BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM (BTOP)

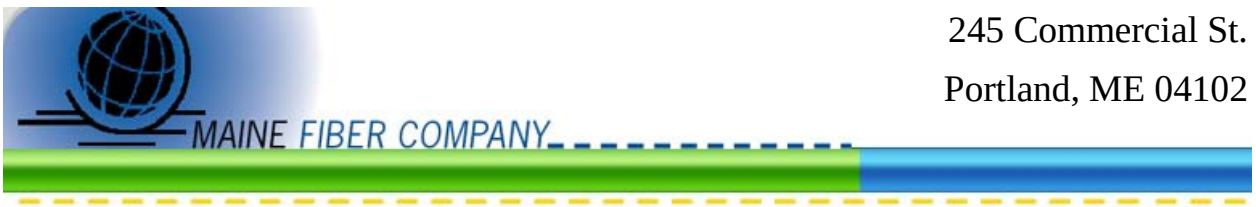
NEPA ENVIRONMENTAL ASSESSMENT FOR THE THREE RING BINDER – STATE OF MAINE

May 2010
Final

Prepared for:

Frank Monteferrante, PhD
Environmental Compliance Specialist
National Telecommunication and Information Administration
Broadband Technology Opportunities Program
1401 Constitution Avenue NW
Washington, DC 20230

Prepared by:
Maine Fiber Company
245 Commercial St.
Portland, ME 04102



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MAINE FIBER COMPANY, INC.

NEPA ENVIRONMENTAL ASSESSMENT
THREE RING BINDER

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND GLOSSARY OF TERMS

Acronym	**Description**
AGL	above ground level
Anchor institution(s)	Universities, hospitals, sports facilities, performing arts and other cultural facilities (like museums and libraries), public utilities, and some large churches and corporations within a city or state.
ARRA	American Recovery and Reinvestment Act of 2009
backhaul	The portion of a network that comprises of the intermediate links between the core network, or backbone, of the network and the small sub networks at the "edge" of the entire hierarchical network.
BMP	Best Management Practices
BNAS	Brunswick Naval Air Station
broadband	Of, relating to or being a high speed communications network and especially one in which a frequency range is divided into multiple independent channels for simultaneous transmission of signals (as voice, data, or video)
BRWM	Bureau of Remediation and Waste Management
BTOP	Broadband Technology Opportunities Program
CCA	chromate copper arsenate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CMP	Central Maine Power
CO	Carbon Monoxide
CZMA	Coastal Zone Management Act
dark fiber	A fiber optic cable that is not being used.
dBA	decibel
DWDM	Dense Wavelength Division Multiplexing
EA	Environmental Assessment
EFH	Essential Fish Habitat
end user	The end user is the individual who uses the product after it has been fully developed and marketed.
FCC	Federal Communication Commission
FCHN	Franklin County Health Network
FEMA	Federal Emergency Management Administration

FSC	Full-Service Capability
Gb/s	Gigabit per second
Gigabit	one billion bits
GIS	geographic information system
GWI	Great Works Internet
ILEC	incumbent local exchange carrier
Internet2	A not-for-profit advanced networking consortium comprising more than 200 U.S. universities in cooperation with 70 leading corporations, 45 government agencies, laboratories and other institutions of higher learning as well as over 50 international partner organizations.
IRU	Indefeasible Right to Use
LAFB	Loring Air Force Base
LBP	local broadband providers
LSC	Limited Service Capability
MaineREN	Created by the University of Maine System and The Jackson Laboratory to deliver the Cyber infrastructure necessary to participate in, and be considered for, high-technology research.
Mbit	megabit – one million bits
Mbps	megabit per second
MBTA	Migratory Bird Treaty Act
MDIFW	Maine Department of Inland Fisheries and Wildlife
MDOT	Maine Department of Transportation
ME ESA	Maine's Endangered Species Act
MEDEP	Maine Department of Environmental Protection
MFC	Maine Fiber Company
MGS	Maine Geological Survey
MHPC	Maine Historic Preservation Commission
MOA	Memorandum of Agreement
MOI	Maine Office of Innovation
MPUC	Maine Public Utilities Commission
MSPO	Maine State Planning Office
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NETC	New England TeleHealth Consortium

NLA	Native Languages of the Americas
NLCD	National Land Cover Database
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Association
NOFA	Notice of Funding Availability
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRPA	National Resource Protection Act
NSR	New Source Review
NTIA	National Telecommunications and Information Administration
NWI	National Wetland Inventory
NZDSF	Non-Zero Dispersion Shifted Fiber
ODTR	optical time domain reflectometer
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PCP	pentachlorophenol
Pmd	Polarization mode dispersion
PPE	Personal Protective Equipment
ps	Picosecond
ps/km	Picosecond per kilometer
ps/km1/2	Picosecond per kilometer divided by 2
ps/nm	Picosecond per nanometer
PS/nm.km	Picosecond per nanometer times kilometer
PSC	Partial Service Capability
RCRA	Resource Conservation and Recovery Act
ROW	Right of Way
RUS	Rural Utility Service
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SWH	Significant Wildlife Habitat
TMDL	Total Maximum Daily Load
USACOE	United States Army Corps of Engineers

USDA	United States Department of Agriculture
USDOI	United States Department of the Interior
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United State Geological Survey
VOCs	volatile organic compounds
VRAP	Voluntary Response Action Program
WAN/LAN	Wide Area Network/ Local Area Network

EXECUTIVE SUMMARY

Together with several private investors, Maine commercial service providers, Biddeford Internet Company (d/b/a Great Works Internet and GWI) and Pioneer Broadband, along with the University of Maine System are pooling resources and efforts to address deficiencies in broadband availability in Maine. Collectively, these entities formed the Maine Fiber Company, Inc. (MFC), the applicant for the Broadband Technology Opportunities Program (BTOP) grant.

The Three Ring Binder is a middle mile open-access collaborative fiber optic network extending into the most rural and remote areas of Maine. This project allows the delivery of 100 Mbits+ broadband connectivity to businesses, households, and community anchor institutions facilitating rural economic development, job stimulation, education, and health care.

The Three Ring Binder middle mile network uses existing utility pole lines along road right of ways (ROWs) throughout Maine. Construction is limited to attachments using metal hardware to existing wood utility poles carrying existing power and telecom cables, and potentially replacement of aged wooden utility poles along roads in the existing footprints as necessary. The project does not require new development or real estate construction; no existing buildings would be altered. In fact, it is more appropriate to consider the Three Ring Binder as an installation project rather than a construction project.

The Three Ring Binder addresses all of the statutory purposes of the BTOP; this middle mile infrastructure provides: (1) access to unserved; (2) access to underserved; (3) access to schools, libraries, healthcare providers, community colleges and other institutions of higher education; (4) access to public safety agencies (e.g., courthouses); and would (5) stimulate demand for broadband, economic growth, and job creation satisfying a wide range of the rural population's requirements. The project empowers more people to start a home-based business or take a class. Elders would be able to receive treatment via telemedicine, and researchers would be able to collaborate with their colleagues around the globe. The goal of the project is to make broadband capacity in rural Maine equal to that available in major metropolitan areas and more populated states so that all of Maine's communities can participate in the global economy.

Maine is the eleventh least populated state in the nation with a median income below the national median income (U.S. Census, 2010). Currently, there is no open-access collaborative

fiber optic network providing high-speed broadband to rural communities in Maine. This lack of modern communication significantly inhibits the ability of individuals and corporations to effectively develop new businesses that require regional, national, or international electronic networking and marketing. Likewise, on-line medical consultations and educational opportunities are lacking due to the absence of a modern communications network that would allow access to advanced medical treatment and consultations, and educational opportunities that can be found in more populated metropolitan areas.

As proposed, the Three Ring Binder would provide this access to Maine's most remote, unserved, underserved, and poorer communities. It would pass through over 100 communities containing over 110,000 households and over 600 community anchor institutions. Once present, it would drive last mile projects, serving a multitude of end users.

A total of four alternatives were initially considered in this Environmental Assessment (EA). These include:

1. Preferred Alternative – Use of existing utility infrastructure to provide 1,100 miles of fiber optic network throughout rural areas of Maine by installing cable to existing utility poles located along existing, major road ROWs.

2. Buried Cable Alternative – Install 1,100 miles of fiber optic cable in roadside trenches (buried) and, to a lesser extent, along existing utility ROWs.

3. Wireless Alternative – Establish and construct a network of radio towers and microwave radios to provide wireless broadband. This alternative was excluded from consideration prior to analysis, as it fails to adequately support the broadband widths desired, and requires significant ground disturbance and visual impacts. In addition, microwave radio technology is not as reliable as fiber optics and would likely drive redundant wired projects on existing utility poles.

4. No Action Alternative – Do nothing.

This EA analyzes the Buried Cable Alternative and the No Action Alternative relative to the Preferred Alternative. The Preferred Alternative was found to have less environmental impact than the Buried Cable Alternative in most natural resource areas (noise, air quality, geology and soils, water, biological, historical/cultural, and land use), but a slightly more positive effect with respect to socioeconomic and human health and safety impacts, due the greater effort required for installation and larger construction effort necessary for the Buried Cable Alternative. Potential impacts to aesthetic and visual resources are approximately

equivalent. Potential impacts to infrastructure are also approximately equivalent. The Buried Cable Alternative is also prohibitively costly and would not meet the aggressive time constraints of this project. The No Action Alternative fails to accomplish the project objectives. Table ES-1 summarizes potential effects of each alternative for the resource areas examined.

Results of the EA indicate the Preferred Alternative – Three Ring Binder – would not result in significant negative or otherwise detrimental impacts to environmental resources examined in this EA. While the proposed Three Ring Binder corridor extends through rural areas of the state and counties that are home to low income populations and Indian tribes, it is the intent of the project to bring meaningful communications service to these regions, providing the middle mile facilities required to drive end mile projects at reasonable, competitive prices; therefore, this project is consistent with Environmental Justice principles in that low income areas would significantly benefit without being subject to any significant environmental impacts.

Prior to initiating this project, MFC reached out to broadband services providers in Maine to identify the need for the Three Ring Binder. The response from providers was overwhelmingly positive (Appendix A). Providers indicated that demand for their services in rural and underserved parts of the state is unprecedented, but the rate of growth is constrained by the lack of middle mile facilities and the cost of these facilities. The lack of competition in some areas of Maine has resulted in prohibitively high middle mile pricing at rates of up to five times the market rate, and multiple requests of Maine's dominant landline provider to provide dark fiber have consistently been refused.

Supporters of the Three Ring Binder state that the project would provide an alternative network at competitive pricing, allowing access to dozens of rural Maine towns, and as a result, providers would be able to provide more competitive rates and higher speeds to the end user. It would foster competitively priced universal broadband access throughout the state of Maine, and allow firms that provide broadband internet services to end use customers the ability to focus on delivering the last mile to business and customers. Creation of middle mile connectivity would support four of Maine's University campuses (Machias, Presque Isle, Fort Kent, and Farmington), and 375 Maine schools and libraries where middle mile connectivity does not currently exist. The proposed project would support and stimulate economic growth throughout Maine, including in tribal communities, effectively providing the means to connect Maine

residents – regardless of where they live – with national and international markets necessary to effectively conduct business and compete.

Table ES-1. Potential Effects of the Preferred, Buried Cable and No Action Alternatives

RESOURCE	ALTERNATIVES*		
	Preferred	**Buried Cable**	**No Action**
Noise	Temporary and minimal effects related to equipment noise during installation and periodic maintenance. No effects during operation.	Temporary noise from equipment and construction activities associated with installation and maintenance. Impact longer in duration and greater in magnitude relative to Preferred Alternative. Potential maintenance activity would also be longer in duration as buried cable would require excavation.	Minor temporary noise from current maintenance of existing utility lines associated with existing infrastructure would continue, similar to Preferred Alternative.
Air	Temporary increases to criteria pollutants (particulate matter and ozone-related pollutants) due primarily to activity and emissions related to construction vehicles used during installation and occasional maintenance activity.	Temporary increases to criteria pollutants (particulate matter and ozone-related pollutants) due primarily to activity and emissions related to construction vehicles. Effects of this Alternative would be greater relative to the Preferred Alternative.	None
Geology/Soils	Minimal to no impact to soils during wooden pole replacement along roadways.	Significant cut and fill and potential for erosion and soil migration during installation and maintenance.	Minimal to no impact to soils during replacement of existing wooden poles along roadways. Same as Preferred Alternative.
Water	Negligible to no potential for wood preservative leeching to groundwater/surface water after wooden pole replacement. Minor, localized, temporary potential for sedimentation as a result of pole replacement. Would be prevented with application of standard BMPs.	More potential for temporary turbidity due to dredging in or near waterbodies during installation and/or maintenance. Minimal potential groundwater and aquifer disturbance during installation and/or maintenance in right-of-ways.	Impacts are the same as the Preferred Alternative, for continued maintenance of existing wooden utility poles. Impacts are the same as the Preferred Alternative, for continued maintenance of existing utility poles in right-of-ways.

RESOURCE	ALTERNATIVES*		
	Preferred	**Buried Cable**	**No Action**
Biological	Minor, temporary, localized noise disturbance to wildlife due to installation and periodic maintenance. Minor, localized, temporary potential for sedimentation as a result of pole replacement. Would be prevented with application of standard BMPs.	More significant, temporary noise disturbance in ROW that may impact wildlife during installation and/or maintenance activity. Temporary potential disruption of animal movement in ROW during construction. Potential temporary disturbance to aquatic habitat due to dredging/trenching to bury cable in or near water bodies. Significant vegetation disturbance including cut and fill within riparian and wetland habitats. Potential disruption of amphibian breeding in wetlands including vernal pools (SWH). Potential impacts to Critical Habitat for Canada lynx and Atlantic salmon due to burying cable in ROW and streambeds.	Impacts are the same as the Preferred Alternative, for continued maintenance of existing wooden utility poles. Impacts are the same as the Preferred Alternative, for continued maintenance of existing utility poles in right-of-ways.
Historical/Cultural	None	Potential exposure of historical or cultural resources during trenching for installation and/or maintenance activity.	None
Aesthetic/Visual	Negligible impact from an additional cable on existing utility line.	Temporary visual impacts due to more intensive roadside construction.	None
Land Use	None	None	None

RESOURCE	ALTERNATIVES*		
	Preferred	**Buried Cable**	**No Action**
Infrastructure	*Project could potentially step up the schedule for replacement of aged or deteriorated existing wooden utility poles.* Minimal temporary increase in non-hazardous construction waste.	Minimal temporary increase in non-hazardous construction waste. Same as Preferred Alternative.	None
Socioeconomic	*Substantial positive affect to communities by providing improved and reliable high-speed data access and internet service to current and future government, residential and business customers. It would:* • *integrate existing community institutions (hospitals, schools, and libraries)* • *increase learning and educational opportunities (on-line courses).* • *spur job creation and stimulate long-term economic growth in low-income rural areas by building innovation capacity.*	*Same positive affects as Preferred Alternative due to improved access to broadband.* *Additional positive affects to local economies due to increased jobs and retail businesses resulting from more intensive construction activities.* Because of the prohibitive cost of burying cable across 1,100 miles, this project would not occur under the Buried Cable Alternative. There would be a significant negative effect to the unserved and underserved communities of Maine due to loss of this opportunity to gain broadband access.	Significant negative effect to the unserved and underserved communities of Maine due to loss of this opportunity to gain middle mile high-speed broadband access.
Human Health/Safety	*Potential positive effects due to increased opportunities for electronic medical consultations and transfer of records; additional safety related services.*	None	None

*The Wireless Alternative was eliminated as it does not meet project goals

MAINE FIBER COMPANY, INC.

NEPA ENVIRONMENTAL ASSESSMENT
THREE RING BINDER

1.0 PURPOSE AND NEED

1.1 Background and History

For the last five years, an informal group of consumer-side advocates, Maine telecommunications providers, and state agencies have worked to expand rural broadband in Maine. In 2007, work from that group resulted in the ConnectME Authority being established by the state to promote rural broadband in Maine. Over the last two years, ConnectME Authority researched the issues involved in deploying broadband to rural unserved and underserved areas and provided grants to small Maine broadband providers for the deployment of rural broadband. All grant recipients, anchor institutions and telecommunications providers found that:

1. Projects have been impeded by lack of affordable middle mile backhaul.
2. Anchor institutions, such as the University of Maine, suffer from lack of high-speed middle mile facilities to connect to the Internet, Internet2, and their facilities and campuses.
3. Maine telecommunications providers, such as Pioneer and Great Works Internet (GWI), who are trying to expand to rural areas, suffer from lack of access to high speed, affordable middle mile backhaul.

After five months of meetings, it also became clear that:

1. Maine needs three fiber optic rings throughout rural areas of the state, providing affordable high-speed backhaul to telecommunications providers and anchor institutions.
2. The lack of dark fiber transport available for carriers is the primary cause of the low availability of rural broadband services.
3. Due to the fiscal crisis, neither the state nor the University of Maine can provide matching funds to build the rings.

4. Private telecommunications providers were concerned that the rings might be constructed in such a way as to give one or a small group of providers a competitive advantage.

For these reasons, the group formed a new entity, Maine Fiber Company, Inc. (MFC or Applicant) to raise matching funds to build and to operate the three dark fiber optic rings. MFC is not controlled by any carrier. MFC would construct sufficient fiber to meet foreseeable demand and would sell dark fiber to all carriers and institutions at a standard, cost-based rate on "just, reasonable and not unreasonably discriminatory" terms. Because MFC is partially funded privately, investors are permitted the opportunity to earn a reasonable return on the investment of matching funds. GWI has taken the lead in providing the necessary matching funds and submitting the application. However, GWI has no control over MFC and no additional privileges with respect to dark fiber. GWI would have access on the same terms and conditions as any other provider.

One member of the group came up with the project name “Three Ring Binder” as descriptive of its three rings that would bind rural Maine together with a modern communications network. MFC’s primary goal is to build and operate the Three Ring Binder, to deliver the infrastructure required by Maine’s rural population. It involves implementing a regional middle mile network, which would be the foundation for intra- and inter-state connection and cooperation, as well as the core from which to extend broadband access to every remote citizen and enterprise in the state’s rural areas. MFC’s vision is open, with respect to both network architecture and business model. It includes every economic sector: government, healthcare, and educational institutions; commercial providers and users; as well as residents and consumers.

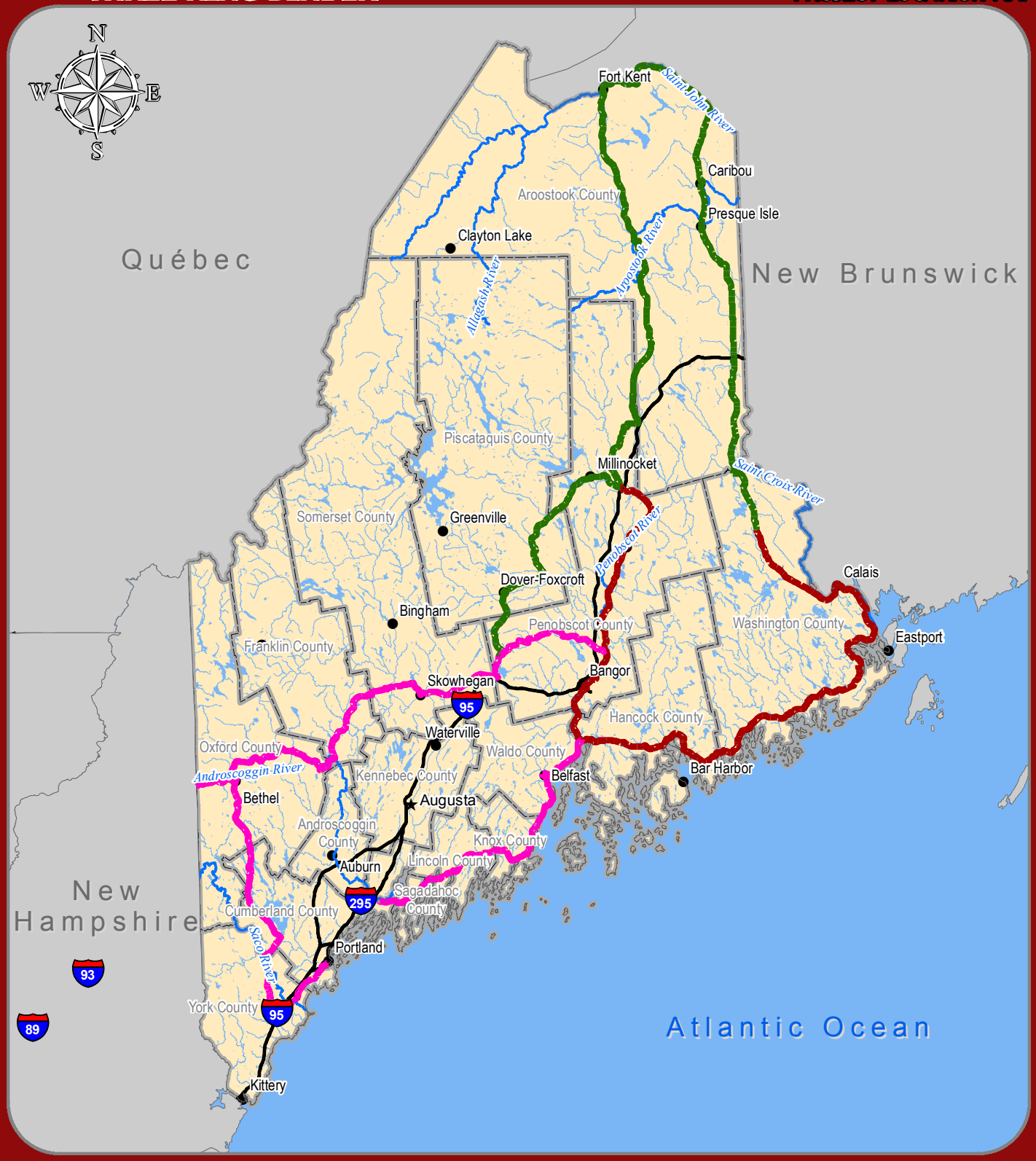
1.2 General Geographic Setting

The state of Maine (Figure 1.2-1) covers 30,862 square miles with a coastline length of 3,500 miles, and forestland cover of 17 million acres. It has a population of 1,318,031. Maine is the second most rural state in the nation: 59.9 percent of the population is defined as rural, compared to 21 percent nationally and 19.4 in New England (US Census 2007). Fully one-third of Maine’s population lives at or below 200 percent of the federal poverty level (Maine State Planning Office, 2008). Based on

population figures from the 2000 Census, the Applicant projects that over 110,000 households and over 600 community anchor institutions would have broadband available to them via the proposed network.

THREE RING BINDER

FIGURE 1.2 - 1
PROJECT LOCATION MAP



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Conserved Lands courtesy of the Maine Office of GIS (MEGIS); data originally compiled by the Maine State Planning Office.

Legend

Down East Ring	Major Rivers
Northern Ring	Lakes & Ponds (>10 ac)
Southern Ring	Rivers and Streams

Miles
0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

Kleinschmidt Project No: 1774001

File Name: Fig_1.2-1.mxd

The Three Ring Binder is a $32 million project that would create an open access fiber optic network extending into the most rural and disadvantaged areas of the state of Maine; from the Saint John Valley in the north, to the rocky coastline of Down East Maine, to the mountainous regions of western Maine.

1.3 Deficiency the Project was Initiated to Address

The rural areas of Maine lack the middle mile infrastructure necessary to support the broadband service required to participate in a 21st century economy. The incumbent local exchange carrier (ILEC) is the only existing service provider in the proposed service area for this middle mile project. It is extremely hard for local broadband providers (LBPs) to obtain dark fiber from the ILEC due to the fact they installed low strand count fiber cables. It is impossible for these LBPs to connect throughout the entire service area because of the total lack of available dark fiber in many areas. As a result, in much of the proposed service area, there is no adequate broadband service and no widespread competition.

Maine's local communications companies struggle to gain access to the aggregate bandwidth necessary to deliver broadband services to their customers. Maine's schools and libraries have languished with inadequate broadband connections that are unable to meet the bandwidth demands associated with their public service missions and educational needs. And finally, access to medical care in Maine is limited. Many of Maine's residents have to travel many hours to visit specialists or receive advanced medical care. This is of particular concern, given that Maine's incident rate of invasive cancer is the highest in the nation.

1.4 Project Purpose

The Three Ring Binder addresses the lack of middle mile fiber optic infrastructure in rural areas of Maine by installing approximately 1,100 miles of high strand count fiber optic cable through these areas with planned cross-state interconnections. It is designed to maximize network traffic, utilization, and economies of scale, and enable development of the most scalable, reliable, and resilient network. The fiber optic infrastructure would be managed, administered, and made available in an open access, non-discriminatory

fashion to any interested service provider. In addition, eight fiber optic strands would be reserved for use by the University of Maine System and Maine state government to expand the reach of MaineREN, Maine's research and education network.

The project balances the need for high capacity, resilient, reliable, and future-proofed core infrastructure, cost-effective middle mile distribution and backhaul connectivity, and flexible last mile networks that can extend access to all users across significant geographical areas with low population densities and varied environmental/topographical requirements. Local communications companies would be able to deliver the content over the last mile to rural homes using the best technology for the application, such as fiber to the home, or a wireless spectrum. These potential last mile projects are not addressed in greater detail as part of this Environmental Assessment (EA); however, such last mile projects would, similar to the middle mile project, typically utilize existing infrastructure, right-of-ways (ROWs), and existing developed areas to the maximum extent possible and would, therefore not result in significant environmental impacts (e.g., new development/development through pristine habitats would not occur).

The Applicant would coordinate its efforts with Maine Infonet, the Public Data Center project, and Maine Library Learning Network, to ensure that the schools, libraries, and other community anchor institutions in these rural areas are connected with fiber optics supporting 100Mbps broadband service and higher. Our project would help ensure that Maine Infonet would have the necessary bandwidth to meet its project's goals.

The University of Maine System is also participating in Internet2 Sustainable Broadband Adoption project, Catalyst@Edu, to increase the barriers to 100Mbps and improve broadband adoption in Maine's community anchor institutions. The University of Maine System would create two full-time positions focused on public outreach efforts to increase community anchor institutional adoption of 100Mbps and up broadband by finding solutions to availability, affordability and applications. Their approach would marry a professionally designed grassroots public awareness campaign with working groups and projects augmented by a rigorous analysis of progress.

Among the community anchor institutions that this project connects would be K-12 schools and libraries. This project would also facilitate health education, disease

prevention, and quicker and more accurate diagnosis of health problems. Doctors, nurses, and health care professionals who are attracted to Maine's quality of place and to serving Maine's rural, underserved, or unserved poor populations also lack the necessary resources to provide adequate health care to these communities and populations. This project allows the delivery of state-of-the-art medical services to remote and rural sites through the use of telemedicine and telehealth technologies. These technologies would facilitate health education, training, and awareness resulting in problem prevention as well as timely accurate diagnosis of health problems.

Based on best available information from the Maine Public Utility Commission's (MPUC) broadband map and the Applicant's experience providing broadband services throughout Maine, the proposed interconnection point in Ashland would be servicing an unserved area and our proposed interconnection points in Columbia, Pembroke, Jonesboro, Milbridge, Sullivan, Lincoln, Danforth, Milo, Searsport, Waldoboro, Wiscasset, Corinna and Bridgton, would be servicing underserved areas.

This collaborative project's benefits align with key benefits of American Recovery and Reinvestment Act of 2009 (ARRA).

1. It would make middle mile fiber available for broadband service providers to bring cost effective, high-speed broadband services to areas that do not have access to it today.

2. It would expand the reach of Maine's Dense Wavelength Division Multiplexing (DWDM)-based research and education network — MaineREN — to ten campuses and outreach centers of the University of Maine System not currently optically connected to MaineREN, and to three of Maine's Community Colleges. In addition, the fiber optic infrastructure would extend service to 38 government facilities including thirteen of Maine's county courthouses, eleven county jails and fourteen Maine Department of Health and Human Services district offices where they can choose to participate in MaineREN or receive broadband services from a variety of service providers.

3. It would create the geographically diverse fiber optic routes that are necessary to attract 21st century businesses to Maine. Currently all long haul connectivity enters/leaves the state through southern Maine. By establishing fiber optic routes through western Maine to northern New Hampshire and Vermont and through eastern and northern Maine to New Brunswick, Canada, Maine's broadband infrastructure would have the same type of geographic diversity as other states that are more centrally located along the United States long haul backbones.

4. It would create the 21st century infrastructure necessary to support Maine's existing industries. Maine's forestry industry is struggling as witnessed by the curtailments and shutdowns of many of its pulp and paper mills. With the 21st century infrastructure created with this project, Maine's mills, built in the 19th and 20th centuries, would be able to diversify. As demonstrated by the recently announced data center project in Holyoke, MA and Google's acquisition of a paper mill in Finland, the hi-tech industry has learned the economic value of co-locating data centers at power generation facilities. Maine's pulp and paper mills have huge power generation and cooling abilities that could be tapped for co-located data centers if only they had access to a robust fiber optic infrastructure.

5. The project would greatly improve the reach and effectiveness of Maine's rural health care by providing facilities that benefit clinics and hospitals. It would improve health awareness for poor, impoverished, communities in Maine, allow more immediate contact with clinical health care specialists, and increase the collaboration of local community-based healthcare providers with specialists in major metropolitan areas, allowing quicker, more accurate diagnoses and care for health-related problems.

6. The fiber project would enable and promote interconnection of local fire, police, safety, and emergency management agencies. The redundancy of the fiber project would allow reliable crisis management at both local and statewide levels.

The Three Ring Binder is being executed as a public/private collaborative effort between the GWI, multiple other commercial service providers (including Pioneer Broadband) and the University of Maine System. Multiple levels of service would be provided by the various entities involved. The higher education and government locations would receive 100Mbit or Gigabit level services from NetworkMaine (a collaborative partnership recently created between Maine state government and the University of Maine System to operate the MaineREN backbone and the Maine School and Library Network). Commercial broadband providers would be able to gain access to dark fiber optic strands via Indefeasible Right to Use (IRU) agreements or other leasing arrangements. These agreements would be made without bias to any interested party in complete compliance with the nondiscrimination and interconnection obligations outlined in the Notice of Funding Availability (NOFA).

The Three Ring Binder would also partner with Maine InfoNet on its Maine Library Learning Network Public Computer Center project and Internet2 on its Catalyst@Edu Sustainable Broadband Adoption Project to ensure the fiber optic

infrastructure installed as part of the Three Ring Binder middle mile infrastructure project is used to its maximum potential.

In addition, this infrastructure may be leveraged by New England TeleHealth Consortium (NETC) and the Franklin County Healthcare Network (FCHN) as they implement their plans to establish advanced healthcare networks as part of the Federal Communications Commission's (FCC) Rural Healthcare Pilot Program.

As demonstrated by the letters of support submitted herewith (Appendix A), the Three Ring Binder enjoys broad support from potential carriers and from suppliers of end-use broadband services. It is likely that the project would be heavily used and would improve the levels of broadband service throughout rural Maine.

2.0 PROPOSED ACTION

2.1 Project Description

The Three Ring Binder would provide high-speed broadband access to rural and underserved areas of Maine. The modern fiber technology employed is sophisticated, and as proposed, would support DWDM transmission of 80 waves in the C-band at 10Gb/s per wave minimum, for 40G and 100G speeds (fiber type, termination point spacing).

The University of Maine System would acquire, deploy, and equip the network with sufficient resources to provide a minimum of one (1) 1Gb – 10Gb service at University locations on the network design and provide sufficient capacity on the network to deliver local traffic back to one of the central offices. The University of Maine System would be responsible for all operations as well as all ongoing operational and maintenance costs of the proposed electronic equipment.

Installation of the Three Ring Binder would be completed within three years of grant award.

MFC would complete state and federal agency consultation and permitting requirements during installation, and would follow best management practices (BMPs) established for pole replacement and cable installation. Records of initial agency consultation are provided in Appendix B.

2.2 Alternatives

Three alternatives are considered in this Environmental Assessment (EA). These include the Preferred Alternative, the Buried Alternative, and the No Action Alternative. Each is described below.

Preferred Alternative – The Three Ring Binder middle mile network would make use of existing utility infrastructure to provide 1,100 miles of fiber optic network throughout rural areas of Maine by installing cable to approximately 36,000 existing utility poles that are primarily located along Maine's roadways. Installation would

include the use of metal hardware attachments to hang cable to existing wood and metal utility poles carrying existing power and telecom cables. If necessary, deteriorated wooden poles located roadside would be replaced in kind, concurrent with cable installation. No new development or real estate construction would be required, nor alternations to any buildings. The project does not produce an electromagnetic field nor does it generate any noise when in operation.

Termination points would be constructed between the central offices equipped no more than every 60km along the route. Termination points would be such that a minimum number of termination points are required on any proposed route and would be within five miles of population centers along the proposed route to facilitate access to the proposed network. The project would use inline regeneration technology, thereby eliminating the need for separate structures to accomplish light regeneration.

Local drop fiber splices would be allowed between all termination points to maximize availability. Local drops would be made between termination points at locations along the route such that as many communities as possible have access to services from private providers and/or MaineREN network(s). As designed, every termination point along the route would be connected to a minimum of two other termination points.

The fiber routes would be constructed with a high fiber strand count designed to maximize outreach and scalable growth on all routes. Eight strands of fiber on all routes shall be reserved for use by the University of Maine System. The fiber would be single-mode, either nondispersion-shifted fiber, ITU-T G.652 compliant, Corning SMF-28/SMF-28E or equivalent or Non-Zero Dispersion Shifted Fiber (NZDSF), ITU G.655 compliant, Corning LEAF or equivalent. All work would meet applicable code and requirements, including but not limited to: federal, state, and local code, statutes, and ordinances; National Telecommunications and Information Administration (NTIA) / United States Department of Agriculture (USDA) specifications for telecommunications facilities; National Electrical Code; Maine Department of Transportation (MDOT) Engineering Policy Guide (when in MDOT ROW). All splices would be fusion-type

splices with a maximum loss per splice of .30dB bi-directional average. All fiber terminations would be SC (circular subscriber connector type).

