



**MAINE POWER  
RELIABILITY PROGRAM**

A CENTRAL MAINE POWER COMPANY PROGRAM

**POWNAL, MAINE  
APPLICATION FOR PERMIT**

**SPECIAL EXCEPTION, ZONING,  
SITE PLAN REVIEW, SHORELAND ZONING  
& FLOODPLAIN MANAGEMENT**

**Surowiec Substation Expansion  
&  
Transmission Line Construction/Rebuild**

***Prepared for:***

Central Maine Power Company  
83 Edison Drive  
Augusta, Maine 04336

***Prepared by:***



TRC  
400 Southborough Drive  
South Portland, ME 04106

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# **AGENT AUTHORIZATION LETTER**

**SECTION 1.0**

**PROJECT OVERVIEW AND DESCRIPTION**

## **SECTION 1.0 PROJECT OVERVIEW AND PROJECT DESCRIPTION**

### **INTRODUCTION**

The Maine Power Reliability Program (MPRP) is a project by Central Maine Power Company (CMP) to upgrade Maine's bulk power transmission system. As described in more detail below, the proposed project consists of a network of 345 kV and 115 kV transmission lines and associated substations to be constructed throughout CMP's service territory where particular needs have been identified. In Pownal, as part of the MPRP, CMP proposes to construct two new 345 kV transmission lines (one extending south from the Surowiec Substation and another extending north from the substation), realign and rebuild portions of existing 345 kV and 115 kV transmission lines, and expand the existing Surowiec Substation.

The project described in these application materials is subject to the requirements of the Town of Pownal Zoning Ordinance and Site Plan Review Ordinance. The project area is located in two Pownal Zoning Districts: Rural District "RA" and Rural District "RB". The proposed MPRP Project in Pownal is classified as a public utility installation by the Zoning Ordinance and, as such, is permitted as a "Special Exception". Limited portions of the project are also subject to the Town of Pownal Shoreland Zoning Ordinance and Floodplain Management Ordinance. The Segment 18 transmission line corridor crosses the shoreland zone in three locations and three Federal Emergency Management Agency-mapped special flood hazard areas (all designated Zone A). The MPRP transmission lines are permitted as an Essential Service under the Shoreland Zoning Ordinance and as a Minor Development under the Floodplain Management Ordinance.

Under the applicable ordinances, CMP seeks special exception approval from the Board of Appeals; zoning approval, site plan review approval, and shoreland zoning approval from the Planning Board; and a floodplain approval from the Code Enforcement Officer. Rather than submit multiple applications with largely duplicative information, for ease of review CMP has prepared this single application package, divided into sections that address the individual approval standards. The project overview and description, along with the exhibits, are relevant to the multiple applications contained in this package.

These application materials are divided into the following sections:

- Section 1.0: Project Overview and Description
- Section 2.0: Special Exception Application (Board of Appeals)
- Section 3.0: Zoning Application (Planning Board)
- Section 4.0: Site Plan Review Application (Planning Board)
- Section 5.0: Shoreland Zoning Application (Planning Board)
- Section 6.0: Floodplain Management Application (Code Enforcement Officer)
- Exhibits: Exhibits 1 through 9

## PROJECT OVERVIEW

The vast majority of Maine's bulk power transmission system was placed into service in the early 1970s and is now reaching the limits of its ability to meet the growing electrical demand of Maine customers. Since the last major transmission infrastructure was completed more than 30 years ago, the patterns of both available generation and customer load have shifted significantly. For example, population has become more concentrated in the southern part of the state, while the generation needed to serve that load is now more distant and dispersed. When these pattern changes are combined with the increasing peak demand the current transmission infrastructure in Maine will, in very few years, become inadequate. In addition, the reliability and security standards mandated by law and administered by the North American Electric Reliability Corporation (NERC), the Northeast Power Coordinating Council, Inc. (NPCC), and ISO New England (ISO-NE) have changed significantly in recent years. CMP must upgrade its bulk power system with this proposed project in order to meet the mandatory standards and to provide reliable electric service to Maine customers into the future.

CMP's system consists of both "transmission" and "distribution" lines. Transmission lines function as the highway system of the electrical grid by feeding electricity from where it is generated (such as at power plants) to substations. From there, the distribution system takes over by carrying the electricity from substations to customers. Transmission lines in Maine are typically operated at one of two levels – 115,000 volts, also expressed as 115 kilovolts ("kV") and 345,000 volts, often referred to as 345 kV.

CMP's 345 kV transmission system was built and put into service in 1971. Since then power consumption has more than doubled. In recent years, both CMP and ISO-NE have identified certain reliability issues with the 345 kV system that need to be addressed.

In January of 2007, CMP initiated the MPRP and began a comprehensive needs assessment of its bulk power transmission system. The study included a 10-year forecast to evaluate the system in Maine, including a review of system reliability and performance under various system conditions and operating scenarios, as well as a needs assessment to ensure a reliable transmission system in the most cost-effective manner possible. The study identified a number of significant reliability issues with Maine's bulk transmission system, including insufficient 345 kV transmission capacity, insufficient 115/345 kV transformation capacity, and insufficient transmission support and/or infrastructure in all regions served by CMP.

After completing the needs assessment, the MPRP team went to work to study possible solutions. This included both transmission and non-transmission alternatives, including energy efficiency, before designating its preferred solution. CMP ultimately selected a primarily transmission solution (a small geographic area know as the South Portland loop will be addressed through non-transmission alternatives) based on a number of factors, including electrical performance, cost effectiveness, impacts to landowners, and Maine's environment under various forecasts of future conditions. The proposed solution consists of a network of 345 kV and 115 kV transmission lines and associated substations throughout CMP's service territory where particular needs were identified (see Figure 1).

Figure 1: Project Scope Map

The proposed transmission solution ranges from Eliot in the south, Rumford in the west, Warren and Searsport in the east, and Orrington and Pittsfield to the north. In all, the MPRP will encompass nearly 80 Maine towns, and will require approvals from the Maine Public Utilities Commission, the Maine Department of Environmental Protection, the Army Corps of Engineers, and numerous municipalities. The appropriate permit applications currently are under review by these state and federal agencies. The municipal permitting process in towns across the MPRP project area is underway as well.

## **THE MPRP IN POWNAL**

The portion of the MPRP located in Pownal involves the construction of two new 345 kV transmission lines and the realignment and rebuild of portions of existing 345 kV and 115 kV transmission lines within the Segment 17, Segment 18 and Segment 16 corridors<sup>1</sup>. In addition, the MPRP Project will expand the existing Surowiec Substation in Pownal (see Figure 2). These proposed upgrades will improve the reliability, safety, and security of the bulk power transmission system in Maine, while at the same time meeting the increasing demands for electrical power. CMP will not need to acquire additional lands to construct these facilities in Pownal; rather this portion of the MPRP will be built entirely within the existing corridor and within the existing substation parcel on land that CMP already owns (see attached maps in Exhibits 1 and 2).

The following sections provide detailed descriptions of the proposed MPRP facilities in Pownal.

### ***Surowiec Substation Expansion***

The existing 345/115 kV Surowiec Substation in Pownal is an important electrical hub in CMP's bulk power transmission system (see Figure 2). This substation serves as the point dividing the northern and southern components of CMP's bulk power transmission network. The existing substation occupies approximately six acres of land east of Allen Road and south of Fickett Road within a larger approximately 92-acre parcel owned by CMP. Seven existing 115 kV transmission lines and two existing 345 kV lines currently connect at the Surowiec Substation. There is also one other 345 kV line (Section 375) that currently bypasses the station.

The MPRP proposes to expand the 345kV portion of the Surowiec Substation to accommodate two new 345kV transmission lines. In addition, the existing Section 375 that currently passes by the substation will also be terminated in the expanded 345 kV yard. The proposed substation modifications are shown on the plans provided in Exhibit 2. The proposed modifications to the substation include: (1) the rebuild of the existing 345 kV bus on the north side of the substation to accommodate the new 345 kV lines; and (2) the addition of one new 115 kV breaker to the existing 115 kV bus on the south side of the substation to improve system operability. Switches and other minor equipment will also be added to the substation. When the project is completed six 345 kV lines will connect at the substation and the number of connecting 115 kV lines will remain at seven.

Access to the existing substation is provided by a paved driveway from Allen Road. This driveway will be extended to the north by approximately 3,060 square feet along the substation

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<sup>1</sup> A segment corridor may contain one or more transmission lines which are identified by Section number.

fence line. It will continue to provide access during and after construction. In addition, a short gravel ramp will be constructed from the southeasterly side of the expanded substation yard to the adjoining transmission line corridor in order to provide access onto this existing corridor.

Approximately 7.91 acres of CMP property will be disturbed by the proposed substation expansion. The expansion area is located in an area that is primarily wetlands crossed by the existing Section 375 transmission line corridor. This area is primarily vegetated with scrub/shrub vegetation and additional small pockets of wooded areas. Following construction, approximately 4.43 acres of the disturbed area will be restored and revegetated. Approximately 3.48 acres will remain as new, permanently developed area contained within the expanded 345/115 kV yard and associated access ways. The new fenced-in area of the substation will occupy approximately 9.41 acres of land after the expansion is completed.

Runaround Brook flows around the northeast and southeast perimeter of the existing substation and through the proposed expansion area. Based on a review of historic maps, Runaround Brook was rerouted under Allen Road and to the south prior to the construction of the Surowiec Substation. This was likely done when the area was used for agricultural purposes. To accommodate the MPRP Surowiec Substation expansion, approximately 1,200 feet of the stream channel will be relocated further to the northeast and southeast of the existing substation yard. This relocation is part of CMP's proposed Runaround Brook stream restoration plan, which is described in more detail in Section V.3.3 of the Site Plan Review Application. This stream restoration plan is just one of the elements of the MPRP also under review by the Maine Department of Environmental Protection (DEP).

### ***Transmission Lines Construction and Rebuild***

As part of the MPRP, CMP proposes to install a total of 44 new transmission line structures and rebuild 106 existing structures in Pownal. Cross-section drawings showing the existing and proposed structure placement within each CMP corridor and the typical above ground pole heights are provided in Exhibit 3. The following is a detailed description of the proposed transmission line work.

#### **New 345 kV Transmission Lines**

CMP proposes to construct two new 345kV transmission lines (Section 3020 and Section 3026) that will interconnect with the Surowiec Substation in Pownal. Section 3020 will extend south from the Surowiec Substation to Cumberland while Section 3026 will extend north from the substation to Lewiston. These two new transmission lines will be constructed entirely within CMP's existing Segment 18 and Segment 17 corridors, which traverse Pownal in a northeast-southwest orientation.

#### ***Section 3020***

CMP will construct approximately 3.0 miles of new 345 kV transmission line (Section 3020) within the Segment 18 corridor. The transmission line will start at the Surowiec Substation and head to the northwest across Allen Road and then to the southwest within the existing Segment 18 corridor. This corridor crosses Allen Road, Sweetser Road, Elmwood Road, and Chadsey Road before exiting Pownal and entering North Yarmouth. This existing CMP corridor is

approximately 458 feet wide and is currently occupied by two 115 kV transmission lines on the east (Sections 166 and 167) and two 345 kV transmission lines on the west (Sections 374 and 375). Approximately 950 feet north of the Pownal/North Yarmouth town line, the CMP Segment 18 corridor splits. The two existing 345 kV lines (Sections 374 and 375) are routed in a separate corridor that heads off to the southwest, while the two existing 115 kV lines (Section 166 and Section 167) continue within the Segment 18 corridor to the south. The Segment 18 corridor narrows to a 400-foot width in this area. There is also a buried communications cable along the eastern edge of the corridor. The entire corridor is currently cleared and maintained by CMP.

The proposed 345 kV transmission line (Section 3020) will be constructed approximately 95 feet to the east of the existing 345 kV line (Section 374). To accomplish this, the two existing 115 kV lines (Sections 166 and 167) will be relocated farther to the east within the corridor. The new 345 kV line will be constructed on 33 compact H-frame structures that have a typical height of approximately 75 feet<sup>2</sup>, while the two 115 kV lines will be rebuilt using single pole structures that also have a typical height of 75 feet above ground.

### *Section 3026*

CMP will construct approximately 1.2 miles of new 345 kV transmission line (Section 3026) within the Segment 17 corridor. The transmission line will start at the Surowiec Substation and head to the northwest across Allen Road and then north within the existing Segment 17 corridor across Fickett Road continuing northeast across the Pownal/Durham municipal boundary. This existing CMP corridor is approximately 400 feet wide and is currently occupied by two 115 kV transmission lines on the east side of the corridor (Sections 62 and 64) and the buried Maritimes & Northeast (M&N) natural gas pipeline on the west. The corridor is cleared with the exception of an approximately 90-foot wide strip of mature trees separating the transmission lines from the pipeline easement. The new Section 3026 transmission line will be constructed in the space between the existing 115 kV transmission line (Section 64) and the gas pipeline. The strip of trees in this corridor will be removed during construction. The new 345 kV line will be constructed on eleven H-frame structures that have a typical height of approximately 75 feet.

### **Rebuild Existing 345 kV and 115 kV Transmission Lines**

To accommodate the routing of the two new 345 kV transmission lines into the Surowiec Substation, a number of existing 345 kV and 115 kV transmission lines connecting at the substation must be realigned and rebuilt. The following is a description of the proposed MPRP rebuild work in Pownal.

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<sup>2</sup> Structure heights vary due to varying terrain and the need to achieve spans which will avoid or minimize impacts to natural resources. Typical above ground structure heights are provided but some structures may exceed those heights in specific instances. Exhibit 5 includes a table identifying the number of structures within specific height ranges in Pownal.

### *Section 166 and Section 167 Rebuild*

CMP proposes to realign and rebuild the existing Section 166 and Section 167 115 kV transmission lines within the Segment 18 corridor to allow for the installation of the new Section 3020 345 kV line. This rebuild will occur within approximately 2.95 miles of the corridor in Pownal starting at the Surowiec Substation and heading south. CMP proposes to rebuild Section 166 approximately 75 feet to the east of its current location, while Section 167 will stay in the same general location (approximately 64 feet from the eastern corridor edge). The two existing 115 kV lines are currently constructed on wood H-frame structures with a typical height of 45 feet. However, to address spacing constraints with the new 345 kV line, the rebuilt transmission lines will be constructed on single pole structures with a typical height of 75 feet above ground. CMP is proposing to use the single pole structures so that it can fully utilize its existing corridor. The rebuild of Section 166 will require 39 single pole structures and the rebuild of Section 167 will require 36 single pole structures.

