



**MAINE POWER
RELIABILITY PROGRAM**
A CENTRAL MAINE POWER COMPANY PROGRAM

**AUGUSTA, MAINE
CONDITIONAL USE APPLICATION**

**SECTION 60 AND SECTION 88 TRANSMISSION
LINE RECONSTRUCTION**

**SECTION 3025 NEW TRANSMISSION LINE
CONSTRUCTION**

Prepared for:

Central Maine Power Company
83 Edison Drive
Augusta, Maine 04336

Prepared by:



TRC Engineers, LLC
14 Gabriel Drive
Augusta, Maine 04330

December 2009

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Application Form

CITY OF AUGUSTA, MAINE

Conditional-Use Application

I. Applicant / Owner Information

1. Applicant Name: Central Maine Power Company c/o Mary Smith
 Mailing Address: 83 Edison Drive, Augusta, ME 04336
 Phone Number: 207-626-4006 Fax Number n/a

2. Authorized Agent for Applicant:
 Name of Firm: TRC Engineers, Inc. Fax Number 207-621-8226
 Mailing Address: 14 Gabriel Drive
 Contact Name: Cynthia S. Bastey Phone Number: 207-620-3833

3. Property Owner Name: Central Maine Power Co. Phone Number: 207-626-4006
 Mailing Address: 83 Edison Drive, Augusta, ME 04336

4. Which form of required "evidence of standing" is being submitted with this application?:
 Deed Signed Lease Contract Signed Purchase/Sale/Option Agreement
 Signed Written Agreement from Owner

II. General Project Information

(Narrative attached)

5. Please attach a narrative identifying the following about your project:

- a. **Description of development project you are proposing** (e.g. expansion of existing mixed-use commercial building; new office building; expansion of manufacturing shifts; expansion of commercial parking/loading areas; different land use; etc).
- b. **size of any proposed building expansion (total sq.ft.).**
- c. **all the specific uses occurring on site (e.g. retail, warehouse, storage, manufact.)** (identify what is occurring today and what will change after proposed development occurs).
- d. **number of employees on-site for your largest shift** (or for unmanned sites, how often per month site is visited by vehicles).
- e. **estimated number of vehicles entering your site on a daily basis** (broken down by number of delivery vehicles and number of customer/visitor/employee vehicles).
- f. **total square footage of impervious surface area existing on site today** (total square footage of first floor of each building plus square footage of all parking areas).
- g. **total square footage of impervious surface area after proposed development occurs.**

RPDS;

6. Lot Size: (ac.) N/a (3.5) 7. Lot Frontage: (ft.) N/a (crosses Pappy's Lane) 8. Zoning District(s): Res. Prot.

9. Project Location: Pappy's Lane 15-34 & Options on 15-33 & 15-33A
Street Assessor Tax Map # + lot #(s)

III. Applicant Acknowledgments

10. Complete Application Required.

This application is being submitted under the requirements of the Augusta Land-Use Ordinance. As the applicant, I understand that this application must contain a complete submission of required materials by the application deadline date in order to be heard by the Planning Board. The deadline allows for adequate review by City Staff and the Planning Board; and as such, any applications that are not complete by the submission deadline date will not be placed on the Planning Board meeting agenda. To insure review by the Planning Board on the date desired, the applicant should submit materials at least 7 days ahead of the deadline so that staff can determine completeness of materials.

11. Drawings and/or Maps are required

For formal submittals to the Planning Board (see drawing requirements attached to this application). Generally, drawings for projects with new buildings or additions under 1,000 sq. ft. in floor area, (or) projects that do not involve changing the existing structure, can be done by hand, as long as they are drawn to-scale (for those unable to produce this kind of drawing themselves, the City can create the drawing from existing computer maps (a fee is required for this). For developments creating 1,000 sq.ft. or more of new impervious development, a formal plan drawn by a professional engineer shall be required to be submitted with this application. Drawings are critical to the Planning Board and City staff in adequately understanding existing and proposed site conditions, as well as seeing the relationships between proposed structures and the projected impacts of parking, traffic, stormwater runoff, buffer areas, noise, etc. on abutters.

Signature of Applicant / Agent: Cynthia A. Bastey

Signature of Property Owner: See Agent Authorization Letter.

Today's Date: December 18, 2009

12. Checklist of Required Submission Materials:

Paper Copy	Included	Waiver Requested
7 copies of the application form and narratives	X	
7 copies of the deed, Purchase & Sale agreement, or other document to show standing	X	
3 copies of any stormwater report		X
2 copies of any traffic report		X
8 reduced-sized copies the site plan and landscaping plan	X (site plan)	X (landscape plan)
4 full-sized copies of the complete plan set	X	
1 copy of a letter authorizing the agent to represent the applicant	X	
Payment in full of \$50 application fee (Note: an abutter notification fee will be assessed after the application is determined to be complete. The fee is \$0.15 + the cost of first class postage for each abutter that will be notified as required by the ordinance.)	X	
Electronic Copy	X	
1 CD that includes each of the application documents in Adobe PDF format	X	

For Official Use:

\$50 Conditional Use Application Fee Paid. Received By (Initials): _____ Date: _____

\$ _____ Abutter Notification Fee Paid. Received By (Initials): _____ Date: _____

IV. Drawing Requirements for Site Plans

Instructions:

- A. **For applications involving only a change of use** (with no new creation of impervious area), the following items are to be shown on the site plan drawing (this can be done by hand as long as the drawing is drawn to a scale of *1-inch = 20 feet* for smaller parcels of land or *1-inch = 40 ft.* for larger parcels): Items #2 thru #5; #8; #12; #14.
- B. **For applications involving the creation of less than 1,000 sq.ft.** of new building construction and/or impervious surface expansion, the following items are to be shown on the site plan drawing (this can be done without the assistance of a professional as long as the drawing is drawn to a scale of *1-inch = 20 feet* for smaller parcels of land or *1-inch = 40 ft. (or 50 ft.)* for larger lots): Items #1 thru #8; #12; #14.
- C. **For applications involving the creation of 1,000 sq.ft. or more** of new building construction and/or impervious surface expansion, a *Professional Engineer is required* to draw the project site plan. The following items are to be shown/submitted regarding the site plan: Items #1 thru #14.

Please Note: Occasionally, in accordance with section 6.1.4 (3)(b) of the Land Use Ordinance, other drawing details and/or documentation may be required by the Planning Board/City Planner in order to determine how the provisions of the ordinance will be met by the development.

Item

1.	Overall location map identifying location of site in Augusta, w/ North Arrow.
2.	Title block stating: 1) Applicant's Name, 2) Brief Title of Proposed Project, 3) Street Name of Project, 4) Date Drawn, 5) Name of Person Drawing Plan, 6) Scale of the Drawing, 7) North Arrow.
3.	Boundaries of the site, showing its actual shape, and all adjacent lots, property lines, buildings, driveways, and streets within 200' of the project property lines. Owner's name for project property and all abutting properties shall be labeled.
4.	Identification of zoning district in a note on plan (if single district) (OR) identification of multiple zoning districts (including any shoreland zoning district) with drawn and labeled district boundaries.
5.	Location and identification of <u>existing</u> ground cover material and vegetation (including wetlands), and location of <u>proposed</u> buffer yards plantings, fences, berms, and landscaping.
6.	Location of <u>existing</u> and <u>proposed</u> buildings and structures, labeled with <u>existing</u> and <u>proposed</u> building uses and square footages.
7.	Setback distances from all adjacent property lines to <u>proposed</u> buildings, parking areas, structures, and signs.
8.	Location of all <u>existing</u> and <u>proposed</u> streets, ways, driveways, entrances, exits, loading/drop-off areas, vehicle parking spaces (with individual spaces identified). Label with the existing and proposed surface materials.
9.	Topographic contour lines for all areas that will be disturbed (at 2 ft. intervals), showing <u>existing</u> and <u>proposed</u> on-site grading.
10.	Location of <u>existing</u> and <u>proposed</u> electric service, water supply, sewer, and stormwater drainage systems.
11.	Stormwater calculations report and design showing how applicant will meet stormwater quantity standard of "no net increase" of stormwater off-site.
12.	Location, height, and type of all <u>existing</u> and <u>proposed</u> lighting, fencing, and signs.

13.	Location Plan and details showing erosion control structures/measures.
14.	Location and identification of boundaries of any easements or right-of-ways on the property.

Important: The applicant should consult the Augusta Technical Standards Handbook for dimensional and performance requirements relating to traffic control, water quality, public safety, and street design/construction standards.

V. Site Plan Review Criteria for Conditional Uses

(Narrative attached)

The following is a list of criteria which will be used by the Planning Board to evaluate your application. Please include a DETAILED narrative with your application that addresses EACH of the following questions.

(1) NEIGHBORHOOD COMPATIBILITY:

(The intent of this section is to encourage the applicant to design the proposal in consideration of the physical impact it will have on the immediate neighborhood (within five (500) feet if the property is in the Urban Growth Area Districts and within thousand (1000) feet if the property is in the Planned Development and/or Rural Districts).

- (a) Is the proposal compatible with and sensitive to the character of the site and neighborhood relative to:
 - (i) Land uses;
 - (ii) Architectural design;
 - (iii) Scale, bulk and building height;
 - (iv) Identity and historical character;
 - (v) Disposition and orientation of buildings on the lot; and
 - (vi) Visual integrity?
- (b) Are the elements of the site plan (e.g., buildings, circulation, open space and landscaping) designed and arranged to maximize the opportunity for privacy by the residents of the immediate area?
- (c) Will the proposal maintain safe and healthful conditions within the neighborhood? *This criterion shall not be limited to the standards affecting safety and health as outlined in this land use ordinance. Additional regulations may be found in the City of Augusta Code of Ordinances as amended.*
- (d) Will the proposal have a significant detrimental effect on the value of adjacent properties (which could be avoided by reasonable modifications of the plan)? *In determining whether this criterion has been met, the Planning Board may require the applicant to submit an appraisal prepared by a State of Maine certified appraiser.*

(2) PLANS AND POLICIES:

- (a) Is the proposal in accordance with the adopted elements of the 1988 Growth Management Plan?

(3) TRAFFIC PATTERN, FLOW AND VOLUME:

- (a) Is the proposal designed so that the additional traffic generated does not have a significant negative impact on surrounding neighborhood?
- (b) Will safe access be assured by providing proper sight distance and minimum width curb cuts for safe entering and exiting? See City of Augusta Technical Standards Handbook.
- (c) Does the proposal provide access for emergency vehicles and for persons attempting to render emergency services?
- (d) Does the entrance and parking system provide for the smooth and convenient movement of vehicles both on and off the site? Does the proposal satisfy the parking capacity requirements of the city and provide adequate space suited to the loading and unloading of persons, materials and goods?

(4) PUBLIC FACILITIES:

Is the proposal served by utilities with adequate capacity or have arrangements been made for extension and augmentation of the following services:

- (a) Water Supply (both domestic and fire flow);
- (b) Sanitary Sewer/subsurface waste disposal system;
- (c) Electricity/Telephone;
- (d) Storm Drainage?

(5) RESOURCE PROTECTION AND ENVIRONMENT:

- (a) If the proposal contains known sensitive areas such as erodible or shallow soils, wetlands, aquifers, aquifer recharge areas, floodplain or steep slopes (over fifteen (15) percent, what special engineering precautions will be taken to overcome these limitations?
- (b) Does the proposal conform to applicable local, State DEP and Federal EPA air quality standards including but not limited to odor, dust, fumes or gases which are noxious, toxic or corrosive, suspended solid or liquid particles, or any air contaminant which may obscure an observer's vision?
- (c) Does the proposal conform to applicable local, State DEP and Federal EPA water quality standards, including but not limited to erosion and sedimentation, runoff control, and solid wastes and hazardous substances?
- (d) Will all sewage and industrial wastes be treated and disposed of in such a manner as to comply with applicable federal, state and local standards?
- (e) Shoreland and Wetland Districts: Will the proposal:
 - (i) Maintain safe and healthful conditions;
 - (ii) Not result in water pollution, erosion, or sedimentation to surface waters;
 - (iii) Adequately provide for the disposal of all wastewater;
 - (iv) Not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;
 - (v) Conserve shore cover and visual, as well as actual points of access to inland and coastal waters;

Rev. Date: 5/19/09

- (vi) Protect archeological and historic resources as designated in the 1988 Growth Management Plan
- (vii) Avoid problems associated with flood plain development and use; and
- (viii) Conform with the provisions of Section 5.3.1, Special Shoreland Standards.

(6) PERFORMANCE STANDARDS:

- (a) Does the proposal comply with all applicable performance and dimensional standards as outlined in this ordinance?
- (b) Can the proposed land use be conducted so that noise generated shall not exceed the performance levels specified in the performance standards section of this ordinance? Detailed plans for the elimination of objectionable noises may be required before the issuance of a building permit.
- (c) If the proposal involves intense glare or heat, whether direct or reflected, is the operation conducted within an enclosed building or with other effective screening in such a manner as to make such glare or heat completely imperceptible from any point along the property line? Detailed plans for the elimination of intense glare or heat may be required before issuance of a building permit. Temporary construction is excluded from this criterion.
- (d) Is the exterior lighting, except for overhead street lighting and emergency warning or traffic signals, installed in such a manner that the light source will be sufficiently obscured to prevent excessive glare on public streets and walkways or into any residential area?
- (e) Does the landscaping screen the parking areas, loading areas, trash containers, outside storage areas, blank walls or fences and other areas of low visual interest from roadways, residences, public open space (parks) and public view?
- (f) Are all the signs in the proposal in compliance with provisions of this ordinance?

(7) FINANCIAL AND TECHNICAL ABILITY:

- (a) Does the Applicant have adequate technical ability to meet the terms of the Ordinance?
- (b) Does the Applicant have adequate financial ability to construct the development in compliance with the terms of the Ordinance?

It is incumbent upon the Planning Board to approve the application unless it makes one (1) or more negative written findings with respect to the above applicable criteria. All decisions of the Planning Board shall be accompanied by a written statement that sets forth the precise reasons why the findings were made. Once a decision is made, the Planning Board shall inform, in writing, the applicant and the Code Enforcement Officer of its decision and its reasons therefor. Upon notification of the decision of the Planning Board, the Code Enforcement Officer, as instructed, shall immediately issue, issue with conditions prescribed by the Planning Board, or deny a Conditional Use Permit. (Ord. No. 303, 1-21-92)

CMP Corporate Certificate

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and of the reports of organization, amendment and dissolution of corporations and annual reports filed by the same.

I further certify that CENTRAL MAINE POWER COMPANY, formerly THE MESSALONSKEE ELECTRIC COMPANY is a duly organized business corporation under the laws of the State of Maine and that the date of incorporation is July 20, 1905.

I further certify that said business corporation has filed annual reports due to this Department, and that no action is now pending by or on behalf of the State of Maine to forfeit the charter and that according to the records in the Department of the Secretary of State, said corporation is a legally existing business corporation in good standing under the laws of the State of Maine at the present time.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this sixth day of January 2009.



A handwritten signature in black ink, appearing to read "Matthew Dunlap".

MATTHEW DUNLAP
Secretary of State

Agent Authorization Letter

Evidence of Right, Title or Interest

Summary of Applicant's Right, Title or Interest*			
Item	Existing CMP Corridor	Expanded CMP Corridor	
Map-Lot	15-34	15-33	15-33A
Form of Interest	Warranty Deed	Memorandum of Option	Memorandum of Option
Grantor	Harold B. Cooper	Glynnes L. Cooper	Bruce C. & Robin L. Cooper
Grantee	Central Maine Power Co.	Central Maine Power Co.	Central Maine Power Co.
Date	18-Dec-60	18-Feb-08	18-Feb-08
Registry	Kennebec County	Kennebec County	Kennebec County
Book/Page	1210/444	9660/0167	9660/017

**Deed and option documents are included in Exhibit 10.*

Application Form Section II
General Project Information Narrative

5. Project Narrative

Maine Power Reliability Program Description

The Maine Power Reliability Program (MPRP) is a project by Central Maine Power Company (CMP) to upgrade Maine's bulk power system, most of which 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. Central Maine Power Company 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 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 assessed and addressed.

In January of 2007, the MPRP began a comprehensive needs assessment of CMP's 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, 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. 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, MPRP will encompass nearly 80 Maine towns, and will require approvals from the Maine Public Utilities Commission, the Maine Department of Environmental Protection (MDEP), and numerous municipalities.

See Exhibit 1, Maine Power Reliability Program (MPRP) Project Scope Map.

The proposed upgrades in Augusta, outlined below, are a part of the MPRP and intended to help 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.

MPRP Project Description in Augusta

The MPRP in Augusta will increase the number of transmission lines in the CMP corridor located between the Augusta/Chelsea and Augusta/ Whitefield town lines in the southeast corner of the City from two to three, which is a distance of about 950 feet.

5a. Transmission Line Relocation and New Construction

The transmission line expansion includes the following elements:

- 1) Widening the existing corridor (from 225' to 265') by acquiring approximately 40 feet from abutters to the north;
- 2) Clearing capable vegetation from the expanded corridor to accommodate a new transmission line configuration;
- 3) Removing two existing 115kV transmission lines (Sections 60 and 88) and reconstructing them at different locations further north within the corridor; and
- 3) Constructing one new 345kV transmission line (Section 3025) on the south side of the corridor.

The work in Augusta is currently scheduled to start in the second half of 2010.

See Exhibit 2, Existing and Proposed Transmission Lines in Augusta.

5b. Size of any proposed building expansion (total sq. ft.)

No building expansions are proposed as part of the project.

The three proposed transmission lines (two relocated/rebuilt 115kV lines and one new 345kV line) will include six (6) transmission line structures (five single pole structures and one 3-pole H-Frame structure) occupying an estimated total ground area of 180 sq. ft. Two existing transmission line structures occupying about 50 sq. ft. of ground area will be removed.

5c. All the specific uses occurring on site (e.g. retail, warehouse, storage, manufact.) (Identify what is occurring today and what will change after proposed development occurs).

Uses currently occurring in the existing corridor include two 115kV transmission lines: Section 60 and Section 88. Section 60 has no pole structures located in Augusta. Section 88 includes two 2-pole wooden H-Frame structures in Augusta that are respectively 45 and 50 feet in height above ground (AG). Also located along the south side of the corridor, under license agreement with CMP, is an underground AT&T fiber-optic cable (4 foot minimum width). Approximately 120 feet of Pappy's Lane, a 15-20 foot wide private gravel drive, also crosses the corridor in Augusta.

Proposed uses of the expanded corridor include three transmission lines: Section 60 and Section 88 relocated and rebuilt north of their current positions; and new Section 3025, a 345kV line, to be constructed on the south side of the corridor. A total of six transmission line structures will be installed in the City of Augusta:

- Five single pole wood structures 79 to 93 feet in height on rebuilt Sections 60 and 88;
- One steel 3-pole H-Frame 100 feet in height on the new Section 3025.

Woody vegetation capable of growing into the clearance zone between conductors (wires) and ground vegetation, termed “capable vegetation,” will be removed from a strip 40 feet to 60 feet wide along the north side of the corridor. This clearing will affect approximately 0.2 acres west of Pappy’s Lane and 0.5 acres east of Pappy’s Lane. The expanded corridor will also incorporate another 40 feet of Pappy’s Lane.

See: *Exhibit 3, Existing and Proposed Transmission Line Cross Sections*
Exhibit 4, Existing and Proposed Transmission Line Structure Information
Exhibit 5, Site Plan

5d. Number of employees on-site for your largest shift (or for unmanned sites. how often per month site is visited by vehicles).

The corridor is and will be an unmanned site. CMP performs a visual aerial inspection on all transmission lines on an annual basis; aerial infrared inspections are done on a four-year cycle. Transmission line poles are inspected every 10 years. CMP does routine corridor vegetation maintenance on a four- to five-year cycle.

5e. Estimated number of vehicles entering your site on a daily basis (broken down by number of delivery vehicles and number of customer/visitor/employee vehicles).

CMP vehicles do not access the corridor on a daily basis. The private drive, Pappy’s Lane, serves three residences north of the corridor and may be used daily by residents.

5f. Total square footage of impervious surface area existing on site today (total square footage of first floor of each building plus-square footage of all parking areas).

Impervious surfaces existing on the site today include two existing transmission line structures:

2 two-pole H-Frame structures @ 25 sq. ft. = 50 sq. ft.