After end-to-end connectivity on the fibers is established during initial construction, standard tests would be performed. The results of such tests for any given span would not be deemed within specification unless showing loss measurements between fiber distribution panels at each end of such span in accordance with the loss specifications set forth by the cable manufacturer's specifications for dB per kilometer loss.

Installation would be accomplished using typical utility vehicles, operating primarily on public roadways. Construction vehicles would use existing access points and lay down areas, and would install the cable in existing conduits and via aerial attachment on existing transmission lines.

Buried Cable Alternative – Install 1,100 miles of fiber optic cable in roadside trenches (buried) to provide broadband service to remote areas of Maine. The Buried Cable Alternative is similar to the Preferred Alternative with respect to termination points, local drop fiber splices and intended end users. The one substantial difference is that all cable would be buried along the 1,100-mile route. This alternative requires construction work to dig the trenches, and potentially would include some blasting. This alternative would likely require greater permitting and consultation activity, as a result of the ground disturbing activity, and would like have similar, but greater magnitude affect on air and noise quality due to the more construction-intensive characteristic of this alternative. This alternative would decrease any perceived visual or aesthetic effect associated with the addition of a cable on existing utility poles. The Buried Cable Alternative would take approximately five years to complete.

No Action Alternative – Do nothing. The No Action Alternative would be for Maine to continue with significant underserved and unserved areas of the state and not construct this network. From an environmental perspective, the No Action Alternative would have nearly the same effect as the Proposed Action. There would still be 36,000 utility poles with wires on them; there would just not be an additional fiber optic cable in addition to those wires.

2.3 Preferred Alternative

The Three Ring Binder is the Preferred Alternative, utilizing Maine's existing utility infrastructure to provide 1,100 miles of fiber optic network throughout rural areas of Maine by installing cable to approximately 36,000 existing utility poles located along Maine's roadways.

2.4 Alternative Considered but Eliminated from Further Discussion

The Wireless Alternative would replace fiber optic cable hung on existing pole lines with radio towers and microwave radios. This alternative would require construction of several hundred radio towers at altitudes from 40 to 400 feet above ground level (AGL). Six foot microwave dishes would be installed on the towers (four per tower), and huts with radio gear and diesel generators would be installed at the base of each tower.

This alternative does not substantially address the need outlined above in Section 1.2 because microwave radio technology does not currently support the bandwidths proposed. Furthermore, this alternative would require construction of towers with significant ground disturbance and visual impact all over the state, including sensitive high elevation areas, and would take approximately four years to construct. Finally, microwave radio technology is not as reliable as fiber optics, and would likely drive additional redundancy wired projects on existing utility poles anyway.

3.0 EXISTING ENVIRONMENT

3.1 Noise

The Three Ring Binder, as proposed, would provide access to rural areas of Maine and as such, a large number of the areas in which the project would take place are rural. In some cases, the project would pass areas of higher population and development (*i.e.*, Bangor, Brewer, Belfast, Ellsworth, Saco, Biddeford, Portland, and Rumford).

In general, ambient noise for the vast majority of the proposed project area is currently related to traffic noise as the proposed location for the cable is primarily along existing road ROWs. According to a baseline model for traffic noise developed as part of a National Parks study, the noise emitted by traffic is dependent upon speed and type of vehicle, with heavy trucks emitting the most noise, and cars the least (Roof *et al.*, 2002) (Figure 3.1-1). The speed limit for roads in the effected environment does not exceed 55 miles per hour (mph) and consists of single lane roads. In the largely rural areas, where other noise sources are minimal, a passing truck may emit 85 decibel (dBA) at 55 mph and a car 74 dBA. However, the total current ambient noise level on roads is dependent on traffic density and other ambient sources. Wind, interacting with overhead utility lines, also generates very minor levels of noise.

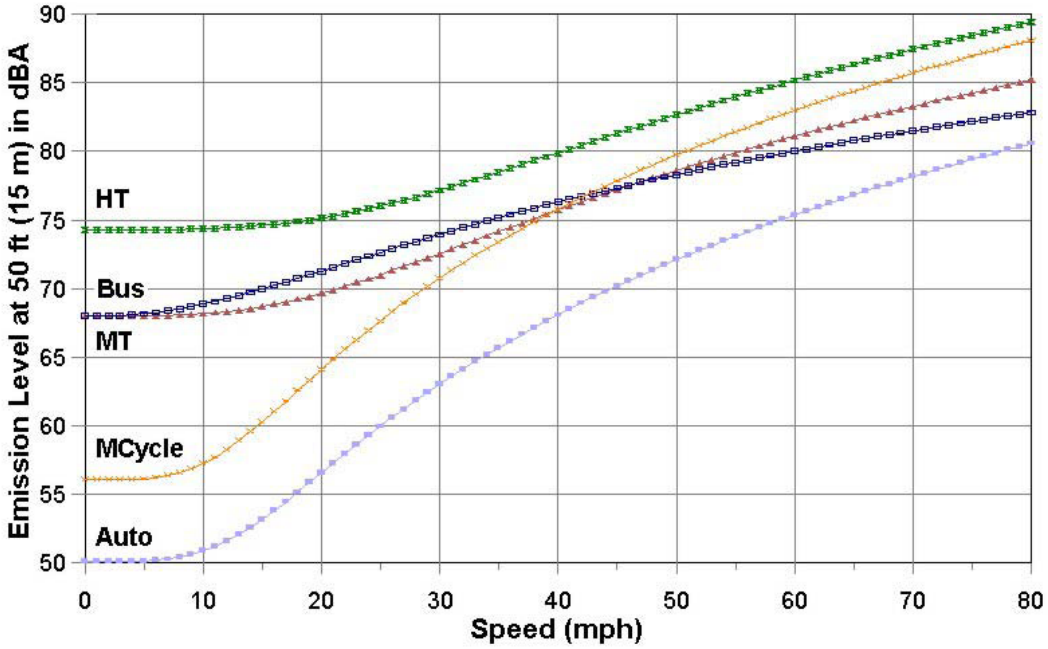


Figure 3.1-1. National Automotive Noise Emission Levels in Federal Highway Administration's Traffic Noise Model (Roof *et al*., 2002). Vehicles sound levels for automobiles (Auto), medium trucks (MT), heavy trucks (HT), buses (Bus), and motorcycles (MCycle).

3.2 Air Quality

The federal Clean Air Act, last amended in 1990, requires the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) for air pollutants that are harmful to public health and the environment. The USEPA has established ambient air quality standards for six "criteria" pollutants: carbon monoxide, lead, nitrogen oxide, particulate matter, ozone and sulfur dioxide. Areas that do not meet the NAAQS for one or more pollutants are designated as nonattainment areas, for which the state must prepare a state implementation plan (SIP). Areas that were once classified as nonattainment areas but which now consistently meet NAAQS are referred to as maintenance areas.

Section 176(c) of the Clean Air Act requires federal agencies to ensure that their actions conform to applicable implementation plans (in most cases, the SIP) for achieving and maintaining the NAAQS for criteria pollutants.

There are six Class II Air Quality Control Regions in Maine:

1. Metropolitan Portland Air Quality Region
2. Portland Peninsula Air Quality Region
3. Central Maine Air Quality Region
4. Downeast Air Quality Region
5. Aroostook Air Quality Region
6. Northwest Maine Air Quality Region.

Within the Air Quality Control Regions are four federal land areas which have been established as mandatory Class I areas by the Federal Clean Air Act. These include:

1. Acadia National Park, located in Downeast and Central Maine Air Quality Regions;
2. Moosehorn National Wildlife Refuge, located in the Downeast Air Quality Region;
3. The Roosevelt Campobello International Park located in New Brunswick, Canada;
4. Presidential Range Dry River Wilderness and Great Gulf Wilderness of the White Mountain National Forest in New Hampshire.

All areas of the state of Maine currently meet the NAAQS for all applicable pollutants.[1]

3.3 Geology and Soils

3.3.1 Geology

The geologic history of Maine is complex. Maine is located in the northern part of the Appalachians (USGS, 2002) and has a geologic history that spans more than half a billion years. Over this vast time period a variety of

[1] On December 11, 2006, USEPA published the final rule redesignating Maine's two ozone nonattainment areas (Portland and Midcoast) to attainment and approving the maintenance plans for these areas (Federal Register, 2006). The effective date of the rule was January 10, 2007. Consequently, all areas of the state currently meet the NAAQS for all applicable pollutants. The Portland and Midcoast areas are now categorized as 8-hour ozone maintenance areas. On August 30, 1995, USEPA published the final rule redesignating the Presque Isle, Maine nonattainment area for particulate matter to attainment. The effective date of the rule was October 30, 1995.

geologic processes including erosion, sedimentation, mountain-building, deformation (folding and faulting), metamorphisms, and igneous activities produced the complex bedrock geology of the state as it is seen today (MGS, 2005).

In general Maine consists primarily of igneous rock formed in the late Silurian to Devonian (430 to 360 million years) (Figure 3.1-1). Additionally the general bedrock geology includes sedimentary, metamorphic, and igneous rocks formed across a large time scale on the order of 550 million years (Precambrian). While Maine's geologic history is young (on a geologic time scale), the region's history also includes numerous episodes of glaciations, with the most recent occurring approximately 12,000-40,000 years ago.

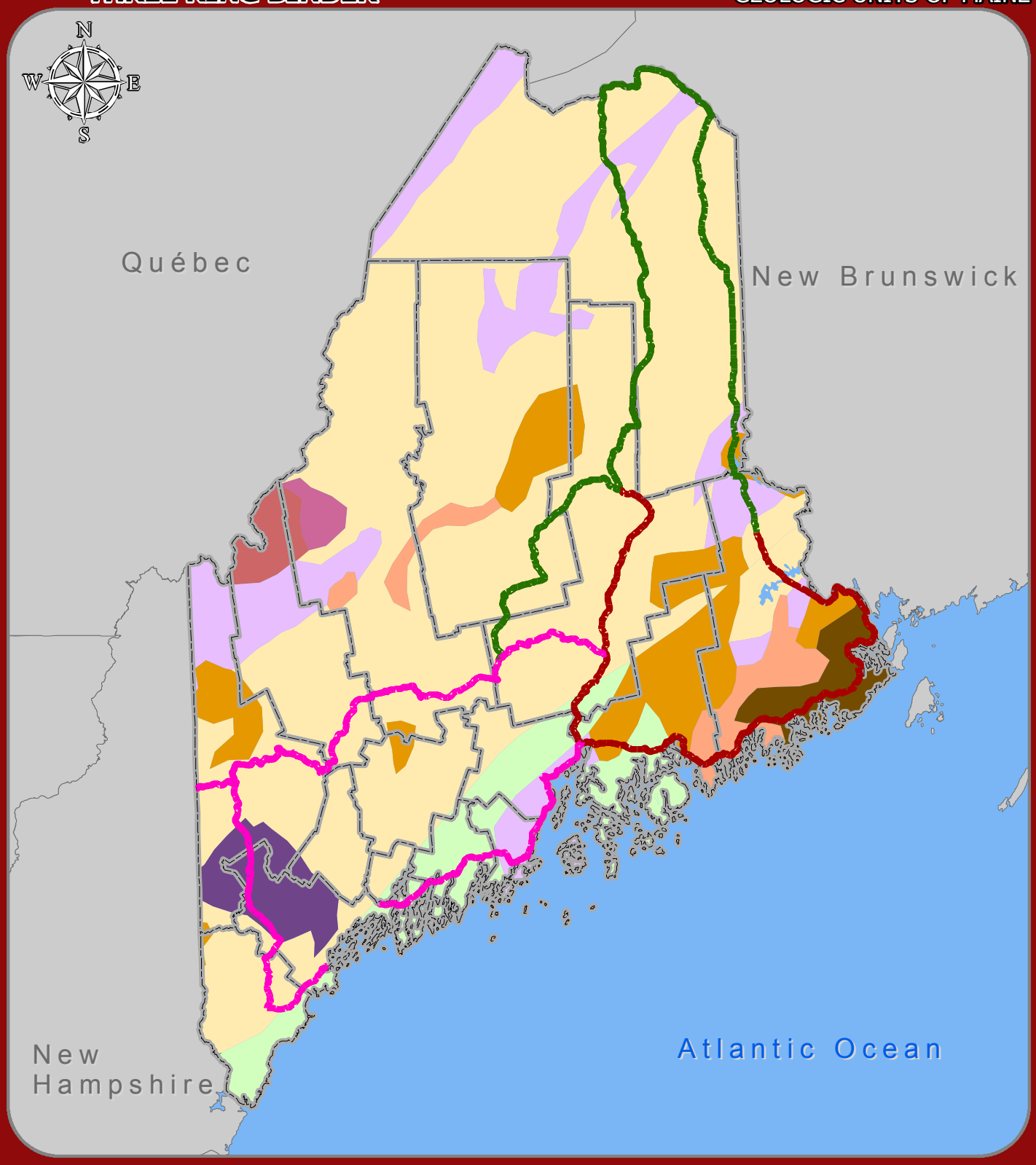
The majority of the proposed Three Ring Binder occurs within a large mapped area of middle Paleozoic (Silurian and Devonian) sedimentary rock. Sedimentary rocks cover the majority of the inland portions of the state and were formed in sediment laid down during prolonged periods of inundation and include present day formations of rock such as sandstone and shale. The Northern Ring of the project and western portions of the Southern Ring are primarily located within sedimentary bedrock; the Down East Ring and coastal portions of the Southern Ring are located in a more complex mosaic of bedrock types as described below.

In general terms, the coast of Maine is the result of both sediment deposition and volcanic activity. Extending from the Bangor area south, and westerly along the coast toward Kittery, the region is dominated by sedimentary rock formed during the late Proterozoic and lower Paleozoic (ranging from 245 to 545 million years). Further along the coast to the east and including areas from Rockport easterly along the coast to Calais, the area is dominated by a combination of lower Paleozoic (Cambrian and Ordovician) sedimentary rocks, Paleozoic granitic rocks, Paleozoic mafic rocks (igneous rocks such as basalt or gabbro), and Paleozoic volcanic rock (MGS, 2005). Coastal portions of the

Southern Ring and much of the Down East Ring occupy this region of predominantly sedimentary and igneous rock.

THREE RING BINDER

FIGURE 3.3 - 1
GEOLOGIC UNITS OF MAINE



Legend

- Down East Ring
- Northern Ring
- Southern Ring

Geologic Units:

- Late Proterozoic and lower Paleozoic gneiss
- Late Proterozoic and lower Paleozoic sedimentary rocks
- Lower Paleozoic (Cambrian and Ordovicin) sedimentary rocks
- Lower Paleozoic granitic rocks
- Middle Paleozoic (Silurian, Devonian, and Mississippian) sedimentary rocks
- Middle Paleozoic granitic rocks
- Middle Paleozoic granite rocks
- Middle Paleozoic volcanic rocks
- Middle Proterozoic gneiss
- Upper Paleozoic granitic rocks

NOTE:
- Geologic data and county bounds courtesy of USGS.

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Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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3.3.2 Soils

Maine has a dynamic past and much of the surficial geology of the state is young, with the most recent glaciation reaching its maximum 18,000 years ago (Caldwell, 1998). As a result, the majority of the surficial geology is tied directly to the states glacially influenced past (Figure 3.3-2). In general terms, a mantle of glacial till (minerals directly deposited by glaciers) covers a majority of the state. In a number of areas, water deposited sediments from glacial melt water flowing under ice resulted in the creation linear ridges of sorted coarse sediment (sands and gravels). These formations, eskers, run in a north to south orientation and are found throughout much of the state, less commonly in the northwestern portion of the state (*i.e.*, western Aroostook, northern Piscataquis, and northern Somerset counties). Less commonly, glacial outwash plains occur in areas where glacial meltwater deposited sediment in deltas; often these plains occur at the terminus of eskers, which carried melt water from within the glacier (Caldwell, 1998). Marine sediments also play a major role in the surficial geology of Maine. During various periods of glaciation the sheer weight of the glacier and subsequent sea level rise as a result of melt water, inundated large portions of the state, primarily along the coast and along a number of river valleys, such as the Penobscot River valley. This marine intrusion resulted in the formation of deposits of fine sediments through a combination of glacial melt water and marine sediments. The Presumpscot formation is one formation resulting from these interactions. These areas tend to be dominated by finer sediments including silt and clay.

Closely tied to the glaciations are large deposits of organic materials, which formed as a result of various glacial processes. During the glacial retreat, large melt water lakes resulted in deposition of lacustrine sediments, and over time many of these areas in-filled with organic materials. Through years of organic accumulation, these areas became bogs. Other features, kettle holes, formed as large isolated remnants of the glacial ice insulated by glacial sediment finally melted forming a depression in the landscape. In cases, these areas filled

with organic materials, which are often seen today as depressional wetlands within the landscape.

In general terms, a large part of Maine's surficial landscape is formed as a result of recent soil forming processes. A large part of the state (particularly higher elevations) is exposed bedrock or shallow-to-bedrock soils resulting from surface scraping by glacial advances and retreats. Additionally, alluvial (water-deposited) sediments that fluctuate with each spring freshet occupy a number of areas along rivers and streams.

A majority of the Three Ring Binder occurs within areas of glacial till. Coastal portions of the Southern Ring and the Down East Ring cross areas dominated by surficial materials originating from marine and glacial sediments. In isolated locations, features such as eskers, moraines, organic deposits, or alluvium are present.

The National Resource Conservation Service (NRCS) (NRCS, 1997) in the National Resources Inventory Report identified prime farmland within Maine in 1997. Based on this report, Maine had approximately 1,105,100 acres of prime farmland (Table 3.3-1). Of that, approximately 814,100 acres were forested.

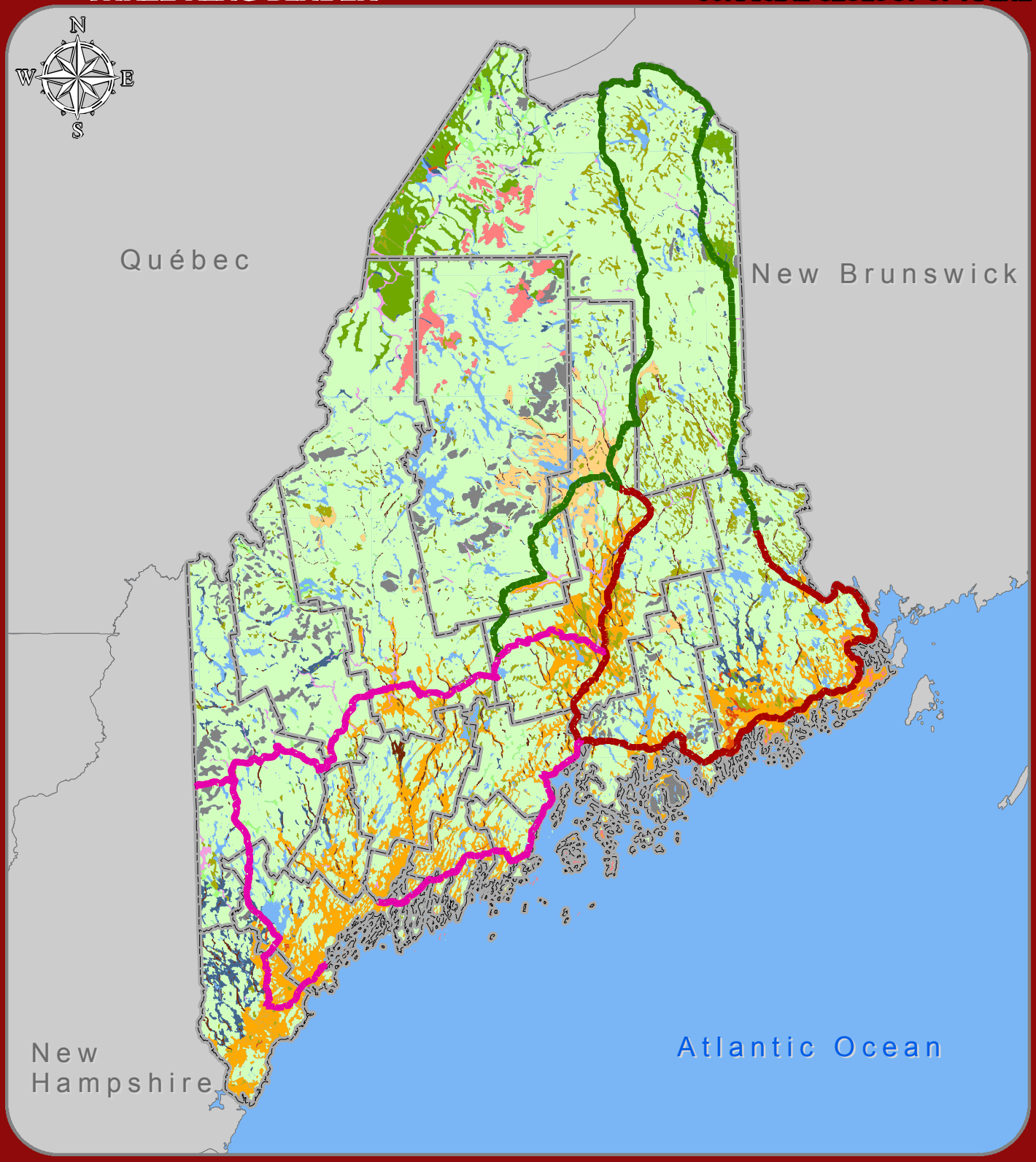
Table 3.3-1. Prime Farmland in Maine by Land Cover/Use by Year (data per 1,000 acres)

Year	Crops	CRP land	Pasture	Range	Forest	Other rural land	Total
1982	211.8	0	60.2	0	800.3	75.4	1,147.70
1987	210.1	0	50.6	0	799.7	77.6	1,138.00
1992	191.6	11.1	38.5	0	799.2	83.2	1,123.60
1997	189.1	0	44	0	814.3	57.7	1,105.10

Source: NRCS, 1997 (revised 2000).

THREE RING BINDER

FIGURE 3.3 - 2
SURFICIAL GEOLOGY OF MAINE



NOTE:
- Geologic data and county bounds courtesy of USGS.

Legend

- Down East Ring
- Northern Ring
- Southern Ring

Surface Description

- Beach Deposits
- Bedrock
- End Moraine
- Eolian Deposits
- Eskers
- Glacial Outwash Deposits
- Glaciomarine Deposits
- Ice-contact Glaciofluvial (exc. Eskers)
- Lake Bottom Deposits
- Ribbed Moraine
- Stagnation Moraine
- Stream Alluvium
- Swamp, Marsh and Bog Deposits
- Thin Drift, Undifferentiated
- Glacial Till

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Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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File Name: Fig. 3.3-2.mxd

3.4 Water Resources

The Three Ring Binder would pass through all river basins in Maine including the Allagash, Penobscot, St. Croix, Kennebec, St. George, Sheepscot, and Androscoggin, and would involve about 14 sub-river basins in the northeast, central, and coastal regions of Maine (Pearl, 2009). Water resources in Maine generally develop from headwater wetlands in the north that drain south, joining other streams to form larger rivers, ultimately reaching coastal estuaries and bays. Water resources throughout these areas are variable and include freshwater, marine, and groundwater sources.

3.4.1 Surface water

Surface water bodies are abundant in Maine and include reservoirs, lakes, ponds, rivers and wetlands. Reservoirs are typically the result of mill and hydroelectric operations. Lakes and ponds are from natural origins, formed by glacial recession (USFS, 1994). Feeding the lakes and ponds are a number of major rivers and numerous perennial and intermittent streams. In the proposed project area, streams are generally low and moderate gradient with a dendritic pattern. Peak and maximum average monthly flows are generally associated with rain-on-snow events during the spring (USFS, 1994). In the central and coastal areas, average annual runoff ranges from 20 to 25 inches; in the northern region, it ranges from 18 to 22 inches (USFS, 1994). Minimum monthly flows in the central and coastal regions occur in late summer whereas, minimum flows further north occur in fall and late winter (USFS, 1994).

Water quality in Maine is reported on a two-year cycle in an Integrated Water Quality Monitoring and Assessment Report submitted to the USEPA per Sections 303(d) and 305(b) of the Clean Water Act (MEDEP, 2008). The 2008 report identifies lengths and areas of impaired rivers, streams and lakes in Maine (Table 3.4-1 and Table 3.4-2). Generally, toxins, particularly polychlorinated biphenyls (PCBs) and dioxins from past industrial point sources are the major cause of impairment of marine and estuarine waters. The second greatest area of impaired estuarine/marine waters in Maine is due to bacterial contamination (MEDEP, 2008). Most main stem rivers are in good condition and meet their

classification, which is mostly B or C quality with a few reaches in the north designated as AA and A. The primary water quality issue on the larger rivers (Androscoggin, Kennebec, Penobscot, Salmon Falls, and Sebasticook Rivers) is nonattainment of the Fish Consumption use due to PCB and dioxin contamination. The single largest source of pollution to Maine waters, including lakes, is from atmospheric deposition of mercury. General agricultural nonpoint sources also cause some lake and stream impairment (MEDEP, 2008).

Table 3.4-1. Total Sizes of Category 4 and 5 Impaired Rivers and Streams in Maine by Listing Causes/Stressors*

Cause/Stressor Type	Size Impaired (miles)
Pathogens (E. coli)	**201.39**
CSO-source	variable miles
Aquatic Life Criteria (integrated effects including biocriteria, habitat and nutrient biological indicators)	**332.15**
Oxygen depletion	**398.5**
Dissolved oxygen	377.02
BOD	32.02
Altered flow regime	**32.16**
Nutrients	**194.26**
Nutrient-eutrophication, biological indicators	137.85
Toxic inorganics	**38.78**
Metals	29.85
Toxic organics	**431.53**
Dioxin	379.04
Polychlorinated biphenyls	391.82
Pesticides	**217.43**
pH/Acidity/Caustic conditions	**1**
Sedimentation	**8.19**
Cause Unknown	**0.63**

Source: MEDEP, 2008
*Category 4 - Impaired or threatened for one or more designated uses, but does not require development of a Total Maximum Daily Load (TMDL). Category 5 – Waters impaired or threatened for one or more designated uses by a pollutant(s) and a TMDL is required.

Table 3.4-2. Total Sizes of Category 4 and 5 Lakes in Maine Impaired by Listing Causes/Stressors (by Category)*

Listing Category	Cause/Stressor Type	Size Impaired (acres)	Number Impaired
4A	Oxygen, Dissolved	634	1
	Phosphorus (Total)	24,636	23
	Secchi disk transparency	24,000	23
4C	Habitat Assessment (Lakes)	48,964	5
	Turbidity	7,865	1
5A	Secchi disk transparency	3,658	4
	Phosphorus (Total)	3,658	4
5C	Methylmercury	986,508	5780

Source: MDEP, 2000.
*4-A: A TMDL is completed. 4-C: Impairment is not caused by a pollutant but by natural conditions. 5-A: Impairment caused by pollutants other than those listed in 5-B through 5-D (bacterial, atmospheric mercury, legacy pollutant). A TMDL is required and would be conducted by the state of Maine. 5-C: Impairment caused by atmospheric deposition of mercury and a regional scale TMDL is required.

3.4.2 Wetlands

Freshwater wetlands are abundant throughout Maine, including along the Three Ring Binder routes. Wetland types include forested floodplains, swamps, bogs, emergent fresh and saltwater marshes, and vernal pools. They are typically remnants of glacial recession and fed by groundwater, or are associated with streams or the result of a perched water table, which is water positioned above the normal water table due to the presence of an impermeable rock layer or a slowly permeable compact till layer (USFS, 1994).

3.4.3 Coastal Zone

A portion of the Three Ring Binder would pass through Maine's coastal zone, which is defined by the Maine Coastal Program as extending from the inland boundary of all 147 coastal towns that contain tidal waters to the outer limit of the state's territorial jurisdiction (MSPO, 2006). This includes portions of the Down East and Southern Rings that extend along the coastline. This zone contains estuaries, where the rivers meet the ocean, and freshwater intertidal marshes where the influence of the tide is exerted on freshwater systems. The Maine Coastal Zone Management Program (Maine Coastal Program) was created by the state and approved by the National Oceanic and Atmospheric

Administration (NOAA), pursuant to the federal Coastal Zone Management Act (CZMA). The program is administered by the MSPO, which has the authority to review federal actions with the potential to affect the coastal zone. The purpose of the review is to ensure consistency with enforceable state policies that have been made part of the program.

3.4.4 Groundwater

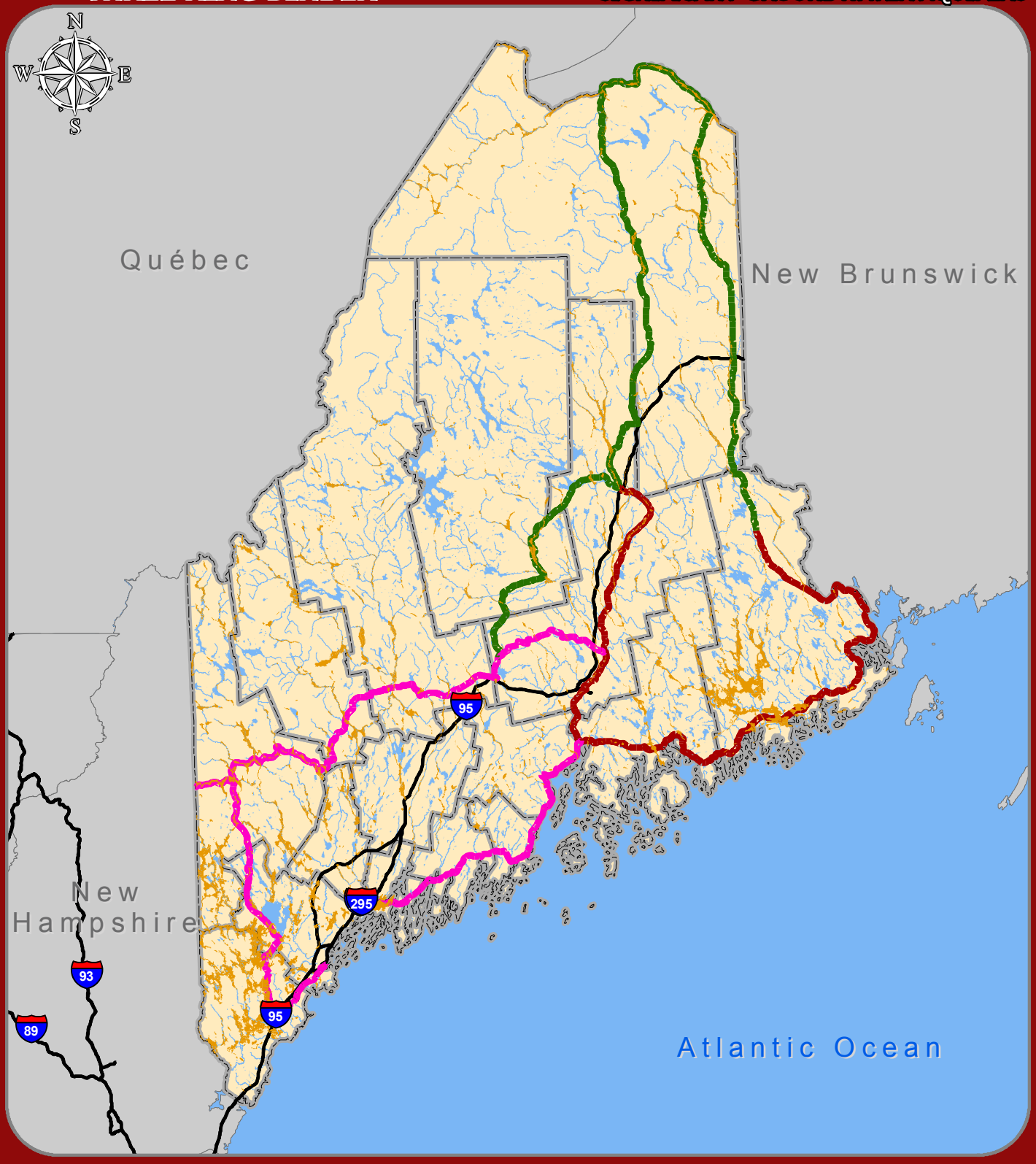
Groundwater aquifers in Maine consist of two types – unconsolidated glacial sediments (sand, gravel, etc.) and fractured bedrock (MGS, 2009). Significant sand and gravel aquifers in Maine are deposits capable of a pumping at a rate of ten gallons or more per minute and are often associated with streams and rivers (MGS, 2009). High-yield sand and gravel aquifers are particularly vulnerable to contamination due to their high permeability (MEDEP, 2005). As depicted in Figure 3.4-1, the Three Ring Binder area coincides with several significant groundwater aquifers particularly on the Down East Ring and western section of the Southern Ring.

3.4.5 Floodplains

Associated with the abundance of rivers, lakes, and streams in Maine is an abundance of floodplains. Floodplains of all recurrence intervals, which is the average time interval between flood events, are valuable resources that provide critical functions including attenuation of flood waters, erosion control, wildlife habitat, ground water recharge, and water quality maintenance. According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps there are numerous areas within the proposed project routes that are designated as Special Flood Hazard Areas, which are inundated by 100-year flood events.

THREE RING BINDER

FIGURE 3.4 - 1
SIGNIFICANT GROUNDWATER AQUIFERS



NOTE:
- Geologic data and county bounds courtesy of USGS.
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Aquifers courtesy Maine Office of GIS.

