

32-I-39

40 Union St.
Substation

~~QMP~~

Helen Donaldson - CMP Union Street Substation

From: "Christopher, Mark" <mchristopher@trcsolutions.com>
To: 'Helen Donaldson' <HCD@portlandmaine.gov>
Date: 6/27/2013 2:56 PM
Subject: CMP Union Street Substation
CC: "Mirabile, Gerry J." <Gerry.Mirabile@cmpco.com>, "Boivin, Gerry R" <...
Attachments: Permitting Set.pdf; General elevation of 11&12 and 34 Swichgears.pdf; NEEDS UPDATE 11&12 Switchgear Exterior Elevation Views.pdf; Elevation 34 switchgear view 2.pdf; Elevation 34 switchgear view 1.pdf; Union_Street_Yard_Lighting.pdf

Hi Nel:

Attached are the latest plans as follows:

- Permitting plans (existing conditions, grading, sections, erosion controls, and landscaping) signed & sealed with revision dates added;
- General elevation view of both switchgear buildings;
- 11/12 kV switchgear building elevation with faux brick (Note the floodlight fixtures are being replaced with full cutoffs with one 70 watt bulb each---I still need a revised drawing);
- 34 kV switchgear building 2 views;
- Yard lighting plan.

Each switchgear building has 4 lights, one above each door. CMP staff indicated that each light needs to stay on at night. They expect any staff visiting the substation to be able to visually inspect the areas around the switchgear buildings before entering the substation.

Please feel free to call me with any questions.

Thanks
Mark

Mark W. Christopher, M.S., CWB
Environmental Scientist
TRC Solutions, Inc
14 Gabriel Drive
Augusta, ME 04330
207-620-3844 phone
207-621-8226 fax
207-441-4225 cell

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MAX 2.5

MIN .2

PV6 1.25

UNIFORMITY 20:1

Helen Donaldson - CMP Union street substation

From: "Christopher, Mark" <mchristopher@trcsolutions.com>
To: 'Helen Donaldson' <HCD@portlandmaine.gov>
Date: 5/31/2013 8:17 AM
Subject: CMP Union street substation
CC: "McKernan, Scott" <SMcKernan@trcsolutions.com>, "Mirabile, Gerry J." <...
Attachments: Full Yard Lighting.pdf; Building Lights Only.pdf; CONT HOUSE - XFMR.PDF; 11-12KV BLDG.PDF; 34KV BLDG.PDF

Hi Nell:

Thanks for the update. We will update the lighting plan figure and send it along with the full set of plans next week or later. Here's my take on the lighting issues for which I think we have two. One being the use of half-cutoffs at the transformers and control house (existing). Secondly the illumination levels at each switchgear for which the lights are setup primarily for safety. Given the screening by the buildings, landscaping, and fence there should be very minimal visibility. Do you know if the hotel developer is landscaping the common boundary with CMP?

Here's my formal write-up;

Attached are two lighting studies. One has the lighting assessment for the entire substation with all lights turned on. The Second assessment has the transformer lights turned off as this will be the normal nighttime conditions. Tear sheets for each type of fixture are also attached.

Overall the Section 12 Site Lighting Standards for average illumination are met by the project with all lights turned on. Maximum and minimum standards are not achieved in some areas. The lighting plan was designed first and foremost for safety purposes for CMP staff and much less so for security. Security is achieved by the fencing. Furthermore, three sides of the site are screened by landscaping which reduces the security functions of the lighting. Illumination levels along the site boundary are generally 0.0 fc not accounting for landscape screening. Since much of the substation yard does not meet the City minimum standard as there is no purpose to add lighting to unoccupied portions of the yard, CMP requests a waiver to the standards.

Transformers: CMP needs to use half-cutoff lights here for when maintenance work is required at night. Areas around the entire transformer need to be lighted for this work. These eight lights are manual turn on/off using 150 watt lamps and will only be in use during maintenance work. Therefore CMP is requesting a waiver from the Section 12 Site Lighting Standards for the use of the half-cutoff lights. A fixture tear sheet is attached.

1/2 CUTOFF

20:1

Control House: CMP does not propose to modify the light over the control house door. It is a half-cutoff fixture, like the ones proposed for the transformers, and uses a 200 watt lamp. If needed CMP requests a waiver for the continued use of this light fixture.

↓ reduce wattage?

34kV Switchgear: There are four full-cutoff light fixtures here each using a 70 watt lamp and internal photocell. It is assumed that these lights will remain on all night. For safety purposes CMP standards require one light over each door for which there are four to this building. These levels of illumination exceed the City maximum standards immediately underneath the fixtures, but IESNA do not list a maximum standard. CMP requests a waiver from the maximum illumination standards for this building.

11/12 kV Switchgear: The lighting design will be modified to remove the flood lights and replace them with full-cutoff lights. Again one light is needed above each door, hence four fixtures, but not on the sides without doors. This design meets CMP safety standards and it is expected that these lights will stay on all night.

Illumination levels within eight feet of the fixtures exceed the City standards and CMP is requesting a waiver from those standards.

Thanks

Mark

Mark W. Christopher, M.S., CWB

Environmental Scientist

TRC Solutions, Inc

14 Gabriel Drive

Augusta, ME 04330

207-620-3844 phone

207-621-8226 fax

207-441-4225 cell

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PORTLAND MAINE

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Planning & Urban Development Department
Jeff Levine, Director

Planning Division
Alexander Jaegerman, Director

July 3, 2013

Gerry Mirabile
Central Maine Power
83 Edison Drive
Augusta, ME 04336

Mark Christopher
TRC Engineers
14 Gabriel Drive
Augusta, ME 04330

Project Name:	Central Maine Power Substation Improvements	Project ID:	2013-080
Address:	40 Union Street	CBL:	32-I-039
Applicant:	Central Maine Power		
Planner:	Nell Donaldson		

Dear Mr. Mirabile,

On July 3, 2013, the Planning Authority approved with conditions a Level II site plan for the reconfiguration of electrical equipment located at the CMP substation at 40 Union Street. The decision is based upon the application, documents and plans as submitted by Central Maine Power and prepared by TRC Companies and dated June 10, 2013. The proposal was reviewed for conformance with the standards of Portland's site plan ordinance.

WAIVERS

Given the safety needs associated with the use of the site as a substation, the Planning Authority waives the technical site lighting standard, Section 12.2.3, regarding maximum and minimum illumination levels.

SITE PLAN REVIEW

The Planning Authority found the plan is in conformance with the site plan standards of the Land Use Code subject to the following conditions of approval, which must be met prior to the issuance of a building permit, unless otherwise noted:

PLAN DATE
7/10/13 ✓

1. The applicant shall add a note to the landscaping plan which indicates that the applicant or their designee will meet with the city's arborist on site prior to planting in order to review plant placement details in the field;
2. The applicant shall:
 - ✓ a. Submit revised elevations showing full cutoff light fixtures on the 11 & 12kV switchgear building, in accordance with the cut sheets provided;
 - not ✓ b. Submit specifications for a full cutoff light fixture over the control house door or add shielding as necessary in order to minimize light trespass to the adjacent property; and - TMB/C
 - ok BAB ✓ c. Provide an updated lighting plan, including maximum, minimum, and average illumination levels, based on the revised light fixtures and add a note to the lighting plan which indicates that the transformer lights will be switched on only temporarily for maintenance or emergency purposes.

not ✓
ok
7/23/13

7/23/13 as utility w/ safety concerns

The approval is based on the submitted site plan. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.

STANDARD CONDITIONS OF APPROVAL

Please note the following standard conditions of approval and requirements for all approved site plans:

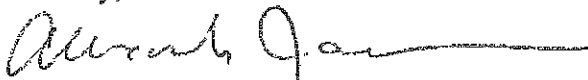
1. **Storm Water Management Condition of Approval** The developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan based on City standards and state guidelines.
2. **Develop Site According to Plan** The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall require the prior approval of a revised site plan by the Planning Board or Planning Authority pursuant to the terms of Chapter 14, Land Use, of the Portland City Code.
3. **Separate Building Permits Are Required** This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.
4. **Site Plan Expiration** The site plan approval will be deemed to have expired unless work has commenced within one (1) year of the approval or within a time period up to three (3) years from the approval date as agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the one (1) year expiration date.

5. **Performance Guarantee and Inspection Fees** A performance guarantee covering the site improvements, inspection fee payment of 2.0% of the guarantee amount and seven (7) final sets of plans must be submitted to and approved by the Planning Division and Public Services Department prior to the release of a building permit, street opening permit or certificate of occupancy for site plans. If you need to make any modifications to the approved plans, you must submit a revised site plan application for staff review and approval.
6. **Defect Guarantee** A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.
7. **Preconstruction Meeting** Prior to the release of a building permit or site construction, a pre-construction meeting shall be held at the project site. This meeting will be held with the contractor, Development Review Coordinator, Public Service's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan. The site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting.
8. **Department of Public Services Permits** If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)
9. **As-Built Final Plans** Final sets of as-built plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*.dwg), release AutoCAD 2005 or greater.

The Development Review Coordinator must be notified five (5) working days prior to the date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Nell Donaldson at (207) 874-8723.

Sincerely,



Alexander Jaegerman, FAICP
Planning Division Director

Attachments:

1. Sample Stormwater Maintenance Agreement
2. Performance Guarantee Packet

cc: Jeff Levine, AICP, Director of Planning and Urban Development
Alexander Jaegerman, FAICP, Planning Division Director
Barbara Barhydt, Development Review Services Manager
Neil Donaldson, Planner/Senior Planner
Philip DiPiero, Development Review Coordinator, Planning
Marge Schmuckal, Zoning Administrator, Inspections Division
Tammy Munson, Inspection Division Director
Lannie Dobson, Administration, Inspections Division
Gayle Guertin, Administration, Inspections Division
Michael Bobinsky, Public Services Director
Katherine Earley, Engineering Services Manager, Public Services
Bill Clark, Project Engineer, Public Services
David Margolis-Pineo, Deputy City Engineer, Public Services
Doug Roncarati, Stormwater Coordinator, Public Services
Greg Vining, Associate Engineer, Public Services
Michelle Sweeney, Associate Engineer
John Low, Associate Engineer, Public Services
Rhonda Zazzara, Field Inspection Coordinator, Public Services
Mike Farmer, Project Engineer, Public Services
Jane Ward, Administration, Public Services
Jeff Tarling, City Arborist, Public Services
Jeremiah Bartlett, Public Services
Captain Chris Plone, Fire Department
Danielle WestChuhua, Corporation Counsel
Thomas Errico, P.E., TY Lin Associates
David Senus, P.E., Woodard and Curran
Rick Blackburn, Assessor's Department
Approval Letter File

CONTROL HOUSE
+ TRANSFORMER BAYS

WALL MOUNTED

LITHONIA OUTDOOR

PRODUCT INFORMATION

General Purpose

TWR

Intended Use

For mounting above entryways and loading docks.

Contact with a direct forceful spray of water during operation can result in glass breakage. Not recommended for car wash applications.

Construction

Housing: Rugged, die-cast aluminum back housing and hinged doorframe. Castings are sealed with a one-piece gasket to inhibit the entrance of external contaminants. Finish is bronze polyester powder paint standard.

Optics

(TWR1, TWR2) Refractor is

prismatic borosilicate glass. Reflector is die-formed anodized stippled aluminum. TWR1 medium-base lamp and TWR2 mogul-base lamp included in carton as standard.

Electrical

Ballast: All ballasts are 100% factory tested. HPS: High reactance, high power factor for 150W and below. Constant wattage autotransformer 250W and above. MH: 150W and below are standard with pulse-start ignitor technology. Super CWA Pulse Start ballasts, 88% efficient and EISA legislation compliant, are required for 151-400W (must order SCWA option). Compact

fluorescent uses an electronic high-frequency ballast.

Socket: Porcelain, medium-base socket for TWR1, mogul-base socket for TWR2, with copper alloy nickel-plated screw shell and center contact. Fluorescent is four-pin positive latching thermoplastic. LPI is standard 35K for CFL.

Installation

Housing configured for mounting directly over a standard 4" outlet box or for surface wiring via any of three convenient 3/4" threaded conduit entry hubs.

Listings

UL Listed standard to U.S. and Canadian safety standards. CSA Certified (see Options). UL/C-UL Listed for wet locations.



ORDERING INFORMATION

For shortest lead times, configure products using **bolded options**.

Example: TWR1 150S TB LPI

Series	Lamp type ¹	Voltage	Ballast	Options	Finish	Lamped
TWR1	High pressure sodium	Metal halide	120	(blank) Magnetic ballast	PE Photoelectric cell - button type ⁶	(blank) LPI Lamp included
TWR2	70S CONTROL HOUSE	70M	TB ⁴	SCWA Super CWA ballast ²	CSA Meets Canadian standards	
	100S	100M	MVOLT ³	WG Wire guard ⁹		
	150S XCFMR BAYS	150M	120/347 ⁶			
	250S	250M²				
	400S	400M²				
		Compact fluorescent				
		2/42TRT ³				

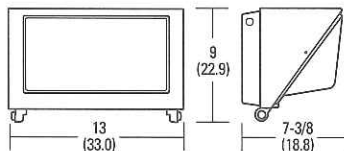
ADDITIONAL INFORMATION

For additional product information, visit www.lithonia.com.

CONFIGURATIONS	
SERIES	LAMP TYPE
TWR1	70S, 70M, 100S, 100M, 150S, 150M, 2/42TRT
TWR2	250S, 250M, 400S, 400M

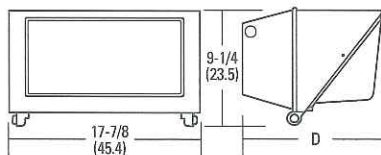
ACCESSORIES	
ORDER SEPARATELY	
TWR1WG	Wireguard
TWR2WG	Wireguard
RK1 TWR1FA	Lens repair kit
RK1 TWR2FA	Lens repair kit

Drawings are for dimensional detail only and may not represent actual mechanical configuration. Dimensions are shown in inches (centimeters) unless otherwise noted.



Weight: 18 lbs (8.1 kg)

TWR1



250W	400W
Depth: 9-3/8 (23.8)	12-1/2 (31.8)
Weight: 26 lbs (11.8 Kg)	31 lbs (14Kg)

TWR2

Notes

- Specify lamp type. See Configurations table.
- Must be ordered with SCWA option.
- Available with MVOLT or 120V with PE only.
- Optional multi-tap ballast (120V, 208V, 240V, 277V).
- Only available with 2/42TRT.
- Only available with CSA.
- Only available for 250M and 400M.
- Available with 250M, 400M, 2/42TRT (120V) only. Consult factory for other wattage/voltage availability.
- May be ordered as an accessory. Prefix with fixture name and size (e.g., TWR1WG).



FEATURES & SPECIFICATIONS

INTENDED USE

Ideal for mounting above entryways and loading docks.

CONSTRUCTION

Rugged, corrosion-resistant die-cast aluminum back housing and hinged door frame. Castings are sealed with a one-piece gasket to inhibit the entrance of external contaminants. Lens is thermal- and shock-resistant clear tempered glass. Finish is bronze polyester powder paint for lasting durability.

OPTICS

Anodized aluminum reflector, provides IES cutoff distribution. Optional full cutoff visor available.

Medium-base lamp included in carton.

ELECTRICAL

HID: Ballast is high-reactance, high-power-factor for 70-150W. Ballast is 100% factory-tested.

Socket: Medium-base socket, nickel-plated screw shell and center contact.

INSTALLATION

Housing is configured for mounting directly over a standard 4" outlet box or for surface wiring via any of three convenient 1/2" threaded conduit entry hubs.

LISTING

UL Listed to US and Canadian safety standards (see Options). Suitable for wet locations (25°C maximum ambient temperature).