### *Section 374 Rebuild*

Approximately 1,000 feet of the existing Section 374 (345 kV) transmission line comprising five H-frame structures will be realigned a short distance to the north to accommodate the new Section 3020 345 kV transmission line. This rebuild work will take place within the large field located west of the substation and Allen Road.

### *Section 375 Rebuild/Renaming*

The existing Section 375 transmission line (345 kV) currently bypasses the Surowiec Substation to the north as it transitions from the Segment 16 corridor east of the substation to the Segment 18 corridor located west and south of the substation. CMP proposes to rebuild Section 375 so that it has a direct connection into the Surowiec Substation. This will require the permanent realignment of approximately 1,500 feet of the Section 375 transmission line located west of the substation in the Segment 18 corridor and the realignment of approximately 1,500 feet of the Section 375 transmission line east of the substation. This involves the rebuild of nine H-frame structures.

Given the complex sequencing of construction activities that must take place to accommodate the substation expansion and transmission line work, approximately 2,100 feet of Section 375 (five temporary H-frame structures) will be temporarily routed to the north of the substation expansion area so that Section 375 remains in-service while the substation expansion is completed. When the expansion area is finished these temporary poles will be removed and Section 375 will be routed permanently into the expanded area.

Following construction, the portion of Section 375 located south of the substation will be renamed Section 3038, while the portion of Section 375 entering the substation from the Segment 16 corridor in the east will remain as Section 375.

*Section 377 Rebuild*

Approximately 2,700 feet of the existing Section 377 (345 kV) transmission line in the Segment 16 corridor will be rebuilt farther to the southeast to accommodate the routing of Section 375 into the substation. This rebuild will include five H-frame structures.

*Section 62 and Section 64 Rebuild*

As part of the construction of the new Section 3026 345 kV transmission line, two existing 115 kV transmission lines (Sections 62 and 64) will need to be slightly realigned and rebuilt near the substation. CMP proposes to realign approximately 1,000 feet of Section 62 and approximately 1,000 feet of Section 64 where they interconnect to the substation from the northwest. The rebuild of these two sections will include eight H-frame structures (four for each line).

Figure 2: USGS Project Overview Map

**SECTION 2.0**  
**SPECIAL EXCEPTION APPLICATION**

## **SECTION 2.0 SPECIAL EXCEPTION APPLICATION**

The following application describes the MPRP's compliance with the Special Exception conditions of the Town of Pownal Zoning Ordinance (amended March 8, 1999). The proposed Surowiec Substation expansion area is located in the Rural District "RA", while the proposed transmission line work is located partly within this same zoning district, but primarily within the Rural District "RB", as shown on the Town of Pownal Zoning Map (Amended May 29, 1985). As established in Section 9A(3) and Section 9B(3) of the Zoning Ordinance, the proposed MPRP Project activities in Pownal are classified as a public utility installation and, as such, are permitted as a "Special Exception" by the Zoning Ordinance. According to Section 5B(2), Special Exceptions are reviewed and approved by the Town of Pownal Board of Appeals (BOA). The BOA shall take into consideration the 14 conditions provided in Section 5C of the Zoning Ordinance when reviewing Special Exceptions. The following section in these application materials describes the MPRP Project's compliance with those conditions.

### **SECTION 5C – CONDITIONS**

#### ***1. The maintenance of safe and healthful conditions.***

The proposed project will maintain the same safe and healthful conditions that are already present at the substation and in the transmission line corridor. The equipment and structures at the substation and in the transmission line corridor are maintained to established industry standards so as to ensure the safety of utility workers and the general public.

Maintaining sufficient clearances around the conductors is paramount to the safe and reliable operation of the transmission lines. These clearances are achieved through appropriate siting of the structures themselves and through vegetation maintenance practices as described above. All construction will be in accordance with CMP's transmission standards, general industry standards, and "Good Utility Practice," including all necessary liveline working clearances, strength factors, and reliability factors as governed by the National Electrical Safety Code (NESC). In all instances, the line will be designed to meet or exceed the NESC and other standards, as applicable. The transmission line and all facilities will be operated in full compliance with CMP safety standards, which fully comply with Federal Occupational Safety & Health Administration requirements.

#### ***2. The prevention and control of water pollution and sedimentation.***

The multiple methods, plans, and procedures to prevent groundwater degradation during construction, operation, and maintenance of the proposed MPRP substation and transmission lines are incorporated in CMP's Environmental Control Requirements for Contractors and Subcontractors - Oil and Hazardous Material Contingency Plan (see Exhibit 9). These procedures establish a set of minimum requirements for spill prevention and response. The procedures incorporated into the plan have proven successful for preventing spills and for addressing spills if they occur. CMP's environmental inspectors will ensure that all personnel working on the site follow these procedures.

In addition, CMP employees follow the procedures outlined in CMP's Spill Management and Prevention section of CMP's Environmental Procedures Manual for response to any spills of

oil, gasoline, hydraulic oil, or other similar substance. These procedures are similar to those outlined in Exhibit 9 for contractors, and cover reporting, immediate response, cleanup and documentation. Employees operating construction vehicles will be trained to promptly contain, report and clean up any spill in accordance with standard procedures. To minimize spill potential during construction, no fueling or maintenance of vehicles will be performed within 25 feet of a protected natural resource or identified critical habitat area or other areas of special significance as identified by the DEP, Maine Department of Inland Fisheries and Wildlife (MDIFW) or the Maine Natural Areas Program.

After construction, the electrical transmission line corridor is maintained to encourage the growth of scrub-shrub vegetation. Trees within the corridor that are capable of growing up into the conductors (“capable species”) must be removed for safety and reliability reasons. CMP uses a selective herbicide program to treat an area once every four years to maintain an early successional stage of growth. Herbicide is selectively applied (using a low-pressure backpack applicator) to capable species to prevent growth (or re-growth of a cut plant) of individual plants. CMP does not use herbicides within 25 feet of any waterbody or wetland with standing water. Crew forepersons are certified by the Maine Pesticide Control Board, and all herbicides are EPA registered. The selective use of herbicides within the transmission line corridor does not pose a threat to groundwater quality and will not impair designated uses or the water classification of any water body.

Soil constraints within the transmission line corridor and substation expansion area will be managed and mitigated through implementation of erosion and sediment control measures, proper site and project design, and special construction procedures. CMP has developed a standard manual, “Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects” (2007), which it uses as a routine part of all transmission and substation projects. A copy of the manual is provided in Exhibit 7. This manual contains erosion and sedimentation control requirements, standards, and methods that will be used to protect soil and water resources during construction of the various MPRP components. The manual was developed in consultation with the Maine DEP and is largely based on DEP’s *Maine Erosion and Sediment Control BMPs*, dated March 2003, and DEP’s Chapter 500, and contains specific Best Management Practices appropriate for electric transmission line and substation construction. These guidelines will be followed in the construction of the Surowiec Substation expansion and the construction of the proposed transmission lines.

As a result of the engineering techniques that have been implemented and the erosion and sedimentation control practices that CMP will apply, the development of the substation and transmission lines will not cause soil erosion or reduction in the capacity of the land to hold water to the extent that a dangerous or unhealthy condition may result. Nor, as explained above, will the project result in water pollution.

### **3. *The control of building sites, placement of structures and land use.***

CMP has developed a MPRP Construction Plan that is included in Section 7.0 of the Natural Resource Protection Act (NRPA) Application, which was filed with the DEP in June 2009 and provided to the Town of Pownal. This construction plan provides an overview of the transmission line and substation construction sequence and techniques that will be implemented during construction of the MPRP. This plan is based on established

transmission line and substation construction methods and is designed to minimize impacts to natural resources and expedite construction activities. Construction of the MPRP will be performed in such a manner that natural resources will be protected to the greatest extent practicable, construction crews can safely install the transmission lines and build the substation, and erosion will be minimized. As a result, the project will not unreasonably interfere with natural water flow, violate any water quality law, or unreasonably cause or increase flooding. In addition, this plan helps to ensure there will be no unreasonable harm to wildlife habitats, including fisheries. This plan focuses on the established transmission line and substation construction methods that will be employed when traversing uplands, waterbodies, and wetlands and clearing and building project components. This plan also provides for flexibility to allow application of the most appropriate construction methods based on site-specific conditions.

In sum, the MPRP has been carefully planned and all the transmission line upgrades, including structure placement, and the substation work has been carefully sited.

#### **4. The protection of spawning grounds, fish, aquatic life, bird and other wildlife habitat.**

In order to identify existing resources, CMP's biological field crews documented wildlife while conducting extensive field surveys (wetland and rare plant surveys during the 2007 - 2009 growing seasons and vernal pool surveys during 2007, 2008 and 2009 breeding seasons). CMP, in conjunction with the MDIFW, conducted bald eagle surveys in 2009. In addition, CMP also conducted fish and wildlife database searches and contacted state and federal natural resource agencies to obtain existing data on wildlife and fisheries resources in the vicinity of the proposed MPRP components. Specifically, resource agencies were consulted regarding the presence of deer wintering areas (DWAs), waterfowl and wading bird habitat (WWH), federal and state listed rare, threatened, and endangered (RTE) wildlife and fish species, and any other species or sensitive habitats of concern. There are no DWAs, bald eagle essential habitats, or WWHs within the substation expansion area or Segment 17 and Segment 18 corridors in Pownal.

There are two significant vernal pools located within the Segment 17 corridor in Pownal. One pool is situated within an active pasture and field while the other is located on the western side of the corridor, primarily within the M&N Pipeline easement. No direct impacts to these vernal pools will result from construction and maintenance of the MPRP. These vernal pools will be identified in the field with highly visible flagging and will be completely avoided by construction activities. Both vernal pools will be spanned by electric conductors. One pool will be indirectly impacted through the conversion of a minor amount of adjacent forested uplands and wetlands to scrub-shrub and herbaceous habitat. Disturbed areas in the vicinity of vernal pools will be restored.

There is one state-listed mussel species, the creeper (*Strophitus undulatus*), documented within Chandler Brook in the Segment 18 corridor. This is a Species of Special Concern in Maine. Construction of the MPRP is not expected to affect this mussel species in Chandler Brook because the brook will be spanned by the transmission lines and structures will be replaced on either sides of the brook, therefore in-stream construction will be avoided. CMP will avoid crossing Chandler Brook to access these structures. In addition, CMP will implement its erosion and sediment control measures to prevent sedimentation into waterbodies and maintain the existing water quality.

Impacts to spawning grounds, fish, aquatic life, or other wildlife habitat will be largely avoided through the use of the existing service corridors, which have been in place for several decades. In general, given the existing landscape characteristics of the site, construction and maintenance of the project is not expected to create conditions that are not already common to the project area. It is fully anticipated that local wildlife populations will adapt and respond to any additional alterations much as they already do to ongoing land uses within the vicinity of the proposed project. Therefore, impacts to wildlife are expected to be minimal. Impacts to identified significant wildlife habitats and natural areas, such as vernal pools and rare plant locations, have been avoided or minimized to the extent practicable through the careful siting and placement of the substation expansion area and the new transmission line poles. Thus, this standard has been met. See the attached resource maps in Exhibit 1 for more detailed information on natural resources in Pownal.

**5. *The compatibility of the proposed use with adjacent land uses.***

**Substation Expansion**

CMP is proposing to expand its existing Surowiec Substation in Pownal to improve the reliability, safety, and security of the bulk power transmission system in Maine, while at the same time meeting the increasing demands for electrical power. CMP will not need to acquire additional lands to construct these facilities in Pownal; rather this portion of the MPRP will be built entirely within the existing substation parcel on land that CMP already owns. The proposed expansion is consistent with the current and historic use of this property as an electric substation that is a key component of the bulk power system in Maine.

**Transmission Lines**

CMP designed each transmission segment of the MPRP in Pownal to avoid and minimize community, private property, and environmental impacts while maintaining a cost-effective and technically sound design. This was achieved through two key design steps. First, CMP designed each transmission segment so that the needed improvements would occur within existing transmission corridors owned by CMP. Second, CMP established utility structure locations so that, to the extent practicable, their placement avoided protected natural resources.

Co-locating within existing transmission line corridors avoids the creation of new “greenfield” transmission corridor routes and enhances opportunities for utilizing existing substations, rather than siting new substations in new areas. When new greenfield routes are constructed, new areas of environmental impact often result from the new corridor development. Greenfield transmission corridors are likely to encounter protected natural resources with a frequency similar to that found in existing corridors. However, landscape impacts may be higher in greenfield routes across undeveloped land because new corridor is being created, rather than existing or expanded corridor along previously developed routes as is the case with co-located transmission lines. Thus, co-locating MPRP transmission lines within the existing transmission line corridor in Pownal minimizes natural resource impacts; landscape disturbance, and changes to existing land use patterns, in turn promoting continued compatibility with adjacent land uses.

## ***6. The need of a particular location for the proposed use.***

### **Substation Expansion**

The existing 345/115 kV Surowiec Substation in Pownal is an important electrical hub in CMP's bulk power transmission system. This substation serves as the point dividing the northern and southern components of CMP's bulk power transmission network. The existing substation occupies approximately six acres of land within a larger approximately 92-acre parcel owned by CMP. Seven existing 115 kV transmission lines and two existing 345 kV lines currently connect at the Surowiec Substation. There is also one other 345 kV line that currently bypasses the station. CMP proposes to expand the 345kV portion of the Surowiec Substation to accommodate two new 345kV transmission lines. In addition, the existing Section 375 that currently passes by the substation will also be terminated in the expanded 345 kV yard.

Substations are needed at electrical "nodes" of the bulk power transmission system where transmission corridors intersect and there is an electrical need produced by major load (demand) pockets on the system. Given that the MPRP constitutes an improvement upon an existing highly integrated system, and that the identified electrical needs that must be met are defined by the existing conditions and loads upon the existing system, the substation alternatives that are available from a system-wide context are limited. By necessity, the MPRP substations must be located at or near places where existing transmission lines intersect and where there is significant load on the system. Thus, from a system-wide perspective, the general location of the proposed new or improved substations is largely defined by existing electrical need.

One alternative to the proposed expansion of the Surowiec Substation that was evaluated was relocating the existing substation to a new location near the existing transmission corridor convergence. Relocating the existing substation would require the purchase of new property; site design, clearing and preparation; relocation of the existing substation infrastructure to the new site or replacement of the existing infrastructure; constructing the necessary substation improvements; and decommissioning and restoration of existing substation sites. This work would cost significantly more than expanding the existing Surowiec Substation. Based on available natural resources mapping and information, relocating the existing substation to new, currently undeveloped sites would also result in more significant environmental impacts than the proposed expansion alternatives. The transmission lines that converge at the existing substation site would also need to be reconfigured or directed into a new "spur" corridor to converge at a new substation site, which would introduce additional costs, real estate considerations, and the potential for additional impact to environmental resources. Based on this evaluation, the alternative of relocating the Surowiec Substation to a new site was eliminated on the basis of being economically impracticable, and for having significant potential to create more environmental impact than expanding existing substations to meet the MPRP electrical needs.