Legend
- Significant Groundwater Aquifers
- Lakes & Ponds (>10 ac)
- Rivers and Streams
- Down East Ring
- Northern Ring
- Southern Ring

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Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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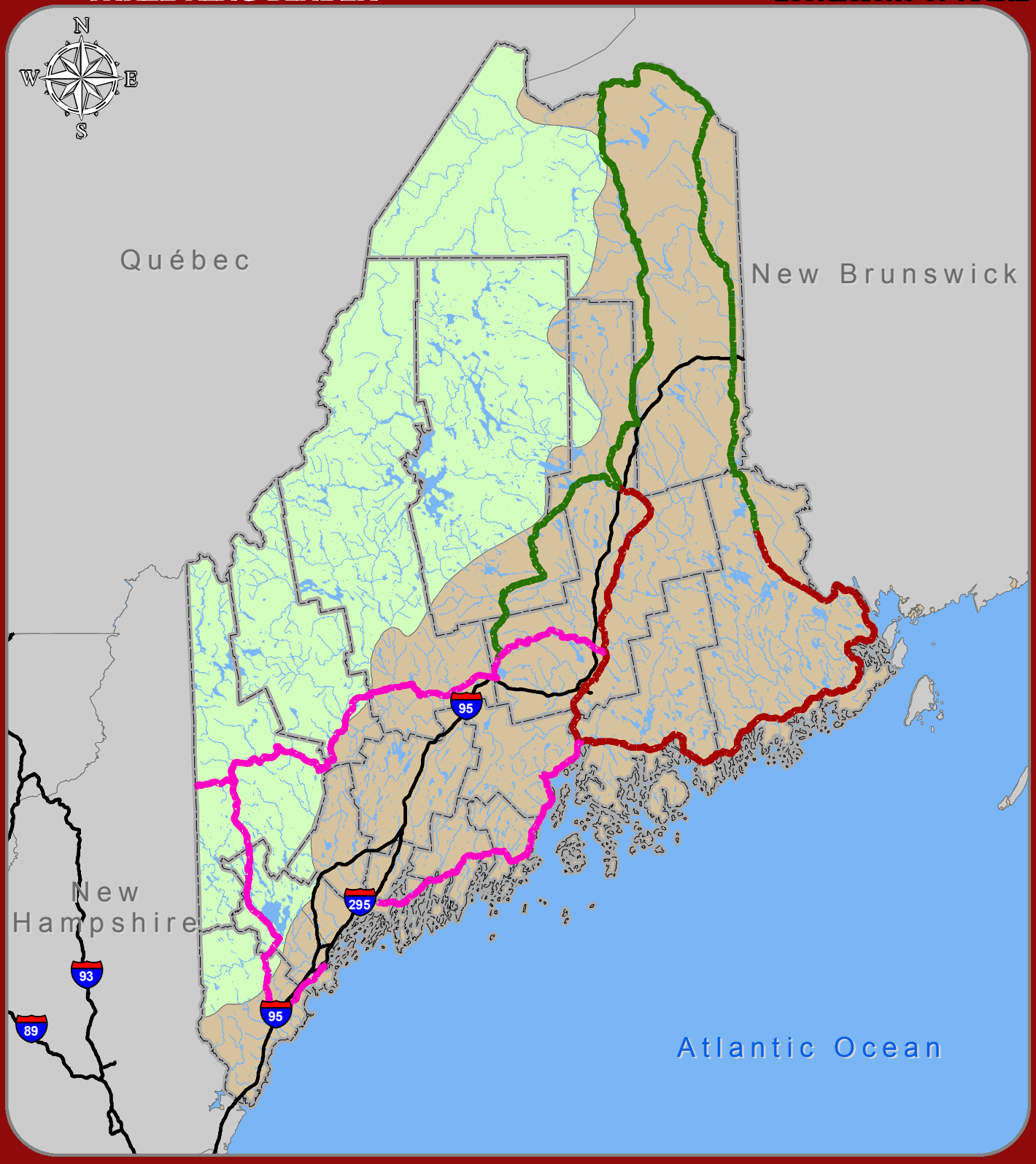
3.5 Biological Resources

The proposed Three Ring Binder lies within two Ecoregions, as defined by the USEPA (USEPA, 1997). The project falls primarily within the Eastern Temperate Forest region and to a lesser extent the Northern Forest region of the USEPA's Class I Ecological Regions of North America (Figure 3.5-1). Vast forests and a high density of lakes and ponds characterize the Northern Forest region, which dominates the western and higher elevation portions of Maine. The eastern half of the state falls within the Eastern Temperate Forests region, which is characterized by a relatively dense and diverse forest cover with a fairly high density of human development (USEPA, 1997).

THREE RING BINDER

FIGURE 3.5 - 1
ECOREGIONS OF MAINE



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named rivers and streams.
- Ecological regions of Maine provided by the Environmental Protection Agency (EPA).

Legend

- Lakes & Ponds (>10 ac)
- Rivers and Streams
- Northern Forest Region
- Eastern Temperate Forest Region
- Down East Ring
- Northern Ring
- Southern Ring

Miles
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Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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3.5.1 Wildlife Resources

Maine provides extensive habitat for a wide variety of wildlife. Habitat diversity within Maine ranges from high elevation coniferous forests to hardwood lowlands and river valleys. A number of mammals, birds, reptiles, amphibians, fish, and invertebrates inhabit the Northern Forest and Temperate Forest regions. Table 3.5-1 contains a list of representative wildlife that is present within the state of Maine.

Table 3.5-1. Representative Wildlife Present Within Maine

Common Name	Scientific Name	Class
spotted salamander	*Ambystoma maculatum*	Amphibian
eastern newt	*Notophathalmus viridescens*	Amphibian
green frog	*Rana clamitans*	Amphibian
bullfrog	*Rana catesbeiana*	Amphibian
grey treefrog	*Hyla versicolor*	Amphibian
spring peeper	*Pseudacris crucifer*	Amphibian
American toad	*Bufo americanus*	Amphibian
northern leopard frog	*Rana pipiens*	Amphibian
Pickerel frog	*Rana palustris*	Amphibian
blue spotted salamander	*Ambystoma laterale*	Amphibian
redback salamander	*Plethodon cinereus*	Amphibian
osprey	*Pandion haliaetus*	Bird
bald eagle	*Haliaeetus leucocephalus*	Bird
black duck	*Anas rubripes*	Bird
mallard duck	*Anas platyrhynchos*	Bird
kingfisher	*Vceryle alcyon*	Bird
black-capped chickadee	*Poecile atricapillus*	Bird
white-breasted nuthatch	*Sitta carolinensis*	Bird
spruce grouse	*Falcipennis canadensis*	Bird
ruffed grouse	*Bonasa umbellus*	Bird
loon	*Gavia immer*	Bird
white-tailed deer	*Odocoileus virginianus*	Mammal
moose	*Alces alces*	Mammal
black bear	*Ursus americanus*	Mammal
raccoon	*Procyon lotor*	Mammal
American marten	*Martes americana*	Mammal
fisher	*Martes pennanti*	Mammal
beaver	*Castor canadensis*	Mammal
skunk	*Mephitis mephitis*	Mammal
muskrat	*Ondatra zibethicus*	Mammal

Common Name	Scientific Name	Class
bobcat	*Lynx rufus*	Mammal
eastern chipmunk	*Tamias striatus*	Mammal
gray squirrel	*Sciurus carolinensis*	Mammal
porcupine	*Erethizon dorsatum*	Mammal
red fox	*Vulpes vulpes*	Mammal
snapping turtle	*Chelydra serpentina*	Reptile
wood turtle	*Clemmys insculpta*	Reptile
painted turtle	*Chrysemys picta*	Reptile
garter snake	*Thamnophis sirtalis*	Reptile

Maine's freshwater habitats support a variety of habitat for fish, freshwater mussels, and numerous macroinvertebrate species. There are 56 species of freshwater fish (excluding anadromous fish), including 19 introduced species, and ten species of freshwater mussels (MDIFW, 2002; Nedeau, 2000). Table 3.5-2 contains a comprehensive list of freshwater mussels and warm and cold water fish species.

Table 3.5-2. Representative Freshwater Fish and Mussel Species Present Within Maine

Common Name	Scientific Name	Class
cusk	*Lota lota*	Fish
eastern brook trout	*Salvelinus fontinalis*	Fish
lake trout	*Salvelinus namaycush*	Fish
largemouth bass	*Micropterus salmoides*	Fish
brown trout	*Salmo trutta*	Fish
smallmouth bass	*Micropterus dolomieu*	Fish
black crappie	*Pomoxis nigromaculatus*	Fish
brown bullhead	*Ameiurus nebulosus*	Fish
chain pickerel	*Esox niger*	Fish
yellow perch	*Perca flavescens*	Fish
pumpkin seed sunfish	*Lepomis gibbosus*	Fish
red breast sunfish	*Lepomis auritus*	Fish
American eel	*Anguilla rostrata*	Fish
Atlantic salmon	*Salmo salar*	Fish
eastern pearlshell	*Margaritifera margaritifera*	Mussel
triangle floater	*Alasmidonta undulata*	Mussel
brook floater	*Alasmidonta varicosa*	Mussel
creeper	*Strophitus undulatus*	Mussel
eastern floater	*Pyganodon cataracta*	Mussel
alwife floater	*Anodonta implicata*	Mussel
eastern elliptio	*Elliptio complanata*	Mussel
yellow lampmussel	*Lampsilis cariosa*	Mussel

Common Name	Scientific Name	Class
eastern lampmussel	*Lampsilis radiata radiata*	Mussel
tidewater mussel	*Leptodea ochracea*	Mussel

3.5.2 Vegetation

Western Maine (Northern Forests region) is dominated by dense forest; over 80 percent of the region is characterized by closed stands of coniferous forests. Vegetation within much of this region is characterized by white spruce (*Picea glauca*), black spruce (*Picea mariana*), balsam fir (*Abies balsamea*), and larch (*Larix laricina*). In more southern locations and along lower elevations, forests species include white birch (*Betula papyrifera*), trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamea*), white pine (*Pinus strobus*), red pine (*Pinus resinosa*), sugar maple (*Acer saccharum*), beech (*Fagus grandifola*), red spruce (*Picea rubens*), and a number of oaks (*Quercus* spp.). Within the region, shallow soils and shallow to bedrock conditions are common and tend to be covered by a range of plant communities, dominated by lichens, shrubs, and a wide variety of forbs (USEPA, 1997).

Eastern Maine (Eastern Temperate Forests region) is dominated by dense forest of primarily deciduous trees and to lesser extent coniferous trees. Beech-maple and maple-basswood forest types occur throughout portions of the region and dominant forest species include oaks, maples, and pines. Other species may include ash (*Fraxinus* spp.), elm (*Ulmus* spp.), black cherry (*Prunus serotina*), and northern white cedar (*Thuja occidentalis*). As with the Northern Forest region a wide variety of lichens, shrubs and forbs are also present within this region (USEPA, 1997).

3.5.3 Wetland Habitat

Maine has extensive wetland habitat and the region's glacial past and current climate have resulted in a landscape dominated by lakes, ponds, streams, and wetlands. Some of Maine's wetlands include large and expansive peatbogs, forested wetland complexes, shrub swamps, freshwater emergent marshes, and

salt marshes. Additionally, Maine contains a number of ephemeral pools (vernal pools) that provide important habitat for obligate species of amphibians (spotted salamanders, blue spotted salamanders, and wood frogs) and other species. Based on the National Wetland Inventory (NWI), Maine contains approximately 4,993,675 acres of wetlands (excluding deepwater habitat). As proposed, the Three Ring Binder routes passes by approximately 53.6 miles of mapped NWI wetlands including forested, emergent, and scrub-shrub wetlands. Table 3.5-3 identifies wetland types passed by the Three Ring Binder.

Table 3.5-3. Wetland Types and Distance Passed by the Three Ring Binder

Wetland Type	Distance (mi)
Estuarine and Marine Wetland	2
Freshwater Emergent Wetland	5
Freshwater Forested/Shrub Wetland	46
Total Distance (mi)	**53**

3.5.4 Threatened and Endangered Species

Numerous fish and wildlife species in Maine are protected under Maine's Endangered Species Act (ME ESA) as well as under the Federal Endangered Species Act. A number of these species have specific habitat requirements and therefore only occur in specific regions or habitat assemblages. Table 3.5-4 depicts protected species that may occur in the affected environment.

Table 3.5-4. Threatened and Endangered Species in Maine

Common Name	Scientific Name	Protection Status[1]
American Pipit	*Anthus rubescens*	(Breeding population only) S
Arctic Tern	*Sterna paradisaea*	s
Bald Eagle	*Haliaeetus leucocephalus*	s
Barrow's Goldeneye	*Buchephala islandica*	s
Black-crowned Night Heron	*Nycticorax nycticorax*	s
Black Tern	*Chlidonias niger*	S
Grasshopper Sparrow	*Ammodramus savannarum*	S
Great Cormorant	*Phalacrocorax carbo*	(Breeding population only)s
Least Bittern	*Lxobrychus exilis*	S
Least Tern	*Sterna antillarum*	S
Peregrine Falcon	*Falco peregrinus*	(Breeding population only)S

Common Name	Scientific Name	Protection Status[1]
Piping Plover	*Charadrius melodus*	S f
Roseate Tern	*Sterna dougallii*	S F
Sedge Wren	*Cistothorus platensis*	S
Short-eared Owl	*Asio flammeus*	(Breeding population only)s
Upland Sandpiper	*Bartramia longicauda*	s
Atlantic Salmon	*Salmo salar*	F
Redfin Pickerel	*Esox americanus americanus*	S
Shortnose Sturgeon	*Acipenser brevirostrum*	F
Swamp Darter	*Etheostoma fusiforme*	s
American Burying Beetle	*Nicrophorus americanus*	F
Clayton's Copper	*Lycaena dorcas claytoni*	S
Edwards' Hairstreak	*Satyrium edwardsii*	S
Hessel's Hairstreak	*Callophrys hesseli*	S
Juniper Hairstreak	*Callophrys gryneus*	S
Karner Blue	*Lycaeides melissa samuelis*	F
Purple Lesser Fritillary	*Boloria chariclea grandis*	s
Sleepy Duskywing	*Erynnis brizo*	s
Boreal Snaketail	*Ophiogomphus colubrinus*	s
Rapids Clubtail	*Gomphus quadricolor*	S
Ringed Boghaunter	*Wouldiamsonia lintneri*	s
Brook Floater	*Alasmidonta varicosa*	s
Tidewater Mucket	*Leptodea ochracea*	s
Yellow Lampmussel	*Lampsilis cariosa*	s
Tomah Mayfly	*Siphlonisca aerodromia*	s
Pine Barrens Zanclognatha	*Zanclognatha martha*	s
Twilight Moth	*Lycia rachelae*	s
Canada Lynx	*Lynx canadensis*	f
Eastern Cougar	*Felis concolor couguar*	F
New England Cottontail	*Sylvilagus transitionalis*	S
Northern Bog Lemming	*Synaptomys borealis*	s
Black Racer	*Coluber constrictor*	S
Blanding's Turtle	*Emys blandingii*	S
Box Turtle	*Terrapene carolina*	S
Spotted Turtle	*Clemmys guttata*	s

Source: MDIFW, 2010

[1] **F =** Federally Endangered under the U.S. Endangered Species Act
f = Federally threatened under the U.S. Endangered Species Act
S= State Endangered under the Maine Endangered Species Act
s = State threatened under the Maine Endangered Species Act

Federally Protected Species: Of the federally listed endangered species in Maine, three occur in inland areas and freshwaters (Atlantic salmon, shortnose

sturgeon, and roseate tern). Five species are listed as uncertain within Maine (eastern cougar, gray wolf, karner blue, and the American burying beetle). The remaining species are primarily saltwater species found off shore or in the open ocean and do not occur in the effected environment. Shortnose sturgeon primarily inhabit the Sheepscot, Kennebec, Androscoggin, and Penobscot Rivers, as well as coastal waters in and around Merrymeeting Bay.

There are two federally threatened species in the affected environment including piping plover and Canada lynx. Piping plover is a small shorebird that occupies sandy beaches and dunes and occurs in southern part of the state and along the coast. The Canada lynx is a large and secretive forest-dwelling cat that occupies remote ranges in northern and higher elevation areas. While common in the boreal forests of Alaska and Canada, lynx are only present and documented within northern Aroostook, Piscataquis, Somerset, and Franklin Counties. The bald eagle was removed from the Federal List of Endangered and Threatened Species in June 2007, but is afforded continued preservation under the Bald and Golden Eagle Protection Act (16 USC 668-668c), and it is still listed as threatened under ME ESA.

The Three Ring Binder passes through areas designated as Critical Habitat for federally protected species, which are specific geographic areas essential for the conservation of a federally listed species (Figure 3.5-2). In the northern section of the state, the Down East Ring would pass through Unit 1 of Critical Habitat for Canada lynx. Central and coastal portions of the Three Ring Binder would pass through areas containing rivers designated as Critical Habitat for the Gulf of Maine Distinct Population Segment of Atlantic salmon.

During consultation, NOAA confirmed that the proposed project would cross several waterways designated as Essential Fish Habitat (EFH) and Critical Habitat for federally managed species, including winter flounder and Atlantic salmon (Sean McDermott, personal communication, March 23, 2010).

State Endangered Species: The majority of Maine's threatened and endangered species are birds. State endangered species include the American

pipit, black tern, golden eagle, grasshopper sparrow, least bittern, least tern, peregrine falcon, piping plover, roseate tern, and sedge wren. The MDIFW has identified breeding locations of piping plover and roseate tern as designated Essential Habitat, which confers protections per the ME ESA (Figure 3.5-3).

A number of invertebrate species are state endangered, including Clayton's copper, Edward's hairstreak, Hessel's hairstreak, juniper hairstreak, rapids clubtail, and roaring brook mayfly. The location of the majority of these species in Maine represents the northernmost limit of their range. The remaining state endangered species are reptiles and include the black racer, Blanding's turtle, and box turtle. The range of these species is confined primarily to southern Maine, which for the box turtle, represents the northernmost extent of its range.

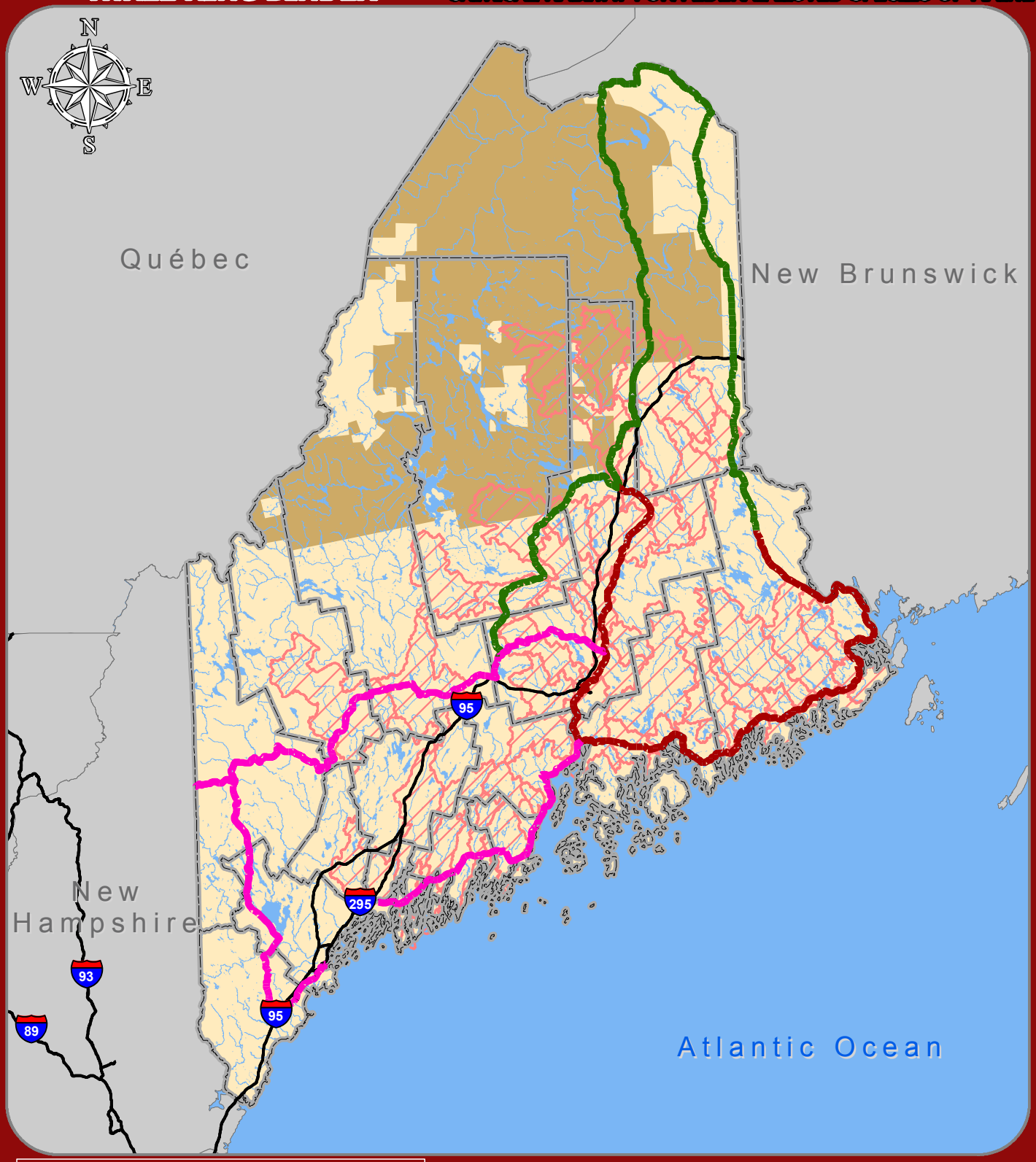
In total there are 24 state threatened species, which includes 11 bird species, one fish, 10 invertebrates, one mammal and one turtle. Of these species, only the bald eagle has designated Essential Habitat, which represents known nesting locations identified throughout the state (Figure 3.5-3).

Other Wildlife Protections: The Migratory Bird Treaty Act (MBTA) and Executive Order 13186 provide protection to migratory bird species, which includes protection of their nests and eggs. The Three Ring Binder would pass through varied ecosystems that support habitat for a variety of migratory birds. Migratory species breed in North America and winter in the Caribbean, Mexico, and Central and South America. The understory and canopy of Maine's coniferous and deciduous forests support a variety of neotropical nesting songbirds during the spring and summer.

THREE RING BINDER

FIGURE 3.5 - 2

CRITICAL HABITAT FOR FEDERAL LISTED SPECIES OF MAINE



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Critical Atlantic Salmon Habitat courtesy of the National Oceanic and Atmospheric Administration (NOAA).
- * "Critical Canada Lynx Habitat" created in a GIS and was based on the U.S. Fish & Wildlife Service's Canada Lynx Unit 1 Critical Habitat Map (v. 12/29/2008). The data contained in this map was intended for graphical representation only.
- All habitat depicted on this map should be considered as approximate and should be used for reference purposes only.

Legend

- Critical Atlantic Salmon Habitat
- Critical Canada Lynx Habitat *
- Lakes & Ponds (>10 ac)
- Rivers and Streams
- Down East Ring
- Northern Ring
- Southern Ring

Miles

0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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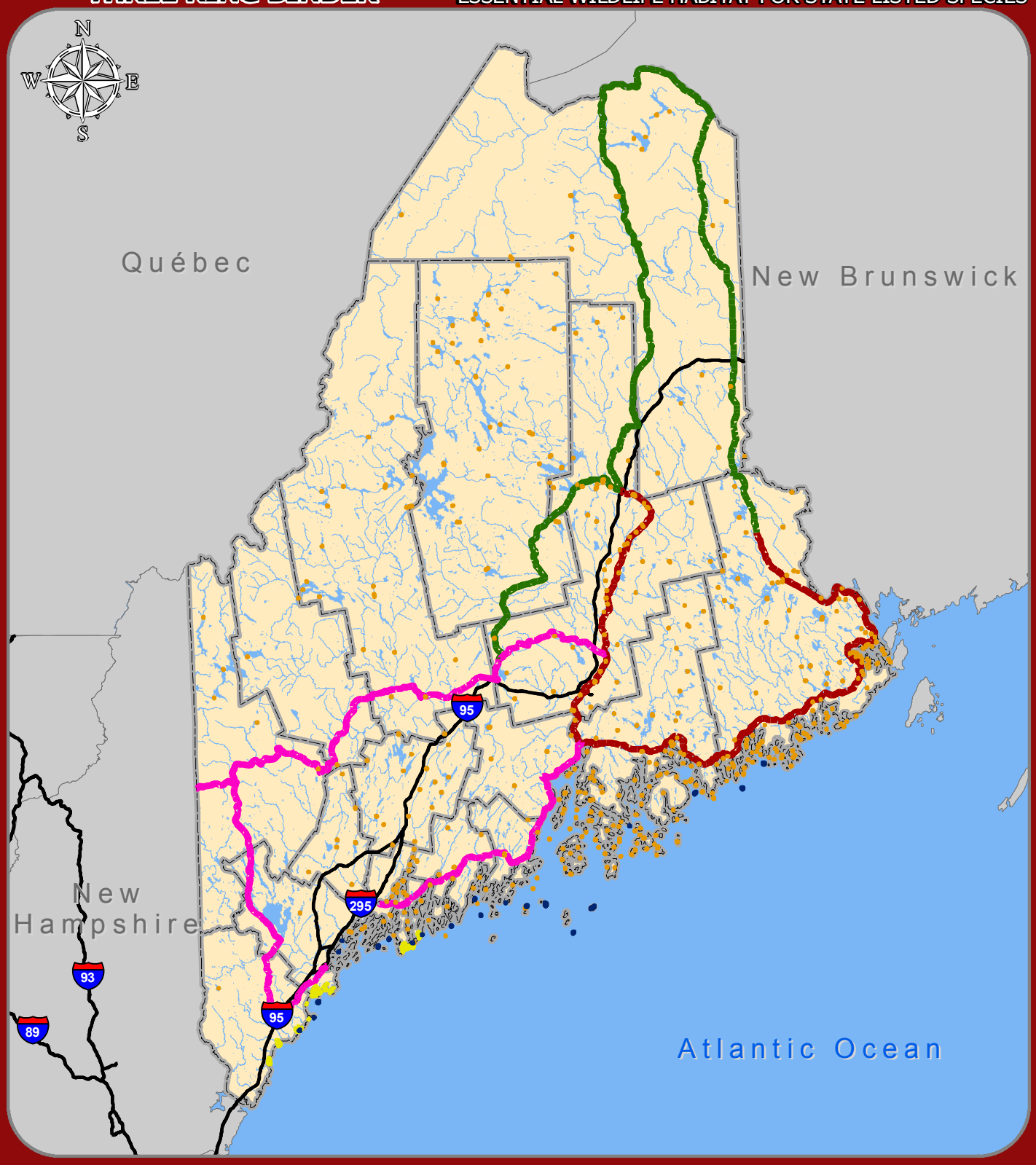
File Name: Fig_3.5-2.mxd

THREE RING BINDER

FIGURE 3.5 - 3

ESSENTIAL WILDLIFE HABITAT FOR STATE LISTED SPECIES



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Habitat data courtesy Maine Office of GIS.
- Essential Wildlife Habitat by Maine IF&W.

Legend

- Essential Roseate Tern Habitat
- Essential Piping Plover and Least Tern Habitat
- Essential Bald Eagle Habitat
- Lakes & Ponds (>10 ac)
- Rivers and Streams
- Down East Ring
- Northern Ring
- Southern Ring

Miles

0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
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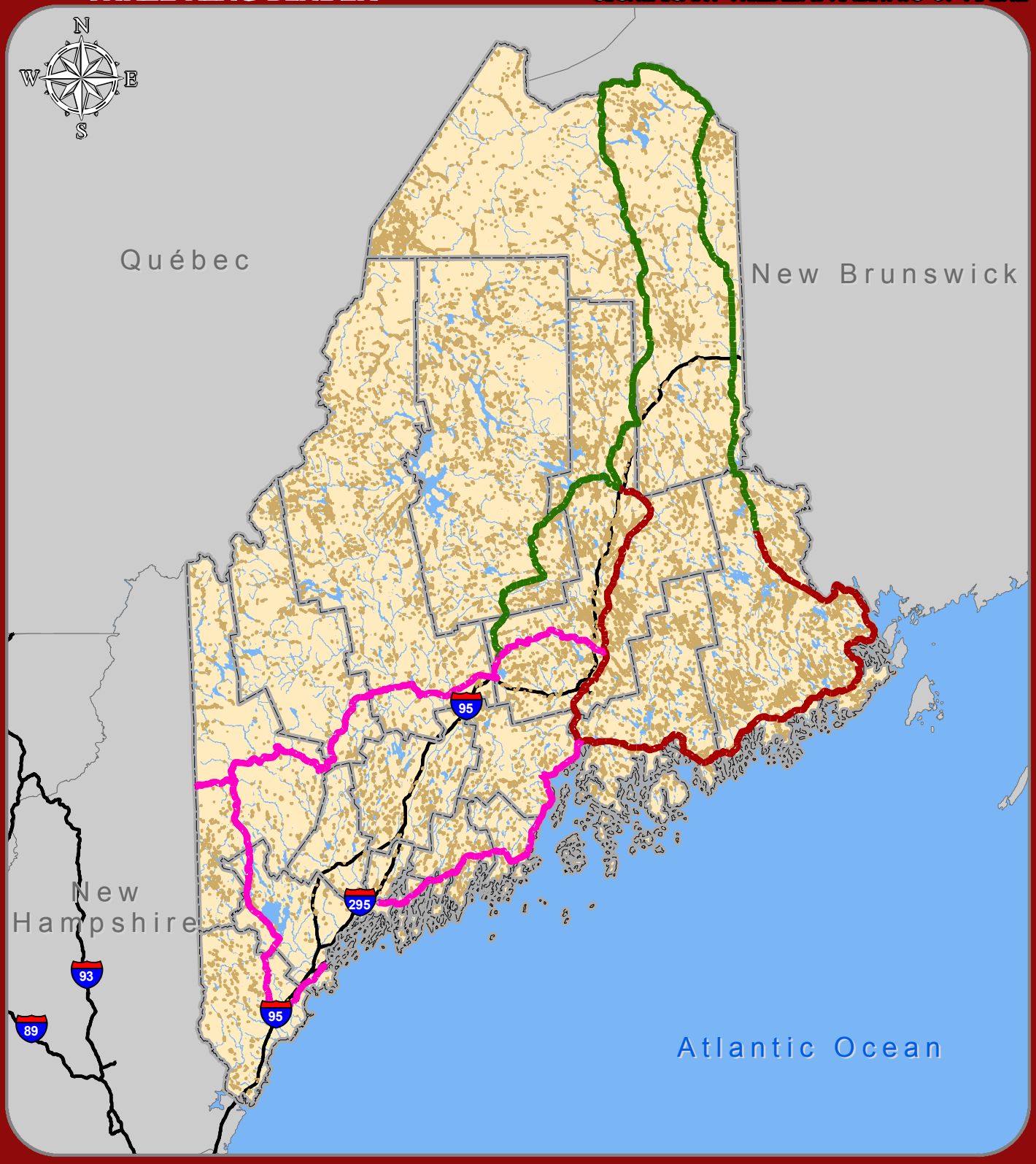
File Name: Fig_3.5-3.mxd

In addition to protections afforded by the ME ESA, bald eagles and golden eagles are protected by the Bald and Golden Eagle Protection Act, which prohibits the 'take' of eagles, including their parts, nests, and eggs without a permit. As mentioned previously, MDIFW maintains maps of bald eagles EWH (known breeding locations). Golden eagles are confined to the mountainous conifer forests in the northwestern portion of the state and are not expected to occur within the Three Ring Binder.

Under the Natural Resource Protection Act (NRPA), the MEDEP regulates high value habitats as Significant Wildlife Habitats (SWHs), which include significant vernal pools, high and moderate value waterfowl and wading bird habitat, and certain shorebird feeding and staging areas. Figure 3.5-4 depicts significant and non-significant vernal pools and other Significant Wildlife Habitats documented by MEDEP or MDIFW that was publically available as of March 19, 2010.

THREE RING BINDER

FIGURE 3.5 - 4
SIGNIFICANT WILDLIFE HABITATS OF MAINE



NOTE:
- Hydrography is NHD data courtesy of USGS. Only showing great ponds and named streams.

Legend
- Down East Ring
- Northern Ring
- Southern Ring
- Lakes & Ponds (>10 ac)
- Rivers and Streams
- Inland Wading Bird & Waterfowl Habitat

Miles
0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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File Name: Fig_3.5-4.mxd

3.6 Historic and Cultural Resources

This section focuses on the archaeological, architectural and native resources that are recognized nationally and locally. These features represent not only the past, but provide a tangible link to the image that Maine desires to promote and protect for its future citizens.

3.6.1 Archaeological Resources

Human habitation of Maine began about 11,000 years ago following recovery of the land area after glacial retreat MHPC, 2006). Prehistoric Native Americans in Maine were hunter-gatherers that lived in small groups. Settlements were concentrated at the inlets and outlets of large lakes and along river valleys and coastal sites. They were mobile peoples with members that traveled during certain seasons often by dugout canoe on the ocean, main rivers, and lakes.

Currently, there are about 6,000 known prehistoric archaeological sites. The majority of them (over 95 percent) are habitation and workshop sites. Prehistoric or pre-European archaeological sites known to exist in Maine consist of five types:

1. habitation (camp or village) and workshop sites;
2. lithic quarries;
3. cemeteries;
4. rock art; and
5. waterlogged sites preserving wood or other perishables.

Maine's Historic Preservation Commission is tasked with identifying, evaluating and protecting Maine's significant cultural resources, per the National Historic Preservation Act of 1966. The Department of Commerce initiated consultation with MHPC via letter dated March 15, 2010 (Appendix B). An investigation of archaeological resources has not been performed for the Three Ring Binder; however, the proposed corridor lies within existing utility easements.