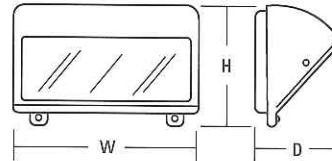
Specifications subject to change without notice.

Catalog Number
Notes
Type

Cutoff Wall Packs

TWR1C

METAL HALIDE: 70-175W
HIGH PRESSURE SODIUM: 70-150W



Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

Specifications

Height: 10-1/4 (26.0)

Width: 13 (33.0)

Depth: 8-1/2 (21.5)

*Weight: 16.45lbs/ 7.46kg

All dimensions shown in inches (centimeters) unless otherwise noted.

*Weight as configured in example below.

ORDERING INFORMATION

Example: TWR1C 100M TB LPI

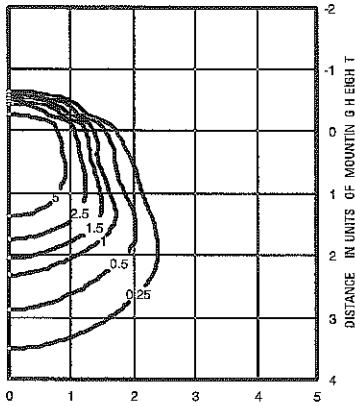
Catalog Number	Wattage	Voltage	Photocell included	Lamp included	Available in Canada
Metal halide					
TWR1C 70M 120/347 LPI CSA	70	120/347	N	Y	Y
TWR1C 70M TB LPI	70	120/208/240/277	N	Y	N
TWR1C 100M 120/347 LPI CSA	100	120/347	N	Y	Y
TWR1C 100M TB LPI	100	120/208/240/277	N	Y	N
TWR1C 150M 120 PE LPI	150	120	Y	Y	Y
TWR1C 150M 277 PE LPI	150	277	Y	Y	Y
TWR1C 150M TB LPI	150	120/208/240/277	N	Y	N
TWR1C 175M 120/347 LPI CSA	175	120/347	N	Y	Y
High pressure sodium					
TWR1C 70S 120/347 LPI CSA	70	120/347	N	Y	Y
TWR1C 70S TB LPI	70	120/208/240/277	N	Y	N
TWR1C 100S 120/347 LPI CSA	100	120/347	N	Y	Y
TWR1C 100S TB LPI	100	120/208/240/277	N	Y	N
TWR1C 150S 120/347 LPI CSA	150	120/347	N	Y	Y
TWR1C 150S TB LPI	150	120/208/240/277	N	Y	N

Accessories: Order as separate catalog number.
Shipped separately

TWR1C FCV U	Full cutoff visor
TWR1C WG U	Wireguard

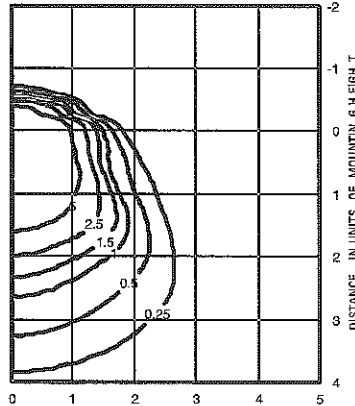
TWR1C High Pressure Sodium/Metal Halide Cutoff Wall Pack

TWR1C 70S TEST NO: LTL12140
ISOILLUMINANCE PLOT (Footcandle)



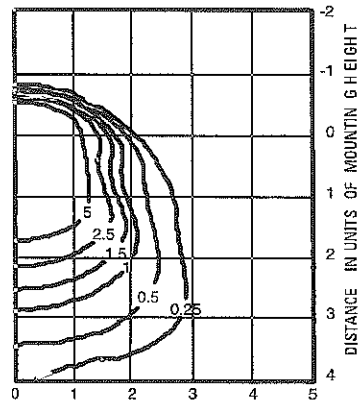
70W high pressure sodium lamp
Footcandle values based on 10'
mounting height, 6300 rated lumens
Luminaire Efficiency: 70.3%

TWR1C 100S TEST NO: LTL12165
ISOILLUMINANCE PLOT (Footcandle)



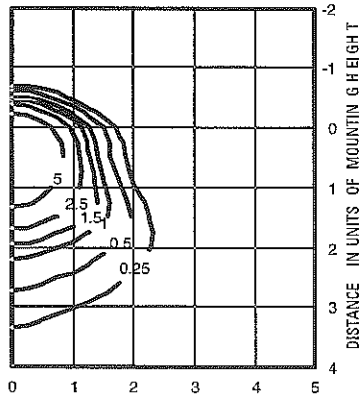
100W high pressure sodium lamp.
Footcandle values based on 10'
mounting height, 9500 rated lumens.
Luminaire Efficiency: 70.3%

TWR1C 150S TEST NO: LTL12138
ISOILLUMINANCE PLOT (Footcandle)



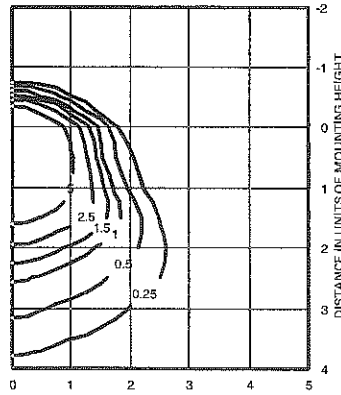
150W high pressure sodium lamp
Footcandle values based on 10'
mounting height, 15800 rated lumens.
Luminaire Efficiency: 66.9%

TWR1C 70M TEST NO: LTL12142
ISOILLUMINANCE PLOT (Footcandle)



70W metal halide lamp
Footcandle values based on 10'
mounting height, 5200 rated lumens.
Luminaire Efficiency: 69.0%

TWR1C 100M TEST NO: LTL12166
ISOILLUMINANCE PLOT (Footcandle)



100W metal halide lamp,
Footcandle values based on 10'
mounting height, 8500 rated lumens.
Luminaire Efficiency: 69.0%

COOPER LIGHTING - LUMARK

DESCRIPTION

Lumark's Cutoff Wally is a cutoff classified wall luminaire. Combining compact, aerodynamic styling with higher wattage performance, it is ideal for areas where spill light and glare control must be managed effectively.



SPECIFICATION FEATURES

- U.L. listed for wet locations
- Die-cast aluminum housing finished standard bronze polyester powder coat
- HID: 4Kv medium-base socket. CFL: Gx24q-4 (4-pin)
- HID: Medium-base lamp included and available in 150W High Pressure Sodium or 100W Pulse Start Metal Halide. CFL: Supplied with 4-pin, 42W Compact Fluorescent lamp
- Special one-piece door design held in place with slot-head captive screws, provides low-glare cutoff lighting. Silicone gasketing seals out dirt and contaminants
- Patterned tempered glass lens minimizes direct lamp imaging
- Ships completely prewired and preassembled. Easily mounts to J-box, wall for quick installation
- Approximate net weight: 7-11 lbs. (3-5 kgs.)

ORDERING INFORMATION (LAMP INCLUDED)

Catalog Number	Lamp Type	Lamp Wattage	Ballast Type	Voltage	Color
High Pressure Sodium					
LS50C	ED17	50	Reactor/NPF	120V	Bronze
LS70C	ED17	70	Reactor/NPF	120V	Bronze
LS10C	ED17	100	Reactor/NPF	120V	Bronze
LS15C	ED17	150	Reactor/NPF	120V	Bronze
Pulse Start Metal Halide					
LP70C	ED17	70	Hi. Rec/NPF	120V/277V	Bronze
LP10C	ED17	100	Hi. Rec/NPF	120V/277V	Bronze
Compact Fluorescent					
LC42C	Gx24q-4 (4-pin)	42	Electronic	120V/277V	Bronze

NOTE: Add "W" to the end of catalog number for white finish. Add "WHT" to the end of accessory for white finish (Example: WY/CO-WHT). Not available in 42W Compact Fluorescent. In cold temperatures, Compact Fluorescent lamps produce lower illumination levels.

Accessories (order separately)

WY/CO=Cutoff Replacement Door (Bronze). Not available in 42W Compact Fluorescent.

WY/FC/CO=Full Cutoff Visor for Cutoff (Bronze)



WALLY CUTOFF

50-150W
High Pressure Sodium
Pulse Start Metal Halide

42W
Compact Fluorescent

WALL MOUNT
LUMINAIRE

DESCRIPTION

The Lumark Wally Glass combines contemporary styling and optimum performance. A variety of mounting options add to the versatility of this compact fixture.

SPECIFICATION FEATURES

- U.L. listed for wet locations. CSA certified
- Die-cast aluminum housing finished in a durable bronze polyester powder coat finish
- HID: 4Kv medium-base socket. CFL: Gx24q-4 (4-pin)
- HID: Medium-base lamp included and available in 150W High Pressure Sodium or 100W Pulse Start Metal Halide. Supplied with 4-pin, 42W Compact Fluorescent lamp
- Special one-piece hinged door design held in place with slot-head captive screws. Silicone gasketing seals out dirt and contaminants
- Borosilicate glass lens or polycarbonate lens minimizes direct lamp imaging
- Ships completely prewired and preassembled. Easily mounts to J-box, wall for quick installation
- Approximate net weight: 7-11 lbs. (3-5 kgs.)

ORDERING INFORMATION (LAMP INCLUDED)

Catalog Number	Lamp Type	Lamp Wattage	Ballast Type	Voltage	Color
High Pressure Sodium					
LS50G	ED17	50	Reactor/NPF	120V	Bronze
LS70G	ED17	70	Reactor/NPF	120V	Bronze
LS10G	ED17	100	Reactor/NPF	120V	Bronze
LS15G	ED17	150	Reactor/NPF	120V	Bronze
Pulse Start Metal Halide					
LP70G	ED17	70	Hi. Rec/NPF	120V/277V	Bronze
LP10G	ED17	100	Hi. Rec/NPF	120V/277V	Bronze
Compact Fluorescent					
LC42	Gx24q-4 (4-pin)	42	Electronic	120V/277V	Bronze

NOTE: Add "W" to the end of catalog number for white finish for Pulse Start Metal Halide or High Pressure Sodium models only. Add "WHT" to the end of accessory for white finish (Example: WY/WG-WHT). In cold temperatures, Compact Fluorescent lamps produce lower illumination levels.

Accessories (order separately)

WY/WG=Glass Wire Guard

WY/GS=Glass Door Replacement (Bronze)

WY/FC/GS=Full Cutoff Visor for Glass (Bronze)

WY/PC=Polycarbonate replacement lens. Not for use with WY/WG and WY/FC.



WALLY

50-150W
High Pressure Sodium
Pulse Start Metal Halide

42W
Compact Fluorescent

WALL MOUNT
LUMINAIRE

WALLY Cutoff & Glass Wall Pack

50-100W High Pressure Sodium
70-100W Metal Halide

42W Compact Fluorescent

Available in March 2008!

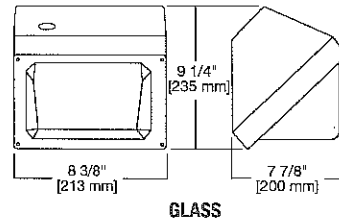
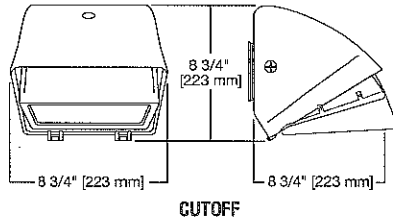


Applications

Entrance • Parking Garage
Recreational • Retail • Security
Transportation • Warehouse

Specifications

- Patterned flat tempered (Cutoff) or borosilicate glass lens minimizes direct lamp imaging and eliminates yellowing. Wally Poly CFL comes standard with one-piece polycarbonate lens
- One-piece door design held in place with slot-head captive screws
- Cutoff unit features unique angled housing with integral visor for cutoff illumination and glare control
- Die-cast aluminum housing finished in durable bronze (standard) or white polyester powder coat
- HID: 4KV medium-base porcelain lamp socket. CFL: GX24Q-4 (4-pin socket)
- Lamp included and available up to 150W HPS/100W MH/42W CFL
- Flush-mount to vertical surface or thru-way pipe mount through two NPS threaded knockouts
- Ships prewired and preassembled
- Supplied with mounting cover for quick and easy installation
- U.L. Listed 1598 for wet location, CSA Certified, for outdoor use only
- Approx. net weight:
HID: 11 lbs. (5 kgs.)
CFL: 5.5 lbs. (2.5 kgs.)

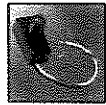


Photometry

Mounting Height	Footcandle Value for Isofootcandle lines					Multiplier		
	A	B	C	D	E	Watts	HPS	MH
10'	5.00	2.00	1.00	.50	.20	50	.52	.41
15'	2.20	.88	.44	.22	.10	70	.81	.64
20'	1.25	.50	.25	.13	.05	100	1.22	1.00
						150	2.05	-

Example of 100W MH at 10 ft. mounting height, 7,800 lumen clear lamp

Accessories



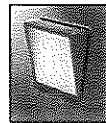
Button Photocontrol (PB120V, PB277V)
Field installed photoelectric control for automatic dusk-to-dawn operation; internally mounts to 1/2" threaded hub



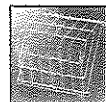
External Photocontrol (PE/MT)
Field installed 120/208/240/277V photoelectric control for automatic dusk-to-dawn operation; externally mounts to 1/2" threaded hub and includes 1/2" - 3/4" reducing bushing



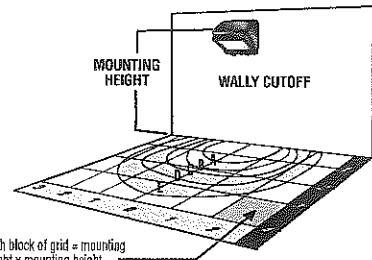
Full Cutoff Visor*
(WY/FC/CO - Cutoff, WY/FC/GS - Glass)
Easy to install accessory provides additional cutoff and glare control, bronze finish
*Not available on Wally CFL w/polycarbonate lens



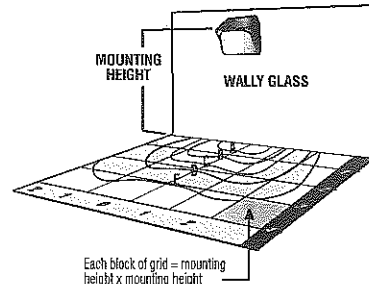
Replacement Door
(WY/CO - Cutoff, WY/GS - Glass, WY/PC)
Heavy-duty die-cast aluminum doorframe with tempered glass is hinged for easy installation, bronze finish
PC=Polycarbonate



Wire Guard (WY/WG - Glass)
Easy to install guard features a heavy-gauge welded construction to protect glass from projected objects