These structures will be cut at or below ground level and removed.

5g. Total square footage of impervious surface area after proposed development occurs.

With the exception of the immediate area around the base of the transmission line structures there will be no increase in impervious surface area associated with the transmission line upgrades in Augusta. As a result, CMP has conservatively estimated the impervious surfaces that will exist on the site when the project is completed to include:

5 single pole structures @13 sq. ft.	=	65 sq. ft.
<u>1 three-pole H Frame pole structure @115 sq. ft.</u>	=	<u>115 sq. ft.</u>
Total	=	180 sq. ft.

The corridor in Augusta now includes about 2400 sq. ft. (20' x 120') of Pappy's Lane. Forty (40) additional feet of Pappy's Lane (800 sq. ft.) will be located in the corridor as a result of land acquisition. However, there will be no increase in actual impervious surfaces as a result of the purchase.

6. Lot Size

	Acres
Existing Lot Size (15-34):	2.70
Option on 15-33:	+0.42
<u>Option on 15-33A:</u>	<u>+0.38</u>
Lot Total	3.50

7. Lot Frontage

In Augusta, the CMP corridor has frontage on Pappy's Lane, a private drive that provides vehicle access from Route 17 to residences located north of the corridor. The corridor also has direct frontage (+/- 400 feet) on Route 17 in Chelsea, approximately 1500 feet west of Pappy's Lane. (Note that as established in Ordinance Section 5.2.8.2, dimensional requirements, such as lot frontage, do not apply to transmission lines.)

	Feet
Existing frontage:	120
<u>Optioned frontage:</u>	<u>40</u>
Lot Total	160

8. Zoning Districts

Rural Ponds District (RPDS)

The transmission line project is located in the Rural Ponds District (RPDS). The project involves major public utility facilities (Ordinance Chapter 2), which are not among the uses listed as permissible in this district (Ordinance Chapter 3.6.2 (3)). The corridor and transmission line corridor has existed at this location for decades and is a lawfully existing nonconforming use. Modifications to nonconforming uses are permissible if approved by the Planning Board in accordance with the conditional use process and criteria outlined in section 6.3 (Ordinance Chapter 3.5.5 (1)). The proposed project will expand the area in nonconforming use by increasing the width of the corridor by 40 feet.

Stickney Brook Resource Protection District

The transmission line project may also be located in a 250 foot Resource Protection District (a shoreland district) along Stickney Brook, although this is not entirely clear based on review of

the map depicting shoreland overlay zones. Electric power transmission lines are among the “essential services” that are permissible as a Conditional Use in the Resource Protection District, unless they are restricted by performance standards (Ordinance Section 3.6.3.1(3)(b)). As discussed below, the transmission line upgrades proposed in Augusta as part of the MPRP comply with all applicable performance standards.

See Exhibit 6, Augusta Zoning Districts Applicable to the MPRP.

Application Form Section V
Site Plan Review Criteria for Conditional Use
Narrative

(1) NEIGHBORHOOD COMPATIBILITY:

(The intent of this section is to encourage the applicant to design the proposal in consideration of the physical impact it will have on the immediate neighborhood (within five (500) feet if the property is in the Urban Growth Area Districts and within thousand (1000) feet if the property is in the Planned Development and/or Rural Districts).

- (a) Is the proposal compatible with and sensitive to the character of the site and neighborhood relative to:**
 - (i) Land uses;**
 - (ii) Architectural design;**
 - (iii) Scale, bulk and building height;**
 - (iv) Identity and historical character;**
 - (v) Disposition and orientation of buildings on the lot; and**
 - (vi) Visual integrity?**

The transmission line corridor is located in a rural zoning district in southeast Augusta, approximately 350 feet north of state Route 17 in Chelsea and Whitefield. An electric utility corridor has been a feature of the area for decades: the Section 60 115kV transmission line went into service in 1961, and the Section 88 115kV transmission line went into service in 1971.

Within 1,000 feet of the transmission line corridor, development is concentrated south of the corridor along Route 17, outside of Augusta, in Chelsea and Whitefield, where it is characterized by mixed commercial and residential uses. The area north of the corridor in Augusta is rural and includes three residences accessed by a private drive, Pappy's Lane.

The proposed development is compatible with and sensitive to a rural area in which a transmission line corridor is an historic fixture. The project includes a modest expansion of the existing corridor to the north in order to co-locate a new transmission line with existing lines. This co-location avoids greater impacts to natural resources and landowners that would result from creating a separate corridor for the new line. The project will create no new occupied buildings, and when completed, will generate no significant traffic beyond that currently required for periodic maintenance of the corridor facilities.

The project will make greater use of the transmission line corridor than is currently the case. There will be three transmission lines rather than two, and the project will include one 345kV line in addition to the two existing 115 kV lines. There will be six transmission line structures in the corridor rather than two, and these will be taller than the existing structures (79-100 feet compared to 45-50 feet). The project includes single-pole and H-Frame structures rather than H-Frames alone, and it includes one steel structure rather than structures made exclusively of wood. Although the new structures will be taller, the basic use and appearance of the area – as a transmission line corridor – will remain unchanged.

The reconstructed and new transmission lines will be oriented in the same direction as existing lines.

Maintenance of visual integrity is addressed primarily by co-locating the proposed transmission lines within and adjacent to the existing corridor, as opposed to creating an entirely new corridor. The new taller structures and associated lines will be more visible along Route 17 in Chelsea and Whitefield and from Pappy's Lane in Augusta.

A visual impact analysis for the MPRP was conducted by Terrence J. DeWan & Associates Landscape Architects/Planners. The study considered potential views of the project by residents, motorists, and recreationists in terms of compatibility with the surrounding landscape, scale contrast and spatial dominance. The proposed taller structures will make the transmission lines more visible above the surrounding tree cover and especially visible in open fields. The increase in height should result in a moderate to strong contrast in scale, depending on the vantage point from which the transmission lines are seen.

(b) Are the elements of the site plan (e.g., buildings, circulation, open space and landscaping) designed and arranged to maximize the opportunity for privacy by the residents of the immediate area?

The privacy of area residents should be unaffected by the completed project. When construction is completed, the corridor will be unmanned, requiring only periodic maintenance access by CMP, as is currently the case. Access to Augusta residences north of the corridor is over private drive from Route 17 in Chelsea; there is no public road access to these homes. The project will reduce the amount of predominantly forest vegetation between the transmission lines and residences north of the corridor by 40-60 feet. However, an approximately 200-foot wide strip of this vegetation will remain on private land between the nearest residence and the corridor.

(c) Will the proposal maintain safe and healthful conditions within the neighborhood?

This criterion shall not be limited to the standards affecting safety and health as outlined in this land use ordinance. Additional regulations may be found in the City of Augusta Code of Ordinances as amended.

The project will maintain the safe and healthful conditions similar to those that are already present in the transmission line corridor. The corridor and the structures within it 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 operation of the line. These clearances are achieved through appropriate siting of the structures themselves and through scheduled vegetation maintenance. 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 (EMF) 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 EMF 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 EMF produced by transmission lines associated with this project.

- (d) **Will the proposal have a significant detrimental effect on the value of adjacent properties (which could be avoided by reasonable modifications of the plan)?** *In determining whether this criterion has been met, the Planning Board may require the applicant to submit an appraisal prepared by a State of Maine certified appraiser.*

The project will not have a significant detrimental effect on the value of adjacent properties. The proposed transmission line upgrades will occur within or directly adjacent to the existing electric utility corridor that has been in place for nearly 50 years. The current homes on Pappy's Lane were built in 1982 or later, and post-date the existing transmission lines.

Since the transmission line upgrades will not have a significant detrimental effect on the adjacent property values, the question of whether CMP's plan could or should be modified is not material. We note, however, that the design selected by CMP is intended to maximize the use of the existing corridor and avoid the need to create an entirely new corridor. In addition, the proposed vegetation clearing is necessary to achieve the clearances between conductors and ground vegetation that ensure safe and reliable operation of the transmission lines. The taller pole structures and their spacing in the corridor enable CMP to use a compact design and reflect the safety and reliability requirements of operating the two 115kV and one 345kV transmission lines in a common corridor.

(2) PLANS AND POLICIES:

- (a) **Is the proposal in accordance with the adopted elements of the 1988 Growth Management Plan?**

The 1988 Growth Management Plan has been replaced by the City of Augusta 2007 Comprehensive Plan, adopted in January 2008. As a result, this standard no longer applies.

Although not necessary for the Planning Board's review, a discussion of the Comprehensive Plan follows, specifically Volume One: Strategy; Section C: Future Land Use; Part B: Rural Areas – East.

The proposed transmission line upgrades will be located in the future land use area of Augusta designated Rural East, which extends generally eastward from Cony Road/Church Hill Road to the City limits. The project is consistent with the development patterns recommended for the area.

Rural East

Development patterns in this area should:

- be progressively more rural as one moves east,
- pay special attention to maintaining water quality in the lake watersheds;

- be protected from significant subdivision development (cluster development with increased open space requirements are encouraged); and
- maintain large open areas for wildlife, agriculture, silviculture, and water quality/quantity management.

Comprehensive Plan, Volume 1, p. 52

Rural Character. The exiting transmission line corridor has been a feature of the Rural East for decades. The proposed project will widen the cleared corridor by 40-60 feet; relocate and reconstruct two existing transmission lines and install one new transmission line within the corridor. Structural development will be limited to six transmission line structures, and there will be no new roads, parking or loading areas. The co-location of transmission lines avoids greater impacts to landowners and natural resources that would result if a separate corridor were created for the new line. When construction is complete, the corridor will continue to be an unmanned site and generate no significant traffic beyond that currently required for periodic maintenance.

Lake Water Quality. The project is located in the Togus Pond watershed, specifically within the Stickney Brook sub-watershed, which drains into Lower Togus Pond. Stickney Brook and its tributary cross the CMP corridor approximately one-half mile from the point at which the brook enters a large flowage connected to Lower Togus Pond. The brook and tributary have a state water quality classification of B.

The proposed project will not adversely affect water quality in the Togus Pond watershed for the following reasons:

- The net increase in impervious area of 130 sq. ft. will not generate significant new runoff from the project site;
- Although capable vegetation will be removed on the north side of the corridor, the corridor will remain permanently vegetated with shrubs and herbaceous plants;
- Clearing and vegetation maintenance within 25 feet of streams will be selective to allow a greater density of non-capable vegetation to remain as a buffer; and,
- Construction will employ the measures of CMP's BMPs – *Exhibit 7, Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects* (Environmental Guidelines).

A principal goal of the Environmental Guidelines is to maintain water quality. The guidelines include directions for pre-construction resource identification and planning; equipment access; stream and wetland crossing methods; water diversion structures; sediment barriers; mulching and seeding; winter construction considerations; and site restoration standards for CMP personnel, their representatives and contractors. The manual, developed in consultation with the Maine Department of Environmental Protection (DEP), is largely based on DEP's Maine Erosion and Sediment Control BMPs, dated March 2003, and DEP's Chapter 500.

Protect from Subdivision Development. N/a

Large open areas. The project proposes six transmission line structures (180 sq. ft.) and associated overhead conductors on a 3.5 acre parcel. The project will convert approximately 0.7

acres from partially forested to predominantly shrub and herbaceous vegetation. There will be no new buildings or permanent roads. When the project is completed, the transmission line corridor will be a largely open area with essentially the same characteristics that it has today.

(3) TRAFFIC PATTERN, FLOW AND VOLUME:

- (a) Is the proposal designed so that the additional traffic generated does not have a significant negative impact on surrounding neighborhood?**

The transmission line corridor is an unmanned site and will not generate additional traffic that would have a significant impact on the neighborhood. Following construction, traffic will be limited to periodic visits by CMP vehicles to maintain vegetation and transmission facilities and to address emergencies.

- (b) Will safe access be assured by providing proper sight distance and minimum width curb cuts for safe entering and exiting? See City of Augusta Technical Standards Handbook.**

The project involves no permanent curb cuts or driveway openings.

- (c) Does the proposal provide access for emergency vehicles and for persons attempting to render emergency services?**

The corridor is an unmanned site that requires no permanent roads. The corridor is accessible by public road from Route 17 in Chelsea and from a private drive off Route 17 (Pappy's Lane). Travel on the corridor in an emergency would be by off-road-capable vehicle or on foot, as is currently the case.

- (d) Does the entrance and parking system provide for the smooth and convenient movement of vehicles both on and off the site? Does the proposal satisfy the parking capacity requirements of the city and provide adequate space suited to the loading and unloading of persons, materials and goods?**

The corridor is an unmanned site, and requires no parking and loading facilities. Entrance to the corridor for periodic maintenance is typically informal, and there is no routine loading and unloading of persons, materials and goods.

(4) PUBLIC FACILITIES:

Is the proposal served by utilities with adequate capacity or have arrangements been made for extension and augmentation of the following services:

- (a) Water Supply (both domestic and fire flow);**
- (b) Sanitary Sewer/subsurface waste disposal system;**
- (c) Electricity/Telephone;**

(d) Storm Drainage?

The proposed project is not served by public services or facilities for water supply, sewage disposal, electricity, telephone or storm drainage.

(5) RESOURCE PROTECTION AND ENVIRONMENT:

- (a) If the proposal contains known sensitive areas such as erodible or shallow soils, wetlands, aquifers, aquifer recharge areas, floodplain or steep slopes (over fifteen (15) percent, what special engineering precautions will be taken to overcome these limitations?**

Soils: Based on medium intensity soil survey data, most soils in the corridor are either Scantic silt loam (ScA), a lowland hydric soil, or Woodbridge very stony fine sandy loam on 3%-8% slopes (WsB). The uplands on the eastern end of the corridor in Augusta have Paxton-Charlton very stony fine sandy loam on 8%-15% slopes (PeC). See Exhibit 8, Soils Map. Soil limitations on the site are indicated in Table 1.

Table 1 Soil Limitation Table				
Soil Name	Map Unit	Erosion factor K (Whole soil)*	Depth to any restrictive layer	Restrictive Layer type
Woodbridge very stony fine sandy loam, 3%-8%	WsB	.24	18-30"	Dense material (noncemented)
Scantic silt loam	ScA	.32	>78" (None)	(None)
Paxton-Charlton very stony fine sandy loam, 8%-15% slopes (Paxton)	PeC	.24	15-36"	Dense material

*Erosion K factors range from 0.02 to 0.69. Higher ratings indicate increased chance of sheet and rill erosion. Source: Natural Resources Conservation Service, Web Soil Survey

Structures installed in wet soils will be partially backfilled with crushed stone to ensure stability. To control erosion, construction will be done in accordance with CMP’s Environmental Guidelines, Exhibit 7.

The eastern end of the corridor includes bedrock outcrops and thin drift areas (“Surficial Geology, Togus Pond Quadrangle, Maine,” Maine Geological Survey, Open File No 07-101, 2007), which may require blasting to remove the small volume of material needed to fit and plumb the transmission line structures and install guy anchors. 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. No adverse effects from blasting activity upon either sensitive natural resources or adjacent property owners are anticipated due to the small charges required for these activities.

Wetlands: A four acre wetland occupies much of the corridor in this area. Approximately 2.8 acres of the wetland are located in Augusta. The area is generally saturated and contains some permanently flooded areas and drainages, including Stickney Brook and its tributary. The wetland is characterized primarily by emergent vegetation with scrub-shrub and forested components. Only where there are not practicable alternatives are structures sited in wetlands.

One existing two-pole H-Frame (#88-63) will be removed from the wetland. Three single pole structures (#88-70, #88-71 and #60-70) and one new three-pole H-Frame (#3025-55) will be sited in the wetland. Capable vegetation will be cleared from approximately 0.6 acres of the wetland on the north side of the corridor. Temporary equipment access to pole removal and installation sites will be from Pappy's Lane. Installation of stream and wetland crossings, water diversions, erosion and sedimentation controls and site restoration will be done in accordance with CMP's Environmental Guidelines, Exhibit 7. Streams and wetlands are typically crossed with timber mats or other DEP-approved crossing methods.

Streams: Approximately 50 feet of Stickney Brook cross the northwestern corner of the corridor in Augusta. The brook drains from Chelsea to Augusta, crossing Pappy's Lane in Chelsea and exiting the corridor west of the lane. Within the corridor the brook averages 8 feet in width and 2-3 feet in depth. Approximately 315 feet of a tributary to Stickney Brook crosses the corridor in Augusta and joins the main stem of the brook in the corridor in Chelsea. Within the corridor the tributary averages 5 feet in width and 8-10 inches in depth.

Installation of the transmission lines will require a temporary crossing of the tributary to Stickney Brook located east of Pappy's Lane. Precautions to protect stream water quality and riparian habitat include: pole structure setbacks greater than 75 feet from the water; more restrictive vegetation clearing and management practices within the 25 foot stream buffer area; and, installation of stream and wetland crossings, water diversions, erosion and sedimentation controls and site restoration in accordance with CMP's Environmental Guidelines, Exhibit 7. Streams and wetlands are typically crossed with timber mats or other DEP-approved crossing methods.

Aquifers: The nearest documented bedrock well in Augusta is on Mud Mill Road, over 4500 feet from the project site. The well yields 6-8 GPM and has a drilled depth of 250-300 feet ("Bedrock well depth in the Augusta 30 x 60 Quadrangle," Maine Geological Survey, Open File No. 07-108, 2007). There is a significant sand/gravel aquifer (>10 gallons per minute) associated with the Wellman Pond watershed located over 600 feet north of the corridor along the Augusta/Whitefield town line ("Sand and Gravel Aquifers, Togus Pond Quadrangle," Maine Geological Survey, Open File No. 05-44, 2005). The aquifer is located up-gradient from the transmission line corridor. No adverse impact to aquifers is expected from the project.

Floodplains: The Augusta Flood Insurance Rate Map (FIRM) indicates an "area of special flood hazard" (Zone A) extends approximately 100 feet east from Stickney Brook into the CMP corridor. No project development is proposed in this area.

Steep Slopes: Soil and topographic maps indicate slopes between 8% and 15%, and potentially greater than 15%, at the eastern end of the corridor in Augusta. Field visits indicate that these

slopes generally reflect the interface between bedrock outcrops and surrounding lowlands. No new or reconstructed pole structures will be located on this interface.

(b) Does the proposal conform to applicable local, State DEP and Federal EPA air quality standards including but not limited to odor, dust, fumes or gases which are noxious, toxic or corrosive, suspended solid or liquid particles, or any air contaminant which may obscure an observer's vision?

The project will comply with all applicable local, state and federal air quality standards. Applications for approvals of the project under the Site Location of Development Act and the Natural Resources Protection Act have been submitted to DEP. Application for approvals under the Clean Water Act have been submitted to the US Army Corps of Engineers. Copies of these documents are on file with the City of Augusta.

No degradation of air quality is expected to result from construction and operation of the project. Minimal, temporary influences on air quality (odor, dust, fumes or gases) as a result of construction activities may occur, arising from construction personnel commuter traffic; exhaust from clearing and construction equipment or vehicles; and temporary dust generated by construction activities along unpaved routes. Given the limited duration of activities at any one location, the generally rural nature of the project area, any influences on overall air quality should be insignificant.

CMP may deploy one or more temporary, portable (trailer-mounted) two megawatt (MW) distributed generation (DG) units during and immediately following construction to provide local voltage support. Units are fueled with low or ultra-low sulfur diesel fuel. Maine Department of Environmental Protection Air Emission License #A-952-71-A-N, issued to CMP on November 2, 2006, regulates air emissions from these DG units. This license also prescribes emission controls, heat output, fuel sulfur content, and maximum fuel consumption (runtime) of these units.

(c) Does the proposal conform to applicable local, State DEP and Federal EPA water quality standards, including but not limited to erosion and sedimentation, runoff control, and solid wastes and hazardous substances?

The project will comply with applicable local, State and Federal water quality standards. Applications for approvals of the project under the Site Location of Development Act and the Natural Resources Protection Act have been submitted to DEP. Application for approvals under the Clean Water Act have been submitted to the US Army Corps of Engineers. Copies of these documents are on file with the City of Augusta.