3.6.2 Architectural Resources

According to the National Park Service (NPS), there are 995 buildings, sites, structures, districts and objects in Maine that are identified on the National Register of Historic Places (NPS National Register Information System, 2008) (Figure 3.6-1). Many of the sites are encompassed within the rings proposed for the Three Ring Binder. However, as proposed, the project is designed as a middle mile project, and would not include end point connections in any structures, historic or otherwise Last mile projects, which include the actual connections to individual buildings, would be completed separately, by providers, and is anticipated to be accomplished using existing conduits and ductwork.

There are 301 structures in Maine that are identified in the Historic American Building Survey and the Historic American Engineering Record Collections (Library of Congress, 2008). Of these, 283 are located within counties through which the Three Ring Binder is proposed; many of these sites may also be identified on the National Register of Historic Places (Table 3.6-1).

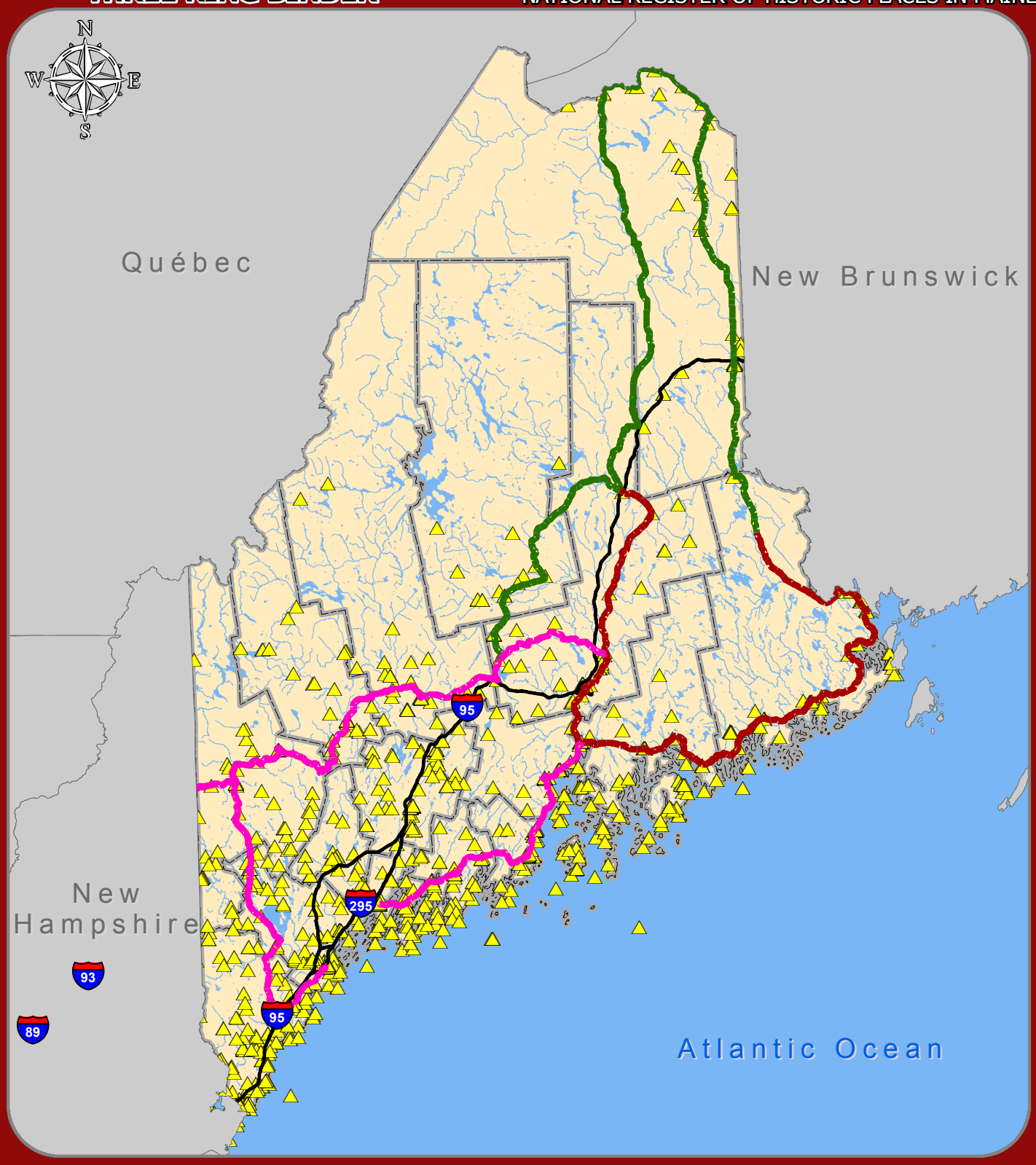
Table 3.6-1. Maine Structures Identified in the Historic American Building Survey and the Historic American Engineering Records Collection, by County

County	Number of Structures
Aroostook	7
Cumberland	54
Hancock	58
Knox	23
Lincoln	37
Oxford	8
Penobscot	1
Sagadahoc	31
Waldo	21
Washington	15
York	29

Source: Library of Congress 2010

THREE RING BINDER

FIGURE 3.6 - 1
NATIONAL REGISTER OF HISTORIC PLACES IN MAINE



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- "Historic places of Maine" are part of the National Registry of Historic Places (NRHP).

Legend
- Down East Ring
- Northern Ring
- Southern Ring
- National Registry of Historic Places
- Lakes & Ponds (>10 ac)
- Rivers and Streams

Miles
0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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3.6.3 Native Resources

Pre-European inhabitants of Maine include four tribes (Figure 3.6-2). The Abenaki tribe occupied the western portion of the state. The Penobscot People resided in central and coastal Maine. The Passamaquoddy tribe was located in the southeastern corner of the state, and the Maliseet inhabited the northern tip of Maine.

Known locations of Native cultural resources are not shared as public information so that these resources may be protected from vandalism and looting. The Department of Commerce has initiated Tribal communication through its portal system, and the Applicant is relying upon this consultation to provide information regarding potential locations of cultural resources that should be identified prior to installation of the Three Ring Binder.

Figure 3.6-2. Pre-European Tribes of Maine (NLA, 1998)

3.7 Aesthetic and Visual Resources

Maine's visual resources are an important component of the state's tourism industry and of the quality of life enjoyed by many of the state's residents. The state's visual resources include a broad range of natural and developed area and a tremendous variety of land uses, water bodies, and vegetation types and includes areas that range from small, unincorporated townships to a few of Maine's larger heavily developed cities. In selected instances, aesthetic and visual resources are identified as scenic

byways or wild and scenic rivers. In other cases, resources are identified as part of state or federal lands, such as parks.

3.7.1 State and National Scenic Byways

The fiber optic cable would be located primarily along major roadways, portions of which are designated as or intersecting Maine Scenic Byways and National Scenic Byways (Figure 3.7-1). The MDOT designates Maine Scenic Byways whereas the United States Department of Transportation (USDOT) designates National Scenic Byways. Designation of Scenic Byways is based on natural, recreational, historical, cultural, archaeological and scenic qualities of less-traveled roads.

The Northern Ring encompasses two Maine Scenic Byways: State Route 11 and Million Dollar View Byway. Route 11 is a primary north-south transportation route in northern Maine. The State Byway includes 37 miles of roadway from Portage to Fort Kent. The topography consists of rolling hills, wildflower meadows, and views of Mt. Katahdin and nearby lakes. The Million Dollar View Byway is an eight-mile stretch of U.S. Route 1 beginning in Danforth and extending north to Orient. It is known for its spectacular views of the Chiputneticook chain of lakes to the east and Mt. Katahdin to the west.

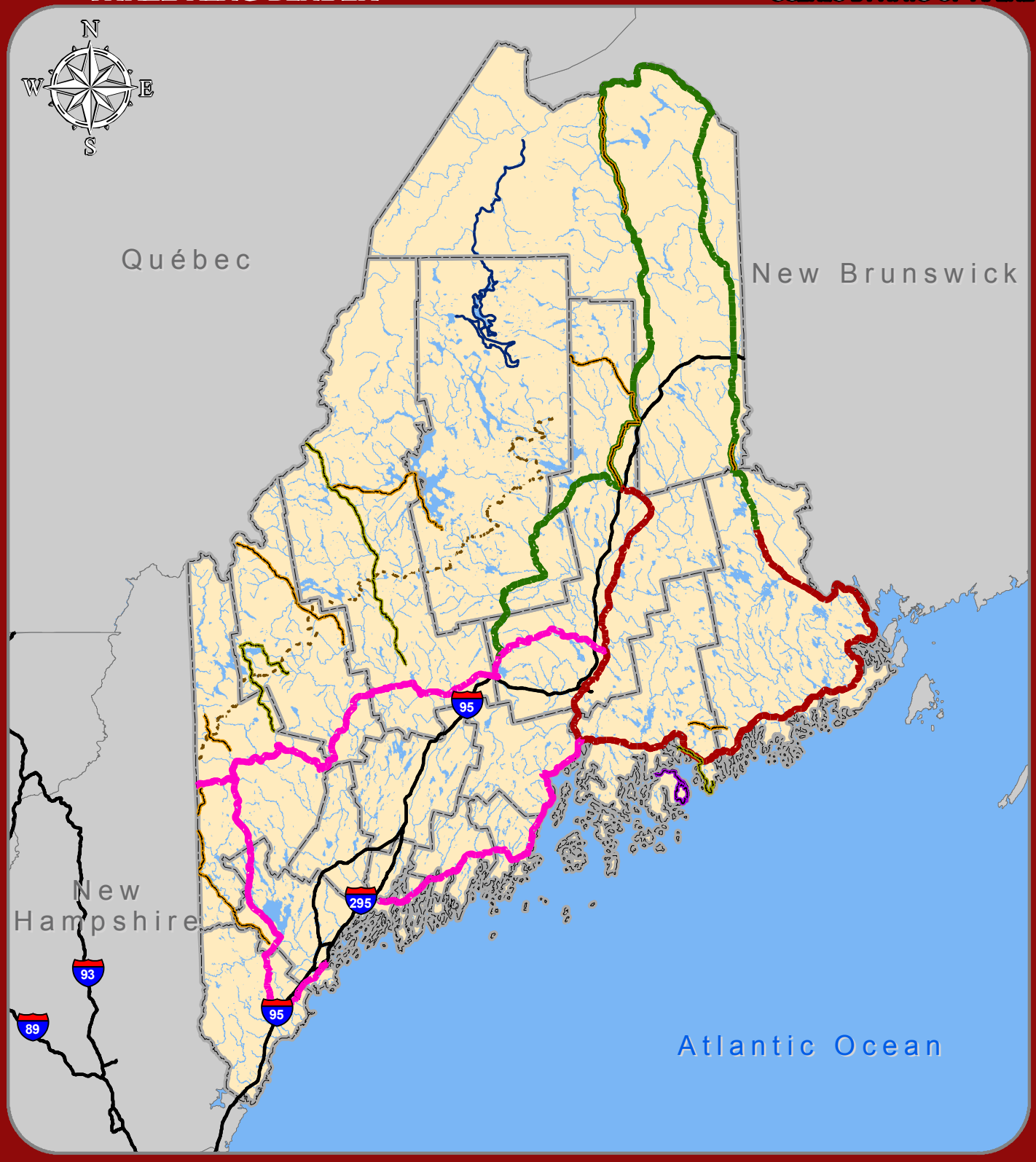
The Down East Ring encompasses portions of the 29-mile Schoodic National Scenic Byway, which extends from US Route 1 in Sullivan south to West Gouldsboro, where it continues on Route 186 around Schoodic Point, culminating at Prospect Harbor. This byway is known for its scenic views of blueberry barrens, Cadillac Mountain, and Mount Desert Island, and breathtaking ocean vistas from areas along Schoodic Point. The Down East Ring intersects with State Route 182 – a Maine Scenic Byway – as well as Schoodic National Scenic Byway and Acadia Byway (designated All-American Road).

The Southern Ring does not encompass any scenic byways; however, it does intersect the Grafton Notch Scenic Byway, known for its recreational and scenic qualities, in the Town of Newry. The Southern Ring also bisects the

Kennebec-Chaudiere Heritage Corridor in Skowhegan. The Corridor extends from Popham Beach, Maine to Quebec, Canada, and extends sixteen miles on either side of Maine Route 201 generally following the Kennebec River.

THREE RING BINDER

FIGURE 3.7- 1
SCENIC BYWAYS OF MAINE



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Scenic Byway data courtesy of Maine Dept. of Transportation.
- A.T. & WSR data courtesy of the U.S. National Park Service.

Legend

- All-American Rd.
- National Scenic Byway
- Maine Scenic Byway
- Wild and Scenic Rivers
- Appalachian Trail
- Down East Ring
- Northern Ring
- Southern Ring
- Lakes & Ponds (>10 ac)
- Rivers and Streams

Miles
0 20 40 80

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Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
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3.7.2 Wild and Scenic Rivers

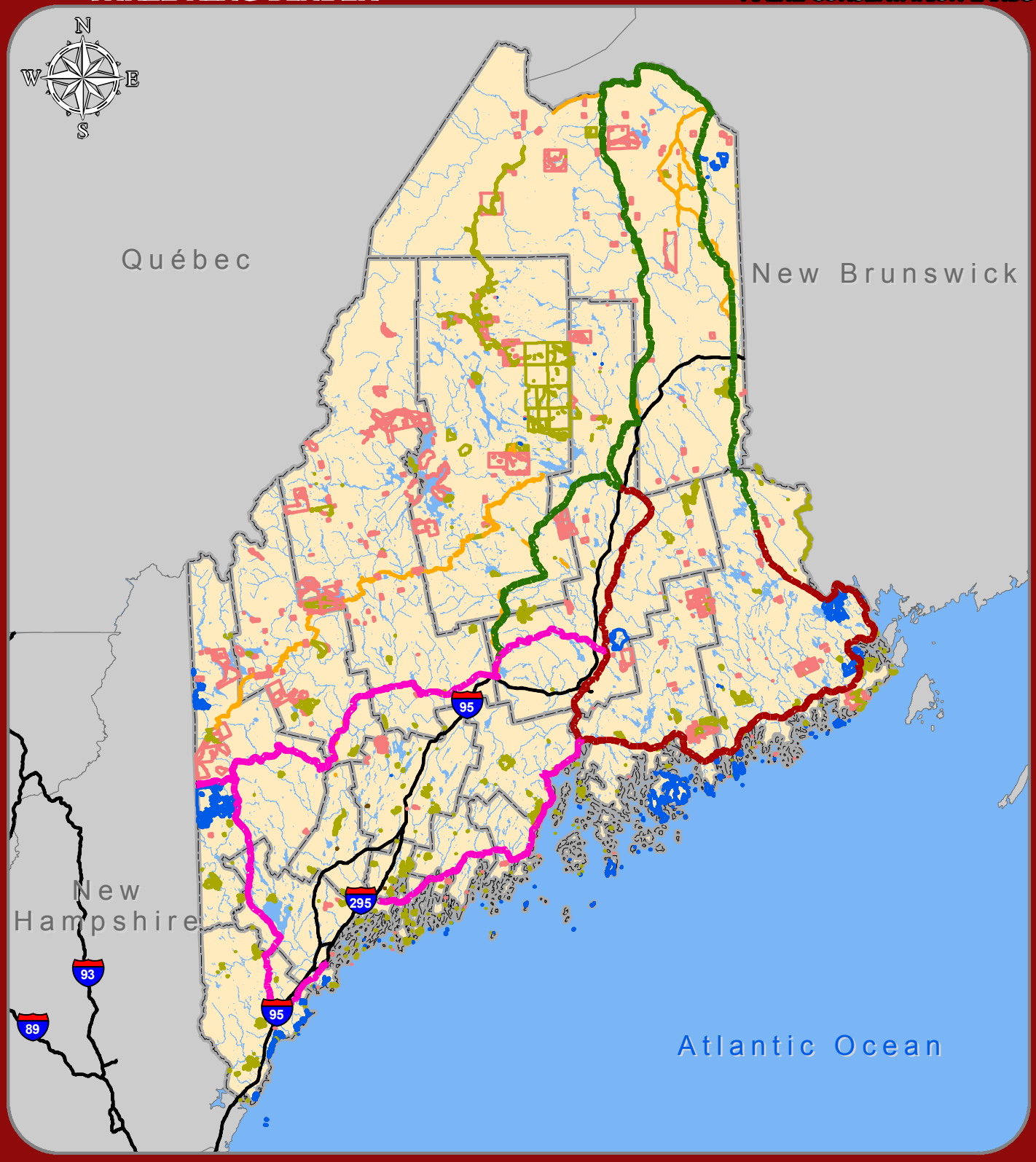
The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers or river reaches in a free-flowing condition that have outstanding natural, cultural, and recreational values. The only Wild and Scenic River located in the state of Maine is the Allagash Wilderness Waterway. It is located in northwestern Maine, outside of the proposed route for the Three Ring Binder (Figure 3.7-1).

3.7.3 National Parks, National Forests, Wilderness Areas, and Wildlife Refuges

Maine is home to numerous federally designated wildlife refuges and wilderness areas, as well as one national park and one national forest (Figure 3.7-2). These lands are generally open to the public and provide outdoor recreation opportunities and contribute to the various scenic vistas for which the state is known. The proposed route for the Northern Ring extends past the Aroostook National Wildlife Refuge, although it does not intersect it. The Down East Ring extends past Acadia National Park, Moosehorn National Wildlife Refuge and Sunkhaze Meadows National Wildlife Refuge. Moosehorn National Wildlife Refuge consists of two separate divisions, both of which contain federally designated National Wilderness Area. The Southern Ring travels past the coastal Rachael Carson National Wildlife Refuge and through the northern edge of the White Mountains National Forest, which contains the Caribou-Speckled Mountain Wilderness, a national wilderness area that is part of wilderness preservation system.

THREE RING BINDER

FIGURE 3.7 - 2
MAINE CONSERVATION LANDS



NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Conserved Lands courtesy of the Maine Office of GIS (MEGIS); data originally compiled by the Maine State Planning Office. Some lands from Conserved Lands layer were not applicable; thus are not shown.

Legend

- Down East Ring
- Northern Ring
- Southern Ring
- Lakes & Ponds (>10 ac)
- Rivers and Streams
- Lands Conserved for Recreation
- Lands Conserved by Municipalities
- State Conserved Lands
- Federal Conserved Lands
- Public Reserved Land

Miles
0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

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File Name: Fig_3.7-2.mxd

3.7.4 State Parks and Lands

State-owned lands are distributed throughout the state, from north to south and east to west. The proposed study area for the Three Ring Binder includes primary access roads that extend through, past or nearby state parks, historic places and/or public reserve lands (Figure 3.8-1). Collectively, state parks and lands provide vast areas of developed and undeveloped, rural and urban settings, each with its own scenic character.

3.7.5 Native American Lands and Indian Reservation Lands

There are five federally recognized Indian tribes in Maine (Bureau of Indian Affairs, 2010):

1. Aroostook Band of Micmacs
2. Houlton Band of Maliseet Indians
3. Passamaquoddy Tribe of Maine (Indian Township)
4. Passamaquoddy Tribe at Pleasant Point Reservation
5. Penobscot Nation

The Northern and Down East Rings would extend past and/or through Native lands for the Passamaquoddy Tribes and the Penobscot Nation. There may be additional tribal lands adjacent to the proposed Three Ring Binder corridor; however maps depicting tribal and reservation lands in Maine are not readily available.

3.7.6 Municipal and County Lands

Municipalities and county governments are also property owners within their respective political boundaries. It is probable that the Three Ring Binder would extend past and possibly through at least some of these public lands along its proposed route. The Maine State Planning Office prepared a methodology to guide in identifying, evaluating and documenting scenic resources, and to identify scenic resources of potentially state or national significance (DeWan, 2008). It

does not, however, provide a means for protecting or managing such resources, an action that is reserved for managing entities upon identification of important resources.

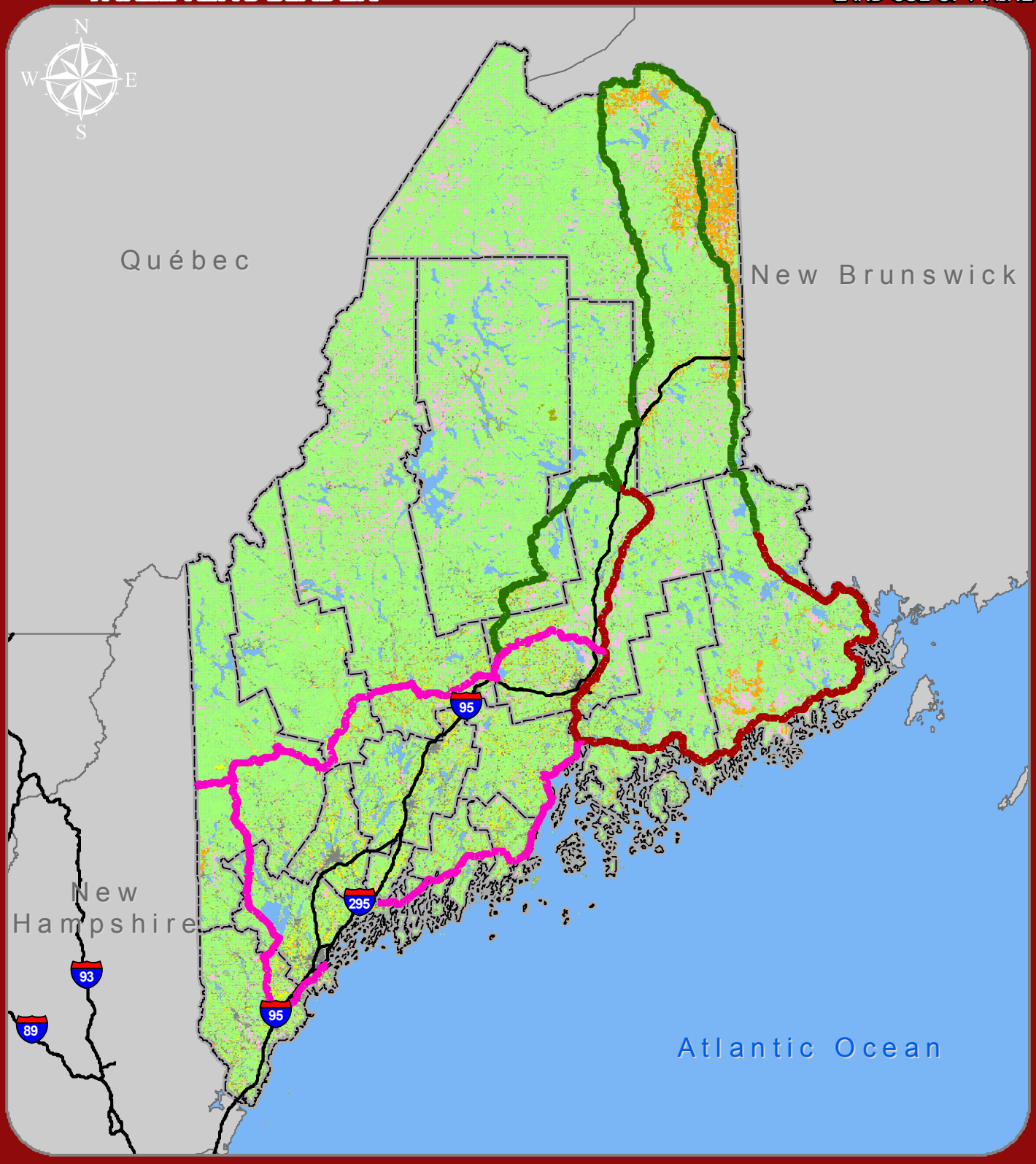
3.8 Land Use

A majority of land in the project area is predominately forested and undeveloped, approximately 38.6 percent and 27.8 percent, respectively (Figure 3.8-1). The more developed areas are located in the southern counties, including York, Cumberland, and portions of Penobscot county. The least developed areas occur in Aroostook, Washington, and Piscataquis counties. Approximately 8.5 percent of lands affected by the project are designated as agricultural (Table 3.8-1). Generally, agricultural uses in lands intersected by the project include blueberry fields and croplands such as potato farming.

The Down East Ring of the Three Ring Binder is largely forested and undeveloped, although blueberry fields are most concentrated along this section (Figure 3.8-1). The Northern Ring is the least developed and largely encompasses active timberlands and forested areas. The Southern Ring includes lands that are more developed from industry related structures and residential areas (Figure 3.8-1).

THREE RING BINDER

FIGURE 3.8 - 1
LAND USE OF MAINE



NOTE:
- Land Use Data developed from the Maine 2004 NLCD. To be used for graphical representation only.
- MELCD 2004 Codes were aggregated as described below.
2, 3, 4, 5 and 16: DEVELOPED LANDS
6 and 22: AGRICULTURAL LANDS
7 and 8: MEADOW
9, 10, 11, 23, 24, 25 and 26: FORESTED
12, 13 and 15: WETLANDS
19, 20 and 27: BARE LAND
21: OPEN WATER

Legend

- Down East Ring
- Northern Ring
- Southern Ring
- Forested Lands (includes Active Timberlands)
- Agricultural Lands
- Bare Land
- Developed Lands
- Meadow
- Open Water
- Wetlands

Miles
0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

Kleinschmidt Project No: 1774001

File Name: Fig_3.8-1mxd

Table 3.8-1. Land Cover Types Within the Three Ring Binder, in Miles and as Percentages of the Total Area

Land Cover Type	Length (miles) of Intersect[1]	Percentage	Description
Forested	407.99	38.6%	Includes deciduous, evergreen and mixed forests.
Developed Lands	293.79	27.8%	Includes areas ranging from high to low intensity development. High intensity areas include but are not limited to large commercial/industrial complexes, commercial strip development, and interstate highways. Low intensity developed areas are those with a mixture of constructed materials and vegetation. Impervious surfaces account for 21 to 49% of total cover.
Active Timberlands	89.87	8.5%	Includes the following forest types: clear cut (areas harvested from forest with greater than 90% canopy cover removal and expected to regenerate into forest); light partial cut (forestland where less than 50% of the overstory canopy has been removed through harvesting. Harvesting may have occurred previously); heavy partial cut (Forestland where greater than 50% of the overstory canopy has been removed through harvesting. Harvesting may have occurred previously); forest regeneration (forested areas previously harvested that have begin to regenerate to forest).
Agricultural Lands	89.46	8.5%	Includes areas used for the production of annual crops, where crop vegetation accounts for greater than 20% of the total vegetation. Crops include, but are not limited to lowbush blueberries, corn, soybeans and other vegetables.
Wetlands	78.61	7.4%	Includes scrub/shrub, forested, and emergent wetlands.
Meadows	53.74	5.1%	Includes areas of grasses, legumes, or grass-legume mixture planted for livestock grazing or the production of seed or hay crops. It also includes grasslands that are dominated by graminoid or herbaceous vegetation, such as prairies and meadows.
Open Water	36.90	3.5%	Includes open water areas, generally with less than 25% cover of vegetation or soil, such as lakes, rivers, reservoirs streams, ponds, and ocean.
Bare Land	5.56	0.5%	Includes areas of unconsolidated materials such as silt, sand, or gravel that is subject to inundation and redistribution due to the action of water, such as beaches, bars, and flats. Generally, vegetation accounts for less than 10% of the total cover, such as barren areas of bedrock and gravel pits. This type also includes alpine treeless areas.

[1] The estimated amount of lands designated as wetland (78.61 miles) differs from that discussed in Section 5 (53.6 miles) due to the use of different data sources with different accuracy standards. The amount of impacted wetlands estimated in Section 5, was calculated using data from the NWI database. The amount of wetlands estimated as part of the land use analysis, was estimated using the National Land Cover Database (NLCD).

3.9 Infrastructure

The Three Ring Binder encompasses a wide variety of topography and demographics. The route is comprised of a diverse area ranging from fully urban to fully rural locations, with a wide range of infrastructure services from full-range to very rustic or non-existent. As a result, the communications needs for project implementation vary greatly from location to location, but can generally be categorized into three areas:

1. Full-Service Capability (FSC)
2. Partial Service Capability, (PSC)
3. Limited Service Capability, (LSC)

The route of the fiber optic cable would include all three types of capabilities, with LSC being more common in the northern sections, and PSC and FSC being more prevalent in the southern and middle sections of the intended route.

Typical infrastructure involves a range of services including:

1. Communications (cell phone, land line, and internet services)
2. Travel services such as restaurant, hotel, fuel, rest room/rest area, and financial
3. Waste disposal services (construction clean-up)
4. Roadways, from highway to rural roads

3.9.1 Communications

Maine is one of the older states in the United States, and hence has an aging telecom infrastructure which has varying levels of reliability. Further, web sites such as www.cellreception.com have many reports of poor and unreliable cell phone connectivity in a range of locations within the state. Along US highway I-95, and in the Tier-1, 2, and 3 towns, reception and connectivity appears to be acceptable to fair. Outside of town, coverage is limited.

For Internet connectivity, a web site has been developed and maintained by the state: http://megisims.state.me.us/website/BroadBand2/viewer.htm and

depicts many areas that have populations without high speed Internet connectivity.

3.9.2 Travel Services

Portions of the state of Maine include tourism-driven travel destinations that have a well-established network of services for travelers and residents. In certain remote areas served by county roads, these services may require traveling an hour or more to reach, and more so during the winter season.

3.9.3 Waste Disposal Services

Developed portions of the state have landfills or recycling centers; undeveloped portions do not and waste disposal may require longer trucking distances.

3.9.4 Roadways

The Three Ring Binder corridor generally follows secondary road systems including a significant route length along US Highway 1 from the southern-most point of Biddeford through the northern-most point of Fort Kent. The route then follows along mostly two lane paved State roadways such as Routes 2 and 11.

3.10 Socioeconomic Resources

The Three Ring Binder encompasses 14 Maine counties. The Northern Ring includes Aroostook, Piscataquis, and Penobscot counties. The Down East Ring includes Washington and Hancock counties. The Southern Ring extends through Somerset, Franklin, Oxford, Waldo, Knox, Lincoln, Sagadahoc, Cumberland, and York counties. A total of approximately 100 Maine communities are located within Three Ring Binder, including the three metropolitan areas of Portland-South Portland-Biddeford, Bangor, and Rockland.

3.10.1 Demographics and Population

Maine's population in 2009 was estimated at 1,318,031 people, or approximately 42.7 persons per square mile (U.S. Census, 2010). It is the eleventh least populated state in the nation and considered the second most rural state (U.S. Census, 2010). The counties within the project area with the greatest population densities are Knox, Sagadahoc, York and Cumberland, ranging from 11 to 330 people per square mile. The least dense and most rural counties include Piscataquis, Aroostook, Washington, Somerset and Franklin, all of which have fewer than 18 people per square mile. In fact, Piscataquis County is estimated to have only 4 people per square mile. Remaining counties have estimated densities between 27 and 76 people per square mile. The least populated areas occur in Franklin and Piscataquis counties (Table 3.10-1). The Southern Ring section of the Three Ring Binder contain the greatest number of residents under the age of 25, compared to the Northern and Eastern rings which have a greater number of residents over the age of 65 (Table 3.10-2). By and large the Three Ring Binder is composed of predominantly residents classified as white; however Washington County has the greatest number of residents classified as American Indian (4.4%) (Table 3.10-3).

Table 3.10-1. 2008 Population Estimates by County

County	Population	Total Area (square miles)
Aroostook	71,676	6,671.54
Cumberland	276,047	835.51
Franklin	29,857	1,697.81
Hancock	53,137	835.51
Knox	40,686	365.67
Lincoln	34,628	455.99
Oxford	56,741	2,078.00
Penobscot	148,651	3,395.73
Piscataquis	16,961	3,966.22
Sagadahoc	36,332	253.90
Somerset	51,377	3,926.50
Waldo	38,342	729.73
Washington	32,499	2,568.48
York	201,686	990.92

Source: US Census, 2008; US Census 2000

Table 3.10-2. Population by Age and County, 2000

	14 or younger	15 - 24	25 - 44	45 - 64	65+
Aroostook	5,107	9,242	19,453	19,396	12,551
Cumberland	18,513	32,823	83,253	62,749	35,324
Franklin	2,180	4,654	7,778	7,301	4,184
Hancock	3,697	6,086	14,249	13,889	8,285
Knox	2,762	4,128	10,865	10,566	6,832
Lincoln	2,451	3,314	8,609	9,431	6,107
Oxford	4,213	6,150	15,228	13,942	8,793
Penobscot	10,075	22,541	42,028	34,553	18,920
Piscataquis	1,314	1,839	4,488	4,744	2,995
Sagadahoc	2,814	3,892	10,730	8,768	4,334
Somerset	3,872	6,008	14,612	12,897	7,278
Waldo	2,721	4,311	10,095	9,739	4,947
Washington	2,363	4,216	8,926	8,677	5,856
York	14,030	20,923	56,013	46,220	25,429

Source: Maine State Planning Office (MSPO), 2010

Table 3.10-3. Race and Ethnicity of Affected Maine Counties, 2008

County	White	Black	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Two or more races	Hispanic or Latino	White persons not Hispanic
Aroostook	96.3%	0.7%	1.5%	0.6%	0.0%	0.9%	1.1%	95.3%
Cumberland	94.5%	2.1%	0.4%	1.7%	0.1%	1.2%	1.8%	93.0%
Franklin	97.8%	0.4%	0.4%	0.5%	0.0%	0.9%	0.8%	97.1%
Hancock	97.3%	0.4%	0.4%	0.7%	0.0%	1.2%	1.0%	96.4%
Knox	98.0%	0.4%	0.3%	0.5%	0.0%	0.9%	1.0%	97.0%
Lincoln	98.2%	0.3%	0.3%	0.4%	0.0%	0.7%	0.8%	97.5%
Oxford	97.9%	0.4%	0.3%	0.5%	0.0%	0.9%	0.8%	97.1%
Penobscot	96.3%	0.8%	1.0%	0.9%	0.0%	1.0%	1.0%	95.4%
Piscataquis	97.9%	0.3%	0.6%	0.3%	0.0%	0.9%	0.8%	97.1%
Sagadahoc	96.2%	1.4%	0.4%	0.7%	0.1%	1.3%	1.8%	94.7%
Somerset	97.6%	0.4%	0.5%	0.4%	0.1%	1.1%	0.7%	96.9%
Waldo	97.7%	0.4%	0.4%	0.3%	0.0%	1.2%	0.8%	97.0%
Washington	93.5%	0.5%	4.4%	0.5%	0.0%	1.2%	1.5%	92.1%
York	97.3%	0.7%	0.3%	0.8%	0.0%	0.9%	1.2%	96.1%

Source: US Census, 2008

3.10.2 Employment and Income

The median annual income for the state of Maine was $46,419 in 2008. The national median income was $52,029 in 2008 (US Census, 2008). The median annual income for each of the affected counties varies widely above and below the national median. The median annual income for each of the affected counties is detailed in Table 3.10-4.