Each block of grid = mounting height x mounting height



Each block of grid = mounting height x mounting height



Wally Glass



Wally Cutoff



DARK SKY COMPLIANT CO Cutoff

Ordering Information

Stock Number	UPC	Wattage	Source	Lamp	Ballast	Lamp Included	Ballast Kit
WALLY GLASS High Pressure Sodium							
LS70G	622696399413	70W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S62LG-70FG	HPKT-70-REC-NPF-120V
LS10G	622696399406	100W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S54SG-100FG	HPKT-100-REC-NPF-120V
LS15G	662401051496	150W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S55RN-150FG	HPKT-150-REC-NPF-120V
WALLY GLASS Metal Halide							
LM70G	622696399437	70W	MH	Medium-base, ED-17	Hi.Rx/NPF/120V/277V	MH70/U/MEDFG	MHKT-70-HIX-NPF-120/277V
LM10G	622696399420	100W	MH	Medium-base, ED-17	Hi.Rx/NPF/120V/277V	MH100/U/MEDFG	MHKT-100-HIX-NPF-120/277V
WALLY POLYCARBONATE Compact Fluorescent							
LC42	-----	42W	CFL	GX24q-4 (4 pin)	Electronic/HPF/120-277V	CF42DTEIN830	-----
WALLY CUTOFF High Pressure Sodium							
LS50C	622696599837	50W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S68LP-50FG	HPKT-50-REC-NPF-120V
LS70C	622696399161	70W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S62LG-70FG	HPKT-70-REC-NPF-120V
LS10C	622696399147	100W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S54SG-100FG	HPKT-100-REC-NPF-120V
LS15C	622696399123	150W	HPS	Medium-base, ED-17	Reactor/NPF/120V	S55RN-150FG	HPKT-150-REC-NPF-120V
WALLY CUTOFF Metal Halide							
LM70C	622696399338	70W	MH	Medium-base, ED-17	Hi.Rx/NPF/120V/277V	MH70/U/MEDFG	MHKT-70-HIX-NPF-120/277V
LM10C	622696399178	100W	MH	Medium-base, ED-17	Hi.Rx/NPF/120V/277V	MH100/U/MEDFG	MHKT-100-HIX-NPF-120/277V
WALLY CUTOFF Compact Fluorescent							
LC42C	-----	42W	CFL	GX24q-4 (4 pin)	Electronic/HPF/120-277V	CF42DTEIN830	-----

*Add W suffix for white finish, lead times may apply

PROJECT DATA

The following information is required where applicable, in order complete the application

Total Site Area	21,196.3 sq. ft.
Proposed Total Disturbed Area of the Site	N/A sq. ft.
(If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland)	
IMPERVIOUS SURFACE AREA	
• Proposed Total Paved Area	0 sq. ft.
• Existing Total Impervious Area	21,196.3 sq. ft.
• Proposed Total Impervious Area	21,196.3 sq. ft.
• Proposed Impervious Net Change	0 sq. ft.
BUILDING AREA	
• Proposed Building Footprint	3,337.6 sq. ft.
• Proposed Building Footprint Net change	286.8 sq. ft.
• Existing Total Building Floor Area	3,050.8 sq. ft.
• Proposed Total Building Floor Area	3,337.6 sq. ft.
• Proposed Building Floor Area Net Change	286.8 sq. ft.
• New Building	yes (yes or no)
ZONING	
• Existing	B3 Downtown business
• Proposed, if applicable	No Change
LAND USE	
• Existing	Substation
• Proposed	Substation
RESIDENTIAL, IF APPLICABLE	
• Proposed Number of Affordable Housing Units	N/A
• Proposed Number of Residential Units to be Demolished	
• Existing Number of Residential Units	
• Proposed Number of Residential Units	
• Subdivision, Proposed Number of Lots	
PARKING SPACES	
• Existing Number of Parking Spaces	N/A
• Proposed Number of Parking Spaces	
• Number of Handicapped Parking Spaces	
• Proposed Total Parking Spaces	
BICYCLE PARKING SPACES	
• Existing Number of Bicycle Parking Spaces	N/A
• Existing Number of Bicycle Parking Spaces	
• Proposed Number of Bicycle Parking Spaces	
• Total Bicycle Parking Spaces	
ESTIMATED COST OF PROJECT	

General Submittal Requirements – Preliminary Plan (Optional)

Level II Site Plan

Preliminary Plan Phase Check list (if elected by applicant)

Applicant Checklist	Planner Checklist	Number of Copies	Written Submittal Requirements
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Completed application form
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Application fees ?
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Written description of project
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Evidence of right, title and interest.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Copies of required State and/or Federal permits.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Written assessment of proposed project's compliance with applicable zoning requirements.
<input type="checkbox"/> N/A	<input checked="" type="checkbox"/>	1	Written description of existing and proposed easements or other burdens.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written requests for waivers from individual site plan and/or technical standards, where applicable.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Traffic analysis (may be preliminary, in nature, during the preliminary plan phase).
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written summary of significant natural features located on the site.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written summary of project's consistency with related city master plans.
		Number of Copies	Site Plan Submittal Requirements
<i>EC plan?</i> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Boundary Survey meeting the requirements of Section 13 of the City of Portland Technical Manual.
<input type="checkbox"/>	<input type="checkbox"/>	1	Preliminary Site Plan Including the following: (*information provided may be preliminary in nature during preliminary plan phase):
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Existing and proposed structures with <u>distance from property line</u> (including location of proposed piers, docks or wharves if in Shoreland Zone).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		▪ Location of adjacent streets and intersections and approximate location of structures on abutting properties.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		▪ Proposed site access and circulation.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		▪ Proposed grading and contours.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		▪ Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		▪ Preliminary landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Existing and proposed utilities (preliminary layout).
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Preliminary infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, transit infrastructure, roadway improvements).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		▪ Preliminary stormwater management and erosion control plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b) 1. of the Land Use Code).
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Proposed alterations to and protection measures for significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important

natural features listed in Section 14-526 (b)1. of the Land Use Code).

- Existing and proposed easements or public or private rights of way.

General Submittal Requirements – Final Plan (Required)

Level II Site Plan

Final Plan Phase Check list (including items listed above in General Requirements for Preliminary Plan, if applicant did not elect to submit for a preliminary plan review)

Applicant Checklist	Planner Checklist	Number of Copies	Written Submittal Requirement
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Evidence of financial and technical capacity.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Evidence of utilities' capacity to serve the development.
<input type="checkbox"/>	<input type="checkbox"/>	1	Written summary of fire safety (referencing NFPA fire code and Section 3 of the City of Portland Technical Manual).
<input type="checkbox"/>	<input type="checkbox"/>	1	Construction management plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Traffic Plan (if development will (1) generate 100 or more PCE or (2) generate 25 or more PCE and is located on an arterial, within 1/2 mile of a high crash location, and/or within 1/4 mile of an intersection identified in a previous traffic study as a failing intersection).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Stormwater management plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written summary of solid waste generation and proposed management of solid waste.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written assessment of conformity with applicable design standards.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Manufacturer's verification that HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Final Plan Phase

<input type="checkbox"/>	<input type="checkbox"/>	1	Final Site Plan Including the following
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Existing and proposed structures on the site with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Location of adjacent streets and intersections and approximate location of structures on abutting properties.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Proposed site access and circulation.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Proposed grading and contours.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways. Proposed curb lines must be shown.
<input type="checkbox"/> N/A	<input type="checkbox"/>		Proposed loading and servicing areas, including applicable turning templates for delivery vehicles
<input type="checkbox"/> N/A	<input type="checkbox"/>		Proposed snow storage areas or snow removal plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>		Proposed trash and recycling facilities.
<input type="checkbox"/>	<input type="checkbox"/>		Landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.
<input type="checkbox"/> N/A	<input type="checkbox"/>		Existing and proposed utilities.
<input type="checkbox"/> N/A	<input type="checkbox"/>		Location and details of proposed infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, public transit infrastructure, roadway improvements).
<input type="checkbox"/> N/A	<input type="checkbox"/>		Proposed septic system, if not connecting to municipal sewer. (Portland Waste Water Application included in this application)
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Proposed finish floor elevation (FFE).

in progress

in progress

N/A

N/A

N/A

N/A

▪ Exterior building elevation(s) (showing all 4 sides).
▪ Proposed stormwater management and erosion controls.
▪ Exterior lighting plan, including street lighting improvements..
▪ Proposed signage.
▪ Identification of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code). Wetlands must be delineated.
▪ Proposed alterations to and protection measures for of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code).
▪ Total area and limits of proposed land disturbance.
▪ Soil type and location of test pits and borings.
▪ Details of proposed pier rehabilitation (Shoreland areas only).
▪ Existing and proposed easements or public or private rights of way.

W/S?
a/p ~~DRIVE~~/LS. - left
ok. driveway - ten
*012 - CP. - sand
- D.S. - sand contact
ok - DMP

40 UMGV - CMP

Jeff - street trees
tree removal + replacement
fencing
south side buffer

Chris - oil containment + hazardous materials

Daniel S - replacing substrate - crushed stone 4"

DMP - ^{no curbs}
bituminous sidewalk - brick?
town + country - downtown light
affecting

100' feet
from historic
district?

look @ existing signage. - CMP
color?

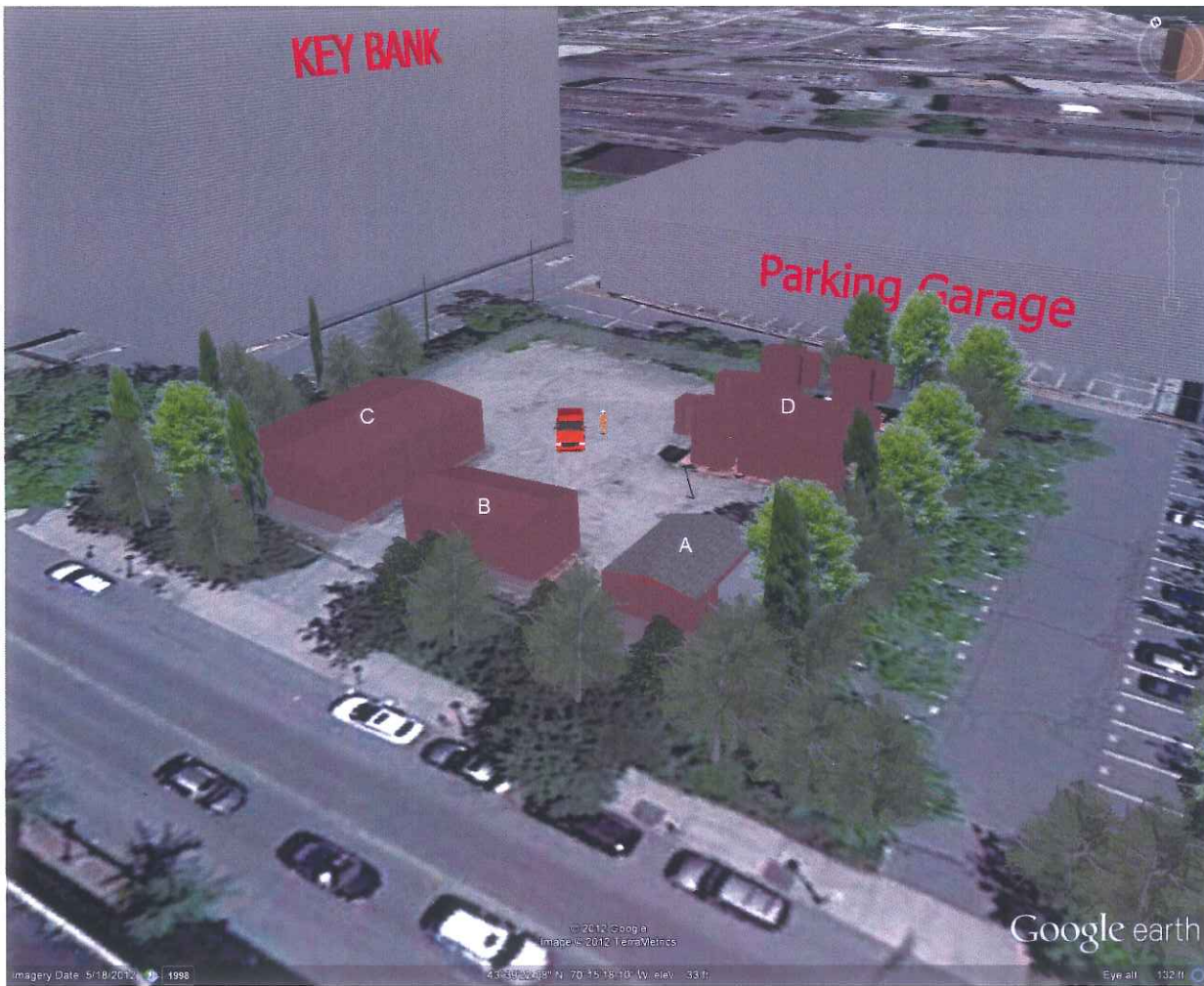
MARKS: m/d-f? →

what?



Google earth





- A: Existing Control house
- B: Existing 11.5KV Switchgear
- C: Existing 34.5KV Switchgear
- D: Existing 12KV Switchgear and transformers



Google earth





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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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Google earth