CMP's Environmental Guidelines, Exhibit 7, are used as a routine part of all transmission and substation projects. The manual contains effective and proven erosion and sedimentation control requirements, standards, and methods that will be used to protect soil and water resources during construction of the project. The manual is largely based on, and has been developed to be consistent with, the MDEP *Maine Erosion and Sediment Control Best Management Practices (BMPs)*, dated March 2003, and MDEP's Chapter 500, and contains specific BMPs appropriate for electric transmission line and substation construction.

The Environmental Guidelines provide CMP personnel, their representatives and contractors with a single, cohesive set of erosion control specifications for the MPRP. All bid packages and contracts for work performed on the MPRP will include these guidelines to ensure the work is completed in an environmentally sensitive manner. CMP personnel and their representatives will ensure that the procedures contained in this manual are followed by regularly inspecting all work and requiring corrective action when necessary.

With the exception of the immediate area occupied by the support structures, there is no increase in impervious surface area associated with the transmission line; 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. Restoration activities following construction are designed to restore site contours to pre-construction conditions and to ensure that areas disturbed during construction will be revegetated.

CMP anticipates that solid waste generated from the project will be limited to minimal land clearing and construction debris generated during the construction phase. 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*). 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.

All contractors and subcontractors working on behalf of CMP are required to comply with *CMP's Environmental Control Requirements for Contractors and Subcontractors – Oil and Hazardous Material*, included as *Exhibit 9*. These require that storage, transport, and use of oil, hazardous materials and wastes be in accordance with best management practice and applicable local, state, and federal regulations; that uncontrolled spills or releases to the environment be avoided; and sufficient spill cleanup and containment supplies be maintained on-site to control releases of oil, hazardous materials, or wastes. The requirements also include specific procedures for spill reporting.

Vegetation cleared from the project corridor will be limited to capable species. Merchantable wood will be sold for lumber or firewood. Other woody material will be managed in compliance with the Maine Slash Law (12 M.R.S.A. § 9331-9336). All other wood waste generated in the process of vegetation clearing will be shipped off-site to be used as fuel, processed as chips or utilized in the production of erosion control mulch.

Construction debris may include 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. All of these materials will be recycled or shipped to a licensed waste management company for the collection and disposal or recycling of such incidental waste. (See Table 2.)

Table 2 Itemization of Material Generated during Construction of the Proposed MPRP Corridors, and Management Method	
Material	Disposition
Wood (timber, slash, stumps, etc.)	Chipped on site or hauled off site to boiler, chip plant, or mulch production facility
Treated wood (poles, crossarms)	Donated or landfilled in licensed special waste landfill
Galvanized Steel	Maine Metals Recycling (Auburn)
Porcelain Insulators	Commercial Paving Recycling Corporation, Scarborough (CPRC), crushed and used as road sub-base material
Food waste, plastics, common trash	Shipped to licensed MSW landfill, transfer station, or incinerator
Redeemable drink containers	Redeemed for recycling
Ferrous Metals	Maine Metals Recycling
Wooden Cable Spools & Pallets	Stuart C. Irby Company (Waterville) for reuse
Wooden Insulator Crates	Shipped to licensed MSW landfill, transfer station, or incinerator
Paper	Recycled thru FCR Goodman (various Maine locations)
Scrap Cable	Maine Metals Recycling
Aluminum	Maine Metals Recycling
Concrete Debris	CPRC for use in road sub-base

Two transmission line structures (assumed to be treated) will be removed as a result of the proposed project in Augusta. 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 MDEP Rules, Chapter 418 (Beneficial Reuse), as well as any other applicable federal, state, and local laws. A Consumer Information Sheet is also provided to the recipient that describes proper handling procedures for treated wood. The Pole Transfer Agreement also obliges recipients to accept full responsibility for the use and proper disposal of these treated wood items. In this way, CMP alerts treated wood recipients of management requirements so that this material is utilized in a way that does not adversely affect any natural resources.

(d) Will all sewage and industrial wastes be treated and disposed of in such a manner as to comply with applicable federal, state and local standards?

The project will generate no sewage and industrial waste.

(e) Shoreland and Wetland Districts:

Exhibit 6, Augusta Zoning Districts Applicable to the MPRP, illustrates the Stickney Brook shoreland zone. It is the City’s interpretation that the shoreland is intended to extend along the

brook to the Augusta/Chelsea line and that the applicable shoreland district is a 250 foot Resource Protection District. The following addresses the shoreland criteria according to the City's interpretation.

Will the proposal:

(i) Maintain safe and healthful conditions;

The project will maintain the safe and healthful conditions similar to those that are already present in the transmission line corridor. Information supporting this statement can be found under Site Plan Review Criteria (1)(c) of this application.

(ii) Not result in water pollution, erosion, or sedimentation to surface waters;

The proposed project will not adversely affect water quality for the following reasons:

- An increase of 26 sq. ft. of impervious area in the shoreland of the brook will not generate significant new runoff from the project site;
- although capable vegetation will be removed on the north side of the corridor, the corridor will be permanently vegetated with shrubs and herbaceous plants following construction;
- clearing and vegetation maintenance within 25 feet of streams will be selective to allow a greater density of non-capable vegetation to remain as a buffer; and,
- construction will employ the erosion and sedimentation control measures of CMP's Environmental Guidelines, Exhibit 7, and the oil and hazardous material handling requirements of CMP's Environmental Control Requirements, Exhibit 9.

(iii) Adequately provide for the disposal of all wastewater;

No wastewater will be generated by the project.

(iv) Not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;

Impacts to fish and wildlife habitat are 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 to non-existent.

No endangered or threatened plant or animal species; high or moderate value deer wintering areas and travel corridors; high or moderate value waterfowl and wading bird habitat, including nesting and feeding areas; or significant vernal pool habitat were identified within this section of the transmission line corridor. Stickney Brook flows into a 148 acre high-value inland wading bird and waterfowl habitat (large flowage east of Togus Pond) located approximately 0.3 miles north of the corridor. Measures undertaken to protect water quality in accordance with the Environmental Guidelines (Exhibit 7) should prevent any adverse impacts to this habitat area.

(v) Conserve shore cover and visual, as well as actual points of access to inland and coastal waters;

Capable vegetation will be cleared over approximately 0.2 acres on both sides of Stickney Brook, converting the land cover from mostly forested to shrub and herbaceous vegetation. Following construction, the corridor will have a permanent cover of non-capable vegetation. The project will not significantly change the existing visual or actual points of access to Stickney Brook.

(vi) Protect archeological and historic resources as designated in the 1988 Growth Management Plan;

The 1988 Growth Management Plan has been replaced by the City of Augusta 2007 Comprehensive Plan, adopted in January 2008. As a result, this standard no longer applies.

Although not necessary for the Planning Board’s review, a discussion of the Comprehensive Plan follows, specifically Volume One: Strategy, which recommends expanded attention to historic architectural resources near the City’s urban center, e.g., the State Capitol, Fort Western, the Kennebec Arsenal and older residential neighborhoods. No archaeological or historic resources near the proposed project are identified for similar attention in the plan.

CMP conducted extensive surveys of potential pre-historic and historic archaeological sites and historic architectural sites along the entire MPRP project corridor. Survey results were filed with the Maine Historic Preservation Commission. No sites eligible for the National Register of Historic Places were identified in the portion of the corridor -in Augusta.

(vii) Avoid problems associated with flood plain development and use; and

The Augusta Flood Insurance Rate Map (FIRM) indicates an “area of special flood hazard” (Zone A) extends approximately 100 feet east from Stickney Brook into the CMP corridor. No project development is proposed in this area.

(viii) Conform with the provisions of Section 5.3.1, Special Shoreland Standards.

The project conforms with the applicable Special Shoreland Standards, as outlined below.

5.3.1.1 Agriculture.

Not applicable

5.3.1.2 Archeological Sites.

CMP conducted extensive surveys of potential pre-historic and historic archaeological sites and historic architectural sites along the entire MPRP project corridor. No sites eligible for the National Register of Historic Places were identified in or near MPRP corridor in Augusta.

5.3.1.3 Clearing of Vegetation for Development.

Clearing of vegetation in a Resource Protection District not located on a great pond is limited to that which is necessary for an authorized use (Section 5.3.1.3 (2)) and to allow for the development of uses permitted under the ordinance (Section 5.3.1.3 (3)).

A clearance zone between electrical conductors and ground vegetation is an integral component of a transmission line that is necessary to ensure the safe and reliable

operation of the line. Woody vegetation that is capable of penetrating the clearance zone will be cleared over a 0.2 acre area within the Stickney Brook Resource Protection District. Vegetation will be cut to ground level and roots left in place. Clearing and vegetation maintenance within 25 feet of the brook will be selective to allow a greater density of non-capable vegetation to remain in place as a buffer area. Following construction, non-capable vegetation (shrubs and herbaceous plants) will be allowed to reclaim the area, creating a permanent shrub-scrub cover typical of transmission line corridors in Maine.

5.3.1.4 Commercial and Industrial Uses.

Not applicable

5.3.1.5 Erosion and Sedimentation Control.

CMP's Environmental Guidelines, Exhibit 7, are the erosion and sedimentation plan for the MPRP. CMP's environmental inspectors will be responsible for ensuring that its contractors implement the erosion and sediment control procedures stipulated by the Environmental Guidelines.

5.3.1.6 Essential Services.

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

Most of the proposed transmission line facilities will be located within the existing service corridor. The corridor will be expanded by forty feet to achieve the necessary vegetation clearance around the transmission lines and separation between the transmission lines and the corridor boundary.

(2) The installation of essential services is not permitted in a Resource Protection or 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.

CMP has attempted to site transmission line structures so that none are located within resource protection areas. However, because of the size of some resources to be spanned, e.g. wetlands and flood plains, structures cannot always be sited entirely outside of these areas. In Augusta, two transmission line structures will be located in the Stickney Brook Resource Protection District.

There are no reasonable alternatives for locating the two structures outside of the Resource Protection District, given the linear alignments required for transmission lines. Co-locating the transmission lines and structures within the same corridor represents the least overall impact when compared with the alternative of creating a new corridor for the new transmission line (Section 3025).

The structures are located to minimize adverse impacts on surrounding uses and resources. Both structures are setback 100 feet or more from the brook. Both structures have been sited outside of the delineated wetland and in an area that is already largely cleared. Although there will be clearing of trees between these structures and the nearest residence, approximately 200 feet of predominantly forest vegetation will remain on the private land.

5.3.1.7 Flood Protection.

The Augusta Flood Insurance Rate Map (FIRM) indicates an “area of special flood hazard” (Zone A) extends approximately 100 feet east from Stickney Brook into the CMP corridor. No project development is proposed in this area.

5.3.1.8 Mineral Exploration.

Not applicable

5.3.1.9 Piers, Docks, Wharfs, Bridges and Other Structures and Uses Extending Over or Beyond the Normal High-Water Line of a Water Body or Within a Wetland.

Not Applicable

5.3.1.10 Roads and Driveways.

Not applicable. No permanent roads or driveways are proposed.

5.3.1.11 Septic Waste Disposal.

Not applicable. The project requires no septic waste disposal.

5.3.1.12 Signs.

Not applicable. No signs are proposed.

5.3.1.13 Soils.

Medium intensity soil survey data indicate that soil in the Resource Protection District is primarily Woodbridge very stony fine sandy loam on 3%-8% slopes (WsB). Scantic silt loam (ScA), a lowland hydric soil, occurs nearby. The soils have low to moderate erodability with relatively shallow depths to restrictive layers in the uplands. (See Table 1 and Exhibit 8.) Structures installed in wet soils will be partially backfilled with crushed stone to ensure stability. To control erosion, construction will be done in accordance with CMP’s Environmental Guidelines, Exhibit 7.

5.3.1.14 Stormwater.

The project proposes no development that would measurably increase stormwater runoff from the Resource Protection District. The permanent conversion of vegetated areas to impervious surfaces as a result of the project will be limited to two transmission line pole structures - an increase of 26 sq. ft. over current conditions. Existing drainage on the site is carried by Stickney Brook, its tributary and the wetland that surrounds the streams. No new permanent drainage structures are proposed. Clearing and vegetation maintenance within 25 feet of the brook will be selective to allow a greater density of non-capable vegetation to remain in place as a buffer. To control runoff, erosion and sedimentation,

construction will be done in accordance with CMP's Environmental Guidelines, Exhibit 7.

5.3.1.15 Timber Harvesting.

Not applicable. No timber harvesting as defined is proposed.

5.3.1.16 Water Quality Protection.

The proposed project in the Resource Protection District will not adversely affect water quality for the following reasons:

- the increase in impervious area of 26 sq. ft. will not generate significant new runoff from the project site;
- although capable vegetation will be removed on the north side of the corridor, the corridor will be permanently vegetated with shrubs and herbaceous plants following construction;
- clearing and vegetation maintenance within 25 feet of streams will be selective to allow a greater density of non-capable vegetation to remain in place as a buffer; and,
- construction will employ the measures of CMP's BMPs – Exhibit 7, Environmental Guidelines.

5.3.1.17 Minimum Dimensional Requirements in Shoreland Areas.

Transmission lines need not meet the minimum dimensional requirements, but must meet as great a setback from adjacent property lines and water bodies as can be achieved given such constraints as topography or limitations on height, as possible (Section 5.2.8.2 (1)(a)). The proposed transmission line structures in the Stickney Brook Resource Protection District are set back 100 feet or more from the brook. Transmission line structures are a minimum of 50 feet from a property line. The proposed structures meet as great a setback from property lines and water bodies as can be achieved given the nature of the project and constraints of the site.

5.3.1.18 Principal and Accessory Structures.

Transmission lines need not meet the minimum dimensional requirements, but must meet as great a setback from adjacent property lines and water bodies as can be achieved given such constraints as topography or limitations on height, as possible (Section 5.2.8.2 (1)(a)). The proposed transmission line structures in the Stickney Brook Resource Protection District are set back 100 feet or more from the brook. Pole structures are a minimum of 50 feet from a property line. The proposed structures meet as great a setback from property lines and water bodies as can be achieved given the nature of the project and constraints of the site.

(6) PERFORMANCE STANDARDS:

- (a) **Does the proposal comply with all applicable performance and dimensional standards as outlined in this ordinance?**

The proposed project complies with the applicable performance standards, as described below.

5.1 General Zoning Standards.

5.1.1 Bufferyards.

There is no abutting structural land use in the Augusta Rural Ponds District located within 200 feet of the property line of the project, therefore a bufferyard is not required (Section 5.1.1.3.(a), Table 5.1.1-A).

5.1.2 Corner Clearances.

Not applicable

5.1.3 Disposal of Material/Demolition Standards.

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. A more detailed discussion of the Disposal of Material/Demolition Standards is provided under Site Plan Review Criteria (5)(c) – “solid wastes and hazardous substances”.

5.1.4 Driveway and Access Standards.

Not applicable. No driveways or curb cuts are proposed.

5.1.5 Environmental Resources.

The standards in this section are addressed above under Site Plan Review Criteria (5)(a) – “sensitive resources” and (5)(e) – Shoreland and Wetland Districts.

5.1.6 Flag Lot Standards.

Not applicable.

5.1.7 Flood Damage Prevention Standards.

The Augusta Flood Insurance Rate Map (FIRM) indicates an “area of special flood hazard” (Zone A) extends approximately 100 feet east from Stickney Brook into the CMP corridor. No project development is proposed in this area.

5.1.8 Height Regulation.

Transmission lines need not meet the minimum dimensional requirements (Section 5.2.8.2 (1)(a)). Additionally, transmission lines are exempt from height restrictions in the Resource Protection District (Section 5.3.1.18(3)).

5.1.9 Home Occupations.

Not Applicable.

5.1.10. Reserved.

5.1.11 Lighting.

Not Applicable. No lighting is proposed.

5.1.12 Reserved.

5.1.13 Open (Green) Space.

Not applicable. The existing private drive (3200 sq. ft.) and six proposed pole structures (180 sq. ft.) represent only 2.2% of the expanded corridor area.

5.1.14 Parking Requirements.

Not applicable. The use requires no parking.

5.1.15 Air and Water Quality Standards.

5.1.15.1 Air Quality

Noise. No activity in a rural district may have a noise level normally perceptible above street noise within one hundred (100) feet of a residential or business/professional property line (Section 5.1.15.1(1)(c)).

Transmission line conductors can produce audible noise (AN), typically hissing or crackling produced when protrusions on the conductor surface—particularly water droplets—cause the electric field intensity at the conductor surface to exceed the breakdown strength of air. Based on modeling of audible noise levels by Dr. William Bailey of ExPonent® for the MPRP, the AN levels calculated for the proposed lines at the edge of the ROWs are below 25 dBA in fair weather. These fair weather levels are below the “nighttime hourly limit” set by the Maine Site Location Law. In foul weather the noise levels are higher (but less than 50 dBA) at the edge of the ROW; but the noise levels during foul weather will be masked by the increase in background AN due to the sound of the rain and wind. These levels are below the level of conversational speech and between the AN levels that might be found in a living room or a business office. Both levels are below those normally perceptible above street noise.

Sounds from construction activity between 7:00 AM and 10:00 PM are exempt from ordinance noise regulations; and no construction activity between the hours of 10:00 PM and 7:00 AM is anticipated for this project (Section 5.1.15.1 (1)(f)). If nighttime construction activity becomes essential to comply with outage sequencing or other external factors, CMP will meet the standards for nighttime construction under MDEP Chapter 375.10 and applicable municipal standards.

Smoke, Odors, Dust, Fumes. No degradation of air quality is expected to result from construction and operation of the project. Minimal, temporary influences on air quality (odor, dust, fumes or gases) as a result of construction activities may occur, arising from construction personnel commuter traffic; exhaust from clearing and construction equipment or vehicles; and temporary dust generated by construction activities along unpaved routes. Given the limited duration of activities at any one location, the generally rural nature of the project area, any influences on overall air quality should be insignificant.

CMP may deploy one or more temporary, portable (trailer-mounted) two MW distributed generation (DG) units during and immediately following construction to provide local voltage support. Units are fueled with low or ultra-low sulfur diesel fuel. Maine Department of Environmental Protection Air Emission License #A-952-71-A-N, issued to CMP on November 2, 2006, regulates air emissions from these DG units. This license also prescribes emission controls, heat output, fuel sulfur content, and maximum fuel consumption (runtime) of these units.

5.1.15.2 Water Quality.

Applicability. The proposed project will control runoff and prevent erosion and sedimentation as described in Exhibit 7, Environmental Guidelines, which is CMP's erosion and sediment control for this project. Adequate drainage and erosion control measures, including temporary and/or permanent appurtenances as necessary suitable for transmission line construction, are described in this document

Per recommendation of the City Engineer, consultation with the Stormwater Management Board will take place as necessary following their review if the application.

With the exception of the immediate area occupied by the support structures, there is no increase in impervious surface area associated with the transmission line; 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. Restoration activities following construction are designed to restore site contours to pre-construction conditions and to ensure that areas disturbed during construction will be revegetated.

The project will not discharge newly created stormwater onto private property or in a City street. The project will address stormwater within CMP's existing transmission line corridor (2.7 acres) and adjacent acquired land (0.8 acres), which includes Stickney Brook and tributary as principal drainage ways. There will be a net increase of 130 sq. ft. of impervious area as a result of a net increase of four transmission line structures in the corridor. Two large culverts on the corridor now carry Stickney Brook under Pappy's Lane and should carry any minor additional runoff that may occur.

Erosion and Sediment Control and Stormwater Management Plans. CMP's Environmental Guidelines, Exhibit 7, are used as a routine part of all transmission and substation projects. The manual contains effective and proven erosion and sedimentation control requirements, standards, and methods that will be used to protect soil and water resources during construction of the project. The Environmental Guidelines have been submitted to DEP as the erosion and sedimentation control plan for this project.

Stormwater Runoff Standards. As part of the project, CMP proposes to use the existing, largely natural drainage system on the site. No new permanent drainage structures and no

hard piped drainage systems are proposed. The proposed development will not create erosion, drainage, or runoff problems either in the development or adjacent properties.

Augusta's Technical Standards provide specifications for street construction, drainage systems and erosion and sediment controls. The street design and construction standards are generally not applicable, because CMP is not proposing to develop any new permanent roads. CMP believes that the erosion and sedimentation control standards in CMP's Environmental Guidelines (Exhibit 7) are equivalent to those in the City's Technical Standards. Because the completed project will result in a net increase of only 130 sq. ft. of non-vegetated area, little additional runoff will be generated as a result of the project. CMP therefore proposes to continue the use of existing natural drainage ways on the corridor in Augusta. CMP will address any recommendations of the Stormwater Management Board following their review of the conditional use application.