In addition, before finally selecting the preferred substation design, four other substation expansion alternatives were evaluated during the project design phase. However, these alternatives were eliminated in favor of the preferred option based on increased cost,

technical constraints, or environmental impacts. The alternatives that were explored and ruled out follow:

- Alternative A – Expand Substation to the North: Locate expansion area off the very northern corner of the existing substation.
- Alternative B – 345 kV Switchyard Station to the North: Locate expansion area in a new 345 kV switchyard that would connect to the existing Surowiec Substation by a connecting bus.
- Alternative C – 345 kV Switchyard Station to the Northwest: Alternative C is a variant of Alternative B, where a new 345 kV switchyard would be constructed in a hayfield on the western side of Allen Road and would connect to the existing Surowiec Substation by a connecting bus.
- Alternative D – 345 kV Switchyard Station to the West: Alternative D is also a variant of Alternative B or C, where a 345 kV switchyard would be constructed in the hayfield and shrub land on the west side of Allen Road, and connect to the existing Surowiec Substation by a connecting bus.

In sum, after careful consideration of the alternatives, expanding the Surowiec Substation in the location proposed in this application is the best alternative.

### **Transmission Lines**

As noted in the project overview in Section 1 of these application materials, as part of the MPRP CMP examined whether non-transmission alternatives could reduce or eliminate the need for transmission line upgrades. Where non-transmission alternatives are not feasible, CMP has proposed upgrades to the existing system. By co-locating these transmission line upgrades, both new and rebuilt lines, within existing, CMP-owned transmission line corridors in Pownal, CMP has minimized new potential impacts to vegetation, wildlife habitat, streams, wetlands, vernal pools, and other natural resources; limited landscape disturbances; and minimized changes to existing land use patterns. The particular location selected for the upgrades within Pownal – the existing transmission line corridors – is the best location for the project.

#### ***7. Access to the site from existing or proposed roads.***

### **Substation Expansion**

Access to the Surowiec Substation is currently provided by a short, partially paved turnout located between the substation fence line and Allen Road. This off-street parking and loading area is approximately 2,320 square feet in size. This turnout will be expanded by approximately 3,060 square feet to the north along the substation fence line for the MPRP. This parking and loading area will continue to provide sufficient permanent access and off-street parking and loading to the substation following construction.

### **Transmission Lines**

There will be no new permanent roads or driveways associated with the project, although CMP will continue to maintain access points and ways suitable for routine and urgent maintenance by its own vehicles. Temporary access ways, which are not considered roads or

driveways, and will not add any impervious surface area, will be established for use during the construction phase. This will be an ongoing process as access will be established to areas undergoing immediate construction. Determinations surrounding the exact nature of the construction of these temporary access ways will be made by the contractor in consultation with an environmental representative. All access paths are temporary and will be removed once construction is complete.

Temporary access way will be established for general access to the corridor for construction purposes. These temporary access ways will be in place for more than one growing season, but will be removed once all aspects of construction in that area are complete. Access to pole sites, either for removal or construction, will be achieved by temporary access ways which will be in place for no more than one growing season. Areas where soils have been disturbed will then be mulched with hay. Vegetation will be allowed to reestablish itself once the temporary access ways have been removed.

Measures will be taken to avoid and minimize impacts to streams and wetlands through the use of crane mats, temporary bridges, geo-textile fabrics, and culverts, when necessary. Appropriate erosion controls will be installed wherever necessary. If necessary, mats will be placed parallel to the upland edge as abutments to further protect bank stability and establish stability. No extensive grubbing (grading to remove root systems) within wetland crossing areas will be done prior to mat placement. However, some minor grading may be required to ensure mat stability and construction access safety. All such grading will be performed on a limited basis and only with prior approval by CMP's environmental representatives. Streams that are too wide to cross with crane mats or temporary bridges will be avoided.

**8. *The amount and type of wastes to be generated by the proposed use and the adequacy of the proposed disposal systems.***

CMP anticipates that solid waste generated from construction and demolition activities associated with the MPRP will be limited to minimal land clearing and construction debris. This debris is inert, non-hazardous material that will be handled in accordance with the Maine State Solid Waste Management and Recycling Law (38 M.R.S.A. § 2101 et seq). It is CMP's priority to minimize solid waste generation by implementing and utilizing environmentally responsible construction management practices. All personnel and affiliates contracted for work as part of the MPRP will utilize best management practices (BMPs) and CMP protocol. CMP will monitor the disposal of all solid waste material including paper documentation of waste streams. CMP will contract with a licensed waste hauler and solid waste will be managed at an appropriate and licensed facility. Table 1 describes the various types and the disposition of solid waste generated by the project. CMP encourages and recognizes recycling and reuse of materials generated as waste product.

Transmission line structures will be removed in Pownal as part of the proposed project. Removed poles and crossarms will be donated to private entities for reuse, returned to the manufacturer for recycling, or shipped to an approved special waste landfill for disposal. If surplus treated wood is to be used, CMP requires a Pole Transfer Agreement be signed, in which the transferee agrees to utilize the treated wood as a utility pole or beneficially in accordance with Maine Department of Environmental Protection Rules, Chapter 418 (Beneficial Reuse), as well as any other applicable federal, state, and local laws.

It is estimated that approximately seven acres of land in Pownal will be cleared within CMP's transmission lines corridors as a result of the proposed project. Vegetation cut and cleared from the CMP corridors will be limited to capable species (i.e., tree species that are capable of growing into the safety zone beneath conductors [wires]). All merchantable wood will be removed from the service corridor and sold for lumber or firewood. All other woody material will be managed in compliance with the Maine Slash Law (12 M.R.S.A. § 9331-9336). Specifically, slash will be removed from the area within 50 feet of the nearer side of any public highway right of way, and will be removed from the area within 25 feet of any adjoining property boundary. Slash will also be removed from within the transmission line corridor itself, and from areas within 25 feet of the nearer side of the corridor. In addition, slash will not be left in wetlands within the corridor or wetlands within abutting properties. CMP will comply with Section 9333 of the Maine Slash Law as it applies to disposal along railroad and utility lines. All other wood waste generated in the process of vegetation clearing will be shipped off-site to be used as fuel at an appropriate licensed boiler, provided to a licensed chip processing plant, or donated to a facility to be utilized in the production of erosion control mulch.

Construction operations will also result in various types of construction debris including waste electrical system and construction process components such as scraps of cable, wooden cable spools, and wooden insulator crates. Maintenance of construction equipment will produce small amounts of waste plastic containers for oils and lubricants, broken filters and belts, and damaged tires. Construction and managerial staff will generate some waste such as paper, bottles, cans, plastics, and food scraps.

Clearing operations and transmission line construction may occasionally encounter waste materials previously dumped by others on properties acquired as part of the MPRP. These materials will be collected and disposed of according to applicable state and local laws.

**9. *The impact of the proposed use on the land and adjacent water bodies and the capability of the land and water to sustain such use without degradation.***

As described in the discussion of conditions 2 and 3 above, construction of the MPRP in Pownal will be performed in such a manner that natural resources will be protected to the greatest extent practicable, erosion and sedimentation will be controlled, and the land and adjacent water bodies will not be degraded.

**Table 1: Itemization of Material Generated during Construction of the Proposed MPRP Corridors, and Management Method**

<b>Material</b>	<b>Management Method</b>
*Wood (timber, slash, stumps, etc.)	Chipped on-site or hauled off-site to boiler, chip plant, private entity or mulch production facility
*Treated wood (poles, crossarms)	Donated or landfilled in licensed special waste landfill or reused by CMP as the opportunity avails itself
*Metals (Ferrous and Non-Ferrous)	Maine Metals Recycling (Auburn) or a similar company will be utilized to assist with recycling
*Porcelain Insulators	Commercial Paving & Recycling Corporation (CPRC) (Scarborough) or a similar company will crush the insulators to be used as road sub-base material
Food waste, plastics, common trash	Shipped to licensed Municipal Solid Waste (MSW) landfill, transfer station, or incinerator
*Redeemable drink containers	Redeemed for recycling
*Wooden Cable Spools & Pallets	Stuart C. Irby Company (Waterville) for reuse or a similar company will be utilized to assist with management
Wooden Insulator Crates	Recycled or shipped to licensed MSW landfill, transfer station, or incinerator
*Paper	Recycled via FCR Goodman (various Maine locations)
*Concrete Debris	CPRC or a similar company will use concrete debris as road sub-base
Housing Demolition Debris (asphalt roofing, painted wood and plywood, junk /abandoned cars, special or hazardous waste)	Waste will be managed on a case specific basis depending on the type of waste and the location of the waste within the state.

**\*Waste material to be processed at a recycling facility and converted into usable product.**

### ***10. Existing topographic and drainage features and vegetation cover on the site.***

#### **Substation Expansion**

The area within one mile of the Surowiec Substation is characterized by open fields, freshwater wetlands, wet meadows, and woodland. Predominant land uses near the facility include low density single-family homes, overgrown fields, hayfields, forestland, and electrical transmission line corridors. Elevations within the expansion area range from approximately 180 to 175 feet above mean sea level.

Runaround Brook flows around the northeast and southeast perimeter of the existing substation and through the proposed expansion area. Based on a review of historic maps, Runaround Brook was re-routed under Allen Road and to the south prior to the construction of the Surowiec Substation. This was likely done when the area was used for agricultural purposes. To accommodate the MPRP Surowiec Substation expansion, approximately 1,200 feet of the stream channel will be relocated further to the northeast and southeast of the existing substation yard. This relocation is part of CMP's proposed Runaround Brook stream

restoration plan, which is described in more detail in Section V.8 (Reservation of Stream Corridors) of the Site Plan Review Application. This stream restoration plan is just one of the elements of the MPRP also under review by the Maine Department of Environmental Protection.

The Surowiec Substation expansion area is located in an area that includes wetlands crossed by the Section 375 transmission line corridor north of the existing substation yard. The topography of the land surface within the substation expansion area is flat and consists of a previously relocated portion of Runaround Brook and adjacent wetlands. This area is primarily vegetated with scrub/shrub vegetation and additional small pockets of wooded areas. Expanding the Surowiec Substation will require approximately 3.35 acres of permanent wetland fill. Following construction, approximately 4.43 acres of the disturbed area will be restored and revegetated. Approximately 3.48 acres will remain as new, permanently developed area contained within the expanded 345/115 kV yard and associated access ways. The new fenced-in area of the substation will occupy approximately 9.41 acres of land after the expansion is completed.

CMP has developed a detailed stormwater management plan for the substation site. This plan takes into account topographic and drainage features and vegetation cover on the site. As part of developing this plan, CMP evaluated and quantified the pre- and post-development stormwater characteristics of the proposed project facilities. The expansion of the existing Surowiec Substation will comply with both the applicable DEP stormwater management requirements in Chapter 500 and Pownal's Site Plan Review standards (see Section V.3 (Drainage) of the Site Plan Review application in these materials).

After this site work is complete, the overall drainage pattern and flow direction on the site will be similar to the existing condition, due to the pervious nature of the crushed stone and gravel substation yard, which promotes infiltration of stormwater. Any remaining surface runoff will be collected in a vegetated perimeter swale and/or allowed to run off as sheet flow to on-site wetlands associated with the stream. The discharge end of the perimeter swale will be flared to promote sheet flow before the runoff enters the stream. Modeling results show that the quantity of surface runoff entering the stream from the expanded substation will be less than the pre-existing conditions since the substation yard allows for greater infiltration within the yard itself than that which occurs through the native soils.

### **Transmission Lines**

The area within one mile of CMP's Segment 17 and Segment 18 transmission line corridors in Pownal is characterized by relatively flat topography and low rolling hills rising 100 to 200 feet above the surrounding landscape. The general topography is shaped by watershed drainage toward Chandler Brook and the Royal River. The Segment 18 transmission line corridor crosses Runaround Brook to the west of the Surowiec Substation and Chandler Brook at two separate locations; one crossing is located at Elmwood Road (see Exhibit 1, Map 2) and the other is approximately 170 feet north of Chadsey Road (see Exhibit 1, Map 1).

The vegetation within the maintained transmission line corridors is typically composed of an early successional vegetation community composed of scattered, small shrubs (non-capable species) and herbaceous plants. Land use in the immediate vicinity of the transmission line is predominantly woodland, farmland, and low density rural residential. Woodlands adjacent to

the transmission line corridor consist of mixed conifer and deciduous second growth. The transmission line is predominately edged with 50 to 70 foot white pine trees.

All MPRP transmission line corridors in Pownal will be continuously vegetated with herbaceous plants and shrubs, but restrictions on the clearing and maintenance within resource areas will allow a greater density of non-capable vegetation to remain and will avoid disturbance to the greatest extent practicable. Buffers bordering streams and rivers will be protected and maintained by selective clearing during construction and reduced cutting of vegetation during maintenance of the transmission line. All tree species capable of growing into the conductor safety zone must be removed from the proposed buffers during construction, and prevented from re-establishing during periodic scheduled vegetation maintenance operations. These species are known as “capable species” and include oaks, pines, maples, birches, poplar, elm, beech, and basswood.

***11. The erosion potential of the site based upon degree and direction of slope, soil type, and vegetative cover.***

**Substation Expansion**

The topography of the land surface within the substation expansion area is flat and consists of a previously relocated portion of Runaround Brook and adjacent wetlands. A Class D medium intensity soil survey was conducted at the Surowiec Substation expansion area to identify existing soils characteristics and potential construction limitations. Hydric soils that were identified on the site include the Biddeford, Lamoine, and Scantic series, and areas of fill materials that were mapped as Udorthents. This information has been incorporated into the design and engineering of the substation expansion. Based on this soil information and resulting stormwater management analysis conducted by CMP, the ability of the land to hold water will not be materially impacted by the substation expansion and the erosion and sedimentation control measures CMP will implement will prevent the creation of dangerous or unhealthy conditions attributable to soil erosion.

**Transmission Lines**

Soil constraints within the transmission line corridor will be managed and mitigated through implementation of erosion and sediment control measures, proper site and project design, and special construction procedures. If concrete foundations for specific poles should need to be constructed, soil borings will be conducted and the foundations will be designed in accordance with soil characteristics.

With the exception of the immediate area around the base of the support structures there will be no increase in impervious surface area associated with the transmission line. The amount of ground disturbance associated with the transmission lines will be limited to the immediate vicinity of the pole placements and the impacts associated with access ways. The transmission lines in Pownal will be constructed in accordance with the CMP Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects (2007). The Guidelines are attached in Exhibit 8.

