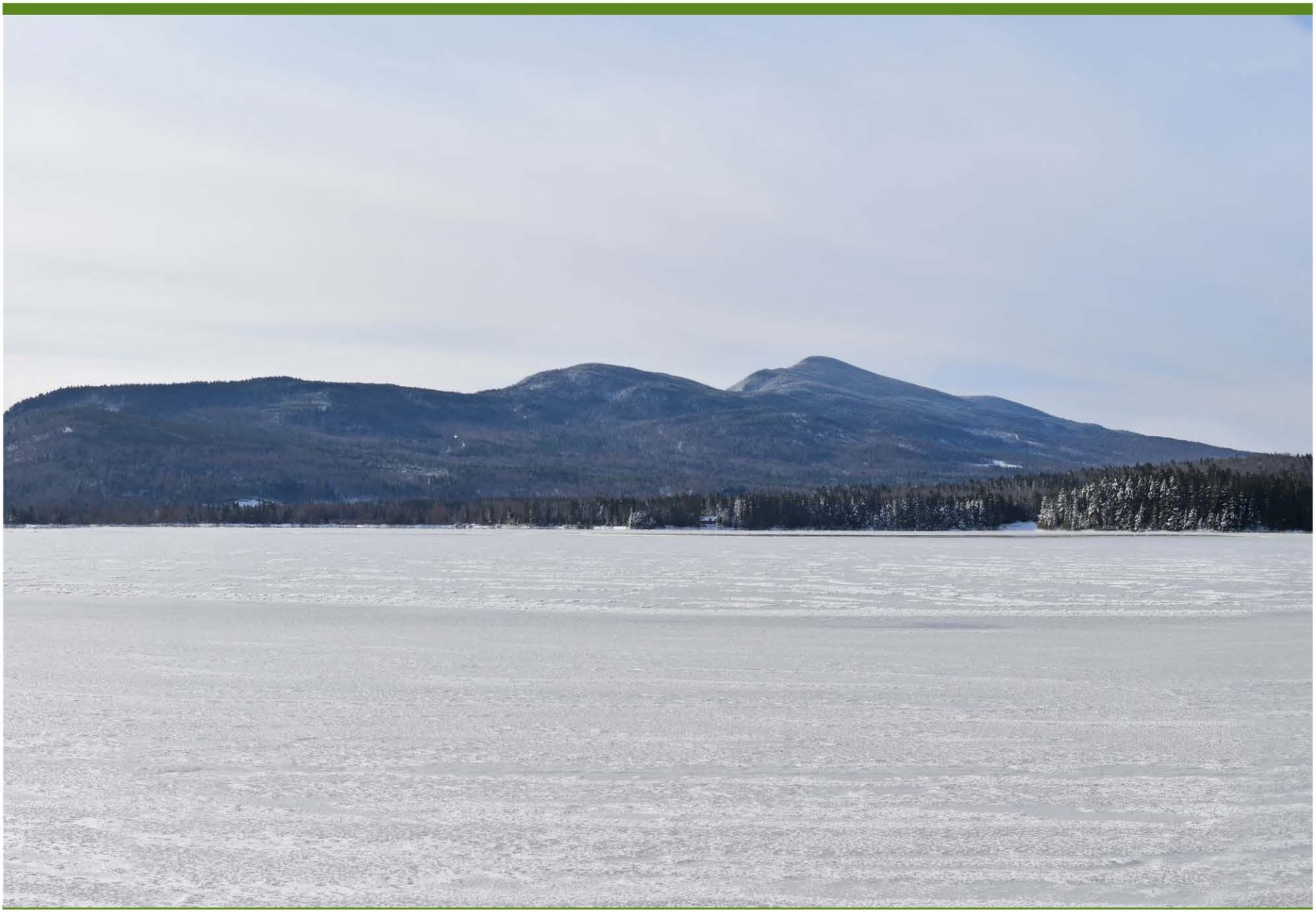
Fish Pond – Photosimulation

Parlin Pond, Parlin Pond Twp.

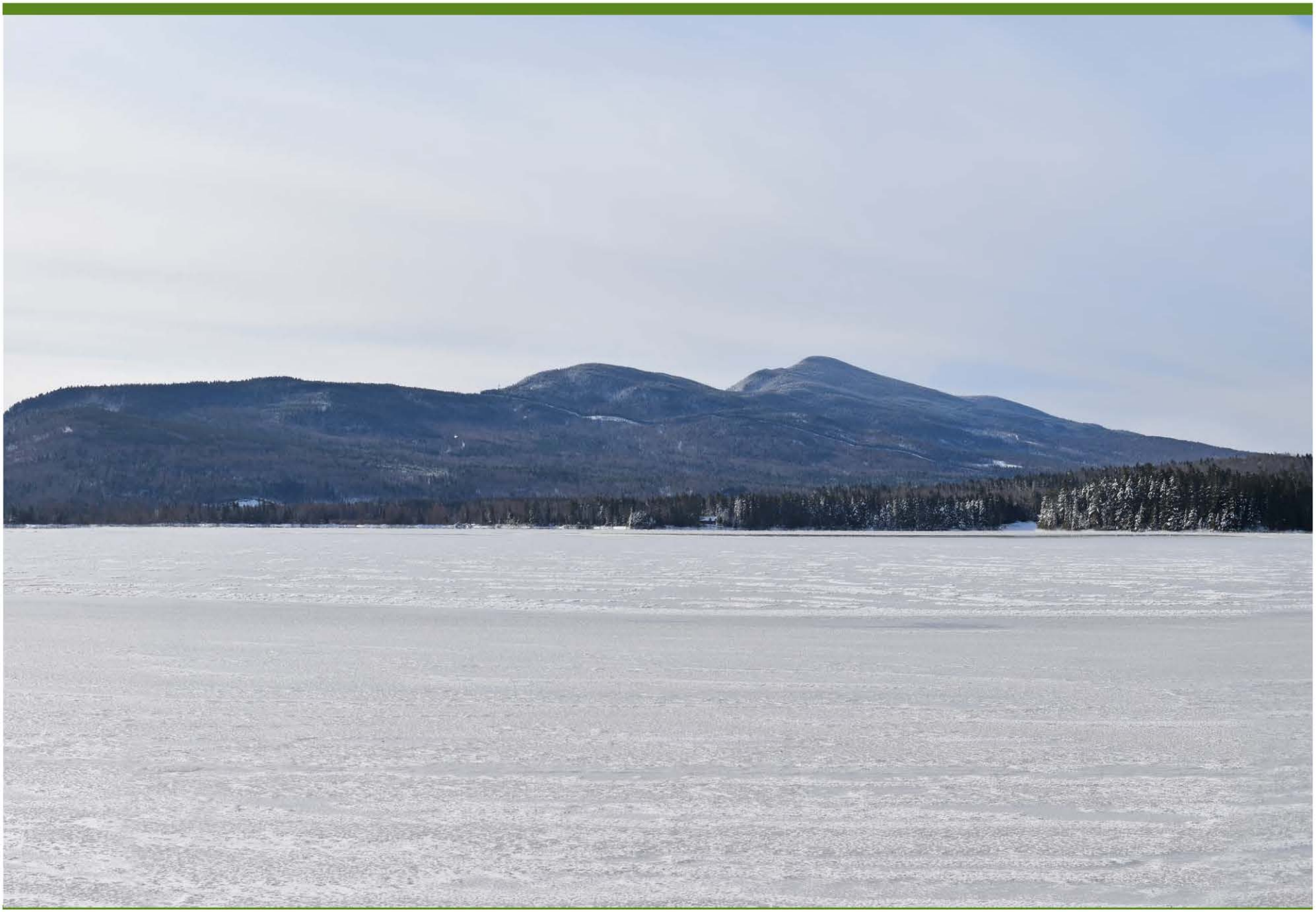




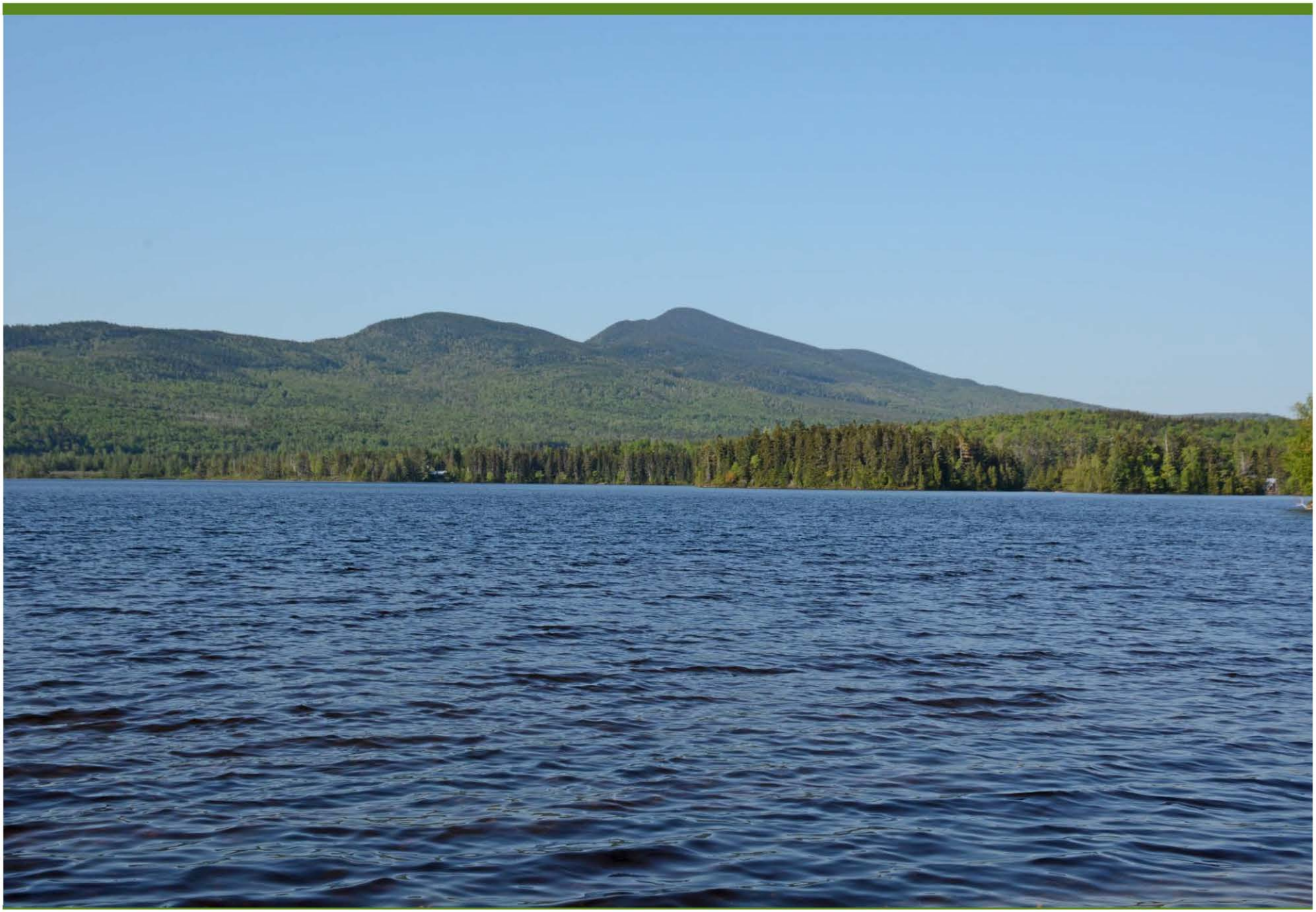
Parlin Pond – Existing Conditions



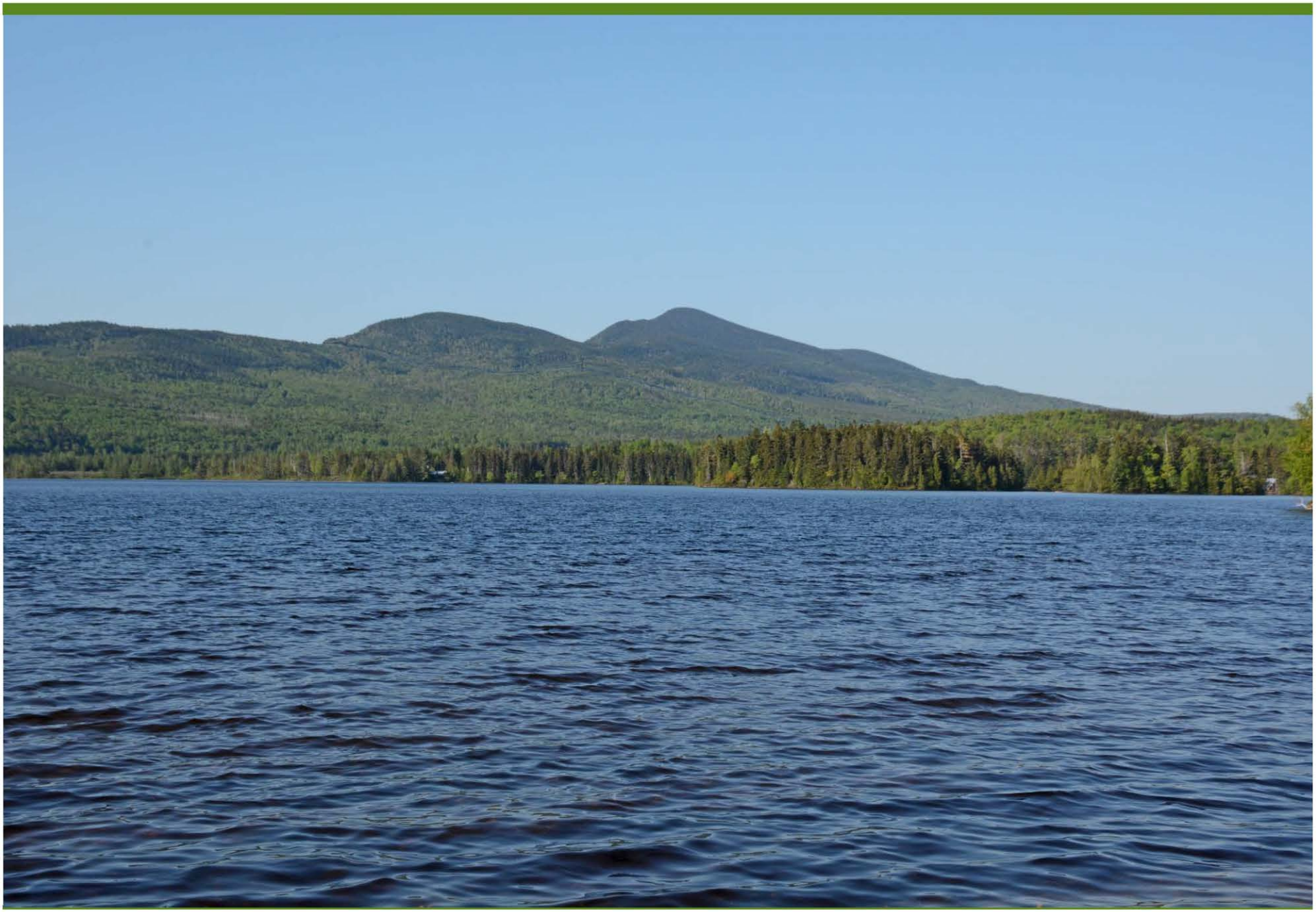
Parlin Pond – Photosimulation



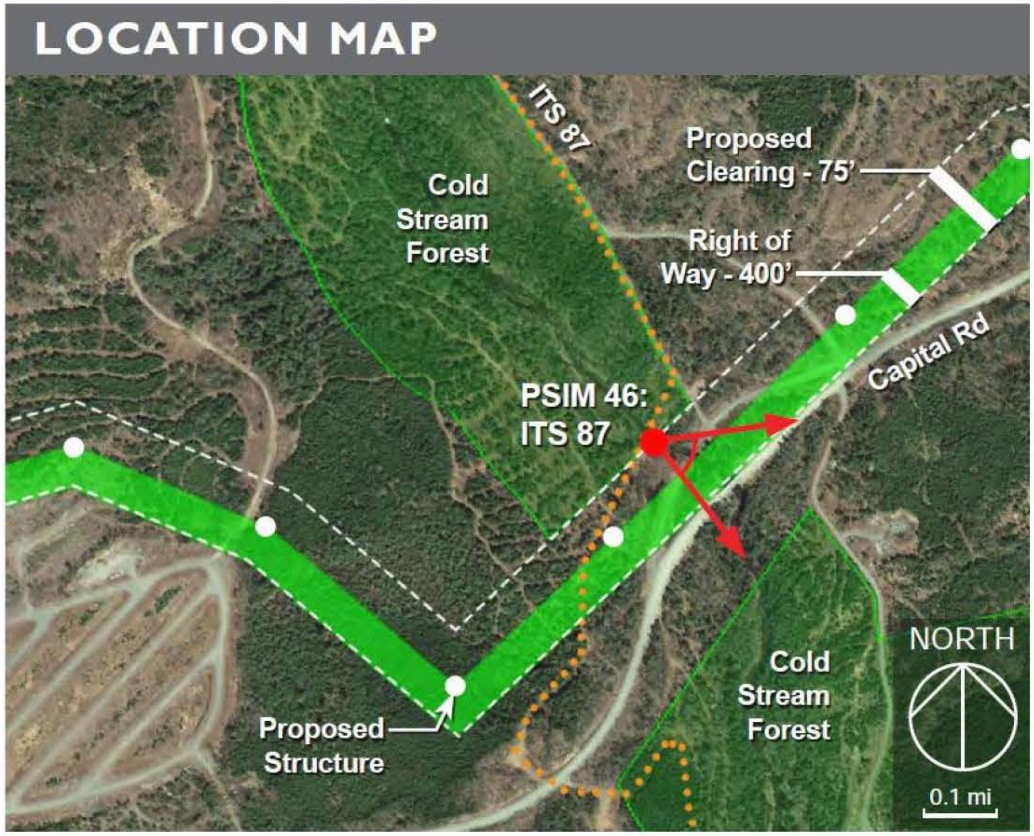
Parlin Pond – Existing Conditions

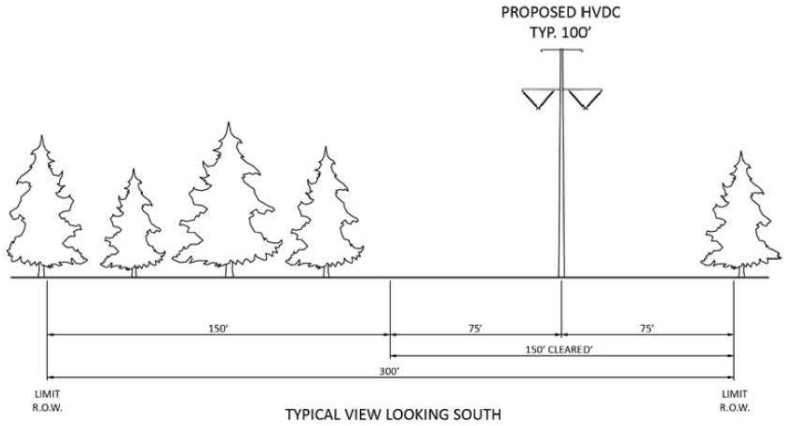


Parlin Pond – Photosimulation



ITS 87, Cold Stream Forest Parcel, Johnson Mountain Twp.