Buffer Requirements: No proposed structure will be located within 75' of Stickney Brook or its tributary.

CMP has attempted to site transmission line structures so that none are located within sensitive resource areas. However, because of the size of some resources to be spanned, e.g. wetlands and flood plains, this cannot always be achieved. In Augusta, three single pole structures (#88-70, #88-71 and #60-70) and one three-pole H-Frame (#3025-55) will be sited in a delineated wetland. (One existing two-pole H-Frame (#88-63) will be removed from the wetland.) Capable vegetation will be cleared from approximately 0.6 acres of the wetland on the north side of the corridor, and non-capable shrubs and herbaceous vegetation allowed to grow back as permanent cover following construction. The four structures will occupy a total area of 154 sq. ft. in the wetland.

There are no reasonable alternatives for locating the four structures outside of the wetland given the linear alignments required for transmission lines and the topography of the site. Co-locating the transmission lines and structures within the same corridor represents the least overall impact when compared with the alternative of creating a new corridor for the new transmission line. Under Section 5.2.8.2 (1), transmission lines need not meet the minimum dimensional requirements, but must meet as great a setback from adjacent property lines and water bodies as can be achieved given such constraints as topography or limitations on height. The proposed structures meet the greatest setback possible on the site.

In the shoreland of Stickney Brook (Resource Protection District), two proposed single pole structures will occupy 26 sq. ft. Installation in accordance with CMP's Environmental Guidelines and maintenance of a 25 foot stream buffer will minimize stormwater runoff from the site in excess of the natural predevelopment conditions.

Phosphorus Control Standards. Transmission lines are not among the uses listed in the Performance Zoning Process Use Table in the Ponds District (section 3.6.2.3) that must design their sites to reduce phosphorous export into the lakes. Under Section 5.2.8.2 (1), transmission lines need not meet minimum dimensional requirements. However, the

following addresses the site design requirements of Section 3.2.3.3 to limit phosphorus export in Stickney Brook sub-watershed of the Lower Togus Pond watershed.

No subsurface wastewater disposal soil test is provided as no wastewater will be generated by the project. Based on intermediate soil survey data, soils in the corridor include silt loam in lowland areas - hydrologic group D, and very stony fine sandy loams with restrictive layers - hydrologic group C (Ordinance Chapter 2). At 3.5 acres, the corridor is appropriately sized for this combination of soil conditions (Section (3.6.2 (3)(b)-Table 3.6.2.3-B). Transmission line structures will be set back a minimum of fifty feet from the corridor boundary. When completed, there will be a net increase of 130 sq. ft. of impervious area as a result of a net increase of four transmission line structures in the corridor. Nearly all of the lot area will remain vegetated.

Among the approved methods for controlling phosphorus (Section 5.1.15.2 (3)(a)), the project will employ the following:

- Reduce or minimize road and/or driveway length: no new roads or driveway are proposed.
- Reduce number of lots; increase lot size: the parcel will be expanded, and no subdivision of the parcel into lots is proposed.
- Limit clearing of vegetation: Only capable vegetation will be removed over approximately 0.7 acres of the corridor. Following construction, the parcel will be maintained for a permanent cover of shrubs and herbaceous vegetation.
- Leave or implement buffer strips around cleared areas and along water bodies: in addition to a permanent cover of shrubs and herbaceous vegetation throughout the corridor, there will be a 25 foot buffer along both shores of streams, where vegetation will be allowed to grow more densely to protect water quality and temperature.
- All work will be done in accordance with CMP's Environmental Guidelines (Exhibit 7).

Groundwater Protection Standards. The nearest documented bedrock well in Augusta is on Mud Mill Road, over 4500 feet from the project site. The well yields 6-8 GPM and has a drilled depth of 250-300 feet ("Bedrock well depth in the Augusta 30 x 60 Quadrangle," Maine Geological Survey, Open File No. 07-108, 2007). There is a significant sand and gravel aquifer over 600 feet north of the project site. The aquifer is associated within the Wellman Pond watershed, upgradient of the project area ("Sand and Gravel Aquifers, Togus Pond Quadrangle," Maine Geological Survey, Open File No. 05-44, 2005). No impact to groundwater is expected from the project

5.1.16 Setbacks; General Requirements.

Not Applicable. (Additionally, no structures are proposed within the general setback areas.)

5.1.17 Sign Regulations.

Not applicable. No signs are proposed.

5.1.18 Traffic Impact Analysis Standards.

Not applicable. No permanent travel demand will be generated by this project.

5.2 Special Use Standards.

Not applicable.

5.2.1 Sexually Oriented Businesses.

Not applicable.

5.2.2 Automobile Businesses.

Not applicable.

5.2.3 Campgrounds and Campsites.

Not applicable.

5.2.4 Day Care Homes and Centers.

Not applicable.

5.2.5 Government Service Uses.

Not applicable.

5.2.6 Junkyards.

Not applicable.

5.2.7 Residential Development.

Not applicable.

5.2.8 Municipal and Public Utilities and Communication Facilities.

The proposed transmission line project, a major public utility, meets as great a setback from adjacent property lines and water bodies as can be achieved given the nature of the project and the site conditions (Section 5.2.8.2 (1)(a)).

5.2.9 Waste Facilities.

Not applicable. No waste facilities are proposed.

5.2.10 Land Use Ordinance Changes Recommended by Planning Board for Type "1" Manufactured Housing.

Not applicable.

5.3 Overlay Zoning Standards.

5.3.1 Special Standards Applicable to Shoreland Areas.

These standards are addressed above under Site Plan Review Criteria (5)(e) – Shoreland and Wetland Districts.

5.3.2 Capitol View Overlay Standards—Reserved.

5.3.3 Highway Corridor Overlay Standards—Reserved.

5.3.4 Historic Overlay Standards—Reserved.

5.3.5 Resource Conservation and Use Standards—Reserved.

- (b) Can the proposed land use be conducted so that noise generated shall not exceed the performance levels specified in the performance standards section of this ordinance? Detailed plans for the elimination of objectionable noises may be required before the issuance of a building permit.**

The completed project will meet the requirement that no activity in a rural district have a noise level normally perceptible above street noise within one hundred (100) feet of a residential or business/professional property line (Section 5.1.15.1(1)(c)). A more detailed discussion is provided under Site Plan Review Criteria (6)(a) Section 5.5.15.1 – “Air Quality – Noise” of this application.

- (c) If the proposal involves intense glare or heat, whether direct or reflected, is the operation conducted within an enclosed building or with other effective screening in such a manner as to make such glare or heat completely imperceptible from any point along the property line? Detailed plans for the elimination of intense glare or heat may be required before issuance of a building permit. Temporary construction is excluded from this criterion.**

The project will create no intense glare or heat.

- (d) Is the exterior lighting, except for overhead street lighting and emergency warning or traffic signals, installed in such a manner that the light source will be sufficiently obscured to prevent excessive glare on public streets and walkways or into any residential area?**

The project includes no exterior lighting.

- (e) Does the landscaping screen the parking areas, loading areas, trash containers, outside storage areas, blank walls or fences and other areas of low visual interest from roadways, residences, public open space (parks) and public view?**

The project involves no parking areas, loading areas, trash containers, outside storage areas, blank walls or fences. No landscaping to screening is proposed.

- (f) Are all the signs in the proposal in compliance with provisions of this ordinance?**

No signs are proposed.

(7) FINANCIAL AND TECHNICAL ABILITY:

(a) Does the Applicant have adequate technical ability to meet the terms of the Ordinance?

CMP has the technical capacity to meet the terms of the ordinance and will be responsible for the operation and maintenance of all transmission lines and other facilities associated with the Maine Power Reliability Program (MPRP) project. CMP is a subsidiary of Iberdrola USA, Inc. (formerly Energy East Corporation), which in turn is a subsidiary of Iberdrola, S.A. Iberdrola is Spain's number one energy group, one of the largest electricity companies in the world.

CMP's Prior Experience

CMP originated in 1899 and began operating as Central Maine Power Company in 1910. CMP is currently responsible for operating and maintaining the transmission and distribution system, including functions such as service connections, outage restoration, and system improvements and upgrades as required. CMP delivers more than 9 billion kilowatt-hours of electricity yearly to more than 600,000 retail electric customers in an 11,000 square-mile service area in central and southern Maine. This service territory contains about 78 percent of Maine's population as well as the major commercial, manufacturing, and recreational areas of the State.

CMP's delivery system comprises 2,288 miles of overhead transmission lines, 23,463 pole-miles of distribution line, and 155 miles of underground or submarine cable. CMP has high-voltage connections with other electric systems at the New Hampshire and New Brunswick borders. Facilities also include over 200 substations above 10 million Volt-Amperes capacity for routing energy and regulating voltage, service centers, garages, offices, and other property. Peak power demand on the CMP system has reached 1,682 megawatts according to the North American Electric Reliability Corporation, Transmission Operator Reliability Readiness Audit Report, August 14-17, 2006. The utility employs an estimated 1,200 people.

Prior Experience of Key MPRP Team Members

CMP has significant experience in the design, construction, and operation of electric infrastructure projects, and will utilize staff capabilities for this effort. To support the proposed development, CMP has retained a team of highly qualified and experienced consultants and contractors to supplement their staffs on the MPRP project. A brief qualifications summary is provided below for each of these companies.

Burns & McDonnell is providing overall program management for the MPRP, including overall responsibility for system planning, environmental assessment, engineering and design, estimating, resource planning, relations with external parties, permitting and licensing, real estate acquisition and preparing the program to begin construction. Burns & McDonnell has over one hundred years of experience developing, managing and constructing energy and infrastructure projects in the U.S., and is currently serving as program manager for the Middletown-Norwalk Transmission Project in Connecticut. This project includes 70 miles of new 345 kV transmission

line and five new or upgraded switching stations. Burns & McDonnell has over 2,900 employee owners and offices throughout the U.S. including Portland, Maine and Wallingford, Connecticut.

TRC is providing support on transmission line design, environmental issues and federal, state, and local permitting. TRC has over 25 years of experience working on all aspects of transmission line design/construction and environmental regulations in Maine. Experience includes environmental licensing for the Maritimes and Northeast Pipeline Project, the Bangor Hydro-Electric Company 345 kV Transmission Line Project, and design and construction management of several 115 kV line projects for CMP in York and Cumberland counties. TRC has offices in Augusta, South Portland, and Ellsworth, ME, Milburn, NJ, and Baltimore, MD. Staff from these and other TRC offices have been involved in supporting the MPRP, with additional assistance by professional staff from several other environmental and specialty firms including:

- Gilman and Briggs Environmental (rare plants, unique natural areas)
- Boyle Associates (wetlands, vernal pools, permitting assistance)
- Kleinschmidt Associates (wetlands, vernal pools)
- Devine Tarbell and Associates (wetlands, vernal pools)
- T. J. DeWan and Associates (visual assessment, scenic character)
- Independent Archaeological Consulting, LLC (historic archaeology)
- ttl-architects, LLC (historic architecture)

(b) Does the Applicant have adequate financial ability to construct the development in compliance with the terms of the Ordinance?

The total cost of the Maine Power Reliability Program (MPRP) is estimated at \$1.55 billion, including costs associated with construction of new transmission lines and substations, upgrades and renovations to existing transmission lines and substations, and transmission line corridor and land acquisitions. The MPRP will be financed by Central Maine Power (CMP). As owner of the improvements contemplated under the MPRP, CMP will be fiscally responsible for all improvements included in the MPRP.

Central Maine Power Company (CMP) is a subsidiary of Iberdrola USA, Inc. (formerly Energy East Corporation), which in turn is a subsidiary of Iberdrola, S.A. Iberdrola is Spain's number one energy group, one of the largest electricity companies in the world and a world leader in wind power. Iberdrola operates in more than 40 countries, employs more than 33,000 people worldwide, and has a stock market capitalization in excess of \$45 billion. CMP is a financially strong company with total assets in excess of \$2 billion, credit ratings of BBB+ / Baa1 (from Standard & Poor's and Moody's, respectively), strong banking relationships, and access to the investment grade debt capital markets. CMP has short-term revolving credit availability of \$200 million through a bank facility (\$100 million) and under an agreement with Iberdrola USA (\$100 million). CMP has the regulatory authority to have outstanding, at any time, up to \$500 million of unsecured, medium-term notes (MTNs), of which there were \$293 million outstanding at 9/30/09, and has provisional authority to issue up to \$1 billion of first mortgage bonds (FMBs, rated A/A2 by Standard & Poor's and Moody's, respectively), of which there were \$150 million outstanding at 9/30/09.

ISO Cost Sharing

CMP is a member of ISO New England (ISO-NE), which operates the region’s bulk power system and oversees the regional bulk power marketplace. Under the ISO-NE tariff agreement, most bulk transmission projects are considered regional investments and, accordingly, are designated Pool Transmission Facilities (PTFs). The costs of construction and maintenance of PTFs are shared with other participating New England utilities and their customers. Under the current ISO-NE formula, CMP customers would bear approximately 8 percent of eligible program costs. Assuming there are no “localized costs,” the remaining 92 percent will be borne by ratepayers in the other five New England states. Special conditions imposed by State and local agencies that are determined by ISO-NE to be localized costs (*e.g.*, underground lines or excessive mitigation/compensation) will be borne solely by Maine ratepayers.

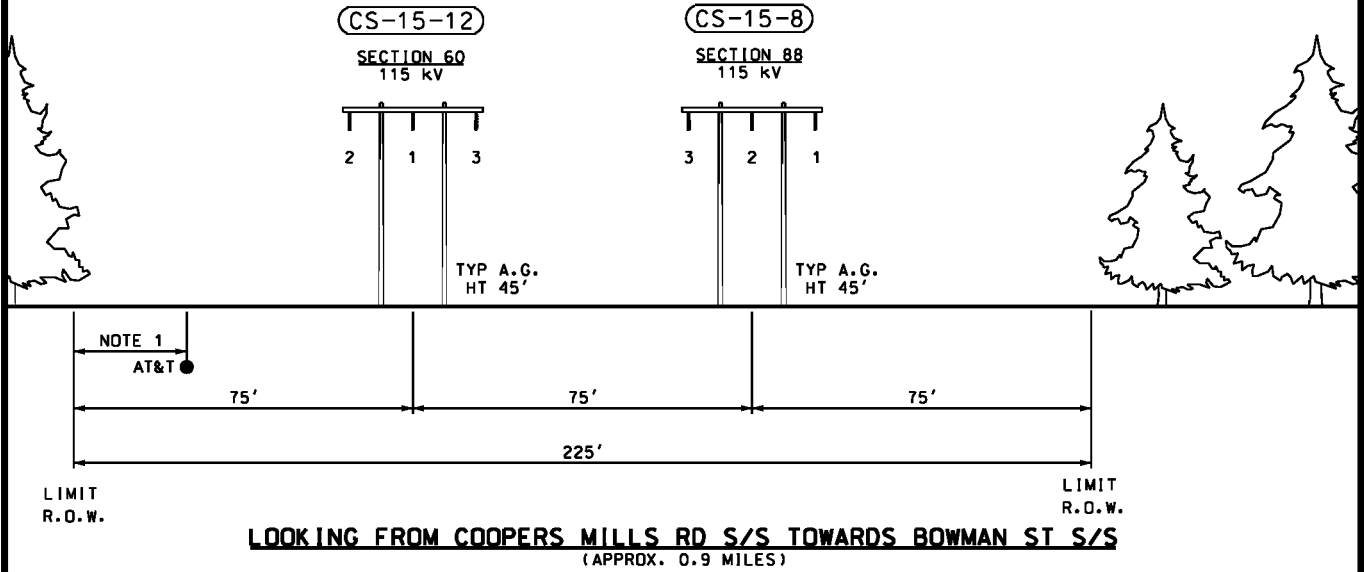
Exhibit 1
Maine Power Reliability Program (MPRP)
Project Scope Map

Exhibit 2
Existing and Proposed Transmission Lines in Augusta

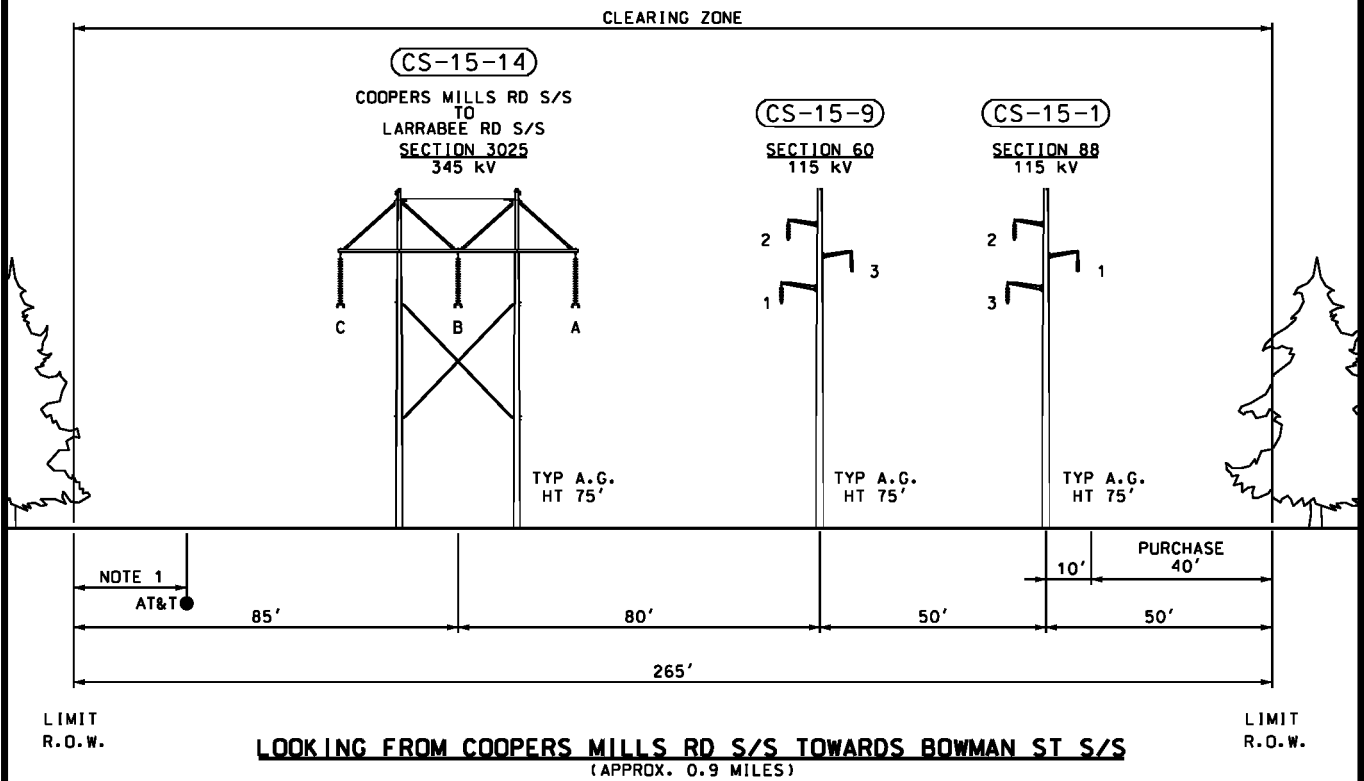
Exhibit 3
Existing and Proposed Transmission Line Cross Sections

NOTE 1: UNDERGROUND FIBER OPTIC CABLE LOCATION VARIES ALONG R.O.W.