Overall, the ability of the land to hold water will not be materially impacted by the addition of the transmission lines and the erosion and sedimentation control measures CMP will implement will prevent the creation of dangerous or unhealthy conditions attributable to soil erosion.

**12. The impact of the proposed use on transportation facilities.**

Operation of the upgraded transmission lines and expanded substation will generate little traffic and have little additional impact on the Town's transportation facilities.

**13. The impact of the proposed use on local population and community facilities.**

The portion of the MPRP located in Pownal involves the construction and rebuild of 345 kV and 115 kV transmission lines and the expansion of the existing Surowiec Substation. These proposed upgrades will improve the reliability, safety, and security of the bulk power transmission system in Maine, while at the same time meeting the increasing demands for electrical power.

CMP will not need to acquire additional lands to construct these facilities in Pownal; rather this portion of the MPRP will be built entirely within the existing corridor and within the existing substation parcel on land that CMP already owns (see attached maps in Exhibits 1 and 2). The proposed substation expansion and transmission line work is consistent with the current and historic use of this property as an electric substation and transmission corridor that is a key component of the bulk power system in Maine. CMP does not anticipate any new impacts to the residents of Pownal or community facilities as a result of the MPRP.

**14. The impact of the proposed use on local water supplies.**

As explained above in the discussion of condition 2, the MPRP will not have an adverse impact on water quality. Nor will the MPRP adversely affect water quantity; the project does not require the use of any additional water.

**SECTION 3.0**  
**ZONING APPLICATION**

## **SECTION 3.0 ZONING APPLICATION**

The following application describes the MPRP's compliance with the Town of Pownal Zoning Ordinance (amended March 8, 1999), focusing on those standards reviewed by the Planning Board. (The special exception approval standards, which are reviewed by the Board of Appeals, are discussed above in Section 2.0.) The proposed Surowiec Substation expansion area is located in the Rural District "RA", while the proposed transmission line work is located partly within this same zoning district, but primarily within the Rural District "RB", as shown on the Town of Pownal Zoning Map (Amended May 29, 1985). The following section describes the MPRP's compliance with the applicable zoning standards.

### **SECTION 10 – PERFORMANCE STANDARDS**

#### ***A. All Uses***

The proposed substation expansion and transmission line upgrades fall within the "public utility installations" land use category. As established in Section 9A(4) and Section 9B(4), public utility installations are subject to the Performance Standards identified in Section 10 of the Zoning Ordinance. The following discussion in this section of these application materials describes the MPRP Project's compliance with the Performance Standards, addressing each standard in turn.

#### ***B. Residential Uses***

Not applicable. The MPRP is a public utility project and, as such, is not subject to the residential use zoning standards.

#### ***C. Non-residential Uses***

The existing substation occupies approximately six acres of land within a larger, approximately 92-acre parcel owned by CMP and has approximately 2,025 feet of frontage on Allen Road. The 3.5-acre expansion of the Surowiec Substation yard meets all of the minimum size thresholds identified in Section 10.C of the Zoning Ordinance including lot area, street frontage, and side and rear yards. CMP's transmission line corridors cover miles of land and cross multiple roads.

#### ***D. Manufacturing Uses***

Not applicable. The MPRP is a public utility project and, as such, is not subject to the manufacturing uses zoning standards.

#### ***E. Off-street Parking and Loading***

Access to the existing substation is currently provided by a short, partially paved turnout located between the substation fence line and Allen Road. This off-street parking and loading area is approximately 2,320 square feet in size. This turnout will be expanded by approximately 3,060 square feet to the north along the substation fence line for the MPRP. This parking and loading area will continue to provide permanent access and off-street parking and loading to the substation following construction. No off-street parking or loading is proposed as part of the transmission line upgrades.

***F. Signs***

No new permanent signs are proposed at the Surowiec Substation that would surpass the size and thresholds identified in Section 10.F of the Zoning Ordinance. In addition, no permanent signs are proposed as part of the transmission line upgrades.

***G. Floodplain***

This performance standard regulates the construction of new buildings on land designated as flood plain by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for Pownal. No new buildings are proposed as part of the MPRP in Pownal. Therefore, the MPRP project complies with zoning standard 10.G. (Floodplain). Pursuant to the Town's Floodplain Management Ordinance, CMP is applying for a Flood Hazard Development Permit. (See Section 6.0 of these application materials.)

***H. Height Restrictions***

This standard regulates the height of new buildings constructed in Pownal. No new buildings are proposed as part of the MPRP in Pownal. Therefore, the MPRP project complies with zoning standard 10.H. (Height Restrictions).

***I. Siting Requirements for Single Wide Manufactured Housing***

Not applicable. The MPRP is a public utility project and, as such, is not subject to the manufactured housing zoning standard at Section 10.I.

***J. Safety Standards for Mobile Homes***

Not applicable. The MPRP is a public utility project and, as such, is not subject to the mobile home zoning standard at Section 10.J.

***K. Performance Standards for Mobile Home Parks***

Not applicable. The MPRP is a public utility project and, as such, is not subject to the mobile home park zoning standard at Section 10.K.

**SECTION 4.0**  
**SITE PLAN REVIEW APPLICATION**

## SECTION 4.0 SITE PLAN REVIEW APPLICATION

The following application describes the MPRP's compliance with the Town of Pownal Site Plan Review Ordinance (Adopted September 14, 1981).

### SECTION V – CRITERIA AND STANDARDS

#### *V.1. Landscaping*

##### **Proposed Clearing Activities**

The MPRP Project has been designed to minimize additional clearing and the need for land acquisition by making the most effective use of existing corridors, upgrading existing transmission lines and substations, and re-rating lines where possible. The majority of the proposed MPRP project areas in Pownal, including the Segment 18 corridor and the Surowiec Substation, are already cleared of trees and permanently maintained for use by CMP. The installation of the proposed MPRP facilities in these project locations will not require significant clearing work. However, the construction of the new 345 kV transmission line in the Segment 17 corridor and the installation of Section 3020 near the Pownal/North Yarmouth town line, will require some additional tree clearing work to ensure that the project meets federal reliability and safety standards (in accordance with P(1) of this standard).

The amount of clearing within the Segment 17 corridor will be limited to an approximately 80 to 90-foot wide swath of trees that is approximately 3,300 feet long and separates the currently cleared CMP transmission line corridor from the currently cleared M&N Pipeline easement area (Exhibit 1, Maps 4 and 5). In addition, a 0.3 acre patch of white pine trees located west of Allen Road and the substation will be cleared to install the temporary Section 375 transmission line north of the substation. Clearing activity within the Segment 18 corridor includes the removal of two small patches of trees encompassing about a 0.27 acres at the very southern end of the corridor in Pownal (Exhibit 1, Map 1).

Clearing within the CMP corridor is necessary for development of the project, and will involve the removal of plant species that are capable of growing tall enough to interfere with the transmission lines (so-called "capable species"), and, in some instances, the occasional removal of mature "danger trees". Danger trees are trees that are large enough and positioned in such a manner that they could fall into the conductor, thereby posing a severe reliability risk. The removal of danger trees is a relatively infrequent activity. Non-capable species are allowed to remain to ensure that the corridor is vegetated, which prevents erosion and provides wildlife habitat. No grubbing (i.e., stump removal) will take place.

The cutting work is performed using equipment typical of logging operations including cable and hook skidders, forwarders, tree movers, chain saws, and logging trucks. In general all trees, saplings of capable species, and sometimes tall shrubs are cut at ground level. All root systems are left intact as the ground is not grubbed or graded. All slash (i.e., limbs, tree trunks, wood chips, etc.) from the cutting operation is disposed of in

accordance with the Maine Slash Law (12 M.R.S.A. § 9333). The remaining vegetation is typically composed of scattered growth of small shrubs of non-capable species and herbaceous plants. After initial clearing, the condition of these cleared areas generally resembles that of a high-quality forestry operation. Specifically, although there is very limited height structure to the vegetation, great care is taken to prevent rutting and erosion.

After construction is completed, non-capable species are allowed to grow to ensure that the corridor is vegetated, which prevents erosion and provides wildlife habitat. Over a relatively short period of time (generally within one calendar year), the newly cleared portions of the corridors will exhibit the early-successional habitat type that is typical of existing transmission line corridors in Maine.

### **Visual Impacts**

An MPRP visual impact assessment has been performed in accordance with Maine Department of Environmental Protection (DEP) requirements for each transmission line segment in Pownal and the Surowiec Substation expansion. The following sections describe the results of this assessment.

#### *Substation Expansion*

The area within one mile of the Surowiec Substation is characterized by open fields, freshwater wetlands, wet meadows, and woodland. Predominant land uses near the facility include low density single-family homes, overgrown fields, hayfields, forestland, and electrical transmission line corridors. The closest population center is North Pownal, approximately 0.6 miles to the northeast of the substation. The closest scenic resource is the Bradbury-Pineland Corridor, approximately 0.8 miles south of the substation. Bradbury Mountain State Park is 2.5 miles to the southeast near Pownal Center. No scenic resources will be affected by the addition to the existing substation.

The expansion area is located adjacent to the north and east boundaries of the existing Surowiec Substation yard. The expansion area will be seen in context of 115 kV and 345 kV transmission structures that typically vary in height from 45 to 75 feet. The tallest component in the expansion will be the 345 kV A-frame dead end structure, approximately 102 feet in height, similar in scale to the largest component in the existing substation. By way of comparison, the white pine trees that surround the substation are typically 40 to 60 feet tall. The expansion area will be in scale with all of these elements and the surrounding forest and field landscape, so there should not be a contrast in scale.

Public views of the substation will be limited to foreground views from Allen Road and Fickett Road in Pownal. The existing substation has approximately 700 feet of frontage on Allen Road and is set back approximately 60 feet from the road. The expansion area will extend the Allen Road frontage by approximately 215 feet to the north. A relatively minor amount of tree clearing will be needed on the east side of the site, away from Allen Road. Since there are so many existing transmission lines and a large existing substation in the immediate area, the expansion should have a relatively minor visual impact on motorists driving on Allen Road and Fickett Road.

Three single-family homes on the north side of Fickett Road, all within 0.3 miles of the expansion, may have filtered views of the expansion, especially during leaf-off periods.

All of these homes currently should have views of the existing substation. There are several other homes within 0.3 miles on Fickett Road, but they should be totally screened by intervening vegetation. There should be minimal to no visual impact on these residential properties.

While the substation will not be visible from any scenic resources, it is and will continue to be seen as a dominant element in the rural landscape. The relatively small addition to the mass of the Surowiec Substation should not appreciably affect the dominance of the facility. Visual buffer plantings should help screen the substation and reduce its sense of visual dominance.

Based upon a review of the project and proposed visual buffer mitigation described in Section V.2. below, the Surowiec Substation expansion should not unreasonably interfere with existing scenic and aesthetic uses of scenic resources within its viewshed and should not have an unreasonable adverse effect on the scenic character of the surrounding area.

#### *Transmission Lines*

The area within one mile of the Segment 17 and Segment 18 transmission line corridors in Pownal is characterized by relatively flat topography and low rolling hills rising 100 to 200 feet above the surrounding landscape. The general topography is shaped by watershed drainage toward Chandler Brook and the Royal River. The vegetation is mixed evergreen and deciduous second growth. The transmission line is predominately edged with 50 to 70 foot white pine trees. Land use in the immediate vicinity of the transmission line is predominantly woodland, farmland, and low density rural residential. The village of North Pownal is approximately 0.75 miles north of the Surowiec Substation; West Pownal is 0.5 miles to the west; Pownal Center is 2.0 miles to the east;

Views of the transmission line corridor are limited to foreground views, primarily road crossings. Road crossings include Fickett Road, Allen Road, Sweetser Road, Elmwood Road, and West Pownal Road. There are approximately 20 homes located directly adjacent to or may have a view of the existing Segment 17 and Segment 18 transmission line corridors. The majority are single family homes on individual lots in rural settings. For the most part, the homes are oriented away from the transmission line corridor. In most locations homeowners have maintained a sufficient amount of woods on their properties to provide an adequate buffer between themselves and the existing transmission lines.

In most cases the proposed 345 kV transmission line will be seen in context of the existing 115 kV and 345 kV structures within the existing corridor, and against the 50 to 70 foot trees that line the corridor. The proposed 345 kV structures will be approximately the same height as the existing 345 kV transmission structures (typical height of 75 feet).

New structures have been set back as far from streams, rivers, and other areas of visual/habitat sensitivity as practicable. In addition, existing vegetation will be preserved within the transmission line corridor wherever practicable by careful layout of access roads and monitoring of construction practices during the installation process. There are many areas where favorable growing conditions and CMP's maintenance procedures

have resulted in effective stands of non-capable species near the roadside which act as visual buffers.

Based upon a review of the project and the proposed buffer mitigation described in Section V.2. below, the Segment 17 and Segment 18 transmission line work should not unreasonably interfere with existing scenic and aesthetic uses of scenic resources within its viewshed and should not have an unreasonable adverse effect on the scenic character of the surrounding area.

## **V.2. Buffers**

The following section describes the proposed visual buffers proposed for the MPRP in Pownal.

### *Substation Expansion*

Several mitigation strategies have been used to minimize potential visual impacts from the Surowiec Substation expansion. The most significant measure is locating the expansion area adjacent to the existing substation and several transmission line corridors to consolidate visual impacts. By expanding the existing substation, potential visual impacts have been consolidated at one location, which is not within the viewshed of any scenic resources. In addition, existing vegetation will be retained to the greatest extent practicable. Furthermore, CMP proposes to install additional visual buffer plantings between Allen Road and the Surowiec Substation to minimize the effect on the scenic character of the surrounding area. Buffer plantings will take into consideration the need for proper setbacks, limitations on planting within a transmission line corridor, and visibility requirements for security. The proposed visual buffer plantings are shown on the Site Plan in Exhibit 2 and described in the Visual Impact Report Excerpt provided in Exhibit 4.

The selection of trees and shrubs for buffer plantings at individual locations will be based on specific site conditions to determine the optimum species mix. The site evaluation will include a number of factors:

- Soil conditions (presence of wetland, depth to bedrock, soil types);
- Sun/shade patterns;
- USDA Plant Hardiness Zones;
- Desirable height and spread;
- Need for maintenance access into the transmission line corridor;
- Security: allowing for surveillance at substations;
- Existing vegetation;
- Aesthetic considerations (four-seasonal interest); and
- Wildlife habitat.

A master list of plant material that may be suitable for roadside buffers has been developed for the MPRP and is included in Exhibit 4.