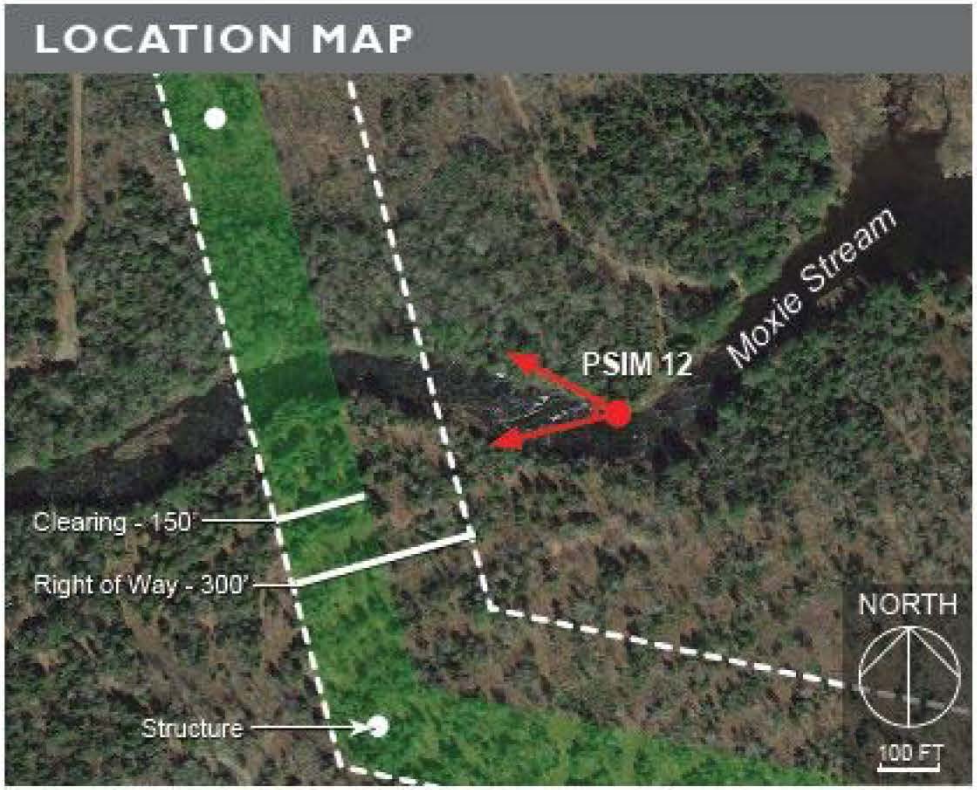


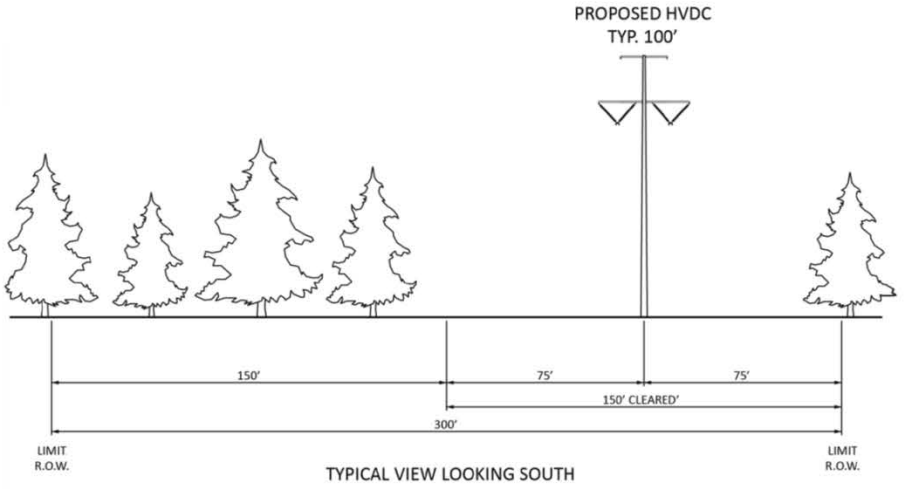


ITS 87, Cold Stream Forest Parcel – Existing Conditions

ITS 87, Cold Stream Forest Parcel – Photosimulation

Moxie Stream, Moxie Gore

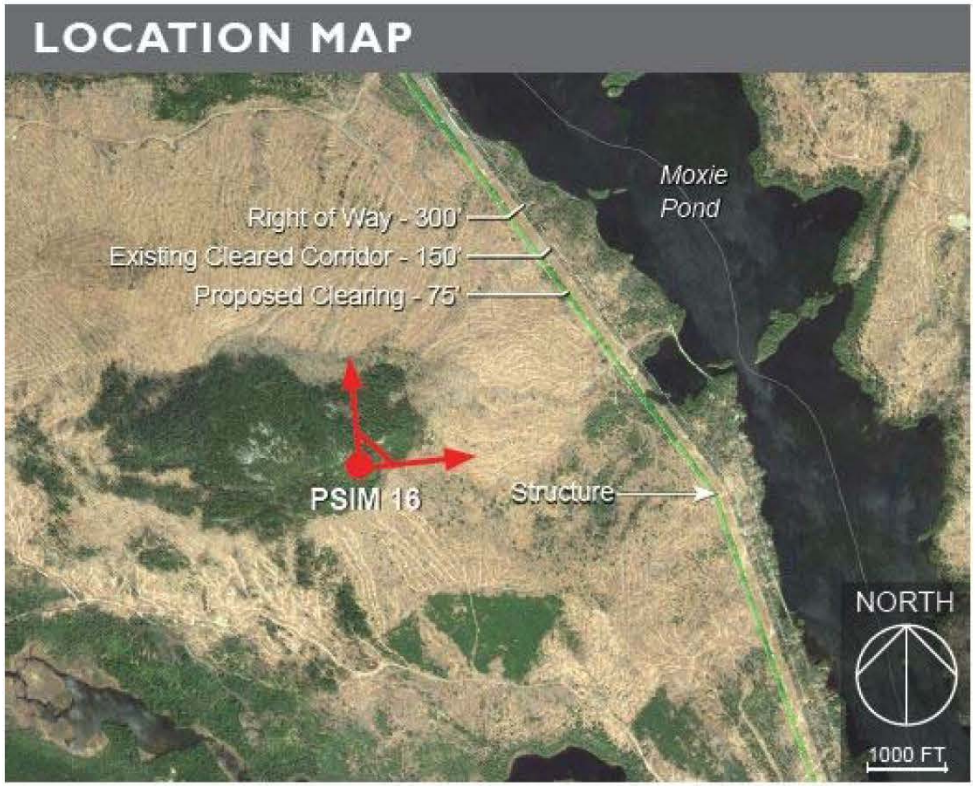


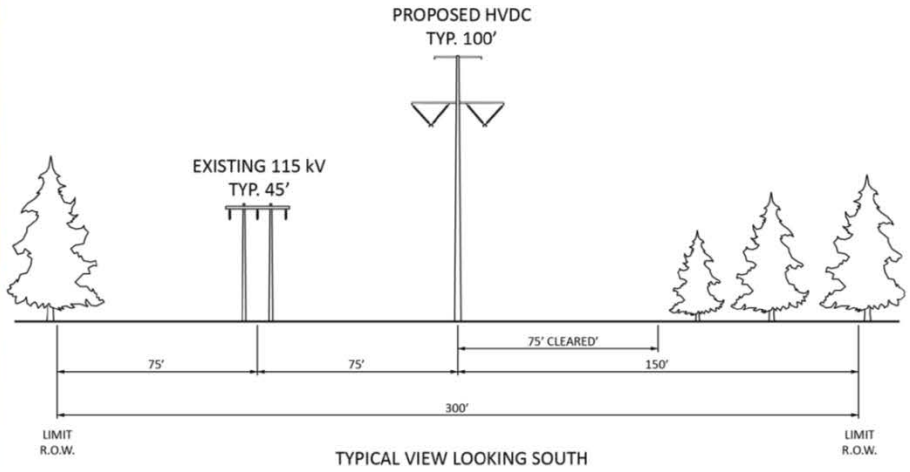


Moxie Stream – Existing Conditions

Moxie Stream – Photosimulation

Mosquito Mountain, The Forks Plt., on Bayroot LLC land

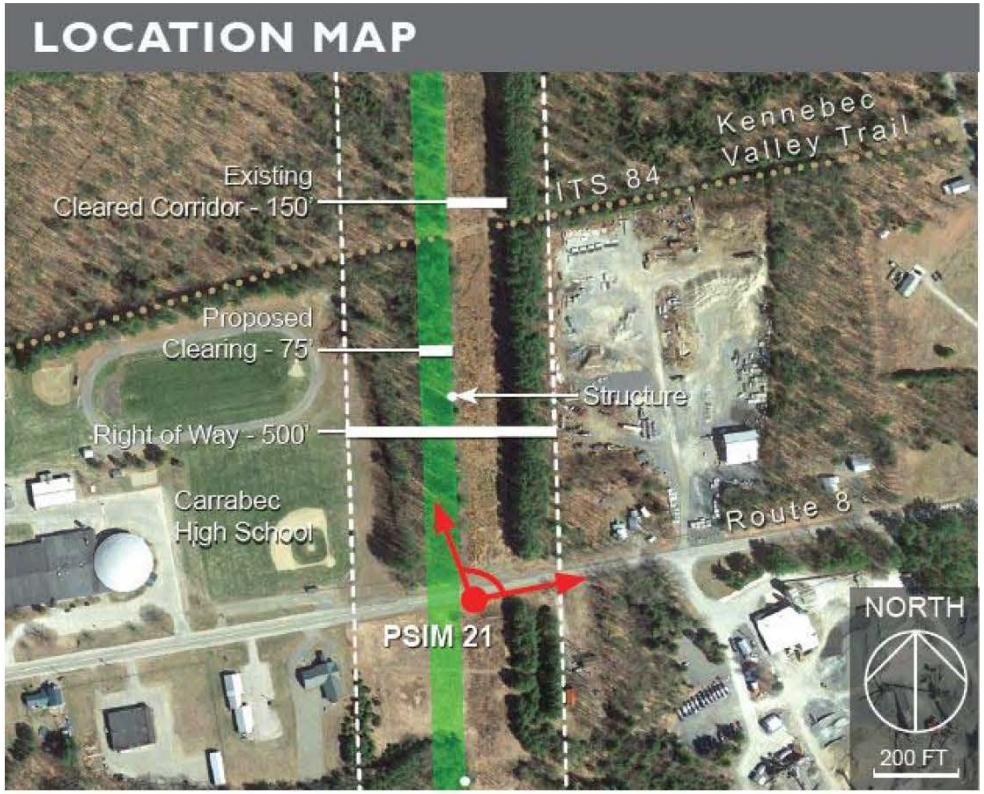


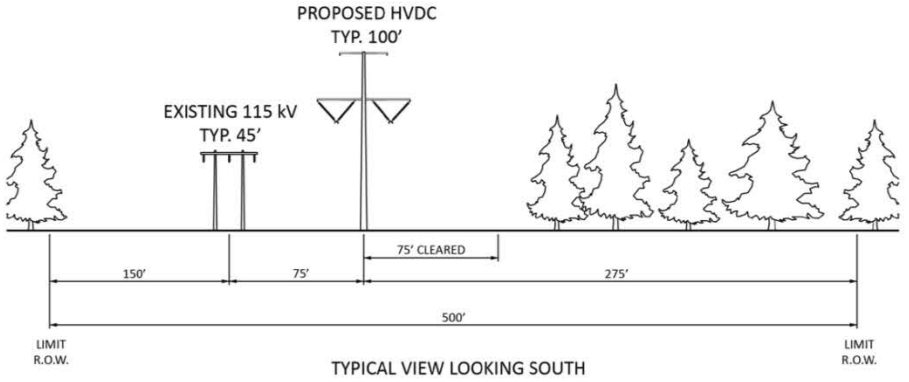


Mosquito Mountain – Existing Conditions

Mosquito Mountain – Photosimulation

Route 8, Anson

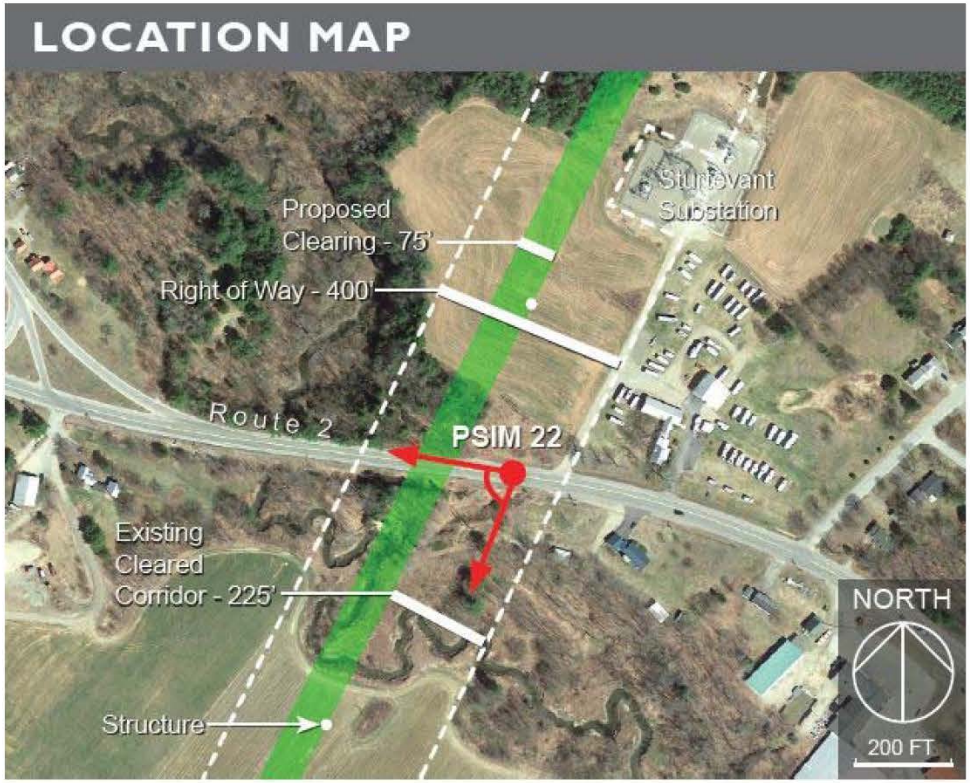


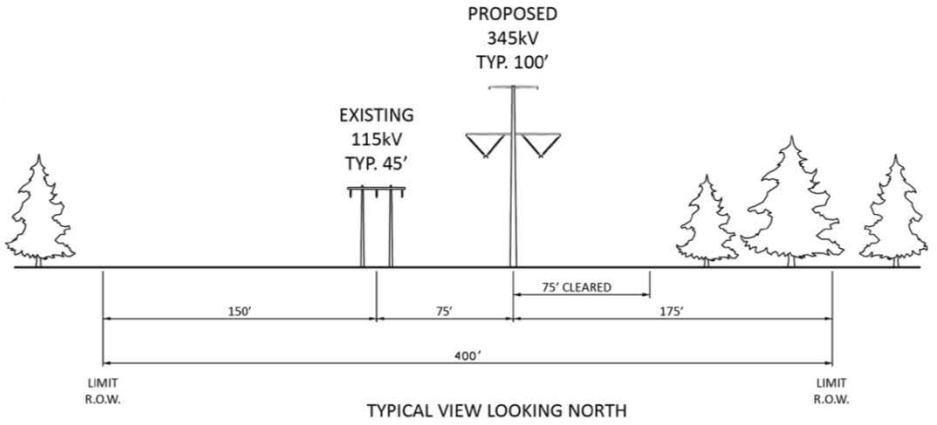


Route 8 – Existing Conditions

Route 8 – Photosimulation

Route 2, Farmington

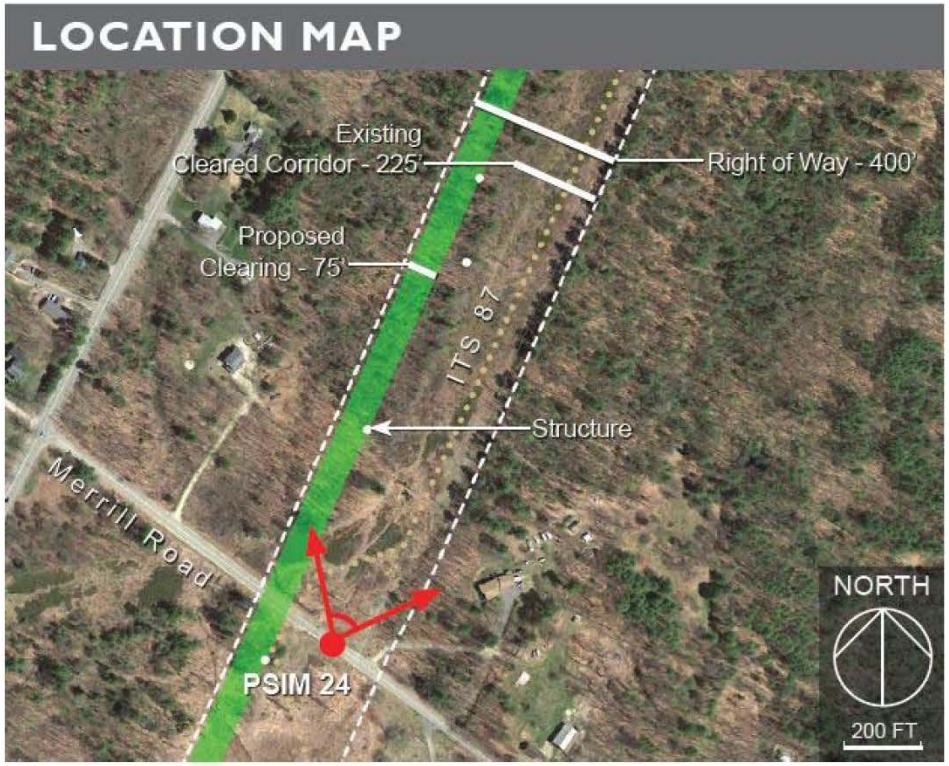


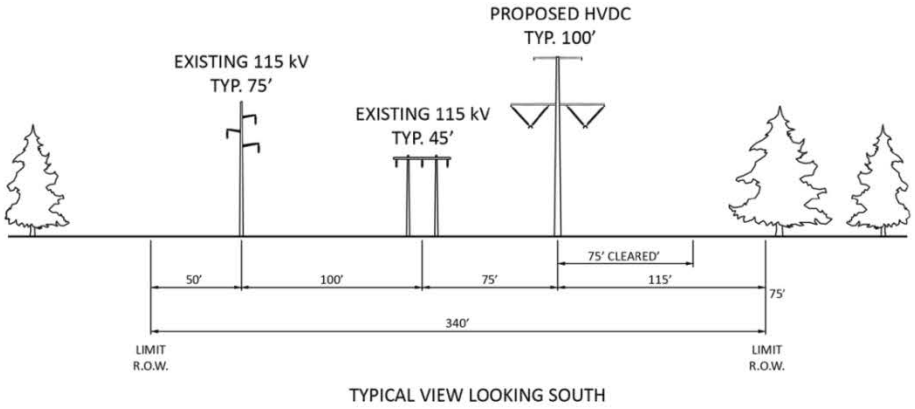


Route 2 – Existing Conditions

Route 2 – Photosimulation

Merrill Road, Lewiston

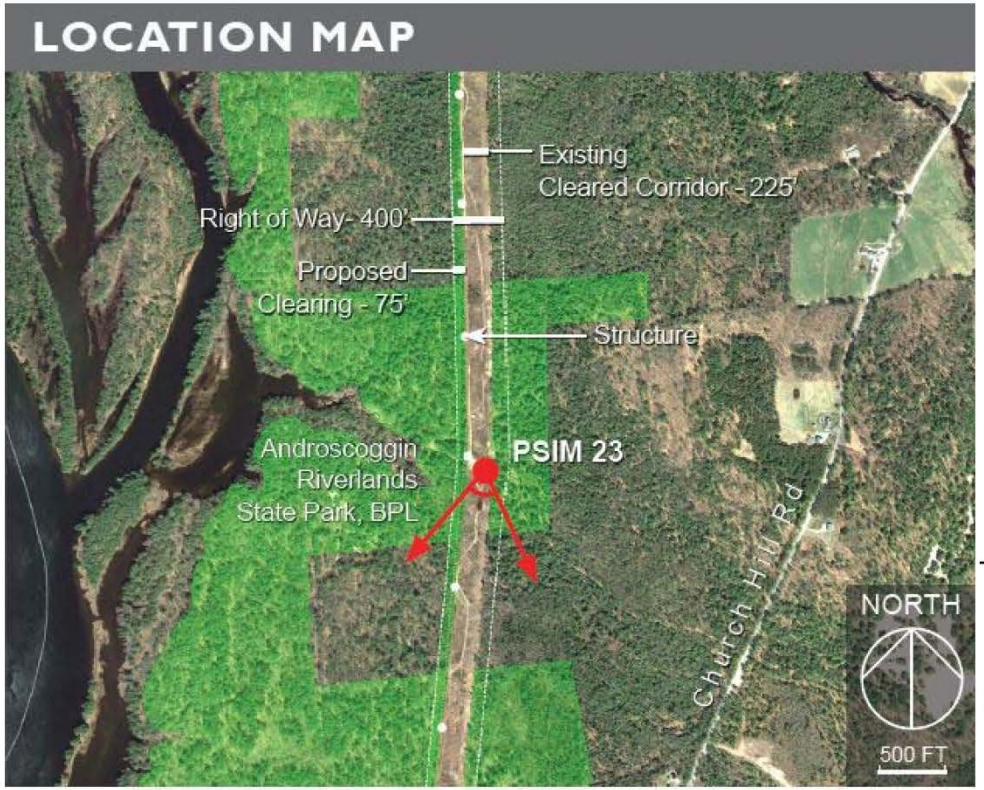


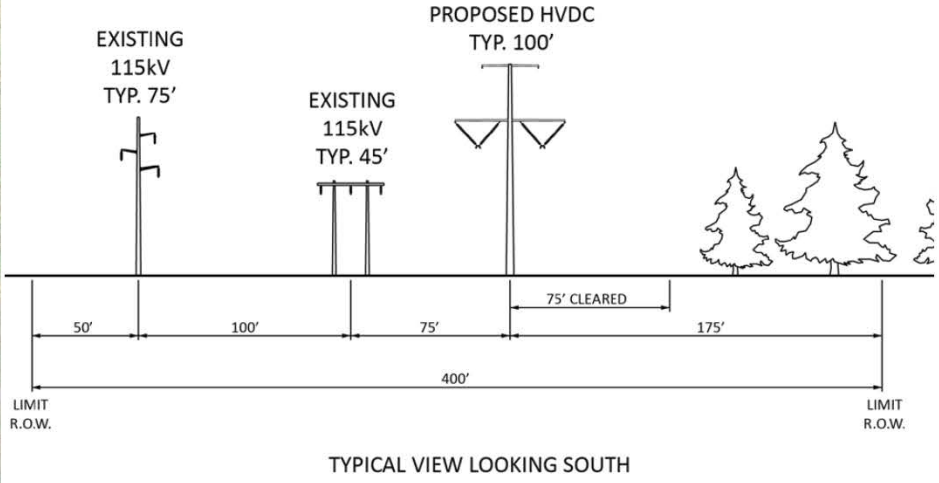


Merrill Road – Existing Conditions

Merrill Road – Photosimulation

Androscoggin Riverlands State Park, Leeds



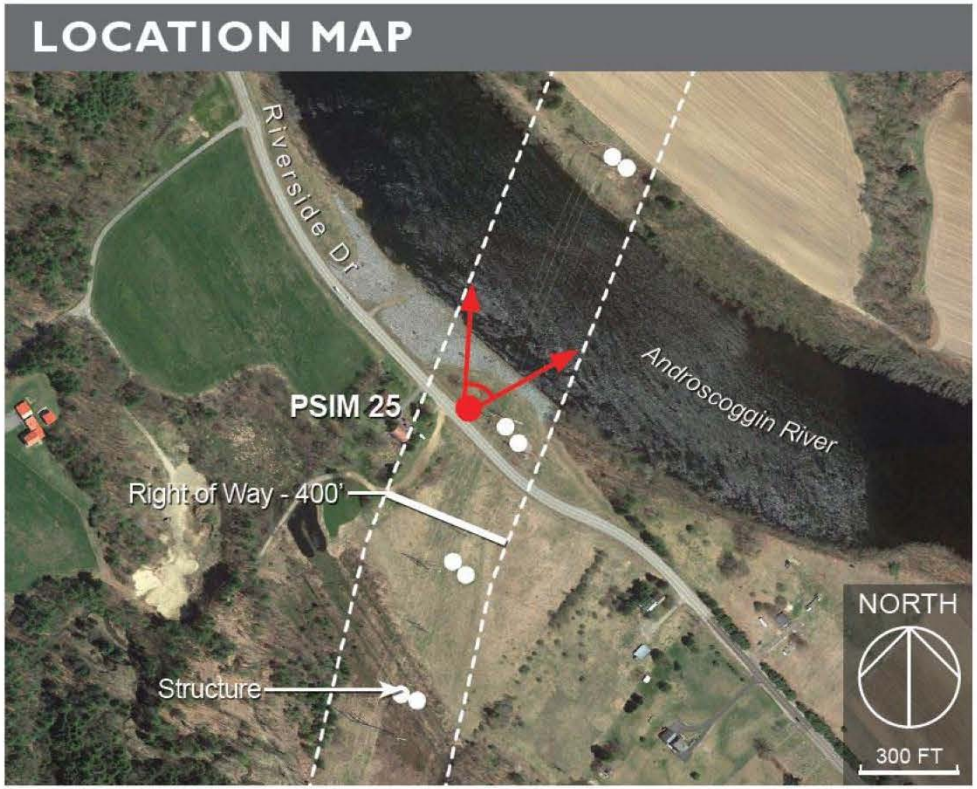


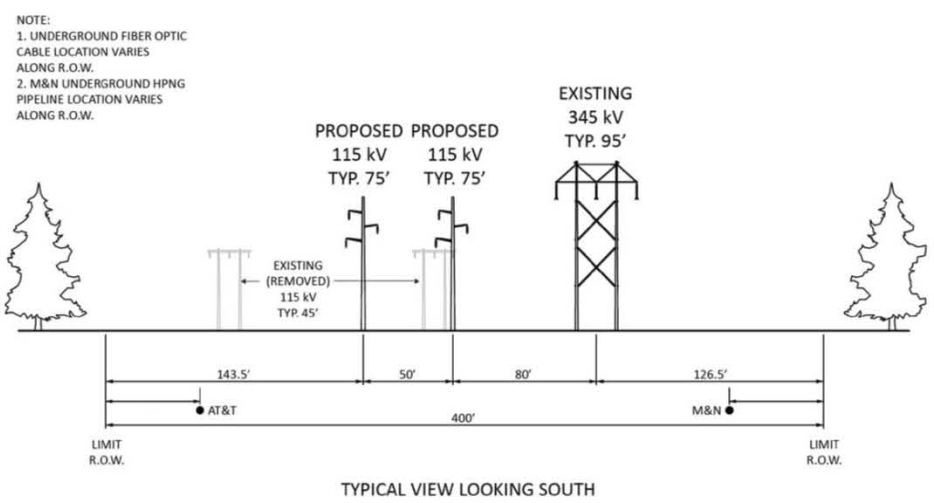
TYPICAL VIEW LOOKING SOUTH

Androscoggin Riverlands State Park – Existing Conditions

Androscoggin Riverlands State Park – Photosimulations

Riverside Drive, Auburn

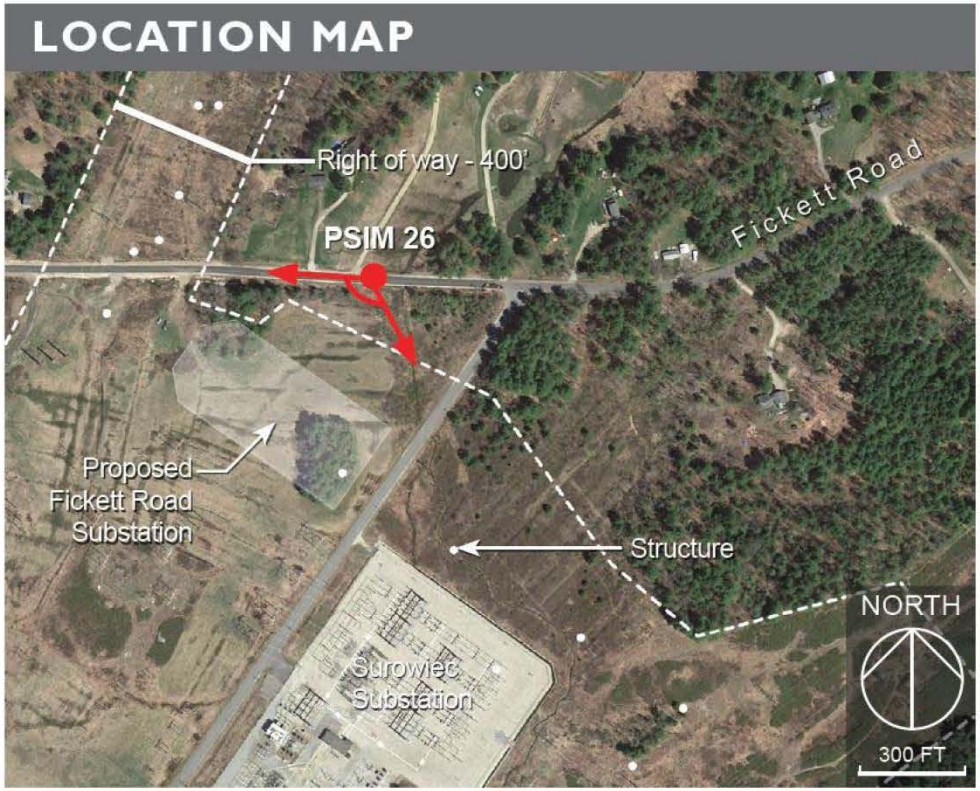


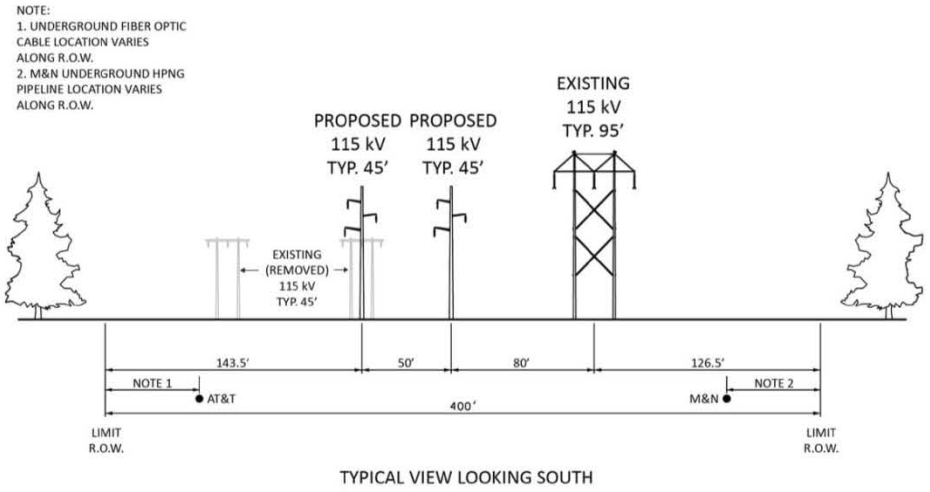


Riverside Drive, Auburn – Existing Conditions

Riverside Drive, Auburn – Photosimulation

Fickett Road Substation, Pownal

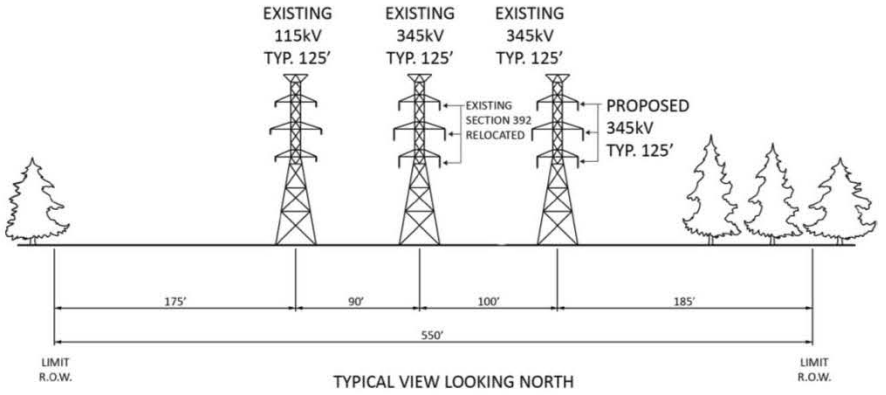




Fickett Road, Pownal – Existing Conditions

Fickett Road, Pownal - Photosimulations

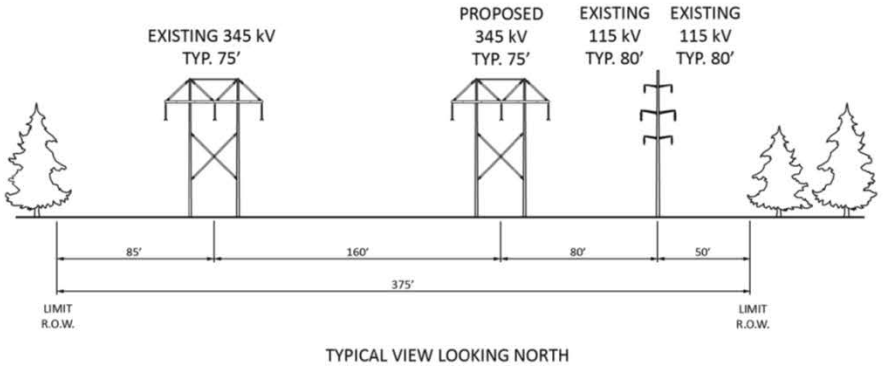
Route 1, Wiscasset



Route 1, Wiscasset – Existing Conditions

Route 1, Wiscasset – Photosimulation

Route 27, Wiscasset

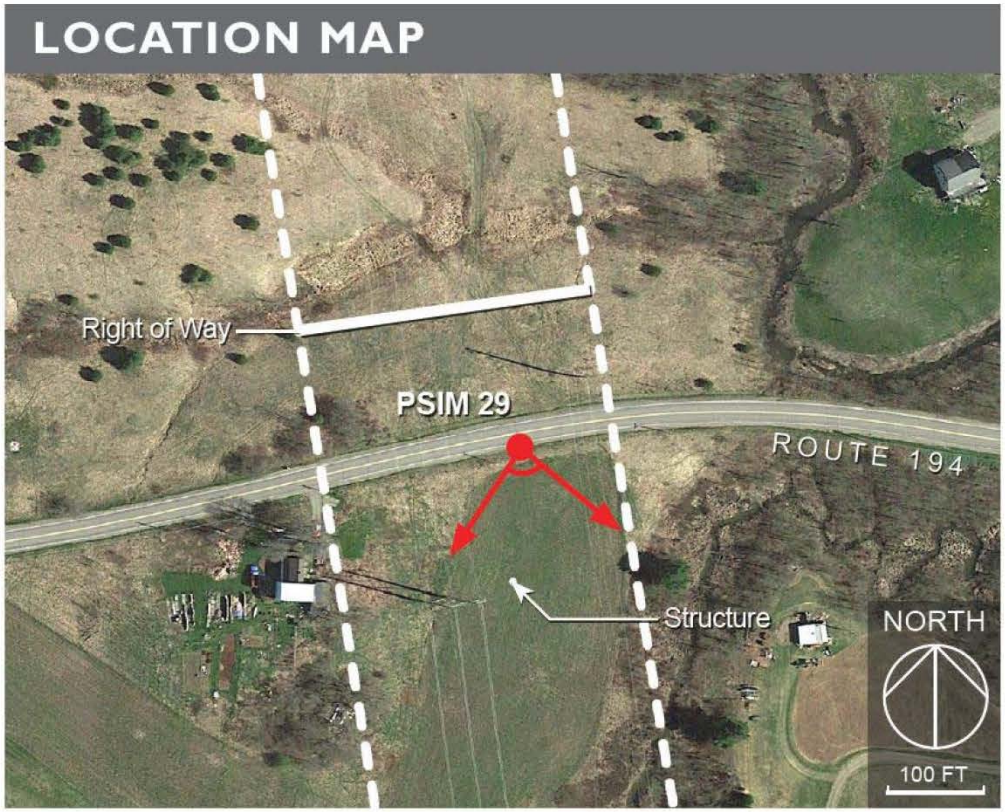


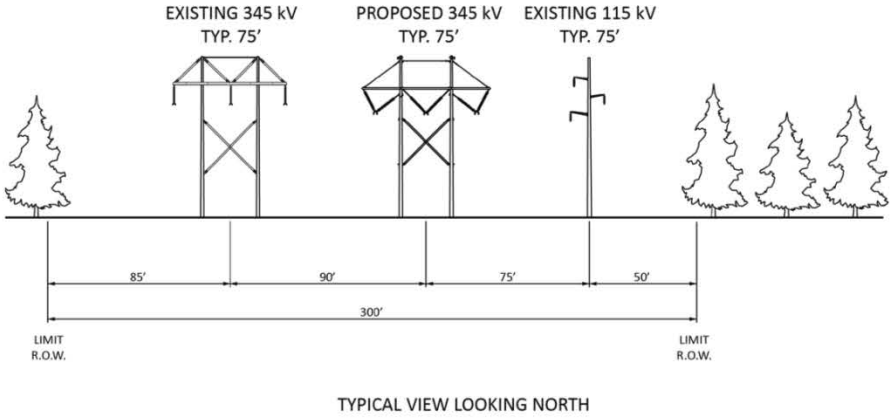
TYPICAL VIEW LOOKING NORTH

Route 27, Wiscasset – Existing Conditions

Route 27, Wiscasset – Photosimulation

Route 194, Whitefield





TYPICAL VIEW LOOKING NORTH

Route 194 – Existing Conditions

Route 194 – Photosimulation

End

EXHIBIT CMP-5-C

Compilation of Methodology and Findings

SEGMENT 1:

CANADIAN BORDER TO MOXIE POND, NEW HVDC TRANSMISSION LINE

Existing Conditions

Segment 1 includes 53.5 miles of HVDC transmission line within a new150'-wide cleared corridor within a 300' right-of-way. The transmission line will be supported by single pole self-weathering steel structures with an average height of 100'. The corridor will be located in eleven unorganized townships (Beattie TWP, Lowelltown Twp, Skinner Twp, Appleton Twp, T5 R7 BKP WKR, Bradstreet TWP, Parlin Pond Twp, Johnson Mountain Twp, West Forks Twp, Moxie Gore, and The Forks Plt.) starting at the border with Quebec and running in an east-to-south direction to the north end of Moxie Pond in The Forks.

The Study Area of Segment 1 is mostly located within the Western Mountains Biophysical Region, a region characterized as a mountainous landscape with elevations ranging between 2,100' and 3,700'. The Study Area for Segment 1 includes 27 elevated viewpoints (hills and mountains) within 5 miles of the proposed corridor. Three named mountains will have views of the Project: Tumbledown Mountain in T5 R6, Number 5 Mountain in T5 R7, and Coburn Mountain in Upper Enchanted Twp.

The area within 3 miles of Segment 1 includes 33 small to medium sized water bodies, typically surrounded by spruce fir vegetation in heights ranging from 40' to 60'. Six of the ponds are rated for Scenic Resources in the Maine Wildlands Lake Assessment. Of these rated water bodies, three will have some views of the Project (Rock Pond, Fish Pond, and Parlin Pond).

The watershed of Segment 1 drains through small streams toward the East and West

Branches of the Moose River, the South Branch of the Moose River, the Moose River, and the Kennebec River. The northern portion of Segment 1 is drained by the Moose River and No. 5 Bog , which drains northward toward Attean Pond and then toward Moosehead Lake to the Kennebec River.

The predominant land use within Segment 1 is forestland that is actively harvested by commercial forest operations. Vegetation on the land immediately surrounding the Project is mixed deciduous and coniferous second growth with areas of active harvesting. Vegetation ranges in height from 0' (existing laydown areas) to 60'.

Residential development within the Study Area is limited to several seasonal camps on the lakes and ponds. The largest population centers near Segment 1 are the villages of West Forks and The Forks Plt, both approximately 5 miles from the Project. Jackman is over 8 miles to the north of the Project.

Over a dozen tracts of conservation land are found within three miles of Segment 1. The Project may be visible in varying degrees from elevated locations within five of these areas: Leuthold Preserve (The Nature Conservancy) (view from No. 5 Mountain); Upper Enchanted Twp Parcel (Bureau of Public Lands (BPL)) (view from Coburn Mountain); West Forks Parcels (BPL); Johnson Mountain Parcel (BPL); and Draper Parcel (New England Forestry Foundation).

Scenic Resources

Scenic Resources in Segment 1 with potential views of the Project include: Beattie Pond in Beattie TWP; Wing Pond in Lowelltown Twp and Skinner Twp; Rock Pond in T5 R6 BKP WKR; Fish Pond in Hobbstown Twp; Parlin Pond in Parlin Pond Twp; Upper Kennebec River in West Forks Pl. and Moxie Gore; and Moxie Stream in Moxie Gore. Elevated viewpoints assessed include No. 5 Mountain in T5 R7 BKP WKR, Coburn Mountain in Upper Enchanted

Twp, and the Attean View Rest Area on Route 201 in Jackman.

National Natural Landmarks (NNL) or Other Outstanding Natural Features

The **No. 5 Bog and Jack Pine Stand** is an NNL located approximately 2 to 2.5 miles north of the Project in Attean Twp, TR R7 BKP WKR, and Bradstreet Twp. Project visibility will be extremely limited within the Bog due to the shoreline vegetation, water levels, and viewing distance.

State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge

The **Leuthold Preserve** is a 16,934-acre forested preserve located north of the Project in Appleton Twp, T5 R7 BKP WKR, and Bradstreet Twp. The preserve is managed collaboratively by The Nature Conservancy, Forest Society of Maine, and the Maine Bureau of Parks and Lands as an ecological reserve. The Project will be visible from **No. 5 Mountain**, the only accessible elevated viewpoint within the Preserve, at a distance of 3.9 miles. At this distance the dark brown structures will be difficult to see against the wooded backdrop, but the two intersecting transmission corridors will be noticeable in the commercial forestland. The summit is fairly open with several large areas of exposed ledge with 360-degree views of the surrounding area. The view of the Project from the summit is partially screened by No. 6 Mountain, which is approximately 1 mile to the southwest. Photosimulation 4.

State or Federal Trail. Segment 1 will cross ITS 89 in Bradstreet Twp and Johnson Mountain Twp and ITS 87 in Johnson Mountain Twp. These ITS trails are part of The Forks Trail Network, a 150-mile series of snowmobile routes connecting Jackman, Eustis, Moosehead Lake, and Bingham. The majority of the ITS trails are generally located in the valleys on logging roads and should have minimal visual contact with the Project.

Publicly Owned Land Visited, in Part, for the Use, Observation, Enjoyment, and Appreciation of Natural or Man-Made Visual Qualities. The **Old Canada Road National Scenic Byway** (Route 201) is designated as both a Maine State and a National Scenic Byway. This 78.2 mile-long Byway follows the Kennebec River within Segments 1 and 2. It is also part of the Kennebec-Chaudiere Heritage Corridor, which links Fort Popham to the south with the City of Quebec to the north. The Project will be visible at four locations along the Byway.

To the southbound motorist, the first instance where the Project may be visible is at the **Attean View Rest Area** in Jackman, where Segment 1 will be located 7 to 12 miles to the southwest in an area characterized by the meandering Moose River and commercial timberland. This scenic overlook affords a 100-degree view toward Merrill Mountain, Attean Mountain, and Sally Mountain and Attean Pond, No. 5 Bog, and the Moose River. Wind turbines located 14 miles to the north in Canada are also visible. At this distance individual structures will not be readily visible to the average observer and the corridor clearing will blend with the surrounding vegetation patterns on either side of the corridor. There will be minimal to no visual impact from the Attean View Rest Area. Photosimulation 6.

To the southbound motorists, the Project will next appear in **Parlin Pond Twp**. as it crosses over the flank of Coburn Mountain. A field on the west side of Route 201 provides views of the mountain for approximately 15 seconds. During that period, viewers may see intermittent views of the Project in a transmission line that parallels the slopes of Coburn Mountain. A well-maintained farmstead with a very distinctive barn in the foreground is more likely to draw the attention than the Project in the midground. This view will not be seen by northbound motorists. Photosimulation 7.

The Project then crosses Route 201 in **Johnson Mountain TWP**, approximately 1,200'

south of Judd Road and 2,000' north of Capital Road. At this location the transmission corridor will pass through commercial forest land with mixed vegetation buffer strips 20 to 40' in height on both sides of the road, and a distribution line on the west side of the road. The most visible portion of the Project will be the conductors crossing over the road, which will be visible for approximately 1,900' (29 seconds) to southbound motorists. Northbound motorists may see the conductors and one of the structures for approximately one mile (one minute) approaching the crossing. Northbound motorists will see the conductors against a hillside that shows evidence of recent harvesting operations. There will be minimal visual impact to the Byway due to the minimal duration of view and limited Project visibility. Photosimulation 9.

The final point of visual contact is where the Project again crosses Route 201 just east of the **Wyman Dam** in Moscow (Segment 2). At this location the existing 225'-wide corridor containing other transmission lines will be widened by an additional 75' to accommodate the proposed HVDC transmission line. Photosimulation 19.

Based on the limited Project visibility, the distance between viewing opportunities, and its context in commercial timberland, the overall visual impact on the Old Canada Road Scenic Byway will be minimal.

Coburn Mountain. Upper Enchanted Twp Unit (also known as the Coburn Mountain lot) is a public lot managed by the Bureau of Parks and Lands. At elevation 3,730' it is the highest mountain in the region and a popular destination for snowmobilers. Some of the trails on the mountain follow portions of the abandoned Enchanted Mountain ski area that closed in the 1970's. The vegetation along the trail is generally 15-25' in height, which generally blocks any foreground views except for eastern views toward Indian Pond and Moosehead Lake. A large clearing on the summit contains a radio communications facility with a metal building,

communication infrastructure, solar panels, and a former fire tower. From the summit, there is an east to south vista with a filtered view of the northern portion of Moxie Pond. Recent clearing has increased the panoramic views from the summit. The old fire tower allows viewers to stand approximately 20' above the ground for a 360-degree view of the area.