EXISTING



PROPOSED



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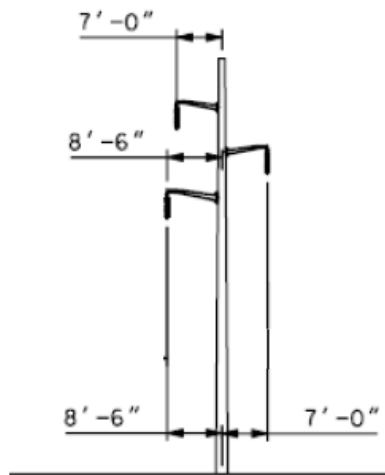
-DRAFT- FOR REVIEW ONLY			SECTION 60		POLE 41 TO 50		STA. 207+55 TO 257+34	
ENG. CONTRACTOR			MAINE POWER RELIABILITY PROGRAM					
			EXISTING AND PROPOSED R.O.W. ALTERNATIVE N5 FOR N-1-1 ANALYSIS					
B	ADDED SEQUENCING/PHASING/ ADDED CLEARING ZONE	9/23/09	PEI	CHECKED SGW	9/23/09	DESIGNED KJF	DATE 2/5/09	SEGMENT 15
A	ISSUED FOR REVIEW	2/5/09	PEI			DRAWN SAT	APPR.	
				CENTRAL MAINE POWER CO.				SHEET N5-15-4
				TRANSMISSION ENGINEERING				
NO.	REVISION	DATE	BY	SCALE	NTS			

Exhibit 4
Existing and Proposed Transmission Line
Structure Information

Exhibit 4 Existing & Proposed Transmission Line Pole Structure Information

Existing Transmission Line Pole Structures						
Structure Number	Structure Description	Structure Material	Number of Poles	Founda-tion	Pole Length	Area of Structure (Sq. Ft.)
Existing Section 60						
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Existing Section 88						
#88-62	H-Frame Tangent	Wood	2	No	45	25
#88-63	H-Frame Tangent	Wood	2	No	50	25
2	<i>Totals</i>	-	4	-	-	50
Proposed Transmission Line Pole Structures						
Structure Number	Structure Description	Structure Material	Number of Poles	Founda-tion	Structure Height (Ft. AG)	Area of Structure (Sq. Ft.)
Relocated Section 60						
#60-71	Single Pole Tangent	Wood	1	No	79	13
#60-70	Single Pole Tangent	Wood	1	No	93	13
Relocated Section 88						
#88-72	Single Pole Tangent	Wood	1	No	79	13
#88-71	Single Pole Tangent	Wood	1	No	79	13
#88-70	Single Pole Tangent	Wood	1	No	79	13
New Section 3025						
#3025-55	H-Frame Dead End	Steel	3	Yes	100	115
6	<i>Totals</i>	-	8	-	-	180

Typical Single Pole (Tangent)



Typical H-Frame (Tangent)

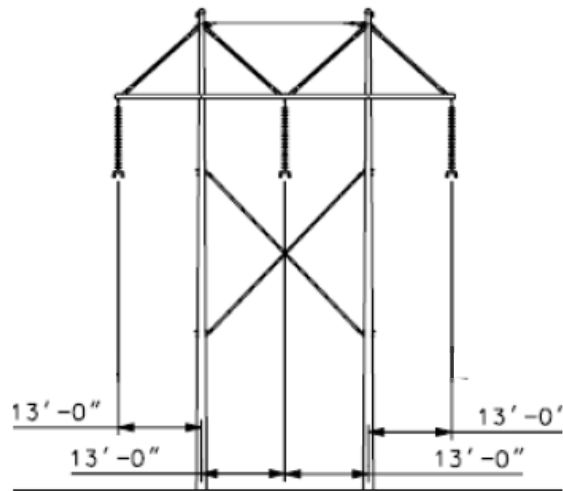


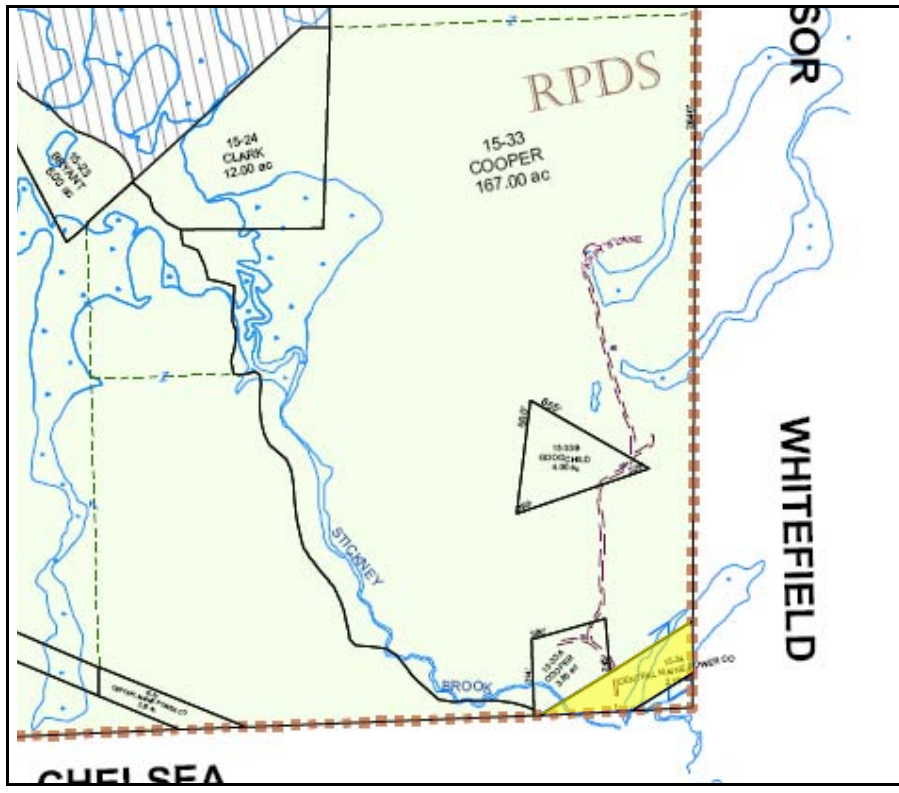
Exhibit 5
Site Plan

Exhibit 6

Augusta Zoning Districts Applicable to the MPRP

Exhibit 6

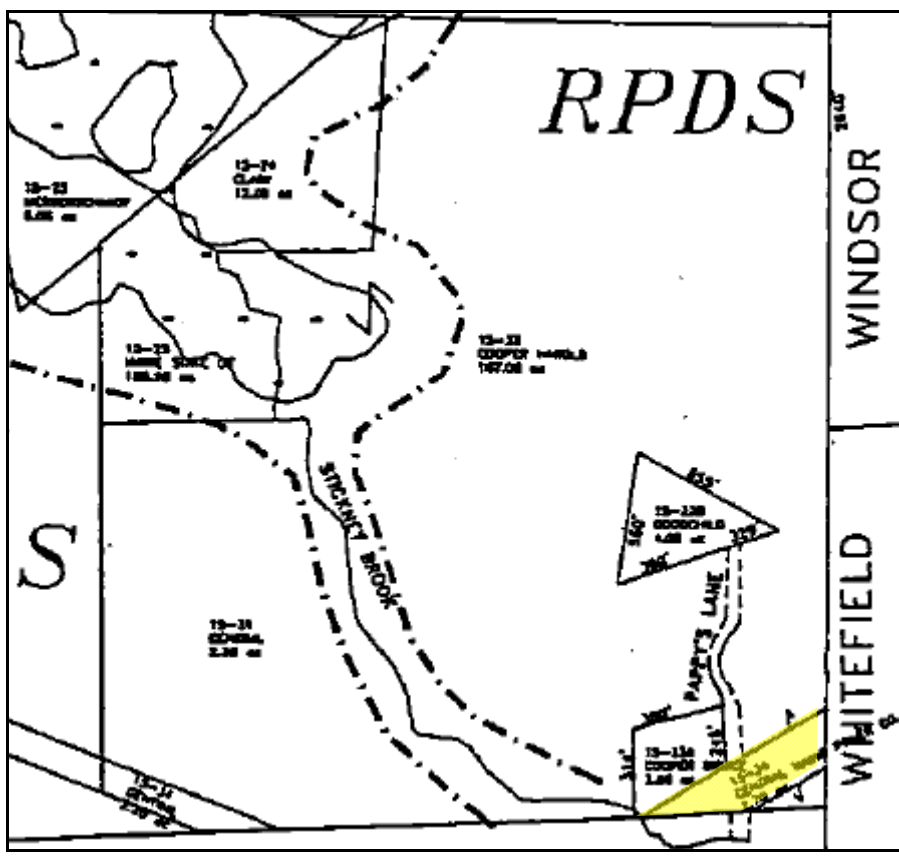
Augusta Zoning Districts Applicable to the MPRP



Rural Ponds District (RPDS)

CMP Corridor

Source:
Augusta Property Tax Map



Shoreland Zone

Shoreland Zone
 CMP Corridor

Source: Augusta Shoreland
Zoning Overlay Map

Exhibit 7

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

Central Maine Power Company

**Environmental Guidelines
For Construction and Maintenance
Activities on Transmission Line
And Substation Projects**

Prepared for:

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December 2007

2nd Edition

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CENTRAL MAINE POWER COMPANY

Environmental Guidelines for Construction and Maintenance Activities on Transmission Line And Substation Projects

1.0 INTRODUCTION

These guidelines contain standards and methods used to protect soil and water resources during construction, reconstruction, and maintenance of transmission lines and substations. They are based on practical methods developed for construction in utility corridors and their use is enforced by both State of Maine and Federal regulatory agencies. The construction practices described in this manual are typically required by the regulatory agencies for all projects. These practices are commonly referred to as Best Management Practices (BMPs). Illustrations have been provided as part of this manual (Appendix D) which demonstrate both the proper and improper techniques used for the more common construction activities.

All contracts for work performed on Central Maine Power Company (CMP) transmission line rights-of-way and substation sites will include these specific guidelines to ensure the project is constructed in an environmentally conscious manner. CMP personnel or their designated representatives will ensure that the guidelines are followed by inspecting all work and prescribing corrective steps to be taken where necessary. While this manual takes into consideration legal requirements, project personnel are still responsible for compliance with all federal, state, and local requirements.

This guide uses a number of scientific and technical terms. Definitions of these terms are provided in Appendix A.

2.0 PLANNING AND DESIGN CONSIDERATIONS

Planning is an important practice that will reduce the risk of erosion on a construction site, saving both time and money for Central Maine Power Company and its contractors. An erosion control plan should be prepared during project planning and design phases. It will likely be required for any Maine Department of Environmental Protection and/or local permits.

The erosion control plan should consist of:

- A narrative.
- A map.
- Plan details.

The narrative should describe the proposed project, existing site conditions, adjacent land uses, and any natural resources or properties that might be affected by the project. Other important details to include are descriptions of critical areas, proposed construction start and end dates, construction sequence, and brief descriptions of erosion and sedimentation control measures,

inspections and maintenance programs, and other clearing or construction that has taken place on the site in the last five years.

The map should include pre-development site contours at a scale to identify runoff patterns (minimum 5-foot contour interval), final contours, limits of clearing and grading, existing buffers, critical areas, natural resources, erosion control measures, and other clearing or construction that has taken place on the site in the last five years.

The plan details should include drawing of the erosion control structures and measures, design criteria and calculations, seeding specifications, and inspection and maintenance notes.

Key considerations include resource identification, familiarizing all parties with the construction site and limitations, and construction sequence.

2.1 Resource Identification

Sensitive natural areas which will receive priority treatment include:

- Streams and rivers.
- Great ponds.
- Wetlands.
- Steep slopes.
- Unstable soil conditions.

Sensitive natural areas which may receive priority treatment, depending upon the specifics of the project, include:

- Stream, river, pond, and wetland buffers.
- Significant wildlife habitats.
- Habitat for rare species.
- Historic and prehistoric sites.

During the planning phase, all sensitive natural areas that require priority treatment will be identified. The method of avoiding or crossing the sensitive natural areas to minimize impacts will be identified and incorporated into the project plans. Project plans should be designed and drawn to provide contractors and inspectors with a comprehensive reference guide that include, but is not limited to, locations of sensitive natural areas, access, and abutter and landowner issues. If modifications to the plans need to be made in the field, a designated person shall make necessary changes and shall notify all necessary personnel promptly. Copies of these plans should be provided and explained to equipment operators to assure that construction practices meet the intent of avoiding or minimizing impacts to the identified sensitive natural areas. In addition to the plans, the proposed access ways and water/wetland crossing locations, as well as other environmentally sensitive areas where activities will be restricted or prohibited, will be flagged and/or have signs posted.

Prior to crossings or construction in or near any sensitive natural areas, a “walk-through” will be conducted. Attendees at the walk-through will include: 1) the contractor, 2) CMP and/or any designated representative, and may include 3) any assigned Third Party Inspector. The purpose of the walk-through is to establish the following objectives, **prior to any clearing or construction work**:

- Identify available or alternate points of access to the project site.
- Identify sensitive natural areas.
- Identify future “No-Access” areas.
- Review color designation for all flagging used.
- Establish the Communication Chain of Command (Contact Point).
- Identify and flag access/construction roads within the ROW and/or project area.
- Establish methods of access over water resource areas (mats, timber corduroy, frozen ground, tracked equipment).

In order to minimize impacts to sensitive natural areas, the above objectives will continually be evaluated throughout the construction process. Project superintendents, foremen, and inspectors should also monitor weather conditions and reports on an on-going basis. Knowledge of changing or anticipated wet weather will allow time to address erosion control needs. In this way, CMP and its contractors will be prepared to respond to changing environmental conditions (e.g., unusually wet or dry weather) and other unknowns that are inherent in the construction and maintenance of transmission lines.

2.2 “Walk-Through” Mechanics

2.2.1 *Use of Flagging and Signs*

Flagging will be conducted at the time of the walk-through in order to visually identify select features or construction methods to be used. Wetlands may be flagged earlier as part of project permitting. Signs may also be installed following the walk-through to direct construction to approved access routes and away from “no access” areas. The CMP flagging color-code is as follows:

- **Glow-pink** with the printed words “Wetland Delineation”, “Wetland Boundary” or “Wetlands”. This flagging denotes the edge of wetlands.
- **Red** with or without the printed words – “Do Not Cross”. This flagging denotes a No-Access area where no equipment is allowed.
- **Yellow** – no printed words. This flagging denotes the location of an environmental measure such as a waterbar, hay bale barrier, or silt fence.
- **Blue** – no printed words. This flagging denotes approved travel ways. This is typically flagged on each side of the access-way to denote the designated travel lane for all access.
- **Glow-pink with black stripes** or otherwise printed with the words Buffer or Wetland Buffer. This denotes a setback from a water resource and should be treated the same as No-Access area.

2.2.2 Identification and Use of Existing Roads

Available logging, farm, or access roads, as well as other existing rights-of-way, will be utilized for access to and from transmission line rights-of-way with permission of the respective landowners. In order to minimize ground disturbance, existing roads within the right-of-way and wetland/stream crossing areas will be used whenever possible for travel during construction, unless a better route is agreed upon during the walk-through. The movement of equipment and materials within the transmission line right-of-way will be confined as much as possible to a single road or travel path.

For example, it may be better to construct new access roads in order to: (1) minimize the span of a wetland or stream crossing, or (2) avoid the more environmentally sensitive or “wetter” portions of a wetland or stream crossing.

In all cases, CMP and its contractors will attempt to avoid and minimize impacts to sensitive natural areas. As a result of this procedure, wetland and stream crossings, steep slopes, unstable soils, and other sensitive natural areas will be avoided and adverse impacts minimized whenever practicable.

2.3 Construction Sequencing

Although a “Project Plan” may be specific in identifying the *locations* of water resource areas (wetlands, streams, etc), and the *methods* of access over water resource areas (crane mats, frozen ground, etc) it should not dictate *when* construction activities should occur. It would be impractical to include day to day activities in the “Project Plan” such as, ‘pole X will be installed on Y date’. However, including environmental considerations in the daily and weekly project planning is very important. Factors such as the project schedule and weather often determine where and when construction activities occur; environmental impacts should also be considered. Below are some guidelines:

- Work closely with the individual(s) in charge of environmental compliance to plan project activities.
- Construction activities that cause soil disturbance should not occur during or just prior to forecast heavy rain events.
- Coordinate access planning with all of the contractors on the project. Often temporary access roads are used by several different contractors and the construction and use of temporary access roads can cause significant soil disturbance. Minimize equipment and vehicle travel on temporary access ways.
- Stabilize/restore disturbed areas as soon as possible, preferably while equipment is on site. Additional trips with equipment can create more soil disturbance which will need to be stabilized. Often a site can and should be stabilized within hours of when the soil disturbance occurred.
- Use frozen conditions to your advantage. There may be instances where water resource areas can be crossed during frozen conditions in lieu of installing crane mats. Before using this technique consult with the project environmental inspector.

- Crane mats should be removed as soon as they are no longer needed and/or when conditions are favorable.

3.0 STANDARDS FOR CONSTRUCTION

3.1 Road Construction

The following five standards apply to the construction and/or upgrade of all roads, skid trails, yarding areas, or work pads whether temporary or permanent.

1. Where construction will be located near water resources, such that material or soil may be washed into them, these disturbances will be set back from the edge of the water resource to maximize the amount of undisturbed filtering area between the disturbed area and the resource. These “filter strips” will consist of an area of undisturbed vegetation between the edge of disturbed area and/or silt fence/hay bale barriers placed to intercept any sediment load in runoff water before it can enter the resource area. In order to maintain the integrity and effectiveness of filter strips, sediment barriers should be installed very early in the construction sequence, and they need to be monitored to make sure they are functional. Effective filter strip widths may vary from only a few feet in relatively well drained flat areas to as much as several hundred feet in steeper areas with more impermeable soils. The minimum width of the buffer strip shall be 25 feet or in accordance with local CEO or DEP regulations. The width of the filter strip shall be increased proportionately for slopes longer than 150 feet or for higher sediment concentrations. **Table 1** below provides the recommended widths for the filter strips according to the slope of land between the edge of the resource and any exposed soil.

Table 1 Recommended Widths For Filter Strips Between Disturbed Areas And Water Resources	
Slope of Land Between Disturbance and the Resource (Percent)	Width of Filter Strip* (Feet)
0	25
10	45
20	65
30	85
40	105
50	125
60	145
70	165
*Measured along surface of the ground	

2. Wherever possible, construction equipment will either avoid steep slopes or proceed across the slope in a safe manner to avoid excessive disturbance of vegetation and soils. Equipment will not travel straight up or down any slopes with a grade steeper than 10 percent, except where necessary due to safety concerns and/or terrain constraints.

3. Where access roads or construction areas are to be built across the slope, the area will be properly sloped, slanting away from the cut bank to the outside edge of the roadbed in order to facilitate road surface drainage.
4. Slopes of cut-and-fill banks will be no steeper than 1 horizontal to 1 vertical. If located within 100 feet of water resources, the slopes will be no steeper than 2 horizontal to 1 vertical.
5. Rivers, streams, and wetland areas will be crossed, where necessary, at right angles to the channel and/or at points of minimum impact. To insure that natural drainage patterns will not be altered or restricted as a result of construction activities, crossings will be designed and constructed according to specific standards outlined below.

3.2 Stream or Wetland Crossings

The following standards apply to all unavoidable stream, drainage way, or wetland crossings encountered while accessing the project site or on the project site itself.

3.2.1 Types of Crossings Used

The type of crossing used for access is dependent on: the purpose and use of the crossing, the nature of the resource being crossed, ground conditions present at the time of construction, and construction materials available. Some planning guidance is provided below. The appropriate means and location of the crossing will be determined at the time of the formal walk-through. It is important to consult with the project environmental inspector prior to installing any crossing.

- Permanent culverts and bridges will be used only where long-term, continued, and frequent access is required (such as substation access roads).
- Temporary crossings will be used at all other locations. Temporary bridges, culverts, or crane mats must be used to cross any streams, drainage ways, or wetland swales that contain: (1) flowing water, (2) standing water, (3) saturated soils, or (4) organic/mucky soils.
- The use of corduroy as crossing material will be limited to wetlands which are not anticipated to have flowing or standing water during the construction period.
- In certain cases, no crossing material will be required if the stream bottom or drainage way is dry and contains a gravel or solid rock bottom (a “ford”). Fords can only be used if they will cause no unreasonable sedimentation of the stream and no unreasonable alteration of the stream banks and bottom.
- All crossings should include water bars or broad based dips or turn outs on the access, approximately 50 feet from each side of the crossing, to promote filter-strip treatment of runoff.
- All temporary crossings must be stabilized within seven (7) days of its removal, unless specified otherwise.

3.3 Construction in Wetlands

Where structures are to be placed in wetlands, topsoil must be excavated first, and stockpiled separate from subsoil. Be sure that stockpile soils are placed in such a manner that they are readily replaced into the excavated area. Soils shall be replaced into the excavated area in the

opposite order they were removed. Excavation and pole placement in wetland areas should be completed within the same day. After pole installation, topsoil must be restored to the original surface grade, except where mounding around a structure is necessary for structure stability.