### *Transmission Lines*

Visual buffer plantings, consisting of native, non-capable species, will be installed at two of the five road crossings in Pownal to minimize views into cleared transmission line corridors and to offset some of the visual changes from the MPRP activities. CMP has made an initial determination of where to install roadside buffers, using the following criteria:

- Type of road and number of viewers;
- Degree of visible change to the existing conditions;
- The length of time that a motorist will see the transmission line;
- Existing screening vegetation to be removed; and
- Alignment of transmission line corridor.

Based on these criteria, CMP proposes to install roadside buffers at the following road crossings in Pownal:

- Fickett Road – Install buffer on south side of road; and
- Allen Road – Install buffer on east side of road along substation fence line.

Planting plans will be prepared by landscape architects for each road crossing. Following completion of construction activities associated with the transmission line road crossing the planting plans will be implemented.

### **V.3. Environmental Considerations**

#### **Safety and Fire Protection**

The proposed project will maintain the same safe and healthful conditions that are already present at the substation and in the transmission line corridors. The equipment and structures at the substation and in the transmission line corridor are maintained to established industry standards so as to ensure the safety of utility workers and the general public.

Maintaining sufficient clearances around the conductors is paramount to the safe and reliable operation of the transmission lines. These clearances are achieved through appropriate siting of the structures themselves and through vegetation maintenance practices as described above. All construction will be in accordance with CMP's transmission standards, general industry standards, and "Good Utility Practice," including all necessary liveline working clearances, strength factors, and reliability factors as governed by the National Electrical Safety Code (NESC). In all instances, the line will be designed to meet or exceed the NESC and other standards, as applicable. The transmission line and all facilities will be operated in full compliance with CMP safety standards, which fully comply with Federal Occupational Safety & Health Administration requirements.

### **Visual Impacts**

Refer to Section V.1 & V.2. for a discussion of existing visual resources and potential visual impacts, and mitigation measures in the project area. The proposed structures fit in with the existing environment.

### **Drainage**

#### **Substation Expansion**

CMP has developed a detailed stormwater management plan that it has submitted to DEP in its Stormwater Management Application that is part of the much larger MPRP Site Location of Development Act/Natural Resources Protection Act Application (June 2009) (a copy of the portions of this multi-volume DEP application pertinent to Pownal have been provided to the Town). As part of developing its stormwater management plan, CMP evaluated and quantified the pre- and post-development stormwater characteristics of the proposed project facilities. The expansion of the existing Surowiec Substation will comply with both the applicable DEP stormwater management requirements in Chapter 500 and Pownal's Site Plan Review standards.

CMP's stormwater management plan is designed to ensure that surface water runoff will not adversely affect neighboring properties, downstream conditions, or any public storm drainage system. As described below and in the Stormwater Management Section of the Site Law Application (Section 12.2.13 – 12.8), CMP proposes to construct the following post-construction stormwater management facilities for the substation expansion:

- Perimeter stormwater conveyance swale constructed around the perimeter of the entire expansion area;
- Culvert with inlet and outlet protection located under the access ramp onto the existing ROW;
- Crushed stone and Maine Department of Transportation (MDOT) Type A gravel fill will be used as base material for the substation yard expansion which will provide water quality treatment; and
- Revegetated temporary construction area.

As part of the work at the substation, CMP proposes to relocate a portion of Runaround Brook and will have to fill some on-site wetland areas. After this site work is complete, the overall drainage pattern and flow direction will be similar to the existing condition, due to the pervious nature of the crushed stone and gravel substation yard, which promotes infiltration of stormwater. Any remaining surface runoff will be collected in a vegetated perimeter swale and/or allowed to run off as sheet flow to on-site wetlands associated with the stream. The discharge end of the perimeter swale will be flared to promote sheet flow before the runoff enters the stream. Modeling results show that the quantity of surface runoff entering the stream from the expanded substation will be less than the pre-existing conditions since the substation yard allows for greater infiltration within the yard itself than that which occurs through the native soils and thus has a lower runoff curve number (CN value). The runoff from the developed site will not adversely affect downstream properties.

No stormwater ponds or basins or infiltration systems are required for this substation expansion. The proposed facilities will meet the required DEP General Standards contained in DEP's Chapter 500 stormwater rules and will not necessitate any further treatment of runoff beyond that provided by the vegetated swale. In addition, no drainage easements will be necessary.

The Pre-Development Watershed Plan and the Post-Development Watershed Plan submitted to the DEP for the proposed substation expansion project are provided in Sheets 166247-SUR-C5 and 166247-SUR-C6 located in Exhibit 2. Both plans include contours, cover types, soil groups, watershed boundaries and analysis points, hydrologic flow lines, time of concentration flow lines, existing features, and drainage ways where applicable. The Post-Development Drainage Plan includes the locations of proposed buildings, roads, other above ground structures and stormwater management structures.

#### Transmission Lines

With the exception of the immediate area occupied by the support structures, there is no increase in impervious surface area associated with the transmission lines, therefore, there will be no significant storm water run-off generated from the project. All new construction will be designed to minimize storm water runoff from the site in excess of the natural predevelopment conditions.

#### Erosion and Sedimentation Plan

CMP completed an analysis of soils within the proposed MPRP transmission line corridor and substation expansion location in Pownal. The details of this analysis are presented in the following sections along with a discussion of the measures CMP will implement to control erosion and sedimentation.

#### Substation Expansion

A Class D medium intensity soil survey was conducted at the Surowiec Substation expansion area to identify existing soils characteristics and potential construction limitations. This information has been incorporated into the design and engineering of the substation expansion. Proper engineering techniques have been implemented to overcome any soil limitations.

CMP has developed a standard manual, "Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects" (2007), which it uses as a routine part of all transmission and substation projects. A copy of the manual is provided in Exhibit 7. This manual contains erosion and sedimentation control requirements, standards, and methods that will be used to protect soil and water resources during construction of the various MPRP components. The manual was developed in consultation with the Maine DEP and is largely based on DEP's *Maine Erosion and Sediment Control BMPs*, dated March 2003, and DEP's Chapter 500, and contains specific Best Management Practices appropriate for electric transmission line and substation construction. These guidelines will be followed in the construction of the Surowiec Substation expansion.

As a result of the engineering techniques that have been implemented and the erosion and sedimentation control practices that CMP will apply, the development of the substation

will not cause soil erosion or reduction in the capacity of the land to hold water to the extent that a dangerous or unhealthy condition may result.

#### Transmission Lines

Based on the applicant's analysis of the Soil Survey Geographic Database compiled by the United States Department of Agriculture – Natural Resources Conservation Service, soils within the transmission line corridor will accommodate the proposed MPRP construction activities.

Soil constraints within the transmission line corridor will be managed and mitigated through implementation of erosion and sediment control measures, proper site and project design, and special construction procedures. If concrete foundations for specific poles should need to be constructed, soil borings will be conducted and the foundations will be designed in accordance with soil characteristics.

With the exception of the immediate area around the base of the support structures there will be no increase in impervious surface area associated with the transmission line. The amount of ground disturbance associated with the transmission lines will be limited to the immediate vicinity of the pole placements and the impacts associated with access ways. Access to pole sites, either for removal or construction, will be achieved by temporary access ways which will be in place for no more than one growing season. Areas where soils have been disturbed will then be mulched with hay. Vegetation will be allowed to reestablish itself once the temporary access ways have been removed. The transmission lines in Pownal will be constructed in accordance with the CMP Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects (2007).

Overall, the ability of the land to hold water will not be materially impacted by the addition of the transmission lines and the erosion and sedimentation control measures CMP will implement will prevent the creation of dangerous or unhealthy conditions attributable to soil erosion.

#### Site Conditions

CMP has developed a MPRP Construction Plan that is included in Section 7.0 of the Natural Resource Protection Act (NRPA) Application, which was filed with the DEP in June 2009 and provided to the Town of Pownal. This construction plan provides an overview of the transmission line and substation construction sequence and techniques that will be implemented during construction of the MPRP. This plan is based on established transmission line and substation construction methods and is designed to minimize impacts to natural resources and expedite construction activities. Construction of the MPRP will be performed in such a manner that natural resources will be protected to the greatest extent practicable, construction crews can safely install the transmission lines and build the substation, and erosion will be minimized. As a result, the project will not unreasonably interfere with natural water flow, violate any water quality law, or unreasonably cause or increase flooding. In addition, this plan helps to ensure there will be no unreasonable harm to wildlife habitats, including fisheries. This plan focuses on the established transmission line and substation construction methods that will be employed when traversing uplands, waterbodies, and wetlands and clearing and building project

components. This plan also provides for flexibility to allow application of the most appropriate construction methods based on site-specific conditions.

#### **V.4. Vehicular Access**

##### *Substation Expansion*

Access to the Surowiec Substation is currently provided by a short, partially paved turnout located between the substation fence line and Allen Road. This off-street parking and loading area is approximately 2,320 square feet in size. This turnout will be expanded by approximately 3,060 square feet to the north along the substation fence line for the MPRP. This parking and loading area will continue to provide permanent access and off-street parking and loading to the substation following construction.

##### *Transmission Lines*

There will be no new permanent roads or driveways associated with the project, although CMP will continue to maintain access points and ways suitable for routine and urgent maintenance by its own vehicles. Temporary access ways, which are not considered roads or driveways, and will not add any impervious surface area, will be established for use during the construction phase. This will be an ongoing process as access will be established to areas undergoing immediate construction. Determinations surrounding the exact nature of the construction of these temporary access ways will be made by the contractor in consultation with an environmental representative. All access paths are temporary and will be removed once construction is complete.

Temporary access way will be established for general access to the corridor for construction purposes. These temporary access ways will be in place for more than one growing season, but will be removed once all aspects of construction in that area are complete. Access to pole sites, either for removal or construction, will be achieved by temporary access ways which will be in place for no more than one growing season. Areas where soils have been disturbed will then be mulched with hay. Vegetation will be allowed to reestablish itself once the temporary access ways have been removed.

Measures will be taken to avoid and minimize impacts to streams and wetlands through the use of crane mats, temporary bridges, geo-textile fabrics, and culverts, when necessary. Appropriate erosion controls will be installed wherever necessary. If necessary, mats will be placed parallel to the upland edge as abutments to further protect bank stability and establish stability. No extensive grubbing (grading to remove root systems) within wetland crossing areas will be done prior to mat placement. However, some minor grading may be required to ensure mat stability and construction access safety. All such grading will be performed on a limited basis and only with prior approval by CMP's environmental representatives. Streams that are too wide to cross with crane mats or temporary bridges will be avoided.

#### **V.5. Parking and Circulation**

See CMP's response to Section V.4. (Vehicular Access) for information on vehicle parking for the MPRP substation and transmission lines. Overall, the MPRP is not a traffic generating project requiring additional parking.

## V.6. **Lighting**

### *Substation Expansion*

Operation of the Surowiec Substation requires three levels of lighting:

1. Existing lights over each door at the control house: Typically runs dusk-to-dawn.
2. Yard perimeter/security lighting: Typically left off, except during night time maintenance activities (which are rare); and
3. Yard Maintenance lighting: Left off except during night time maintenance activities (which are rare).

CMP reserves the right to operate the control house door lights and the yard perimeter security lighting in a dusk-to-dawn mode due to:

- Requests from Law Enforcement;
- National, state, or regional security emergency; and
- Vandalism, theft, or trespassing problems at the station.

Control house lights and security lights are currently present and in operation at the substation. The expansion of the substation yard will require some additional perimeter and emergency lighting capacity to encompass the 3.48-acre expansion area. The additional lighting will be designed and installed to minimize glare and reflection on adjacent properties and roadways.

### *Transmission Lines*

There will be no permanent lighting associated with the transmission line construction and operation of the transmission lines for the MPRP.

## V.7. **Signs**

No new permanent signs are proposed at the Surowiec Substation or along the existing CMP transmission line corridor.

## V.8. **Utilities**

### **Flood Plain Protection**

#### *Substation Expansion*

The Surowiec Substation is not located within a Special Flood Hazard area 100-year flood zone, based on the Q3 Flood Data derived from the Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) for the Town of Pownal, Maine (Panel Number 2302040005B, dated December 2, 1980). The expansion area is located within a Zone B, which is not considered a special flood hazard area. Refer to the floodplain management permit application in Section 6.0 of this document for additional information.

#### *Transmission Lines*

As depicted in the attached maps, only five of the proposed 151 new or rebuilt transmission line structures are located within the mapped 100-year flood plain in Pownal. Given the minimal, additional impervious surface associated with the project, construction and maintenance of the proposed transmission lines will not cause or

increase flooding or cause a flood hazard to any neighboring structures. Furthermore, the program will not affect runoff/infiltration relationships. Thus, the project will avoid problems associated with flood plain development and use. Refer to the floodplain management permit application in Section 6.0 of this document for additional information.

### **Reservation of Stream Corridors**

#### *Substation Expansion*

Expanding the Surowiec Substation will require approximately 3.35 acres of permanent wetland fill. Most of the proposed expansion area consists of a mixed scrub-shrub and emergent wetland community.

Runaround Brook is an intermittent to perennial tributary of the Chandler River. Originating on the north side of Fickett Road, the brook flows through two 18-inch culverts under Allen Road, around the back of the substation, then westerly back under Allen Road, northward back under Fickett Road and eventually to Runaround Pond. CMP is proposing to re-locate and restore the currently channelized reach of Runaround Brook (approximately 1,200 feet) to accommodate the proposed expansion of the Surowiec Substation. The proposed stream restoration plan that is currently under review by the DEP is shown in Figure 3. Based on site information and historic USGS mapping, the natural course of the stream in this area was apparently modified due to agricultural ditching. This channelization work was conducted prior to enactment of the Federal Clean Water Act and predecessors of the State of Maine Natural Resources Protection Act (NRPA). Maps from 1944 and 1957 depict the stream further to the north and east than its current course.

Runaround Brook, as it currently exists, is overly wide and deep, has unnaturally sharp corners, is straight for long distances, and does not exhibit typical stream habitat features or sufficient riparian buffers. Nearly 100 feet of the brook is relegated to a road side drainage ditch along Allen Road. Behind the substation, flood waters are prevented from overflowing into the adjoining emergent wetland by a berm along the east side of the brook and consequently flood the substation. The berm most likely consists of spoil side-cast during the channelization of the Brook and also contains a few observable bedrock outcroppings. Along the channelized segment of Runaround Brook the berm therefore functions as a dike and prevents an interconnection between the channel, the adjoining FEMA designated floodplain and the associated floodplain wetland.