The Project will first be visible near the trailhead in an area of active timber harvesting. From the summit, portions of the new 150' wide corridor clearing will be visible in the midground looking toward the west side of Johnson Mountain at distances of 1.2 to 3.0 miles and in the background (4+ miles) to the southeast. Up to 10 HVDC structures will be visible within 3 miles of the summit. Recreational users of trails on Coburn Mountain are aware of manmade structures along the trail and at the summit. The view from Coburn Mountain includes active commercial timber harvesting and haul roads, i.e., a characteristic working forest and not pristine wilderness. The 150' wide cleared corridor is sited within recently harvested areas to reduce additional tree removal.

To minimize the apparent width of the proposed transmission corridor, CMP is proposing to taper the vegetation within the corridor, maintaining trees and shrubs at the edges at heights ranging from 15 to 35 feet, rather than removing all woody vegetation. During initial clearing of the Project in these areas, CMP will retain capable vegetation outside of the wire zone up to 15 feet tall to facilitate future tapering that will allow capable vegetation up to 35 feet tall in areas outside of the wire zone. Capable vegetation will be selectively cut during periodic (every 4 years) routine maintenance cycles to remove individual specimens likely to either grow into the conductor safety zone prior to the next scheduled maintenance cycle, or likely to grow taller than the target heights prior to the next scheduled maintenance cycle. The overall effect is a softening of the cut profile as viewed from Coburn Mountain and the retention of vegetation of similar

color and texture as the surrounding landscape. The use of self-weathering steel structures and non-specular conductors will minimize the contrast with the wooded backdrop. The overall visual impact to the view from Coburn Mountain will be moderate. Photosimulation 8 and leaf-off views.

Public Resource, such as the Atlantic Ocean, a Great Pond, or Navigable River.

Beattie Pond, partially located in Beattie Twp and Lowelltown Twp., is classified by LUPC as a remote pond (Management Class VI). The Maine Wildlands Lake Assessment designated Beattie Pond as Resource Class 2: a lake of regional significance (with no outstanding values but at least one significant resource value). Fisheries were rated as 'Significant'. Scenic resources were not considered unique or significant. Project views from the pond are limited to one angle structure located approximately 1,300 feet south of the Pond.

In the September 2017 original submission one of the angle structures appeared prominently visible above the horizon. By re-engineering this structure, the height has been reduced by approximately 39 feet. While a small portion of the top of the structure will still be visible above the treeline from a few areas on the pond, the structure will not appear above the skyline and will therefore be considerably less visually prominent, if it is noticeable at all. Re-engineering also was able to reduce the height of other structures. With the revised design, the tops of three structures and their shield wires will be visible just above the treeline, but will no longer be seen against the sky. The self-weathering steel used for the structures will minimize contrasts with the surrounding wooded hillside. Existing topography and shoreline vegetation will screen the rest of the Project from view. The re-engineered design will reduce the overall visual impact from the Pond and, as a result, the Project will be minimally noticeable from recreational users on the pond. Visual impact on the pond should be minimal to moderate.

Photosimulation 1.

Wing Pond, partially located within Lowelltown Twp and Skinner Twp, is classified by LUPC as a Management Class VI Lake, or remote pond. There are no roads within the P-RR buffer around the pond or camps on its shoreline. The Maine Wildlands Lake Assessment designated Wing Pond as Resource Class 3: a lake of local or unknown significance. Scenic resources were not considered unique or significant (i.e., they did not meet a minimum standard of significance).

Views of the Project from Wing Pond will include two structures and conductors seen at a distance of approximately 1.75 miles, located within a recently harvested area at the base of Smart Mountain. No additional corridor clearing will be required in the area visible from the pond. The self-weathering steel structure will minimize contrast in color with the surrounding vegetation. At certain times of the day and season, the conductors may be the most visible component when they reflect sunlight. Visual impact on Wing Pond should be minimal to moderate depending on viewers' location on the Pond. Photosimulation 2.

Rock Pond is a 124-acre waterbody in T5 R6 BKP WKR. The Maine Wildlands Lake Assessment designated Rock Pond as Resource Class 1B with 'Outstanding' Fisheries resources and 'Significant' Scenic and Shore Character resources. There is a boat launch, approximately 6 campsites on the northwestern end of the Pond, and one seasonal camp. The pond appears to have relatively heavy use, as evidenced by the number of boats stored at the boat launch. The camp sites on the northern end of the pond will not have views of the Project due to intervening vegetation. Visitors will cross under the transmission line as they drive along Spencer Road to access the pond. Up to six structures and the cleared corridor will be visible from the pond to the northwest at a distance of 3,500' as the line passes through the valley

between Three Slide and Greenlaw mountains. Additionally, the top portions of up to six structures, conductors, and portions of the cleared corridor will be visible to the north at distances of 0.6 to 0.8 mile.

The initial photosimulation indicated that the clearing required for the proposed transmission corridor would cause significant contrast in color, form, line, and texture within a small part of the view looking northwest from the pond. After developing and evaluating several alternatives, CMP is proposing to taper the vegetation within the transmission corridor, maintaining trees and shrubs at the edges of the corridor at heights ranging from 15 to 35 feet, rather than removing all woody vegetation. During initial clearing of the Project in these areas, CMP will retain capable vegetation outside of the wire zone up to 15 feet tall to facilitate future tapering that will allow capable vegetation up to 35 feet tall in areas outside of the wire zone. Capable vegetation will be selectively cut during periodic (every 4 years) routine maintenance cycles to remove individual specimens likely to either grow into the conductor safety zone prior to the next scheduled maintenance cycle, or likely to grow taller than the target heights prior to the next scheduled maintenance cycle. The overall effect is a softening of the cut profile as viewed from Rock Pond and the retention of vegetation of similar color and texture as the surrounding landscape. Shoreline vegetation will partially screen the closest visible structures; the use of self- weathering steel structures and non-specular conductors will minimize the contrast with the wooded backdrop. The visual impact to Rock Pond will be moderate, and not unreasonable. Photosimulation 3.

Fish Pond is a 219 acre waterbody in Hobbstown Twp. The Maine Wildlands Lake Assessment designated Fish Pond as Resource Class 2 with 'Significant' resource ratings for Scenic and Cultural resources. Recreational resources include a boat launch on the northwestern

end of the pond adjacent to a small campground. The shoreline appears undeveloped and the focal points on the Pond are No. 6 Mountain and No. 5 Mountain. Project visibility will be very limited, with the tips of up to 4 structures slightly visible above the treeline at distances of 3 to 4 miles. The corridor clearing will not be visible. The visual impact to Fish Pond will be minimal. Photosimulation 5.

Parlin Pond is a 543 acre waterbody in Parlin Pond Twp. that receives heavy recreational use. The Maine Wildlands Lake Assessment designated Parlin Pond as Resource Class 1B with 'Significant' ratings for Fisheries, Scenic and Shore Character, and Botanical resources. Up to five transmission structures will be visible from the northern and eastern portions of the pond at distances of approximately 1.8 to 2.8 miles as the corridor ascends the shoulder of Coburn Mountain. The transmission line will appear as a relatively faint change in color below the ridgeline; the cleared corridor itself will not be visible from the pond. One of the structures will be seen against the sky; the remaining dark brown structures will be seen against the wooded slopes of Coburn Mountain. The visual impact to Parlin Pond will be minimal to moderate, and not unreasonable. Photosimulation 7.

Upper Kennebec River. Segment 1 will go under the Upper Kennebec River in West Forks Plt and Moxie Gore at a point approximately 8.2 miles downriver from the Harris Dam. The Maine Rivers Study identifies the Upper Kennebec River as an "A" river, with unique/significant resource values for undeveloped, scenic, and inland fisheries. This section of the River is also rated as having outstanding statewide geologic and whitewater boating resource values with high recreational importance. The River itself is zoned as a Protected Recreation Resource Subdistrict by LUPC. The river is a recreational resource used by whitewater rafters / kayakers and anglers. Locating the Project underground will fully preserve the aesthetic

character of this section of the Upper Kennebec River by eliminating views of an overhead transmission line and warning balls that would have been visible to recreational users of the river.

Moxie Stream is a tributary of the Upper Kennebec River from its headwaters at Moxie Pond and is rated as an "A" river in the Maine Rivers Study. The stream is rated for its Geologic/Hydrologic, Critical/Ecologic, Undeveloped, and Scenic Resource Values. Segment 1 will cross Moxie Stream in Moxie Gore approximately 2.3± miles north of the confluence with the Kennebec River. The 150' wide corridor and conductors will be visible for approximately 760' on the upstream side and approximately 1,000' on the downstream side of the crossing. Avian marker balls may be installed on shield wires and conductors. The transmission structures will be set back 410' from the stream on the north side, and 560' on the south side. Riparian vegetation along the stream bank will be preserved and will minimize views into the corridor from the stream. The visual impact to Moxie Stream will be minimal based on the limited duration of exposure and the screening effects of preserved riparian vegetation. Photosimulation 12.

The Moose River. While not rated as a scenic river segment in the Maine River Study, the 34-mile Bow River Trip between Attean and Holeb Ponds in Jackman is a popular recreation resource. Approximately 7.2 miles of the river are located within 3 miles of the Project. Field work and computer analysis have determined that Project visibility would be very limited to none, due to riparian vegetation.

South Branch Moose River, Skinner Twp (not rated as a scenic river segment). The Project will cross in a location where the river is 70' wide within a wooded strip between logging roads. The closest HVDC structures will be 775'± to the east and 575'± to the west, in close

proximity to the logging roads. Preserved riparian vegetation will minimize views into the corridor. The visual impact to South Branch Moose River will be moderate, and not unreasonable.