Table 3.10-4. Median Annual Income, Poverty Rates, and Unemployment by County

County	Median Annual Income 2008	Poverty Rates 2008	Unemployment Rates 2000
US	$52,029	13.2	3.6
Maine	$46,419	12.6	3.3
Aroostook	$35,999	7.3	16.1
Cumberland	$55,647	4.0	8.0
Franklin	$38,865	6.9	15.1
Hancock	$47,507	6.0	10.8
Knox	$44,863	5.1	10.2
Lincoln	$48,232	4.9	10.0
Oxford	$38,987	7.1	12.0
Penobscot	$42,585	5.6	14.4
Piscataquis	n/a	8.0	15.7
Sagadahoc	$54,099	4.6	8.2
Somerset	$36,211	7.8	14.9
Waldo	$44,144	6.2	14.2
Washington	$34,459	8.5	20.9
York	$54,463	4.9	8.7

Source: MSPO, 2010

Poverty rates among these counties follow a similar pattern, with Cumberland, Sagadahoc, York, and Lincoln exhibiting lower poverty rates than Washington, Somerset, and Aroostook. The percent of individuals living in poverty in 2008 ranged between 4 percent (Cumberland) and 8.5 percent (Washington) (MSPO, 2010). Unemployment in the project area ranged from a low of 8 percent in Cumberland to a high of 20.9 percent in Washington in 2000 (MSPO, 2010). In 2000, management and professional, sales, and service were the economic sectors employing the most people among the affected counties (Table 3.10-5).

Table 3.10-5. Percent of Residents Employed by Industry, 2000 (MSPO, 2010)

County	Total Employed	Management, professional, and related occupations	Service occupations	Sales and office occupations	Farming, fishing, and forestry occupations	Construction, extraction, and maintenance occupations	Production, transportation, and material moving occupations
US[1]	138,168,077	33.6	14.9	26.7	0.7	9.4	14.6
Maine	624,011	31.55	15.32	25.88	1.66	10.27	15.33
Aroostook	32,461	27.41	17.25	23.77	3.47	9.97	18.13
Cumberland	138,612	38.78	14.18	28.21	0.62	7.15	11.05
Franklin	13,737	27.65	17.13	24.2	1.98	11.01	18.03
Hancock	25,034	30.71	17.07	23.09	4.12	13.15	11.86
Knox	19,263	29.72	15.36	25.34	5	11.14	13.45
Lincoln	16,197	31.75	15.44	21.74	5.12	12.76	13.19
Oxford	25,686	26.61	17.55	21.25	1.57	12.94	20.08
Penobscot	69,846	30.29	16.67	26.81	1.29	9.8	15.14
Piscataquis	7,280	25.14	14.68	21.76	2.34	12.54	23.54
Sagadahoc	17,745	33.11	15.43	23.88	1.31	12.25	14.02
Somerset	23,205	23.91	15.52	22	2.5	11.95	24.12
Waldo	17,315	30.33	14.82	23.97	2.39	12	16.5
Washington	14,042	25.37	17.84	20.57	8.15	10.92	17.15
York	95,016	30.98	14.38	26.21	0.67	11.04	16.72

Source: Maine State Planning Office, 2010

[1]U.S. Census Bureau, Census 2000 Summary File 3, Matrices P49, P50, and P51

3.11 Human Health and Safety

Superfund sites are designated on the National Priorities List (NPL) through the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which requires the clean up and remediation of sites contaminated by hazardous waste. CERLA and other federal regulations provide broad federal authority to clean up releases or threatened releases of hazardous substances that may endanger public health or the environment. Furthermore the Maine Bureau of Remediation and Waste Management (BRWM) regulates and oversees the cleanup and remediation of many sites.

There are a total of 109 sites in Maine involved in waste cleanup and reuse as listed by the EPA. Of these, fourteen are on the NPL within the Superfund program. The remaining are within programs such as brownfields and corrective actions though the Resource Conservation and Recovery Act (RCRA). The BRWM designates sites as Voluntary Response Action Program (VRAP), Uncontrolled Sites (state superfund program), and landfill closures. There are over 1,600 sites in Maine that are listed in the BRWM database ranging from the above designations to those with no further action or under operations and maintenance.

Of the 14 NPL Superfund sites in Maine, nine of these are within the general region of the proposed Three Ring Binder. Only two, the Brunswick Naval Air Station and the Loring Air Force Base appear to be in the immediate vicinity (*i.e.*, less than five miles) of the project. The Brunswick site is located less than one mile from the utility line where the fiber optic line is expected to pass, while the Loring site in Limestone is about four miles from the proposed project location. The following provides a summary of each of the two sites.

Brunswick Naval Air Station (BNAS) occupies 3,094 acres in Brunswick. It is located south of the Androscoggin River, between Brunswick and Bath, Maine, south of Route 1, and between Routes 24 and 123. The BNAS has been targeted for closure and redevelopment into a variety of potential uses. Contaminated sites included three landfills, areas used for disposal of various acids, caustics, solvents and building materials including asbestos, and used for fire training purposes. Approximately 3,000

people live on the base within a mile of the site areas. An elementary school, a college, and a hospital are located within 1 mile of the western base boundary. Area surface water is used for recreation, irrigation, and commercial fishing.

Due to past disposal practices, the soil and groundwater on a portion of the base is contaminated with volatile organic compounds (VOCs). Harpswell Cove, a valuable, commercial fishery located downgradient of the site, is subject to potential groundwater contamination. Ingestion of contaminated groundwater may pose health risks; however it has been determined though investigations that no current drinking water supplies are threatened.

The BNAS was addressed in three phases: initial removal actions; long-term remedial actions focusing on cleanup of specific areas of contamination; and long-term monitoring, and operation and maintenance. Cleanup actions have been completed on several site areas. Four of the completed site areas have begun long-term monitoring to assess the effectiveness of cleanup actions.

Loring Air Force Base (LAFB) is a 9,000-acre site in Limestone. Hazardous wastes generated on the base included waste oils, fuels cleaned from aircraft and vehicles, spent solvents, PCBs, and pesticides. Most wastes were disposed of offsite; however, some wastes were burned or buried in landfills while some wastes probably were disposed of on the ground, on concrete, or in the storm and sewer drains.

The population on the Air Force base within one mile of the site is approximately 1,500 people. An estimated 1,200 people obtain drinking water from wells located within 3 miles of hazardous substances on the base; the nearest off base well is less than 1,500 feet from one of the landfills. Surface water on and off base is used for fishing and other recreational activities. Potential threats to the public include accidental ingestion of or direct contact with contaminated soils and water. Several areas have been closed to fishing due to the elevated levels of PCBs in trout. Several wetlands are threatened by contamination on the base.

The Loring cleanup is being addressed through removal, remedial, and several long-term actions focusing on cleanup of the most critical areas. Advancements have

been made with the cleanup and the base is now called the Loring Commerce Center and is marketed as an aviation and industrial complex and business park.

Other Health and Safety Considerations: There are no known health issues associated with a distribution system for fiber optic cable. It does not give off any electromagnetic field and collocated fiber optic lines do not interfere with each other. Fiber optic cable does not interfere with other utility transmission lines, such as telephone, cable, and electric distribution.

It is expected that all workers installing the cable would adhere to construction safety procedures and the appropriate traffic and roadside safety practices would be implemented. Safety standards and procedures mandated by the Occupational Safety and Health Administration (OSHA) and the MDOT would be applied to this work.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Noise

Preferred Alternative

The Proposed Action to attach fiber optic cable on existing utility poles has potential to create a minimal and temporary increase in ambient noise that is temporary and localized in nature, related to short-term construction that may create minor disturbances in residential and commercial areas. Noise levels in the immediate vicinity of utility poles currently consist of vehicle traffic. It may temporarily (during construction or maintenance only) increase slightly as a result of machinery and equipment required to attach cable to existing poles or to drill holes for pole replacement. This temporary and intermittent increase in noise levels would be similar to what currently occurs as a result of regular maintenance of the existing utility lines. Because fiber optic cables transmit photons and not electrical current, there is no potential for humming, crackling, or other noise associated with breakdown and ionization of air, which occurs from arcing across powerline-related hardware. A slight increase in ambient noise would be expected from temporary incremental increase in ambient noise related to wind travelling over overhead cable.

Buried Cable Alternative

The second alternative, burying the cable underground, would require the use of larger machinery (*i.e.*, dump trucks and excavators). As a result, ambient noise levels would temporarily increase at a more substantial level than with the Preferred Alternative. The increased noise from the Buried Cable Alternative would be of higher magnitude and longer duration since construction and maintenance activities would be more time consuming and machine intensive. There is also more blasting potential associated with the Buried Cable Alternative, adding further to the short-term noise impacts associated with this alternative. Because of the greater relative noise disturbance, this is not the preferred alternative with respect to noise.

No Action Alternative

The No Action Alternative would not have an effect on noise levels.

4.2 Air Quality

This section on air quality was completed as a qualitative assessment.

Preferred Alternative

Potential emissions generated by the proposed project would be from construction activities used to install fiber optic cable and ongoing maintenance activity. These activities include using existing access points and existing conduits, and/or attaching aerial cable.

Fugitive dust emissions would result from installation along unpaved right of ways and staging areas. Dust emissions would vary from day to day, depending on the level of activity and meteorological conditions.

Heavy equipment would result in temporarily increased levels of air pollutants associated with diesel combustion (nitrogen oxides, carbon monoxide, sulfur oxides, particulate matter, and reactive organic gasses from the fuel). All construction vehicle movements would be limited to the right of way, predesignated staging areas, or public roads. Given the probable limited emissions of the project, it is unlikely to subject to New Source Review permitting under the Clean Air Act.

Emissions from construction workers' personal vehicles reporting to one of the project staging sites could also contribute carbon monoxide (CO) to the area, depending on where the workers live.

The proposed project would temporarily generate odors from diesel exhaust during construction activities. The project's odor impacts are considered less than significant because construction odors would be temporary and would not be severe nor affect a substantial number of people.

Short-term interruptions in traffic flow during construction would be minimized with routine traffic control measures and by keeping materials out of the travel lanes and off the shoulders. The equipment would generate noise, but only the operators would need hearing protection.

Due to the type of project, there would be no environmental justice issues of disproportionately high or adverse human health or environmental effects on minority and/or low income populations.

No significant air impacts are expected from ongoing operation and maintenance of the Three Ring Binder. An occasional maintenance vehicle would be required to perform maintenance activities. Given the temporary nature of installation and the limited impacts during operation, no significant effects to air quality would be associated with the Three Ring Binder, and it would not be subject to new source review (NSR) permitting under the Clean Air Act.

The project would use Best Management Practices (BMP) for construction activities, and would train work crews in those measures before beginning work. The available BMPs would, at a minimum, include the practices listed below:

- Reestablish ground cover on construction site through seeding, as required for erosion control.
- Maintain truck and equipment engines in good running condition.
- Clean equipment daily or as needed to reduce tracking of soil onto adjacent roads.
- Limit maximum speed to 15 miles per hour on unpaved roads.

With implementation of the identified mitigation measures described above, and compliance with the State Implementation Plan where appropriate, the proposed project would likely comply with all air quality standards. Therefore, installation and operation of the proposed fiber optic cable project would not conflict with or obstruct implementation of any applicable air quality plan nor violate any air quality standard or contribute substantially to an air quality violation.

Buried Cable Alternative

The Buried Cable Alternative would have similar air quality effects as the Preferred Alternative, although to a greater extent, as the excavation required for trenching during installation and maintenance activities requires additional construction equipment and an extended schedule for implementation. Effects would extend to criteria pollutants including particulate matter and those associated with diesel combustion, as well as odors from vehicle emissions. Similar to the Preferred Alternative, these effects would be temporary, stopping upon completion of the work phase (implementation or maintenance).

Similar to the Proposed Action, the project would use Best Management Practices, and would train work crews in those measures before beginning work. With implementation of the mitigation measures, and compliance with the State Implementation Plan where appropriate, installation and operation of the proposed fiber optic cable project would not conflict with or obstruct implementation of any applicable air quality plan nor violate any air quality standard or contribute substantially to an air quality violation.

No Action Alternative

The No Action Alternative would not impact air quality.

4.3 Geology and Soils

Preferred Alternative

The Preferred Alternative would result in minimal disturbance to soils and geologic resources because existing utility poles would be used. In the event that utility poles require replacement, the new pole would be placed immediately adjacent to, or as near as possible to the existing location and therefore additional cut/fill would be limited. Generally, replacement poles are installed using a drilling machine and the excess soil either removed or mounded at the base. Therefore, all pole replacements would be within the footprint of previous installations, and there would be limited disturbance to

previously undisturbed, native soil profiles. Appropriate BMPs would be used to prevent soil erosion and sedimentation for any pole replacements that are necessary.

BMPs, also called good utility practices, would be used to prevent soil erosion and soil migration in the event that pole replacements are necessary. Pole replacement would likely be performed by the utility that owns the pole. Typically, utilities abide by erosion control standards based on Maine Department of Environmental Protection's (MEDEP) *Maine Erosion and Sediment Control BMPs* manual. For example, Central Maine Power CMP developed and uses a standard manual, "*Environmental Guidelines for Construction and Maintenance Activities on Transmission line and Substation Projects*", which was developed in consultation with the MEDEP. Also, utilities that receive funding from the Rural Utility Service (RUS) are required to comply with erosion and sedimentation control standards during utility line maintenance and construction.

In general, the specific BMPs used to replace a pole would depend on site-specific conditions at particular poles. An appropriate erosion and sediment control strategy would be developed that matches the needs of each site. During pole replacement, a sediment barrier such as properly toed-in silt fence or tightly placed hay bales would be placed around the pole. The spoils pile created from removing the old pole would be covered with straw or fabric at the close of day if work continues the following day and there is a chance of heavy precipitation. When pole replacement is complete, spoils piles and other exposed surfaces that pose an erosion and sedimentation threat would be reseeded and mulched. Pole replacement would occur from the road right-of-way, wherever possible. If access to a pole located in a wetland is not possible from the road right-of-way, temporary mats would be used to minimize damage to the wetland and allow access of machinery, such as a drill, to the pole.

Consultation was initiated with MEDEP in March 2010 by e-mail and phone (Appendix B). Based on the project description provided by MFC, MEDEP stated that the scope of work was unlikely to require a permit. During development of this EA, relevant State regulations were reviewed. According to Title 38 of Maine's State Revised Statutes, the Three Ring Binder is consistent with Section 480-Q, which defines activities for which a permit is not required. Specifically, pole replacement would be covered

under (2.) Maintenance and repair, (9.) Public works, and potentially, (17.) Minor alterations in freshwater wetlands. All conditions required of these sections would be adhered to during pole replacement activities. As mentioned previously, MFC assumes pole replacement will be performed, as needed, by the utility that owns the pole, such as CMP, who has MEDEP-approved procedures and methods for erosion and sedimentation control.

Buried Cable Alternative

The Buried Cable Alternative would result in extensive cut and fill in order to bury the fiber optic cable along the proposed routes of the Three Ring Binder. This Alternative would require excavation of existing soils followed by backfilling of materials to bury the cable. While this would occur primarily along existing roadways in areas of previously disturbed soil, the total amount (linear feet and volume) of disturbed soil would be an order of magnitude greater than the Preferred Alternative greatly increasing the potential for erosion. Even with use of BMPs (similar to those described for the Preferred Alternative), the scope of excavation would result in a much greater potential for erosion, sedimentation, and disturbance to soils. There is also potential for impacts to bedrock in areas of exposed soils or shallow-to-bedrock soils. Based on the greater potential environmental impacts, this is not the preferred alternative.

No Action Alternative

The No Action Alternative would not impact soils or geologic resources.

4.4 Water Resources

Preferred Alternative

The Preferred Alternative would result in minimal disturbance to water resources because the fiber optic cable would be affixed to existing utility poles. In a limited number of circumstances, replacement of utility poles may be necessary; however, the new pole would be placed within the existing footprint of the previous installation and so no new disturbance to surface water or floodplain resources would occur. During

replacement, appropriate BMPs would be used to prevent soil mobilization to wetlands or water bodies.

As mentioned, pole replacement would likely be performed by the utility that owns the pole. Utilities employ erosion and sediment control strategies based on MEDEP's *Maine Erosion and Sediment Control BMP* manual or RUS's requirements to prevent soil mobilization to wetlands or water bodies. BMPs used during pole replacements are discussed in Section 4.3- *Geology and Soils*, and include using sediment barriers such as silt fence and straw bales installed around pole work areas prior to pole removal activity. Exposed soils would be covered both in the short-term with straw or fabric, and long term by seeding and mulching. If a wetland must be traversed to access a pole, temporary mats would be placed in the wetland to minimize damage.

Pole replacement has the potential to cause minimal leaching to the surrounding soil of wood preservatives, such as chromate copper arsenate (CCA) or pentachlorophenol (PCP), which are commonly used on utility poles. Mobility of wood preservatives through the soil is dependent on characteristics of the soil, the presence of flowing water, and other site-specific factors (USFS, 1996). Some studies have indicated that the amount of CCA and PCP released into the environment by treated posts is small and is generally limited to close proximity (± one foot) of the structure either because the preservative has low water solubility or reacts (and binds) with components of the environment (Lebow *et al.*, 2002). As a precaution, industry standard often uses untreated poles in areas where the pole would be placed 50 feet from a known water supply. Pole replacement would only occur for aged wood poles that occur along roadside ROWs, as necessary. The low mobility of the preservatives, combined with use of proper BMPs, results in a negligible risk of wood preservative to leech into ground water or surface water bodies.

Existing access and maintenance roads would be used during cable attachment. Where existing power lines cross large water bodies, cable would be passed through existing conduit on bridges. Standard water quality protection protocols and BMPs for utility line maintenance and construction would be followed.

MEDEP was notified in March 2010 (Appendix B). As discussed in Section 4.3, MDEP stated the scope of work was unlikely to require a permit.

To ensure compliance with the federal Clean Water Act, MFC consulted with United States Army Corps of Engineers (USACOE) (Appendix B). In a letter dated April 5, 2010, the USACOE stated that if all work was conducted from upland areas no further action was required on MFC's part. MFC confirmed that all work would occur in upland roadside areas. In response, ACOE confirmed no permit would be necessary (see ACOE letter dated May 7, 2010 in Appendix B).

Consultation was initiated with Maine State Planning Office (MSPO) in April 2010 regarding consistency of the Three Ring Binder with the Coastal Zone Management Act. According to the MSPO Federal Consistency Coordinator by email dated April 27, 2010, the proposed federal action, provision of a Broadband Technology Opportunities Program grant toMFC, is a federal assistance activity that is not listed as subject to review under Maine's Coastal Management Program. Accordingly, further CZMA consistency review of NTIA's funding of this project is not required. However, MFC must obtain all federal, state, and local environmental approvals, if any, applicable to construction and operation of the project.

Buried Cable Alternative

Burying the fiber optic cable would result in many miles of ground disturbance that would likely include dredging and filling of waterbodies (e.g., lakes and ponds) along the desired route. Such activity would stir up sediments and create temporary impacts to water quality. Ongoing and regular maintenance of the cable would extend occasional impacts into the long term. Depending on the depth of burial, the trench may intercept the groundwater table and temporarily expose it to contamination during construction particularly the highly permeable sand and gravel aquifers.

No Action Alternative

The No Action Alternative would have no effect on water resources.

4.5 Biological Resources

Proposed Action

Under the Proposed Action impacts to biological resources would be minimal. The Proposed Action does not include construction of new structures and would take place on existing utility poles. No tree clearing, filling, or construction would take place. Potential impacts to wildlife may include minor and temporary noise disturbance due to work activity and vehicles during the stringing of fiber optic cable or when replacing poles. The new cable may lie above, below, or in-between existing lines, and may present additional perching opportunities to birds; however, fiber optic cables do not transmit electricity and so do not pose an electrocution threat. Occasionally, birds and bats are known to collide with power lines. However, because the fiber optic cable would be combined within the space of existing lines, it would not represent an additional obstacle to what currently exists.

Negligible potential disturbance to fish and mussels may result due to minor, localized turbidity but no permanent impacts to aquatic resources or wetlands would occur and temporary impacts can be eliminated or minimized through the use of proper BMPs such as are already in use by utility crews as described in Sections 4.3- *Geology and Soils* and 4.4 *Water Resources*. Where sensitive resources are involved, appropriate timing of crossings would be employed such as during the non-breeding season of vernal pool amphibians.

No impacts to rare, threatened, and endangered species were identified under this alternative. Although the project would pass through Critical Habitat for Canada lynx and Atlantic salmon no riparian clearing, in-stream work, or land alteration would occur. The project occurs on pre existing infrastructure and therefore no impact would result from the Proposed Action.

MEDEP (March 2010) stated the scope of work was unlikely to require a permit per NRPA (Appendix B).

NOAA was notified by email dated March 23, 2010 (Appendix B) of preparation of the Three Ring Binder EA. Based on the information contained in this EA, NOAA confirmed that the proposed project would cross several waterways designated as Essential Fish Habitat and Critical Habitat for federally managed species, including winter flounder and Atlantic salmon (Sean McDermott, personal communication, March 23, 2010). NOAA stated that the project suggested little or no direct or indirect impacts on aquatic habitat, and that the National Marine Fisheries Service's (NMFS) Habitat Conservation Division generally considers aerial crossings with no in-water work as 'no impact'. Since no in-stream work or riparian clearing is proposed as part of the project, NOAA stated that it is unlikely that consultation under the Federal Endangered Species Act for Atlantic salmon or shortnose sturgeon would be required with the USACOE (Jeff Murphy, personal communication, March 23, 2010).

The U.S. Fish and Wildlife Service (USFWS) was contacted by the NTIA by letter dated March 15, 2010 with the intent of initiating consultations under Section 7 of the Endangered Species Act (16 U.S.C. 1531 et seq.) (Appendix B). By letter dated April 22, 2010, NTIA designated MFC and their consultants as representatives of NTIA during informal consultation with the USFWS. That same day, MFC's consultant provided information and a map of the project area to the USFWS Maine Field Office via email to continue the consultation process. MFC's consultant determined the proposed project would not affect the habitat for the two federally listed species for which the project route overlaps (see letter from Alan Haberstock of Kleinschmidt to Mark McCollough of USFWS, dated May 11, 2010). By letter dated May 18, 2010, USFWS agreed, stating that with no stream crossing or buried cable, no further action is required under Section 7 of the Endangered Species Act.

Buried Cable Alternative

This alternative would result in additional environmental impacts relative to the Proposed Action. Due to the increased excavation, fill, and equipment-use required to bury the cable, environmental consequences are greater under the Buried Cable Alternative. The greatest potential impact to wildlife, fisheries, and freshwater mussels is related to the increased potential for erosion, sedimentation, and water quality issues

resulting from extensive excavation. Even with the use of BMPs and current erosion and sediment control techniques, the potential for impacts exists due to the large scope of the project.

The associated vegetation clearing, including riparian zones, and wetland impacts would damage habitat for breeding birds and amphibians, and cause impacts to Critical Habitat for Canada lynx and Atlantic salmon. In addition to direct land impacts, the more time and machinery-intensive activities involved would create more noise disturbance over a longer time period than the Preferred Alternative. Because the entire project would occur along road ROWs wildlife corridors, animal movements and potential migration patterns would not be disrupted.

No Action Alternative

The No Action Alternative would not impact biologic resources.

4.6 Historic and Cultural Resources

Preferred Alternative

There are no anticipated effects of the Preferred Alternative. As proposed, the Three Ring Binder would comprise the middle mile component of providing broadband to unserved and underserved areas of Maine, creating the opportunity for providers, community, business, and institutions to complete last mile projects and establishing connectivity. Although not part of the Three Ring Binder, last mile projects are expected to utilize existing conduits and ductwork for building access, thus there would be no effects to existing historic structures. Likewise, there are no anticipated effects of project implementation on cultural or native resources as the project would take advantage of the state's existing roadside utility infrastructure, and cable would be suspended above ground on preexisting utility poles.

The State Historic Preservation Officer (SHPO) was consulted (see correspondence in Appendix B dated April 13, 2010) and the SHPO concluded that the proposed undertaking will have no adverse effect on above ground historic architectural resources, as defined by Section 106 of the National Historic Preservation Act.

Regarding prehistoric and historic archaeological resources, the SHPO concluded that the project area potentially contained one or more prehistoric and/or archaeological sites. Therefore, the SHPO concluded that a Phase I archaeological survey may be necessary prior to any ground disturbance as a result of the potential for pole replacements. In response, NTIA and the Maine SHPO prepared a Memorandum of Agreement (MOA) dated May 20, 2010, (Appendix B), that specifies that Phase I surveys would be conducted only in areas that have not previously been disturbed but that would be impacted as a consequence of the pole replacement activity. Further, Phase I surveys would only be conducted in areas that are archaeologically sensitive. Importantly, ground disturbance associated with the proposed project would be limited to road right-of-ways associated with a high degree of previous disturbance (e.g., along the shoulder of the road); this, in combination with the MOA stating that Phase I surveys would be conducted as necessary, would minimize adverse effects on archaeological resources. The MOA provides direction regarding disposition of cultural and human remains, and additional phases of investigation (e.g., Phase II and Phase III investigations), should they prove necessary. A copy of the MOA is provided in Appendix B.

Also in Appendix B, is a letter dated May 10, 2010 from the Penobscot Indian Nation indicating a finding of no affect on historic, architectural, or archaeological significance to the Penobscot Indian Nation.

Buried Cable Alternative

The Buried Cable Alternative would potentially result in discovery of or uncovering of historical or cultural resources along the Three Ring Binder corridor. The likelihood of this is considered small, as the proposed route is primarily roadside, and thus has experienced substantial disturbance and fill during years of road construction and development projects. Nevertheless, encountering any buried historical or cultural resource during implementation of the proposed project would result in project delays due to consultation requirements and potential archaeological surveys that would be initiated and/or required.

No Action Alternative

There would be no historic or cultural resource effects from the No Action Alternative.

4.7 Aesthetic and Visual Resources

Preferred Alternative

The Preferred Alternative would result in a single additional cable added to existing utility poles along Maine's roadways, which may have a small incremental impact on the local aesthetics. The affect of viewing one additional cable on already existing utility poles is expected to be so small as to not be noticed by most people, and would assimilate into an already existing picture of development, even on rural road corridors.

MFC initiated consultation with the Penobscot Indian Nation by email on in April 2010. The Tribal Historic Preservation Officer responded by email on April 27, 2010 stating that they have no objection to the proposed project as far as the National Historic Preservation Act is concerned. However, she requested that MFC contact the Penobscot Indian Nation land coordinator to identify any protocols for carrying out the project on Penobscot Nation lands. In addition, the Passamaquoddy Tribe submitted a letter dated December 10, 2009 in support of the Three Ring Binder (Appendix B).

Buried Cable Alternative

The Buried Cable Alternative would result in short term impacts along roadsides as construction crews trench roadsides, lay cable, bury it and re-vegetate disturbed areas using BMPs. These impacts would be temporary and virtually eliminated upon completion and regrowth. In the long term, this alternative would eliminate the small incremental impact on the local aesthetics of having one additional cable on existing poles, however this incremental benefit of the Buried Cable Alternative is considered to be insignificant.

No Action Alternative

There would be no impact to aesthetic and visual resources under the No Action Alternative.

4.8 Land Use

Preferred Alternative

The Proposed Action is expected to have no land use impacts. The Preferred Alternative proposes to use pre-existing utility poles located along pre-existing transmission lines to install the high-capacity fiber optic cables to develop broadband access across Maine. Therefore, no impacts would be associated with various land uses throughout the Three Ring Binder.

Buried Cable Alternative

The Buried Cable Alternative would result in roughly 1,100 miles of primarily roadside construction during installation, but would have no long term effect on land use. Any disturbance associated with the Buried Cable Alternative would meet local, state, and federal requirements to protect designated land uses.

No Action Alternative

The No Action Alternative would not result in any changes to land use.

4.9 Infrastructure

Preferred Alternative

The proposed project would bring high speed internet and communications connectivity to areas of the state that are populated and presently underserved. This project would facilitate installation of last mile projects to enhance wireless coverage to areas with poor or unreliable coverage. For Internet connectivity, a web site developed and maintained by the state and depicts many areas that have populations without high speed Internet connectivity http://megisims.state.me.us/website/BroadBand2/viewer.htm. This lack of communications infrastructure results in public health and safety concerns,

and schools, government agencies, and residential and business owners that are without high speed and/or reliable Internet connectivity; the proposed project would therefore have the positive impact of providing this needed infrastructure.

Construction activities related to fiber installation would generate a certain amount of waste, including environmentally non-hazardous materials. Items such as cable trimmings, packaging materials, etc. would necessitate proper handling and disposal methods. The volume of waste generated is expected to be minimal for this project, and would contain no waste materials that are unable to be properly disposed of in one of the state's landfills or recycling centers.

Certain materials and resource staging areas would need to be created during the life of this project. It is anticipated that agreements would need to be reached with property owners located in certain strategic areas so that construction materials can be delivered and stored for use on the job. It is also anticipated that dumpsters for construction waste materials would need to be arranged at those staging areas. All waste generated by the project would be disposed of at an approved solid waste transfer station or disposal facility.

Construction work would be planned and scheduled such that the majority of construction occurs during fair weather seasons where transportation along the roads and roadside work would not be hindered by seasonal weather conditions. The existing roadway infrastructure in the state is adequate for the types of vehicles and equipment that would be required to complete this project.

Buried Cable Alternative

This alternative would result in the same positive and negative impacts as described for the Preferred Alternative.

No Action Alternative

The No Action Alternative would not result in any changes to infrastructure and would therefore not result in the important enhanced communications infrastructure needed by the state of Maine. Minor negative effects associated with the Preferred

Alternative, such as temporary impacts during construction (e.g., waste disposal), would not occur.

4.10 Socioeconomic Resources

Preferred Alternative

A number of positive effects can be expected by introducing and enhancing high speed broadband access to residences and business, government, medical, and educational organizations across Maine. The Three Ring Binder would provide an indispensable communication path that would secure continuous telecommunications, support anticipated population growth, and would provide an improved and more reliable high speed data access and Internet service to current and future government, residential and business customers.

The Three Ring Binder is in support of the Broadband Technology Opportunities Program (BTOP) goal to enhance broadband capacity at public computer centers at unserved and underserved areas (BTOP, 2010). The Three Ring Binder would bring broadband access to low-income rural areas of Maine, such as Aroostook, Franklin, Oxford, Somerset, and Washington Counties. The availability of broadband access in these underdeveloped areas would help to integrate existing community institutions such as hospitals, schools, and libraries. Other activities that require a large bandwidth, such as remote schooling (*i.e.* online college courses), would spur job creation and stimulate long-term economic growth and opportunity in low-income rural areas.

The Three Ring Binder is also in support of the strategies to accomplish the goals of Maine's 2010 Science and Technology Action Plan (MOI, 2010). A major strategy of the Plan, advocates the investment of critical broadband and wireless technology in the state of Maine to increase employment by building innovation capacity. The Three Ring Binder would provide broadband access to a significant portion of Maine, supporting the flow of new ideas and enhancing business opportunities across the state.

Finally, the proposed action is likely to stimulate local economies during the two-year installation and construction period as a result of the economic impact of construction crews travelling throughout the state.

The Proposed Action is expected to have no adverse socioeconomic impacts.

Buried Cable Alternative

If realized, the Buried Cable Alternative would have a similar positive effect on socioeconomics as the Preferred Alternative. Broadband access would be made available to a substantial portion of the state, which would aid in job growth, increase educational opportunities, and spur economic growth in rural, low income areas of Maine. In addition, the Buried Cable Alternative would create additional jobs in construction and support services, and increase local businesses providing lodging, food, and supplies to construction and survey crews.

However, it is unlikely the Buried Cable Alternative would be implemented because burying the cable would be prohibitively expensive due to the substantial construction and environmental compliance involved. Because of this, it is probably that the Buried Cable Alternative would actually result in a loss of opportunities to unserved and underserved communities in Maine.

No Action Alternative

The No Action Alternative would have no socioeconomic impact. Residents, businesses, schools and social services would continue to operate as is, without the benefit of enhanced broadband access.

4.11 Human Health and Safety

Preferred Alternative

Hazardous wastes could be encountered through contact with contaminated water and soil. Given the proposed construction of the project involves running fiber optic cable along existing utility structures, contact with contaminated water and/or soil is unlikely. Furthermore within those areas where there are known contaminations they are

contained and undergoing various stages of study, cleanup, and remediation. The fiber optic line itself does not generate any known adverse health issues. Providing all construction safety procedures are followed, the Three-Ring Project would not generate any safety issues.

Trained and qualified line workers would perform all work on utility poles. Line work performed on the project would be in accordance with OSHA Section 1910.137, 1910.269 and the National Electric Safety Code C2-2007.

As part of the installation contractor selection process, bidders would be asked to provide a detailed work plan, and a listing of the qualifications and training records of each worker proposed by the contractor to work in the project. In addition, the contractor's safety records, OSHA 300 log for the last three years and the company's safety program also would be required. The work plan and safety submittals would be taken into consideration as part of contractor selection process and must be approved by MFC prior to the start of work.