4.0 INSTALLATION OF CROSSINGS

4.1 Bridges

Bridges are a preferred method for temporary access waterway crossings. Normally, bridge construction causes the least disturbance to the waterway bed and banks when compared to the other waterway crossing methods. Most bridges can be quickly removed and reused without significantly affecting the stream or its banks and without interfering with fish migration.

Materials

Access bridge construction typically entails the use of log stringers as construction materials.

Sizing

Table 2 below illustrates the log sizing requirements depending on the span and anticipated loads.

Table 2		
Log Bridge Stringer Requirements		
Span	Minimum Log Diameter*	
	(80,000 lb. Load)	(40,000 lb. Load)
8 ft.	16 in.	12 in.
12 ft.	18 in.	14 in.
16 ft.	20 in.	16 in.
Wheel guards: 10" diameter - Size of deck planks: 4" x 12" x 12' * Assume 6 stringers at 24" centers		

Positioning

The following is guidance for the positioning and installation for all permanent and temporary bridges:

- Access roads will cross streams at right angles to the channel at a location with firm banks and level approaches whenever possible.
- Bridge piers and abutments will be aligned parallel to the stream flow so that the original direction of stream flow is not altered.
- Piers and abutments will be imbedded in good foundation material. The grade of the bridge should coincide with that of the road wherever practicable.

For additional specifications on bridge construction, refer to section F-2 of the Maine Erosion and Sediment Control BMPs (see full citation in Appendix C).

4.2 Culverts

Materials

Permanent culverts will be either corrugated metal or plastic pipe. Temporary culverts will be corrugated metal, plastic pipe, or lumber ties. Chemically-treated wood will be not used.

Sizing

Permanent culverts will be sized to have a diameter of at least 3 times the cross-sectional area of the stream channel or will be designed to accommodate 25-year frequency flows. Multiple culverts may be used in place of one large culvert if they have the equivalent capacity of a larger one. A culvert sizing criteria table (3x Rule) produced by the MDEP can be found in Appendix G. However, it is recommended that an engineer be consulted when installing any permanent culvert.

Temporary culverts will also be sized to provide an opening at least 3 times the cross-sectional area of the stream channel and sized to accommodate a 25-year frequency storm flow. The stream channel cross-section will be determined at highest flows or will be approximated during periods of lower flows using the apparent natural high water marks remaining on the stream banks. For small intermittent streams, drainage ways or wetland crossings, the minimum sized culvert that may be used is 18 inches. Multiple culverts may be used in place of one larger culvert if they have the equivalent capacity of a larger one.

Positioning

The following is guidance for the positioning of all permanent and temporary culverts:

- Culverts should be placed to allow for the crossing to take place at right angles to the channel to assure that natural drainage patterns will not be altered.
- Culverts should be placed at the point of narrowest crossing and where firm banks and level approach slopes are available. Slopes should be no greater than 1.5 to 1.

Installation

The following is guidance for the installation of all permanent and temporary culverts:

- Culverts should be of sufficient length to allow both ends to extend at least one foot beyond the toe of any fill used to cover the culvert.
- Inlet and outlet armoring shall extend at least one pipe diameter beyond the upstream and downstream end of the culvert. See Table 3 below for outlet protection in erodible areas.
- Culverts should be bedded on firm ground. Supplemental use of geotextile with gravel can be used to create this firm base. Permanent culvert installation should include firm compaction of the foundation and the fill around the sides of the culvert. Compaction should be done in no less than 8-inch lifts.
- Both the inlet and outlet ends of the culverts will be set at or slightly below the natural stream bottom to allow passage of fish and other aquatic life at all levels of flow. At no point should either end of an installed culvert be positioned in the air out of the water.
- Multiple culverts must be offset in order to concentrate low flows into the culvert within the natural channel.

- When working in and around a perennial stream, temporary stream diversion may be necessary to avoid creating turbidity in the stream water. This type of work requires a permit from Maine DEP, and must be coordinated with the project environmental inspector.
- Fill used to bury the culvert will be compacted at least half-way up the side of the culvert for its full length in insure that flowing water will not undermine the culvert.
- Culverts will be covered with fill to a depth of at least one foot or one and a half times the culvert diameter, whichever is greater.
- Road fill at the upstream (headwall) and downstream (out-fall) ends of culverts will be armored with either rock rip rap or logs to protect the road fill from being eroded by the action of water or road traffic. This material will be installed up to the level of anticipated high water.
- In areas where the streambed appears highly erodible, the streambed at the outlet end of the culvert will be lined with riprap to prevent erosion and potential stream bed scour. Table 3 below indicates the distances away from the culvert to install such riprap.

Culvert Diameter (Inches)	Length of Rock Protection From Culvert (Feet)
12 – 20	7
21 – 24	9
30	11
36	13
42 – 48	18
54 – 60	24
66 – 78	32

Removal

Temporary culverts will be removed once their use is no longer necessary. The fill material can be redistributed and spread out on the nearby uplands at a distance sufficient to prevent its reentry into the resource. Silt fence/hay bales, seeding, and mulching may be necessary to stabilize this material. The banks and bottoms of the stream, drainage way, or wetland should be restored to original conditions. Exposed soils on the banks and within 100 feet of the crossing should be stabilized using seed and mulch. Some banks and steep slopes adjacent to streams may require stabilization with curlex or jute matting in combination with seed and mulch.

4.3 Mats (Crane or Swamp Mats)

CMP construction projects require that adequate mats are present at the project site prior to construction. A readily accessible source of mats should also be available in case construction conditions change and necessitate the need for more mats.

Materials

A number of different sized and constructed crane mats are typically available. CMP requires that the appropriate mats be used for the appropriate crossing. For example:

- Longer mats should be used for the longer crossing spans. This practice avoids the need to install additional mats within the crossing area in order to support the “span” mats.
- Mats should be in good condition to allow for their “clean” installation. Having mats in good condition prevents them from being dragged in versus them being carried in due to broken hitching cables, breaking apart on the job site, or becoming imbedded in mud due to their inability to support the required weight.
- Mats with partial/short timbers joined end to end should generally not be used to cross stream channels.

Installation

- Whenever possible, mats should be carried and not dragged. Dragging mats creates more soil disturbance which requires additional erosion control or final restoration work.
- At the crossing location, the ends of the crane mats should extend at least two feet onto firm banks or several feet into the upland edge of a wetland to assure a dry, firm approach onto the mats.
- At crossings which contain open or flowing water, the mats should be supported within the span using cross mats as abutments in order to prevent the impoundment of water or having water flow over the mats.
- At “dry” crossings where no water is present or anticipated during project construction, the mats may be placed directly onto the sensitive natural area in order to prevent excessive rutting, provided stream banks and bottoms are not altered.

Maintenance

Matted crossings should be continually monitored to assure their correct functioning. Mats which become covered with dirt should be kept clean and the material removed must be disposed of in an upland location. The material must not be scraped and shoveled into the water resource. Mats which become imbedded must be reset or layered to prevent mud from covering them or water passing over them.

Removal

Mats should not be removed until their use is absolutely no longer necessary. Specifically, all final restoration work should be completed prior to the mats being removed from the crossings. The planned removal of mats should be coordinated with CMP (or designated representative), the project environmental inspector, and any Third Party Inspector. As temporary structures, they should be removed within one year from the date of installation. All areas disturbed during ford removal shall be stabilized with seed and mulch.

4.4 Corduroy

Materials

Corduroy material will consist of de-limbed trees or logs. The logs must have a diameter greater than three inches at the small end and lengths greater than 18 feet. Shorter length material may be used only as described in the Installation section below.

Positioning

Corduroy should be placed perpendicular to the direction of travel. Corduroy should be placed at the point of narrowest crossing and where firm banks and level approach slopes are available.

Installation

The corduroy should be placed with the longer length pieces laid down first. The bed of corduroy should not only be placed within the low portions of the crossing but also for at least three feet up the sides of any upland side slopes in order to prevent rutting and sedimentation from the approaches to the crossing.

Once a thick base of corduroy has been laid, pieces shorter than 18 feet can be used to fill gaps and raise the elevation of the corduroy to provide for a more stable crossing.

Removal

Removal is the reverse of installation. Once the corduroy has been removed from the crossing, it may be moved off the right-of-way, burned, or chipped. The material may also be spread and distributed on the ROW over the nearby upland if in accordance with the Maine Slash Law (see Appendix E) and approved by a CMP representative. The banks of streams and drainage ways must be graded back to original conditions. Exposed soils on the banks and within 100 feet of the crossing must be stabilized using seed and mulch. Banks of drainage ways that are expected to receive high flows should be stabilized with seed and curlex or jute matting.

5.0 SURFACE WATER DIVERSION STRUCTURES (WATER BARS)

A number of above-ground structures or techniques are available to divert water out of travel ways and work areas in order to prevent subsequent runoff and erosion. The terminology and definitions for these techniques (i.e., broad-based dips, water bars, skid humps, water turnouts, and cross-drainage box culvert) vary, but the purpose of all is to redirect water moving down a slope into adjacent vegetated areas (filter strips). Any activities that involve land grading have the potential to cause sedimentation. Their use and installation needs to be carefully planned. Planning for these techniques must include timing, use of natural buffers (filter strips), mulching, and temporary and permanent seeding. Minimizing the area of soil exposed at one time is a key component of ensuring that surface water diversion structures function effectively. General standards for their construction are as follows.

Materials

Most of these structures are constructed by excavating or moving and shaping earth from within the access way or work area. The cross-drainage culvert structure typically uses logs or timber to form a box-like structure to catch water from travel ways or side ditches in order to direct it across the travel way and away from disturbed areas.

Positioning

These structures should be installed immediately above and along steep pitches in the road and below seepage areas on natural or cut banks. They should be sited to take advantage of existing vegetation for filtering and slope away from the travel surface. The interval for installing these diversion structures depends on the slope of the road, as well as the nature of the road surface, soils, and wetness. Generally speaking, steeper slopes require shorter distances between

diversion structures. The following table contains recommended distances between installed structures depending on slope.

Table 4	
Recommended Distances Between Water Diversion Structures	
Slope (Percent)	Spacing (Feet)
0 – 2	500 – 300
3 – 5	250 – 180
6 – 10	167 – 140
11 – 15	136 – 127
16 – 20	125 – 120
21+	100

All of these structures should be sized in anticipation of greater flows resulting from snow melt, spring runoff, and storm rains.

Installation

These structures should be installed at 30-degrees angled down grade. The shape of the backside portion of the structure should have a reverse slope of about 3 percent. Use of a pop-level is recommended to ensure that drainage is away from the road. Structures should be constructed with rounded (not vertical) mounds and dips to allow for firm compaction and to allow re-vegetation.

In the case of the cross-drainage culvert, the minimum width of the open face of the culvert should be 18 inches. The travel surface should consist of at least 12 inches of gravel or soil over the culvert. The slope of the culvert should be a drop of at least 5 inches in every 10 feet of length to ensure proper drainage.

The inlet end of all structures should extend beyond the edge of the access road so that it fully intercepts water flows that may flow onto the access road. The outlet end of the structure should extend out enough to prevent water from flowing around and re-entering the road or work area.

The discharge ends of any of these diversion structures should outlet into a vegetated filter strip. Where heavy flows are encountered or anticipated, the outlet end of the structures should incorporate an apron of rock, gravel, or brush to reduce water velocities. If construction will extend into fall and winter months, be sure to upgrade to meet winter standards all erosion control measures (e.g., increase amount of mulch, etc.), to protect the site from spring runoff.

Where the structure is within 100 feet of a stream or wetland, the incorporation of a small, excavated settling basin or ditch turnout to reduce the velocity of flows and the continued movement of sediment downslope should be considered. In addition, some type of sediment barrier (silt fencing or staked hay bales) will be installed at the outlet of the diversion structure, where vegetated filter strips are narrow or sparsely vegetated, in order to prevent sediment from eroding into water resources.

Maintenance

Due to repeated travel over these structures, maintenance is critical to their effective functioning. As the structure becomes flattened or rutted, it needs to be re-excavated or graded to ensure the interception and redirection of water runoff. The ends of any cross-drainage culverts should be maintained by clearing away any potential blockages.

Removal

After the completion of the construction project, removal of these structures is not a requirement, with the exception of the cross-drainage culvert. The structures can be left in place provided they have been suitably stabilized with seed and mulch. Any hay bale barriers or silt fence at the outlet end should be removed when the site has a healthy vegetative cover.

6.0 SEDIMENT BARRIERS (STRUCTURAL MEASURES)

6.1 Introduction

The use of properly installed erosion and sediment control barriers is a fundamental and critical component for preventing erosion at CMP construction projects. Erosion control barriers include silt fence, hay bales, and/or erosion control mix berms. In some cases, these barriers may be deemed unnecessary by CMP, its representatives, or a Third Party Inspector due to factors including slope and filter strip width within project boundaries. A typical CMP construction project will use a combination of barriers to effectively control erosion near water resources. Installation and diligent maintenance of these barriers serves the following purposes:

- Assures the environmental integrity of those upland and water resource areas not designated or permitted for disturbance. Specifically, it maintains the onsite vegetative community and water quality of the surface water within the watershed.
- Assures compliance with all applicable federal, state, and local environmental and land use regulations or permit conditions.

Generally, silt fence is the preferred barrier because: it traps a much higher percentage of suspended sediments than hay bales; it can be easier to install, obtain, and transport; and is less costly. In addition, the structural longevity of silt fence is 60 days or longer unlike straw or hay bales' longevity which is 60 days or less.

The standards and procedures outlined in this section of the manual are meant to address a majority of the situations encountered during transmission line and substation construction activities. For additional information on sediment and erosion control methods and techniques, or to address a particularly problematic situation, this manual should be used in conjunction with and supplemented by the Maine Erosion and Sediment Control BMPs. For other recommended references, see Appendix C.

6.2 Silt Fence

Materials

Silt fence is provided by a number of manufacturers and is generally a synthetic fabric pre-attached to wooden staking. The fabric should be pervious to water allowing a flow through rate of 0.3 gallon per square foot per minute. The fabric should contain stabilizers and ultraviolet ray inhibitors to allow it to sustain exposure of a minimum of 6 months. The height of the filter fabric should not exceed 4 feet in height.

Placement

Silt fence is to be utilized at the edge of any planned work area or area which will cause the disturbance of soil. It will be installed to intercept any sheet flow of water and detain sediment from entering water resources or leaving the project site. It should be installed prior to starting work. Given the expansiveness of CMP transmission line projects in particular, the amount of silt fence placement must be selective; however, it should still be used in amounts sufficient to meet potential changing conditions in a pro-active manner. After the primary stabilization measures (temporary and permanent) have been implemented, silt fence use is encouraged in the following selected locations, as appropriate:

- Around all substation project sites.
- Along all access roads or work areas that are within 100 feet of water resources.
- Along all access roads or work areas in upland settings that encounter seepage moving across slope.
- Around all stockpiled soils.

In general, the placement of silt fence is appropriate when:

- Serving a drainage area of no more than .25 acre per 100 feet of silt fence length.
- The maximum slope length behind the fence is 100 feet or less.
- The maximum gradient behind the fence is 50% or 2:1 horizontal/vertical.
- Where the filter strip is not of an adequate width (see Table 1).

Installation

The following installation guidelines are the minimum which should be implemented; however, appropriate changes to silt fence installation should be made as conditions change during the construction operation.

Silt fence will be placed an adequate distance (6-10 feet) beyond the toe of the slope (if there is sufficient room) to allow for sediment accumulation between the disturbed area and the down-gradient water resources. If there is not sufficient room to place the silt fence an adequate distance beyond the toe of the slope, CMP, a representative of CMP, or the Third Party Inspector should be consulted. The barrier should be installed along the contour, within reason. The goal is to slow and pool the sediment-laden runoff to allow fine sediments to settle-out before the runoff enters the water resource. The ends of the barrier should be up-turned to maintain the pool volume.

A trench shall be excavated approximately 6 inches wide and 6 inches deep on the up-slope side of the silt fence alignment. The lower edge of the silt fence fabric should be entrenched for a distance of at least 4 inches up-slope and then back-filled. Should frozen or rocky ground conditions prevent the effective or practical use of trenching, materials such as bark/wood chips, wood fiber mulch, or a soil erosion control mixture can be used. This material is to be mounded on top of at least 4 inches of filter fabric which would otherwise be trenched.

Silt fence should be installed in a continuous roll to avoid the need of a joint between different pieces of fence. If joints are necessary, filter fabric shall be “spliced” together at a support post, securely sealed, and with a minimum of 6 inches of overlap. Splicing rolls of silt fence entails twisting end posts together, creating a continuous section of silt fence.

Support posts should be placed on the down-slope side or the side closest to or facing the water resource. The posts should be placed 6 feet apart (a maximum of 10 feet may be acceptable in some locations) and driven securely into the ground, typically about one foot deep. Silt fence usually has posts pre-attached.

Silt fence should not be installed in streams or drainage ways where concentrated water flow is present or concentrated flows are anticipated.

Maintenance

Once a week, or after rainstorms producing at least ½ inch of rainfall, whichever is more frequent, the contractor is responsible for inspecting all temporary erosion and sediment control barriers. Such inspection is necessary to assure that the barriers are functioning properly as well as identifying new areas requiring installation. A maintenance log should be kept of all erosion control changes, improvements, and maintenance performed.

If any barriers are not functioning properly, they will be repaired or replaced. A sediment control barrier is not functioning if:

1. Water is flowing around the sides or under the barrier.
2. Soil has built up behind the barrier to the point more than half-way up the fence.
3. There is excessive sag in the fence.
4. There is evidence of sedimentation such as gully erosion, slumping of banks, or the discoloration of water outside of the perimeter silt fence.

Corrective measures include removing accumulated sediment from behind the barrier, restaking, extending the ends of the fence, or installing another fence further upslope.

Removal

Installed silt fence will be removed once it is evident that the soils have become stabilized and the potential for erosion no longer exists. In most cases, the silt fence will not be removed until at least one growing season has past. Removal of silt fence should be coordinated with CMP or their designated representative.

Any ridges or mounds of soil or caught sediment remaining in place after the silt fence has been removed, must be leveled-off to conform to the existing grade. Any newly exposed soil that may erode must be seeded and mulched.

All removed silt fence must be properly disposed of off the project area.

6.3 Hay Bales

Placement

Like silt fence, hay bale barriers can be utilized at the edge of any planned work area or areas where soil disturbance has occurred or will occur. Barriers are installed to intercept sheet flow of water and detain sediment from entering water resources or leaving the project site. Given the expansiveness of CMP transmission line projects in particular, the amount of hay bale barrier placement must be selective, but still in amounts sufficient to meet potential changing conditions in a pro-active manner. Hay bale barriers will be used, as appropriate, in the following locations:

- Around all substation project sites.
- Along all access roads or work areas that are within 100 feet of a water resource area.
- Along all access roads or work areas in upland settings that encounter seepage moving across slope.
- Around all stockpiled soils.

In general, the placement of hay bales is appropriate when:

- Serving a drainage area of no more than .25 acre per 100 feet of barrier length.
- The maximum slope length behind the barrier is 100 feet or less.
- The maximum gradient behind the barrier of 50% or 2:1 horizontal/vertical.
- Where the filter strip is not of an adequate width (see Table 1).

Installation

The following installation guidelines are the minimum which should be implemented; however, appropriate changes to hay bale installation should be made as conditions change during the construction operation.

The barrier will be placed an adequate distance (6-10 feet) beyond the toe of the slope (if there is sufficient room) to allow for sediment accumulation between the disturbed area and the down-gradient sensitive areas. If there is not sufficient room to place the hay bales an adequate distance beyond the toe of the slope, CMP, a representative of CMP, the project environmental inspector, or the Third Party Inspector should be consulted. Within reason, the barrier should be installed along the contour. The goal is to slow and pool the sediment-laden runoff to allow fine sediments to settle-out before the runoff enters the water resource. The ends of the barrier should be up-turned to maintain the pool volume.

A shallow trench shall be excavated the width of the bale and to a minimum depth of 4 inches in which to bed the bale. The excavated soils are then used to seal the lower inside (up-slope) edge of the barrier. The bales should be set tightly together and entrenched with the baling string oriented on the sides (i.e., not touching the ground) in order to prevent deterioration of the string.