SEGMENT 2: MOXIE POND TO WYMAN HYDRO

Segment 2 includes the northern portion (22± miles) of a HVDC transmission line that will be co-located within an existing 115kV transmission corridor from the southern end of Segment 1 through Caratunk and Bald Mountain TWP to the Wyman Hydroelectric Facility in Moscow. In most of this segment, the existing 150' wide corridor clearing will be increased by 75' on the western side. Segment 2 will be located on the west side of Moxie Pond and cross the Appalachian Trail in the vicinity of Joe's Hole in the existing 115 kV corridor. The northern portion of Segment 2 will be supported by single pole self-weathering steel structures ranging from 75' to 105 in height. The structures on the southern portion of Segment 2 will be single pole self-weathering steel structures with an average height of 100'.

The Study Area of Segment 2 is located within the Central Mountains Biophysical Region and is characterized by medium to large waterbodies surrounded by mountains with elevations ranging between 1,630' and 2,630'. Seven mountains are found within 5 miles of the Project: Black Nubble in Squaretown TWP; Bald Mountain in Bald Mtn. TWP; Mosquito Mountain, Pleasant Pond Mountain, and Middle Mountain in The Forks; and Moxie Mountain and Black Nubble in Caratunk.

The two largest water bodies are Moxie Pond (2,370 acres) on the north end of Segment 2 and Wyman Lake (3,200-acre impoundment) at the south end. Moxie Pond is rated outstanding in the Maine Wildlands Lakes Assessment; Wyman Lake is rated significant. The

Study Area also includes 12 small to medium water bodies typically surrounded by spruce/fir forest averaging 60' to 75' in height and commercially harvested areas. Mosquito Pond in The Forks (71 acres) is rated outstanding in the Lakes Assessment. Moxie Pond, and Wyman Lake will have varying degrees of Project visibility. The Project will not be visible from Mosquito Pond.

Predominant land uses in the immediate vicinity of the co-located transmission line includes commercial forestry operations, seasonal camps on adjacent ponds, and the former Moscow radar site. The most significant conservation parcel is the Appalachian Scenic Trail located in Bald Mountain TWP and Caratunk. The largest population center is the village of Moscow at the southern end of Segment 2.

Scenic Resources

Scenic Resources with potential views of the Project that were evaluated include: Moxie Pond, the Appalachian Trail (including the summits of Pleasant Pond Mountain and Bald Mountain, and the existing transmission line crossing at Troutdale Road, Joe's Hole/Baker Stream), the Wyman Lake Recreation Area, the Arnold Trail, and Wyman Lake. Two additional locations were evaluated: Mosquito Mountain in The Forks Plt and Moxie Mountain in Caratunk. Both mountains are privately owned and allow public access.

State or Federal Trail. Approximately14.5 miles of the **Appalachian National Scenic Trail** (AT) are located within 5 miles of Segment 2. There would be three general areas of Project visibility from the AT: 1) from the summit of Pleasant Pond Mountain at distances of 2.9 to 6.5± miles, 2) from the 115kV transmission line crossings near Troutdale Road on Moxie Pond, and 3) from the summit of Bald Mountain, including the North Peak side trail, at distances of 2.8 to 6.5± miles.

Pleasant Pond Mountain. The summit of Pleasant Pond Mountain (elev. 2,477) is 3.3 miles from the Project and offers 180+ degree views north to east of Moxie Pond to Mount Kineo, Mount Katahdin, and many other peaks. Moxie Pond and Mosquito Mountain are visible in the midground and Bald Mountain in the background. The Bingham Wind Project is partially visible 13 miles to the southeast. The existing 115kV transmission line, located along the western shore of Moxie Pond, is not highly visible from the summit due to intervening vegetation along the edge of the cleared corridor.

Approximately 250 feet south of the summit is another viewpoint with less obstructed views and a 270-degree view from north to south. From this viewpoint the proposed co-located HVDC transmission corridor will be visible at distances of up to 6+ miles to the southeast. Portions of the co-located HVDC line will be screened by Mosquito Mountain to the northeast and Middle Mountain to the southeast. The closest visible structures will be minimally visible with just tips visible at distances of 2.9 to 3.5 miles. The majority of proposed HVDC structures will be screened by vegetation. There would be potential for up to 12 structures to be visible looking to the southeast at a distance of 4.5 to 6.5 miles but the structures will be difficult to distinguish from the background. The new HVDC transmission line (Segment 1) will be 5.4+ miles to the northeast and minimally visible. The visual impact to the AT on Pleasant Pond Mountain will be minimal, due to topographic screening, the viewing distance, and the use of self-weathering steel structures. Photosimulation 18A.

Middle Mountain. The view from Middle Mountain (elev. 2,300') is more filtered than the view from Pleasant Pond Mountain, immediately to the north, due to its lower elevation and the height of the spruce/fir vegetation. The existing transmission line is difficult to distinguish from this point. The Project would be mostly screened by foreground vegetation. Up to 3

structures would be visible, with the closest 2.7 miles to the east. The visual impact to the AT on Middle Mountain will be minimal, due to vegetative and topographic screening and the viewing distance.

Corridor Crossings. Southbound hikers will next encounter the Project near Moxie Pond approximately 4.7 miles from the summit of Pleasant Pond Mountain, where the trail will eventually cross the transmission corridor in three locations. The AT first crosses the existing 115kV corridor approximately 500' west of Troutdale Road where 12+ existing transmission structures within the 150' wide cleared corridor are visible over approximately 400' of trail. Once the AT reaches Troutdale Road, it parallels the road for approximately 900' before crossing Baker Stream and heading to Bald Mountain. The existing transmission corridor is visible for approximately 400' as it crosses over Troutdale Road. Hikers on Troutdale Road see five existing transmission line structures to the southeast and two to the northwest. A small trailhead off Troutdale Road has parking for 3 cars and a small campsite.

The existing 150' wide 115kV transmission clearing will be widened by 75' on the west side to accommodate the new HVDC transmission line. The widened corridor will slightly increase the time that hikers spend crossing the transmission line in each of these two locations. From both AT crossings, two self-weathering steel HVDC structures will be visible looking to the northwest and six to the southeast. Structure heights will range from 80' on either side of Joe's Hole up to 105' for the angle structures furthest from view in either direction. The structures closest to Troutdale Road will be set back 420' to 500' from the road. Structures will be spaced approximately 800' to 900' apart, compared to the 375' to 570' spacing for existing structures. The visual impact on the AT will be moderate due to the presence of the existing 115kV transmission line corridor, the developed context, and limited viewing time.

Photosimulation 18B.

After walking along Troutdale Road, hikers leave the road and head east to reach Bald Mountain requiring the immediate crossing of Baker Stream at the south end of Joe's Hole. The trail continues for 1,400' after the stream to the third transmission line crossing. The trail parallels the existing corridor for approximately 75 feet before it crosses at a nearly perpendicular angle. Within the corridor hikers see 7 transmission structures to the northwest and 8 to the southeast.

With the additional corridor clearing, an additional 425' of the AT would be within the clearing (290± of the trail is currently within the clearing). At this point hikers would see one HVDC transmission line structure looking to the northwest and six looking to the southeast. The visual impact to the trail will be moderate due to the presence of the existing 115kV transmission line corridor, foreground viewing distances, and the limited viewing time within the corridor.

Bald Mountain. The summit of (Moxie) Bald Mountain (elev. 2,629') is 3.0 miles from the Project and approximately 5 trail miles east of Troutdale Road. The summit landscape consists of open exposed ledge areas with patches of 5-10 foot spruce/fir vegetation. This open summit provides a 360-degree view of the surrounding landscape, which includes the Bigelow Range, Coburn Mountain, Pleasant Mountain, Mosquito Mountain, and the northern half of Moxie Pond. The closest portions of the existing 115kV transmission line are screened by vegetation and not readily visible from the summit. The most visible portion of the existing transmission line is the cleared corridor near the northern end of Moxie Pond at a distance of 5.1 miles.

From Bald Mountain, only the co-located section of the HVDC transmission line would be visible; the new HVDC transmission line will not be visible more than 8 miles to the

northwest. At the closest point, the co- located corridor will be partially visible at a distance of 2.8 miles. The majority of the Project looking southwest will be screened by low spruce/fir trees along the perimeter of the open summit area. The focal point looking southwest is Baker Pond and Moxie Mountain and background mountains. The Project will not interfere with the view towards those landscape elements. Looking to the west and northwest, the Project will be located along the west side of Moxie Pond, which is partially screened by foreground vegetation. The only place a hiker will see the widened corridor clearing is where the existing corridor is visible at a distance of 5.1 miles. The self-weathering steel HVDC structures will blend with the wooded backdrop. The conductors will be the most visible components of the Project, especially in the morning hours when the sunlight is reflecting off the lines. Due to the partial screening of the Project and viewing distance, there will be a minimal visual impact from the summit of Bald Mountain. Photosimulation C.

Snowmobile trails. The co-located HVDC transmission line corridor will run parallel to and cross ITS 86 in The Forks Plt for approximately one mile. The existing 115kV transmission line corridor will be expanded by 75' on the western side. The visual impact to the ITS trail should be minimal due to the trail's current location within the corridor.

Public Site or Structure Listed on the National Register of Historic Places.

Approximately 3 miles of the **Arnold Trail Historic District** is located along the centerline of Wyman Lake from the dam north within the Segment 2 Study Area. The more culturally significant locations (e.g., Great Carrying Place Portage Trail) of the Arnold Trail are not within the Segment 2 Project area. Three HVDC transmission structures and conductors will be visible at distances of 0.5 - 1.3 miles from the middle of Wyman Lake where the Arnold Trail is located, and seen in context of the Wyman Hydroelectric Dam and the Bingham Wind project. There will

be a minimal visual impact from the Arnold Trail. Photosimulation 20.

Municipal Park or Public Open Space. The **Wyman Lake Recreation Area** in Pleasant Ridge Plt is managed by Brookfield Renewables and the Bingham-Moscow Chamber of Commerce. The area includes a boat launch, swimming beach, picnic areas, and rest rooms. The Project will be visible from the swimming beach adjacent to the existing 115kV transmission line corridor and will be see in context with the Wyman Hydroelectric Dam and portions of six recently installed Bingham Wind turbines. Three HVDC transmission structures and conductors will be visible at distances of 0.9 - 1.3 miles from the beach. There will be a minimal visual impact to the Wyman Lake Recreation Area.

Public Resource, such as the Atlantic Ocean, a Great Pond, or Navigable River. **Moxie Pond** is a 2,370 acre waterbody in East Moxie Twp, The Forks Plt., and Bald Mountain Twp. The Maine Wildlands Lakes Assessment designated Moxie Pond as Resource Class 1B with 'Outstanding' Scenic resources and 'Significant' Fisheries, Shore Character, and Cultural resources. The Scenic Lakes Character Evaluation in Maine's Unorganized Towns characterized Moxie Pond as "High" for Inharmonious Development.

The pond has a boat launch at its northwest end near the dam, approximately 145 camps on the west side, and 30± camps on the east side. The main access road for the camps is Lake Moxie Road/Troutdale Road, which runs along the shoreline, parallel to the existing 115kV transmission line on the western side of the pond. The majority of the camps on the western shoreline are oriented to the east and away from the transmission corridor. The existing 115kV wooden H-frame structures are typically 45' in height and spaced 350' to 500' apart. The existing transmission line is generally 350' to 900' from the edge of the pond, except for a few areas such as near Caribou Narrows, Black Narrows, and Joe's Hole at the southern end. The

existing transmission line is generally not visible from the pond.

The existing 150' wide corridor clearing will be widened by 75' on the western side (away from the Pond) to accommodate the new transmission line. The structures will range in height from 75' to 105'. Of the 36 proposed HVDC structures that would be installed in this area, the tops of approximately 12 structures would be visible from various areas of the pond; the majority of the structures and conductors will be screened by shoreline vegetation, which averages 60 to 75' in height. Portions of the cleared corridor will be visible in two areas where the existing corridor is already visible: at the southern end north of Joe's Hole and near Black Narrows. From the northern end of the pond, near the boat launch, the tips of six HVDC structures and portions of conductors will be visible at distances of 2,400' to 4,200'. From the southern end of the pond, the tops of up to three HVDC transmission line structures and conductors will be visible above the tree line, seen in context with the two existing H-frame structures and their conductors. The use of self-weathering steel structures will minimize the contrast with the wooded backdrop as seen from the pond. The visual impact to Moxie Pond will be minimal due to the presence of the existing transmission line and the screening effects of shoreline vegetation. Photosimulations 14 and 15.

Wyman Lake is the only portion of the Kennebec River where Segment 2 would be visible. The lake is not considered to have scenic resources by the Maine Wildlands Lakes Assessment. The Wyman Dam was constructed in 1931 for hydroelectric generation. Wyman Lake, the resultant impoundment, extends for 11 miles to the north. Several recreation facilities have been constructed along the shoreline for boat access, swimming, and picnicking. Boaters and swimmers using the southern 3 miles of the lake currently see the dam, existing transmission lines, camps, Pleasant Ridge Road, and 6 turbines of the Bingham Wind Project. Approximately

three HVDC transmission structures and conductors will be visible at distances of 0.5 - 1.3 miles from the southern portion of the lake. The Project will have minimal visual impact on Wyman Lake.

Baker Stream, in Bald Mountain Twp T2 R3, flows from Baker Pond to Moxie Pond. The existing 115kV transmission line crosses Baker Stream just south of Joe's Hole. The Appalachian Trail crosses Baker Stream in a ford, approximately 500' south of the transmission line crossing. Troutdale/Trestle Road is located on the west side of Baker Stream and crosses just north of Baker Pond. There are five camps on the west side of the stream. The existing 150' wide corridor clearing will be widened by 75' on the southern side at the stream crossing to accommodate the new HVDC transmission line. The preserved vegetation along the stream will continue to screen the Project from view for the majority of the stream. The visual impact to Baker Stream will be minimized due to the presence of the existing transmission line and the screening afforded by riparian vegetation.

SEGMENT 3: CO-LOCATED HVDC FROM MOSCOW TO LEWISTON

Segment 3 will include 70± miles of co-located HVDC transmission line from the Wyman Hydroelectric Facility in Moscow to the new Merrill Road Converter Station, just north of Larrabee Road Substation in Lewiston. The existing corridor clearing ranges between 150' and 225' in width for the majority of Segment 3; the exception is a 400' wide 1.1-mile long section ending at the Livermore Falls Substation. The co-located section will require the existing cleared corridor to be widened by 75' on the western side. The Project will include a new 1.2-mile 345 kV line to connect the Converter Station and Larrabee Road Substation; a partial rebuild of 0.8 mile of 34.5kV transmission line to accommodate the connecting segment; and the

installation of a new 345kV transmission line terminal. Segment 3 will be comprised of single pole self-weathering steel structures with an average height of 100'.

The northern portion of Segment 3 is located in the Central Mountains and Western Foothills Biophysical Regions and is part of the Kennebec River and Sandy River watersheds, with numerous small to medium waterbodies ranging in size from 6 to 196 acres. There are also a few larger water bodies: Embden Pond (1,568 ac) in Embden and Clearwater Pond (751 ac) in Industry. The area is surrounded by hills and mountains with elevations ranging between 1,200' and 1,850'. This portion of the Study Area includes Bingham, Concord Plt, Embden, Solon, Anson, Madison, Starks, Industry, Farmington, New Sharon, Wilton, and Chesterville. The Kennebec River flows for 27 miles through the northern portion of Segment 3 with several population centers located along its banks. The Project will be located within an existing 115kV transmission line corridor which is 0.25 to 1.5 miles west of the Kennebec River. The Sandy River flows through Farmington and the central portion of the Study Area toward the Kennebec River.

The southern portion of the Segment 3 Study Area is within the Western Foothills Biophysical Region and is part of the Androscoggin River watershed, with small to medium water bodies generally ranging in size from 3 to 208 acres, and medium-sized hills with elevations ranging between 665' and 1,116'. The largest waterbodies in the APE are Androscoggin Lake (3,980 acres) and Lake Auburn (2,260 acres). The southern portion of Segment 3 includes the Towns of Jay, Livermore Falls, Leeds, Greene, and Lewiston. The largest population center is Lewiston.

The Androscoggin River flows for 41 miles through the southern portion of the Study Area and is crossed by the Project in Auburn. The Project will be located within an existing

115kV transmission corridor that is 0.7 to 1.8 miles east of the Androscoggin River.

The majority of the land cover immediately surrounding Segment 3 is mixed forestland with occasional agricultural fields. The existing transmission line is predominantly edged with 50 to 70-foot tall mixed deciduous and evergreen trees. Land use in the immediate vicinity of the transmission line is a mix of woodland, farmland, and low density rural residential with clusters of village development.

Scenic Resources. Scenic Resources with potential views of the Project include the Lower Kennebec River and Arnold Trail from Moscow to Norridgewock; Fahi Pond Wildlife Management Area in Embden; the Carrabassett River in Anson; the Sandy River in Farmington; the Dead River in Leeds; Allen and Berry Pond in Greene; and the Androscoggin Riverlands State Park in Leeds and Turner. Monument Hill in Leeds was evaluated as the one elevated viewpoint with potential Project views.

State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge

There are three Wildlife Management Areas (WMA) within the Segment 3 Study Area: Fahi Pond WMA in Embden,Tolla Wolla WMA in Livermore, and Chesterville WMA in Chesterville. Fieldwork and computer modeling have confirmed that none of these WMAs will have views of the Project due to intervening vegetation.

State or Federal Trail. The 14.5-mile Kennebec Valley Trail follows the edge of the Kennebec River from North Anson through Embden and Solon to Bingham. The multi-use trail allows ATV's, snowmobiles, horseback riding, hiking, cross country skiing and biking. The trail currently crosses an existing 115kV transmission line in North Anson to the east of the Carrabec High School playing fields. The proposed widening of the corridor will increase the duration of exposure for users but the overall visual change will be minimal.

The Arnold Trail, as noted in Segment 2, follows the Kennebec River through Segment 3. The only location where the Project will be visible from the Arnold Trail is at the point where it crosses the Lower Kennebec River, directly below the Wyman Hydroelectric Dam. Visitors will experience the Project in the context of the Wyman Dam, the substation, and numerous transmission lines. The visual impact to the Trail should be minimal due to the industrial nature of the site.

Segment 3 is crossed or paralleled by four ITS snowmobile trails: ITS 84 in Anson on the Kennebec Valley Trail, ITS 82 and ITS 115 in Jay, and ITS 87 in Leeds as well as within the corridor between Livermore Falls and Lewiston. Snowmobilers are accustomed to seeing the existing transmission line corridor. There will be minimal visual impact to the ITS trails.

National or State Park. Androscoggin Riverlands is a 2,675-acre state park located in Leeds and Turner with 12 miles of frontage on the Androscoggin River. Riverlands is split into two parcels: 2,345 acres on the west side of the river in Turner, and 330 acres on the east side of the river in Leeds. The park includes a wide variety of trails for different users including skiers and snowmobilers in the winter and ATVs, pedestrian hikers, mountain bikers, and horseback riders in the other seasons. Hunting is also allowed within the Park. The park and river are part of the Androscoggin Greenway and Androscoggin River Water Trails, with numerous boat access points along the riverfront within the Park.

The pedestrian trails in the Turner parcel closest to the shoreline include remnants of several old homesteads, water access locations, a picnic area, and several overlooks. There will be no views of the Project from the trails or riverfront overlooks on the west side of the river.

The Leeds parcel is less developed with less formal boat access. An existing 115kV transmission line crosses the Leeds parcel for approximately 0.6 mile west of Church Hill Road.

The relatively flat topography allows for distant views into the corridors in both directions. Vegetation edging the corridor is mixed evergreen and deciduous at heights ranging from 50' to 70'. The corridor contains one 115kV transmission line supported on wood H-frame structures typically 45' in height and one 115kV transmission line supported on single pole wood structures typically 75' in height. The existing 225' corridor clearing will be widened by 75' on the western side to accommodate the proposed co-located HVDC transmission line. Widening the corridor will not make the corridor visible from the river. The proposed HVDC structures will be typically 100' in height and spaced approximately 1,000' apart. Visitors to this portion of the State Park expect to the see the transmission line and may even use the Project corridor for some recreation pursuits, e.g., snowmobiling, ATV riding, and hunting. Though there will be a moderate contrast in material, color, and structure height, the visual impact to the State Park will be minimal due to the presence of the existing transmission lines. See Photosimulation 23.

Municipal Park or Public Open Space. The only municipal parcel that will have views of Segment 3 will be the **Carrabec High School athletic fields** on the west side of the existing corridor in Anson. The Kennebec Valley Trail runs along the northern edge of the fields and crosses the existing transmission line about 800' north of the Route 8 crossing. The existing 115kV transmission lines are currently visible across the street over a field to the southeast. Currently there is a 150' to 250' wide mixed evergreen/deciduous vegetative buffer between the fields and the existing corridor that screens the views of the transmission lines. The existing 225' cleared corridor will be widened by 75' on the western side to accommodate the proposed co-located HVDC transmission line, decreasing the buffer to 75' to 175' in width. The proposed structures will be typically 100' in height and spaced approximately 1,000' apart. The tip of one structure will be visible above the tree line from the athletic fields and one will be visible south

of Route 8 over the open fields. The visual impact on the athletic fields will be minimal due to the limited amount of structures visible and the remaining vegetative buffer. Photosimulation 21.

Publicly Owned Land Visited, in Part, for the Use, Observation, Enjoyment, and Appreciation of Natural or Man-Made Visual Qualities. Monument Hill, located in Leeds, is a popular short hike to a summit (elev. 665') where a Civil War monument is located. Views from the top look to the east over Androscoggin Lake and to the west toward existing transmission lines 1.5 miles to the west. The existing 115kV transmission line corridor is not readily visible due to intervening vegetation and topography. With the widening of the corridor, the tips of a few proposed HVDC structures may be slightly visible against the wooded backdrop, where their dark brown color will blend with the background vegetation. The widened corridor will be minimally visible and appear similarly to the existing openings. The visual impact to Monument Hill will be minimal.

Public Resource, such as the Atlantic Ocean, a Great Pond, or Navigable River Lower Kennebec River. The Project will cross the Lower Kennebec River south of Wyman Hydroelectric Dam. The existing 150' corridor clearing will be widened by 75' on the western side to accommodate the co-located HVDC transmission line. At this location, viewers also see the Wyman dam, substation, and existing transmission line. The Kennebec River in this area has restricted access due to the potential for rapid water level rise. The visual impact to a viewer in this area will be minimal to none. The lower portion of the **Kennebec River** between Madison and The Forks is rated as a "B" river in the Maine Rivers Study. The section of river between the headwater to the Kennebec River is rated for its Geologic/Hydrologic, Critical/Ecologic, Scenic, Inland Fisheries, Canoe Touring and Historic Resources. The viewshed analysis indicates a potential for Project views in several locations along the 27 miles of the river within the Segment

3 Study Area. This analysis conservatively assumes a maximum 40' tree height to determine visibility. Field work and 3D Modeling has concluded that the vegetation along the river in most locations is taller than 40' and will screen the Project from view. In some isolated areas, such as near the confluence of the Carrabassett River, portions of the proposed HVDC structures may be visible where the riparian vegetation is below 40' in height.

The **Carrabassett River** is a "B" rated river in the Maine Rivers Study. The section of the river between the headwater to the Kennebec River is rated for its Geologic/Hydrologic, Critical/Ecologic, Inland Fishery, Whitewater Boating, Canoe Touring and Historic Resources. While the river is not ranked for Scenic resources, the Study notes that North Anson Gorge has been identified as 'Significant' by the Critical Areas Program because of its scenic and scientific attributes. The Project will cross the Carrabassett River 0.5 mile downstream of the Route 8 bridge on the western side of the existing transmission line crossing in a relatively flat landscape where the river is 450'± wide. The existing 225' corridor clearing will be widened by 75' on the western side to accommodate the proposed transmission line. The proposed structures on either side of the river will be set back 270' on the north side and 223' on the south side, which is similar to or greater than the existing structures. The existing vegetation on either side of the corridor will partially screen the structures from view when approaching the corridor crossing. The Project will not be visible from the North Anson Gorge or from the Route 8 bridge due to intervening topography and vegetation. There will be minimal visual impact to users of the Carrabassett River due to the presence of the existing transmission line and screening effects of preserved riparian vegetation.

The existing transmission line corridor crosses **Sandy River** in Farmington southwest of Route 2. The Maine Lakes Study determined that the scenic resources of this section of Sandy

River were not unique or significant. (The Sandy River from Phillips to the headwaters - not within the Study Area - is rated for scenic resources.) The AMC River Guide: Maine describes the area of the crossing as "smooth and winding" with scenery of rural land use with towns. Agricultural fields line the riverfront, separated by a band of riparian vegetation along the banks. The existing corridor is partially buffered except within the corridor. The existing conductors are visible for approximately 0.3 mile heading southeast downstream, and 0.25 mile looking to the northwest after the crossing.

The 225'-wide cleared corridor will be expanded by 75' on the western side to accommodate the new transmission line. In the open fields the expanded corridor clearings may appear to be extended agricultural fields to those on the river. Approximately five proposed HVDC structures and conductors will be visible at the river crossing along with 10± existing H-frame 115kV structures. The closest proposed HVDC structure will be 150' from the edge of the river, set back further than the existing 115 kV structures. Visual impact on the Sandy River will be minimal due the presence of the existing transmission line and existing openings on both sides of the river. Photosimulation 23.