Prior to the start of construction, MFC would perform a "Project Kick-off" meeting with the installation contractor to employees and would review the detailed work plan, safety requirements and emergency contact numbers for police and rescue.

MFC would require that all installation companies perform documented daily safety "tailboard" meetings prior to any work being completed to review the hazards associated with the work scheduled for the day.

All personal must wear the required Personal Protective Equipment (PPE) when performing work on utility poles. When working in the power space, additional PPE is required such as rubber gloves and rubber sleeves and electrically rated and approved bucket trucks.

All rubber gloves and sleeves PPE must be visually inspected for defects prior to use.

All bucket trucks being used to work in the “power space” must have the boom electrically and structurally tested and approved on an annual basis by a certified third party vendor.

When working on transmission/high voltage lines, the installers would request the line being worked on is “tagged out” by the local electrical utility prior to working on the line (meaning the re-closure is taken out of “automatic mode” so that it would not re-close after being faulted). This would be done daily prior to any work being done on transmission lines.

If a pole is being climbed, the technician must inspect the integrity of the pole for visual damage due to rot, insects, and physical damage prior to climbing the pole.

Traffic control where applicable would be provided by a certified flagging company or local law enforcement.

With these mitigative measures, this alternative would not have any adverse affects on human health and safety.

Buried Cable Alternative

This alternative would require excavating a trench, along the shoulders of designated roadways, and burying the fiber optic cable. It is unlikely that contaminated soil or groundwater from any known hazardous waste site would be encountered from either superfund site. Each site has undergone extensive studies, controls, and remediation. Construction workers would be expected to follow proper and customary safety requirements for this work. This alternative would not have adverse affects on human health and safety.

No Action

This alternative would not result in any contact with any hazardous wastes as such there would not be any adverse impacts to human health and safety.

4.12 Cumulative Effects

The regulations implementing the National Environmental Policy Act require that the cumulative effects of a proposed action be assessed (Title 40 Code of Federal Regulation (CFR) Parts 1500-1508). A cumulative impact is an "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR 1508.7).

Past, Current, and Future Projects: The Three Ring Binder project area spans over 1000 miles in Maine. The project area coincides with existing roads with existing utility infrastructure. Routine maintenance and repair activities are occasionally required for the continued operation of these existing utility lines and roadways. MDOT has planned numerous smaller scale surface treatment and road maintenance projects throughout the state, including some within the Three Ring Binder project area. MFC will work with MDOT to coordinate scheduling details to avoid conflicts. MDOT also has two major transportation projects planned and ongoing (http://www.maine.gov/mdot/, accessed April 29, 2010). These include the 295 Greater Portland Area Interstate Project and Veterans Memorial Bridge Replacement, neither of which are located along the roadways proposed for use by the Three Ring Binder.

There are anticipated foreseeable future actions in the vicinity of the proposed project. The Northern Maine region, which includes the Northern Ring of the proposed project, is slated by the Maine State legislature for economic development. Zones in Aroostook County have been identified as Rural Empowerment Zones, which is a tool in attracting business to the northern part of the State using tax exemptions and other incentives. As development increases, there is likelihood of road improvement projects as well as utility line replacements and transmission line upgrades.

Cumulative Effects of Project: The Three Ring Binder consists of attaching cable to existing utility poles along existing roadways and replacing occasional aged poles as necessary. These actions are associated with few negative effects, and as such, the cumulative effects of the project are considered less than significant for most resources analyzed, and would therefore not incrementally result in any significant

negative environmental consequences, when combined with other activities not related to this project (e.g., road maintenance or construction).

The potential increase in noise related to trucks and equipment would be minor and temporary. Pole replacement may result in incidental erosion or sediment discharge to wetlands or waters; however, with the use of good utility practices (or BMPs) for erosion and sediment control, this potential is minimized and does not represent a significant cumulative impact to soils or water resources. Effects to biological resources are also minimal due to the lack of wildlife habitat on the road right-of-ways and the generally disturbed character of these areas. Any noise disturbance to wildlife due to equipment would be temporary. Cultural resources are generally not considered subject to cumulative effects, but are either individually affected in a way that changes the significance of the property or are not impacted in a way that changes the significance of the property. As such, significant impacts to any of these resources would not result from the wider consideration of incremental effects of the proposed project when considered along with unrelated potential projects such as roadway improvements or commercial development.

There is a minor cumulative impact to infrastructure since the proposed project involves adding cable to existing utility poles, which can accommodate a finite number of cables and associated equipment; therefore, there may be less available space for potential future cables and lines on existing poles.

There is a substantial positive cumulative impact of the project on socioeconomic resources. As described in Section 1.2- Purpose and Need, Three Ring Binder will provide broadband access to numerous underserved and unserved communities, which will improve opportunities to engage in the global economic, provide increased education opportunities, and improved public safety through reliable and high speed communication.

5.0 FINDINGS AND CONCLUSIONS

Demand for their services in rural and underserved parts of the state is unprecedented, but the rate of growth is constrained by the lack of middle mile facilities and the cost of these facilities. The lack of competition in some areas of Maine has resulted in prohibitively high middle mile pricing at rates of up to five times the market rate, and multiple requests of Maine's dominant landline provider to provide dark fiber have consistently been refused.

Supporters of the Three Ring Binder recognize that the project would provide an alternative network at competitive pricing, allowing access to dozens of rural Maine towns, and as a result, providers would be able to provide more competitive rates and higher speeds to the end user. It would foster competitively priced universal broadband access throughout the state of Maine, and allow firms that provide broadband internet services to end use customers the ability to focus on delivering the last mile to business and customers. Creation of middle mile connectivity would support four of Maine's University campuses (Machias, Presque Isle, Fort Kent, and Farmington), and 375 Maine schools and libraries where middle mile connectivity does not currently exist. The proposed project would support and stimulate economic growth throughout Maine, including in tribal communities, effectively providing the means to connect Maine residents – regardless of where they live – with national and international markets necessary to effectively conduct and compete in business today.

Analyses of the three alternatives – Preferred, Buried Cable, and No Action – was completed in compliance with the National Environmental Protection Act (NEPA) requirements and the guidelines provided by the Department of Commerce on National Telecommunications and Information Administration guidelines. Summary results are provided in Table 5.0-1.

The Preferred Alternative was found to have less environmental impact than the Buried Cable Alternative in most natural resource areas (noise, air quality, geology and soils, water, biological, historical/cultural, and land use), but a slightly more positive effect with respect to socioeconomic and human health and safety impacts, due the greater effort required for installation and larger construction effort necessary for the Buried Cable Alternative. Potential impacts to aesthetic and visual resources are approximately equivalent. Potential impacts to infrastructure are also approximately equivalent. The Buried Cable Alternative is also prohibitively costly and would not meet the aggressive time constraints of this project. The No

Action Alternative fails to accomplish the project objectives. Results of the EA indicate the Preferred Alternative – Three Ring Binder – would not result in significant negative or otherwise detrimental impacts to environmental resources examined in this EA. While the proposed Three Ring Binder corridor extends through rural areas of the State and counties that are home to low income populations and Indian tribes, it is the intent of the project to bring meaningful communications service to these regions, providing the middle mile facilities required to drive end mile projects at reasonable, competitive prices; therefore, this project is consistent with Environmental Justice principles in that low income areas would significantly benefit without being subject to any significant environmental impacts.

Table 5.0-1. Summary of EA Findings by Resource Area

	ALTERNATIVES*		
RESOURCE	**Preferred**	**Buried Cable**	**No Action**
Noise	Temporary and minimal effects related to equipment noise during installation and periodic maintenance. No effects during operation.	Temporary noise from equipment and construction activities associated with installation and maintenance. Impact longer in duration and greater in magnitude relative to Preferred Alternative. Potential maintenance activity would also be longer in duration as buried cable would require excavation and a greater potential that blasting would be required.	Minor temporary noise from current maintenance of existing utility lines associated with existing infrastructure would continue, similar to Preferred Alternative.
Air	Temporary increases to criteria pollutants (particulate matter and ozone-related pollutants) due primarily to activity and emissions related to construction vehicles used during installation and occasional maintenance activity.	Temporary increases to criteria pollutants (particulate matter and ozone-related pollutants) due primarily to activity and emissions related to construction vehicles. Effects of this Alternative would be greater relative to the Preferred Alternative.	None
Geology/Soils	Minimal to no impact to soils during wooden pole replacement along roadways.	Substantial cut and fill anticipated. Potential for erosion and soil migration during installation and maintenance.	Minimal to no impact to soils during replacement of existing wooden poles along roadways. Same as Preferred Alternative.
Water	Negligible to no potential for wood preservative leeching to groundwater/surface water after wooden pole replacement. Minor, localized, temporary potential for sedimentation as a result of pole replacement. Would be prevented with application of standard BMPs.	Minor, localized, temporary potential for sedimentation as a result of pole replacement. Would be prevented with application of standard BMPs. Minimal potential groundwater and aquifer disturbance during installation and/or maintenance in right-of-ways.	Impacts are the same as the Preferred Alternative, for continued maintenance of existing wooden utility poles. Impacts are the same as the Preferred Alternative, for continued maintenance of existing utility poles in right-of-ways.

ALTERNATIVES*			
RESOURCE	**Preferred**	**Buried Cable**	**No Action**
Biological	Minor, temporary, localized noise disturbance to wildlife due to installation and periodic maintenance. Minor, localized, temporary potential for sedimentation as a result of pole replacement. Would be prevented with application of standard BMPs.	More substantial, temporary noise disturbance in ROW that may impact wildlife during installation and/or maintenance activity. Temporary potential disruption of animal movement in ROW during construction. Minor, localized, temporary potential for sedimentation as a result of pole replacement. Would be prevented with application of standard BMPs. Substantial anticipated vegetation disturbance including cut and fill within riparian and wetland habitats. Potential disruption of amphibian breeding in wetlands including vernal pools (SWH). Potential impacts to Critical Habitat for Canada lynx and Atlantic salmon due to burying cable in ROW and streambeds.	Impacts are the same as the Preferred Alternative, for continued maintenance of existing wooden utility poles. Impacts are the same as the Preferred Alternative, for continued maintenance of existing utility poles in right-of-ways.
Historical/Cultural	None	Potential exposure of historical or cultural resources during trenching for installation and/or maintenance activity.	None
Aesthetic/Visual	Negligible impact from an additional cable on existing utility line.	Temporary visual impacts due to more intensive roadside construction.	None
Land Use	None	None	None

	ALTERNATIVES*		
RESOURCE	**Preferred**	**Buried Cable**	**No Action**
Infrastructure	*Project could potentially step up the schedule for replacement of aged or deteriorated existing wooden utility poles.* Minimal temporary increase in non-hazardous construction waste.	Minimal temporary increase in non-hazardous construction waste. Same as Preferred Alternative.	None
Socioeconomic	*Substantial positive affect to communities by providing improved and reliable high-speed data access and internet service to current and future government, residential and business customers. It would:* • *integrate existing community institutions (hospitals, schools, and libraries)* • *increase learning and educational opportunities (on-line courses).* • *spur job creation and stimulate long-term economic growth in low-income rural areas by building innovation capacity.*	*Same positive affects as Preferred Alternative due to improved access to broadband.* *Additional positive affects to local economies due to increased jobs and retail businesses resulting from more intensive construction activities.* Because of the prohibitive cost of burying cable across 1,100 miles, this project would not occur under the Buried Cable Alternative. There would be a significant negative effect to the unserved and underserved communities of Maine due to loss of this opportunity to gain broadband access.	Significant negative effect to the unserved and underserved communities of Maine due to loss of this opportunity to gain middle mile high speed broadband access.
Human Health/Safety	*Potential positive effects due to increased opportunities for electronic medical consultations and transfer of records; additional safety related services.* Potential for injury due to technicians working in proximity of high voltage wires and heavy equipment.	*Potential positive effects due to increased opportunities for electronic medical consultations and transfer of records; additional safety related services.* Potential for injury due to technicians working with heavy equipment.	None

*The Wireless Alternative was eliminated as it does not meet project goals.

6.0 LIST OF PREPARERS

This list presents the individuals who contributed to the technical content of the EA.

Joshua Broder

Position:	President, Maine Fiber Company, Inc.
Education:	B.A. Middlebury College
Background:	Eight years experience in project managing telecommunications construction projects

Mark Curtis

Position:	Director of Field Operations, Maine Fiber Company, Inc.
Education:	B.A. Colby College
Background:	25 years experience in electric and telecommunications utility engineering in, permitting, and program management in Maine at Central Maine Power Company, MaineCom, and Telecom Strategies & Facilities, LLC

Alan E. Haberstock

Position:	Project Manager/Senior Scientist, Kleinschmidt Associates
Education:	M.S., Ecosystem Ecology; B.A., Natural Resource Economics
Background:	20 years of experience with performing environmental assessments and overseeing projects relating to environmental permitting, natural resource management and monitoring and wetlands/water resources

Marcia L. Phillips

Position:	Senior Resource Economist, Kleinschmidt Associates
Education:	M.S., Agricultural and Resource Economics; B.S. Natural Resources; A.A., Liberal Arts
Background:	20 years of experience performing environmental assessments and environmental resource valuations.

Steve Knapp

Position:	Wetland Biologist, Kleinschmidt Associates
Education:	B.S., Wildlife Ecology
Background:	Specializes in environmental and ecologically related field studies, including wetland delineations, wetland habitat assessments, vernal pool identification, stream assessments, and permitting.

Andy Qua

Position:	Regulatory Advisor, Kleinschmidt Associates
Education:	B.S., Bio-Resource Engineering Technology
Background:	Specializes in document preparation and resource effects analyses in support of Federal Energy Regulatory Commission license applications and is also experienced in agency consultation/negotiation required in connection with federal license applications and license compliance requirements; has been involved in a number of projects that have developed his ability to analyze and evaluate the balance of natural

resource protection and enhancements with project economics and social values to assist in negotiating terms and conditions of new hydropower licenses.

Stacia Hoover

Position:	Senior Biologist, Kleinschmidt Associates
Education:	M.S., Conservation Biology; M.S., Natural Resource Management (in-progress); B.S., Evolution and Ecology
Background:	Thirteen years practical experience in environmental consulting, natural resource assessment, and biological research. Specializes in managing and carrying-out natural resource studies and impact analysis involving aquatic, wetland and upland vegetation communities, and water resources. Conducts wildlife habitat assessments, threatened and endangered species assessments, vernal pool studies, and wetland delineations.

Ashley Leen

Position:	Wildlife Biologist, Kleinschmidt Associates
Education:	B.S., Wildlife Ecology
Background:	Specializes in RTE plant and invasive species identification and monitoring; wetland and vernal pool surveys; and impact analyses associated with these resources as well as conducting habitat evaluation surveys.

Mark Christopher

Position:	QA/QC – Environmental, TRC Companies, Inc.
Education:	M.S., Wildlife Ecology, B.S., Wildlife Biology
Background:	20 years of experience and progressive responsibility in environmental consulting including wetland habitat assessment and delineation, endangered species assessment, and environmental risk characterization; extensive experience in environmental permitting, agency consultations and negotiations, project management, mitigation design, alternatives analysis, and wildlife surveys.

Adrian Zvarych, P.E.

Position:	QA/QC – Engineering, TRC Companies Inc.
Education:	B.S., Electrical Engineering
Background:	25 years of experience and progressive responsibility in electrical engineering consulting including extensive design of power control, AC&DC infrastructure, and grounding systems, and background including experience with WAN/LAN design and implementation in the electric utility and telecommunications industries.

Levi Ladd

Position:	GIS Specialist, Kleinschmidt Associates
Education:	B.A., Geography & Geology
Background:	Five years experience preparing engineering and environmental GIS-based graphic and tabular products.

Michael Cunningham

Position:	Telecommunications Specialist, TRC Companies, Inc.
Education:	BA., Business Management; A.S., Electrical Engineering; A.S. Electronics Technologies
Background:	Extensive industry experience in fields of telephony, fiber optic broadband, computer systems, power systems protection and control, grounding, engineering services and new product development/support and is creatively driven to resolve issues.

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APPENDIX A

LETTERS OF SUPPORT

LETTERS OF SUPPORT

Agency	Date	Document Type	To	From
Passamaquoddy Tribe	December 10, 2009	Letter	Brent Misenor Biddeford Internet Corp. (d/b/a GWI)	Rick Phillips Doyle Sakom/Governor
University of Maine System, Information Technology Services	November 12, 2009	Letter	Fletcher Kittredge Founder and CEO, Biddeford Internet Corp. (d/b/a GWI)	Jeffrey Letourneau Acting Executive Director, Network Maine, Associate Director, Communications and Network Services
Midcoast Internet Solutions	November 13, 2009	Letter	Fletcher Kittredge Founder and CEO, Biddeford Internet Corp. (d/b/a GWI)	Jason Philbrook, President
Midcoast Internet Solutions	August 13, 2009	Letter		Jason Philbrook, President
BayRing Communications	August 11, 2009	Letter		Darren Winslow, Controller/CFO
Axiom Technologies	August 13, 2009	Letter	BTOP, NTIA Review Committee	Susan Corbett, CEO
segTEL, Inc.	August 14, 2009	Letter	NTIA/RUS-BIP/BTOP Program	Jeremy Katz, Vice President
redZone Wireless	November 13, 2009	Letter		James McKenna, CEO & Founder
Premium Choice Broadband	August 14, 2009	Letter		William Varney, Chairman
Pioneer Broadband	August 11, 2009	Letter	RUS, USDA NTIA, USDC	Timothy McAfee, CTO

PASSAMAQUODDY TRIBE

Pleasant Point Reservation

P.O. Box 343, Perry, Maine 04667

207.853.2600 rick@wabanaki.com 207.853.6039 (fax)

Office of the Sakom

Mr. Brent Misenor
Biddeford Internet Corp. (d.b.a. GWI)
Biddeford, ME

December 10, 2009

Dear Mr. Misenor,

I write on behalf of the Passamaquoddy Tribe at Pleasant Point to offer our support for the Three Ring Binder project. As you know, the U.S. economy is suffering a very severe recession. Job losses, a lack of credit, and consumer pessimism are taking a relentless toll. The recession is also having a severe effect on tribal economies. In many ways, the economic crisis could be more detrimental on tribal communities than the rest of the country in that economic conditions in Indian country are among the worse in the United States. Tribal communities do not have the same economic infrastructure or capital needed to create jobs and stimulate economies as the rest of the country. Indian communities have great needs for infrastructure development and we have a proven ability to quickly create jobs. We strongly support the initiatives such as the Three Ring Binder project, in that these types of projects will assist in stimulating economic development investment on Indian reservations in Maine.

In reading the executive summary of the Three Ring Binder I became quite interested and intrigued since it will construct and operate new middle mile infrastructure that would provide increased access to the dark fiber optic rings needed for improved high speed broadband in the rural areas of Maine. This deployment of the middle mile backhaul will have direct benefit to tribal development projects. Among examples of the potential benefit is a current effort by the Maine Tribal Chiefs and Governors to begin work on developing a tribal community college, so that our members may be prepared to compete for jobs and have meaningful career options. The Tribes are located in Washington County (2 Passamaquoddy Reservations), in Aroostook County (Mic Mac and Maliseet), and in Penobscot County (Penobscot Nation). The distance from each other makes our goal a challenge. The Passamaquoddy Tribe is also interested in creating businesses and products which can be marketed and interact with the World Wide Web. Also, a web based tribal "call center" may become a reality if the technology to support it exists. The proposed Three Ring project appears to be a "piece of the puzzle" in which the Tribes can reach its goal to construct an online tribal community college, as well as have potential for an array of tribal economic development.

Therefore, I am highly supportive of the Three Ring Binder project. I offer the project our assistance if there is something we could reasonably do to further this project. Lastly, I would be glad to talk with you directly if you so desire.

Respectfully,

Rick Phillips-Doyle
Sakom/Governor

Cc: File

Information Technology Services
5752 Neville Hall
Orono, Maine 04469-5752
207-561-3501

November 12, 2009

Mr. Fletcher Kittredge
Founder and CEO
Biddeford Internet Corp d/b/a Great Works Internet
8 Pomerleau Street
Biddeford, ME 04005

Re: BTOP Program/Three Ring Binder "Middle Mile"
Project Proposed for Rural Maine (EasyGrants ID 1149)

Dear Fletcher:

I understand that, in connection with Maine Fiber Company's application for funding for the Three Ring Binder Project ("TRB"), NTIA has asked GWI to provide written confirmation from potential "target customers" for the dark fiber to be provided from TRB regarding our past and ongoing inability to obtain middle mile connectivity in those portions of Maine to be served by TRB. This letter summarizes our experience with this issue, and you are authorized to submit the letter to NTIA.

As you know, I am responsible for arranging to meet the telecommunications needs of the twenty campus and outreach centers of the University of Maine System. I am also responsible for managing the requirements of the Maine Schools and Libraries Network, which serves 950 schools and libraries throughout the State of Maine.

First of all, as a general proposition, I can confirm that Maine's dominant landline provider, FairPoint Communications, has consistently refused all requests for dark fiber that I have made on behalf of the University of Maine System. FairPoint's predecessor, Verizon, likewise refused all such requests.

Lack of middle mile connectivity is a significant issue for four of the University of Maine System campuses that I am responsible for, specifically, the Machias, Presque Isle, Farmington, and Fort Kent campuses. The availability of dark fiber from the Three Ring Binder Project, which will serve these campuses, would therefore afford middle mile connectivity where none presently exists.

With respect to the 950 locations throughout Maine that are served by the Maine Schools and Libraries Network, I can confirm that 375 of these locations, all of which are in rural Maine communities have no nearby fiber-based services whatsoever. One reason I participated actively in the planning process for the Three Ring Binder Project is to ensure that the Project would be located so as to provide much needed middle mile connectivity in these locations. I am pleased to confirm that TRB will in fact make dark fiber available in these areas.

In the short amount of time provided I have not been able to compile a list of the 375 rural Maine locations lacking the middle mile connectivity that TRB will provide, but I could do so if necessary with a few days' notice.

Finally, although the University of Maine System is unable to make any binding commitments to subscribe to TRB's potential dark fiber offering at this time, the System fully supports the Project and has strong interest in exploring dark fiber provisioning from TRB, once funded and in operation.

Sincerely,

Jeffrey Letourneau
Acting Executive Director, Networkmaine
Associate Director, Communications and Network Services
University of Maine System

25 Oak Street
Rockland ME 04841
(207) 594-8277
Voice: 207-594-8277
Date: November 13, 2009

Fletcher Kittredge
Chief Executive Officer
Biddeford Internet Corp d/b/a Great Works Internet
8 Pomerleau St
Biddeford, ME 04005

Re: BTOP Program/Three Ring Binder "Middle Mile"
Project Proposed for Rural Maine (EasyGrants ID 1149)

Dear Fletcher:

I understand that, in connection with Maine Fiber Company's application for funding for the Three Ring Binder Project ("TRB"), NTIA has asked GWI to provide written confirmation from potential "target customers" for the dark fiber to be provided from TRB regarding our past and ongoing inability to obtain middle mile connectivity in those portions of Maine to be served by TRB. This letter summarizes our company's experience with this issue, and you are authorized to submit the letter to NTIA.

We have sought to obtain middle mile connectivity from incumbent and competitive providers on various occasions but with little or no success. In this letter I am listing the areas in Maine along the proposed TRB route where our requests for middle mile connectivity have not been met.

Although unable to make any binding commitments to subscribe to TRB's potential dark fiber offering at this time, our company supports TRB and has strong interest in exploring dark fiber provisioning from TRB, once funded and in operation.

Our Company, Midcoast Internet Solutions, currently provides and intends in the future to provide broadband Internet services to end use customers in rural and under served parts of Maine. We provide last-mile broadband via wireless, DSL, and fiber optic links in Knox, Waldo, Lincoln, and Sagadahoc counties and look forward to the potential benefits of the Three Ring Binder plan.

One of the bigger obstacles we face in providing our services is obtaining access to middle mile facilities at a reasonable cost and time frame that allow transport of communications to and from remote areas. This has been a considerable business barrier ever since we started our Internet service in 1995. We have addressed this obstacle in some situations temporarily with wireless links, but the fiber plan is far more future proof and has more potential. Wireless is not fast enough for all of our present and future needs, and current lessors of fiber either have no capacity, don't have the coverage in the necessary areas, or aren't able to provide services at cost/speed combinations reasonable for the size of the community and it's business potential.

We have various problems getting the middle mile facilities we need in various towns in our service area that are near the three ring binder project plan.

Here are some of the towns and their unmet needs.

Town	**Problem**
Belfast	too great an expense
Northport	not available
Lincolnville	no capacity and/or too great an expense.
Camden	insufficient coverage (not available where needed)
Rockport	too great an expense and or no capacity.
Rockland	insufficient coverage (not available where needed), no capacity, not enough speed, too great an expense.
Thomaston	not available where needed, too great an expense
South Warren	not available where needed, too great an expense
Warren	not available where needed, too great an expense
Waldoboro	not available where needed, too great an expense, no capacity
Nobleboro	not available where needed, too great an expense, no capacity
Jefferson	not available where needed, too great an expense
Damariscotta	not available where needed, too great an expense, no capacity
Newcastle	not available where needed, too great an expense, no capacity
Wiscasset	not available where needed, too great an expense
Edgecomb	not available where needed, too great an expense
Woolwich	not available where needed, too great an expense
Westport	not available.
Bath	not available where needed, too great an expense

Sincerely,

Jason Philbrook
President

Midcoast Internet Solutions

25 Oak Street
Rockland ME 04841
(207) 594-8277
Voice: 207-594-8277
Date: August 13, 2009

Our Company, Midcoast Internet Solutions, currently provides and intends in the future to provide broadband Internet services to end use customers in rural and under served parts of Maine. We were amongst the first half dozen companies in the state to provide local Internet services in 1995 with dialup, and amongst a similarly small number of pioneers in 1998 with DSL. We were the first with wireless Internet in the state, providing broadband where none existed in 1998. Now, we provide broadband via wireless, DSL, and fiber optic links in Knox, Waldo, Lincoln, and Sagadahoc counties.

One of the bigger obstacles we face in providing our services is obtaining access to middle mile facilities at a reasonable cost that allow transport of communications to and from remote areas. This has been a considerable business barrier ever since we started our Internet service in 1995. We have addressed this obstacle in some situations temporarily with wireless links, but the fiber plan is far more future proof and has more potential.

We are familiar with the Three Ring Binder Project being proposed by GWI and would like to express our enthusiastic support for the concept. Midcoast Internet Solutions has met with GWI, explained our needs with regard to the project, and offered suggestions for the project.

Our Company would VERY likely be a purchaser of the services offered through the Three Ring Binder. Access to such a network would enable us to reach many more end use retail customers at a reasonable cost than we can today. It would also enable us to offer higher speeds to more people, as it would augment and improve our existing middle mile infrastructure. This would be useful in areas we have built last mile infrastructure with ConnectME project funding and with our own private funds. Essentially, it would help us focus our investment in delivering the last mile to businesses and homes rather than being burdened with building considerable middle mile infrastructure simply because there has been no other way to get high capacities of data from our central location to the various parts of the counties we serve.

Sincerely,

Jason Philbrook
President

BayRing
COMMUNICATIONS

August 11, 2009

To Whom It May Concern:

Our Company, BayRing Communications, currently provides and intends in the future to provide broadband Internet services to end use customers in rural and underserved parts of Maine. One of the obstacles we face in providing our services is obtaining access to middle mile facilities at a reasonable cost that allow transport of communications to and from remote areas. We are generally familiar with the Three Ring Binder Project being proposed by GWI and would like to express our enthusiastic support for the concept. Our Company would likely be a purchaser of the services offered through the Three Ring Binder Project. Access to such a network would enable us to reach many more end use retail customers at a reasonable cost than we can today.

Sincerely yours,

Darren Winslow
Controller/CFO

359 Corporate Drive, Portsmouth, NH 03801-6808
(603) 766-1000 - Fax (603) 766-1050

Axiom Technologies
4 Main Street
Machias, ME 04654
(207) 255-0679
www.axiom-tech.net

August 13, 2009

Broadband Technology Opportunity Program
National Telecommunications and Information Administration U.S. Department of Commerce
1401 Constitution Ave.
HCHB, Room 4812
Washington, DC 20230

Great Works Internet
CFDA Title: BIP, CFDA Number: 10.787
CFDA Title: BTOP, CFDA Number: 11.557

Dear NTIA Review Committee,

I am writing this letter of support for Great Works Internet and the *Three Ring Binder* proposal for the National Telecommunication and Information Administration (NTIA) Broadband Technology Opportunities Program (BTOP).

Axiom Technologies, a ConnectME grant recipient, has been deploying a wireless network infrastructure throughout Washington County, Maine for the past five years. With the support of the ConnectME funding, there will be an umbrella of wireless high-speed Internet coverage covering 2500 square miles by the end of 2009.

The *Three Ring Binder* proposal will enable companies like Axiom Technologies to obtain bulk bandwidth at affordable prices and provide backhaul support to our existing network and for new technologies. One of the obstacles we face in providing our services is obtaining access to middle mile facilities at a reasonable cost that allow transport of communications to and from remote areas.

We applaud the efforts of Great Works Internet and its collaborators and sincerely hope that they will receive BIP and BTOP funding to bring this project to fruition.

Sincerely,

Susan M Corbett

Susan M. Corbett, CEO

NTIA/RUS
BIP/BTOP Program

Re: Support for Three Ring Binder

August 14, 2009

To Whom It May Concern:

segTEL, Inc. has been serving residential, commercial, enterprise and carrier customers in the four northernmost New England States for over a decade.

We have been approached by members of the Three Ring Binder Project and asked to comment on its proposed strategy for providing broadband Internet services in rural and underserved parts of Maine. In response to this and as general statement of support for the project, segTEL states as follows:

1) Lack of access to robust middle mile facilities in rural and remote areas of Maine is one of the primary obstacles not only to our company's expansion of service, but to the promotion of reliable wireline broadband by almost any provider.
2) Newly deployed middle mile facilities sold at fiscally attractive, competitively neutral and nondiscriminatory terms to all comers will greatly enhance the development and adoption of broadband in these regions.
3) segTEL would likely subscribe to middle mile resources made available by this project, and would parlay these resources to improve our own breadth of broadband availability.

Thank you very much for your consideration of this project.

Sincerely,

Jeremy L. Katz
Vice President
segTEL, Inc.

redZone WIRELESS

Affordable high-speed Internet. Get connected.

Friday, November 13, 2009

Organization
Address

Subject: Support for 3RB

RedZone Wireless is a broadband service provider based in Rockland, ME. RedZone currently provides high speed Internet service to over two thousand (2,000) residents and businesses throughout midcoast, central, and downeast Maine. RedZone establishes formal public - private partnerships with rural rural towns in order to extend high speed Internet to the unserved areas. The demand for our services is unprecedented. Most of the communities we serve have only limited coverage with DSL and/or cable Internet service, and the incumbent phone, and cable TV providers have provided no specific plans for expansion expansion in the region(s).

Our business is growing, but the rate of growth is constrained by two primary factors; 1.) The availability of middle mile facilities, and 2.) the cost of these facilities.

Specific examples, current markets:

Northeast Harbor, ME: The incumbent telephone company provides the only access in the community. The incumbent is charging RedZone more than 5x the market rate for multi-megabit mid-mile services (vs. other areas where there is competition)

Bar Harbor, ME: The incumbent telephone company has blocked competitive access to their local fiber, forcing mid-mile pricing at 5x the market rate. If RedZone did not have tower structures for wireless backhaul in this market then we would not be able to serve the local residents.

The need for 3RB

The incumbent telephone and cable TV operators have failed to deliver broadband in Maine's rural communities. Local and Regional ISPs are eager to fill in the gaps, but they cannot do so if a.) mid mile facilities are not made available, and b.) the facilities are priced at multiples of market rate where they are made available. Whether by strategy or by design, the incumbents are the greatest impediment to universal service in these rural communtiies.

GWI's 3RB will provide an alternative network, and competitive mid-mile pricing to dozens of rural Maine towns. RedZone, and other ISPs will take advantage of the 3RB network facilities, and the competitive pricing this network will afford. Our business opportunities will be greatly expanded; planned rollouts will cover larger geographic areas, and we will extend more competitive rates to the end user.

Specific towns where RedZone would intend to expand service if 3RB in constructed:

413 Main Street, Suite 205
P.O. Box 435
Rockland, ME 04841

Ph: 207.596.5700
Fax: 207.596.5701

info@redzonewireless.com
www.redzonewireless.com

redZone WIRELESS

Affordable high-speed Internet. Get connected.

Belfast
Bucksport
Camden
Ellsworth
Lincolnville
Northport
Newry
Rumford
Jay
Wilton
Fayette
Livermore
Gouldsboro
Sullivan
Hancock
Portland
S. Portland
Rockport
Thomaston
Warren
Verona
Others, TBD

Without 3RB Maine will continue the current status quo, and the status quo is clearly not working.

RedZone anxiously awaits 3RB build out, and we will do all that we can to encourage, and foster competitively priced, universal broadband throughout the great state of Maine.

Sincerely,

James McKenna
CEO & Founder

413 Main Street, Suite 205
P.O. Box 435
Rockland, ME 04841

Ph: 207.596.5700
Fax: 207.596.5701

info@redzonewireless.com
www.redzonewireless.com

PREMIUM
CHOICE BROADBAND

premiumchoicebroadband.com

August 14, 2009

To Whom It May Concern:

Premium Choice Broadband currently provides, and intends in the future to provide, broadband Internet services to end use customers in rural and underserved parts of Maine.

One of the obstacles we face in providing services is obtaining access to middle mile facilities at a reasonable cost that allow transport of communications to and from remote areas. We are generally familiar with the Three Ring Binder Project being proposed by GWI and would like to express our enthusiastic support for the concept. Premium Choice Broadband would likely be a purchaser of the services offered through the Three Ring Binder. Access to such a network would enable us to reach many more end use retail customers at a reasonable cost than we can today. This will help utilize the grants we received from Connect Maine in a more efficient manner.