Beaver have also been an ongoing problem with operations at the substation and were removed in early 2009. Before resettlement by beaver dispersing for the upcoming winter of 2009-2010, low stream levels and dry conditions during late summer of 2009 presented optimal conditions to remove a four foot high dam behind the substation. Following coordination with the representatives from the DEP, the MDIFW and the U.S. Army Corps of Engineers, in late September 2009, the beaver dam that caused unsafe conditions at the substation was removed from the existing Runaround Brook channel. Removal of the dam therefore reduces un-normally high water levels that caused dangerous conditions in the substation.

Figure 3: Runaround Brook Plan

The proposed re-location of Runaround Brook around the substation will result in approximately 1,700 feet of restored stream corridor, or an approximately 500 feet increase in length that is based on sound and accepted natural channel design principles. Restoration of this reach will significantly enhance the fishery and wildlife habitat values of the adjacent and downstream watercourse by adding important stream corridor components including a robust riparian shrub buffer that provides temperature ameliorating shade, secure habitat cover and food sources to be used locally by wildlife or exported downstream.

#### *Transmission Lines*

All MPRP transmission line corridors will be continuously vegetated with herbaceous plants and shrubs, but restrictions on the clearing and maintenance within resource areas will allow a greater density of non-capable vegetation to remain and will avoid disturbance to the greatest extent practicable. Buffers bordering streams and rivers will be protected and maintained by selective clearing during construction and reduced cutting of vegetation during maintenance of the transmission line. All tree species capable of growing into the conductor safety zone must be removed from the proposed buffers during construction, and prevented from re-establishing during periodic scheduled vegetation maintenance operations. These species are known as “capable species” and include oaks, pines, maples, birches, poplar, elm, beech, and basswood. Selective transmission line corridor management techniques have been incorporated into the MPRP Vegetation Management Plan, which was provided as Exhibit 10-1 in the MPRP SLODA Application.

#### **Drainage Systems**

##### *Substation Expansion*

CMP has designed the substation expansion to comply with the applicable DEP stormwater management requirements in Chapter 500. Refer to Section V.3. of the Site Plan Review Application for additional information on proposed stormwater management measures at the substation.

##### *Transmission Lines*

With the exception of the immediate area occupied by the support structures, there is no increase in impervious surface area associated with the transmission lines, therefore, there will be no significant stormwater run-off generated from the project. All new construction will be designed to minimize stormwater runoff from the site in excess of the natural predevelopment conditions. The proposed transmission lines will comply with the applicable DEP stormwater management requirements in Chapter 500.

#### **Underground Utility Installation**

Underground cable design is one MPRP transmission corridor design option that has been publicly discussed as a potential alternative to overhead lines to alleviate local, social, real estate, and, to a lesser extent, environmental concerns in selected areas. However, CMP has determined that this technology is not appropriate for the MPRP as an available and viable alternative because it is cost prohibitive and other viable alternatives exist. Underground cable construction typically costs eight to ten times that of conventional overhead line construction. The additional costs required to implement underground

cable construction would likely not be pooled among all of the Independent Systems Operators (ISO) – New England grid users (when costs are pooled to the maximum extent, Maine ratepayers pay for only eight percent of ISO New England-approved projects) so the additional costs of underground cable construction would have to be borne solely by local customers in Maine. Since CMP must design a cost-effective solution to obtain a Certificate of Public Convenience and Necessity from the Maine Public Utilities Commission (MPUC), utilizing a design that obligates CMP customers to absorb unnecessary additional rate increases and project costs is untenable. Furthermore, underground cable construction introduces the potential for additional environmental impacts associated with trench excavation within and across streams and wetlands, and greatly increases the potential for sedimentation during construction. Underground cable maintenance activities may also require driving excavation equipment down the transmission corridor, potentially requiring stream and wetland crossings, and excavation that could cause sedimentation.

### **Utility Routing**

#### *Substation Expansion*

CMP is proposing to expand its existing Surowiec Substation in Pownal to improve the reliability, safety, and security of the bulk power transmission system in Maine, while at the same time meeting the increasing demands for electrical power. CMP will not need to acquire additional lands to construct these facilities in Pownal; rather this portion of the MPRP will be built entirely within the existing substation parcel on land that CMP already owns. The proposed expansion is consistent with the current and historic use of this property as an electric substation that is a key component of the bulk power system in Maine.

Before finally selecting the preferred substation design, four other substation expansion alternatives were evaluated during the project design phase (see Figure 4). However, these alternatives were eliminated in favor of the preferred option based on increased cost, technical constraints, or environmental impacts. These alternatives include the following:

- Alternative A – Expand Substation to the North: Locate expansion area off the very northern corner of the existing substation.
- Alternative B – 345 kV Switchyard Station to the North: Locate expansion area in a new 345 kV switchyard that would connect to the existing Surowiec Substation by a connecting bus.
- Alternative C – 345 kV Switchyard Station to the Northwest: Alternative C is a variant of Alternative B, where a new 345 kV switchyard would be constructed in a hayfield on the western side of Allen Road and would connect to the existing Surowiec Substation by a connecting bus.
- Alternative D – 345 kV Switchyard Station to the West: Alternative D is also a variant of Alternative B or C, where a 345 kV switchyard would be constructed in the hayfield and shrub land on the west side of Allen Road, and connect to the existing Surowiec Substation by a connecting bus.

**Figure 4: Substation Alternatives**

Additional details on these four substation expansion alternatives are provided in Section 2.4.2.13 (Alternatives Analysis) of the NRPA Application filed with the DEP.

#### *Transmission Lines*

CMP designed each transmission segment of the MPRP in Pownal to avoid and minimize community, private property, and environmental impacts while maintaining a cost-effective and technically sound design. This was achieved through two key design steps. First, CMP designed each transmission segment so that the needed improvements would occur within existing transmission corridor owned by CMP. Second, CMP established utility structure locations so that, to the extent practicable, their placement avoided protected natural resources.

Co-locating within existing transmission line corridors avoids the creation of new “greenfield” transmission corridor routes. When new greenfield routes are constructed, new areas of environmental impact often result from the new corridor development. Greenfield transmission corridors are likely to encounter protected natural resources with a frequency similar to that found in existing corridors. However, landscape impacts may be higher in greenfield routes across undeveloped land because new corridor is being created, rather than existing or expanded corridor along previously developed routes as is the case with co-located transmission lines. Thus, co-locating MPRP transmission lines within existing transmission line corridor in Pownal minimizes new potential impacts to vegetation, wildlife habitat, streams, wetlands, vernal pools, and other natural resources; limits landscape disturbances; and minimizes changes to existing land use patterns. Co-location of transmission lines in existing corridors also enhances opportunities for utilizing existing substations, rather than siting new substations, thereby further reducing environmental impacts. In summary, CMP’s proposed MPRP Project in Pownal represents a transmission solution that is economically practicable, involves less environmental impact, and maximizes use of land that is owned by and available to CMP.

### ***V.9. Industrial and Commercial Environmental Performance Standards***

#### **Air Pollution**

The proposed MPRP substation expansion and transmission lines in Pownal will not represent a new source of air pollution including smoke, particulate matter, or odors.

#### **Noise**

The MPRP involves the installation, upgrade, and expansion of transmission lines and the Surowiec Substation in Pownal. Both transmission lines and substations generate some sound. The following sections describe the MPRP’s compliance with the Pownal noise standard.

#### *Substation Expansion*

The Surowiec Substation was originally constructed in 1967 and has been an integral part of CMP’s bulk power system since that time. The substation includes a 345 kV-115 kV transformer, which can generate audible sound levels. CMP constructed a sound barrier building around the transformer at the substation in 1989 to address a noise concerns. The sound barrier successfully reduced sound levels in the community to acceptable levels.

CMP also responded to and addressed additional sound level concerns in 1999 at the Surowiec Substation. This particular sound level issue was associated with the maintenance of two inductor coils at the substation. These coils were taken out of service and sent out for reconditioning to address the increased sound levels. Following the reconditioning work, both inductor coils were determined to be operating within normal sound level parameters.

The proposed expansion of the Surowiec Substation for the MPRP does not include the installation of any significant noise-generating equipment such as new transformers. The proposed expansion includes (1) the rebuild of the existing 345 kV bus on the north side of the substation to accommodate the new 345 kV lines; and (2) the addition of one new 115 kV breaker to the 115 kV bus on the south side of the substation to improve system operability. Switches and other minor equipment will also be added to the substation. This type of equipment emits only low levels of sound on an intermittent and infrequent basis. This new equipment is not expected to have a noticeable influence on sound levels at the substation. In addition, CMP annually monitors sound levels at and around the substation. As part of this monitoring CMP will verify that the substation complies with the Town's standard.

#### *Transmission Lines*

For electric transmission lines, audible noise (AN) is relative to conductor (wire) size. CMP has selected conductor sizes that under ideal, dry conditions are designed to be noise free; under adverse weather conditions (e.g., very high humidity and storm conditions) these same conductors will emit only a slight crackling sound. AN is produced when protrusions on the conductor surface – particularly water droplets on or dripping off the conductors cause the electric field intensity at the conductor surface to exceed the breakdown strength of air, producing AN. The AN from MPRP transmission lines results from the partial electrical breakdown of air around the conductors. In small volumes near the surface of the conductors, energy and heat are dissipated. Part of this energy is in the form of small, local pressure changes that result in AN. This AN can be characterized as a hissing, crackling sound; therefore, AN from transmission lines is typically a foul-weather/wet conductor phenomenon. AN levels for conductors were modeled based upon conservative assumptions for conditions relating to the operation of existing 12.5 kV, 34.5 kV, 115 kV, and 345 kV transmission lines and to the operation of a new 345 kV and 115 kV transmission line and re-rated/upgraded existing lines proposed for the MPRP.

Based on the modeling of AN done by Dr. William Bailey of ExPonent® for the MPRP it was determined that, “The transmission line conductors can give rise to AN, and the levels at the edges of ROWs in fair weather are calculated to be below the noise standard of the MDEP (50 dBA or 45 dBA in quiet areas). Higher levels of AN would occur during foul weather but would be masked by the background noise of rain and wind”, but in each case is anticipated to remain within the levels allowed by the DEP, as well as the higher Pownal standard of 60 dBA at the lot boundary. The results of the modeling done by Dr. Bailey shows that upgrade to the transmission lines associated with the MPRP generally would produce modest increases in the levels of AN at the edges of the corridor and that this noise will dissipate quickly as distance from the edge of the corridor

increases. Section 167, Pole #66 along Segment 18 is the nearest modeling location to Pownal. The results at this location are presented in Table 2 as follows:

**Table 2: Audible Noise Levels (dBA) in Fair and Foul Weather**

Location	Configuration	Fair Weather		Foul Weather	
		-ROW Edge	+ROW Edge	-ROW Edge	+ROW Edge
XS-17 Segment 18 – Section 167, Pole #66	Existing	<0	<0	15.1	10.3
	proposed	9.8	16.2	34.8	41.2

It is anticipated that the sound produced by the conductors at the edge of the Segment 18 transmission corridor ROW will be about 40 dBA (comparable to a quiet office) as the result of an upgrade from 115 kV to 345 kV. This projected sound level meets the Town's noise level standard of 60 dBA and the DEP's more stringent noise standards.

### **Vibration**

Isolated, short term vibrations could be experienced at the CMP corridor boundaries if blasting is required during the installation of the proposed transmission lines. Although extensive blasting is not anticipated, some controlled blasting may be required if bedrock is encountered. If blasting is required, proper safeguards will be employed to protect personnel and property in the vicinity of the blasting. Blasting mats will be used to prevent shot rock from scattering. Pre-blast surveys are typically performed to identify the presence and condition of wells, personal property, and utilities in the vicinity. Blasting precautions and code compliance will be the contractual responsibility of the contractor.

To determine if blasting will be required in order to set new poles, proposed pole placement locations may be pre-dug or drilled prior to a pole setting crew mobilizing to the area. Holes must be dug to a depth that is 10 percent of the pole length plus two feet. For example, an 85 foot pole requires a hole 8.5 feet plus 2 feet deep, or 10.5 feet in depth. If bedrock is encountered before the required depth for the placement of a specified pole is reached, blasting will be necessary.

Operation of the MPRP transmission lines will not produce vibrations that are perceptible at the property boundary.

CMP conducts annual sound level monitoring at the Surowiec Substation to identify and correct any noise increases caused by vibrations from the transformer and inductor coils. This program has proven successful in identifying and correcting sound level increases due to equipment maintenance issues. CMP will continue to conduct monitoring of its equipment to ensure that there are no vibration issues.

### **Heat, Fumes**

The clearing and construction phases of the MPRP will not create significant heat or odors. Limited and short term odors may be generated as a result of exhaust from tree harvesting and construction equipment. Clearing of vegetation will be performed utilizing standard forestry equipment under controlled conditions. A construction supervisor and environmental inspector will be onsite to ensure that any brush burning that may occur will be conducted in a closely supervised situation. All burning will be

conducted in compliance with local and state open burning permit requirements. There are no odors or heat generated by operation of an electrical transmission line or substation.

### **Fire and Explosive Hazards**

CMP has no record of any transmission related failures (e.g., the conductor falls to the ground), that resulted in fires on the 115 kV or 345 kV systems. Although extensive blasting is not anticipated, some controlled blasting may be required during the construction phase of the project if bedrock is encountered. A qualified and licensed blasting contractor will conduct the blasting work for the MPRP. Blasting precautions and code compliance will be the contractual responsibility of the contractor.

CMP employs three Public Safety instructors who work full-time on high-voltage safety education for high-risk groups. In most cases, CMP provides safety training to local fire, police, and EMT departments every two to three years, or more frequently on request. As a practical matter, there is no difference in safety procedures for incidents with a 34.5, 115, or 345 kV lines; the standards and practices are the same.

The Surowiec Substation contains some oil-filled electrical equipment such as the transformer and circuit breakers. The existing spill prevention control and countermeasure (SPCC) plan for the Surowiec Substation will be amended in accordance with the requirements of 40 C.F.R. 112. The substation is designed to contain any spill within the fence line of the station, and spills are cleaned up before the oil can migrate from the station or into the groundwater. As a standard operating procedure, all substation vehicles carry an oil spill kit that contains materials for conducting initial containment and clean-up of spills. In the event of a spill of oil or hazardous material, on-site personnel will immediately invoke standard spill reporting and clean-up procedures. Spills that are properly cleaned-up will not pose a risk to groundwater quality.

**SECTION 5.0**  
**SHORELAND ZONING PERMIT APPLICATION**

## SECTION 5.0 SHORELAND ZONING PERMIT APPLICATION

The following application describes the MPRP's compliance with the Town of Pownal Shoreland Zoning Ordinance (Amended July 2009).