The Project will be visible from the **Dead River** in Leeds within the existing cleared transmission line corridor. There is an approximately 125'± long suspension bridge for ITS 87 across this section of river. The existing 225' wide cleared corridor will be widened by 75' on the western side to accommodate the new HVDC transmission line. There will be minimal visual impact to the river, due to the presence of the existing transmission line and the preserved riparian vegetation.

Two ponds in Greene may have views of the Project because of their close proximity to the existing transmission corridor. **Allen Pond** is a 183 acre highly developed waterbody

approximately 250 feet east of the existing corridor. Recreational users may see 5 to 6 HVDC structures above the treeline. **Berry Pond** is a 31-acre undeveloped waterbody 1,800'± west of the existing corridor. Recreational users may see up to up to 2 structures. The visual impact on two ponds will be minimal to moderate depending on the viewer's location.

SEGMENT 4: REBUILD OF SECTIONS 62 AND 64, LEWISTON TO POWNAL

Segment 4, a rebuild of Sections 62 and 64, will include a new 345kV Substation off Fickett Road in Pownal and a 0.3 mile 345kV AC Transmission Line that will connect this facility to the Surowiec Substation in Pownal. In addition, two 115kV transmission lines will be rebuilt: a 9.3 mile section between Crowley's Substation in Lewiston and Surowiec Substation in Pownal, and a 16.1 mile segment between Larrabee Road Substation and Surowiec Substation. The typical 45' wooden H-frame structures will be replaced with 75' wooden single pole structures. The rebuilt sections are located in Lewiston, Auburn, Durham, and Pownal.

The area within one mile of Segment 4 is characterized by low rolling hills with average elevations of 100 to 350 feet above the surrounding landscape. Watersheds drain toward the No Name River, Sabattus River, and the Androscoggin River. The vegetation is predominantly mixed evergreen and deciduous second growth. The existing transmission line is edged with a mixture of light mixed hardwoods and stands of 50 to 70-foot tall evergreen trees. Land use in the immediate vicinity of the transmission line is predominantly woodland, farmland, and low to medium density rural residential. Downtown Lewiston is 0.5 mile to the west; Durham village is 3.0± miles to the southeast; New Gloucester is 4.2± miles to the west; and North Pownal is approximately 0.5 mile to the east.

Scenic Resources. Scenic Resources with potential views of the Project include the

Androscoggin River crossing in Auburn and No Name Pond in Lewiston.

Public Resource, such as the Atlantic Ocean, a Great Pond, or Navigable River

The Durham Boat Launch on the **Androscoggin River** in Durham is located 0.6 mile to the southeast of the Project. Views of the Project from the riverfront would be screened by a hedgerow of evergreen trees and existing riparian vegetation.

The proposed Rebuilt Sections 62 and 64 crosses the **Androscoggin River** between Lewiston and Auburn, adjacent to Riverside Drive/Route 136. The section of the Androscoggin River where Segment 4 crosses was not rated as scenic by the Maine Rivers Study. The existing wooden H-frame structures on the either side of the river crossing will be replaced with single pole self-weathering steel structures. The rebuilt section will be supported by single pole wooden structures typically 75' in height. No additional tree removal will be necessary. There will be minimal additional visual impact due to the presence of the existing 345kV transmission line and 115kV transmission lines. Photosimulation 25.

No Name Pond in Lewiston is a 143-acre pond located approximately 0.3 mile from Segment 4. It is not rated in Maine's Finest Lakes. The pond is lightly developed with public access on the north end. From the pond, up to 7 structures and conductors may be visible above the treeline looking to the southwest at a distance of 1.6 miles.

SEGMENT 5

Segment 5 will include a new 26.5-mile 345kV AC transmission line from the existing Coopers Mills Substation in Windsor to the existing Maine Yankee Substation in Wiscasset; partial rebuild of a 0.3 mile segment of the 345kV transmission line between Larrabee Road Substation and Coopers Mills Substation; partial rebuild a 0.8 mile segment of 345kV

transmission line between Maine Yankee Substation and Coopers Mills Substation; approximately 3 miles of re-conductor work on existing double circuit lattice steel towers outside of Maine Yankee; and a partial rebuild of a 0.8 mile segment 115kV transmission line outside of Coopers Mills Substation. Segment 5 is located in Windsor, Whitefield, Alna, Woolwich, and Wiscasset.

The northern portion of Segment 5 (0.7 mile±) will be located between four existing 115kV transmission lines and two existing 345kV transmission lines near Cooper's Mills Substation. The majority of the co-located 345kV transmission line will be located between an existing 115kV transmission line supported on wooden single pole structures typically 75' in height and one existing 345kV transmission line supported by wooden H-frame structures typically 75' in height. The southernmost section (2.9 miles±) from the Maine Yankee Substation crossing Route 1 and Montsweag Brook in Wiscasset includes two or three steel lattice structures, typically 125' in height. The co-located 345kV structure will be supported by wooden H-frame structures typically 75' in height, similar to the existing 345kV structures except for the southern section, which will be supported on existing steel double-circuit lattice structures.

The typical corridor clearing width in the northern section is currently 575' to 640' in width; the majority of the corridor ranges from 300' to 480' in width; the southern section closest to Maine Yankee has a cleared corridor width of 370' to 550'. No additional tree removal is anticipated with the exception of a 1.4-mile section located between Old Stage Road and Bradford Road in Wiscasset, where 75' of additional tree removal will be necessary on the eastern side of the existing cleared corridor.

The northern portion of Segment 5 is characterized by low rolling hills and numerous

linear ponds, small rivers, and meandering streams draining towards the Sheepscot River. Most landforms rise 60 to 400 feet above the surrounding landscape. Vegetative cover throughout the segment is mixed coniferous and deciduous second growth, with many open fields. The transmission line is predominantly edged with 40 to 60-foot tall mixed second growth hardwoods and softwoods.

The area within three miles of the southern section of Segment 5 is characterized by rolling topography with steep-sided wooded ravines cut by streams draining south to Montsweag Bay and the Back River. The former Maine Yankee site at the southern end of Segment 5 is flat, with little vegetation except along the access roads. The vegetation on the land surrounding Segment 5 north of the Maine Yankee site is mixed deciduous and coniferous. The transmission line is edged with 40 to 60-foot tall mixed deciduous and coniferous trees.

Land uses in the immediate vicinity of the northern portion of Segment 5 are predominantly woodland, farmland, gravel pits, rural residential, and some limited commercial along Route 17. Land uses in the immediate vicinity of the southern portion of the Segment 5 transmission line are predominantly woodland, farmland, and rural residential, with highway commercial along the Route One corridor and industrial development near the Maine Yankee Substation site. Windsor is 1.5 miles to the northwest of Coopers Mills Substation, the village of Whitefield is 0.25 mile to the east, the Head Tide Historic District in Alna is 0.5 mile to the east, and the Wiscasset town center is approximately 1.0 mile to the east of Segment 5.

Scenic Resources. The Scenic Resources that were evaluated include the Alonzo Garcelon and Earle R. Kelley Wildlife Management Areas, the West Branch of the Sheepscot River, Sheepscot River, Back River between Wiscasset and Westport Island, Montsweag Brook on the Wiscasset/Woolwich town line, and several waterbodies (Savade Pond, Long Pond,

Travel Pond, Clary Lake, Dresden Bog). Historic structures and districts including Wiscasset Historic District and Head Tide Historic District were evaluated. Additional locally sensitive resources evaluated included villages, private and public conservation lands, and municipal lands.

State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge

The Alonzo H. Garcelon Wildlife Management Area (WMA) in Windsor and the Earle R. Kelley (Dresden Bog) WMA in Dresden and Alna are within the Study Area, but the Project will not be visible from either area due to intervening topography and vegetation.

Public Resource, such as the Atlantic Ocean, a Great Pond, or Navigable River

The Project will be visible from the West Branch of the Sheepscot River in Windsor and from the Montsweag Brook in Wiscasset within the existing cleared transmission line corridor. Approximately 0.4 mile of West Branch is located within the existing cleared corridor south of Maxcy's Mill Road. The transmission line crossing of Montsweag Brook is at the southern end of the Montsweag Dam Preserve, a 22-acre area owned by the Town of Wiscasset. The Montsweag Brook and Montsweag Dam Preserve are used mainly for research by the State and Chewonki staff and students for ongoing monitoring after the removal of the Lower Montsweag Dam. There should be a minimal visual impact to these water bodies since the cleared width of the transmission line corridor will not change and the riparian vegetation within the stream crossing will be preserved.

The Sheepscot River from Wiscasset to the headwaters is rated as an "A" river by the Maine Rivers Study for its geologic/hydrologic, critical/ecologic, scenic, anadromous fisheries, inland fisheries, whitewater boating, and historic resources. The Project will not be visible from the main branch of the Sheepscot River.

Table 6-1. Summary of Photosimulations (Submitted September 2017)

#	PHOTOSIMULATION	DESCRIPTION OF VIEWPOINT
Segment 1		
1	Beattie Pond, Lowelltown Twp	From northern end of pond looking south
2	Wing Pond, Lowelltown Twp	From northern end of pond looking south
3	Rock Pond, T5 R6 BKP WKR	From southeast side of pond looking north,
4	No 5 Mountain,T5 R7 BKP WKR	Summit of mountain within Leuthold Preserve, The Nature Conservancy
5	Fish Pond, Hobbstown Twp	From southern end of the pond looking northwest
6	Attean View Rest Area, Jackman	Route 201, looking southwest
7	Parlin Pond, Parlin Pond Twp	Looking southwest from the north east end of pond
8	Coburn Mtn, Upper Enchanted Twp.	From summit looking southeast
9	Route 201, Johnson Mountain Twp	From intersection of Judd Road at Route 201
10	Kennebec Gorge, Moxie Gore	On Kennebec River looking southwest from picnic area
11	Kennebec Gorge, Moxie Gore	On Kennebec River looking north from picnic area
12	Moxie Stream, Moxie Gore	From the north side of the stream, looking west
Segment 2		
13	Moxie Pond north, East Moxie Twp	Looking southwest from northern end of Moxie Pond
14	Moxie Pond north, East Moxie Twp	Continued pan from northern end of Moxie Pond
15	Moxie Pond south, Bald Mtn Twp T2 R3	Looking west from southern end of Moxie Pond
16	Mosquito Mountain, The Forks Plt	Looking northeast from eastern overlook, on Bayroot LLC land
17	Mosquito Mountain, The Forks Plt	Continued pan looking southeast from eastern overlook, on Bayroot LLC land
18	Troutdale Road, The Forks Plt.	Looking southeast from road within existing corridor, private road
A	Appalachian Trail – Pleasant Pond Mountain, The Forks, Plt	230' southeast of surveyed from summit
B	Appalachian Trail - Troutdale Rd, Bald Mtn Twp	On AT within existing CMP corridor looking southeast towards Joe's Hole
C	Appalachian Trail - Bald Mountain, Bald Mountain Twp	From summit
Segment 3		
19	Route 201, Moscow	View looking northeast from within existing transmission line crossing, east of Wyman Hydro
20	Wyman Lake Recreation Area, Pleasant Ridge Plt	View looking northeast from beach toward dam, area managed by Brookfield
21	Route 8, Anson	View looking north within existing transmission line crossing
22	Route 2, Farmington	View looking south within existing transmission line crossing
23	Androscoggin Riverlands State Park, Leeds	View looking south within existing transmission line crossing

#	PHOTOSIMULATION	DESCRIPTION OF VIEWPOINT
24	Merrill Road, Lewiston	Looking north from within existing transmission line crossing
Segment 4		
25	Riverside Drive, Auburn	Looking north across Androscoggin River
26	Fickett Road Substation, Pownal	Looking southwest from Fickett Road towards proposed substation
Segment 5		
27	Route 1, Wiscasset	Looking south in existing transmission line crossing
28	Route 27, Wiscasset	Looking north in existing transmission line crossing
29	Route 194, Whitefield	Looking south in existing transmission line crossing

Table 6-1 Expanded. Summary of Photosimulations – POST SUBMITTAL

Segment 1		
30	Kennebec Gorge Crossing, Looking Northwest, 3 structure option	Views from within the Proposed Corridor on the Kennebec River Prepared in response to DEP request, Completed 4/10/18
31	Kennebec Gorge Crossing, Looking Southeast, 3 structure option	Views from within the Proposed Corridor on the Kennebec River Prepared in response to DEP request, Completed 4/10/18
32	Kennebec Gorge Picnic Area, Looking Southwest, 3 structure Option,	Revised Psim 32 that was initially submitted in Sept 2017, revised in response to LUPC comments on Jan 22, 2018, and then again on April 10, 2018 regarding the appearance of the conductor location relative to taller white pines along the shoreline and the warped "fish eye" effect of view because of proximity. Completed 4/10/18
33	Kennebec Gorge North of Picnic Area, Looking Southwest, 3 Structure Option.	View from the Kennebec River north of the Moxie Falls Rafting Company's picnic area. Represents the first point of Project visibility for rafters/kayakers. Completed 12/12/17
Segment 2		
34	Carrabassett River, Anson	View looking north from within the Proposal Corridor crossing on the river. Prepared in response to DEP request 11.20.17. Completed June 2018
35	Sandy River, Farmington	View looking south from within the Proposal Corridor crossing on the river. Prepared in response to DEP request 11.20.17. Completed June 2018
Segment 5		
36	West Branch Sheepscot River (Looking West), Windsor	View looking west from within the Proposal Corridor crossing on the river. Prepared in response to DEP request 11.20.17. Completed June 2018
37	West Branch Sheepscot River (Looking North), Windsor	View looking north from within the Proposal Corridor crossing on the river. Prepared in response to DEP request 11.20.17. Completed June 2018

Note: Photosimulation 38 - 41 were completed for the Brookfield Option near Harris Dam		
Leaf Off - Snow Cover Photosimulations – January 2, 2019		
#	**PHOTOSIMULATION**	**DESCRIPTION OF VIEWPOINT**
Segment 1		
42	Parlin Pond, Parlin Pond Twp	View looking southwest from the north east end of pond
43	Route 201 in Parlin Pond Twp	View looking southwest from Route 201, from west of Parlin Pond, toward Coburn Mountain
44	Coburn Mountain, Upper Enchanted Twp	View looking east to south from the observation tower at summit, includes a view of the proposed tapered vegetation management for portion of corridor visible in foreground
45	ITS 89, Parlin Pond Twp	View looking south from a point north of Spencer Road on Weyerhaeuser land
46	ITS 87, Cold Stream Forest Parcel Johnson Mountain Twp	View looking southeast from the ITS 87 snowmobile bridge over Cold Stream, in Cold Stream Forest Parcel adjacent to Capital Road/ Weyerhaeuser land
47	Cold Stream Mountain, Johnson Mountain Twp,	View looking south from a local snowmobile on Cold Stream Mountain on Weyerhaeuser land
Segment 2		
48	Mosquito Mountain, Northeast, The Forks Plt	View looking northeast from the summit of Mosquito Mountain on Bayroot LLC. land
49	Mosquito Mountain, Southeast, The Forks Plt	View looking southeast from the summit of Mosquito Mountain on Bayroot LLC. land
50	Troutdale Road, Bald Mountain Twp	View from AT co-located with Troutdale Road within existing CMP corridor, looking southeast, private road
51	Bald Mountain, Southwest, Bald Mountain Twp	View looking southwest from the summit of Bald Mountain on the Appalachian Trail
52	Bald Mountain, Northwest, Bald Mountain Twp	View looking northwest from the summit of Bald Mountain on the Appalachian Trail
53	Route 201 in Moscow	View looking northeast from Route 201 within the existing transmission line corridor

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)
CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
SITE LAW CERTIFICATION SLC-9	)
Beattie Twp, Merrill Strip Twp, Lowelltown Twp,	)
Skinner Twp, Appleton Twp, T5 R7 BKP WKR,	)
Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF
TERRENCE J. DEWAN

Regarding

- Issue 1: Scenic Character and Existing Uses
- Issue 3: Alternatives Analysis

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Terrence DeWan. I am the principal and founder of Terrence J. DeWan & Associates, a landscape architecture and planning firm located at 121 West Main Street in Yarmouth, Maine. I received a Bachelors of Science in Landscape Architecture (BSLA) degree

in 1968 from the State University of New York College of Environmental Sciences and Forestry in Syracuse, New York.

I served as a consultant to the Maine Department of Environmental Protection (DEP) in the development of the Chapter 315 Scenic Impact Rules. I authored the Scenic Assessment Handbook for the Maine State Planning Office. I served as an advisor to the Governor's Task Force on Wind Power Development in Maine. I served on a state-sponsored study group to develop an assessment of cumulative visual impacts from wind power development. I recently served as an advisor to the Land Use Planning Commission on rules pertaining to Hillside Development in the Unorganized Territories. Over the past decade I have been invited to deliver presentations on visual assessment procedures and related topics at several national conferences (e.g., American Society of Landscape Architects, American Planning Association, and National Association of Environmental Professionals). I recently completed two peer reviews for the Argonne National Laboratory on visual impact analysis: one for the National Park Service, the other for the Bureau of Land Management. In 2011, I was elected to become a Fellow of the American Society of Landscape Architects, the first person from Maine ever to achieve that honor. I am currently the chair of the Maine State Board for Licensure of Architects, Landscape Architects, and Interior Designers. My resume is attached hereto as Ex. CMP-6-A.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

This testimony provides my assessment of the potential effect that the Project may have on scenic and aesthetic uses. I conclude with my opinion that the Project will not unreasonably interfere with existing scenic and aesthetic uses, and does not diminish the public enjoyment and appreciation of the qualities of the scenic resources, and any potential impacts have been minimized. The activity will not have an unreasonable impact on the visual quality of protected

natural resources as viewed from a scenic resource. The development will not adversely affect scenic character. There are no practicable alternatives to the proposed activity that will have less visual impact, and there is no reasonable alternative to the outstanding river segment crossings that would have less adverse effect upon the natural and recreational features of these river segments. With respect to portions of the Project located in LUPC's P-RR subdistricts, the Project will be buffered from those uses within the vicinity or area likely to be affected by the proposal with which it is or may be incompatible, and there is no alternative site which is both suitable to the proposed use and reasonably available to CMP.

III. Summary of Testimony (Relevant to DEP and LUPC Review)

I hereby adopt the pre-filed direct testimony Amy Bell Segal as if it were my own.

Exhibits:
CMP-6-A: DeWan CV

Dated: 2.26.19

Respectfully submitted,

Terrence J. DeWan

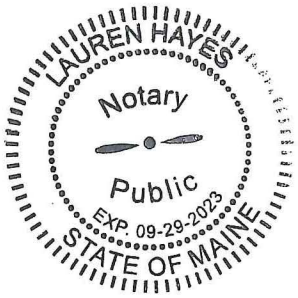
STATE OF MAINE
York, ss.

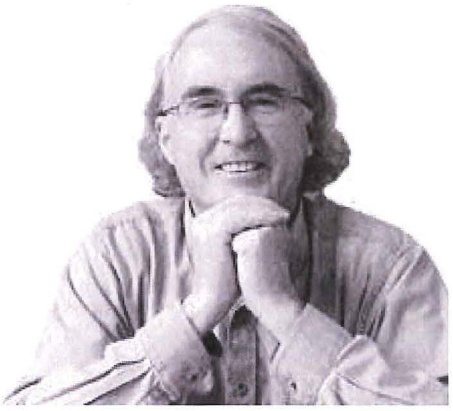
The above-named Terrence J. DeWan did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: 2.26.19

Notary Public
Name: Lauren Hayes
My Commission Expires:





PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #6

EDUCATION

BSLA State University of New York
Environmental Sciences and Forestry
Cum Laude

PROFESSIONAL EMPLOYMENT

1988 - present	Terrence J DeWan & Associates Landscape Architects & Planners Yarmouth, ME
1977 - 1988	Mitchell-DeWan Associates Landscape Architects & Planners Portland, ME
1976 - 1977	Center for Natural Areas South Gardiner, Maine
1973 - 1976	Moriece and Gary of Maine Portland, ME
1971 - 1973	The Architects Workshop Philadelphia, PA
1970 - 1971	Peter G. Rolland and Associates Rye, NY

PROFESSIONAL AFFILIATIONS

Maine State Board for Licensure of Architects, Landscape Architects and Interior Designers

American Society of Landscape Architects

Boston Society of Landscape Architects

American Planning Association

Maine Association of Planners

Council of Landscape Architects Registration Boards

Royal River Conservation Trust, Board of Directors

TERRENCE J. DEWAN FASLA

PRINCIPAL

Terry DeWan has over 45 years of professional experience in landscape architecture, visual resource assessment, site planning, design guidelines and community development. His experience includes work with communities, state agencies, private developers, utility companies, and the forest products industry in New England. He has written numerous studies on visual impacts, community planning, recreation planning, water access and highway corridor redevelopment.

SELECTED PROJECT EXPERIENCE

Visual Impact Assessments

NEW ENGLAND AQUA VENTUS, ***Off Monhegan Island, ME.*** Visual Impact Assessment (VIA) for a 12 MW floating wind pilot project to produce renewable energy off Maine's shore. The project includes two 6 MW turbines on semi-submersible hulls designed by the University of Maine and partners.

NORTHERN PASS TRANSMISSION PROJECT, ***Northern and Central NH.*** VIA for a 192-mile transmission line to bring 1,090 MW of energy from Hydro-Quebec to NH and the rest of New England. Eversource.

BULL HILL AND HANCOCK WIND PROJECTS, ***Hancock County, ME.*** VIA for adjacent wind projects with a total of 37 turbines with a capacity of 89 MW. Blue Sky East LLC

SPRUCE MOUNTAIN WIND PROJECT, ***Woodstock, ME.*** VIA for a 10-turbine wind project with a capacity of 20 MW. Patriot Renewables.

SADDLEBACK MOUNTAIN WIND PROJECT, ***Carthage, ME.*** VIA for a 12-turbine wind project with a capacity of 34 MW. Patriot Renewables.

MAINE POWER RELIABILITY PROGRAM. VIA for 352 miles of new 115 kV and 345 kV transmission line corridor system upgrades in 82 Maine towns, for Central Maine Power.

STETSON I & II WIND PROJECT, ***Washington County, ME.*** VIAs for two adjacent projects with a total of 55 turbines with a capacity of 82 MW. Evergreen Wind V, LLC.

PINNACLE WIND FARM AT NEWPAGE, ***Keyser, West Virginia.*** Visual impact assessment in support of state permitting applications for a 23-turbine wind project with a capacity of 55 MW. US Wind Force / Edison Mission Energy.

MAINE GOVERNOR'S TASK FORCE ON WIND POWER DEVELOPMENT. Consultant on aesthetics and visual resources to the Governor's Task Force.

MAINE DEP / VISUAL ASSESSMENT RULES. Consultant to DEP in the formulation of Chapter 315 Regulations: Assessing and Mitigating Impacts to Existing Scenic and Aesthetic Uses. Served on DEP Task Force for the development of the rules.

HUDSON LANDING, ***Kingston, NY.*** A review of the VIA and Development Guidelines for a 1,750-unit community on the Hudson River. Redesign of the site to incorporate sustainable development principles in recognition of its proximity to Scenic Areas of Statewide Significance. Hudson River Heritage.

AWARDS AND EXHIBITIONS

Fellow, American Society of Landscape Architects

Council of Landscape Architects Registration Boards. Presidents Awards.

Boston Society of Landscape Architects Excellence Award for Outstanding Professional Practitioner.

Boston Society of Landscape Architects Merit Award for Planning: From the River to the Bay: a Parks, Recreation and Open Space Plan for Brunswick, Maine.

American Society of Landscape Architects Merit Awards for Communications:
- Los Angeles River Greenway.
- Chattahoochee River Greenway, Atlanta GA

Maine Association of Planners
- Scenic Assessment Handbook
- Scenic Inventory of Penobscot Bay
- A Guide to Livable Design
- Portland Shoreway Access Plan

SELECTED PUBLICATIONS

Design Guidelines, Salem, NH. Adopted by Planning Board March 2010.

Scenic Assessment Handbook. Maine State Planning Office. 2008.

Royal River Corridor Study. Town of Yarmouth, Maine. With Stantec. 2008.

A Vision for the Moosehead Lake Region. Natural Resources Council of Maine. 2006.

Kittery Design Handbook. Kittery Planning Board. 2004

The Great American Neighborhood, A Guide to Livable Design. ME SPO. 2004.

Scenic Inventory, Mainland Sites of Penobscot Bay. Maine State Planning Office. 1990.

Scenic Assessment, Lincolnville, Maine.

ST. LAWRENCE CEMENT, *Hudson, NY.* Led a team of visual and cultural specialists to evaluate potential scenic impacts from a proposed cement plant for groups concerned about the future of nearby historic Hudson Valley communities. Project was ultimately rejected by the NY Department of State. Scenic Hudson and Friends of Olana.

DOWNEAST LNG, *Robbinston, ME.* VIA for LNG terminal on the shores of Passamaquoddy Bay. Project would have included an LNG storage tank, an import/export pier, and various shorefront facilities. Downeast LNG, Inc.