Sincerely yours,

William Varney
Chairman

32 Oak Street • Bangor, ME 04401 • 207-735-2611 • 888-488-3638

August 11, 2009

Administrator
Rural Utilities Service
U. S. Department of Agriculture
Washington, D. C. 20250-1500

Assistant Secretary
National Telecommunications and Information Administration
U. S. Department of Commerce
Washington, D. C. 20230

RE: Pioneer Broadband support of GWI middle mile grant application

To Whom It May Concern:

Our company, Pioneer Broadband, currently provides, and intends in the future to provide, broadband Internet services to end use customers in rural and underserved parts of Maine. One of the obstacles we face in providing our services is obtaining access to middle mile facilities at a reasonable cost that allow transport of communications to and from remote areas.

We are generally familiar with the Three Ring Binder Project being proposed by GWI and would like to express our enthusiastic support for the concept. Our company would likely be a purchaser of the services offered through the Three Ring Binder. Access to such a network would enable us to reach many more end use retail customers at a more reasonable cost than we can today.

Sincerely yours,

Timothy R. McAfee
CTO
Pioneer Broadband

APPENDIX B

AGENCY CONSULTATION

CONSULTATION RECORD

Agency	Date	Document Type	To	From
Maine Department of Environmental Protection, Bureau of Land and Water Quality	March 11, 2010	E-mail	Marybeth Richardson Licensing Coordinator	Kathryn Best Tilson Technology Management
Maine Department of Environmental Protection, Bureau of Land and Water Quality	March 17, 2010	E-mail	Kathryn Best Tilson Technology Management (MFC)	Marybeth Richardson Licensing Coordinator
Maine Historic Preservation Commission	March 15, 2010	Letter	Earl G. Shettleworth, Jr. Director and State Historic Preservation Officer	Frank J. Monteferrante, Ph.D. Environmental Compliance Specialist, NTIA
Maine State Planning Office	March 17, 2010	Letter	Kathryn Best Tilson Technology Management (MFC)	Sue Baker, State Floodplain Coordinator, Maine State Planning Office
Kleinschmidt	March 29, 2010	E-mail	Josh Broder, President, Tilson Technology Management (MFC)	Alan E. Haberstock, Senior Scientist, Environmental Team Leader, Kleinschmidt
Penobscot Indian Nation	May 10, 2010	Letter	Kathryn Best, Biddeford Internet Corp. (MFC)	Bonnie Newsom, THPO, Penobscot Nation
NTIA, Maine SHPO	May 20, 2010	MOA		
Maine State Planning Office	April 19, 2010	E-mail	Todd Burrowes Federal Consistency Coordinator	Stacia Hoover Project Scientist, Kleinschmidt
Maine State Planning Office	April 27, 2010	E-mail	Stacia Hoover Project Scientist, Kleinschmidt	Todd Burrowes Federal Consistency Coordinator
NOAA, NMFS	March 23, 2010	E-mail	Sean McDermott, Fisheries Biologist Jeffery Murphy, Fisheries Biologist	Stacia Hoover Project Scientist, Kleinschmidt
NOAA, NMFS	March 23, 2010	E-mail	Stacia Hoover Project Scientist, Kleinschmidt	Sean McDermott Fisheries Biologist
NOAA, NMFS	March 23, 2010	E-mail	Stacia Hoover Project Scientist, Kleinschmidt	Jeff Murphy Fisheries Biologist
NOAA, NMFS	March 23, 2010	E-mail	Kathryn Best Tilson Technology Management (MFC)	Jeff Murphy Fisheries Biologist

Agency	Date	Document Type	To	From
Penobscot Indian Nation	April 27, 2010	E-mail	Kathryn Best Tilson Technology Management (MFC)	Bonnie Newsome Tribal Historic Preservation Officer
Penobscot Indian Nation	April 28, 2010	E-mail	Kathryn Best Tilson Technology Management (MFC)	Sparky Clark Land Coordinator Department of Trust Responsibilities
USFWS	March 15, 2010	Letter	Marvin Moriarty, Regional Director, Northeast Region	Frank J. Monteferrante, Ph.D. Environmental Compliance Specialist, NTIA
USFWS	April 22, 2010	Letter	Marvin Moriarty, Regional Director, Northeast Region	Frank J. Monteferrante, Ph.D. Environmental Compliance Specialist, National Telecommunications and Information Administration
USFWS	April 22, 2010	E-mail	Mark McCollough , PhD Endangered Species Specialist	Stacia Hoover Project Scientist, Kleinschmidt
USFWS	May 11, 2010	Letter	Mark McCollough , PhD Endangered Species Specialist	Alan E. Haberstock, Senior Scientist, Environmental Team Leader, Kleinschmidt
USFWS	May 18, 2010	Letter	Alan E. Haberstock, Senior Scientist, Environmental Team Leader, Kleinschmidt	Mark McCollough , PhD Endangered Species Specialist
US ACOE, New England District	April 5, 2010	Letter	Kathryn Best Tilson Technology Management (MFC)	Frank J. Del Giudice Chief, Permits & Enforcement Branch, Regulatory Division
USACOE, New England District	May 7, 2010	Letter	Kathryn Best Tilson Technology Management (MFC)	Frank J. Del Giudice Chief, Permits & Enforcement Branch, Regulatory Division

F rom: Kathryn Best [mailto:kbest@tilsontech.com]
Sent: Thursday, March 11, 2010 11:38 AM
To: Richardson, Marybeth
Subject: Maine Fiber Co, 3-Ring Binder Project

Marybeth:

Thanks for taking the time to speak with me yesterday. I have some clarity on the issues you raised in our conversation. We will be installing all of our cable on telephone poles on road ways only and will not be crossing any area that is not roadside. The installation process is quite simple. A utility bucket truck travels roadside and works only on the roadway banks.

I have attached a project overview, a map of the project, and the environmental assessment we've been given by the NTIA. If you could please review and advise it would be most appreciated.

Thank you.

Kathryn E. Best
Tilson Technology Management
245 Commercial St.
Portland, ME 04102

From: Richardson, Marybeth [mailto:Marybeth.Richardson@maine.gov]
Sent: Wednesday, March 17, 2010 7:28 AM
To: Kathryn Best
Subject: RE: Maine Fiber Co, 3-Ring Binder Project

Kathryn:

Based on the information you submitted, I don't believe the scope of work would require any permitting from the Department.

Marybeth Richardson, Licensing Coordinator
Maine DEP
Bureau of Land and Water Quality
312 Canco Rd.
Portland, ME 04103
Ph 822.6335 Fax 822.6303
email: marybeth.richardson@maine.gov

From: Kathryn Best [mailto:kbest@tilsontech.com]
Sent: Monday, March 15, 2010 8:34 AM
To: Richardson, Marybeth
Subject: RE: Maine Fiber Co, 3-Ring Binder Project

From: Richardson, Marybeth [mailto:Marybeth.Richardson@maine.gov]
Sent: Monday, March 15, 2010 8:33 AM
To: Kathryn Best
Subject: RE: Maine Fiber Co, 3-Ring Binder Project

Kathryn:

I didn't get the attachment.

Marybeth Richardson, Licensing Coordinator
Maine DEP
Bureau of Land and Water Quality
312 Canco Rd.
Portland, ME 04103
Ph 822.6335 Fax 822.6303
email: marybeth.richardson@maine.gov

From: Kathryn Best [mailto:kbest@tilsontech.com]
Sent: Thursday, March 11, 2010 11:38 AM
To: Richardson, Marybeth
Subject: Maine Fiber Co, 3-Ring Binder Project

Marybeth:

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Thank you.

Kathryn E. Best
Tilson Technology Management
245 Commercial St.
Portland, ME 04102

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, DC 20230

March 15, 2010

Earle G. Shettleworth, Jr.
Director and State Historic Preservation Officer
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, Maine, 04333-0065

Re: Initiation of Section 106 Consultation Regarding Broadband Technology Opportunities Program (BTOP) Grantee, Biddeford Internet Corp., Fiber Optic Network Infrastructure Project

Dear Mr. Shettleworth,

The National Telecommunications and Information Administration (NTIA) is providing funding, through the Broadband Technology Opportunities Program (BTOP), for a grant funded by the American Recovery and Reinvestment Act (ARRA), to Biddeford Internet Corp. The funding must be obligated and used within 24 months. This timeline is driven by the laws and regulations governing the use of this ARRA grant funding. The funding for this project in Maine will be used to install approximately 1,000 miles of fiber optic cable on existing poles on existing right-of-ways. A route map of the project is attached.

This project is an undertaking per 36 CFR Part 800 and this letter serves as notice that NTIA is initiating Section 106 consultation. NTIA has determined that this project has the potential to affect cultural and historic resources. The grant recipient is in the process of preparing detailed information regarding potential affects the project may have on cultural and historic resources, which we will forward to you as soon as it is available.

If you have any questions, please contact me at (202) 482-4208, or by e-mail at fmonteferrante@ntia.doc.gov.

Sincerely,

Frank J. Monteferrante

Frank J. Monteferrante, Ph.D.
Environmental Compliance Specialist
National Telecommunications and Information Administration

Attachment

cc: Kathryn Best
Maine Fiber Company, Inc.
245 Commercial St.
Suite 203
Portland, Maine 04101

PENOBSCOT INDIAN NATION
BONNIE NEWSOM - ARCHAEOLOGY DEPARTMENT
12 WABANAKI WAY, INDIAN ISLAND, ME 04468
E-MAIL: Bonnie.Newsom@penobscotnation.org Fax: 207-817-7463

NAME	Kathryn Best
ADDRESS	Biddeford Internet Corp. Maine Fiber Company, Inc. 245 Commercial St., Suite 203 Portland, ME 04101
OWNER'S NAME	Biddeford Internet Corp.
TELEPHONE	
FAX	
EMAIL	
PROJECT NAME	Fiber Optic Infrastructure Project TCNS #58698
PROJECT SITE	Statewide, ME
DATE OF REQUEST	March 25, 2010
DATE REVIEWED	May 10, 2010

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, and subsequent updates.

Also, if Native American cultural materials are encountered during the course of the project, please contact me at (207) 817-7332. Thank you.

BONNIE NEWSOM, THPO
Penobscot Nation

MEMORANDUM OF AGREEMENT

by and among

the NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION UNITED STATES DEPARTMENT OF COMMERCE;

and

the MAINE STATE HISTORIC PRESERVATION OFFICER

regarding

the MAINE FIBER COMPANY'S THREE RING BINDER

WHEREAS, the National Telecommunications and Information Administration ("NTIA"), U.S. Department of Commerce, through the Broadband Technology Opportunities Program under the American Recovery and Reinvestment Act (Pub. L. No. 111-5), issued a financial assistance award, designated as NTIA Award No. NT10BIX5570006, to Maine Fiber Company, Inc. ("MFC") in support of MFC's Three Ring Binder, which is an 1,100 mile, high capacity fiber optic network in the State of Maine (the "Undertaking"); and

WHEREAS, in accordance with 36 C.F.R. § 800.5(a)(1), NTIA has determined that the Undertaking has the potential to affect cultural and historic resources; and

WHEREAS, NTIA has consulted with the Maine State Historic Preservation Officer ("Maine SHPO") pursuant to its responsibilities under Section 106 of the National Historic Preservation Act ("NHPA"), as codified at 16 U.S.C. § 470f, and its implementing regulations at 36 C.F.R. part 800, and

WHERAS, the Maine SHPO has concluded that the Undertaking area possibly contains one or more prehistoric and/or archaeological sites based on their predictive model of archaeological site location but will have no adverse effect on above-ground historic architectural resources; and

WHEREAS, NTIA has consulted with MFC regarding the potential effects of the undertaking on cultural and historic resources and has invited MFC to sign this Memorandum of Agreement ("MOA") as a consulting party pursuant to 36 C.F.R. § 800.2(c); and

WHEREAS, the specific areas of ground-disturbing activities associated with the Undertaking are not precisely known at this time; and

WHEREAS, 36 C.F.R. § 800.4(b)(2) allows for phased identification and evaluation of historic properties where alternatives under consideration consist of corridors or large land areas, and allows the agency official to defer final identification and evaluation of historic properties if it is specifically provided for in a memorandum of agreement executed pursuant to 36 C.F.R. § 800.6(c), a programmatic agreement executed pursuant to 36 C.F.R. § 800.14 (b), or the documents used by an agency official to comply with the National Environmental Policy Act pursuant to 36 C.F.R. § 800.8.

NOW, THEREFORE, NTIA and the Maine SHPO (individually, a "signatory party" and collectively, the "signatory parties") agree that the Undertaking shall be implemented in accordance with the following

stipulations in order to take into account the Undertaking's potential effect on cultural and historic properties.

STIPULATIONS

The signatory parties will ensure that the following measures are carried out according to the provisions set forth herein:

I. Avoidance, Protection, and Mitigation of Archaeological Sites

MFC will ensure that an archaeologist that meets both the Maine SHPO's Standards for Archaeological Work in Maine (Code of Main Rules 94-089 Chapter 812) and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716), will conduct an archaeological investigation before any ground-disturbing work in the vicinity of prehistoric and/or archaeological sites that are identified based on the Maine SHPO's predictive model of archaeological site location.

For each ground-disturbing activity associated with the Undertaking, MFC will conduct identification and evaluation of archeological properties in accordance with 36 C.F.R. § 800.4(b)(1) and (c). MFC will assess all areas not identified as previously disturbed within the project area for Precontact period and Historic period archaeological sensitivity. A model that ranks sensitivity for each type of historic resource will be used by MFC's consulting archaeologists to determine whether archaeological field testing is necessary. The model and recommendations for field testing will be submitted for review and comment by the Maine SHPO before work commences. Implementation of the model to conduct field work will constitute a Phase I archaeological survey. Additional phases of investigation (e.g., Phase II and Phase III archaeological investigations) may be required if archaeological sites are encountered. MFC will consult with the Maine SHPO regarding appropriate actions should such potential historic properties be encountered. MFC will notify NTIA in writing regarding any appropriate actions required of MFC by the Maine SHPO and their impact, if any, on the NTIA financial assistance award for the Undertaking. Examples of sensitivity models for undertaking Pre-contact period and Historic period archaeological review appear in Appendices A and B of this MOA, respectively. Areas that can be documented to have been previously disturbed will not undergo archaeological field testing.

II. Disposition of Cultural and Human Remains

A. MFC will ensure that all materials and records resulting from actions taken pursuant to this MOA are curated within the State of Maine, in accordance with 36 C.F.R. Part 79.

B. If human remains are discovered while carrying out activities pursuant to this MOA, MFC will ensure that all work cease in the area of the discovery during notification of local law enforcement and NTIA and consultation with the Maine SHPO.

C. MFC will ensure that any human remains and grave-associated artifacts encountered during any work undertaken pursuant to this MOA are treated in accordance with the Council's "Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects," adopted by the Council on February 23, 2007.

III. Completion of Consultation

MFC will file a final Phase I Report with the Maine SHPO that summarizes the results of MFC's Phase I archaeological resource study of the Undertaking and, if necessary, Phase II and Phase III or data recovery archaeological investigations.

ADMINISTRATIVE PROVISIONS

I. Reports

A. *Monitoring and Reporting*. As permitted under 36 C.F.R. § 800.6(c)(4), NTIA shall have the responsibility for monitoring the progress and implementation of this Undertaking, and shall have the authority to take such action as it deems reasonably necessary to perform such monitoring.

B. *SHPO Concurrence*. Within 30 days of receipt of any report submitted by the Recipient to the Maine SHPO for this Undertaking, the SHPO will review, comment or approve said report. Copies will be sent to all the signatories to this Agreement. Failure by the SHPO to respond within 30 days of receipt of any such report shall be deemed to constitute SHPO concurrence to such report under the stipulations herein noted.

II. Documentation

NTIA shall provide to all consulting parties the documentation supporting a finding of either no adverse effect or adverse effect, as specified in 36 C.F.R. § 800.11(e), subject to the confidentiality provisions of 36 C.F.R. § 800.11(c) and within available funds, as well as such other documentation as may be developed during the consultation to resolve adverse effects.

III. Post-Review Discoveries

If potential historic properties are discovered or unanticipated effects on historic properties found after NTIA has completed the Section 106 process, the parties will consult in accordance with 36 C.F.R. § 800.6(c)(6), and MFC may be required to conduct additional investigations and implement additional avoidance, protection, or mitigation measures as a result of such consultation.

IV. Amendments

A. The signatories to this MOA may amend it. Any signatory proposing an amendment shall forward a copy of the proposed MOA to the other signatories. Upon concurrence of the signatories to the proposed amendment, NTIA will file the executed amended MOA with the Council. The amended MOA becomes effective when all original signatories have executed the amendment and the amended MOA is filed with the Council.

If any signatory to this MOA determines that its terms cannot be or are not being carried out, that signatory shall immediately consult with the other signatories to develop an amendment to remedy the noncompliance pursuant to 36 C.F.R. §§ 800.6(c)(7) and (8).

B. If the signatories cannot agree to appropriate terms to amend this MOA, any signatory may terminate this MOA in accordance with Section VI of this MOA below.

V. Dispute Resolution

A. *Consultation.* Should any party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, NTIA shall consult with the objecting party or parties to resolve the objection. If NTIA determines, within thirty days, that such objection(s) cannot be resolved, NTIA will forward all documentation relevant to the dispute to the Council in accordance with 36 C.F.R. § 800.2(b)(2).

B. *Opportunity to Comment.* Pursuant to 36 C.F.R. § 800.7(c)(2), the Council shall comment and advise NTIA on the resolution of the objection(s) within 45 days of the receipt of the request and relevant documentation. Any Council comments provided in response to such a request will be taken into account by NTIA in accordance with 36 CFR § 800.6 (c) (2) and 33 CFR Part 325, Appendix C with reference only to the subject of the dispute. The responsibility of NTIA to carry out all actions under this MOA, other than those subject to dispute, will remain unchanged.

C. *NTIA's Final Decision.* If the Council or the parties to this MOA do not provide comments regarding the dispute within 45 days of referral, NTIA may proceed to render a decision regarding the dispute. NTIA will consider comments from the Council and the parties to this MOA in reaching a final decision regarding the dispute. NTIA will notify all parties to this MOA of its decision in writing before implementing that portion of the Undertaking subject to dispute under this stipulation. NTIA's decision will be final. As necessary, this MOA shall be amended to reflect NTIA's final decision.

VI. Termination

Any party to this MOA may terminate it by providing 30 days written notice to the other parties hereto, provided that the parties will consult during the period before termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, NTIA shall either execute a new MOA with the signatories under 36 C.F.R. § 800.6(c) or request the comments of the Council in accordance with 36 C.F.R. § 800.7(a).

VII. Duration

This MOA will be null and void if its terms are not carried out within two years from the date of its execution. Prior to such time, NTIA may consult with the other signatories to reconsider the terms of the MOA and amend in accordance with Stipulation IV of this MOA.

VIII. Counterpart Execution

The parties agree that for ease of execution, each party may separately execute three counterparts of this MOA and exchange executed pages with each other. Each counterpart of this MOA so executed and reassembled so each counterpart is executed by all parties shall be deemed to constitute a completed and fully executed MOA

IX. Transmission to the Council and Consulting Parties

A. Once all parties have executed this Agreement, NTIA shall submit a copy of this MOA, along with the documentation specified in 36 C.F.R. § 800.11(f), to the Council.

B. The submission of documentation and filing of this fully executed MOA with the Council pursuant to 36 C.F.R § 800.6(b)(1)(iv) constitute evidence that NTIA has taken into account any adverse effects of this Undertaking on the historic properties and afforded the Council an opportunity to comment.

C. In accordance with 36 C.F.R. § 800.6(c)(9), NTIA shall provide any consulting party (as defined in 36 C.F.R. § 800.3) with a copy of this Agreement.

SIGNATORIES:

National Telecommunications and Information Administration

Date

Cynthia B. Schultz, Director, Compliance and Audits Division'

Maine State Historic Preservation Officer

Date 5/20/10

Earle G. Shettleworth, Jr., State Historic Preservation Officer

CONSULTING PARTY:

Maine Fiber Company

Date 5/20/10

Josh Broder, President

APPENDIX A:
PREHISTORIC PERIOD ARCHAEOLOGICAL SENSITIVITY

Just as today, people in the Prehistoric period did not uniformly occupy the landscape; Maine state archaeological survey maps, which show site locations, affirm this conclusion. Some areas were more attractive than others to people deciding where to establish camps and villages. Some locations were used more often than others, because of the availability of unique resources (e.g. plants, animals, and raw materials) or perhaps even through historical accident. And, some areas may simply not have been frequented and used at all. Against this reality is the likelihood that not all human behavior produces archaeologically visible traces. Additional problems affecting understanding of Prehistoric period land use is the fact that even when an archaeological site is produced, it may not last long due to preservation biases created by local environmental conditions. Interpretation is further confounded, because sharp differences in how land is used and modified in the present compared with the Prehistoric past has resulted in the destruction of many archaeological site locations.

Mindful of these concerns, the design of Prehistoric period archaeological resource surveys to discover site locations in Maine is supported by more than 100 years of archaeological field investigations and several decades of testing predictive models to determine where sites may be expected to occur. All of these efforts demonstrate that proximity to water resources was a dominant variable used by Prehistoric period hunter/gatherers for selecting site locations.

This conclusion is likely not simply a sampling bias. For example, several archaeological cultural resource surveys conducted in eastern Maine (at least in part) during the last 20 years support the conclusion. First, are results obtained from the Phase I survey of the Maritimes and Northeast natural gas pipeline by ARC, Inc. in 1997-1998 and by TRC in 2004. Briefly, the sensitivity design for the survey focused on identifying the potential for areas within that project's APE (a 200 foot or 62 m wide corridor) to contain Prehistoric period archaeological sites. Predictions of where archaeological resources might be present, and where they were not likely to be present, were made based on a set of key environmental variables for which data could be readily obtained:

High Sensitivity:

- fresh or saltwater resources within 150 meters (m);
- well-drained sandy soils; and
- level to moderately level topography (0 to 3 percent slope).

Moderate Sensitivity:

- fresh or saltwater resources within 150 m;
- well-drained to moderately well-drained, sandy to cobbly soils;
- moderately level topography (3 to 8 percent slope);
- minimal to moderate ground disturbance; and
- archaeological sites in vicinity of project area.

Low Sensitivity:

- fresh or salt water greater than than 150 m;
- poorly drained or inundated areas;
- steep topography (8 percent slope or greater);

- moderate to extensive ground disturbance; and
- no archaeological sites in vicinity of project area.

The model was tested with information collected from more than 300 miles of the Maritime & Northeast pipeline corridor. On that project, more than 2,500 testholes were excavated in almost equal proportions among areas of high, medium, and low sensitivity. An important conclusion of this undertaking was that all Prehistoric period sites (with the exception of one Paleoindian period artifact) were found adjacent to water.

Second, another large archaeological survey using a similar sensitivity model was conducted in Penobscot and Washington Counties by the Maine State Museum under the direction of Dr. Stephen Cox in 1989. He surveyed a proposed Bangor Hydroelectric Company 345 kV transmission line route, and examined 87 sampling areas of varying archaeological sensitivity along the route from Orrington to the St. Croix River in Baileyville. A total of 996 testholes were excavated. Three, small, Prehistoric period archaeological sites were discovered, and all of them were located along a major river or stream. Third, a major survey on a revised Bangor Hydroelectric Company 345 kV transmission line route was conducted by TRC in 2004. That survey examined a route parallel to the existing Maritimes and Northeast pipeline from Orrington to the St. Croix River. In all, 18 locations and landforms were tested for the presence of Prehistoric period cultural sites and materials using 317 testholes. No Prehistoric period sites or materials were discovered.

Proximity to water is unquestionably a sensitive variable for predicting the locations of Prehistoric period hunter/gatherers who inhabited Maine. In fact, approximately 95% of all Prehistoric period archaeological sites reported in Maine (out of a sample of more than 5,000 sites) have been discovered either along the seacoast or along the margins of interior rivers, streams, lakes, and wetlands. Even in New York, archaeologist Robert Funk's research has similarly shown that Prehistoric period sites are generally located within 300 feet of water.

Most of the sites discovered near water are campsites or villages. They may also have been food extraction locations: places to fish, hunt waterfowl, or dig clams. However, the locations of ritual sites (e.g., cemeteries) or resource extraction sites (e.g., rock quarrying for tool making) are often not near water and are discovered more often by accident rather than by design. They constitute the 5% of sites in the Prehistoric period inventory of archaeological sites recorded in Maine. Although they represent only a small portion of known sites, they are as equally important as near-water sites for understanding the lifestyles of Prehistoric period people.

APPENDIX B:
HISTORIC ARCHAEOLOGICAL SENSITIVITY

The sensitivity assessment for Euroamerican (historic) archaeological resources is based mainly on cartographic evidence gathered from nineteenth- and twentieth-century maps. These cartographic resources pinpoint the location of dwellings, schools, mills, churches, and cemeteries, providing the archaeologist with a ready point of comparison between past and present landscapes. In this, the sensitivity assessment differs greatly from those conducted for Prehistoric period archaeological resources. Historical archaeologists can also review secondary sources such as town histories, genealogies, photographs, and newspapers to provide a larger historical context for a project area. The sensitivity assessment also includes a site file search for known archaeological sites within the project area, or sites that might serve as analogs for the project area. Using known site types and distributions, historical archaeologists develop settlement models to make predictive statements about where to anticipate finding sites.

High archaeological sensitivity for Euroamerican resources is associated with the following variables:

- documented existence of sites (e. g., homesteads, farmsteads, schools, churches, town halls, cemeteries) through primary, secondary, or cartographic resources
- presence of known sites (whether extant, aboveground representations of early architecture, or documented archaeological site)
- proximity to transportation systems (roads, railroads, major rivers and streams) and potable water sources
- linkage to other resources (such as stone for quarrying, clay sources for brick or ceramics, or metal ores)
- High sensitivity is defined as lying within 100 m (330 ft) of documented or known sites, transportation systems, or sources of potential hydropower

Moderate sensitivity was assigned to areas between 100 m to 200 m (330 ft to 650 ft) of an historic road, standing architectural feature, or potable water source, in areas with minimal to moderate disturbance. Low sensitivity areas are those more than 200 m (650 ft) from documented sites, roadways, natural resources, or water sources. Low sensitivity is also assigned to areas with excessive ground disturbance, such as along railroad grades, where extensive cutting and filling are typically involved in the creation of the railroad bed. Table 1 summarizes the fundamental criteria for ranking sensitivity for Euroamerican archaeological resources.

Table 1. Summary of criteria for evaluating Euroamerican archaeological sensitivity.

Sensitivity	Criteria
High	within 100 m of transportation systems and/or sites known from maps
Moderate	within 100-200 m (330-650 ft) of roads or known sites
Low	more than 200 m from roads or known sites; or excessive disturbance

Euroamerican archaeological resources typically exist along transportation corridors, specifically roads and rivers. Environmental conditions, such as water power and land suitable for agriculture, also affect site location. Nineteenth- and twentieth-century maps of the project area confirm that most buildings and structures were located along roads, which followed streams, rivers, or ponds, because these areas were the most level and easiest to access. Euroamerican archaeological resources are commonly found where former buildings or structures stood, where people lived and have left a trace of their lives in the form of artifacts and features.

SPO Maine State Planning Office

JOHN ELIAS BALDACCI
Governor

STATE OF MAINE
EXECUTIVE DEPARTMENT
38 STATE HOUSE STATION, AUGUSTA, MAINE 04333-0038

MARTHA E. FREEMAN
Director

Maine Floodplain Management Program
Environmental Review - Floodplain Issues

To: Kathryn Best
Tilson Technology Management
245 Commercial Street
Portland, Maine 04102

1. Dates:
   Submitted Date: 3/10/2010
   Review Date: 3/17/2010

2. Community: 100+ throughout Maine

3. Project Name or I. D. Fiber Optic Network Installation

4. Submitted By: Kathryn Best

5. Reviewed By:

   Sue Baker, State Floodplain Coordinator

6. Funding Sources: Federal Funding/American Recovery and Reinvestment Act 2009

7. Type of Project: Fiber Optic cable placement

8. Floodplain Map Enclosed? No. review based on general guidance for Special Flood Hazard Areas

9. Reviewer comments:

Kleinschmidt & TRC note that the Three Ring Binder Project will involve the installation of aerial cable, outside of the floodplain and/or over the floodplain. This should not trigger flood-impact-related approvals. The only potential for work within floodplains would be the replacement of aged poles (wooden utility poles) as necessary. This is routine maintenance involving no increase in impervious surfaces or new structures in the floodplain. We advise MFC to work further with the MF SPO to confirm of the non-applicability of this permit for this Project. AEM

In order to decide whether EO11988 applies to the project, it must first be determined whether or not the project lies within the 100-year floodplain, or for critical facilities, the 500-year floodplain as mapped by the Federal Emergency Management Agency (FEMA).

A detailed site plan that shows the floodplain boundary is necessary to make this determination. Check the floodplain elevations as listed in the Flood Insurance Study or Flood Insurance Rate Map (FIRM) and compare them to site topography. If the map shows the project to be out of the floodplain, the governing determinant should be project elevation related to the base flood elevation. If this review shows that the

project is within the 100-year floodplain by elevation, then the community's local Floodplain Management Ordinance and Executive Order 11988 will apply.

Executive Order 11988 and the State Executive Order require all projects that involve the expenditure of Federal or State funds to be reviewed in light of flooding potential and to be located outside a SFHA if possible. If, after close examination of practicable alternatives, certain aspects of the projects are required to be in the floodplain, flood hazard mitigation methods are to be employed to the greatest extent possible to avoid future flood losses and protect the natural and beneficial functions of the floodplain. This will help to ensure protection of the development, wise use of the floodplain, and responsible use of state or federal funds. Complying with the review and permitting standards in a community's floodplain management regulations (based on the NFIP regulations), will meet some but not all of the E.O.'s requirements. Agencies that provide loans or grant funds for these types of projects have each adopted regulations to comply with E.O. 11988, which should be reviewed to make sure the project satisfies each agency's procedures and criteria. For most agencies, they include some version of the 8-step decision making process that was developed as guidance by the Water Resources Council and further described in the Interagency Task Force publication titled, "*Further Advice on Executive Order 11988, Floodplain Management*". Some of these steps include such things as public notification and input, identifying practicable actions, and incorporating mitigation activities.

A summary of the 8 step process includes:

1. Determining whether the project is in or out of the floodplain
2. Providing early opportunities for public review
3. Identifying and evaluating alternatives to locating in the floodplain
4. Identifying impacts of the proposed project such as impacting flood elevations or encouraging floodplain development
5. Minimization or use, restoration and preservation of floodplain areas
6. Re-evaluation of alternatives
7. Publicizing findings and providing public information
8. Implementation

When spending federal # in floodplain.

Project Guidance

Requirements for all development

A local flood hazard development permit is required for all development in the Special Flood Hazard Area. A community's local floodplain management ordinance should always be reviewed to ensure that the community has not adopted more restrictive standards.
Local FPM ordinances require that all development in areas of special flood hazard shall meet the following applicable standards (State Model Ordinance at Article VI.A.1.to 4.):

1. be designed or modified and adequately anchored to prevent flotation (excluding piers and docks), collapse or lateral movement of the development resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
2. use construction materials that are resistant to flood damage;
3. use construction methods and practices that will minimize flood damage; and,
4. use electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during flooding conditions.

To the extent possible, plans should include floodproofing, the use of flood resistant materials, and anchoring of project components. Elevation of utilities above the BFE is also recommended. Other considerations for work in a floodplain include the use of Best Management Practices for erosion control, timing construction for drier times of year, and storing equipment out of the floodplain or above the flood elevation.

Additionally, the local FPM ordinance requires that "all necessary permits have been obtained from those federal, state and local government agencies from which prior approval is required by federal or state law", prior to the local FPM permit being issued.

Floodway Standards

- On FIRMs where no regulatory floodway has been determined, in Maine, the default floodway is considered to be half the width of the floodplain on each side of the river/stream/brook until such time it is actually calculated by a Professional Engineer.
- For projects located in Zone A, A1-30 or AE (with no regulatory floodway designated on the FIRM or separate Floodway Map), an engineer's certification is necessary to demonstrate that the project will cause any more than a one foot rise in BFE. The owner may need to establish the BFE if it is not provided on the FIRM.
- For projects located in the regulatory (mapped) floodway, the applicant must demonstrate, with an engineer's certification, that the project will not cause any rise in the BFE. The only time it is not necessary to obtain an engineer's certification is if there is an exact replacement of an existing pole. Any new poles or size changes for existing poles will require the engineer to verify that the development will not cause any or not more than a one foot rise in the base flood elevation, depending on whether or not the floodway is mapped.

Thank you for the opportunity to review this project. Please do not hesitate to contact the Maine Floodplain Management Program if we can provide additional guidance or assistance.

NFIP

Certificate of Compliance - A document signed by the Code Enforcement Officer stating that a structure is in compliance with all of the provisions of this Ordinance.

Code Enforcement Officer - A person certified under Title 30-A MRSA, Section 4451 (including exceptions in subsection 4451, paragraph 1) and employed by a municipality to enforce all applicable comprehensive planning and land use laws and ordinances.

Development - means any man made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations or storage of equipment or materials.

Elevated Building - means a non-basement building

a. built, in the case of a building in Zones A1-30, AE, A, AO, or AH, to have the top of the elevated floor elevated above the ground level by means of pilings, columns, post, piers, or "stilts;" and

b. adequately anchored so as not to impair the structural integrity of the building during a flood of up to one foot above the magnitude of the base flood.

In the case of Zones A1-30, AE, A, AO, or AH, **Elevated Building** also includes a building elevated by means of fill or solid foundation perimeter walls with hydraulic openings sufficient to facilitate the unimpeded movement of flood waters, as required in Article VI.L..