Every bale should be staked using 2 stakes per bale. The stakes should be driven in at angles such that it binds and forces abutting hay bales together.

Gaps between bales shall be packed with loose hay to prevent water from escaping between the bales.

Hay bales will not be placed in streams where flow is present or anticipated.

Maintenance

Once a week, or after rainstorms producing at least ½ inch of rainfall, whichever is more frequent, the contractor is responsible for inspecting all temporary erosion and sediment control barriers. Such inspection is necessary to ensure the structures are functioning properly as well as identifying new areas requiring installation. A maintenance log should be kept of all erosion control changes, improvements, and maintenance performed.

If any barriers are not functioning properly, they must be repaired or replaced. A sediment barrier is not functioning if:

- Water is flowing around the sides or under the barrier.
- Soil has built up behind the barrier to the point more than half-way up the hay bale or where there is excessive lean to the barrier.
- There is evidence of sedimentation such as gully erosion, slumping of banks, or the discoloration of water outside of the hay bale barrier.

Corrective measures include removing accumulated sediment from behind the barrier, re-staking, extending the barrier at the ends, or installing another barrier further up-slope.

It is not recommended that straw or hay bales be used for periods greater than 60 days.

Removal

Installed hay bales will be removed once it is evident that the soils have become stabilized and the potential for erosion no longer exists. In most cases, the hay bale barrier will not be removed until at least a healthy growth of vegetation is established on the disturbed site. Removal of hay bale barriers should be coordinated with CMP or their designated representative.

Any ridges, mounds of soil, or caught sediment remaining in place after the hay bales have been removed, must be leveled-off to conform to the existing grade. Any newly exposed soil that may erode must be seeded and mulched.

All removed hay bales must be properly disposed of, or broken up and used as mulch on the bare soils near the barrier.

6.3.1 Problems With Straw or Hay Bale Barriers

There are several situations where straw or hay bale barriers may be ineffective or cause problems:

1. When improperly placed and installed (such as staking the bales directly to the ground with no soil seal or entrenchment), hay bales allow undercutting and end flow.

2. When used in streams and drainage ways, high water velocities and volumes destroy or impair their effectiveness.
3. When bales are not inspected and maintained adequately.
4. When hay bale barriers are removed before up-slope areas have been permanently stabilized.
5. When hay bale barriers have not been removed after they have served their usefulness.

6.4 Erosion Control Mix Berms

Composition

Erosion control mix berms are made up of shredded bark, stump grindings, and composted bark. It may be made on a project site if adequate materials are available, however its composition needs to be a well-graded mix of different particle sizes. Wood chips, bark chips, ground construction debris and processed wood cannot make up the organic component of the mix. Be sure to consult with the project environmental inspector regarding the suitability of any erosion control mix material proposed for use.

Installation

Erosion control mix berms are simply placed on the surface of the ground and do not require any soil disturbance. The berm should be located in a similar manner to other sediment control barriers along contour, downslope of disturbed soils. Also similar to other sediment barriers, they should not be placed in areas of concentrated runoff, below culvert outlets, around catch basins, or at the bottom of a large contributing subwatershed. At the toe of shallow slopes less than 20 feet long, at a minimum berms should be 12” high and a minimum of 2 feet wide at their base. For longer or steeper slopes, the berms should be wider to accommodate additional runoff. They are ideal for installation on frozen ground, on shallow to bedrock soils, outcrops of bedrock, and heavily rooted forested areas (i.e., those areas where other barriers are difficult to install).

Erosion control mix can also be placed in a synthetic “sock” to create a contained stable sediment barrier. This is especially useful in areas where trenching is not feasible, such as frozen ground, across pavement, or compacted gravel. When in a sock, erosion control mix can be staked in an area of concentrated flow (i.e., ditch or swale) as the netting prevents movement of the mulch mixture.

Maintenance

As with other barriers, inspection should be performed after each rainfall or daily during prolonged periods of rain. Accumulations of sediment should be removed when they reach half the height of the barrier, and the berms can be reshaped and new material can be added as needed.

Removal

In most cases, erosion control mix berms do not need to be removed. They will continue to function as they decompose, become part of the soil on the site and will naturally revegetate. If synthetic socks are used, the erosion control mix can be emptied from the sock and the socks can be disposed of off site.

7.0 NONSTRUCTURAL EROSION CONTROL MEASURES

7.1 Nonstructural Measures Defined

Nonstructural measures are temporary or permanent methods used to cover exposed soil areas to prevent erosion from occurring. Their purpose is to cover whole areas of exposed soil to prevent initial erosion of soil from a construction site.

Examples of nonstructural measures include hay or straw mulch, erosion control mix, matting, or seeding.

7.2 Importance of Nonstructural Measures

Nonstructural measures are important because they provide both temporary and permanent protective cover to exposed soils. Generally, they provide the first line of protection against erosion, and can be the most effective means of preventing erosion. This protection is important because exposed soils are easily eroded by wind or water. Some soils such as silts can easily be removed from a construction site by rainwater. The impact of individual raindrops on exposed soils can loosen soil particles, and these particles can then be carried off the work site by runoff and deposited into water resources including streams, rivers, wetlands, ponds, and lakes. Silt particles don't settle out of water easily, and water siltation can pollute surface waters and harm aquatic creatures such as insects and fish. For example, brook trout, one of Maine's premier game fish species, requires clear, high quality water in order to survive. Silty water can reduce spawning habitat, irritate fish gills, lower oxygen content in water, and make fish susceptible to diseases.

Dry soil conditions and high winds can also cause siltation. When small particle soils such as silts become dry, they have a baby powder-like texture and can easily be swept away by winds. Nonstructural measures help prevent wind erosion because they hold moisture next to the soil, keep the soil from drying out due to wind exposure, and prevent winds from carrying away dry soil particles. Keep in mind, however, that proper construction sequencing is invaluable (See Section 2.3).

7.3 Placement of Nonstructural Measures

Nonstructural measures should be used whenever there is a possibility that exposed soils on a construction site could wash into adjacent sensitive water resources. Temporary nonstructural measures such as hay or straw mulch should be spread on exposed soils within 100-feet of water resources within 48 hours of initial soil disturbance, or before any predicted storm event. There are two types of nonstructural measures: temporary and permanent. Temporary measures are typically used during construction, while permanent measures are usually applied after construction is complete (i.e., restoration). Provided below are general discussions and explanations of the common nonstructural measures that are used on CMP construction sites.

7.3.1 Temporary Measures

- Hay or straw mulch (unanchored on slopes less than 8%, anchored on slopes greater than 8%) on exposed soil areas and soil stockpiles in the construction area.
- Temporary seeding covered by hay or straw mulch on soil stockpiles or areas of exposed soil next to sensitive resources that are not scheduled for final restoration for 30 days (this only applies between the dates of April 16 to October 31 of any given year). Temporary seeding is not required during the Winter Construction Season.
- Erosion control mix can be used as a stand-alone temporary mulch on slopes that are 2 horizontal to 1 vertical, or less, on frozen ground, in forested areas, or at the edge of gravel parking and areas under construction. It should be applied at a thickness of 4 to 6 inches.
- Rolled Erosion Control Products (RECP's) such as Curlex or Jute matting, can be used on areas of high wind exposure, steep slopes (steeper than 8% grade), unstable soils, and stream/river bank restoration areas. Matting is typically anchored (usually with large staples, as recommended by the manufacturer). Although this type of material is usually used during final restoration, it is considered a temporary measure because it generally deteriorates within two years.

Table 5 Temporary Seeding Rates and Dates				
Seed	Lb./Ac	Seeding Depth	Recommended Seeding Dates	Remarks
Winter Rye	112(2.0 bu)	1-1.5 in.	8/15-10/1	Good for fall seeding. Select a hardy species, such as Aroostook Rye.
Oats	80 (2.5 bu)	1-1.5 in.	4/1-7/1 8/15-9/15	Best for spring seeding. Early fall seeding will die when winter weather moves in, but mulch will provide protection.
Annual Ryegrass	40	.25 in.	4/1-7/1	Grows quickly but is of short duration. Use where appearance is important. With mulch, seeding may be done throughout growing season.
Sudangrass Perennial	40 (1.0 bu) 40 (2.0 bu)	.5-1 in. .25 in.	5/15-8/15 8/15-9/15	Good growth during hot summer periods. Good cover, longer lasting than Annual Ryegrass. Mulching will allow seeding throughout growing season.
Temporary mulch with or without dormant seeding			10/1-4/1	Refer to TEMPORARY MULCHING BMP and/or PERMANENT VEGETATION BMP.

Proper application rates, location, and seasonal consideration are provided in Table 6 on page 22 of this manual.

7.3.2 Permanent Measures

Uplands

- Permanent grass and legume seeding covered by hay or straw mulch on all areas that have been restored to final grade (this seeding generally applies between the dates of April 16 to October 31 of any given year). This is required to establish permanent, perennial, vegetative cover on exposed soils. Permanent seeding is not required during the Winter Construction Season, although dormant seeding may be performed. (See Section 8.0 for details on winter construction.)
- Seeds covered by anchored (usually with large staples) Curlex or jute matting in areas of high wind exposure, on steep slopes (steeper than 8% grade), unstable soils, and stream/river bank restoration areas.
- The soil may need to be properly prepared before any seeds are placed on the ground. This preparation may include addition of fertilizer (only in designated upland areas not adjacent to, or near waterbodies or wetlands, if in doubt ask the environmental or construction inspector) in areas that have been tested, and are found to be deficient in plant nutrients.
- Erosion control mix can also be used as a permanent mulch to provide a buffer around disturbed areas. It can be left in place to decompose and naturalize. It will eventually support vegetation, which should be promoted. If vegetation is desired in the short-term, legumes and woody vegetation can be planted, which will create additional stability.

Wetlands

- Wetland areas are to be seeded only with resource agency approved wetland seed mixes. If it is decided that wetlands will not be seeded, disturbed wetland will be graded to original contours, mulched with straw, and allowed to revegetate naturally.

As with the Temporary Measures, refer to Table 6 on page 22 for proper application rates, locations, and seasonal considerations.

For permanent seeding mixtures refer to Appendix A of the Maine Erosion and Sediment Control BMPs.

8.0 WINTER CONSTRUCTION CONSIDERATIONS

If a project is actively being constructed between November 1 and April 15 of any given year, sediment and erosion control guidelines developed by the Maine Department of Environmental Protection for projects occurring during the winter months must be followed.

Of course, nothing can replace good common sense. These guidelines may not be necessary at all times during the winter construction dates for several reasons. For example, if there is no snow on the ground or the ground isn't frozen by November 1, only the standard BMPs must be followed. Also, if the ground thaws and all the snow is gone before April 15, the standard BMPs may be appropriate. Nothing substitutes good judgment, being familiar with the construction site, and being aware of the site-specific conditions. Proper construction sequencing (Section 2.3) can greatly minimize environmental impact during winter construction. When in doubt, contact the project construction manager or environmental inspector with any questions.

Table 6 on page 22 highlights some of the major differences between the winter construction guidelines and normal BMPs used during construction and for temporary stabilization. The table presents differences for temporary measures that should be used during construction, and permanent measures when construction is completely done.

Table 6
Nonstructural Erosion Control Measures (Seasonal Differences in Construction BMP Requirements)

Dates	General Construction April 16 through October 31 of every year	Winter Construction November 1 through April 15 of every year
Mulch on slopes less than 8%	Within 100-feet of sensitive water resources apply hay and/or straw mulch at a minimum of 70 lbs./1000 square feet of exposed soil (about 2 bales). Must be done within 7 days of initial soil disturbance and before storm forecasted events, unless specified otherwise.	Within 100-feet of sensitive water resources apply and maintain properly anchored hay and/or straw mulch at a minimum of 150 lbs./1000 square feet of exposed soil (about 5 bales) at all times. (double the April 16 – October 31 rate)
Mulch on slopes greater than 8%	Hay or straw mulch can be applied without being anchored, though specific site conditions may require use of anchoring.	Apply mulch as specified above. Properly anchor with Curlex, jute matting, or similar mulch netting on upland slopes exceeding 8% and within 100 feet of streams if no construction activities are anticipated for 7 or more days.
Area of exposed soils allowed at any one time	No restriction on area exposed, but contractor must attempt to minimize amount of exposed soil at any one time, especially next to water resources.	Not more than one (1) acre of exposed (not mulched or otherwise devoid of vegetative cover) soil.
Sediment barriers	A single line of sediment barriers including silt fence, hay bales, or wood waste filter berms must be installed between water resources and disturbed soils.	If soil is frozen, wood waste filter berms or 2 lines of sediment barriers (including hay bales and silt fence) must be placed between water resources and disturbed soils.
Temporary seeding in uplands	If required, apply at the rate specified by the supplier, CMP Environmental Department, or Environmental Inspector. Cover with mulch.	Not required, but if temporary seeding is desired, it must be applied at a rate 3 times higher than the General Construction Season, and covered with mulch.
Temporary seeding in wetlands	Wetlands are not to be seeded unless done so with an agency approved seed mix. Annual Rye Grass is not acceptable and shall not be used. Disturbed wetland areas will be mulched exclusively with straw.	Wetlands are not to be seeded unless done so with an agency approved seed mix. Annual Rye Grass is not acceptable and shall not be used. Disturbed wetland areas will be mulched exclusively with straw.
Permanent seeding in uplands	Site must be seeded at rate specified by the supplier and covered with hay or straw mulch. If needed, the site can be limed and fertilized.	Not required before April 16, but if dormant seeding is desired, the site should receive an adequate cover of loam, if necessary, be seeded at a rate 3 times higher than the General Construction Season, and covered with mulch at a minimum of 150 lbs./1000 square feet.
Permanent seeding in wetlands	Do not apply permanent seed mixes to wetland areas unless they are specially designated wetland seed mixes approved by a resource agency.	Do not apply permanent seed mixes to wetland areas unless they are specially designated wetland seed mixes approved by a resource agency.
Temporary seedbed preparation	Apply limestone and fertilizer (uplands only) according to soil test data. If soil test is not possible, 10-10-10 fertilizer may be applied at a rate of 600 lbs./acre and limestone at 3 tons/acre.	Not required, but seedbed can be prepared according to General Construction requirements.
Permanent seedbed preparation	Apply limestone and fertilizer (uplands only) according to soil test data. If soil test is not possible, 10-20-20 fertilizer may be applied at a rate of 800 lbs./acre and limestone at 3 tons/acre.	Not required before April 16, but if dormant seeding is desired, the seedbed can be prepared according to the General Construction requirements.

Dates	General Construction April 16 through October 31 of every year	Winter Construction November 1 through April 15 of every year
Temporary slope stabilization	Same as winter construction season, but mulch does not need to be anchored.	Anchored hay or straw mulch on slopes greater than 8% and drainage ways with greater than 3% slope as necessary. Wood waste mix can be used on slopes in place of anchored hay or straw mulch.
Maintenance of erosion controls	Same as winter construction guidelines.	All erosion controls should be inspected periodically to ensure proper function. If any evidence of erosion or sedimentation is evident, repairs should be made to existing controls or other methods should be used.
Inspection and monitoring	Monitoring should be performed as needed until a new, healthy vegetative cover is attained on the site. This applies to both temporary and permanent seeding.	Monitoring should be performed as needed to ensure proper stabilization and re-vegetation (both temporary and permanent). Starting in the spring following completion of the project, inspections should be performed until new, healthy vegetative cover is attained.

9.0 SITE RESTORATION STANDARDS

Following completion of the construction work, the contractor will be responsible for conducting site restoration work. The following guidelines will apply to all activities, including temporary and permanent roads, stream/wetland crossings, staging and work areas, and substation sites.

9.1 Procedure

At the completion of project construction in an area or at the end of the construction, CMP or their designated representative, the contractor, and any Third Party Inspector will review the project's restoration needs and prioritize the areas. This prioritization should consider time of year, ground conditions, re-vegetation probabilities, and equipment availability. A restoration "walk-through" is strongly recommended.

In many cases a site can and should be restored within hours of when the soil disturbance occurred. Often getting the equipment to a site that needs to be restored only creates more disturbed area to restore. It is important to "restore as you go" to reduce the equipment travel on temporary access roads. It can be particularly difficult to restore an area that was disturbed during winter construction activities in the spring or summer.

Likely areas of restoration include, but are not limited to:

- Around substation construction areas.
- Around pole and anchor pole placement.
- All wetland, stream, or brook crossings, particularly the approaches and any stream banks.
- Drainage ways or ditches.
- All temporary or permanent constructed roads, yarding, and staging areas.
- Cut banks.
- Steep slopes (over 8%).

9.2 Methods for Restoration

There are several methods of restoration for different areas.

1. All soil that is excavated, mounded, or deposited during construction will be re-graded or removed from the site as directed by CMP. All re-grading and redistribution of soil will be done to match existing grade.
2. The banks and bottoms of brooks, streams, and rivers will be restored to natural conditions. In general, any material or structure used at temporary crossings will be removed, and the bank and bottoms restored to their original depth and contour.
3. On permanent access roads, stream culverts and bridges will be left intact and in good repair to remain available for maintenance operations and/or public access (woods roads, camp roads, etc.).
4. On those construction roads to be closed to future vehicle traffic (as determined by CMP), bridges, culverts, and other temporary crossing or water diversion structures will be removed and the banks and bottoms restored to original conditions.

5. Previously installed water bars may remain or new ones will be installed at locations designated by CMP, their designated representative, or the Third Party Inspector. To prevent accelerated soil erosion, such water bars will be installed on all access and construction roads to be closed to vehicle traffic and on steep sections of permanent roads. Permanent water bars will be constructed to a sufficient height and width to divert the amount of water anticipated at each location as well as to provide some post-project permanence to the site. Water bars on permanent roads will be constructed in such a manner that they will remain effective and require minimal maintenance, and will be permanently seeded to ensure their long-term stability.
6. All areas severely rutted by construction equipment will be re-graded and permanently revegetated.
7. Upon completion of the project, the following areas will be permanently revegetated or otherwise permanently stabilized:
 - a) All exposed soil within 100-feet of the edge of any water resource, including, but not limited to, discontinued roads, staging areas, and fill around the base of transmission line structures.
 - b) Areas of exposed soil on slopes in excess of eight (8) percent, including discontinued roads and construction trails.
 - c) Cut and fill banks subject to erosion.
8. Liming, fertilizing, and seeding requirements for permanent re-vegetation will depend upon the soil type and drainage condition of the site. In the absence of soil tests, permanent seeding will generally be done in accordance with “Procedures for Permanent Seeding for Erosion Control” found in Table 6 on page 22.
9. The contractor will be responsible for the proper maintenance of all revegetated areas until the project has been completed and accepted. Where seed areas have become eroded or damaged by construction operations, the affected areas will be promptly re-graded, limed, fertilized, and re-seeded as originally required.
10. The contractor will perform all erosion control work to the complete satisfaction of Central Maine Power Company before the work is accepted. Central Maine Power Company will base acceptance of the erosion control and stabilization work on a final inspection.

APPENDIX A
DEFINITION OF TERMS

APPENDIX A

DEFINITION OF TERMS

Adjacent to a natural resource: Within 75 feet of, or in a position to wash into, a water resource (river, stream, brook, pond, wetland, or tidal area).

Annual seed mix: Seed mixture largely made up of plants that only persist one growing season.

Brook: Essentially the same as a stream, a water course that has a defined channel, a gravel, sand, rock or clay base, and flows at least part of the year. It may be a dry channel part of the year.

Corduroy: Logs greater than 3 inches in diameter at the small end and at least 18 feet long that are placed perpendicular to travel direction, on approaches to and in wetlands for crossings. The purpose of the logs is to prevent rutting and preserve vegetation root integrity in and adjacent to wetland areas. May also be used on approaches to mats or bridge stream crossings.

Crossing: Any activity extending from one side to the opposite side of a sensitive natural resource whether under, through, or over that resource. Such activities include, but are not limited to, roads, fords, bridges, culverts, utility lines, water lines, sewer lines, and cables, as well as maintenance work on these crossings. Crossings should be done to minimize impact. For example, crossing at a right angle to the resource and finding the driest or narrowest spot is one method for minimizing impact.