BANGOR HYDRO-ELECTRIC. SECOND 345 KV TIE LINE. VIA for a new 345 kV transmission line along the Stud Mill Road from Orrington, ME to New Brunswick, Canada.

Scenic Inventories + Conservation Plans

FISH RIVER LAKES CONCEPT PLAN, *Northern Arrostook County, ME.*
A long-range conservation and limited development plan for 50,000 Ac of woodlands in Northern Maine. Irving Woodlands.

SCENIC INVENTORIES: MAINLAND SITES OF PENOBSCOT BAY, ISLESBORO, VINALHAVEN, NORTH HAVEN, *Maine State Planning Office*

ROUTE 27 SCENIC INVENTORY AND SCENIC BYWAY CORRIDOR MANAGEMENT PLAN. Long-term plan for Route 27 between Kingfield and Canada. Maine Department of Transportation.

PRELIMINARY FACILITIES AND INTERPRETIVE MEDIA PLAN, KANCAMAGUS SCENIC BYWAY, *White Mountain National Forest, New Hampshire.* Demonstration forest, hiking trails, interpretive exhibits, overlooks, outdoor amphitheater.

Peer Reviews

ARGONNE NATIONAL LABORATORY
Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands
National Park Service Visual Impact Assessment Guidance Document.

CAPE WIND ENERGY PROJECT, *Nantucket Sound, MA.* Peer review of DEIS prepared by Minerals Management Service.

Selected Presentations

THE MAINE WIND ENERGY ACT IN A TIME OF CHANGE. Visual Resource Stewardship Conference, Argonne National Laboratory, Lemont IL November 2017

THE MAINE WIND ENERGY ACT, VISUAL ASSESSMENT PROCEDURES FOR GRID SCALE WIND PROJECTS, National Association of Environmental Professional Meeting, Portland, OR 2012

SOCIAL ACCEPTANCE OF WIND ENERGY- ADDRESSING VISUAL IMPACT IN SKEPTICAL COMMUNITIES. ASLA Annual Meeting San Diego, CA. 2011.

SCENIC INVENTORY TRAINING. Washington and Hancock Counties, Maine State Planning Office. 2009.

Dwyer, Peggy (CMP-7)

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
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Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF
PEGGY DWYER

Regarding

- Issue 1: Scenic Character and Existing Uses

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

From 2009 until the present, I have worked for Dirigo Partners Ltd. (Dirigo) as Lead Agent on Special Projects. Dirigo provides contract real estate services to Central Maine Power Company (CMP) and its affiliate companies. In my role as a Lead Agent on Special Projects, I conduct preliminary and alternate route development, analysis, and mapping in the field and using GIS technology. I collaborate with surveyors, title attorneys, construction contractors, and

CMP's permitting, regulatory, and environmental services to refine routing. I work as a liaison between landowners and CMP, serving as landowners' primary point of contact with CMP, from the negotiation and acquisition stages of project development through the permitting, construction, post-construction, and mitigation stages of project development.

Outside of my work with Dirigo, I am an avid outdoorswoman. I have been an active member of the Forks area river-running community since 1988. For 10 years, I leased a camp in The Forks. My life partner was a forester with Scott Paper Company, Sappi, and Plum Creek, now Weyerhaeuser. His area of responsibility included the Project area from West Forks to the Canadian border, and together we spent countless hours exploring, hunting, fishing, and enjoying the region's roads, woods, and waters. I am a whitewater guide, kayaker, and wilderness trip leader. I worked for Voyagers Whitewater and Professional River Runners, leading day trips and overnight excursions, and training professional river guides, from 1988 to 2008. I have participated in and led numerous private, commercial, and scientific expeditions on the Colorado River through Grand Canyon National Park, from 1991 through last year. I am planning to work another Grand Canyon expedition this fall, and I continue to lead private trips on Maine's navigable rivers as a private boater, focusing most of my time on the Kennebec River in the reach from Harris station to Caratunk.

Attached hereto as Exhibit CMP-7-A is my CV, which provides additional background on my experience relevant to this testimony.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

My testimony concerns whether the New England Clean Energy Connect Project (NECEC or Project) will adversely affect or unreasonably interfere with existing recreational and navigational uses. My testimony further concerns whether the Project can be buffered from

recreational and navigational uses within the Land Use Planning Commission's (LUPC) Recreation Protection (P-RR) subdistrict.

III. Summary of Testimony (Relevant to DEP and LUPC Review)

Based on my experience as an avid outdoorswoman who has personally utilized the Project area for recreational and navigational uses for decades, the Project will not adversely affect, nor will it unreasonably interfere with, existing recreational or navigational uses. So too will the Project be buffered from recreational and navigational uses within the LUPC's P-RR subdistrict.

IV. Recreational and Navigational Uses (Relevant to DEP and LUPC Review)

For more than 30 years, I have used vast tracts of private working forest land, including the extensive network of logging roads and bridges paid for and maintained by the large landowners who allow recreational use on their property, provided that it does not interfere with their primary uses of forest and dam management. It is beautiful there, but I would by no means call it wilderness. I am well accustomed to the sights, sounds, and smells of active forest management on an industrial scale. These impacts have in no way dampened my enthusiasm for hunting, fishing, and foraging; hiking, biking, and snowmobiling; and birding and boating in the areas the Project will cross and from which the Project will be visible between Caratunk and Canada, including those areas in the LUPC's P-RR subdistrict.

The NECEC Project will not adversely impact my enjoyment of this area. A strip of land will be converted from part of an industrial woodlot currently cycling through stages of growth and harvesting to a stable green zone of shrub-scrub habitat.

Beattie Pond

The NECEC corridor creates no new access to Beattie Pond. CMP will have access through the gate for construction and maintenance of the transmission line, but has agreed to

honor the landowner's access policy. Current landowner policy does not allow public vehicle access beyond a point 0.6 mile from the pond, and access is only between June 1 and September 30.

Kennebec River Gorge

CMP's underground crossing of the Kennebec River above Moxie Stream will be undetectable to the Kennebec river-running community. Plans show clearing for the termination stations at about 1,150 feet from the edge of the river on the west side and about 1,450 feet from the edge of the river on the east side. Termination structures are located an additional 400+/- feet further from the edge of the river. Because the NECEC will be underground at the Kennebec River crossing, it will have no recreational, navigational, or visual impact to the river.

Moxie and Cold Stream

Although the NECEC will be visible from some river-running put-in locations, it will not have a negative impact. A very small subset of boaters, mostly expert whitewater kayakers, occasionally run Moxie Stream and Cold Stream during high water events, typically during early spring and late fall. Navigational conditions include high water volume, steep gradient, and very cold temperatures. Please refer to the attached exhibit, labeled CMP-7-B, which shows typical boating conditions for Cold Stream. Exhibit CMP-7-C shows typical boating conditions for Moxie Stream. Both of these exhibits also show that the Moxie Stream and Cold Stream NECEC Project crossings occur at the traditional put-in (the beginning of a river run) areas used by private boaters accessing the river over private roads.

When I ran those streams, I was there purely for the adrenaline. The presence of an overhead crossing at the put-in would make no difference to me. In fact, most of the other premiere whitewater runs in Maine, including the Kennebec Gorge, Ripogenus Gorge, the

Carrabassett River, and most of the smaller and more challenging runs, begin at or under transmission lines, adjacent to dams or bridges, and along roadsides.

Moxie Pond

The NECEC transmission line will be located in the existing CMP transmission line corridor, which crosses the south end of Moxie Pond where Baker Stream enters Moxie Pond at what is known as Joe's Hole. Additional clearing of 75 feet will occur, but the cleared area will remain early successional shrub-scrub. Recreational use will not be impacted. Small water craft will be able to pass under the NECEC transmission line just as small water craft currently pass under the existing CMP transmission line. The only two recreational uses that could possibly be affected by either the existing transmission line or the NECEC line are floatplane takeoff/landing and use of a sailboat under the line. Joe's Hole is of marginal size for either of these uses; there are no known issues with either of these uses and the existing line, which is closer to the water and more exposed to the open pond than the NECEC line will be.

CMP has made extensive provision for buffering the development from recreational and navigational uses. The most efficient alignment of a new transmission line starts with a straight line from point A to point B. Every angle point you see on the Project overview (see Exhibit CMP-7-D) represents a thoughtful, proactive effort to minimize an impact at the planning stage, to move away from a water body, road, or viewshed, tuck the line behind screening topography, and to situate as much of the line as possible on intensely managed industrial forest land. These efforts have resulted in minimizing any impact on recreational and navigational uses.

V. Conclusion (Relevant to DEP and LUPC Review)

It is my opinion that the Project will not adversely affect, nor will it unreasonably interfere with, existing recreational or navigational uses. Where the Project is located within the P-RR subdistrict, it will be buffered from other uses and resources within that subdistrict.

Exhibits:
CMP-7-A: Dwyer CV
CMP-7-B: Navigational Conditions on Cold Stream
CMP-7-C: Navigational Conditions Moxie Stream
CMP-7-D: Thoughtful siting on private land purchased from supporting landowners

Dated: February 26, 2019

Respectfully submitted,

Peggy Dwyer

STATE OF MAINE
Kennebec, ss.

The above-named Peggy Dwyer did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Before,

Dated: February 26, 2019

Kenneth H. Freye, Notary Public
My Commission Expires: 9/17/2020

KENNETH H. FREYE
Notary Public-Maine
My Commission Expires
September 17, 2020

Peggy Dwyer
Dirigo Partners Ltd.
83 Edison Drive, Augusta, Maine 04336
(207) 897-5730
peggy.dwyer@dirigopartnersltd.com

Education

State University of New York, Delhi, NY
Associate of Applied Science (AAS), 1977
Concentration: Veterinary Medical Technology

Relevant Professional Experience

Lead Agent/Special Projects — April 2009 - Present
- Dirigo Partners Ltd. — Augusta, Maine

Project development, mapping, and field work for client Central Maine Power Company and affiliates, including collaboration with surveyors, title attorneys, construction contractors, permitting, regulatory, and environmental services. Provide site and project-specific reports, exhibits, and updates. Acquire real estate required to support special projects. Serve as the landowner's primary point of contact with the client from acquisition and permitting through post-construction remediation.

Resource Administrator/Lease Manager — April 2013 - Present
- Dirigo Partners Ltd. — Augusta, Maine

Professional management of 1,300 acres of real estate in Maine and New Hampshire's Upper Androscoggin River region, including 80 individual leases for seasonal camps and boat docks, commercial recreation, hydropower generation, and an Atlantic salmon hatchery.

Resource Administrator, Maine Department of Conservation — January 2000 - June 2008
- Maine Land Use Regulation Commission — Augusta, Maine

Provided analysis, management, and reporting of fiscal, planning, and legislative issues relevant to land use planning and development within Maine's Unorganized Territory. Worked to develop and retain a fully engaged board of Commissioners able to meet their land use planning and oversight responsibilities. Conducted and led public meetings, site inspections, and field trips with LURC Commissioners, legislators, and large landowners throughout the jurisdiction.

Relevant Recreational and Navigational Experience

Whitewater Guide and Wilderness Trip Leader — 1988 - Present
- Private boater and trip leader (1988 - Present) — Maine Rivers
- National Park Service (2009 - 2018) — Grand Canyon, Arizona
- Professional River Runners of Maine (1992 - 2013) — West Forks, Maine

- Canyoneers Inc. (2007) — Grand Canyon, Arizona
- Voyagers Whitewater (1988 - 1991) — West Forks, Maine

More than 30 years of experience providing and supporting safe and challenging outdoor experiences, as well as teaching technical outdoor skills and environmental ethics to people of all ages and abilities on commercial, private, research, and cultural trips.

Professional Certifications and Registrations

- Qualified Boat Operator (Canyoneers Inc., Ceiba Adventures, National Park Service)
- Maine State Licensed Real Estate Broker (with specialized experience in transmission line corridor and substation acquisition, landowner negotiations, title work, document production, survey, mapping, and GIS)

Civic and Charitable Activities

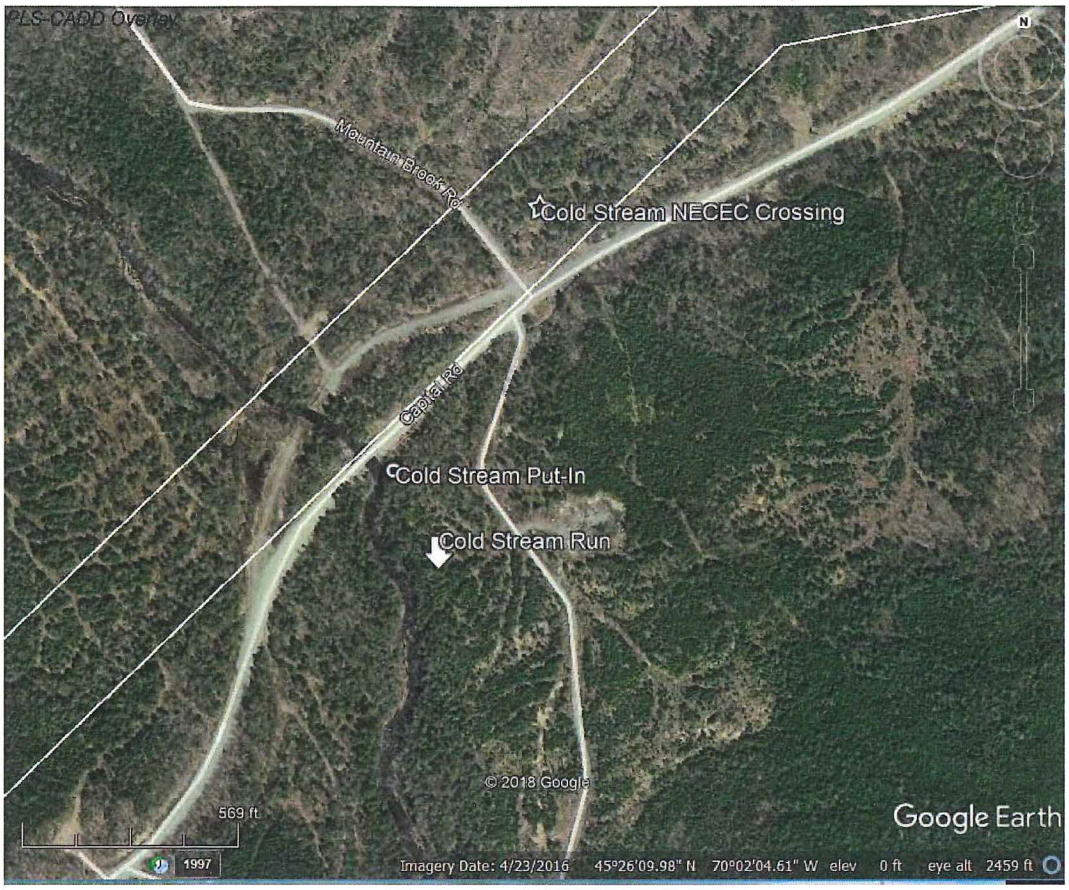
Tail Waggin' Tutors, Spruce Mountain Elementary School — September 2008 - Present
- Therapy Dogs International, Inc. — Livermore, Maine

Providing qualified volunteer handlers and their certified therapy dogs for visitations in a variety of facilities.

Town of Livermore Board of Appeals — January 2009 - Present
- Town of Livermore — Livermore, Maine

Comprehensive Plan Committee — October 2006 - April 2008
- Town of Livermore — Livermore, Maine

Cold Stream Put-In

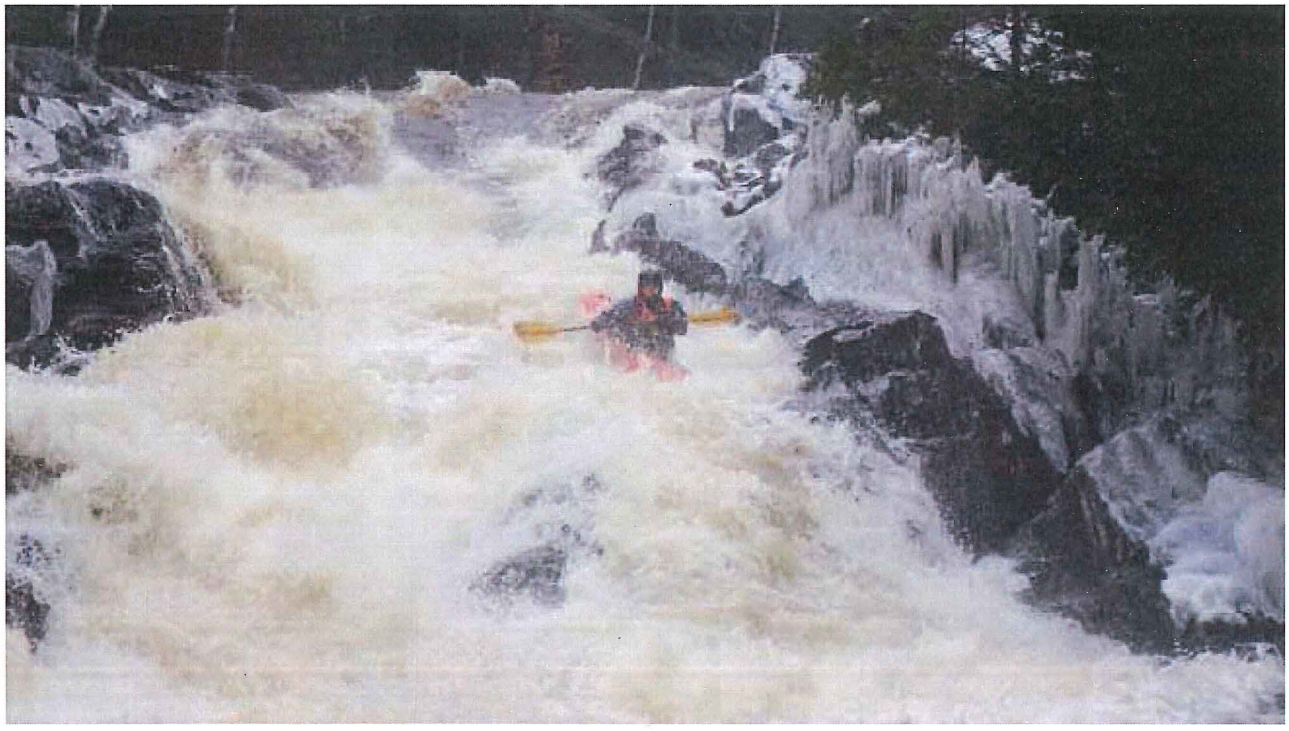


Cold Stream Boater

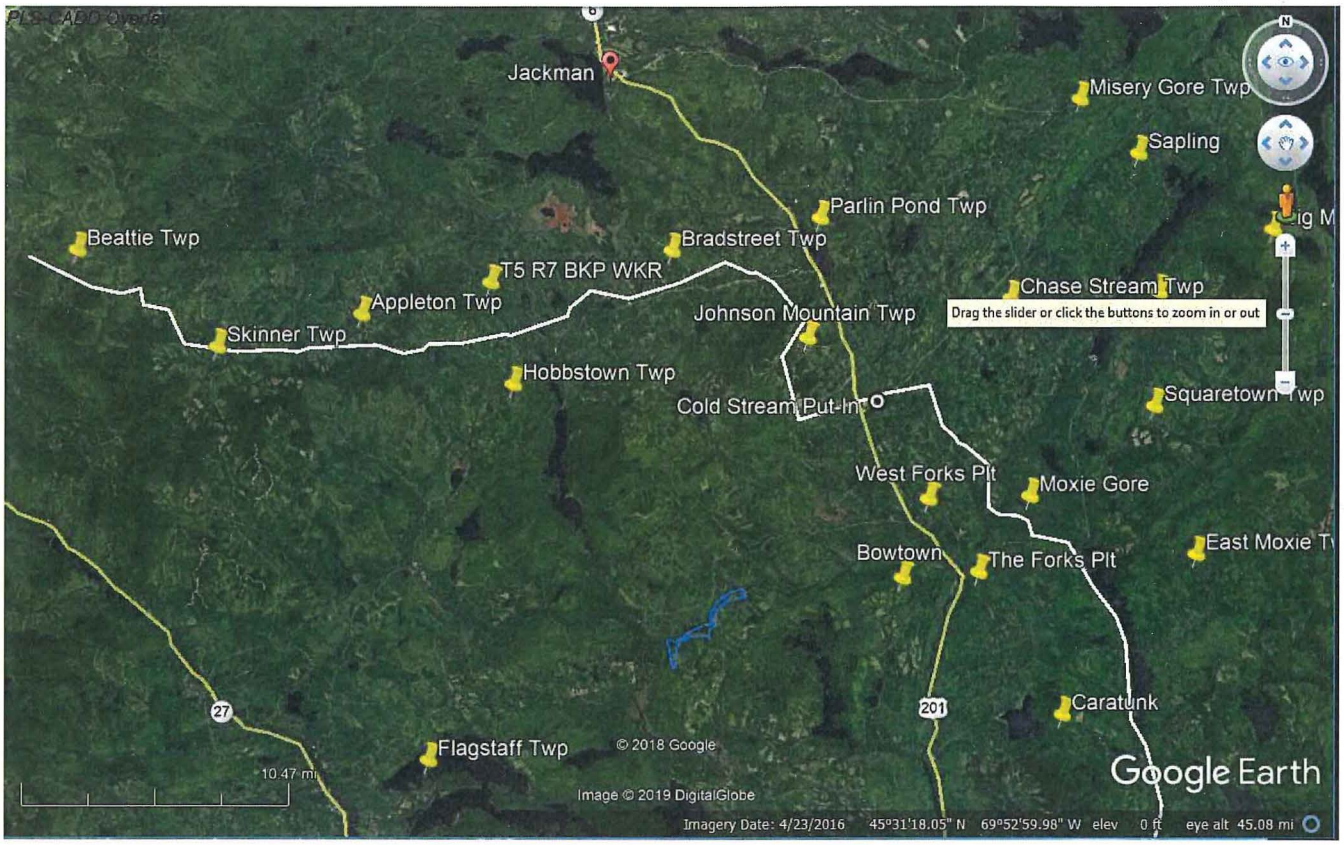
Moxie Stream Put-In

Navigational Conditions on Moxie Stream

Moxie Stream Boater



Thoughtful siting on private land purchased from supporting landowners
Proactive planning fit the development harmoniously into the existing natural environment and buffers it from public recreational and navigational uses.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

and

STATE OF MAINE
LAND USE PLANNING COMMISSION

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY	)
NEW ENGLAND CLEAN ENERGY CONNECT	)
#L-27625-26-A-N/#L-27625-TG-B-N/	)
#L-27625-2C-C-N/#L-27625-VP-D-N/	)
#L-27625-IW-E-N	)

CENTRAL MAINE POWER COMPANY	)
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Hobbstown Twp, Bradstreet Twp,	)
Parlin Pond Twp, Johnson Mountain Twp,	)
West Forks Plt, Moxie Gore,	)
The Forks Plt, Bald Mountain Twp, Concord Twp	)

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF BRIAN BERUBE

Regarding

- Issue 3: Alternatives Analysis

February 28, 2019

I. Qualifications of Witness (Relevant to DEP and LUPC Review)

My name is Brian Berube and I am the Manager of Real Estate Services for AVANGRID Service Company on behalf of Central Maine Power Company ("CMP") for the New England Clean Energy Connect Project ("NECEC" or "Project").

I have been a real estate, land surveying, and GIS (Geographic Information System) professional for over 10 years, working with a variety of clients as a consultant and real estate professional and now for AVANGRID Service Company on behalf of CMP for the NECEC Project. I obtained my Bachelor of Science, Forest Operations from the University of Maine in December 2008. In May 2011, I obtained a Master of Business Administration, Finance from the University of Maine. I hold active professional licenses and certificates including a Maine Associate Brokers License (BA9191329), a Maine State Land Surveyors License (PLS 2500), and a GIS Professional certificate (91819).

From January 2008 to September 2012 I was employed by CES, Inc. in Brewer, Maine as a GIS Analyst/Land Surveyor Technician, and then with Nadeau Land Surveys in Portland, Maine from September 2012 to September 2013 as a GIS Project Manager/Professional Land Surveyor. During this time period I provided consulting services for integrated GIS solutions for a variety of clients and performed services including siting new transmission and substation assets for energy clients within the State of Maine.

From September 2013 to April 2015, I was employed by The Boulos Company (formerly CBRE | The Boulos Company) in Portland, Maine. In that role I was responsible for contract negotiations, financial and underwriting analysis, site location development analysis, and executing brokerage assignments related to the purchase, sale, and leasing of commercial real estate assets.

From March 2015 to May 2018, I was a lead and senior lead GIS Analyst with AVANGRID Service Company responsible for integrating and implementing GIS solutions for a variety of business areas including outage management and response, data analytics, field operations, customer service and emergency preparedness.

In my current role, I am responsible for the procurement, disposition, and management of Networks real property assets for all AVANGRID operating companies including on behalf of CMP for the NECEC Project.

My CV is attached hereto as Exhibit CMP-8-A.