### SHORELAND ZONING DISTRICTS IN THE PROJECT AREA

According to the Town of Pownal Shoreland Zoning Map (2009), the proposed transmission lines will traverse a shoreland zoning Stream Protection (SP) District associated with Chandler Brook at two separate locations within the existing Segment 18 CMP corridor in Pownal. In addition, the Segment 18 CMP corridor crosses a SP District associated with an unnamed tributary to Chandler Brook located at the southern end of the Segment 18 corridor near the Pownal/North Yarmouth boundary. The remaining portions of the Project area, including the Segment 17 corridor and the Surowiec Substation expansion, are not located within any mapped shoreland zoning districts as identified on the Town of Pownal Shoreland Zoning Map.

### PERMITTED LAND USES

The MPRP is classified under the Town of Pownal Shoreland Zoning Ordinance as an “*Essential Service*,” which, pursuant to Table 1 in Section 14 of the Ordinance, is a permitted use in the SP District with the approval of the Planning Board. “Installation” of essential services<sup>3</sup> is also subject to the specific requirements of Section 15(K) of the Ordinance, addressed below.

### SECTION 15 – LAND USE STANDARDS

The following section addresses the Land Use Standards found in Section 15 of the Pownal Shoreland Zoning Ordinance. This section only applies to those portions of the Segment 18 transmission line work located within the mapped shoreland zone in Pownal including the SP District of Chandler Brook and the SP District associated with an unnamed tributary of Chandler Brook. As such, the Surowiec Substation expansion and the Segment 17 corridor are not discussed.

#### ***A. Minimum Lot Standards***

Not applicable.

#### ***B. Principal and Accessory Structures***

Not applicable.

#### ***C. Piers, Docks, Wharfs, Bridges, etc.***

Not applicable.

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<sup>3</sup> An essential service (electric power transmission) has already been installed in the corridor. The MPRP represents an upgrade to the essential service which has already been installed. However, the MPRP meets the requirements of Section 15(K), as discussed below.

**D. Campgrounds**

Not applicable.

**E. Individual Private Campsites**

Not applicable.

**F. Parking Areas**

There will be no parking areas associated with the project within the shoreland zone.

**G. Roads and Driveways**

There will be no new permanent roads or driveways associated with the project, although CMP will continue to maintain access points and ways suitable for routine and urgent maintenance by its own vehicles. Temporary access ways, which are not considered roads or driveways, and will not add any impervious surface area, will be established for use during the construction phase. This will be an ongoing process as access will be established to areas undergoing immediate construction. Determinations surrounding the exact nature of the construction of these temporary access ways will be made by the contractor in consultation with an environmental representative. All access paths are temporary and will be removed once construction is complete.

Temporary access way will be established for general access to the corridor for construction purposes. These temporary access ways will be in place for more than one growing season, but will be removed once all aspects of construction in that area are complete. Access to pole sites, either for removal or construction, will be achieved by temporary access ways which will be in place for no more than one growing season. Areas where soils have been disturbed will then be mulched with hay. Vegetation will be allowed to reestablish itself once the temporary access ways have been removed.

Measures will be taken to avoid and minimize impacts to streams and wetlands through the use of crane mats, temporary bridges, geo-textile fabrics, and culverts, when necessary. Appropriate erosion controls will be installed wherever necessary. If necessary, mats will be placed parallel to the upland edge as abutments to further protect bank stability and establish stability. No extensive grubbing (grading to remove root systems) within wetland crossing areas will be done prior to mat placement. However, some minor grading may be required to ensure mat stability and construction access safety. All such grading will be performed on a limited basis and only with prior approval by CMP's environmental representatives. Streams that are too wide to cross with crane mats or temporary bridges will be avoided.

**H. Signs**

No permanent signs will be installed within the shoreland zone.

**I. Storm Water Runoff**

The proposed transmission lines will comply with the applicable DEP stormwater management requirements in Chapter 500. See Section V.3. of the Site Plan Review Application for additional information on storm water and drainage.

**J. Septic Waste Disposal**

Not applicable. No septic waste disposal systems are proposed as part of the MPRP Project in Pownal.

**K. Essential Services****(1) Where feasible, the installation of essential services shall be limited to existing public ways and existing service corridors.**

A guiding principle in the design of the MPRP transmission line upgrades has been to utilize the existing transmission line corridors to the maximum extent possible. Only where existing corridors cannot accommodate the proposed upgrades while meeting safety and reliability standards is CMP seeking to widen the existing corridors. Creating an entirely new corridor is a last resort. As a result, the vast majority of the transmission line upgrades proposed as part of the MPRP are located within or immediately adjacent to existing corridors. Co-location of the transmission line upgrades, as opposed to the creation of new corridors, has multiple benefits, including the minimization of impacts to communities, individual property owners, and the environment. Within Pownal, the construction of the new and rebuilt transmission lines will occur entirely within CMP's existing corridor.

**(2) The installation of essential services is not permitted in a Stream Protection District, except to provide services to a permitted use within said district, or except where the applicant demonstrates that no reasonable alternative exists. Where permitted, such structures and facilities shall be located so as to minimize any adverse impacts on surrounding uses and resources, including visual impacts.**

The Segment 18 corridor traverses the SP District associated with Chandler Brook at two separate locations and the SP District associated with a tributary to Chandler Brook. Within the corridor, CMP has, to the greatest extent practicable, sited each individual transmission line structure so as to avoid, and where unavoidable to minimize, adverse impacts on surrounding uses and resources. As part of this avoidance and minimization effort, CMP has attempted to site the transmission line structures so that none are located within the SP district. In Pownal, however, due to the fact that the existing corridor crosses Chandler Brook and its tributary stream, CMP was unable to entirely avoid the shoreland zone. Nevertheless, CMP was able to design the new Section 3020 transmission line and the rebuild of the Section 166 and Section 167 lines such that only six single pole structures will be located within the SP District. CMP will also be removing six existing H-frame structures from the SP District as part of the Section 166/167 rebuild so there is no net increase in transmission line structures within the SP District. Furthermore, the number of poles within the SP District will actually decrease as each of the existing six H-frame structures subject for removal are comprised of two poles anchored in the ground (12 poles total). CMP will be rebuilding the Section 166 and 167 115 kV transmission lines with single pole structures and the Section 3020 345 kV transmission line with H-frame structures so there is actually a net reduction in the number of poles in the SP District from twelve to six.

Due to the location of the existing corridor and the nature of the transmission line as a linear project, there are no reasonable alternatives for locating these structures outside the

shoreland zone. The amount of permanent disturbance associated with the planned structures will be small (i.e., approximately 30-40 square feet for each pole) and limited to the immediate vicinity of the pole placement. Since the project is co-located with the existing transmission line corridor, which contains structures of a similar bulk and style, locating these structures within the shoreland zone causes the least overall impact when compared with the alternatives. Avoiding the shoreland zone would require expanding or moving the existing transmission line corridor or erecting much taller and much more substantial structures (e.g., steel towers with concrete footings) to achieve the required spans over these districts. The overall environmental and visual impacts of either of these alternatives would be greater than the impacts associated with the project as planned.

***L. Mineral Exploration and Extraction***

Not applicable.

***M. Agriculture***

Not applicable.

***N. Timber harvesting***

Not applicable.

***O. Clearing of Vegetation for Activities Other Than Timber Harvesting***

The CMP Segment 18 corridor is primarily cleared and maintained and, as such, no additional wide-scale vegetation clearing is planned to accommodate the new Section 3020 transmission line and the rebuild of the Section 166 and Section 167 transmission lines (see Maps 1 – 4 in Exhibit 1). The only exception is the SP District associated with the tributary to Chandler Brook (see Map 1 in Exhibit 1). There are two small patches of trees occupying approximately 0.27 acres near the Pownal/North Yarmouth boundary within the Segment 18 corridor that will be cleared for the construction the Section 3020 transmission line. A portion of this cleared area lies within the SP District. This work is necessary to ensure that the project meets federal reliability and safety standards (in accordance with P(1) of this standard).

The 345 kV transmission line installation within the Segment 17 corridor (which is not within the SP District) will also require some additional clearing work to ensure that the project meets federal reliability and safety standards. Clearing in this location was discussed previously in Section V.1. of the Site Plan Review Application.

It is possible that some danger trees may need to be removed along the Segment 18 corridor eastern edge. Danger trees are trees that are large enough and positioned in such a manner that they could fall into the conductor, thereby posing a severe reliability risk. The removal of danger trees is a relatively infrequent activity. No grubbing (i.e., stump removal) will take place. The cutting work is performed using equipment typical of logging operations including cable and hook skidders, forwarders, tree movers, chain saws, and logging trucks. In general all trees, saplings of capable species, and sometimes tall shrubs are cut at ground level. All root systems are left intact as the ground is not grubbed or graded.

**P. Erosion and Sedimentation Control**

Please refer to Section V.3.4 of the Site Plan Review Application for information on erosion and sedimentation control measures at the substation and along the transmission line.

**Q. Soils**

Please refer to Section V.3.4 of the Site Plan Review Application for information on soils at the substation and along the transmission line.

**R. Water Quality**

The multiple methods, plans, and procedures to prevent groundwater degradation during construction, operation, and maintenance of the proposed MPRP substation and transmission lines are incorporated in CMP's Environmental Control Requirements for Contractors and Subcontractors - Oil and Hazardous Material Contingency Plan (see Exhibit 9). These procedures establish a set of minimum requirements for spill prevention and response. The procedures incorporated into the plan have proven successful for preventing spills and for addressing spills if they occur. CMP's environmental inspectors will ensure that all personnel working on the site follow these procedures.

In addition, CMP employees follow the procedures outlined in CMP's Spill Management and Prevention section of CMP's Environmental Procedures Manual for response to any spills of oil, gasoline, hydraulic oil, or other similar substance. These procedures are similar to those outlined in Exhibit 9 for contractors, and cover reporting, immediate response, cleanup, and documentation. Employees operating construction vehicles will be trained to promptly contain, report, and clean up any spill in accordance with standard procedures. To minimize spill potential during construction, no fueling or maintenance of vehicles will be performed within 25 feet of a protected natural resource or identified critical habitat area or other areas of special significance as identified by the DEP, MDIFW or the Maine Natural Areas Program.

After construction, the electrical transmission line corridor is maintained to encourage the growth of scrub-shrub vegetation. Trees within the corridor that are capable of growing up into the conductors ("capable species") must be removed for safety and reliability reasons. CMP uses a selective herbicide program to treat an area once every four years to maintain an early successional stage of growth. Herbicide is selectively applied (using a low-pressure backpack applicator) to capable species to prevent growth (or re-growth of a cut plant) of individual plants. CMP does not use herbicides within 25 feet of any waterbody or wetland with standing water. Crew forepersons are certified by the Maine Pesticide Control Board, and all herbicides are EPA registered. The selective use of herbicides within the transmission line corridor does not pose a threat to groundwater quality and will not impair designated uses or the water classification of any water body.

**S. Archaeological Sites**

Following consultation with the Maine Historic Preservation Commission (MHPC), CMP has conducted extensive investigations of potential pre-historic archaeological, historic archaeological and historic architectural surveys along the project corridor. Survey reports have been submitted to the MHPC. CMP is continuing to consult with MHPC regarding whether there are any potentially eligible archaeological or historic resources impacted within the project ROW in Pownal.

**SECTION 16 – ADMINISTRATION (APPROVAL STANDARDS)**

The following section addresses the eight approval standards found in Section 16(D) of the Pownal Shoreland Zoning Ordinance.

**1. *Maintain safe and healthful conditions.***

The proposed project will maintain the same safe and healthful conditions that are already present in the transmission line corridor (and at the substation). The equipment and structures in the transmission line corridor (and at the substation) are maintained to established industry standards so as to ensure the safety of utility workers and the general public.

Maintaining sufficient clearances around the conductors is paramount to the safe and reliable operation of the transmission lines. These clearances are achieved through appropriate siting of the structures themselves and through vegetation maintenance practices as described above. All construction will be in accordance with CMP's transmission standards, general industry standards, and "Good Utility Practice," including all necessary liveline working clearances, strength factors, and reliability factors as governed by the National Electrical Safety Code (NESC). In all instances, the line will be designed to meet or exceed the NESC and other standards, as applicable. The transmission line and all facilities will be operated in full compliance with CMP safety standards, which fully comply with Federal Occupational Safety & Health Administration requirements.

A health concern that is sometimes expressed revolves around the electric and magnetic fields produced by transmission lines. These fields are produced by any electric equipment or anything that carries electric current. The World Health Organization and numerous other scientific agencies around the world have studied the issue extensively. These studies have been unable to establish that electric and magnetic fields produced by transmission lines such as those being proposed as part of the MPRP cause any adverse health effects. There is no scientific basis to project any adverse health effects as a result of the electric and magnetic fields produced by transmission lines associated with this project. Accordingly, this standard has been met.

**2. *Not result in water pollution erosion or sedimentation to surface waters.***

As described above with respect to Shoreland Zoning Ordinance Sections 15(I), (P), and (R), the MPRP will not result in water pollution, erosion, or sedimentation to surface waters.

**3. *Adequately provide for the disposal of all wastewater.***

There will be no wastewater disposal required for this project in Pownal, and therefore this standard has been met.

**4. *Not have an adverse impact on spawning grounds, fish, aquatic life, bird, or other wildlife habitat.***

In order to identify existing resources, CMP's biological field crews documented wildlife while conducting extensive field surveys (wetland and rare plant surveys during the 2007 - 2009 growing seasons and vernal pool surveys during 2007, 2008 and 2009 breeding seasons). CMP, in conjunction with MDIFW, conducted bald eagle surveys in 2009. In addition, CMP also conducted fish and wildlife database searches and contacted state and

federal natural resource agencies to obtain existing data on wildlife and fisheries resources in the vicinity of the proposed MPRP components. Specifically, resource agencies were consulted regarding the presence of deer wintering areas (DWAs), waterfowl and wading bird habitat (WWH), federal and state listed rare, threatened, and endangered (RTE) wildlife and fish species, and any other species or sensitive habitats of concern. There are no DWAs, bald eagle essential habitats, or WWHs within the substation expansion area or Segment 17 and Segment 18 corridors in Pownal.

There are two significant vernal pools located within the Segment 17 corridor in Pownal. One pool is situated within an active pasture and field while the other is located on the western side of the corridor, primarily within the M&N Pipeline easement. No direct impacts to these vernal pools will result from construction and maintenance of the MPRP. These vernal pools will be identified in the field with highly visible flagging and will be completely avoided by construction activities. Both vernal pools will be spanned by electric conductors. One pool will be indirectly impacted through the conversion of a minor amount of adjacent forested uplands and wetlands to scrub-shrub and herbaceous habitat. Disturbed areas in the vicinity of vernal pools will be restored.