Cross-sectional area: The cross-sectional area of a stream channel is determined by multiplying the stream channel width by the average stream channel depth. The stream channel width is the straight-line distance from the normal high water line on one side of the channel to the normal high water line on the opposite side of the channel. The average stream channel depth is the average of the vertical distances from a straight line between the normal high water marks of the stream channel to the bottom of the channel.

Culvert: A pipe or box structure of wood, metal, plastic, or concrete used to convey water.

Erosion: Movement of earthen material by water or wind.

Erosion control blanket (matting): Manufactured material made out of natural or synthetic fiber designed to control movement of earthen material when installed properly.

Erosion control mix: Erosion control mix consists primarily of organic materials such as shredded bark, wood chips, stump grindings, composted bark, or similar materials. Ground construction debris or reprocessed wood products are not acceptable for use in erosion control mix. It contains a well-graded mix of particle sizes and may contain rocks up to 4 inches in diameter. Properly manufactured mix will have organic matter content between 80 and 100 percent (dry weight), 100 percent of particles must pass a 6-inch screen, the organic portion needs to be fibrous and elongated, it may contain only small proportions of silts, clays, or fine sand, and its pH should be between 5.0 and 8.0. Its applications include erosion control berms and mulch.

Erosion control plans: Written guidelines specific to a project or activity, describing various techniques and methods to control erosion for specific construction activities.

Fill: Any earth, rock, gravel, sand, silt, clay, peat, or debris that is put into or upon, supplied to, or allowed to enter a water body or wetland. Material, other than structures, placed in or adjacent to a water body or wetland.

Filter strip: Undisturbed areas of ground consisting of natural vegetation and natural litter such as leaves, brush, and branches, located between a water resource and access road, skid road or trail, or other area of disturbed soil.

Ford: A permanent crossing of a stream utilizing an area of existing, non-erodible substrate of the stream, such as ledge or cobble, or by placing non-erodible material such as stone or geotextile on the stream bottom.

Geotextile, Non-woven: Synthetic material made of spun polypropylene fiber used to support wetland fill or stabilize soils.

Geotextile, Woven: Synthetic material of woven polypropylene used to stabilize soils and make sediment barriers (silt fence).

Great pond: An inland water body which in a natural state has a surface area in excess of 10 acres, and any inland water body which is artificially formed or increased which has a surface area in excess of 30 acres.

Intermittent watercourse: Water course that has water in it only part of the year. It is still considered a natural resource.

Mats: Pre-constructed, portable, timber platforms used to support equipment or travel in or over wetlands or water bodies.

Mulch: Temporary erosion control such as hay, bark, or some similar natural material utilized to stabilize disturbed soil.

Perennial seed mix: Seed mixture made up of seeds from plants that persist for several years.

Perennial watercourse: A river, stream, or brook depicted as a solid blue line on the most recent edition of a United States Geological Survey 7.5 minute series topographic map. Typically has water in it year round.

Permanent access road: Project access road that is not restored after project construction completion. Permanent access roads should be designed and constructed so they are not an erosion problem.

Permanent stabilization: Establishment of a permanent vegetative cover on exposed soils where perennial vegetation is needed for long-term protection.

Permanent vegetative cover: Perennial seed stock, including but not limited to grasses and legumes that persist for more than several growing seasons.

Protected Natural Resource: Coastal sand dune system, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, community public water system primary protection areas, great ponds or rivers, streams, or brooks. (From the Maine Natural Resources Protection Act, 38 M.R.S.A. Section 480-B., revised 2007).

Riprap: Heavy, irregular-shaped rocks that are fit into place, usually without mortar, on a slope in order to stabilize and prevent soil erosion.

Sediment barrier: Staked hay bales, silt fence, or similar materials placed in a manner to intercept silt and sediment laden water runoff.

Sedimentation: Deposition of earthen material in a water body or wetland.

Sensitive Natural Resource: Area that deserves special attention because it is significant wildlife habitat, fisheries habitat, or has other natural resource values. These areas may require the use of minimum impact construction techniques such as use of mats, leaving vegetation intact for buffers, special timing of construction, or other specific techniques.

Settling basin (sediment/catch basin): Excavated pit placed to intercept water running off disturbed soils or dirt road bed. Usually used only where filter strip is inadequate to protect a stream, pond, or wetland from silt and sediment.

Silt fence: Woven geotextile sediment barrier. Proper installation requires placement on-contour and keying the fabric in at ground level.

Steep slopes: Slopes in excess of eight (8) percent.

Stone check dam: A small, temporary dam constructed across a swale or drainage ditch. The purpose is to reduce the velocity of concentrated flows, reducing erosion and trapping sediment generated in the ditch.

Stream: Generally, a channel between defined banks with a gravel, sand, rock, or clay base that flows at least part of the year. It may be a dry channel part of the year. The Maine Natural Resources Protection Act contains a more detailed definition.

Structure: Anything built for the support, shelter, or enclosure of persons, animals, goods, or property of any kind, together with anything constructed or erected with a fixed location on or in the ground. Examples of structures include buildings, utility lines, and roads.

Temporary access road: Road constructed solely for project access which is restored to original grade upon project completion, if not sooner. All exposed soils on access road adjacent to water bodies or on slopes steeper than eight percent must be stabilized with a permanent seed mix and mulch or matting.

Temporary stabilization: Mulch, matting, or seed, or a combination thereof, utilized to stabilize soil. Soil stockpiles left in place longer than 14 days must have temporary stabilization.

Temporary vegetative cover: An annual seed mixture, typically annual rye and oats.

Topography: The contour and elevation of the surface of the ground.

Turn out: Water diversion that directs water out of a ditch or off a travel-way and into a vegetated buffer.

Upland edge: The area of uplands alongside a wetland, stream, or water body.

Wastes requiring special handling: Wastes generated from construction activity including engine oil, hydraulic oil, gear oil, diesel, gasoline, or coolants.

Water bar: Constructed bar across an access road or skid trail that directs surface water off the road or trail into a stable vegetated surface or filter strip. They are used as a temporary measure on active roads or when closing roads permanently to prevent erosion.

Water body: River, stream, brook, pond, wetland, or tidal area.

Water resource: River, stream, brook, pond, wetland, or tidal area.

Wetland: An area that is inundated or saturated by surface or groundwater at a frequency and for a duration sufficient to support, and which under normal circumstance do support, a prevalence of wetland vegetation typically adapted for life in saturated soils. The Maine Natural Resources Protection Act contains a more detailed definition.

APPENDIX B
CONSTRUCTION MATERIALS SOURCE LIST

APPENDIX B
CONSTRUCTION MATERIALS SOURCE LIST

The following list of vendors has been selected given the wide variety of construction materials they offer. The list is not meant to be all-inclusive or an indication of favored vendors.

W.H. Shurtleff Company (Culverts, Geotextiles)

One Runway Road
Suite 8
South Portland, Maine 04106-6169
1-800-633-6149
www.whshurtleff.com

A. H. Harris (Geotextiles, i.e. Curlex Excelsior Blankets)

22 Leighton Road Augusta, Maine 04332 (207) 622-0821 www.ahharris.com	585 Riverside Street Portland, Maine 04103 (207) 775-5764
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North American Green (Erosion control materials)

Maine Distributor:
E.J. Prescott
P.O. Box 600
32 Prescott Street, Libby Hill Business Park
Gardiner, Maine 04345
(207) 582-1851
www.ejprescott.com

New England Organics (Erosion Control Mulch)

135 Presumpscot Street, Unit 1
Portland, ME 04103
1-800-933-6474
www.newenglandorganics.com

APPENDIX C
OTHER RECOMMENDED REFERENCE
MANUALS

APPENDIX C

OTHER RECOMMENDED REFERENCE MANUALS

Maine Erosion and Sediment Control BMPs. Bureau of Land and Water Quality, Maine Department of Environmental Protection, Augusta, Maine. March 2003.
DEPLW0588.

Best Management Practices for Forestry: Protecting Maine's Water Quality. Maine Forest Service, Augusta, Maine. 2004.
www.maine.gov/doc/mfs/pubs/bmp_manual.htm

Forest Transportation Systems: Roads and Structures Manual. Seven Islands Land Company, Bangor, Maine. Third Edition, 1999.

APPENDIX D
CONSTRUCTION TECHNIQUE ILLUSTRATIONS

APPENDIX E

EROSION AND SEDIMENTATION CONTROL LAW* 38

M.R.S.A. § 420-C

APPENDIX E

EROSION AND SEDIMENTATION CONTROL LAW*

38 M.R.S.A. § 420-C

A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in section 480-B. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken and the site must be maintained to prevent unreasonable erosion and sedimentation.

This section applies to a project or any portion of a project located within and organized area of this State. This section does not apply to agriculture fields. Forest management activities, including associated road construction or maintenance, conducted in accordance with applicable standards of the Maine Land Use Regulation Commission, are deemed to comply with this section. This section may not be construed to limit a municipality's authority under home rule to adopt ordinances containing stricter standards than those contained in this section.

* The Erosion and Sedimentation Control Law is administered by the Maine Department of Environmental Protection (MDEP), Augusta, Maine. Please contact the MDEP with specific questions regarding this law.

APPENDIX F
MAINE SLASH LAW* 12 M.R.S.A. § 9333

APPENDIX F
MAINE SLASH LAW*
12 M.R.S.A § 9333

§9333. Disposal along railroad and utility lines

*1. **Stumpage owner.** A stumpage owner, operator, landowner or agent who cuts or causes or permits to be cut any forest growth on lands that are within or border the right-of-way of a railroad, a pipeline, or an electric power, telegraph, telephone or cable line may not place slash or allow it to remain on the ground within the right-of-way or within 25 feet of the nearer side of the right-of-way.*

*2. **Construction.** Slash accumulated by the construction and maintenance of a railroad, a highway, a pipeline or electric power, telegraph, telephone or cable line may not be left on the ground but must be hauled away, burned or chipped. Slash may not be left or place within the right-of-way or within 25 feet of the nearer side of the right-of-way. If a burning permit is denied or revoked under this chapter, the director may allow logs that are too large to be chipped to remain in the right-of-way until the director determines that their removal is economically feasible.*

*3. **Utility line maintenance.** Slash accumulated by the periodic maintenance of a pipeline or an electric power, telegraph, telephone or cable line may be disposed of in the following manner.*

- A. Slash with a diameter of 3 inches or less may be left in piles on the ground within the maintained portion of the right-of-way. A pile may not be higher than 18 inches from the ground or longer than 50 feet and must be separated from other piles by a minimum of 25 feet in every direction. A buffer strip with a minimum width of 10% of the total width of the maintained right-of-way must be kept totally free of slash with a diameter of 3 inches or less.*
- B. Slash with a diameter of more than 3 inches must be removed, chipped or limbed and placed on the ground surface. The pieces must be separated and may not be piled one piece over another. Slash of this size may be left within the maintained buffer strips.*
- C. If a utility line right-of-way is adjacent to a road, slash that is 3 inches or less in diameter must be removed, burned or chipped. Slash with a diameter of more than 3 inches may be left on the ground within the right-of-way and must not be limbed and separated and may not be piled one piece over another. Usable timber products generated from the maintenance of a utility right-of-way may be piled within the right-of-way but must be removed within 30 days.*

* Note that this is an excerpt from the full text of the law. Please contact the Maine Forest Service, Augusta, Maine, for the full text of the law or with specific questions regarding the Slash Law.

APPENDIX G
CULVERT SIZES FOR STREAM CROSSINGS
(3X RULE)

CULVERT SIZES (ROUND) FOR STREAM CROSSINGS (3x RULE)

AVERAGE STREAM WIDTH

Take two measurements across the stream from bank to bank where you intend to place the culvert. Measurements should be taken at the normal high water line (NHWL). To find the NHWL during low flow periods look for water stains on rocks or a debris line along the bank. Add the first measurement to the second and divide this number by 2. This equals the average stream width.

Example: 36in. + 47 in. = 83in. $83 \div 2 =$ avg. stream width of 41.5 inches. (Round up to 42in.)

AVERAGE STREAM DEPTH

Take 3 measurements from the bottom of the stream to the NHWL.

Add the measurements together and divide this number by 3. This equals the avg. stream depth.

Example: 12in. + 16in. + 14in. = 42in. $42 \div 3 =$ average stream depth of 14 inches.

USING THE TABLE

Take the average width and depth figures and determine where they intersect on the table above.

*For example, for an average stream width of 42 inches (on the left side of the table), and an average stream depth of 14 inches (along the top of the table), the intersect shows a culvert diameter of 48 inches.

Average Stream Width		Average Stream Depth (Inches)														
Feet	Inches	2	4	6	8	10	12	14*	16	18	20	22	24	26	28	30
1	12	12	15	18	21	21	24	30	30	30	30	36	36	36	36	42
1.5	18	12	18	21	24	30	30	36	36	36	42	42	42	42	48	48
2	24	15	21	24	30	30	36	36	42	42	48	48	48	54	54	54
2.5	30	15	21	30	30	36	42	42	48	48	48	54	54	60	60	60
3	36	18	24	30	36	42	42	48	48	54	54	60	60	60	66	66
3.5	42*	18	30	36	36	42	48	48	54	54	60	60	66	66	72	72
4	48	21	30	36	42	48	48	54	54	60	66	66	66	72	72	78
4.5	54	21	30	36	42	48	54	54	60	66	66	72	72	78	78	84
5	60	21	30	42	48	48	54	60	66	66	72	72	78	78	84	84
5.5	66	24	36	42	48	54	60	60	66	72	72	78	78	84	84	90
6	72	24	36	42	48	54	60	66	66	72	78	78	84	90	90	96
6.0	78	24	36	42	54	60	60	66	72	78	78	84	90	90	96	96
7	84	30	36	48	54	60	66	72	72	78	84	84	90	96	96	102
7.5	90	30	42	48	54	60	66	72	78	84	84	90	96	96	102	102
8	96	30	42	48	54	66	66	72	78	84	90	90	96	102	102	108
8.5	102	30	42	48	60	66	72	78	84	84	90	96	102	102	108	108
9	108	30	42	54	60	66	72	78	84	90	96	96	102	108	108	114
9.5	114	30	42	54	60	66	72	78	84	90	96	102	102	108	114	114
10	120	30	48	54	66	72	78	84	90	96	96	102	108	114	114	120
10.5	126	36	48	54	66	72	78	84	90	96	102	108	108	114	120	120
11	132	36	48	60	66	72	78	84	90	96	102	108	114	114	120	126
11.5	138	36	48	60	66	78	84	90	96	102	108	108	114	120	126	126
12	144	36	48	60	66	78	84	90	96	102	108	114	114	120	126	132
12.5	150	36	48	60	72	78	84	90	96	102	108	114	114	120	126	132
13	156	36	54	60	72	78	90	96	102	108	114	114	120	126	132	138
13.5	162	36	54	66	72	84	90	96	102	108	114	120	126	132	132	138
14	168	36	54	66	72	84	90	96	102	108	114	120	126	132	138	144
14.5	174	36	54	66	78	84	90	96	108	114	120	126	126	132	138	144
15	180	42	54	66	78	84	96	102	108	114	120	126	132	138	144	144

Exhibit 8
Soils Map

Exhibit 9

**CMP's Environmental Control Requirements for
Contractors and Subcontractors – Oil and Hazardous
Material**

**ENVIRONMENTAL CONTROL REQUIREMENTS
FOR CONTRACTORS AND SUBCONTRACTORS
OF CENTRAL MAINE POWER COMPANY – OIL AND HAZARDOUS
MATERIAL**

The criteria listed in Section I below are the requirements for oil and hazardous material use compliance by contractors and subcontractors of Central Maine Power Company (CMP). All contractors and subcontractors are required to comply with these requirements while working for or on behalf of CMP.

Penalties: Failure to abide by these requirements will constitute grounds for termination of contractor/subcontractor services.

Section I

General Requirements:

- Contractors/subcontractors will store, transport, and use oil, hazardous materials, and wastes in accordance with all applicable local, state, and federal regulations and these requirements.
- At a minimum, contractors/subcontractors will follow best management practices when storing, transporting or using oil, hazardous materials, and wastes.
- Contractors/subcontractors, at all times, will take care not to cause an uncontrolled spill or release of oil or hazardous materials to the environment.
- Contractors/subcontractors will provide and maintain on-site sufficient spill cleanup and containment supplies (absorbent pads, containment booms, protective clothing, debris containers, etc.) to control releases of oil, hazardous materials, or wastes.
- Contractors/subcontractors will remove all oils, hazardous materials, wastes and unused materials from the work site at the completion of the job. This includes full and partially full containers of waste material such as, but not limited to, rags, gloves, trash, scrap material, and empty containers.

NOTE: If large quantities of oil or hazardous materials are involved, written agreements with emergency response contractors may be required.

Storage and Handling Requirements:

- Contractors/subcontractors will store only the minimal amount of material (at each work site) necessary to complete the work.
- Handling and application of pesticides and herbicides shall only be in accordance with regulations under the Maine Pesticide Control Act of 1975, as amended, Title 7M.R.S.A., Section 601.

- Materials will be stored in D.O.T. approved containers or approved tanks in areas not considered to be environmentally sensitive.
- Containers will be kept closed unless material is being transferred.
- Contractors/subcontractors will ensure that all transferring operations are monitored and not left unattended.
- Containers will not be stored on the ground, but will be stored in cabinets or on a firm working surface such as a portable trailer bed or other secure decking.
- If at any time a contractor/subcontractor needs to store oil including, but not limited to, fuel oil, petroleum products, sludge, and oil refuse in excess of an aggregate amount of 1,320 gallons (excluding 55-gallon or less containers) that is located near a pathway to navigable waters, the Federal requirements for oil pollution prevention (40 CFR Part 112) must be met. Contractor/Subcontractor Spill Prevention Control and Countermeasure (SPCC) plans will be approved by a licensed, professional engineer and a copy will be sent to CMP no later than one week prior to the commencement of the oil storage activities.
- Storage and handling of flammable and combustible liquids including gasoline and diesel fuel will be in accordance with rules developed under Title 25 M.R.S.A., Section 2441 (Fire Prevention and Fire Protection), as amended (See also Code of Maine Rules 16-219 Chapter 317). These regulations include, but are not limited to, bonding and grounding during transfer operations, fire protection requirements, storage quantity limitations, and spacing and location requirements.
- All gasoline and fuel storage tanks must have secondary containment constructed of an impervious material and be capable of holding 110% of tank capacity.
- Handling and disposal of hazardous wastes will be in accordance with Maine Department of Environmental Protection (DEP) Hazardous Waste Management rules (06-096 Chapters 853 through 857) developed pursuant to Title 38 M.R.S.A., Section 1301 et. seq., and U.S. Environmental Protection Agency regulations (40 CFR 260 through 272). Handling and disposal of waste oil will be in accordance with Maine Department of Environmental Protection Waste Oil Management Rules (06-096 Chapter 860) and U.S. Environmental Protection Agency regulations (40 CFR 279).

Spill Reporting Requirements:

All spill reporting requirements are the responsibility of the contractor/subcontractor. As required by Title 38 M.R.S.A., Section 543 and Department of Environmental Protection regulations (06-096 Chapters 600 4.B and 800 4.1), spills of oil or hazardous materials in any amount and under any circumstances must be reported to the Department within two hours from the time the spill was discovered at 1-800-482-0777.

As required by the Federal Clean Water Act (40 CFR Part 110.4), a discharge of oil "which causes a sheen upon the surface of the water or adjoining shore line or oily sludge deposits beneath the surface of the water" must be reported within 24 hours to the National Response Center at 1-800-424-8802.

The need to report spills to the National Response Center of hazardous materials other than oil will be determined by the contractor/subcontractor by consulting the CERCLA list of hazardous substances and reportable quantities (40 CFR Table 302.4). Any spills that involve a reportable quantity of any hazardous substance must be reported to the National Response Center by the contractor/subcontractor. The contractor/subcontractor must also report all spills immediately to CMP.

Spill Cleanup Requirements:

It is the contractor's/subcontractor's responsibility to ensure and oversee immediate and complete cleanup of all spills involving oil or hazardous materials. The contractor/subcontractor is also responsible for all health and safety issues related to the cleanup of oil or hazardous materials. The contractor/subcontractor is also responsible for expediting the disposal of spill debris waste and restoring the site to its original condition.

Exhibit 10
Evidence of Right, Title or Interest Documents