II. Purpose and Scope of Testimony (Relevant to DEP and LUPC Review)

This testimony discusses CMP's consideration and analysis of alternatives to the proposed location and character of the NECEC Project, and demonstrates that there are no alternatives that would lessen its impact on the environment or the risks it would engender to the public health or safety, without unreasonably increasing its cost. As described below, and as set forth in its September 27, 2017 and October 19, 2018 applications, CMP has demonstrated that a less environmentally damaging practicable alternative to the Project, which meets the Project's purpose, does not exist. Where the Project crosses an outstanding river segment as identified in title 38, section 480-P, this testimony demonstrates that no reasonable alternative exists which would have less adverse effect upon the natural and recreational features of those river segments. This testimony is germane to both the DEP's and the LUPC's review of the Project.

III. Summary of Testimony (Relevant to DEP and LUPC Review)

CMP has sufficiently analyzed alternatives to the Project and demonstrated that there are no alternatives that would lessen the Project's impact on the environment or the risks it would engender to the public health or safety, without unreasonably increasing its cost. A less environmentally damaging practicable alternative to the Project, which meets the Project's purpose, does not exist.

Where the Project crosses an outstanding river segment, CMP has demonstrated that no reasonable alternative exists which would have less adverse effect upon the natural and recreational features of that river segment. Furthermore, CMP has shown by substantial

evidence that there is no alternative site which is both suitable to the proposed use and reasonably available to CMP.

IV. Issue 3 (Alternatives Analysis) Discussion (Relevant to DEP and LUPC Review)

The alternative route analysis that CMP performed for the NECEC Project considered the entirety of the new HVDC line, which will run from the Canadian border to an interconnection point at Larrabee Road Substation (Segments 1, 2, and 3), and associated substation upgrades. An alternative route analysis was not performed for the remaining Project components (i.e., Section 62/64 115kV rebuilds (Segment 4) and the new Section 3027 345kV line (Segment 5)) because they are proposed in existing CMP corridors. As such, any route alternatives to these proposed line sections would occur in new corridors, which would not meet the objective of considering alternatives that would lessen project impact on the environment.

The three HVDC transmission line routes that CMP analyzed would meet the Project's purpose of delivering clean energy generation from Québec to New England. However, as discussed below, the two alternative routes, as compared to the Preferred Alternative, would result in more environmental impact than the proposed route for the NECEC corridor, and are not practicable.

CMP also considered the no-action alternative, which is not constructing the NECEC Project. However, that alternative would not meet the Project's purpose and need of allowing CMP to deliver 1,200 MW of the clean energy generation from Quebec to New England at the lowest cost to ratepayers. Nor is there any evidence that another project could be built to satisfy the Project's purpose and need, or that another project would be less environmentally damaging. Indeed, a non-CMP project would have unknown environmental impacts.

In addition to the comprehensive analysis of alternatives completed for the NECEC, the various segments of the route have been designed to include site-specific adjustments to utility

structure locations, temporary access roads, and substation designs that avoid and minimize potential natural resource impacts to the greatest extent practicable.

Each segment of the NECEC Preferred Alternative was assessed using GIS datasets available from the Maine Office of GIS, Maine Department of Inland Fisheries & Wildlife (MDIFW), Maine Natural Areas Program (MNAP), and the National Wetland Inventory (NWI). These datasets included: rare, threatened, and endangered species; unique natural areas; significant wildlife habitat; wetlands designated in the NWI; public lands (e.g., state and local parks); and conservation land trust properties. Field surveys were completed during the 2015, 2016, and 2017 field seasons to identify new and verify previously mapped vernal pools, wetlands, rivers, and streams. Desktop reviews of prehistoric and historic archaeological sites and historic architectural resources were conducted to locate potentially significant cultural resources. Visual analysis field surveys were conducted and photosimulations were created to study visual impacts.

After selecting the NECEC Preferred Alternative, CMP designed each transmission component to further avoid and minimize environmental impacts while maintaining a cost-effective and technically sound design in accordance with Chapters 310, 315 and 335.

These goals were achieved through two key design considerations. First, CMP attempted to site and design each NECEC transmission line segment within existing transmission corridors owned by CMP, although this was not practicable in all cases. Second, CMP will access the new corridor portions from secondary logging roads where practical, locate angle points near existing logging roads where practical, and manage tangent lengths to minimize the number of structures. CMP also established structure locations and temporary access roads that, to the extent practicable, avoided protected natural resources.

In some instances, construction within areas of mapped protected or sensitive species occurrences or plant communities cannot be avoided due to topography or safety concerns associated with existing infrastructure, but the proposed work will not necessarily adversely impact the species or identified resource. In some instances, rare plant or natural communities are enhanced by, or result from, conditions created and maintained within transmission line corridors. Furthermore, the species, plant community, or habitat mapped in the vicinity may not occur within the specific area of proposed construction, or may be absent at the time of construction. CMP has consulted with MNAP and MDIFW regarding potential rare, threatened, and endangered plant communities and animal occurrences along the proposed transmission line corridors to ensure that potential effects on sensitive biological resources during and after construction are avoided and minimized to the maximum extent practicable.

A. Alternative Route Evaluation (Relevant to DEP and LUPC Review)

The HVDC transmission alternatives were evaluated and compared based on the following parameters, as more fully discussed in Section 2.3.2.1 of the NRPA Application:

- Conserved Lands
- Existing Corridor
- Clearing
- Stream Crossings
- Transmission Line Length
- National Wetlands Inventory (NWI) Mapped Wetlands
- Deer Wintering Areas
- Inland Waterfowl and Wading Bird Habitat
- Public Water Supplies
- Significant Sand and Gravel Aquifers
- Parcel Count Total

HVDC Alternative 1

As more fully described in Section 2.3.2.2.1 of CMP's NRPA Application, in the late 1980s CMP attempted to acquire and permit a transmission line project from Québec to the

Lewiston, Maine area. It is in this corridor that CMP based HVDC Alternative 1 (Alternative 1). See Exhibit CMP-8-B. CMP acquired title, right, or interest on this corridor in the late 1980s, primarily through real estate option agreements. However, the Maine Public Utilities Commission did not approve this project and these real estate option agreements have since expired. The Alternative 1 corridor would extend from the Canadian border in western Maine approximately 119.3 miles to an interconnection point in Lewiston, Maine (***see Figure 1-1980's Quebec Corridor Description***). Alternative 1 would be located primarily in a new corridor and partially in undeveloped width in existing corridors. From the point of intersection with the Section 278 corridor (about 2.25 miles north of the Livermore Falls Substation) south to Larrabee Road Substation, a distance of approximately 26 miles, Alternative 1 is the same as the NECEC Preferred Alternative.

Table 1, attached hereto as Exhibit CMP-8-C, compares the NECEC Preferred Alternative with Alternative 1. As demonstrated in the table, and further explained in Section 2.3.2.2.2 of the NRPA Application, the environmental resources traversed by both routes does not substantively differentiate the two routes in terms of overall number of resources impacted. However, when assessing the extent of impact, the conversion of habitat is much greater along the Alternative 1 route than the Preferred Route. Alternative 1 transmission structures would be visible from Black Mountain Ski Area in the Town of Rumford, Maine, Rapid River in Upton, and Aziscohos Mountain in Lincoln Plantation as well as from the Appalachian Trail. The Preferred Route is comparatively advantageous in that it would cross the Appalachian Trail in a location with an existing overhead transmission line corridor. Alternative 1 would require the acquisition of 120 parcels of private land in addition to rights needed to cross conservation lands. Additionally, 93.1 miles of Alternative 1 consists of a new corridor. For these reasons,

Alternative 1 is more environmentally damaging than the NECEC Preferred Route, would have a greater visual impact, and is not a practicable alternative.

HVDC Alternative 2

As described in Section 2.3.2.3 of the NRPA Application, HVDC Alternative 2 (Alternative 2) would extend from the Canadian border in western Maine approximately 138.5 miles to an interconnection point in Lewiston, Maine. See Exhibit CMP-8-D. The line would be located partially in a new corridor and partially in undeveloped width in existing corridors. From the point of intersection with the Section 63 corridor in northeastern Concord Township, which is approximately 0.75 mile south of the Wyman Dam, Alternative 2 would follow the preferred route to Larrabee Road Substation in Lewiston.

Table 2, attached hereto as Exhibit CMP-8-E, compares the NECEC Preferred Alternative with Alternative 2. As demonstrated in the table, and further explained in Section 2.3.2.3.2 of the NRPA Application, Alternative 2, while slightly shorter and containing less new corridor than the Preferred Alternative, has more wetland and stream crossings than the Preferred Alternative and would create more significant environmental impacts as well as severe land acquisition and social impact issues. Approximately 34 parcels would need to be acquired, including rights across Penobscot Indian Nation lands, the Bigelow Preserve, and the Appalachian Trail corridor. Past attempts by others, including Highland Wind and Fletcher Mountain Wind (a/k/a West Hills Wind) to develop transmission and generation in this area have not been successful; the acquisition of private land in these areas is expected to be difficult. In addition, Alternative 2 transmission structures would likely be visible from points on the Appalachian Trail and other trails on the Bigelow Preserve and from the Sugarloaf Mountain Ski area. Based on recent National Park Service objections to the proposed overhead transmission

line associated with the Kibby Mountain Wind generator lead, an overhead crossing near the Appalachian Trail on Route 27 in the Town of Wyman would likely be opposed by the National Park Service. For these reasons, Alternative 2 is more environmentally damaging than the Preferred Alternative, would have greater visual impact, and is not a practical alternative.

B. Alternative Locations to the Converter Station (Relevant to DEP Review)

Section 2.3.3 of the NRPA Application describes six sites for the DC to AC converter station that CMP identified and evaluated based on adequacy of land area suitable for the converter station siting, location along the preferred HVDC transmission route, proximity to the nearest substation capable of interconnection, and potential impacts to the environment and on surrounding land uses. See Exhibit CMP-8-F.

The unimproved forested parcel owned by CMP on the south side of Merrill Road (CMP Parcel), the Larrabee Road Substation, and an Alternative Parcel 2 were ruled out as not being large enough to accommodate the proposed facility. The Alternative Parcel 3 on the south side of Merrill Road, northeasterly of the Larrabee Road Substation, has sufficient land area, but the NRCS soil maps indicated ScA (Scantic silt loam, 0-3% slopes) and Pa (Peat and muck) soils throughout the lot. These soils are poorly drained and indicate the presence of wetlands. Therefore, Alternative Parcel 3 would have a greater environmental impact than the Preferred Parcel.

CMP identified the remaining two of the six properties as being most suitable: 1) the Preferred Parcel located along the Project corridor 0.5 mile north of Merrill Road in Lewiston; and 2) the Alternative Parcel 1 situated along an adjacent transmission corridor (0.6 mile from the Project corridor) located at the end of Taylor Hill Road in Lewiston.

However, Alternative Parcel 1 would require the HVDC line to extend an additional 0.5 mile, including one HVDC line crossing of U.S. Route 202 and one crossing of U.S. Route 202 by the 345kV tie line to the Larrabee Road Substation.

Alternative Parcel 1 would also require an approximately one mile segment of transmission line Section 61 and Section 255 to be placed on double-circuit structures, which is problematic for reliability reasons. Furthermore, the location of wetlands on the Alternative Parcel 1 would not allow the converter station to be positioned immediately adjacent to the transmission line corridor without significant fill for both the converter station and the access road to the site. The preferred site is positioned directly along the Project's HVDC corridor. There is one mapped significant vernal pool (SVP) on the preferred site; however, the six-acre converter station will be sited in an upland area outside of the SVP depression. Impacts will occur to the critical terrestrial habitat adjacent to this pool, but a significant amount of adjacent forestland will remain undeveloped in the immediate vicinity.

For these reasons, siting the converter station on Alternative Parcel 1is more environmentally damaging than siting the converter station on the Preferred Parcel. Because it would have a greater environmental impact it is not a practical alternative to the Preferred Parcel.

C. Alternative Locations to the Coopers Mill Substation and the Fickett Road Substation (Relevant to DEP Review)

When changes are proposed to CMP's electrical system, the electrical engineers in the CMP Transmission Planning department analyze the system to ensure the proposed changes do not adversely affect system reliability and stability. If the proposed upgrades do affect system reliability or stability, the Transmission Planning department identifies the necessary upgrades to ensure system reliability and stability. In this case, Transmission Planning identified the need for two static synchronous compensators (STATCOM) with ideal locations of Coopers Mill

Substation and Surowiec Substation. The STATCOM at Coopers Mill Substation is located on the existing substation yard within the existing fence.

The existing Surowiec Substation yard is not large enough to accommodate the new STATCOM there, and the site restrictions due to the location of Runaround Brook do not allow for an expansion of the yard. The parcel located north of the Surowiec Substation, bordered by Fickett Road and Allen Road, is on existing CMP-owned land adjacent to an existing CMP transmission line corridor. The close proximity of the proposed substation to Surowiec Substation will minimize the length of overhead transmission line required to connect the two substation sites, thereby minimizing the impacts as a result of siting new corridor for connecting the two substation sites as compared to any alternative location farther from Surowiec Substation.

D. Alternatives to Outstanding River Segment Crossings (Relevant to DEP and LUPC Review)

Maine law protects certain rivers that, "because of their unparalleled natural and recreational values, provide irreplaceable social and economic benefits to the people in their existing state." 12 M.R.S. § 403. The NECEC Project crosses the following five locations which are afforded special protection as outstanding river segments, as identified in 38 M.R.S. § 480-P and 12 M.R.S § 403:

- Upper Kennebec River
- Kennebec River (below Wyman Dam)
- Carrabassett River
- Sandy River
- West Branch of the Sheepscot River

The Natural Resources Protection Act further governs proposed activities that cross any outstanding river segment as identified in Section 480-P and provides that "the applicant shall demonstrate that no reasonable alternative exists which would have less adverse effect upon the

natural and recreational features of the river segment." 38 M.R.S. § 480-D(8). CMP provided an alternative analysis demonstrating that no reasonable alternative exists which would have less adverse effect upon the natural and recreational features of the river segment for each river segment the transmission line crosses. There are no reasonable available alternatives as the upper Kennebec River crossing is now underground. All other crossings are in existing transmission line corridor, so any alternatives would be required to be in new corridor and would significantly and unreasonably increase clearing and visual impact for these crossings.

Furthermore, CMP has taken measures to minimize the Project's impacts to these outstanding river segments by crossing in locations where a CMP right-of-way already exists and/or through design modifications and/or increased riparian buffers. In the locations where the HVDC line is to be co-located within existing rights-of-way, CMP minimized additional clearing to an average additional width of 75 feet, and minimized additional natural resources impacts by proposing crossing locations in existing, developed transmission line corridors. CMP proposed to cross under the upper Kennebec River using horizontal directional drilling (HDD) in order to preserve the aesthetic value of this river segment and to prevent visual impacts to recreational and other river users. Additionally, in response to MDIFW's comments, CMP committed to expanding riparian buffer from 25' to 100'for all outstanding river segments crossed by the Project, all perennial streams within the 54 mile new corridor segment, all cold water fishery streams, and all rivers/streams/brooks containing threatened or endangered species.

CMP also is including land preservation of three tracts along the Dead River to offset impact to existing recreational uses of outstanding river segments, which collectively will add 1,054 acres to Maine's conserved lands and provide protection in perpetuity of 7.9 miles of river frontage along the Dead River, an outstanding river segment. See Exhibit CMP-8-G.

E. Alternative Analysis in the P-RR Subdistrict (Relevant to LUPC Review)

CMP evaluated alternatives where impacts to LUPC subdistricts requiring special exception approval could not be avoided. A description of these subdistricts and a discussion of the alternatives evaluated is provided in the LUPC Certification section (Section 25) of the Site Law Application and of the Site Location of Development Application Amendment for the Kennebec River Horizontal Directional Drill, as well as in the LUPC Site Specific Alternatives Analysis (Section 2.4.1) of the NRPA Application and the Alternatives Analysis (Section 2) of the NRPA Application Amendment for the Kennebec River Horizontal Directional Drill. Those crossings within the P-RR subdistrict are further discussed below.

Beattie Pond

The Project corridor crosses the P-RR subdistrict associated with Beattie Pond, which is classified as a Management Class VI Lake. See Exhibit CMP-8-H.

The Project corridor is located within ¼-mile of the high-water mark of Beattie Pond but is located farther away from the pond than the existing road access. The P-RR zoning is intended to protect the pond from permanent improvements in access that could lead to more intensive use or development. The presence of a transmission line corridor at a distance greater than the existing developed road access will not include permanent improvements or use of existing improvements owned by others that promote more intensive use or development of the pond, and is therefore consistent with the intent of the P-RR zoning.

CMP attempted to negotiate an alternative alignment south of the Beattie Pond P-RR subdistrict through Merrill Strip Twp. Because the landowner demanded approximately 50 times fair market value for this property, CMP was unable to come to mutually-acceptable terms with the landowner. Re-routing north of the pond to avoid the P-RR subdistrict would result in

approximately two miles of additional corridor and associated vegetation clearing, and would lead to potentially higher visibility from the pond, due to the higher elevations associated with Caswell Mountain. Based on the analysis no alternative route exists that is suitable for the proposed use, and reasonably available to CMP.

As noted in CMP's January 25, 2019 letter to the DEP and LUPC, CMP evaluated the engineering design associated with transmission line structures adjacent to Beattie Pond in Lowelltown Twp., and determined that lowering the structure closest to Beattie Pond by 39 feet is feasible. This redesign will reduce the overall visual impact from the pond; as a result of this redesign, the Project will be minimally visible by recreational users on the pond.

Upper Kennebec River Crossing

The Project corridor crosses the P-RR subdistrict associated with the Upper Kennebec River in West Forks Plt and Moxie Gore. The P-RR subdistrict extends 250 feet from the normal high-water mark on both sides of the river. The transmission line within the horizontal directional drill (HDD) crossing is entirely underground as it passes below (and therefore not within) the P-RR subdistrict. The termination stations on either side of the river are located outside the P-RR subdistrict. Plans of the HDD crossing are attached hereto as Exhibit CMP-8-I.

The HDD installation and the development of the termination stations will not be visible from the P-RR subdistrict and therefore visual impacts to recreational users will be avoided. An underground crossing of the Upper Kennebec River would have no impact on the P-RR subdistrict or its intended purpose.

As discussed in CMP's September 27, 2017 Site Law and NRPA applications and as supplemented with the October 19, 2018 application amendments, there is no alternative site which is both suitable for the proposed transmission line use and reasonably available to CMP.

Further analysis of construction feasibility, operational and maintenance considerations, total project cost, and visual and recreational impact of the Underground Transmission Alternative described in the September 27, 2017 application have resulted in the conclusion that an HDD crossing beneath the Upper Kennebec River is both suitable and reasonably available to CMP. The previous preferred overhead crossing of the Upper Kennebec River is no longer suitable for the crossing of the P-RR because it would have greater impacts than the HDD crossing. As described in the September 27, 2017 and October 19, 2018 applications, overhead conductors would be visible to rafters passing through or stopping in this portion of the river, and views of the transmission line structures would occur on the west side of the river with the overhead crossing. This will not occur with the HDD crossing. Nor is the CMP Land Alternative or the Brookfield Alternative suitable or reasonably available, for the reasons stated in the September 27, 2017 applications.

Accordingly, no reasonable alternative to the HDD crossing exists which would have less adverse effect upon the natural and recreational features of this segment of the Kennebec River. In addition, the siting of the HDD installation and termination stations will result in maintained forest on both sides of the river and therefore will be buffered from those uses or resources within the subdistrict with which it is incompatible. The HDD crossing increases the forested buffers on both the east and west sides of the Upper Kennebec River beyond what was proposed for the overhead crossing, thereby avoiding visibility of the Project by recreational users on the river.

Appalachian Trail

The NECEC Project crosses the P-RR subdistrict in three locations at the Appalachian Trail adjacent to Moxie Pond and Trestle Road in Bald Mountain Twp in an existing CMP

corridor containing a 115kV transmission line. See Exhibit CMP-8-J. The P-RR subdistrict in this location includes a 200-foot-wide strip centered over the Appalachian Trail. The configuration of the trail, within and adjacent to an approximately 3,500-foot long portion of transmission line corridor, prevented CMP from avoiding impacts to the subdistrict through the siting of the transmission line structures. As a result, one of five transmission line structures in this portion of the Project corridor is located within the P-RR subdistrict.

Because the existing land use is within the existing transmission line corridor, there will be a negligible change in visual impact to hikers using the trail. Alternative alignments of the transmission line to meet the purpose and need of the Project would result in crossings of the Appalachian Trail in one or more locations where there are no existing transmission line corridors.

V. Conclusion (Relevant to DEP and LUPC Review)

For the reasons stated above, it is my opinion that there are no reasonable alternatives to the proposed location and character of the transmission line that would lessen its impact on the environment or the risks it would engender to the public health or safety, without unreasonably increasing its cost. There is no less environmentally damaging practicable alternative to the Project that meets its purpose, nor are there reasonable alternatives to those portions of the Project that cross outstanding river segments that would have less adverse effect upon the natural and recreational features of the river segment. Where the Project is located within the P-RR subdistrict, it is my opinion that CMP has shown by substantial evidence that there is no alternative site that is both suitable to the proposed use and reasonably available to CMP.

Exhibits:
CMP-8-A: Berube CV
CMP-8-B: HVDC Alternative 1 Map

CMP-8-C: HVDC Alternative 1 Table
CMP-8-D: HVDC Alternative 2 Map
CMP-8-E: HVDC Alternative 2 Table
CMP-8-F: Converter Station Alternative Map
CMP-8-G: Compensation Tract Location
CMP-8-H: Beattie Pond Map
CMP-8-I: HDD Crossing Plans
CMP-8-J: AT Crossings Figure

Dated: 2/26/2019

Respectfully submitted,

Brian Berube

STATE OF MAINE
Kennebec, ss.