Google earth

feet
meters

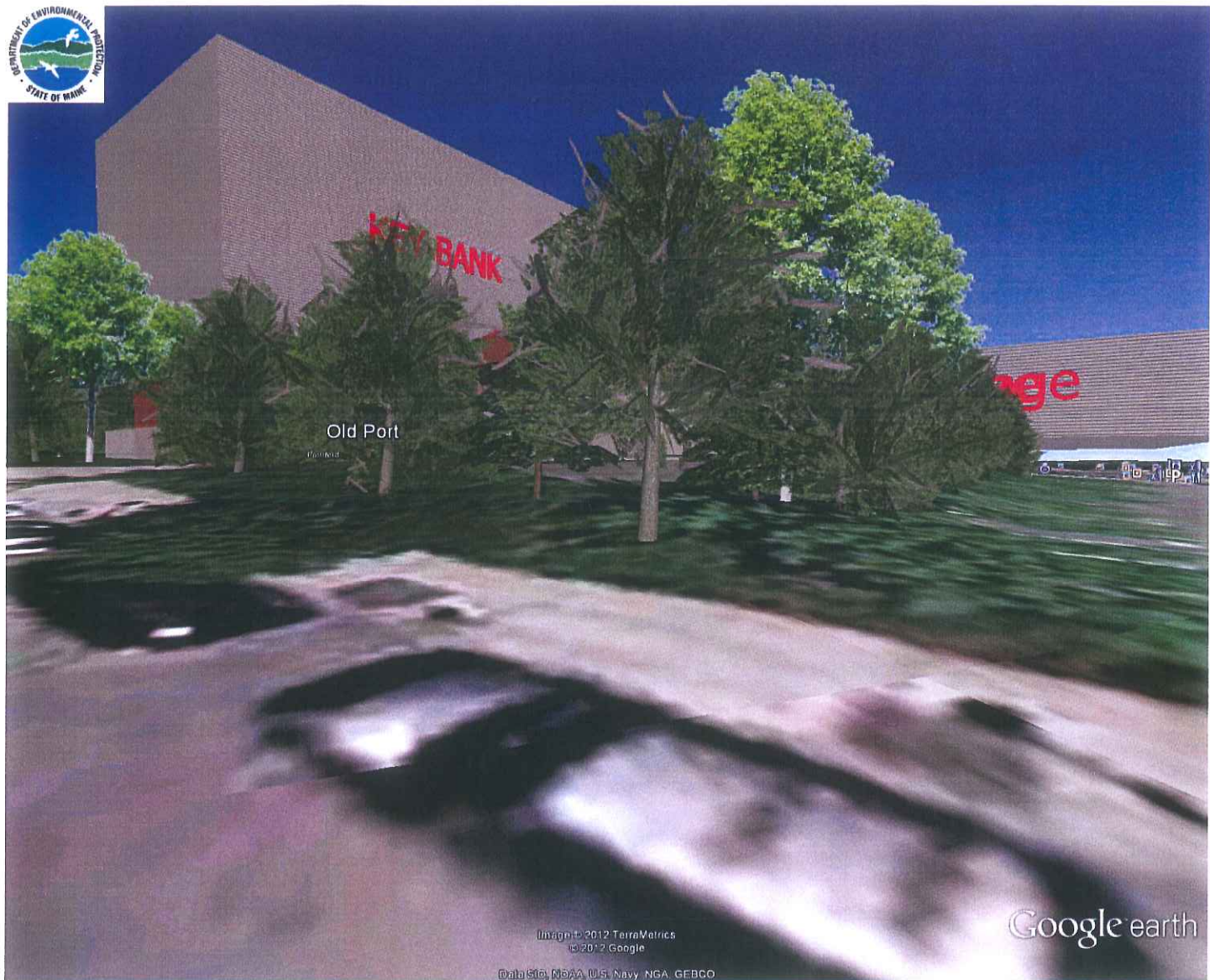




Google earth

feet
meters





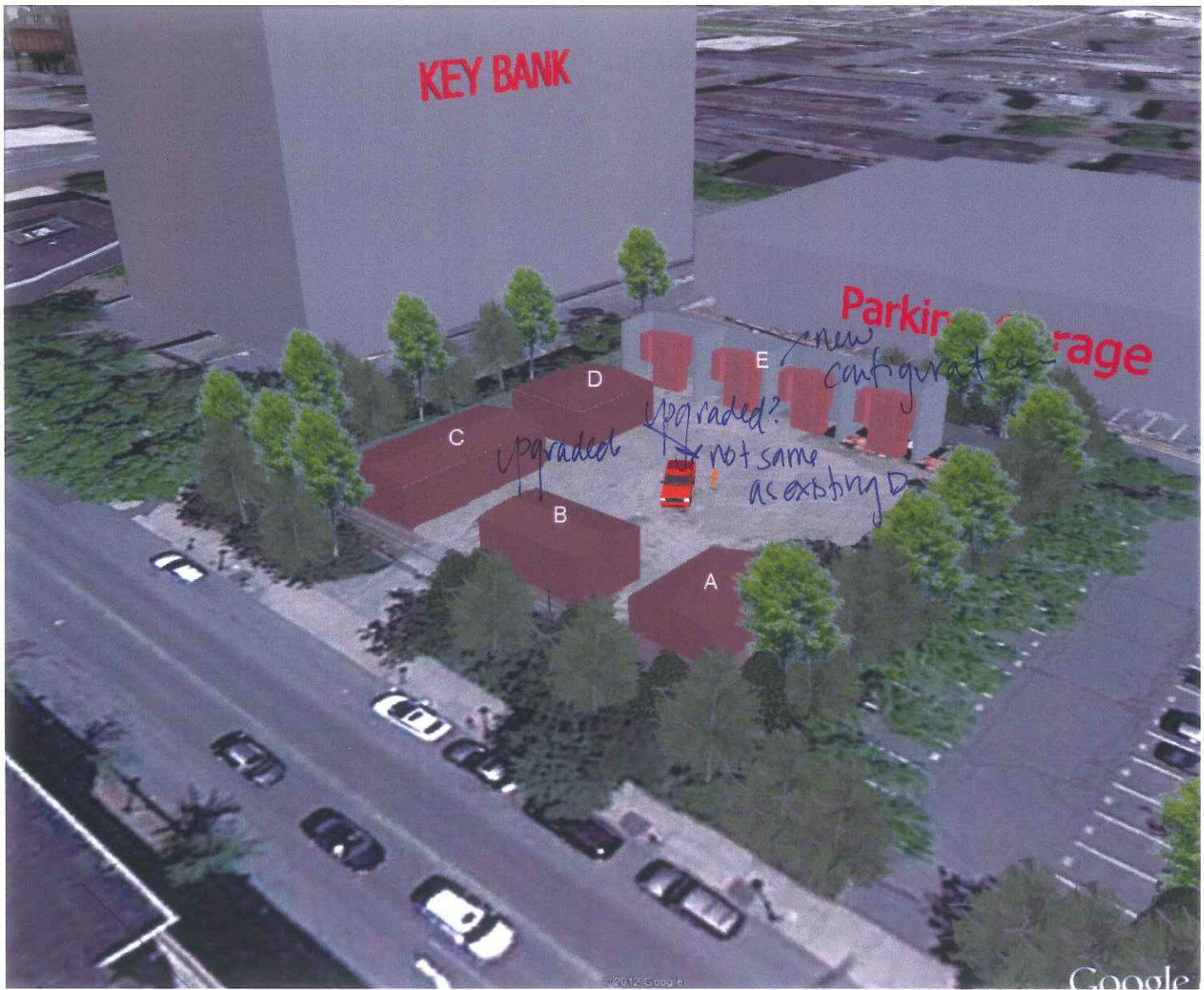
Google earth

Imagery © 2012 TerraMetrics
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth





- A: Existing Control house
- B: Existing 11.5KV Switchgear
- C: New 11.5KV & 12KV Switchgear
- D: 34.5KV Switchgear 23x27 :
- E: New Transformer locations with Firewalls

9/13. CMP.

Steve Daniels - CMP
connected w/
hotel projects

Dan Hutchins, CMP.
Mark Christopher, TRC

Paul Ritch, SNE-Landem
Mike Smallwood, TRC

Union St. project - on books for awhile

transmission - station to station

↓ began remodeling last year - orig built in 90s. (1972)
↓ feeds whole DT area

① upgrading switchgear equip (regulates voltage)
+ ~~new~~ ^{many} transformers.

↓ add firewall (13-14')

② new non-conductive fence (black) ↓ look @ fence
plastic composite 10' or w. comm

* get SF of new + old foundations
Δ in impervious
survey

excavation for fencing @ corners - tree preservation
pile for inline posts
environmental landscaping ?

later part of next spring -

?
PCBs:



PORTLAND MAINE

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Planning & Urban Development Department
Jeff Levine, Director

Planning Division
Alexander Jaegerman, Director

April 16, 2013

Mark Christopher
TRC Engineers
14 Gabriel Drive
Augusta, ME 04330

Gerry Mirabile
Central Maine Power
83 Edison Drive
Augusta, ME 04336

RE: Staff Review Comments for Preliminary Level II Site Plan

Project Name:	Central Maine Power Substation Improvements	Project ID:	2013-080
Address:	40 Union Street	CBL:	32-1-039
Applicant:	Central Maine Power		
Planner:	Nell Donaldson		

Dear Mr. Christopher:

Thank you for submitting an application for the improvements to the Central Maine Power substation at 40 Union Street. This proposal is being reviewed as a preliminary plan subject to the Site Plan Ordinance, Article V of the Land Use Code. This letter outlines preliminary staff comments and requests further information.

Staff Review Comments for Preliminary Level II Site Plan

Zoning

Marge Schmuckal, the city's Zoning Administrator, provides the following comments:

CMP is proposing replacement of switch gear and upgrading and rearranging transformers. This property is located in a B-3 Zone where utility substations are considered to be a conditional use appeal to the planning board. However, although there are upgrades and some rearranging of equipment, I am not convinced those activities require a conditional use approval. There is no real expansion of the use.

The proposal meets the requirements of the B-3 Business Zone. Utility substations do not need to meet the minimum building height requirement based upon the exemption list. The planning board may allow a street wall build-to reduction. Utility substations are a different nature than regular building structures. Separate building permits shall be required for the work.

Regarding the build-to requirement noted above, the Planning Authority has found that, per Section 14-526(d)7 of the city's land use ordinance (which states that mechanical and other equipment be located to the interior of the site), the build-to requirement is not applicable in the case of the equipment being developed here.

1. Transportation Standards

a. Impact on Surrounding Street Systems

No comments at this time.

b. Access and Circulation

No comments at this time.

c. Public Transit Access

No comments at this time.

d. Parking

No comments at this time.

e. Transportation Demand Management (TDM)

N/A

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

N/A

b. Landscaping and Landscape Preservation

Jeff Tarling, the city's arborist, provides the following comments:



I have reviewed the CMP Temple Street substation and would like to see more details on the landscape planting.

The fence detail is an improvement over the existing.

Mr. Tarling can be contacted directly at jst@portlandmaine.gov or 874-8820 to discuss the possible replanting plan submitted with the preliminary proposal. It has been noted that, as part of the plan, replacing any damaged landscaping on a one-for-one basis is proposed. In the revised submittal, please provide a formal landscaping plan which denotes proposed species and locations and ensures adequate screening on the Union Street frontage.

c. Water Quality, Storm Water Management and Erosion Control

David Senus, consulting civil engineer, provides the following comments:

In accordance with Section 5 of the City of Portland Technical Manual, a Level II development project is required to submit a stormwater management plan pursuant to the regulations of Maine DEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We have reviewed the applicability of these standards relative to the proposed project and offer the following comments:

- a) Basic Standards: The Applicant has submitted an erosion control plan in general conformance with the Basic Standards. In addition to the erosion and sediment control measures called out on C-2, the Applicant should also show a location for a stabilized construction entrance/exit and include a detail.*
- b) General Standards: The project does not propose to increase impervious or developed area on the site. As such, the project is not required to include any specific stormwater management features for water quality control in accordance with the General Standards. However, the Applicant has proposed a substation yard profile that qualifies as a MaineDEP-acceptable BMP for meeting the General Standard for substations and switchyards. The Applicant's proposal, as presented, provides an acceptable means of meeting the General Standards (water quality).*
- c) Flooding Standard: The project will not result in an increase in impervious area; instead the project will replace certain impervious traveled surfaces with pervious material (crushed stone over gravel). As such, runoff is anticipated to decrease from the site. The Applicant's proposal is in conformance with the Flooding Standard.*

The Applicant proposes to install and connect new stormdrain/underdrain pipe to the existing on-site storm drain collection system. Additional notes should be provided to clarify pipe size, material, and slope for the new stormdrain/underdrain system. An underdrain detail should be included within the detail sheets.



The plans include a bituminous sidewalk and bituminous driveway detail. It is unclear what, if any, work is being proposed within the City Right-of-Way. The existing sidewalk along the property frontage is concrete, including across the driveway entrance. Plan sheet C-2 should be updated to clarify what, if any work is proposed within the City Right-of-Way.

✓ In keeping with the above comments, the sidewalk detail on sheet C-3 should be either removed or revised, as appropriate, to reflect the fact that the existing sidewalk is concrete.

1. Public Infrastructure and Community Safety Standards

a. Consistency with Master Plans

No comments at this time.

✓ **b. Public Safety and Fire Prevention**

Chris Pirone, of the city's Fire Prevention Bureau, may be reached at cpp@portlandmaine.gov or 874-8405 to discuss fire and hazardous materials plans.

c. Availability and Adequate Capacity of Public Utilities

No comments at this time.

2. Site Design Standards

a. Massing, Ventilation and Wind Impact

No comments at this time.

b. Shadows

No comments at this time.

✓ **c. Snow and Ice Loading**

Proposed snow storage areas should be denoted on the site plan.

d. View Corridors

N/A

e. Historic Resources

N/A

f. Exterior Lighting

Please provide a lighting plan with the revised submittal.

→ Billaboff? Standards!

g. Noise and Vibration

Please provide information regarding existing and proposed noise levels.

OK MS 5/30

h. Signage and Wayfinding

No comments at this time.

✓ **i. Zoning Related Design Standards**

As with all development in the B-3 zone, this project is subject to the Downtown Urban Design Guidelines. Elevations showing the new switchgears and firewall should be provided in the final submittal. Per your email from 4/16/2013, the materials and paint colors proposed for the switchgears and firewall have been noted.

Additional Submittals Required

For purposes of final review, please provide the following additional materials:

- Revised site plan to include:
 - o Distances to property lines ✓
 - o Snow storage areas ✓
- Fire safety summary ✓
- Construction management plan -N/A

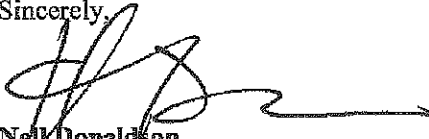
Note that the Planning Authority may request additional information during the continued review of the proposal according to applicable laws, ordinances and regulations.

Planning Staff Recommendation

Based upon the staff review of the preliminary Level II site plan, I recommend that the applicant proceed with submission of a final plan for staff review. Please submit one (1) complete paper set and one (1) digital set of plans and documents to address staff comments. Upon receipt of the revised material, the City of Portland will review the additional plans and information for conformance with applicable ordinances. Please be aware that an application expires within 120 days of the date upon which this written request for additional information was made.

If you have any questions, feel free to contact me at 874-8723 or by email at hcd@portlandmaine.gov.

Sincerely,



Neil Donaldson
Planner

Electronic Distribution

- Alexander Jaegerman, Planning Division Director
- Barbara Barhydt, Development Review Services Manager
- Danielle West-Chuhta, Associate Corporation Counsel
- Marge Schmuckal, Zoning Administrator
- Katherine Earley, City Engineer, Public Services
- David Margolis-Pineo, Deputy City Engineer
- Captain Chris Pirone, Fire
- Jeff Tarling, City Arborist
- Tom Errico, P.E., TY Lin Associates
- David Senus, P.E., Woodard & Curran

LEVEL II REVIEW: CMP SUBSTATION, 40 Union Street

	Transportation	Preliminary Review	Final Review
	<ul style="list-style-type: none"> a. Impact on Surrounding Street Systems b. Access and Circulation 	<ul style="list-style-type: none"> None Sidewalk condition good. Any work in ROW? No. Brick district 	o/c
	<ul style="list-style-type: none"> c. Public Transit Access d. Parking 	<ul style="list-style-type: none"> N/A None required 	
	<ul style="list-style-type: none"> e. Transportation Demand Management (TDM) 	<ul style="list-style-type: none"> N/A 	
Environmental Quality	<ul style="list-style-type: none"> a. Preservation of Significant Natural Features b. Landscaping and Landscape Preservation 	<ul style="list-style-type: none"> N/A Assume replanting 50% of plants at 1-for-1. See JT. Need new plants on northeast corner? – screening on all sides – does transformer wall count? Understory plantings? One more street tree to north of driveway? 	<p>o/c 9/30</p>
	<ul style="list-style-type: none"> c. Water Quality, Storm Water Management and Erosion Control 	<ul style="list-style-type: none"> Replacing substrate (compacted gravel) w/ crushed rock. See DS. 	<p>- see add'l comments from D-5</p>
Public Infrastructure and Community Safety	<ul style="list-style-type: none"> a. Consistency with Master Plans b. Public Safety and Fire Prevention 	<ul style="list-style-type: none"> OK No fire safety summary. Need hazmat review See CP 	<p>o/c per 9/21 email - (check)</p>
	<ul style="list-style-type: none"> c. Availability and Adequate Capacity of Public Utilities 	<ul style="list-style-type: none"> N/A 	
Site Design	<ul style="list-style-type: none"> a. Massing, Ventilation and Wind Impact b. Shadows c. Snow and Ice Loading d. View Corridors e. Historic Resources f. Exterior Lighting 	<ul style="list-style-type: none"> OK OK OK OK OK No additional lighting. But needs review? What does it look like at night? 	

	<p>g. Noise and Vibration</p>	<p>Need vibration/noise info (14-221(1)) NTE 55 decibels on the A scale between the hours of 9:00 p.m. and 7:00 a.m., and sixty (60) decibels on the A scale between 7:00 a.m. and 9:00 p.m.</p>	<p>None 5/19</p>
	<p>h. Signage and Wayfinding</p>	<p>Needs review?</p>	<p>None</p>
	<p>i. Zoning Related Design Standards</p>	<p>Need 16' firewall elevation Paint color? Red as is</p>	

Additional Submittals Required:

- Stormwater quality review fees? NO per BAB.
- Site plan
 - o Add distances to property lines
 - o Snow storage. Where does plowing happen?
- For final plan:
 - o Summary of fire safety
 - o CMP
 - o Landscaping plans
 - o Elevations
 - o Lighting plan

Handwritten notes and signatures at the bottom of the page.

MEMORANDUM

To: FILE
From: Neil Donaldson
Subject: Application ID: 2013-080
Date: 4/11/2013

Comments Submitted by: Marge Schmuckal/Zoning on 4/10/2013

CMP is proposing replacement of switch gear and upgrading and rearranging transformers. This property is located in a B-3 Zone where utility substations are considered to be a conditional use appeal to the planning board. However, although there are upgrades and some rearranging of equipment, I am not convinced those activities require a conditional use approval. There is no real expansion of the use.