Elevation Certificate - An official form (FEMA Form 81-31, 03/09, as amended) that:

a. is used to verify compliance with the floodplain management regulations of the National Flood Insurance Program; and,

b. is required for purchasing flood insurance.

Flood or Flooding - means:

a. A general and temporary condition of partial or complete inundation of normally dry land areas from:

   1. The overflow of inland or tidal waters.

   2. The unusual and rapid accumulation or runoff of surface waters from any source.

b. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph a.1. of this definition.

Flood Elevation Study - means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations.

Flood Insurance Rate Map (FIRM) - means an official map of a community, on which the Federal Insurance Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community.

From: Alan Haberstock
To: Josh Broder
Cc: Kathryn Best; Jennifer Dow
Subject: Maine State Planning Office Floodplain Mgmt
Date: Monday, March 29, 2010 11:14:30 AM

Josh and Kathryn-

Regarding the correspondence you received from the Maine State Planning Office (SPO) concerning the Maine Floodplain Management Program, (review date: 3/17/2010), we have the following opinion:

- We believe that the proposed Three Ring Binder Project will not affect floodplain function. Since there is no new infrastructure proposed and no increase in impervious surfaces in the floodplain, there should be no affect on flooding or flood storage. The cable would be areal and would not be in the floodplain itself. Pole replacement, if needed, would involve the existing footprint with no increase to the footprint of impervious surface.
- We consulted with TRC Solutions, Inc. (Augusta, Maine office) since they routinely consult to utility companies doing power line replacement. Mark Christopher (TRC-Augusta) agrees that since the Project does not involve adding new structures in the floodplain, we should not trigger the need for local permitting approval related to the Maine Floodplain Management Program. TRC believes that routine pole replacement within the floodplain or the addition of areal cable above the floodplain would not trigger the need for such permits/approvals.
- I understand that MFC has checked with the ME SPO and that the SPO said that permits would only be required if this is a "new development". Since the only part of this proposed Project that is new (i.e., the cable) is aerial, we do not believe that permits will be required.

Sincerely,

Alan Haberstock
Senior Scientist
Kleinschmidt Associates
Energy and Water Resource Consultants
141 Main Street, PO Box 650
Pittsfield, Maine 04967
phone (direct): (207) 416-1248
phone (main desk): (207) 487-3328 x248
fax: (207) 487-3124

From: Stacia Hoover
To: todd.burrowes@maine.gov
Cc: Kathryn Best; Marty Phillips
Subject: Three Ring Binder and Maine Coastal Program
Date: Monday, April 19, 2010 3:05:38 PM
Attachments: 3 Ring Binder Project .pdf

Good afternoon Todd,

I left a voice mail this morning giving you a little bit of information for the Three Ring Binder Project. Here is a map of the project I described. Our client, Maine Fiber Company, has received a Broadband Technology Opportunities Program (BTOP) grant to string fiber optic cable along existing utility lines throughout Maine. Kleinschmidt has been contracted to develop an Environmental Assessment of the project. Of interest to SPO is that the project will run along the entire length of Route 1 in the Coastal Zone.

A very important aspect of the project is that it will use existing utility lines. Construction will involve attaching fiber cable with metal hardware on existing wood and metal utility poles. No new development or ground disturbance will occur. In a small number cases, wooden poles along roadsides may need to be replaced. This replacement will be performed by the utility owner of the existing pole using all necessary BMPs. Based on these factors, we expect that the project is consistent with all policies contained in the Maine Coastal Program.

I would appreciate if you could provide feedback regarding whether you concur that the project is consistent or if you feel a review is necessary. Thank you for your time and if you have any specific questions or would like to discuss this further, please don't hesitate to contact me at (207) 487-3328.

Sincerely,

Stacia

Stacia Hoover, *Project Scientist*

From:	Burrowes, Todd
To:	Stacia Hoover
Cc:	Kathryn Best; Marty Phillips; Leyden, Kathleen
Subject:	RE: Three Ring Binder and Maine Coastal Program
Date:	Tuesday, April 27, 2010 1:19:02 PM

Stacia - Information you have provided indicates that the pertinent proposed federal action, provision of a Broadband Technology Opportunities Program grant to Maine Fiber Company (MFC), is a federal assistance activity which is not listed as subject to review per se under Maine's coastal management program. Accordingly, further CZMA consistency review of this federal assistance activity is not required. As you have noted, MFC must obtain all federal, state, and local environmental approvals, if any, applicable to construction and operation of its project.
Please let me know if you have questions or need additional information.
- Todd Burrowes, Federal Consistency Coordinator

From: Stacia Hoover [mailto:Stacia.Hoover@KleinschmidtUSA.com]
Sent: Tuesday, April 27, 2010 8:25 AM
To: Stacia Hoover; Burrowes, Todd
Cc: 'Kathryn Best'; Marty Phillips
Subject: RE: Three Ring Binder and Maine Coastal Program

Todd,

Thank you for discussing the Coastal Zone Management Act (CZMA) with me and for providing guidance on determining consistency of the Three Ring Binder Project. From our conversation, I understand that, in general, it is the DEP's review of a project that serves as the consistency review and that their issuance of a permit constitutes consistency. During email correspondence with DEP and ACOE regarding the project, no regulatory needs or permits were identified.

As the planning of the project progresses, MFC will obtain more information on which poles will need to be replaced. As I mentioned previously, MFC expects that such replacements will be carried out by the utility that owns the pole. If, however, MFC has responsibilities in pole replacement, they intend to comply fully with state and federal regulatory requirements, and will maintain communication with ACOE and DEP.

Could you confirm that our understanding is correct? That is, as long as the Three Ring Binder project maintains compliance with DEP that it is consistent with the Maine Coastal Program and therefore the CZMA? Also, does compliance with DEP requirements mean the project is compliant with any municipal coastal zone requirements?

I would appreciate your written response so we can show consultation with SPO regarding CZMA in the Final Environmental Assessment, which we're hoping to complete on April 29, 2010.

Please let me know if you have any questions or require any additional information. Thank you very much for your assistance on this project.

Sincerely,
Stacia

Stacia Hoover, *Project Scientist*
Kleinschmidt Associates

Energy & Water Resource Consultants
141 Main Street
Pittsfield, ME 04967
phone: (207) 487-3328
fax: (207) 487-3124
Stacia.Hoover@KleinschmidtUSA.com

From: Stacia Hoover
Sent: Monday, April 19, 2010 3:05 PM
To: todd.burrowes@maine.gov
Cc: Kathryn Best; Marty Phillips
Subject: Three Ring Binder and Maine Coastal Program

Good afternoon Todd,
I left a voice mail this morning giving you a little bit of information for the Three Ring Binder Project. Here is a map of the project I described. Our client, Maine Fiber Company, has received a Broadband Technology Opportunities Program (BTOP) grant to string fiber optic cable along existing utility lines throughout Maine. Kleinschmidt has been contracted to develop an Environmental Assessment of the project. Of interest to SPO is that the project will run along the entire length of Route 1 in the Coastal Zone.

A very important aspect of the project is that it will use existing utility lines. Construction will involve attaching fiber cable with metal hardware on existing wood and metal utility poles. No new development or ground disturbance will occur. In a small number cases, wooden poles along roadsides may need to be replaced. This replacement will be performed by the utility owner of the existing pole using all necessary BMPs. Based on these factors, we expect that the project is consistent with all policies contained in the Maine Coastal Program.

I would appreciate if you could provide feedback regarding whether you concur that the project is consistent or if you feel a review is necessary. Thank you for your time and if you have any specific questions or would like to discuss this further, please don't hesitate to contact me at (207) 487-3328.

Sincerely,
Stacia

<< File: 3 Ring Binder Project .pdf >>

Stacia Hoover, *Project Scientist*
Kleinschmidt Associates

Jennifer Dow

From: Stacia Hoover
Sent: Tuesday, March 23, 2010 9:08 AM
To: sean.mcdermott@noaa.gov; Jeffery S. Murphy (Jeff.Murphy@noaa.gov)
Cc: Alan Haberstock; Marty Phillips
Subject: Three Ring Binder Project

Good morning Jeff and Sean,
Per our conversations yesterday, here is the map of the project I described. Our client, Maine Fiber Company, has received a Broadband Technology Opportunities Program (BTOP) grant to string fiber optic cable along existing utility lines throughout Maine. Kleinschmidt has been contracted to develop an Environmental Assessment of the project. Of potential interest to NOAA is that the project will run along the entire length of Route 1 on the coast, potentially passing though Essential Fish Habitat. It will also pass through Critical Habitat for Atlantic salmon.

A very important factor of the project is that it will use existing utility lines - construction will be exclusively attachments using metal hardware on existing wood and metal utility poles. No new development or ground disturbance will occur. In a small number cases, wooden poles along roadsides may need to be replaced. This replacement and the action of stringing the cable over/through waters of the U.S. will be covered under Corps of Engineers Nationwide Permit 12.

I would appreciate if you could provide feedback on whether or not there are any EFHs that coincide with the project and if NOAA has any concerns regarding fishery resources in the project area. Thank you for your time and if you have any specific questions or would like to discuss this further, please don't hesitate to contact me at (207) 487-3328.

Sincerely,
Stacia

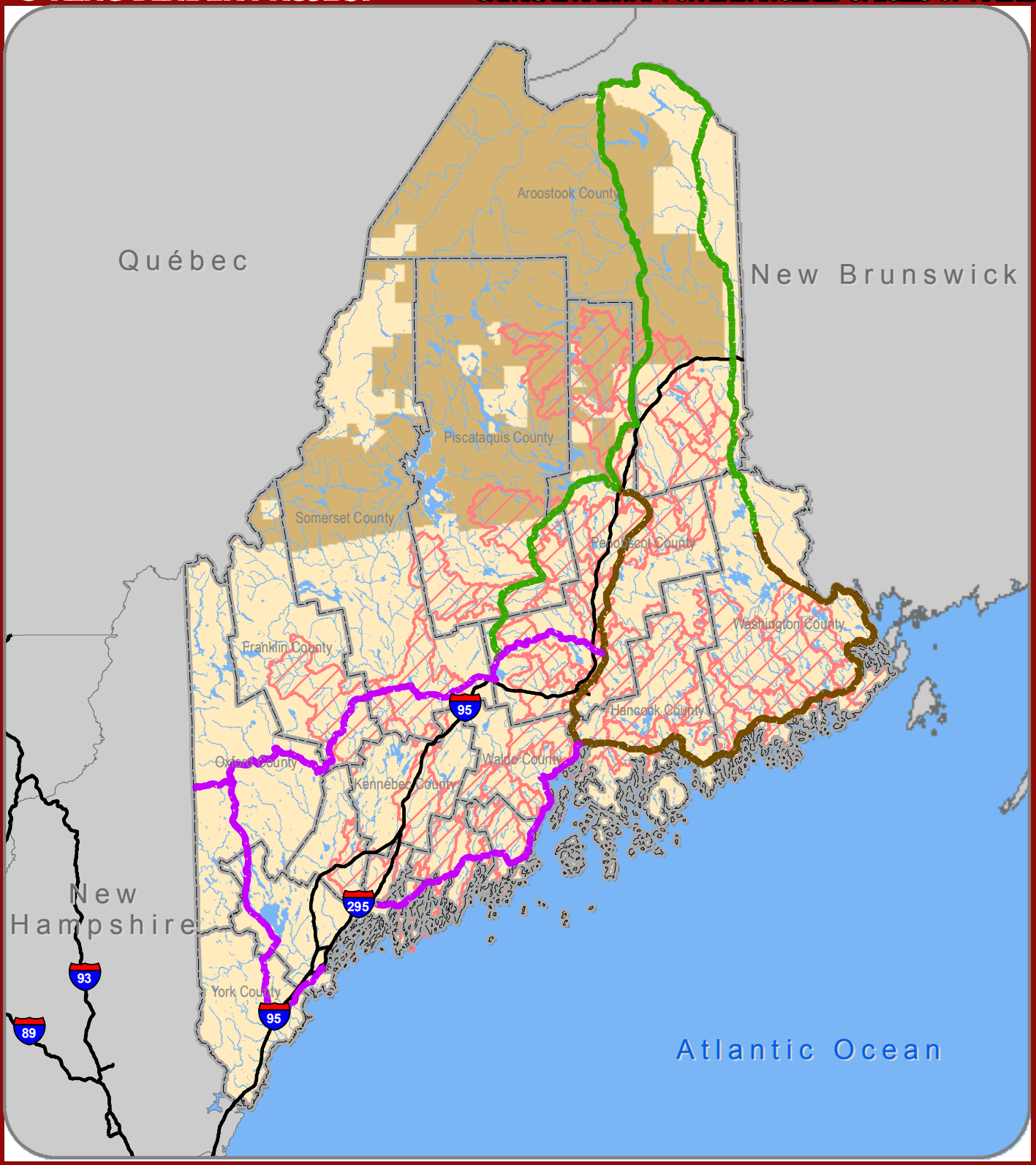
Figure X.X.C-2
Critical Habita...

Stacia Hoover, *Project Scientist*
Kleinschmidt Associates
Energy & Water Resource Consultants
141 Main Street
Pittsfield, ME 04967
phone: (207) 487-3328
fax: (207) 487-3124
Stacia.Hoover@KleinschmidtUSA.com

3-RING BINDER PROJECT

FIGURE #.#.C - 2

CRITICAL HABITAT FOR ENDANGERED SPECIES OF MAINE



N

W E

S

NOTE:
- Hydrography is NHD data courtesy USGS. Only showing great ponds and named streams.
- Critical Atlantic Salmon Habitat courtesy of the National Oceanic and Atmospheric Administration (NOAA).
- * "Critical Canada Lynx Habitat" created in a GIS and was based on the U.S. Fish & Wildlife Service's Canada Lynx Unit 1 Critical Habitat Map (v. 12/29/2008). The data contained in this map was intended for graphical representation only.
- All habitat depicted on this map should be considered as approximate and should be used for reference purposes only.

Legend

- Critical Atlantic Salmon Habitat
- Critical Canada Lynx Habitat *
- Lakes & Ponds (>10 ac)
- Rivers and Streams

Cable Line Name:

- Down East Ring
- Northern Ring
- Southern Ring

Miles

0 20 40 80

Kleinschmidt
Energy & Water Resource Consultants

141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com

Kleinschmidt Project No: 1774001

File Name: Fig_X.X.C-2.mxd

Jennifer Dow

From: Sean McDermott [Sean.McDermott@Noaa.Gov]
Sent: Tuesday, March 23, 2010 10:27 AM
To: Stacia Hoover
Cc: Jeffery S. Murphy (Jeff.Murphy@noaa.gov); Alan Haberstock; Marty Phillips
Subject: Re: Three Ring Binder Project
Attachments: ME PGP.pdf

Stacy,
Good morning. Thanks for providing this information. First note, the Army Corps New England District does not use nation wide permits. Each state has a general programmatic permit (attached). I do not recall if there is a category that specifically covers cable crossings. The PGP evaluates the specific impacts for categorizing a project under CAT 1 (non reporting) Cat 2 (requires agency screening) or Public Notice. If this project is strictly attaching new cable on existing infrastructure, it may fall under the CAT 1. If there is any disturbance of EFH for Atlantic salmon it will automatically require CAT 2 screening. Regardless, you should talk with Jay Clement at the Corps Maine field office for guidance.

For the map you provided, there are several waterways crossed that are designated EFH for a number of federally managed species, included Atlantic salmon and winter flounder. You mentioned the EFH mapper, a GIS based tool for identifying EFH by species in a given area. It allows you to look at EFH for a species in a very specific area. As nice as that tool is, the EFH maps work just as well (link below). It's a broader view of what EFH may be present, but it gives a pretty good starting point. Lastly, the project area includes habitat important for species managed under the Fish and Wildlife Coordination Act (FWCA), such as alewife, blueback herring and shad (not federally managed fish, not EFH).

That said, the brief description of the project provided suggests little or no direct/indirect impacts on aquatic habitat. NMFS' Habitat Conservation Division, the Division responsible for EFH and FWCA consultations, generally considers aerial crossings with no in-water work as no impact. Jeff Murphy in our Protected Resources Division can speak to ESA concerns.

http://www.nero.noaa.gov/hcd/index2a.htm

-Sean
-- Sean McDermott Fisheries Biologist National Marine Fisheries Service
55 Great Republic Drive Gloucester, MA 01930 978-281-9113 Fax 978-281-9301

Sincerely,
Stacia

_____

Stacia Hoover, *Project Scientist*
Kleinschmidt Associates
Energy & Water Resource Consultants
141 Main Street
Pittsfield, ME 04967
phone: (207) 487-3328
fax: (207) 487-3124
Stacia.Hoover@KleinschmidtUSA.com

Jennifer Dow

From: Jeff Murphy [Jeff.Murphy@noaa.gov]
Sent: Tuesday, March 23, 2010 10:45 AM
To: Stacia Hoover
Cc: Sean McDermott; Alan Haberstock; Marty Phillips
Subject: Re: Three Ring Binder Project

Hello Stacia - I agree with Sean that there doesn't appear to be any significant effects to aquatic habitat. If no in-water work or riparian clearing is proposed as part of the project, it's likely that a consultation under the ESA for Atlantic salmon or shortnose sturgeon would not be required with the Corps. The EA for the project should present any plans for stream crossings or riparian clearing. I would be happy to review the EA to provide further input. Thanks, Jeff.

Jeff Murphy NOAA's National Marine Fisheries Service Maine Field Station 17 Godfrey Drive - Suite 1 Orono, Maine 04473 Tel: 207.866.7379 Fax: 207.866.7342 Email: Jeff.Murphy@noaa.gov

Jennifer Dow

-----Original Message-----
From: Jeff Murphy [mailto:Jeff.Murphy@noaa.gov]
Sent: Tuesday, March 23, 2010 5:59 PM
To: Kathryn Best
Subject: Re: Three Ring Binder Project

Thanks Kathryn. If the project scope changes so that in-stream crossings or riparian clearing is needed, please let us know at your earliest convenience. Jeff.

> Jeff,
>
>
> It is my understanding that Stacia Hoover from Kleinschmidt contacted
> you regarding our project(3Ring Binder) and in relation to an
> environmental assessment that we're conducting. I am managing the
> in-house portion of this project and wanted to introduce myself.
> Stacia indicated that a NOAA permit was probably not necessary for our
> project since it does not require any type of "in-water" work.
>
> I wanted to contact you myself to urge you to ask any questions you
> may have about the project. I am a good resource for project details
> and understand the complexities of our project given the ecological
> diverse terrain. We are working against a very tight timeline and
> want to make sure resolve any potential issues as soon as possible.
>
> Please don't hesitate to contact me.
>

--
Jeff Murphy
NOAA's National Marine Fisheries Service
17 Godfrey Drive - Suite One
Orono, Maine 04967
Tel: 207-866-7379
Fax: 207-866-7342
Email: Jeff.Murphy@noaa.gov

From: Kathryn Best
To: Marty Phillips; Stacia Hoover; Alan Haberstock
Subject: Email from Penobscot Indians
Date: Tuesday, April 27, 2010 2:17:46 PM

All:

Below is an email I received today from Bonnie regarding the project. Hopefully I'll have the official letter soon.

From: Bonnie Newsom [mailto:Bonnie.Newsom@penobscotnation.org]
Sent: Tuesday, April 27, 2010 1:07 PM
To: Kathryn Best
Subject: RE: Letter

Hi Kathryn,

I was on travel last week and didn't have an opportunity to draft a letter. I will send you a formal letter this week, but for now, this e-mail can serve to inform you and your compliance staff that we have no objection to the proposed project as far as the National Historic Preservation Act is concerned. However, you will need to contact our land coordinator to identify any protocols for carrying out the project on Penobscot Nation lands.

Thank you,

Bonnie Newsom
Tribal Historic Preservation Officer
Penobscot Indian Nation

From: Kathryn Best [mailto:kbest@tilsontech.com]
Sent: Monday, April 26, 2010 11:10 AM
To: Bonnie Newsom
Subject: Letter

Hi Bonnie,

What is the status of our letter? Do you think youi will be able to get that out this week? Or has it already been mailed?

Thanks

Kathryn E. Best
Tilson Technology Management
245 Commercial St.
Suite 203
Portland, ME 04101
207.591.6427

From:	Kathryn Best
To:	Marty Phillips; Stacia Hoover
Cc:	Josh Broder
Subject:	FW: ROW Confirmation
Date:	Wednesday, April 28, 2010 9:18:18 AM

Below is the green light from the land coordinator of the Penobscot Nation.

From: Sparky Clark [mailto:Sparky.Clark@penobscotnation.org]
Sent: Wednesday, April 28, 2010 9:14 AM
To: Kathryn Best
Subject: ROW Confirmation

Dear Ms. Beth:

I have had an opportunity to review the map depicting the utility line corridor(s) you had expressed a concern about possibly crossing onto Penobscot Nation tribal territories.

After closer review, it appears that none of the line(s) you illustrated for the "Three Ring Binder Project" enter within any of the tribal lands owned by the Penobscot Indian Nation.

If at any point you have any questions or concerns regarding this matter, please feel free to contact me.

Respectfully,

Sparky Clark
Land Coordinator
Department of Trust Responsibilities
Penobscot Indian Nation

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, DC 20230

March 15, 2010

Marvin Moriarty
Regional Director, Northeast Region
U.S. Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035-9587

Re: Initiation of Endangered Species Act, Section 7, Consultations Regarding Broadband Technology Opportunities Program (BTOP) Grantee, Biddeford Internet Corp., Fiber Optic Network Infrastructure Project

Dear Mr. Moriarty,

The U.S. Department of Commerce, National Telecommunications and Information Administration (NTIA) has awarded a grant through the American Recovery and Reinvestment Act (ARRA), Broadband Technology Opportunities Program (BTOP) to Biddeford Internet Corp. The funding for this project in Maine will be used to install approximately 1,000 miles of fiber optic cable on existing poles on existing right-of-ways. A map of the fiber route is attached.

As a result of the review of the information provided with the grant application, NTIA determined that the proposed activities may affect critical habitats. With this letter NTIA is initiating consultations under Section 7 of the Endangered Species Act (16 U.S.C. 1531 et seq.) on the potential effects of the proposed project. Grant recipients must substantially complete their projects within two years from the date of the award. This timeline is driven by the laws and regulations governing the use of this ARRA grant funding.

Special Award Conditions (SAC) in the NTIA grant require Biddeford Internet Corp. to complete an Environmental Assessment pursuant to the National Environmental Policy Act, and consult with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act. The grantee may not commence project implementation (including procurements, demolition, construction, ground disturbance, etc.) prior to completion of compliance with all SACs, including required consultations with other agencies and permitting authorities.

The grantee, Biddeford Internet Corp., is being copied with this letter. They will be in contact with you soon to provide a detailed project description, project maps, and further information as needed to continue the consultation process.

If any issues or questions arise during these consultations please contact me at (202) 482-4208, or FMonteferrante@ntia.doc.gov. Also, I would appreciate being copied on any correspondence you have in the future with the grantee regarding this project.

Sincerely,

Frank J. Monteferrante

Frank J. Monteferrante, Ph.D.
Environmental Compliance Specialist
National Telecommunications and Information Administration

Attachment

cc: Kathryn Best
Maine Fiber Company, Inc.
245 Commercial St.
Suite 203
Portland, Maine 04101

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, DC 20230

April 22, 2010

Marvin Moriarty
Regional Director, Northeast Region
U.S. Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035-9587

Re: Initiation of Endangered Species Act, Section 7, Consultations Regarding Broadband Technology Opportunities Program (BTOP) Grantee, Biddeford Internet Corp., Fiber Optic Network Infrastructure Project

Dear Mr. Moriarty,

The U.S. Department of Commerce, National Telecommunications and Information Administration (NTIA) has awarded a grant through the American Recovery and Reinvestment Act (ARRA), Broadband Technology Opportunities Program (BTOP) to Biddeford Internet Corp (pending transfer to Maine Fiber Company, Inc.). The funding for this project in Maine will be used to install approximately 1,000 miles of fiber optic cable on existing poles on existing right-of-ways.

As a result of the review of the information provided with the grant application, NTIA determined that the proposed activities may affect critical habitats. With this letter, NTIA designates Maine Fiber Company, Inc. and their consultants as our non-Federal representative to conduct informal consultation with the U.S. Fish and Wildlife Service. NTIA recognizes its Federal role under the Endangered Species Act and compliance for our grantees remain NTIA's responsibility.

The grantee, Biddeford Internet Corp., is being copied with this letter. They will be in contact with you to provide a detailed project description, project maps, and further information as needed to continue the consultation process.

If any issues or questions arise during these consultations please contact me at (202) 482-4208, or FMonteferrante@ntia.doc.gov. Also, I would appreciate being copied on any correspondence you have in the future with the grantee regarding this project.

Sincerely,

Frank J. Monteferrante

Frank J. Monteferrante, Ph.D.
Environmental Compliance Specialist
National Telecommunications and Information Administration

cc: Kathryn Best
Maine Fiber Company, Inc.
245 Commercial St.
Suite 203
Portland, Maine 04101

From:	Stacia Hoover
To:	Mark_McCollough@fws.gov
Cc:	Kathryn Best; fmonteferrante@ntia.doc.gov; Stacia Hoover
Subject:	FWS consultation for Biddeford Internet Corp (pending transfer to Maine Fiber Company, Inc.)
Date:	Thursday, April 22, 2010 4:42:13 PM
Attachments:	Figure 3.5-2 Critical Habitat for Federal Listed Species.pdf

Mark,

As you are likely aware, our client, Maine Fiber Company has received a Broadband Technology Opportunities Program grant to string fiber optic cable along existing utility lines throughout Maine. Kleinschmidt has been contracted to develop an Environmental Assessment of the project and assist them in agency consultation.

Please find attached a map of the project. We have noted that the project will cross through Critical Habitat for Canada lynx in the northern portion of the project.

A very important feature of the project is that it will use existing utility lines. Construction will involve attaching cable to existing utility poles located along roadways. There will be no work outside of the utility line right-of-way or within the remote right-of-ways that do not correspond to roadways. In a limited number cases, poles along roadsides may need to be replaced. This is will accomplished by the utility owner of the pole according to DEP-approved procedures.

Please feel free to contact me with any questions or concerns you may have involving this project. I will follow up this email with a phone call.

Sincerely,

Stacia

Stacia Hoover, *Project Scientist*
Kleinschmidt Associates
Energy & Water Resource Consultants
141 Main Street
Pittsfield, ME 04967
phone: (207) 487-3328
fax: (207) 487-3124
Stacia.Hoover@KleinschmidtUSA.com

Kleinschmidt
Energy & Water Resource Consultants

May 11, 2010

VIA USPS FIRST CLASS MAIL and EMAIL

Mark McCollough, Ph.D.
Endangered Species Specialist
U. S. Fish and Wildlife Service
Maine Field Office
17 Godfrey Drive, Suite #2
Orono, ME 04473

RE: Agency Consultation for NEPA Environmental Assessment for the Three Ring Binder

Dear Dr. McCollough:

By letter dated March 15, 2010 to Mr. Marvin Moriarty of the U. S. Fish and Wildlife Service (USFWS), the National Telecommunications and Information Administration (NTIA) initiated consultation under Section 7 of the Endangered Species Act (ESA). Subsequently, the NTIA designated Maine Fiber Company, Inc. (MFC) and its consultant (Kleinschmidt Associates) as non-federal representatives to conduct informal consultations with the USFWS by letter dated April 22, 2010.

Subsequent to the initial March 15 letter, MFC determined that the project can be completed by stringing cable aerially along existing roadside right of ways (ROWs); no transmission corridor crossings (associated with potential temporary stream crossings) or buried cable (greater extent of soil disturbance) is proposed. As such, the proposed project would not affect the habitat of the two federally listed species, Canada lynx and Atlantic salmon, that the proposed project route overlaps with geographically. Therefore, by this letter, Kleinschmidt is notifying the USFWS that we (NTIA, MFC, and Kleinschmidt as a consultant to MFC) believe that Section 7 consultation is no longer necessary. Specifically, the proposed project would not impact critical habitat for these two federally-listed species because the proposed project involves:

- no disturbance to the bed or banks of any streams or rivers;
- no riparian vegetation clearing;
- no potential for habitat fragmentation (100% along existing road ROWs);
- no forest clearing or critical habitat alteration.

The proposed project will utilize existing utility poles, upon which cable will be strung aerially. In some cases utility poles, where aged, may need to be replaced. Where necessary, pole replacements would be carried out by the appropriate utility using standard replacement techniques and Best Management Practices (BMPs), such as application of mulch and seed, and the use of properly installed sediment barriers, as detailed in the NEPA Environmental Assessment (EA) completed by MFC dated April 2010.

Thank you for reviewing the EA and related correspondence despite our ultimate determination that a consultation under Section 7 is not necessary.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Alan Haberstock
Project Manager

AEH:kif
cc: Josh Broder, Maine Fiber Company
Frank Monteferrante, NTIA
Wende Mahaney, USFWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Maine Field Office – Ecological Services
17 Godfrey Drive, Suite #2
Orono, ME 04473
(207) 866-3344 Fax: (207) 866-3351

In Reply Refer To:53411-2010-I-0225
FWS/Region 5/ES/MEFO

May 18, 2010

Alan Haberstock
Kleinschmidt Associates
141 Main St.
P.O. Box 650
Pittsfield, ME 04967

Dear Mr. Haberstock:

Thank you for your letter requesting information or recommendations from the U.S. Fish and Wildlife Service. This letter provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

Project Name/Location/County: Maine Fiber Company Three Ring Binder Project

On March 15, 2010 the National Telecommunications and Information Administration (NTIA) notified Marvin Moriarty, Regional Direction, U. S. Fish and Wildlife Service Northeast Region to initiate consultation under Section 7 of the Endangered Species Act concerning the Maine Fiber Company project to install 1100 miles of fiber optic cable throughout the state of Maine. Subsequently, the NTIA designated Maine Fiber Company and consultant, Kleinschmidt Associates) as non-federal representatives to conduct informal consultation with the Service.

The proposed project occurs within the Gulf of Maine Distinct Population Segment of the Atlantic salmon and designated critical habitat, the range of the Canada lynx and designated critical habitat, and possibly other federally-listed species. However, because this project can be completed by stringing cable entirely on existing roadside rights of way, there will be no stream crossings, and no buried cable we concur with the determination made by NTIA, Maine Fiber Company and Kleinschmidt that this project will have no effect on listed species or their critical habitat.

Accordingly, no further action is required under Section 7 of the ESA, unless: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

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If you have any questions, please call Mark McCollough at (207) 866-3344 ext.115.

Sincerely,

Mark McCollough acting for
Project Leader Lori Nordstrom

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO:
ATTENTION OF:

Regulatory Division
CENAE-R-51
Corps File No. NAE-2010-00636

April 5, 2010

Kathryn E. Best
Tilson Technology Management
245 Commercial Street, Suite 203
Portland, Maine 04102

Dear Ms. Best:

This letter concerns your request for a determination as to the need for a Dept. of the Army permit for a proposal to construct a 1,100 mile, high capacity fiber optic network in the State of Maine. The new network will utilize existing utility poles and utility corridors.

Our regulatory jurisdiction in this area is over the discharge of dredged or fill material into all waters of the United States including adjacent wetlands under Section 404 of the Clean Water Act. Permits are also required for work performed in navigable waters of the United States under Section 10 of the Rivers and Harbors Act.

Based on a review of the information you provided, it is unclear what work if any will be performed in waterways or wetlands. It is our understanding that the crossings of the Penobscot and Kennebec Rivers, both navigable by Corps definition, will occur within existing utility conduits attached to existing bridges. This work does not require a Corps permit.

Along the rest of the line if all of the installation work will occur on or from uplands, no further action is required from this office. Conversely, if temporary or permanent waterway or wetland fill occurs or if work will occur beyond the mean high water line of tidal/navigable waters, a Corps permit will be required. Please remember that temporary mats placed in wetlands to access poles constitutes "fill". In most cases if a permit is required, a copy of your application to the Maine DEP will suffice for our process. We generally recommend that you hire a consultant to identify and delineate any wetlands in accordance with the 1987 Corps of Engineers Wetland Delineation Manual.

If you have any questions on this matter, please contact Jay Clement of my staff at 207-623-8367 at our Manchester, Maine Project Office.

Sincerely,

Jay L. Clement

for Frank J. Del Giudice
Chief, Permits & Enforcement Branch
Regulatory Division

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO:
ATTENTION OF:
Regulatory Division
CENAE-R-51
Corps File No. NAE-2010-00636

May 7, 2010

Kathryn E. Best
Maine Fiber Company, Inc.
245 Commercial Street, Suite 203
Portland, Maine 04101

Dear Ms. Best:

This letter concerns your proposal to install and maintain a 1,100 mile, high capacity fiber optic network in the state of Maine by connecting the new line to existing pole lines along existing utility corridors.

We previously notified you that our regulatory jurisdiction in this area is over the discharge of dredged or fill material into all waters of the United States including adjacent wetlands under Section 404 of the Clean Water Act. While the bulk of your project appeared to be non-jurisdictional for the Corps, at the time there was some uncertainty as to whether temporary access through wetlands might be necessary to facilitate the installation of the new cable. Therefore we informed you that should your future plans require such temporary fill in wetlands, a Corps permit would be required.

You recently informed us that right-of-way negotiations and modifications of the route map have enabled you to remain completely along existing roadways. No temporary or permanent filling of waterways or wetlands will be required. Therefore, a Corps permit will not be required for the project.

Our Corps of Engineers permit process does not supersede any other agency's jurisdiction. Therefore, if other Federal, State, and/or local agencies have jurisdiction over your proposed activity, you must receive all other applicable permits before you can begin work.

Please note that performing work within our jurisdiction without a Corps of Engineers permit can result in prosecution by the U.S. Government.

If you have any questions on this matter, please contact Jay Clement of my staff at 207-623-8367 at our Manchester, Maine Project Office.

Sincerely,

For Jay L. Clement

Frank J. Del Giudice
Chief, Permits & Enforcement Branch
Regulatory Division