The above-named Brian Berube did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Dated: February 26, 2019

Before,

Notary Public
Name: Alice Richards
My Commission Expires: 1/4/2025

CMP-8-A: Berube CV

Brian R. Berube

83 Edison Drive, Augusta, Maine 04336 | 207.629.2168 | brian.berube@avangrid.com

EXPERIENCE

MANAGER, REAL ESTATE SERVICES — June 2018 — Present

AVANGRID SERVICE COMPANY, AUGUSTA, MAINE

Responsible for the procurement, disposition, and management of Corporate and Networks real property assets for all AVANGRID operating companies including Central Maine Power Company

SENIOR LEAD ANALYST — March 2015 — May 2018

AVANGRID SERVICE COMPANY, AUGUSTA, MAINE

Responsible for integrating and implementing enterprise GIS solutions for outage management, data analytics, field operations, customer service, and emergency preparedness

Associate — September 2013 — April 2015
CBRE | The Boulos Company, Portland, Maine

Real Estate Associate responsible for contract negotiations, financial and underwriting analysis, site location development analysis and executing brokerage assignments related to the purchase, sale and leasing of commercial real estate assets

GIS Project Manager/Professional Land Surveyor — September 2012 — September 2013
Nadeau Land Surveys, Portland, Maine

Responsible for managing and integrating GIS solutions for clients

GIS Analyst/ Land Surveyor Technician
CES, Inc., Brewer, Maine — January 2008 — September 2012

Responsible for managing and integrating GIS solutions for utility, institutional, federal, state, and municipal clients

EDUCATION

University of Maine at Orono — Orono, Maine — December 2008 — May 2011

Master of Business Administration, Finance

University of Maine at Orono — Orono, Maine — September 2003 — December 2008

Bachelor of Science, Forest Operations
Minor, Surveying Engineering
Minor, Forest Products

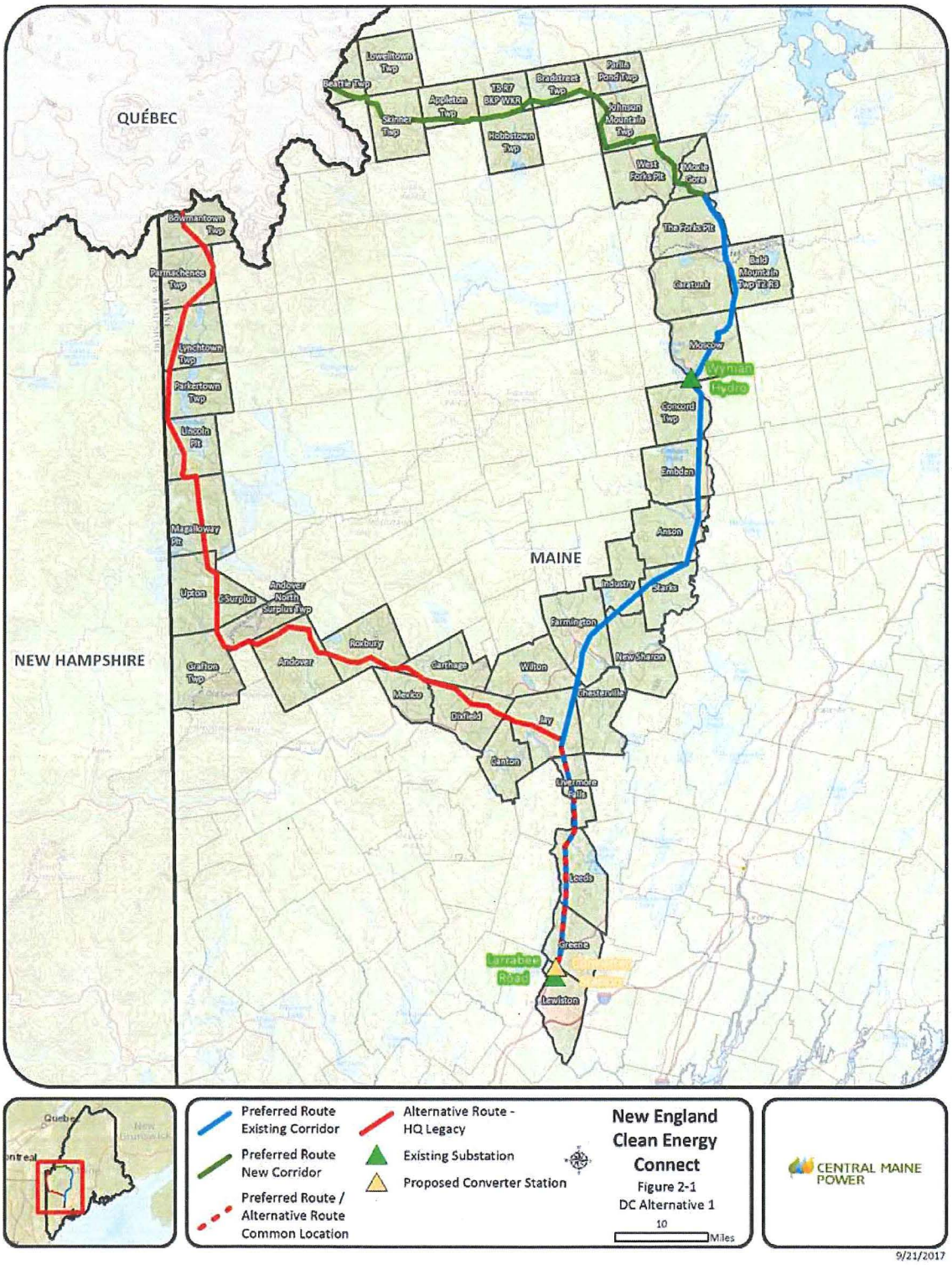
PROFESSIONAL LICENSES AND CERTIFICATIONS

Maine Associate Brokers License — Active Status
License Number: BA919329

Maine Professional Land Surveyor — Active Status
License Number: PLS2500

GIS Professional — Active Status
Certificate Number: 91819

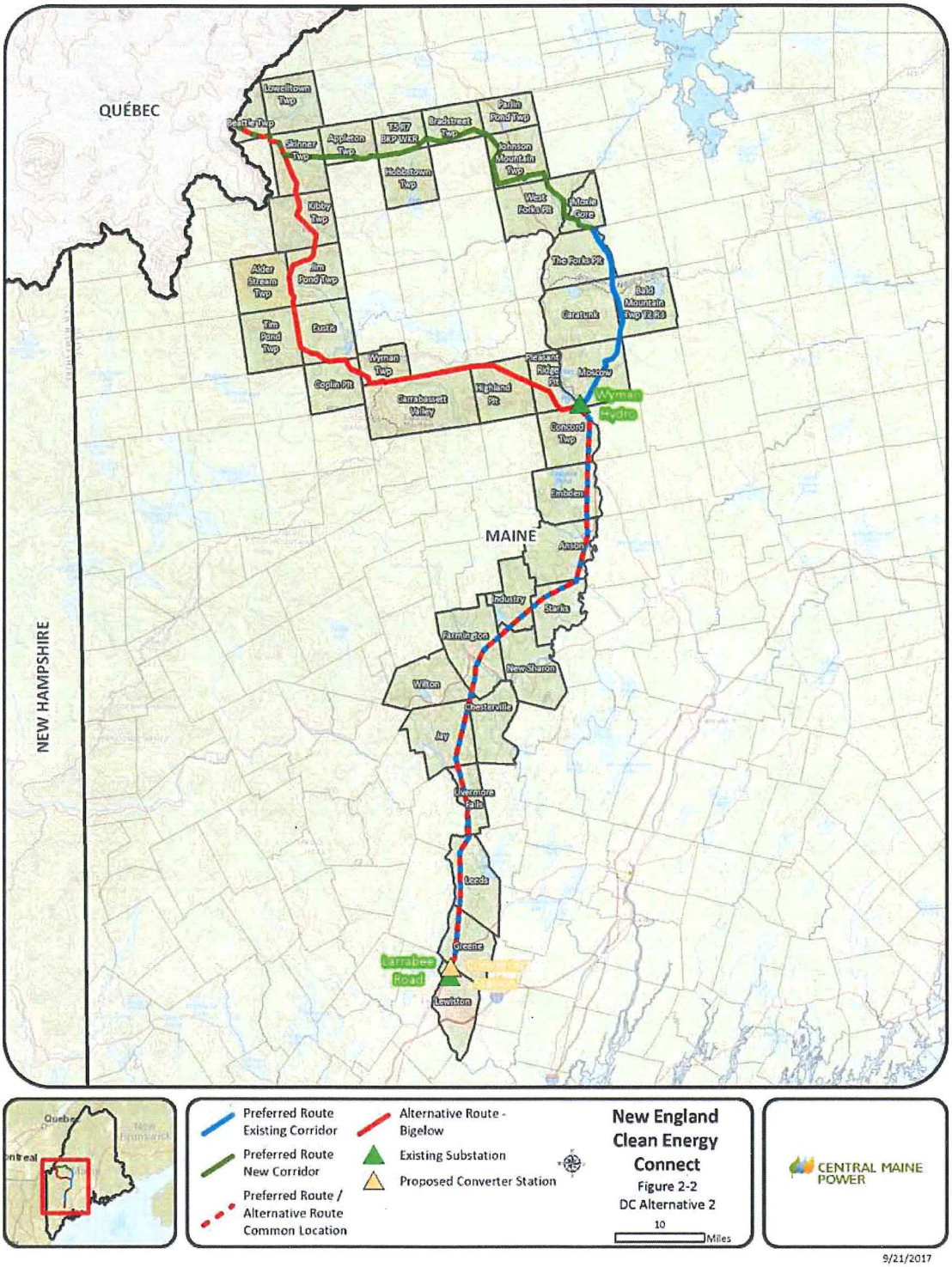
CMP-8-B: HVDC Alternative 1 Map



CMP-8-C: HVDC Alternative 1 Table

Point of Comparison	Unit	NECEC Preferred Alternative	Alternative 1
Conserved Lands	count/acres	6 parcels/42.0 acres	8 parcels/ 275.3 acres
Undeveloped ROW	miles	53.5	93.1
Clearing	acres	1,823	1,934
Parcel Count Total	count	7	120
Stream Crossings	count	115	88
Transmission Line Length	miles	146.5	119.3
NWI Mapped Wetlands	count/acres	263 wetlands / 76.3 acres	238/118.3 acres
Deer Wintering Areas	count/acres	8 DWA's/44.3 acres	8 DWA's/71.3 acres
Inland Waterfowl and Wading Bird Habitat	count/acres	12 IWWH / 22.7 acres	12 IWWH/ 16.5 acres
Public Water Supplies within 500 feet	count	1	1
Sand and Gravel Aquifers	count	12	7

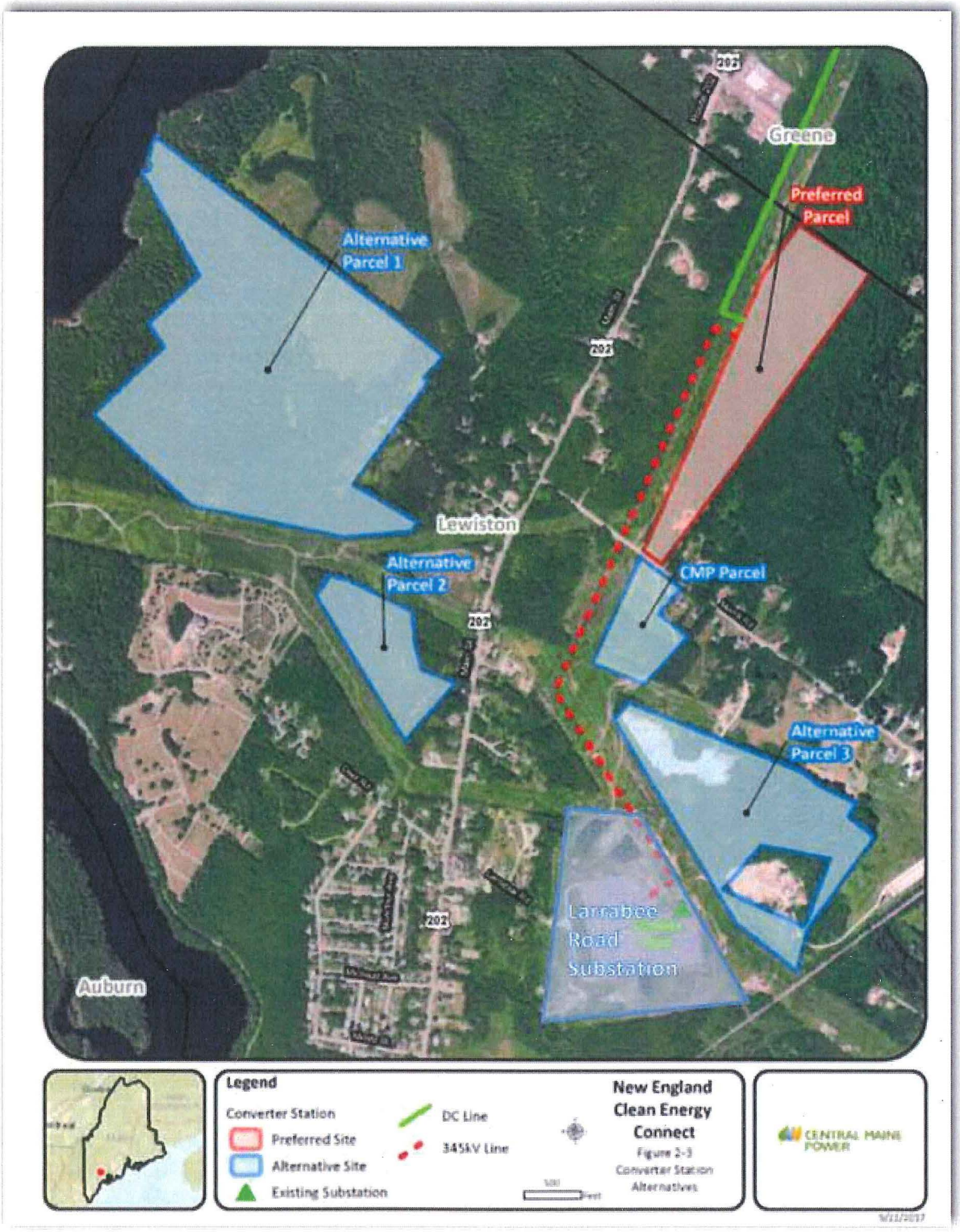
CMP-8-D: HVDC Alternative 2 Map



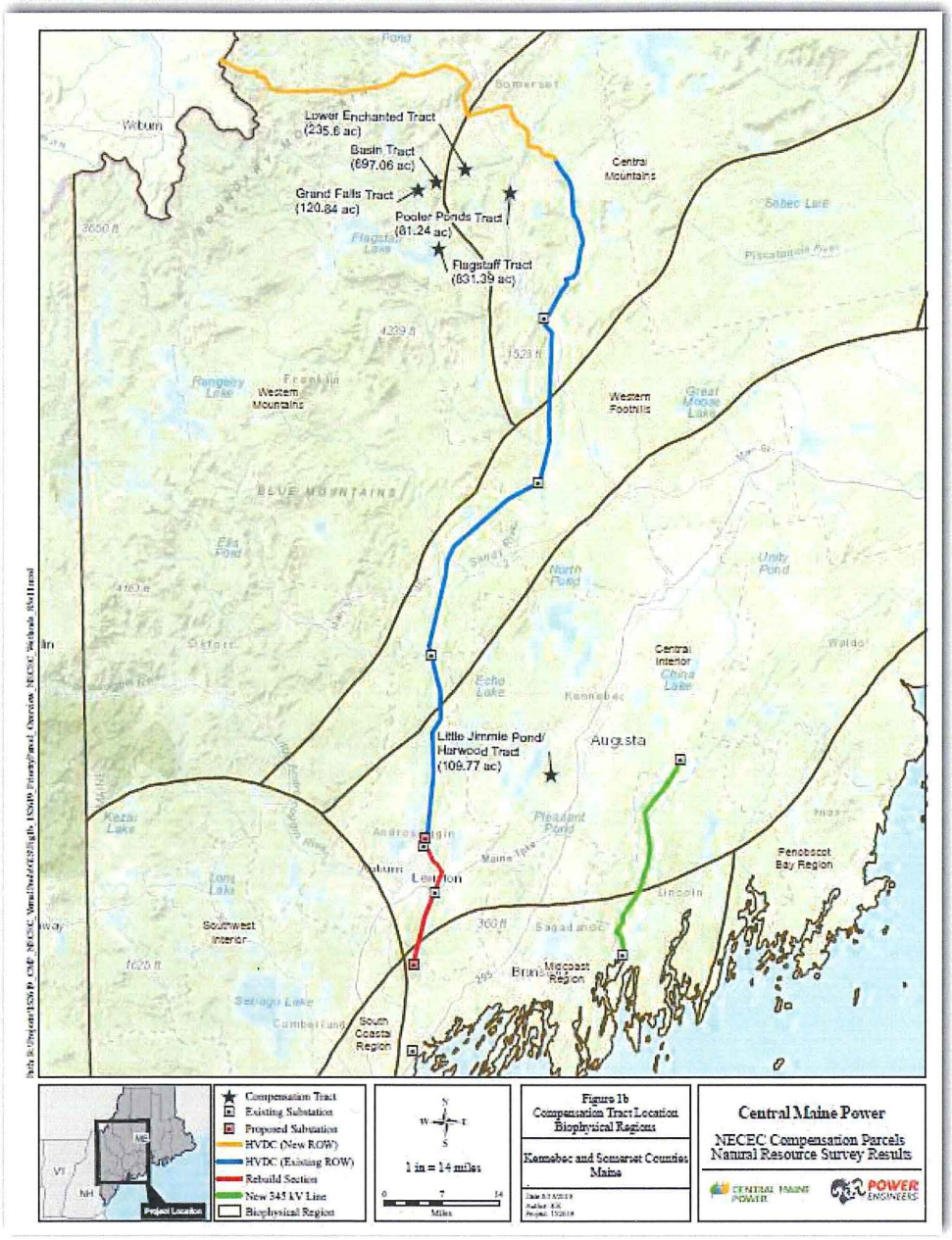
CMP-8-E: HVDC Alternative 2 Table

Point of Comparison	Unit	NECEC Preferred Alternative	Alternative 2
Conserved Lands	count/acres	6 parcels/42.0 acres	9 parcels/ 53.2 acres
Undeveloped ROW	miles	53.5	17.3
Clearing	acres	1,823	1,670
Parcel Count Total	count	7	34
Stream Crossings	count	115	123
Transmission Line Length	miles	146.5	138.5
NWI Mapped Wetlands	count/acres	263 wetlands / 76.3 acres	283/113.3 acres
Deer Wintering Areas	count/acres	8 DWA's/44.3 acres	8 DWA's/44.0 acres
Inland Waterfowl and Wading Bird Habitat	count/acres	12 IWWH / 22.7 acres	12 IWWH/ 16.5 acres
Public Water Supplies within 500 feet	count	1	1
Sand and Gravel Aquifers	count	12	10

CMP-8-F: Converter Station Alternative Map

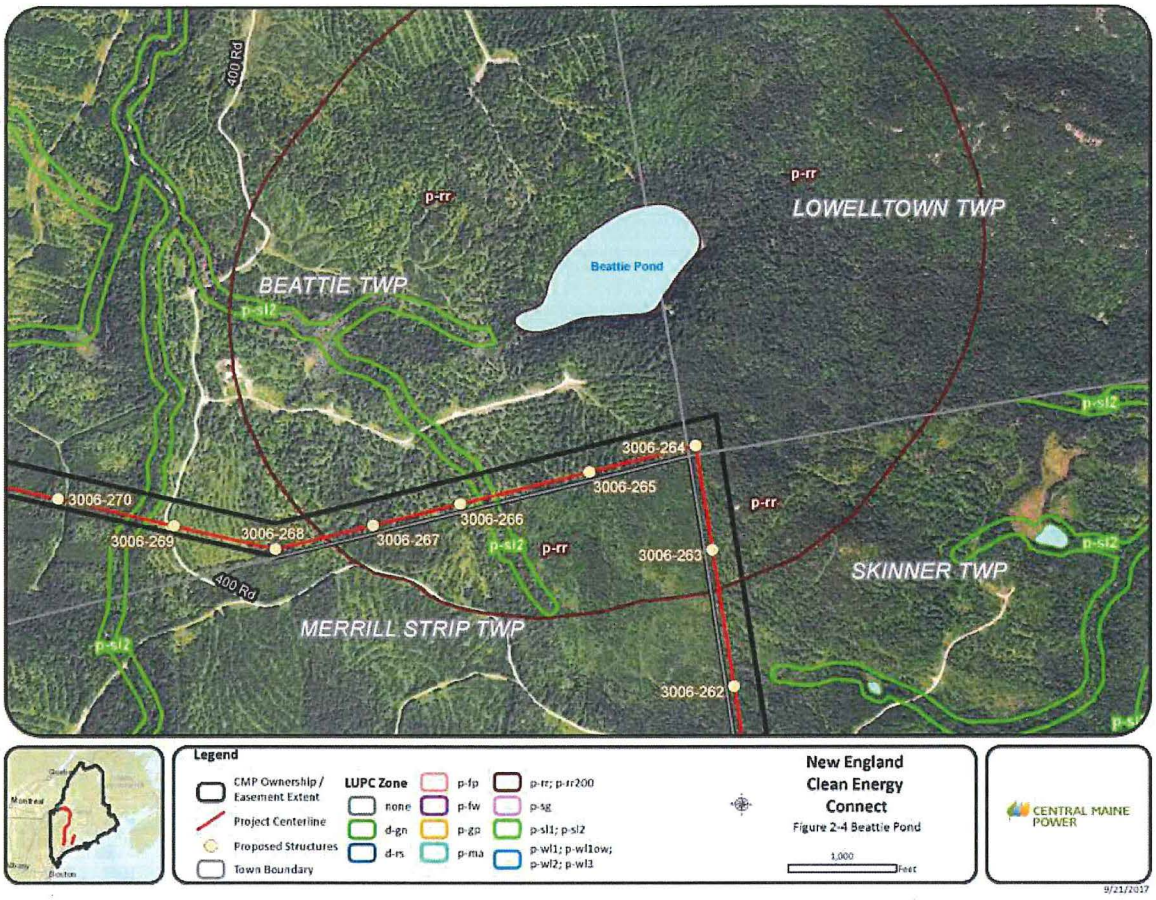


CMP-8-G: Compensation Tract Location

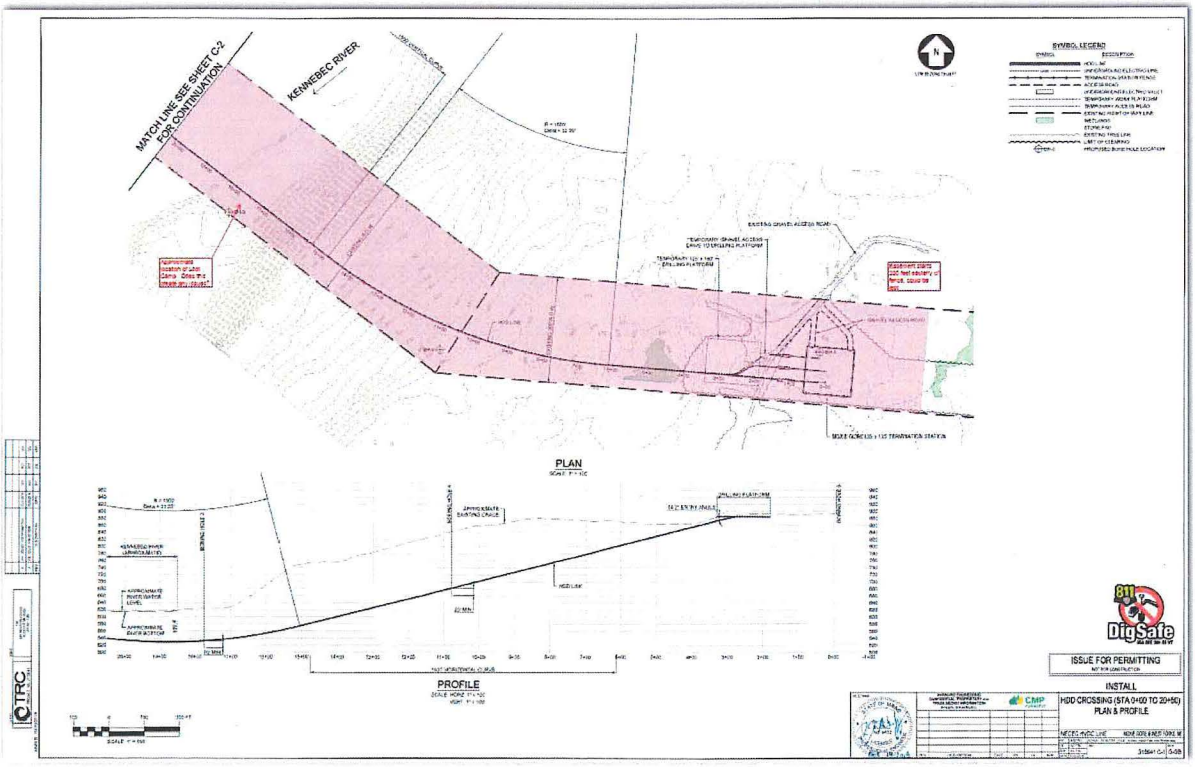


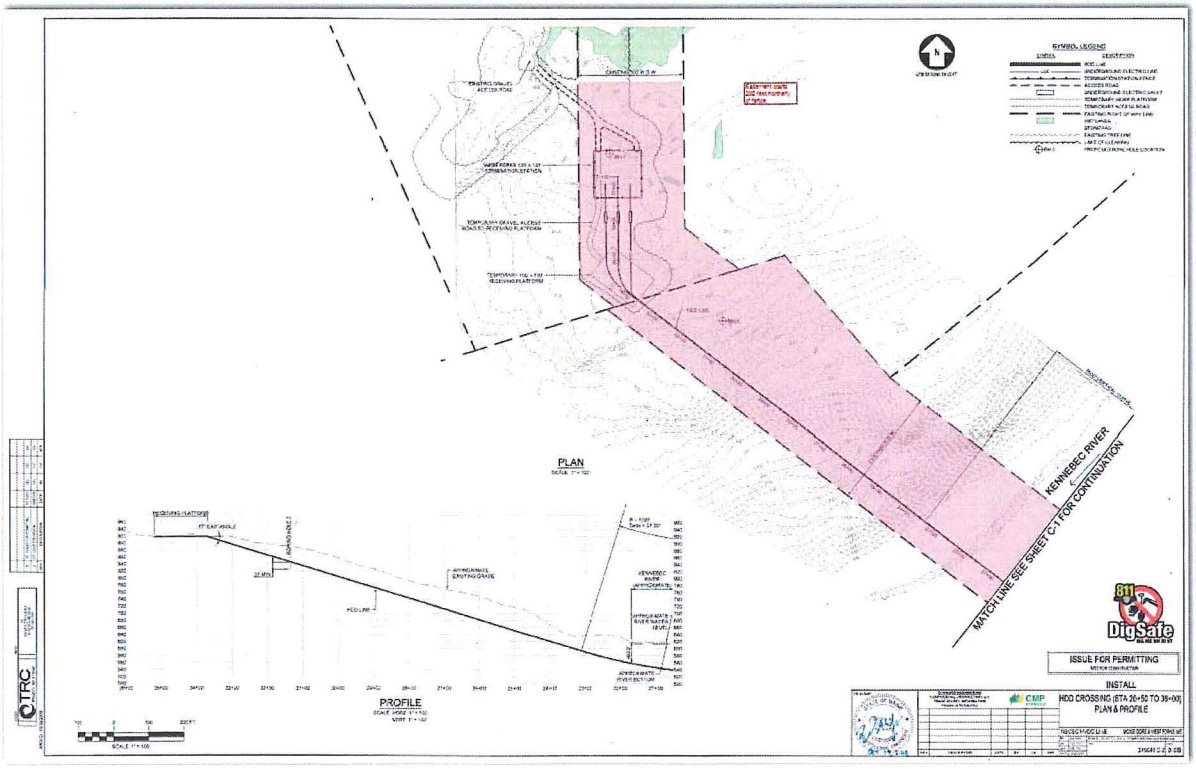
Tract	Dead River Frontage	Acres
Grand Falls Tract	1.4 miles (0.7 on each side)	120.84
Lower Enchanted Tract	2.3 miles along the north side	235.60
Basin Tract	4.2 miles along the south side	697.06
Total	**7.9 miles**	**1,053.50**

CMP-8-H: Beattie Pond Map



CMP-8-I: HDD Crossing Plans





CMP-8-J: Appalachian Trail Crossings Figure