The proposal meets the requirements of the B-3 Business Zone. Utility substations do not need to meet the minimum building height requirement based upon the exemption list. The planning board may allow a street wall build-to reduction. Utility substations are a different nature than regular building structures. Separate building permits shall be required for the work.

Marge Schmuckal
Zoning Administrator

14-218 conditional ex. (b) 1

14-218 board filed for work this build

to meet 14-526

to those mechanical equip. compatibility

reasonably located, screened, and landscaped so as to ensure compatibility

DM Manual

** extending setback/build-to p. 32. - criteria*

o.s. character support for o.s. quality + ar.

14-220(b) - ~~5~~ build-to of 5 ft for structures unless PB approves add'l do fence to comply w/ 14-526(d) + DM.

~~19-52~~ 19-220(b) - build to of 5ft for structures
unless PB approves add'l distance
to comply w/ 19-526(d)9 + DM

exception for substations on bldg height

PBOARD.

(A) DM - extending setback - 4 criteria - provide amenity at street
does not detract from street scene
does not detract from o.s.
area of superior quality

(B) GENERAL WAIVER? - can this apply to zoning dim. req?

(C) REWRITE AND ?

(D)

Barbara Barhydt - CMP

From: Helen Donaldson
To: Barbara Barhydt
Date: Thursday, April 11, 2013 10:52 AM
Subject: CMP
CC: Marge Schmuckal

So could this possibly be our out on the B-3 build-to conundrum?

14-526(d)7 Noise and Vibration

a. HVAC and Mechanical Equipment

(i) All heating, ventilation and air conditioning equipment, air handling units, emergency generators, and similar equipment shall meet applicable state and federal emissions requirement and comply with the following:

- (a) *be located to the interior of the site*, away from abutting residential properties;
- (b) be screened from view from any public street and from adjacent sites by structure walls, evergreen landscaping, etc....

Not sure what governs when there's a conflict b/w site plan and the dimensional requirements....?

Nell

MEMORANDUM



TO: Nell Donaldson, Planner
FROM: Ashley Auger, E.I.T. & David Senus, P.E.
DATE: April 8, 2013
RE: CMP Substation – 40 Union Street

Woodard & Curran has reviewed the Level II Site Plan Application for the Central Maine Power Union Street Substation upgrade project located at 40 Union Street in Portland, Maine. The project proposes to replace electrical switchgear and relocate transformers on the site.

Documents Provided

- Level II Site Plan Application and Attachments, dated March 2013, prepared by TRC Companies, Inc., on behalf of Central Maine Power.
- Letter from MaineDEP regarding Stormwater Standards, dated June 5, 2008.
- Engineering drawings, Sheets C-1 through C-4, dated March 15, 2013 prepared by TRC Companies, Inc., on behalf of Central Maine Power.

Comments

- 1) In accordance with Section 5 of the City of Portland Technical Manual, a Level II development project is required to submit a stormwater management plan pursuant to the regulations of Maine DEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We have reviewed the applicability of these standards relative to the proposed project and offer the following comments:
 - a) *Basic Standards:* The Applicant has submitted an erosion control plan in general conformance with the Basic Standards. In addition to the erosion and sediment control measures called out on C-2, the Applicant should also show a location for a stabilized construction entrance/exit and include a detail.
 - b) *General Standards:* The project does not propose to increase impervious or developed area on the site. As such, the project is not required to include any specific stormwater management features for water quality control in accordance with the General Standards. However, the Applicant has proposed a substation yard profile that qualifies as a MaineDEP-acceptable BMP for meeting the General Standard for substations and switchyards. The Applicant's proposal, as presented, provides an acceptable means of meeting the General Standards (water quality).
 - c) *Flooding Standard:* The project will not result in an increase in impervious area; instead the project will replace certain impervious traveled surfaces with pervious material (crushed stone over gravel). As such, runoff is anticipated to decrease from the site. The Applicant's proposal is in conformance with the Flooding Standard.
- 2) The Applicant proposes to install and connect new stormdrain/underdrain pipe to the existing on-site storm drain collection system. Additional notes should be provided to clarify pipe size, material, and slope for the new stormdrain/underdrain system. An underdrain detail should be included within the detail sheets.
- 3) The plans include a bituminous sidewalk and bituminous driveway detail. It is unclear what, if any, work is being proposed within the City Right-of-Way. The existing sidewalk along the property frontage is concrete, including across the driveway entrance. Plan sheet C-2 should be updated to clarify what, if any work is proposed within the City Right-of-Way. If work will impact the concrete sidewalk within the City Right-of-Way, the Applicant should update the details to reflect the City's standards for concrete.

↓ Brick!

From: Jeff Tarling
To: Helen Donaldson
Date: 4/11/2013 7:30 AM
Subject: Re: CMP substation

Hi Nell -

I have reviewed the CMP Temple Street substation and would like to see more details on the landscape planting. The fence detail is an improvement over the existing.

Jeff

>>> Helen Donaldson 4/10/2013 2:35 PM >>>
Jeff,

Could you send comments on the substation when you get the chance? I think we should really encourage better landscaping there. I visited yesterday and it needs it.

Thanks,
Nell

Helen Donaldson - Re: CMP Union street substation

From: Helen Donaldson
To: Mark Christopher
Date: 6/4/2013 1:12 PM
Subject: Re: CMP Union street substation
Attachments: 2013.05.17 CMP Substation - 40 Union St. Memo.pdf; Re CMP landscaping.rtf; Re CMP substation - noise.rtf; Re CMP substation.rtf

Mark,

For the record, here are the final comments on your revised plans from all remaining reviewers:

- I've included David Senus's comments, which you've seen prior. There are few minor edits here.
- I've also included the okay from Fire Prevention.
- Jeff Tarling, the arborist, has requested a condition that we meet on site prior to planting to go over the plan. Otherwise, he's fine.
- And Marge Schmuckal, the zoning administrator, has indicated she's fine with noise levels.

Let me know if you have questions on any of the attached.

With respect to lighting, I left you a message earlier, but it's probably worth reiterating here. Is there any way to reduce the wattage on some of those lights so as to bring you closer to standards for maximum illumination levels and light trespass? The hotel developer is not landscaping along that southern property line.

Let me know.
Nell

Nell Donaldson
City of Portland
389 Congress Street
Portland, Maine 04101
874-8723
hcd@portlandmaine.gov

>>> Helen Donaldson 5/30/2013 1:42 PM >>>

Mark,

You are on my list. I'm sorry to say that I don't have anything more for you right now, but I have issued a final plea to the arborist and zoning to get me any last comments and I will forward those when they come in. I'm not expecting much in terms of comments.

In the meantime, let me know if you have any questions on the lighting. I'm hoping we'll be able to clean these final things up next week and have you on your way.

Be in touch.

Nell

Nell Donaldson
City of Portland
389 Congress Street
Portland, Maine 04101
874-8723
hcd@portlandmaine.gov

>>> "Christopher, Mark" <mchristopher@trcsolutions.com> 5/30/2013 11:09 AM >>>

Hi Nel: Do you have any other comments on CMP's plans? I am working on a response to the lighting. I have the lighting calculations and tear sheets and am looking at what areas we need to request a waiver.

Thanks

Mark

Mark W. Christopher, M.S., CWB
Environmental Scientist
TRC Solutions, Inc
14 Gabriel Drive
Augusta, ME 04330
207-620-3844 phone
207-621-8226 fax
207-441-4225 cell

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Helen Donaldson - Re: CMP substation - noise

From: Marge Schmuckal
To: Helen Donaldson
Date: 5/30/2013 3:28 PM
Subject: Re: CMP substation - noise

Hi Nell,

I had an opportunity to review this data concerning noise. Section 14-221.1(b) of the B-3 zone allows a maximum of 55 dBs from 9:00 pm to 7:00 am and a Maximum of 60 dBAs from 7:00 am to 9:00 pm They have stated that the CMP units will be at 29-44 dBAs as a worst case scenario. This passes the zoning noise requirements.

thank you,
Marge

>>> Helen Donaldson 5/30/2013 11:50 AM >>>
Marge,

Have you had a chance to look at this? I'm starting to be hounded by the engineer.

Nell

>>> Marge Schmuckal 5/23/2013 11:16 AM >>>
I need to look at it. I never assume. I am currently caught up in some other zoning issues that take priority.\ Thank you,
Marge

>>> Helen Donaldson 5/23/2013 10:55 AM >>>
Marge,

Is it safe to assume you're okay with this?

Nell

>>> Helen Donaldson 5/16/2013 1:45 PM >>>
Marge,

I just got some noise info from CMP which wasn't represented in their original submittal (see below). They seem to speak to the noise levels at the Union Street and hotel boundary lines and their values seem fine, but I wanted some confirmation from you, given that this is a sensitive area....Thoughts?

The rebuilding of the Union Street Substation will not add any additional sound producing elements and there will be no increase in the noise levels at the property boundaries. In fact, noise levels will decrease or be eliminated by effective sound barriers, such as the firewalls and switchgear buildings. Sound within the substation is produced by the four transformers (two are 34/11 kV and two are 34/12 kV capacities). Industry standards for the sound levels of

a transformer of this size would be 50-60 dBA and the combination of four would range from 59-69 dBA, assuming each is functioning at full capacity with cooling fans running. Sound levels are typically measured one-foot from the outer case of the transformer at three-foot intervals. These ratings are In reality each transformer functions at approximately one-half of its capacity, producing lower sound levels. The addition of firewalls on three sides of each transformer with serve as significant sound barriers towards the northwest, north, northeast, and easterly directions. The two switchgear buildings will effectively block noise to the westerly boundary. Landscaping around the Key Bank northwest property line and Union Street westerly and southwesterly property line will attenuate noise where it is otherwise not blocked by structures.

Areas along the Union Street sidewalk south of the driveway are largely not blocked from noise, but noise is otherwise attenuated by landscaping. Noise is not blocked or attenuated towards the southeasterly boundary shared with the new hotel. Along this boundary the security fence will be located at the CMP property boundary.

Based on established sound attenuation values, noise levels along the Union Street and hotel boundaries would vary between 29-44 dBA, assuming a "worst case" with the transformers running at full capacity with all fans running. As noted the transformers are not expected to function at full capacity.

To keep the substation noise levels in perspective, published typical noise levels for urban areas during the daytime range from 75-90 dBA somewhat higher than the worst case sound levels with all four transformers running at full capacity, 59-69 dBA. Therefore, noise levels generated from the substation under a worst case situation will be less than ambient noise levels from normal urban sources.

Thanks, Marge.
Nell

Helen Donaldson - Re: CMP landscaping

From: Jeff Tarling
To: Helen Donaldson
Date: 5/30/2013 3:50 PM
Subject: Re: CMP landscaping
CC: David Margolis-Pineo

Hi Nell -

I have reviewed the landscape plan modifications and find the plan acceptable.

We should add as a condition that "we" meet with the project team / landscape architect prior to planting to go over the details of plant placement in-the-field.

This will give us some flexibility if landscape modifications are needed due to any changes or site work impact. Wasn't sure of the landscape planting time-line, late Fall planting up to mid October and resumes in the Spring to a June deadline.

Overall the landscape plan looks good as shown.

Thanks,

Jeff Tarling
City Arborist

>>> Helen Donaldson 5/30/2013 1:43 PM >>>
Jeff,

Can you take a look at this ASAP and let me know if you have any comments? The engineer for CMP is starting to get after me!

Thanks,
Nell

MEMORANDUM



TO: Nell Donaldson, Planner
FROM: David Senus, P.E.
DATE: May 17, 2013
RE: CMP Substation – 40 Union Street

Woodard & Curran has reviewed the response to comments letter and updated plans for the Level II Site Plan Application for the Central Maine Power Union Street Substation upgrade project located at 40 Union Street in Portland, Maine. The project proposes to replace electrical switchgear and relocate transformers on the site.

Documents Provided

- Response to Comments letter prepared by TRC Companies, Inc., on behalf of Central Maine Power, dated May 10, 2013
- Engineering drawings, Sheets C-1 through C-4, dated March 15, 2013 prepared by TRC Companies, Inc., on behalf of Central Maine Power.

Comments

- ✓ 1) Plans should be stamped by a professional engineer licensed to practice in the State of Maine (Section 14-527, sub-section (e) of the City of Portland Land Use Ordinance)
- ✓ 2) The plan dates do not appear to have been revised from the previous submittal; however, information has been updated. Revision dates should be added to the plans.
- 3) All other comments from previous review memo have been adequately addressed.

From: Chris Pirone
To: Donaldson, Helen
Date: 5/21/2013 10:56 AM
Subject: Re: CMP substation

Nelle,

It looks great.

Thank you for your assistance.

Fire is all set.

Captain Chris Pirone
Portland Fire Department
Fire Prevention Bureau
380 Congress Street
Portland, ME 04101
(t) 207.874.8405
(f) 207.874.8410

>>> Helen Donaldson 05/21/13 9:55 AM >>>
Chris,

The fire info is contained in their response letter (under documents in ePlan, but I've also attached it here). Look on the second page. I'm not sure whether you need more information? Let me know where you stand!

Thanks,
Nell

>>> Chris Pirone 5/21/2013 8:09 AM >>>
Nelle,

I searched Eplan and I could not find any documents for fire?

Captain Chris Pirone
Portland Fire Department
Fire Prevention Bureau
380 Congress Street
Portland, ME 04101
(t) 207.874.8405
(f) 207.874.8410

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14 Gabriel Drive
Augusta, ME 04330

207.620.3800 PHONE
207.621.8226 FAX

www.trcsolutions.com

May 10, 2013

Nel Donaldson
Planner City of Portland
Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Level 2 Site Plan review, Central Maine Power Company, Union Street Substation, Portland, Maine (Project ID 2013-080)

Dear Nel:

The following provides a response and additional information for the CMP Union Street Substation project. Some items, such as noise, are addressed in this letter while others required additions to the site plan and are addressed there. TRC staff have communicated with staff at the fire department, the City Arborist, and at Public Services to address some of these issues.

ZONING

No response is required.

TRANSPORTATION STANDARDS

Impact on Surrounding street systems: No response is required.

Access and Circulation: No response is required.

Public Transit Access: No response is required.

Parking: No response is required.

Transportation Demand Management: No response is required.

ENVIRONMENTAL QUALITY STANDARDS

Preservation of Significant Natural Resources: No response is required.

Landscaping and landscape Preservation: Exhibit 1 provides the proposed landscaping specifications. TRC staff met onsite with the City Arborist and the landscaping plan

reflects the input and suggestions from City staff. The design is provided in the figures of Exhibit 1. CMP is proposing to expand the existing landscaping in areas where the plants do not provide screening. These areas are designated along the entrance to Key Bank (northwest boundary) and the alley between the substation and parking garage (northeast boundary). Additionally, some improvements are proposed along Union Street near the entrance gate, replacing trees, and adding shrubs for erosion control. It is possible that during replacement of the security fence some of the existing trees and/or shrubs could be damaged, resulting in mortality. CMP proposes to replace these individuals on a one-for-one basis and will contact the City Arborist if there are any questions relative to the health status of any of the trees and shrubs.

Water Quality, Storm Water Management and Erosion Control: Based on staff review a stabilized construction entrance/exit is requested. CMP plans to use the existing paved entrance from Union Street for ingress and egress during construction. As such a separate construction entrance is not required.

Additional details relative to pipe size, material, slope of the stormdrain/underdrain system are provided in the detail sheet.

The sidewalk details have been removed from the plans, as CMP does not propose any work at the Union Street sidewalk.

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY STANDARDS

Consistency with master Plans: No response is needed.

Public Safety and Fire Prevention: Pursuant to discussions with fire department staff the following is provided relative to first responders, fire wall design, and internal fire alarms. CMP substation operations staff would be the first responders and would prevent anyone from entering the substation. CMP staff would monitor the fire and generally allow the fire to burn itself out. All the operations staff are trained annually in Emergency Action and Fire Prevention Plans and Portable Fire Extinguisher Operation.