There is one state-listed mussel species, the creeper (*Strophitus undulatus*), documented within Chandler Brook in the Segment 18 corridor. This is a Species of Special Concern in Maine. Construction of the MPRP is not expected to affect this mussel species in Chandler Brook because the brook will be spanned by the transmission lines and structures will be replaced on either sides of the brook, therefore in-stream construction will be avoided. CMP will avoid crossing Chandler Brook to access these structures. In addition, CMP will implement its erosion and sediment control measures to prevent sedimentation into waterbodies and maintain the existing water quality.

Impacts to spawning grounds, fish, aquatic life, or other wildlife habitat will be largely avoided through the use of the existing service corridor, which has been in place for several decades. In general, given the existing landscape characteristics of the site, construction and maintenance of the project is not expected to create conditions that are not already common to the project area. It is fully anticipated that local wildlife populations will adapt and respond to any additional alterations much as they already do to ongoing land uses within the vicinity of the proposed project. Therefore, impacts to wildlife are expected to be minimal. Impacts to identified significant wildlife habitats and natural areas, such as vernal pools and rare plant locations, have been avoided or minimized to the extent practicable through the careful siting and placement of the substation expansion area and the new transmission line poles. Thus, this standard has been met. See the attached resource maps in Exhibit 1 for more detailed information.

**5. *Conserve shore cover and visual, as well as actual, points of access to inland waters.***

The proposed project will take place entirely within the existing corridor, and since the corridor already contains structures of a similar nature, the proposed project will not significantly affect visual points of access to inland waters, and will have no impact on actual points of access to inland waters. The corridor will continue to be maintained in a vegetated state, thereby preserving a similar degree of shore cover which currently exists.

**6. *Protect archaeological and historic resources as designated in the comprehensive plan.***

As discussed above with respect to Ordinance Section (15)S, CMP has conducted extensive investigations of potential pre-historic archaeological, historic archaeological and historic architectural surveys along the project corridor. Survey reports have been submitted to the MHPC. CMP is continuing to consult with MHPC regarding whether there are any potentially eligible archaeological or historic resources impacted within the project ROW in Pownal.

**7. *Will avoid problems associated with flood plain development and use.***

The MPRP Project will only install three new structures, remove one structure, and rebuild two structures within FEMA-mapped Zone A special flood hazard areas in Pownal. In addition, one existing structure will be removed from a Zone A special flood hazard area. Because of the nature of a transmission line and the minimal additional impervious surface associated with the project, construction and maintenance of the proposed transmission line will not cause or increase flooding or cause a flood hazard to any neighboring structures. Furthermore, the program will not affect runoff/infiltration relationships. Thus, the project will avoid problems associated with flood plain development and use. Refer to the floodplain management permit application in Section 6.0 for additional information.

**8. *Be in conformance with the provisions of Section 15, Land Use Standards.***

As discussed above with respect to Shoreland Zoning Ordinance Sections 15(A) through (S), above, this project complies with all of the provisions of Section 15 of the Shoreland Zoning Ordinance.

## **SECTION 6.0**

# **FLOODPLAIN MANAGEMENT PERMIT APPLICATION**

## **SECTION 6.0 FLOODPLAIN MANAGEMENT PERMIT APPLICATION**

The following application describes the MPRP's compliance with the Floodplain Management Ordinance for the Town of Pownal, Maine (2009). This application identifies the regulated Federal Emergency Management Agency (FEMA) delineated flood zones within the MPRP project area and addresses the requirements of Article III and Article VI of the Pownal Floodplain Management Ordinance.

### ***FEMA SPECIAL FLOOD HAZARD AREAS***

#### ***Substation Expansion***

Runaround Brook (Zone B) – The reach of Runaround Brook located east of Allen Road and adjacent to the Surowiec Substation is mapped as Zone B by FEMA (see Figure 5). Zone B is not considered a special flood hazard area by FEMA and, as such, is not subject to the standards of the Town of Pownal Floodplain Ordinance outlined in Article I.

#### ***Transmission Lines***

The Segment 18 corridor crosses four FEMA-mapped 100-year Flood Zones in Pownal (Zone A). These flood zone areas are shown on the FEMA Flood Insurance Rate Maps (FIRM) for the Town of Pownal, Cumberland County (Effective Date: December 2, 1980; Community Panel Number 230204 0005B). The proposed MPRP activities within these flood zones are described as follows:

- Runaround Brook (Zone A) – FEMA has mapped the reach of Runaround Brook located west of Allen Road as a Zone A. (See Exhibit 1, Map 4.) This mapped floodplain area crosses the Segment 18 corridor in an east to west orientation within a large hayfield. One new H-frame (3020-4) associated with the new Section 3020 transmission line will be constructed within the mapped flood zone and one existing Section 375 H-frame (3038-238) will be relocated into the mapped flood zone as part of the rebuild of that line. In addition, one existing single pole (167-7) and one existing H-frame (374-233), both of which currently are located within the mapped flood zone, will be rebuilt in the same general location within the flood zone.
- Chandler Brook (Zone A) – The existing CMP corridor crosses a Zone A flood area associated with Chandler Brook at two separate locations. One crossing is located at Elmwood Road (see Exhibit 1, Map 2) and the other is approximately 170 feet north of Chadsey Road (see Exhibit 1, Map 1). At the Elmwood Road crossing, one new single pole (166-26) will be installed adjacent to Elmwood Road and within the mapped flood plain area. In addition, one existing H-frame (167-30) will be relocated outside of the mapped flood zone during the rebuild of the Section 167 transmission line. At the Chadsey Road crossing of Chandler Brook, no new poles will be installed within the mapped flood zone. The flood zone will be spanned by the new Section 3020 transmission line and the rebuilt Section 166 and Section 167 transmission lines.

**Figure 5 – FEMA Map Excerpt**

- Tributary to Chandler Brook (Zone A) – Proposed construction activities within the Zone A flood hazard area associated with the tributary to Chandler Brook only include the installation of temporary access ways which will facilitate transmission line construction on the north and south sides of the brook within the CMP Segment 18 corridor.

In summary, CMP will install two new H-frames and one new single pole, remove one H-frame, and rebuild one H-frame and one single pole within FEMA-mapped Zone A flood hazard areas in Pownal. There are no reasonable alternatives to locating these poles in the mapped flood zones identified above. Since the project is co-located within the existing transmission line corridor that contains H-frames of a similar bulk and style, locating poles within the flood zone causes the least overall impact when compared with the alternatives. Avoiding these flood zones would require expanding or moving the existing transmission line corridor or erecting much taller and much more substantial supports (e.g., steel towers with concrete footings) to achieve the required spans over these areas. In contrast, the amount of permanent disturbance associated with the planned H-frames (which consist of two poles each) and single poles will be small (i.e., approximately 30-40 square feet for each pole) and limited to the immediate vicinity of the pole placements. Therefore, the overall impacts to the floodplain of either of these alternatives would be greater than the impacts associated with the project as planned.

CMP's proposed construction within the flood zones is not anticipated to have any significant impact on flood levels given the minimal potential displacement of flood water by the transmission line poles. In addition, the diameter of the new poles would not be significantly larger than the existing poles currently located in the floodway. As such, the new poles would not result in any significant changes to flood levels.

The following section discusses CMP's compliance with the review standards of the Pownal Floodplain Management Ordinance.

### **ARTICLE III – APPLICATION FOR PERMIT**

The following section includes the information requested in Article III of the Town of Pownal Floodplain Management Ordinance.

#### ***A. Name, Address, and Phone Number***

##### *Applicant:*

*Central Maine Power Company  
83 Edison Drive  
Augusta, Maine 04336  
Attention: Mary Smith (207)623-3521*

##### *Applicant's Agent:*

*TRC  
400 Southborough Drive  
South Portland, ME 04106  
Attention: Richard Paquette (207)879-1930 ext.126*

**B. Map of Construction Site**

Figure 2 provides a U.S. Geological Survey map showing the extent of the MPRP in the Town of Pownal.

**C. Site Plan of Existing and Proposed Development**

The Zone A special flood hazard areas from the FEMA FIRM for the Town of Pownal have been incorporated into the MPRP maps in Exhibit 1. These maps include aerial photo based maps (Maps 1 –8) showing detailed project information in Pownal including the location of the CMP corridor, existing and proposed pole locations, proposed temporary access paths, FEMA flood zones, wetlands and waterbodies, and other natural resource data.

**D. Statement of Intended Use**

The proposed development within Zone A special flood hazard areas consists of constructing a new 345 kV transmission line and rebuilding existing 115 kV transmission lines within the Town of Pownal.

**E. Statement of Development Cost**

Within the Town of Pownal, CMP estimates the total development cost of the proposed facilities at approximately \$32 million.

**F. Statement of Sewage System Type**

Not applicable. No sewage system is proposed as part of this project in the Town of Pownal.

**G. Specification of Dimensions**

The diameter of the new transmission line poles proposed within the floodplain will not be significantly larger than the poles associated with the existing transmission line poles that are currently located in the corridor. However, the above ground height of the poles will generally increase from a typical above ground height of 45 feet for the existing 115 kV H-frames to a typical above ground height of 75 feet for the new 345 kV H-frames and 115 kV single poles. Exhibit 5 provides a table showing the height ranges of the proposed H-frames and single poles in Pownal.

**H - K. Elevation Information**

The standards at Sections H through K apply only to the new construction or substantial improvement of “structures” as defined in the Town of Pownal Floodplain Management Ordinance. (See definitions of “new construction” and “substantial improvements,” limiting those terms to construction and improvements of structures.) The transmission line poles and the temporary access ways proposed within the Zone A special flood hazard areas are not defined as structures because they do not consist of a walled and roofed building. Instead, these project facilities are defined as “minor development” under the Pownal Ordinance. As such, the elevation requirements in Sections H through K do not apply to the proposed work in the Zone A special flood hazard areas in Pownal.

**L. Water Course Alteration**

The proposed project includes the installation of two new 345 kV H-frames and one new 115 kV single pole, the removal of one 115 kV H-frame, and the rebuild one 345 kV H-frame and

one 115 kV single pole (previously a 115 kV H-frame) within FEMA-mapped Zone A special flood hazard areas in Pownal. This proposed activity will not alter or relocate the course of any waterbodies in Pownal and the H-frames and single poles will not be placed within the channel of any waterbody.

***M. Compliance with Article VI***

The project's compliance with the Article VI Development Standards is presented in the following section of these application materials.

**ARTICLE VI – DEVELOPMENT STANDARDS**

***A. All Development***

The transmission line poles proposed within the mapped flood zones will be adequately anchored to prevent flotation, collapse, or lateral movement during a flood. In general, the poles are buried to a depth measuring ten percent of the total pole length plus two feet. For example, a 90-foot pole would be buried eleven feet below the ground surface. All construction will be conducted in accordance with CMP's transmission standards, general industry standards, and "Good Utility Practice," including all necessary liveline working clearances, strength factors, and reliability factors as governed by the NESC. In all instances, the line will be designed to meet or exceed the NESC and other standards, as applicable. The transmission line and all facilities will be operated in full compliance with CMP safety standards, which fully comply with Federal OSHA requirements.

***B. Water Supply***

Not applicable.

***C. Sanitary Sewage Systems***

Not applicable.

***D. On-site Waste Disposal Systems***

Not applicable.

***E. Watercourse Carrying Capacity***

Not applicable.

***F. Residential Structures***

Not applicable.

***G. Non-residential Structures***

Not applicable.

***H. Manufactured Homes***

Not applicable.

***I. Recreational Vehicles***

Not applicable.

**J. Accessory Structures**

Not applicable. The proposed activities do not include the construction of an accessory structure as defined in the Town of Pownal Floodplain Management Ordinance.

**K. Floodways**

CMP does not propose any development for the MPRP within the regulatory floodways identified by FEMA in the Town of Pownal.

**L. Enclosed Areas Below the Base Floor**

Not applicable.

**M. Bridges**

Not applicable. CMP does not propose any permanent bridges within a mapped Zone A special flood hazard area in Pownal. During construction, a temporary equipment bridge will be constructed across the tributary to Chandler Brook to allow access to the portion of the Segment 18 corridor located to the south of the brook. However, this equipment bridge will be removed following the completion of construction. Equipment crossings will be constructed in accordance with CMP's Environmental Guidelines for Construction and Maintenance Activities on Transmission line and Substation Projects provided in Exhibit 7 of this application.

**N. Containment Walls**

Not applicable.

**O. Wharves, Piers and Docks**

Not applicable.

**EXHIBIT 1**

**Project Scope and Natural Resource Maps  
Maps 1 – 8**

## **EXHIBIT 2**

### **Surowiec Substation Expansion Site Plan**

Sheet 166247-SUR-C1: **Existing Conditions/Overall Plan**

Sheet 166247-SUR-C2: **Site Plan**

Sheet 166247-SUR-C3: **Sections and Details**

Sheet 166247-SUR-C4: **Erosion Control Notes and Details**

Sheet 166247-SUR-C5: **Pre-Development Watershed Plan**

Sheet 166247-SUR-C6: **Post-Development Watershed Plan**

## **EXHIBIT 3**

### **Transmission Line Configuration Cross Sections**

**Segment 18: Sheet S1-E-18-1**

**Segment 18: Sheet S1-E-18-2**

**Segment 17: Sheet N5-17-6D**

**Segment 17: Sheet N5-17-6E**

**Segment 17: Sheet N5-17-6F**

## **EXHIBIT 4**

### **Visual Impact Report Excerpts**

## **EXHIBIT 5**

### **Structure Height Ranges**

**Maine Power Reliability Program  
Town of Pownal  
Transmission Line Structure Height Ranges**

<b>Structure Height (Feet)</b>	<b>Number of Structures</b>
31-40	2
41-50	5
51 - 60	6
61 - 70	48
71 - 80	39
81 - 90	24
91 - 100	17
101-110	9
<b>Total:</b>	<b>150</b>

## **EXHIBIT 6**

### **List of Direct Abutters**

## **EXHIBIT 7**

### **Proof of Right, Title, or Interest**

The table below provides a list of lands for which CMP has rights to construct the project in the Town of Pownal through fee ownership, easement, or option. This list provides the name of the underlying landowner, the map and lot numbers of the parcels, and the interest CMP has acquired to the land.

## **EXHIBIT 8**

### **Environmental Guidelines for Construction and Maintenance Activities on Transmission line and Substation Projects**

## **EXHIBIT 9**

### **Environmental Control Requirements for Contractors and Subcontractors - Oil and Hazardous Material Contingency Plan**