A firewall has been designed and proposed around and between the four transformers. The firewall has been designed to exceed NFPA 851, which applies to oil filled transformers, standards which would otherwise require a two-hour fire resistance rating. The firewall has been designed to IBC (2009) Table 721.3.2, which when applied to the design and materials proposed yields a four-hour fire resistance rating.

Also, in order to protect nearby structures during a fire, with CMP consent and close coordination, the fire department may at their discretion spray water onto adjacent or

nearby structures to prevent these from catching fire. At no time is water allowed to be sprayed into the substation.

Each switchgear structure has been designed with a fire alarm system that connects to a main panel in the control house. Full details of the system will be provided with the building permit application.

Availability and Adequate capacity of Public Utilities: No response is required.

SITE DESIGN STANDARDS

Massing, Ventilation and Wind Impact: No response is required.

Shadows: No response is required.

Snow and Ice Loading: A snow storage area has been designated on the site plan.

View Corridors: No response is required.

Historic Resources: No response is required.

Exterior Lighting: Lighting details have been provided on the site plan.

Noise and Vibration: The rebuilding of the Union Street Substation will not add any additional sound producing elements and there will be no increase in the noise levels at the property boundaries. In fact, noise levels will decrease or be eliminated by effective sound barriers, such as the firewalls and switchgear buildings. Sound within the substation is produced by the four transformers (two are 34/11 kV and two are 34/12 kV capacities). Industry standards for the sound levels of a transformer of this size would be 50-60 dBA and the combination of four would range from 59-69 dBA, assuming each is functioning at full capacity with cooling fans running. Sound levels are typically measured one-foot from the outer case of the transformer at three-foot intervals. These ratings are in reality each transformer functions at approximately one-half of its capacity, producing lower sound levels.

The addition of firewalls on three sides of each transformer will serve as significant sound barriers towards the northwest, north, northeast, and easterly directions. The two switchgear buildings will effectively block noise to the westerly boundary. Landscaping around the Key Bank northwest property line and Union Street westerly and southwesterly property line will attenuate noise where it is otherwise not blocked by structures.

Areas along the Union Street sidewalk south of the driveway are largely not blocked from noise, but noise is otherwise attenuated by landscaping. Noise is not blocked or attenuated towards the southeasterly boundary shared with the new hotel. Along this boundary the security fence will be located at the CMP property boundary. Based on established sound attenuation values, noise levels along the Union Street and hotel boundaries would vary between 29-44 dBA, assuming a "worst case" with the transformers running at full capacity with all fans running. As noted the transformers are not expected to function at full capacity.

To keep the substation noise levels in perspective, published typical noise levels for urban areas during the daytime range from 75-90 dBA somewhat higher than the worst case sound levels with all four transformers running at full capacity, 59-69 dBA. Therefore, noise levels generated from the substation under a worst case situation will be less than ambient noise levels from normal urban sources.

Signage and Wayfinding: No response is required.

Zoning Related Design Standards: Elevation views of the switchgear structures are included.

ADDITIONAL SUBMITTALS REQUIRED

The site plan has been modified to address the items referenced above. CMP does not propose to "occupy" Union Street or the sidewalk, with the exception that some landscaping work may be completed from the sidewalk side of the substation. Pedestrian activity on the side walk is currently being managed through the hotel development. As such, a construction management plan is not proposed. All construction is otherwise proposed to be completed from within the substation.

One full sized set of plans and a digital copy of this letter and the plans are included. Please contact me at 620-3844 or mchristopher@trcsolutions.com, if you have any questions or need any additional information.

Sincerely,



Mark W. Christopher, M.S., CWB

Enclosures

cc: Scott McKernan, Gerry Boivin, Gerry Mirabile

Exhibit 1
Landscaping Plan Planting Cost Estimate

Suggested Landscape Planting Using "Street Harding" Trees and Shrubs.

Species	Size	Quantity	Unit Cost	Subtotal
European Hornbeam (<i>Carpinus betulus</i>)	4-5' tall, T/F #1B	15	\$25.00	\$375.00
Arm Strong Red Maple (<i>Acer rubrum</i>)	4-5' tall, #2B	7	\$20.00	\$140.00
Emerald green arborvitae (<i>Thuja occidentalis smaragd</i>)	4-5' tall, BB	2	\$100.00	\$200.00
Flowering Crabapple (<i>Malus centurion</i>)	1.5-1.75' min., BB	3	\$150.00	\$450.00
Rhododendron (<i>Rhododendron English roseum</i>)	2-2.5' tall, #3	6	\$50	\$300.00
Creeping Juniper (<i>Juniperus horizontalis Bar Harbor</i>)	2-2.5' tall, #5	20	\$50	\$1,000.00
Sweet Pepperbush (<i>Clethra alnifolia – Sixteen Candles</i>)	15-18" tall, BB	28	\$20.00	\$560.00
Subtotal Cost				\$3,025.00
Tree Removal		40	\$50.00	\$2,000.00
Shredded Bark Mulch		50 cu. yd	\$40.00	\$2,000.00
Installation				\$4,000.00
Total Cost				\$11,025.00

Helen Donaldson - CMP Union Street Substation

From: "Christopher, Mark" <mchristopher@trcsolutions.com>
To: 'Helen Donaldson' <HCD@portlandmaine.gov>
Date: 4/16/2013 10:09 AM
Subject: CMP Union Street Substation
CC: "McKernan, Scott" <SMcKernan@trcsolutions.com>
Attachments: SF-Canyon-Red.jpg; PA170022.JPG

Hi Nell: When we last talked you asked about painting/finish on the switchgear building and firewall. The two buildings will be finished differently. The one closest to Union St (11/12 kV switchgear) will be finished with a faux brick exterior. Similar to the existing control house. The attached photo shows the finished applied to the control house. The switchgear building (34 kV) further from the road will be painted red as the color is now. The reason for the difference is that the buildings are being designed and built by two different companies and the second firm does not offer the faux brick, due to the type of switchgear cabinets being built..

The firewall will be made from red concrete blocks based on the color example provided. The color is mixed in with the concrete. The concrete isn't painted or stained so it will not flake off or fade.

Please call me with any questions. Also let me know the status of your comments letter.

Thanks

Mark

Mark W. Christopher, M.S., CWB
Environmental Scientist
TRC Solutions, Inc
14 Gabriel Drive
Augusta, ME 04330
207-620-3844 phone
207-621-8226 fax
207-441-4225 cell

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**Application for a
Level II-Site Alteration Development Permit**

**Central Maine Power Company
Union Street Substation Upgrade
Portland, Maine**

Prepared for:

**Central Maine Power Company
83 Edison Drive
Augusta, ME 04336**

Prepared by:

**TRC Companies, Inc.
14 Gabriel Drive
Augusta, ME 04330**

March 2013





**CENTRAL MAINE
POWER**

January 3, 2013

RE: Agent Authorization Letter
Various Central Maine Power Company Projects

To Whom It May Concern:

TRC Solutions, including but not limited to Mark Christopher, is hereby authorized to act as agent of Central Maine Power Company (CMP) for purposes of all federal, state, regional, and local license and permit applications.

Please call me at 626-9557 or email me at gerry.mirabile@cmpco.com with any questions.
Thank you.

Sincerely,

Gerry J. Mirabile
Lead Analyst – Compliance

83 Edison Drive, Augusta, ME 04336
Telephone 207.623.3521



EXHIBIT 1

**LEVEL II-SITE ALTERATION DEVELOPMENT REVIEW
APPLICATION FORM**



Level II – Preliminary and Final Site Plans Development Review Application Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level II: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits. General information pertaining to the thresholds of review, public noticing procedures and the fee structure is contained in the Notice to Developer's Packet.

Level II: Site Plan Development includes:

- New structures with a total floor area of less than 10,000 sf except in Industrial Zones.
- New structures with a total floor area of less than 20,000 sf in Industrial Zones.
- Any new temporary or permanent parking area, paving of an unpaved surface parking area, or creation of other impervious surface area greater than 7,500 sf.
- Building addition(s) with a total floor area of less than 10,000 sf (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of less than 20,000 sf in Industrial Zones.
- Park improvements: New structures or buildings with a total floor area of less than 10,000 sf, facilities encompassing an area of greater than 7,500 sf and less than 20,000 sf (excludes rehabilitation or replacement of existing facilities).
- New piers, docks, wharves, bridges, retaining walls, and other structures within the Shoreland Zone.
- Land disturbance between 1 and 3 acres (includes stripping, grading, grubbing, filling or excavation).
- A change in the use of a total floor area between 10,000 and 20,000 sf in any existing building (cumulatively within a 3 year period).
- Construction of a lodging house, bed and breakfast facility, emergency shelter or special needs independent living unit.
- Signage subject to approval pursuant to Section 14-526 (d) 8.a. (IV) of the Land Use Code.
- Any new major or minor auto service station with less than 10,000 sf of building area that is outside the B-2 or B-5 zones.
- The creation of day care or home babysitting facilities to serve more than 12 children in a residential zone (not permitted as a home occupation under section 14-410) in any principal structure that has not been used as a residence within the 5 years preceding the application.

The Land Use Code (including Article V), the Technical Manual, and the Design Manual are available on the City's web site at <http://www.portlandmaine.gov/planning/default.asp> or copies may be purchased at the Planning Division Office.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8721 or 874-8719

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

PROJECT NAME: Central Maine Power Co. Union Street Substation

PROPOSED DEVELOPMENT ADDRESS:

40
33-43 Union Street

PROJECT DESCRIPTION:

Replacement of one electrical switchgear, removal of one switchgear, and addition of one. Rearrange transformers, and expand their foundations and add a fire wall around them.

CHART/BLOCK/LOT: Map 32 lot 39

32-I-39

PRELIMINARY PLAN _____ (date)

FINAL PLAN _____ (date)

CONTACT INFORMATION:

	Applicant's Contact for electronic plans Name: Mark Christopher TRC e-mail: mchristopher@trcsolutions.com work #: 207-620-3844
Applicant – must be owner, Lessee or Buyer Central Maine Power Company Name: Attn: Gerry Mirabile Business Name, if applicable: Address: 83 Edison Drive City/State: Augusta, ME Zip Code: 04336	Applicant Contact Information Work # 207-626-9557 Home# Cell # 207-242-1682 Fax# 207-626-4044 e-mail: gerry.mirabile@cmpco.com
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Agent/ Representative TRC Engineers, LLC Name: Attn: Mark Chrisotpher Address: 14 Gabriel Drive City/State: Augusta, ME Zip Code: 04330	Agent/Representative Contact information Work # 207-620-3844 Cell # 207-441-4225 e-mail: mchristopher@trcsolutions.com
Billing Information Name: CMP, Gerry Mirabile Address: 83 Edison Drive City/State: Augusta, ME Zip Code: 04336	Billing Information Work # 207-626-9557 Cell # 207-242-1682 Fax# 207-626-4044 e-mail:

RECEIVED
MAR 20 2013

taxes ok.
(signature)

Engineer TRC Engineers LLC Name: Attn: Scott McKernan Address: 14 Gabriel Drive City/State: Augusta, ME Zip Code: 04330	Engineer Contact Information Work # 207-620-3859 Cell # 207-215-5517 Fax# 207-621-8226 e-mail: smckernan@trcsolutions.com
Surveyor TRC Engineers LLC Name: Attn: Scott McKernan Address: 14 Gabriel Drive City/State: Augusta, ME Zip Code: 04330	Surveyor Contact Information Work # 207-620-3859 Cell # 207-215-5517 Fax# 207-621-8226 e-mail: smckernan@trcsolutions.com
Architect N/A Name: Address: City/State: Zip Code:	Architect Contact Information Work # Cell # Fax# e-mail:
Attorney N/A Name: Address: City/State: Zip Code:	Attorney Contact Information Work # Cell # Fax# e-mail:

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Cash or Check payable to the City of Portland.)

Level II Development (check applicable reviews) <input checked="" type="checkbox"/> Less than 10,000 sq. ft. (\$400.00) <input type="checkbox"/> After-the-fact Review (\$1,000.00 plus applicable application fee)	Fees Paid (office use) _____ _____	Other Reviews (check applicable reviews) ____ Traffic Movement (\$1,000) <input checked="" type="checkbox"/> Stormwater Quality (\$250) ____ Section 14-403 Review (\$400 + \$25/lot) # of Lots ____ x \$25/lot = _____ ____ Other _____ ____ Change of Use ____ Flood Plain ____ Shoreland ____ Design Review ____ Housing Replacement ____ Historic Preservation	Fees Paid (office use) _____ _____
The City invoices separately for the following: <ul style="list-style-type: none"> • Notices (\$.75 each) • Legal Ad (% of total Ad) • Planning Review (\$40.00 hour) • Legal Review (\$75.00 hour) Third party review is assessed separately.			
Plan Amendments (check applicable reviews) ____ Planning Staff Review (\$250) ____ Planning Board Review (\$500)	Fees Paid (office use) _____ _____		

APPLICATION SUBMISSION

All site plans and written application materials must be uploaded to a website for review. At the time of application, instructions for uploading the plans will be provided to the applicant. One paper set of the plans, written materials and application fee must be submitted to the Planning Division Office to start the review process.

Application submissions shall include one (1) paper packet with folded plans containing the following materials:

Numbers below changed- can't seem to highlight

1. One (1) full size site plans that must be folded.

One (1) set of all written materials or as follows, unless otherwise noted:


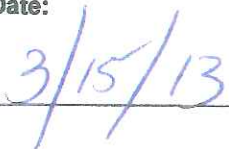
- a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
2. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
 3. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
 4. Copy of the checklist completed for the proposal listing the material contained in the submitted application.
 5. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist for a detailed list of submittal requirements.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site: www.portlandmaine.gov Copies of the ordinances may be purchased through the Planning Division.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level II Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant: 	Date: 
----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------

PROJECT DATA

The following information is required where applicable, in order complete the application

Total Site Area	21,196.3	sq. ft.
Proposed Total Disturbed Area of the Site	N/A	sq. ft.
(If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland)		
IMPERVIOUS SURFACE AREA		
• Proposed Total Paved Area	0	sq. ft.
• Existing Total Impervious Area	21,196.3	sq. ft.
• Proposed Total Impervious Area	21,196.3	sq. ft.
• Proposed Impervious Net Change	0	sq. ft.
BUILDING AREA		
• Proposed Building Footprint	3,337.6	sq. ft.
• Proposed Building Footprint Net change	286.8	sq. ft.
• Existing Total Building Floor Area	3,050.8	sq. ft.
• Proposed Total Building Floor Area	3,337.6	sq. ft.
• Proposed Building Floor Area Net Change	286.8	sq. ft.
• New Building	yes	(yes or no)
ZONING		
• Existing	B3 Downtown business	
• Proposed, if applicable	No Change	
LAND USE		
• Existing	Substation	
• Proposed	Substation	
RESIDENTIAL, IF APPLICABLE		
• Proposed Number of Affordable Housing Units	N/A	
• Proposed Number of Residential Units to be Demolished		
• Existing Number of Residential Units		
• Proposed Number of Residential Units		
• Subdivision, Proposed Number of Lots		
PARKING SPACES		
• Existing Number of Parking Spaces	N/A	
• Proposed Number of Parking Spaces		
• Number of Handicapped Parking Spaces		
• Proposed Total Parking Spaces		
BICYCLE PARKING SPACES		
• Existing Number of Bicycle Parking Spaces	N/A	
• Existing Number of Bicycle Parking Spaces		
• Proposed Number of Bicycle Parking Spaces		
• Total Bicycle Parking Spaces		
ESTIMATED COST OF PROJECT		

General Submittal Requirements – Preliminary Plan (Optional)

Level II Site Plan

Preliminary Plan Phase Check list (if elected by applicant)

Applicant Checklist	Planner Checklist	Number of Copies	Written Submittal Requirements
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Completed application form
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Application fees
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Written description of project
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Evidence of right, title and interest.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Copies of required State and/or Federal permits.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Written assessment of proposed project's compliance with applicable zoning requirements.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written description of existing and proposed easements or other burdens.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written requests for waivers from individual site plan and/or technical standards, where applicable.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Traffic analysis (may be preliminary, in nature, during the preliminary plan phase).
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written summary of significant natural features located on the site.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written summary of project's consistency with related city master plans.
Applicant Checklist	Planner Checklist	Number of Copies	Site Plan Submittal Requirements
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Boundary Survey meeting the requirements of Section 13 of the City of Portland Technical Manual.
<input type="checkbox"/>	<input type="checkbox"/>	1	Preliminary Site Plan Including the following: (*information provided may be preliminary in nature during preliminary plan phase):
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Existing and proposed structures with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Location of adjacent streets and intersections and approximate location of structures on abutting properties.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Proposed site access and circulation.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Proposed grading and contours.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Preliminary landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Existing and proposed utilities (preliminary layout).
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Preliminary infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, transit infrastructure, roadway improvements).
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Preliminary stormwater management and erosion control plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b) 1. of the Land Use Code).
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Proposed alterations to and protection measures for significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important

natural features listed in Section 14-526 (b)1. of the Land Use Code).

▪ Existing and proposed easements or public or private rights of way.

General Submittal Requirements – Final Plan (Required)

Level II Site Plan

Final Plan Phase Check list (including items listed above in General Requirements for Preliminary Plan, if applicant did not elect to submit for a preliminary plan review)

Applicant Checklist	Planner Checklist	Number of Copies	Written Submittal Requirement
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Evidence of financial and technical capacity.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Evidence of utilities' capacity to serve the development.
<input type="checkbox"/>	<input type="checkbox"/>	1	Written summary of fire safety (referencing NFPA fire code and Section 3 of the City of Portland Technical Manual).
<input type="checkbox"/>	<input type="checkbox"/>	1	Construction management plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Traffic Plan (if development will (1) generate 100 or more PCE or (2) generate 25 or more PCE and is located on an arterial, within 1/2 mile of a high crash location, and/or within ¼ mile of an intersection identified in a previous traffic study as a failing intersection).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Stormwater management plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written summary of solid waste generation and proposed management of solid waste.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Written assessment of conformity with applicable design standards.
<input type="checkbox"/> N/A	<input type="checkbox"/>	1	Manufacturer's verification that HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Final Plan Phase

<input type="checkbox"/>	<input type="checkbox"/>	1	Final Site Plan Including the following
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Existing and proposed structures on the site with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Location of adjacent streets and intersections and approximate location of structures on abutting properties.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Proposed site access and circulation.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Proposed grading and contours.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways. Proposed curb lines must be shown.
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Proposed loading and servicing areas, including applicable turning templates for delivery vehicles
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Proposed snow storage areas or snow removal plan.
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Proposed trash and recycling facilities.
<input type="checkbox"/>	<input type="checkbox"/>		▪ Landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Existing and proposed utilities.
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Location and details of proposed infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, public transit infrastructure, roadway improvements).
<input type="checkbox"/> N/A	<input type="checkbox"/>		▪ Proposed septic system, if not connecting to municipal sewer. (Portland Waste Water Application included in this application)
<input checked="" type="checkbox"/>	<input type="checkbox"/>		▪ Proposed finish floor elevation (FFE).

<input type="checkbox"/> in progress	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Exterior building elevation(s) (showing all 4 sides).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Proposed stormwater management and erosion controls.
<input type="checkbox"/> in progress	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Exterior lighting plan, including street lighting improvements..
<input type="checkbox"/> N/A	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Proposed signage.
<input type="checkbox"/> N/A	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Identification of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code). Wetlands must be delineated.
<input type="checkbox"/> N/A	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Proposed alterations to and protection measures for of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Total area and limits of proposed land disturbance.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Soil type and location of test pits and borings.
<input type="checkbox"/> N/A	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Details of proposed pier rehabilitation (Shoreland areas only).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ Existing and proposed easements or public or private rights of way.



**PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST**



A separate drawing[s] shall be provided to the Portland Fire Department for all site plan reviews.

1. Name, address, telephone number of applicant.
2. Name address, telephone number of architect
3. Proposed uses of any structures [NFPA and IBC classification]
4. Square footage of all structures [total and per story]
5. Elevation of all structures
6. Proposed fire protection of all structures
 - **As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)**
7. Hydrant locations
8. Water main[s] size and location
9. Access to all structures [min. 2 sides]
10. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.

Some structures may require Fire flows using annex H of NFPA 1

EXHIBIT 2
PROJECT SUMMARY and
SITE PLAN STANDARDS FOR REVIEW

PROJECT SUMMARY

Central Maine Power Company (CMP) is upgrading the Union Street Substation by rearranging and replacing several electrical components, replacing the substation substrate, and adding a grounding grid and firewall. The existing chain link fence will be replaced with a more aesthetically pleasing, nonconductive, screening fence. Vegetation buffering the substation will be augmented and replaced if it is damaged during the fence replacement process. The Union Street Substation is a crucially important component of the electrical service for downtown Portland. The project components will improve service, safety, reliability, and aesthetics to residents and businesses that are served by the distribution circuits that originate from the substation.

The substation is located at 33-41 Union Street (tax map 031-I-39) on a 0.4866 acre parcel. The proposed work does not require expanding the substation yard and will not alter the current final grade elevations within the yard. The substation is within an area zoned as Downtown Business (B3) and the site is surrounded by commercial uses and infrastructure. The following work is proposed within the substation:

- Removal of a 34.5 kV switchgear structure (a series of cabinets containing electrical components linked together resembling a shed) and replacement with a 11.5 and 12 kV switchgear structure;
- Removal of a 12 kV switchgear structure;
- Addition of a 34.5 kV switchgear structure;
- Removal of a 11.5 kV switchgear structure (the foundation will remain);
- Relocation of four transformers and adding new concrete foundations for each;
- Addition of a fire wall around and between the transformers;
- Addition of a subsurface grounding grid and replacement of yard substrate (crushed rock) that will improve stormwater management; and
- Replacement of the chain link security fence with a nonconductive fence with improved screening.

The existing 11.5 kV switchgear structure will be removed, but its foundation will remain. The control house will remain. The four transformers will be relocated to the east side of the yard and placed on new larger concrete foundations and separated by concrete firewalls. There will be no modifications to the stormwater management and oil containment systems, which will remain operational and protected during construction. The grounding grid is a series of copper rods placed underneath the substation yard that provides grounding of the electrical components. This system will provide for much improved safety for staff within the substation and the general public outside the substation and protection of sensitive equipment. The existing compacted gravel will be removed from the site and replaced with four inches of crushed stone overlaying 18 inches of gravel fill. This new material will increase stormwater infiltration beyond that allowed by the existing compacted gravel. The upgrade work will not increase the net area of

impervious surface, since the entire yard is currently considered nearly impervious. It will improve water quality by attenuating stormwater flow within the pore space of the crushed stone. Overall the new substrate increases stormwater infiltration and reduces the rate of runoff despite an increase in structure footprints and foundations. The upgrade work does not include any new parking or access. The following table summarizes the surface areas of each component.

Table 1. Existing and proposed development areas.

Component	Existing Area ft²	Proposed Area ft²
<i>Enclosures</i>		
34.5 kV Switchgear	1,523	0
12 kV Switchgear	668	0
11.5 kV Switchgear (foundation remains/building removed)	473	473
Control House	481	481
New 34.5 Switchgear	0	629
New 11.5 & 12 kV Switchgear	0	1,523
Enclosure Area ONLY	3,145	3,106
<i>Electrical Components</i>		
Transformers 1-4 (foundations)	266	512
Miscel Foundation	0	182
Firewall	0	293
Electrical Components ONLY	266	987
Total Enclosures and Electrical Components	3,411	4,093
<i>Yard Components</i>		
Driveway	473	473
Total Open Yard Area	13,471	12,789
Area outside of the fence	3,841	3,841
Total Yard Components	17,758	17,103
Total Site Area	21,196.3	21,196.3

SITE PLAN STANDARDS FOR REVIEW

Transportation

Impact on Surrounding street systems: Operation and maintenance of the Union Street Substation will not require any changes to existing ingress and egress patterns. The existing driveway entrance will continue to be used without any alterations. CMP staff visit the substation daily for monitoring and maintenance; otherwise there is no regular traffic pattern or regular traffic generated by the substation. Workers park within the substation yard and there is

no street or public parking required. The substation does not require any general or public access, parking, loading, or unloading and, as such, will not alter established traffic patterns or create congestion. The substation is surrounded by an eight foot tall cyclone fence (chain link with a barbed wire top) and the gate is locked. When the substation is upgraded the cyclone fence will be replaced with a nonconductive security fence, ten feet tall, and an entrance gate in the same location which will remain locked. The new fence is more aesthetically pleasing and provides some visual buffering.

Access and Circulation: CMP staff will continue to use the same driveway for ingress and egress, therefore site access and circulation will not change. The infrequent access will not create any conflicts with existing traffic. The substation does not include drive up features or loading areas. There is an existing sidewalk along Union Street; it will not be altered and additional sidewalks are not needed.

Public Transit Access: Access to the site is strictly by CMP staff and their contractors; as such there is no public access allowed.

Easements and Utilities

The existing conditions survey is provided as Exhibit 5a and provides the location of easements and utilities. The substation includes one easement that is used for an underground (cable trench) distribution line. The easement is underneath the adjacent hotel (under construction) between the site and Fore Street. The substation does not have potable water or wastewater and the addition of these utilities are not proposed. The site connects to the local stormwater management system via underground pipes that receive runoff from the yard. An analysis of stormwater management is provided in Exhibit 6a.

Oil Containment and Hazardous Materials

The substation has a functional oil containment system that was installed in 2005. Documentation of the system and monitoring is provided in Exhibit 6b. Transformers contain oil for electrical insulation and temperature control. Any oil release will cause the oil containment valve to close and any liquid (oil and stormwater) would then be retained onsite and prevented from flowing into the city stormwater system. CMP staff would be alerted and institute the necessary cleanup process. CMP inspects the oil containment system twice yearly and sends an annual certification of inspections of the oil stop valve to the City.

Of the 4 transformers onsite, three contain oil with polychlorinated biphenyls (PCBs) at three parts per million (ppm), and one contains oil with PCBs at four ppm. The Spill Prevention, Control and Countermeasure (SPCC) plan for this substation documents these PCB levels (Exhibit 6b). Federal regulations categorize oil containing less than 50 ppm PCBs as “non-PCB”, and Maine regulations categorize oil containing less than 50 ppm PCBs as non-hazardous. As such, the levels of PCBs within the transformers are below hazardous concentrations.

Environmental Quality Standards

Preservation of Significant Natural Resources: There are no natural resources on the site. Between the security fence and adjacent sidewalk, parking, and alley are areas planted in coniferous and hardwood tree and shrub species.

Landscape and Landscape Preservation: The site is surrounded on all four sides by a vegetative buffer of hardwood and coniferous trees and shrubs and along some portions of the fence line they are multilayered and dense. The buffer strip (the area between the substation fence and pavement) is 12-14 feet wide on the east and west sides of the site. The strip on the north side is six feet wide while on the south side the fence line and property line appear to be in the same location. The area underneath the buffer is forbs and mulch. Permanent construction is not proposed within the buffer, but replacement of the fence along all four sides may create disturbance to the root systems of the buffering species. At the property boundary with the hotel site, the buffer vegetation was on the hotel property and has been removed during construction. CMP is not responsible for replacing vegetation in this area.

CMP proposes to replace any of the existing buffer plants that are removed or destroyed as a result of grounding grid or fence installation on CMP's property, with plantings of species with similar growth patterns consistent with street landscaping as recommended on the City of Portland's website (Exhibit 7). At this time it is unclear how much of the buffering vegetation will be disturbed, but CMP commits to replace moderately or significantly damaged plants on a one-for-one basis. For purposes of this application a suggested planting plan has been prepared based on the following assumptions: approximately one-half of the buffer would be replanted; new plant spacing would be five feet on-center; and specimens will be available locally in the sizes and quantities listed. CMP commits to communicate and coordinate with the City arborist regarding replacement specimens and the appropriate sizing and care.

Water Quality, Stormwater Management, and Erosion Control: The project does not require a stormwater management permit from the Maine Department of Environmental Protection (MDEP) since the site is less than one acre of disturbance and has less than 20,000 square feet of impervious surface, per the Maine Chapter 500 Stormwater Management Rules. As briefly discussed above, the new yard base material will improve permeability and water quality. Also, the change in final cover type from gravel to crushed stone will reduce stormwater runoff rates (Exhibit 6a). The crushed stone top layer will be four inches thick comprised of a 50:50 mix of 1.5" and 0.75" diameter stone overlaying 18" or more of gravel fill, MDOT 703.06 Type A. Both the crushed stone and gravel provide stormwater storage, with the crushed rock providing up to 40% porosity of its volume as storage.

An erosion control plan has been designed to minimize the potential for sediments to leave the site and enter the City stormwater system. The interior perimeter of the yard will be lined with silt fence to prevent sediments from entering the sidewalk and streets. The catch basins will be

protected by silt fence backed up with hay bales. These erosion control devices will be removed after the site is stabilized.

Public Infrastructure and Community Safety Standards

Consistency with City Mater Plan: The Union Street Substation is within the “Downtown Business (B3)” district. The substation was originally built in 1972 and aside from being painted “brick red” it has not been altered.

Site Design Standards

Historic Resources: The Bishop Street Substation expansion is not within the City’s historic district. The proposed upgrade work will not alter the overall appearance of the site. For practical purposes the relocation of the transformers, addition of a firewall system, and removal and construction of new switchgear structures will not be noticeable or affect any existing viewsheds. The removal of the cyclone fence and replacement with a nonconductive fence will improve the appearance of the substation yard. CMP will maintain the vegetative buffer and replace any damaged plants to maintain the unobtrusive appearance of the substation.

Exterior Lighting: Generally the ambient light around the substation provides adequate illumination for security purposes. Over doors “cutoff” type lights are used by staff when onsite. The levels and use of onsite lighting will not change. The substation yard has emergency lighting for use when night time repairs or monitoring is required. These are only used for such purposes and are off at all other times. There is no need for any additional street lighting.

Signage and Wayfinding: Public access to the substation is not allowed. The level of activity by CMP staff and contractors during normal operations will be the same as the current levels. Signage is not required.

Zoning Related Design Standards: The proposed upgrade work will be contained within the existing yard and does not require any work that will affect surrounding businesses.

Buffering: CMP owns landscaped areas along the north, west, and east sides of the substations totaling 4,300 square-feet. These areas are described as follows:

- North side along the bank parking lot is 129 feet long by 6 feet wide;
- West side along the Union Street sidewalk is 132 feet long by 14 feet wide; and
- East side along Plum Street Alley is 132 feet long by 11 feet wide.

The south fence line follows the south property boundary as such the vegetated buffer there is offsite as mentioned above. Two areas along Plum Ally, approximately 50 feet long, have a very thin vegetative buffer, otherwise the three sides owned by CMP are well vegetated. CMP has no plans to remove any of the trees and shrubs along the outside of the substation fence line and is committed to minimizing disturbance in these areas and maintaining the existing plants. It is

possible that during installation of the grounding grid, removal of the existing fence, and installation of the new fence, tree roots will be disturbed causing mortality or partial dieback. CMP will replace any moderately or significantly damaged trees and shrubs on at least a one to one basis. The unvegetated areas along the rear ally (north) and garage (east) sides will be planted based on the attached proposed planting table. CMP has assumed (for planning purposes) a 250-foot long section will require planting and that is the basis for the planting quantities in the planting table.

CMP will install a 10-foot tall “non-conductive” fence that will provide security and some buffering. The existing fence is a cyclone fence, chain link with barbed-wire top, about eight feet tall. The non-conductive fence improves the appearance and safety of the perimeter of the substation. CMP’s technical specifications are provided in Exhibit 8 and the manufacture’s brochure.

EXHIBIT 2b
EXISTING CONDITIONS PHOTOGRAPHS



Photo 1. Control house to remain.



Photo 2. Existing 34.5 kV switchgear to be replaced with a similar 11.5/12 kV switchgear.



**Photo 3. Existing 11.5 kV switchgear on the left to be removed.
Existing 34.5 kV switchgear on the right to be replaced.**



**Photo 4. Existing transformer (foreground) and 12 kV switchgear.
The transformer is being relocated and the switchgear is being replaced and relocated.**



Photo 5. Vegetative buffer along Fore Street, just right of the gate.



Photo 6. Vegetative buffer along Fore Street, just left of the gate.



Photo 7. View from the easterly boundary towards the parking garage with thin vegetative buffer.



Photo 8. View from the northeast corner towards the parking garage with thin vegetative buffer.

EXHIBIT 3

**DOCUMENTATION OF TITLE, RIGHT, or INTEREST
(Deed and Easement)**

Cumberland County Reg Needs
Book 1699, Pg. 476 12/3/42

York County
Book 985, Pg 450

12/3/42

Oxford West SS.
144/144

Oxford S.S.
444/268

Carroll County
N.H.
192/922

KNOW ALL MEN BY THESE PRESENTS

That CUMBERLAND COUNTY POWER AND LIGHT COMPANY,
a corporation duly organized and existing under the laws
of the State of Maine and having its office and principal
place of business at Portland, in the County of Cumberland,
said State, in consideration of the sum of One Dollar paid
to it by CENTRAL MAINE POWER COMPANY, a corporation duly
organized and existing under the laws of the State of Maine
and having its office and principal place of business at
Augusta, in the County of Kennebec, said State, the receipt
whereof it does hereby acknowledge, does hereby give, grant,
bargain, sell and convey and forever quitclaim unto the said
CENTRAL MAINE POWER COMPANY, its successors and assigns for-
ever:

All its plant, property, distribution systems,
transmission lines, locations and permits and all its
rights, privileges, powers, franchises and immunities as
well of a public as of a private nature, including without
in any way restricting the generality of the foregoing all
tangible property, real estate, rights of way, dam sites,
water power rights, flowage and riparian rights, privileges,
franchises, contracts, machinery, generators, poles, wires,
transformers, fixtures, supplies, apparatus, appliances,
rights and credits and all other property, real, personal
and mixed, of whatever kind and wherever situated, and all
interests therein and appurtenances thereof, now held and
owned by said CUMBERLAND COUNTY POWER AND LIGHT COMPANY.

Without limiting or restricting in any way the generality of the foregoing grant, there is also included in this conveyance and the Grantor does hereby give, grant, bargain, sell and convey and forever quitclaim unto the said Grantee, its successors and assigns:

All the properties, rights, easements, interests and franchises described in and conveyed by a Mortgage Indenture made by the Grantor to Old Colony Trust Company, Trustee, dated as of June 1, 1926, recorded in Cumberland County Registry of Deeds in Book 1244, Page 1; in York County Registry of Deeds in Book 770, Page 1; in Oxford Registry of Deeds in Book K-2, Page 1; in Oxford Registry of Deeds, Western District, in Vol. 117, Page 502; and in Carroll County Registry of Deeds in Book 175, Page 41.

All the real estate and right, title and interest therein, of every name, nature and description, acquired by this Grantor in the County of Cumberland in the State of Maine, under and by reason of the following described instruments of conveyance to this Grantor recorded in the Registry of Deeds for said County of Cumberland, to all of which instruments and the records thereof reference is hereby made for a more particular description of the property and premises therein conveyed, viz:

- Deed from Maynard G. Rogers et al., dated April 1, 1929, recorded in Book 1315, Page 375.
- (2) Deed from Cumberland Securities Corporation, dated May 5, 1930, recorded in Book 1346, Page 141.
- (3) Deed from Myers & Mahoney Plumbing Company, dated May 21, 1930, recorded in Book 1347, Page 143.
- (4) Deed from Janette B. Jordan, dated July 1930, recorded in Book 1340, Page 469.

*Powisland St P41d
(Sewall St S/S)*

*2 Parcels Convey
State Dept. of Transp.
12/2/77*

- (5) Deed from Cumberland Securities Corporation, dated July 28, 1930, recorded in Book 1354, Page 25.
- (6) Deed from Pepperell Manufacturing Company, dated September 22, 1930, recorded in Book 1356, Page 221.
- (7) Deed from Androscoggin Pulp Co., dated October 25, 1931, recorded in Book 1382, Page 401.
- (8) Deed from Mallison Power Company, dated November 10, 1931, recorded in Book 1388, Page 45.
- (9) Deed from Samuel Ridge, dated February 4, 1932, recorded in Book 1392, Page 174.
- (10) Deed from Androscoggin Pulp Company, dated August 27, 1932, recorded in Book 1406, Page 410.
- (11) Deed from Elvira M. Thomas, dated January 8, 1934, recorded in Book 1434, Page 465.
- (12) Deed from Joseph A. Warren et al., dated May 31, 1934, recorded in Book 1448, Page 98.
- (13) Deed from Froot's Neck Association, dated June 30, 1934, recorded in Book 1448, Page 304.
- (14) Deed from Woodbury G. Barrett, dated October 13, 1933, recorded in Book 1448, Page 393.
- (15) Deed from J. B. Brown & Sons, dated November 30, 1936, recorded in Book 1508, Page 274.
- (16) Lease from David E. Moulton, dated November 27, 1936, recorded in Book 1510, Page 459.
- (17) Deed from Arthur L. Smith, dated March 27, 1939, recorded in Book 1573, Page 202.
- (18) Agreement with Strand Amusement Company, dated May 29, 1939, recorded in Book 1578, Page 484.
- (19) Deed from Eugene E. Moulton, dated November 27, 1940, recorded in Book 1626, Page 45.
- (20) Deed from Central Maine Power Company, dated November 30, 1940, recorded in Book 1630, Page 297.
- (21) Deed from Howard C. Hannaford, dated June 20, 1941, recorded in Book 1644, Page 440.
- (22) Deed from Abbie M. Bryant et al., dated December 5, 1941, recorded in Book 1659, Page 373.
- (23) Deed from Grace J. Mussey, dated December 5, 1941, recorded in Book 1659, Page 390.

- (24) Deed from Walter I. Mckenney et al., dated January 29, 1942, recorded in Book 1662, Page 426.
- (25) Deed from Lillian H. Hayden et al., dated February 6, 1942, recorded in Book 1667, Page 372.
- (26) Deed from Seth M. Milliken et al., dated March 10, 1942, recorded in Book 1663, Page 337.
- (27) Deed from Exrs. of Estate of Seth M. Milliken, dated December 31, 1941, recorded in Book 1668, Page 489.
- (28) Deed from Cumberland Securities Corporation, dated December 31, 1941, recorded in Book 1672, Page 90.
- (29) Deed from Cumberland Securities Corporation, dated December 31, 1941, recorded in Book 1672, Page 92.
- (30) Deed from Ralph K. Lamport, dated March 31, 1942, recorded in Book 1663, Page 385.
- (31) Deed from City Ice Company, dated March 31, 1942, recorded in Book 1671, Page 121.
- (32) Deed from Exrs. of Estate of Harry O. Carmichael, dated May 1, 1942, recorded in Book 1663, Page 449.
- (33) Amendment to Condemnation Proceedings by United States of America, recorded November 17, 1942, in Book 1699, Page 283.

All the real estate and right, title and interest therein, of every name, nature and description, acquired by this Grantor in the County of York in the State of Maine, under and by reason of the following described instruments of conveyance to this Grantor recorded in the Registry of Deeds for said County of York, to all of which instruments and the records thereof reference is hereby made for a more particular description of the property and premises therein conveyed, viz:

- (1) Deed from Martha I. Tirrell, dated June 6, 1929, recorded in Book 804, Page 212.
- (2) Deed from Frank D. Marshall, dated August 18, 1930, recorded in Book 810, Page 21.
- (3) Deed from Pepperell Manufacturing Company, dated September 2, 1930, recorded in Book 795, Page 11.
- (4) Lease from Pepperell Manufacturing Company, dated September 22, 1930, recorded in Book 795, Page 37.
- (5) Deed from Clark Power Company, dated October 1, 1930, recorded in Book 819, Page 548.
- (6) Deed from Sarah J. Staples, dated April 11, 1931, recorded in Book 821, Page 189.
- (7) Deed from Androscoggin Pulp Company, dated October 23, 1931, recorded in Book 827, Page 5.
- (8) Lease from Effie T. Chase, dated July 13, 1932, recorded in Book 831, Page 183.
- (9) Lease from Carlos H. McKenney et als., dated February 7, 1931, recorded in Book 831, Page 355.
- (10) Lease from Sanford Building Corporation, dated December 20, 1933, recorded in Book 840, Page 381.
- (11) Deed from York Utilities Company, dated ^{March} ~~May~~ 4, 1935, recorded in Book 872, Page 430.
- (12) Deed from Mabel G. Carll, dated January 9, 1936, recorded in Book 873, Page 79.
- (13) Deed from Edwin A. Hobson, dated April 14, 1936, recorded in Book 875, Page 481.
- (14) Deed from Alice S. Hobson, dated April 22, 1936, recorded in Book 875, Page 482.
- (15) Deed from Cyrus E. Alger, dated May 19, 1936, recorded in Book 875, Page 483.
- (16) Deed from Hattie M. Burnham, dated May 19, 1936, recorded in Book 875, Page 484.
- (17) Deed from Ethel G. Tyler, dated June 4, 1936, recorded in Book 873, Page 344.
- (18) Deed from Ada L. Ingalls, dated July 6, 1936, recorded in Book 876, Page 3.
- (19) Deed from Daisy L. Dudley, dated May 25, 1936, recorded in Book 873, Page 373.

- (20) Deed from Charles S. Neal, dated September 25, 1936, recorded in Book 876, Page 427.
- (21) Deed from Ernest B. Rand, dated September 19, 1936, recorded in Book 876, Page 428.
- (22) Deed from Percy W. Flummer, dated September 28, 1936, recorded in Book 876, Page 484.
- (23) Deed from Anna M. Rogers, dated October 14, 1936, recorded in Book 876, Page 485.
- (24) Lease from Usen Amusements, Inc., dated May 1, 1936, recorded in Book 892, Page 537.
- (25) Deed from Arvilla B. Baker, dated October 20, 1936, recorded in Book 876, Page 513.
- (26) Deed from Percy W. Flummer, dated November 2, 1936, recorded in Book 891, Page 106.
- (27) Deed from Edward R. Whitehouse, dated December 23, 1936, recorded in Book 891, Page 221.
- (28) Deed from Harry B. Center, dated March 19, 1937, recorded in Book 891, Page 500.
- (29) Lease from Shell Union Oil Corporation, dated July 22, 1937, recorded in Book 902, Page 172.
- (30) Deed from Ida Mae Downs, dated April 4, 1938, recorded in Book 901, Page 486.
- (31) Deed from Maude J. Sherburne, dated April 6, 1938, recorded in Book 901, Page 501.
- (32) Deed from Fred L. Downs, dated March 29, 1938, recorded in Book 899, Page 371.
- (33) Lease from Casco Mercantile Trust Company, dated April 12, 1938, recorded in Book 913, Page 469.
- (34) Deed from Sanford Water District, dated July 6, 1938, recorded in Book 916, Page 450.
- (35) Lease from Willis G. Neally, dated April 28, 1938, recorded in Book 926, Page 40.
- (36) Deed from Earl A. Carter, dated June 20, 1938, recorded in Book 917, Page 20.
- (37) Deed from Etta T. Mathews, dated December 12, 1938, recorded in Book 922, Page 119.
- (38) Deed from The Berwick & Salmon Falls Electric Company, dated December 31, 1938, recorded in Book 934, Page 275.

VF. 1252

- (39) Agreement with York Manufacturing Company, dated September 22, 1938, recorded in Book 935, Page 332.
- (40) Deed from York Manufacturing Company, dated April 14, 1939, recorded in Book 935, Page 335.
- (41) Deed from Cumberland Securities Corporation, dated December 30, 1938, recorded in Book 936, Page 508.
- (42) Deed from George H. Davis, dated June 23, 1939, recorded in Book 931, Page 503.
- (43) Deed from Inhabitants of Hollis, dated March 18, 1940, recorded in Book 946, Page 502.
- (44) Lease from Ernest F. Hobson, dated May 18, 1940, recorded in Book 954, Page 196.
- (45) Agreement with Clifford N. Cheney, dated August 5, 1940, recorded in Book 956, Page 143.
- (46) Deed from Perley B. Hill, dated September 26, 1936, recorded in Book 876, Page 425.

All the real estate and right, title and interest therein, of every name, nature and description, acquired by this Grantor in the County of Carroll in the State of New Hampshire, under and by reason of the following described instruments of conveyance to this Grantor recorded in the Registry of Deeds for said County of Carroll, to all of which instruments and the records thereof reference is hereby made for a more particular description of the property and premises therein conveyed, viz:

- X (1) Deed from Pepperell Manufacturing Company, dated July 22, 1930, recorded in Book 188, Page 281.

All the real estate and right, title and interest therein, of every name, nature and description, acquired by this Grantor in the County of Oxford, in the State of Maine, under and by reason of the following described instruments

of conveyance to this Grantor recorded in the Registry of Deeds for said County of Oxford, Western District, to all of which instruments and the records thereof reference is hereby made for a more particular description of the property and premises therein conveyed, viz:

- (1) Deed from Pepporell Manufacturing Company, dated September 22, 1930, recorded in Book 127, Page 63.

In addition to the above described property and also without restricting the generality of the foregoing grant there are included in this conveyance, among other things, all water rights, flowage and riparian rights, transmission lines, distribution systems, and all easements and other rights of way, that were conveyed to this Grantor by various instruments recorded in said Cumberland County Registry of Deeds, York County Registry of Deeds, Carroll County Registry of Deeds, and Oxford County Registry of Deeds, Western District, for a more particular description whereof reference to said instruments is hereby made.

Also conveying, transferring and assigning to the Grantee, its successors and assigns, the leasehold estate which the Grantor acquired from Portland Railroad Company by lease dated February 1, 1912, recorded in Cumberland County Registry of Deeds, Book 889, Page 1, and York County Registry of Deeds, Book 559, Page 486, and all of the Grantor's right, title and interest to and under said lease, all subject to all the terms and conditions in said lease contained.

Expressly excepting and reserving to the Grantor, its successors and assigns, from the properties hereinbefore conveyed, such parts thereof and such right, title and interest therein, of every name, nature and description as were conveyed by the Grantor to others than the Old Colony Trust Company, Trustee under the Grantor's said Mortgage and Deed of Trust dated as of June 1, 1926 and indentures confirmatory thereof or supplemental thereto. Such exceptions and reservations include without in any way restricting the generality of the foregoing, among others, properties conveyed by instruments dated and recorded as follows, for a more particular description whereof reference to said instruments is hereby made:

Instruments recorded in Cumberland County Registry of Deeds to the following Grantees respectively:

- (1) Deed to Town of Gorham, acknowledged September 24, 1929, recorded in Book 1328, Page 157.
- (2) Lease to Max H. Zimmermann et al, dated May 21, 1931, recorded in Book 1373, Page 196.
- (3) Condemnation proceedings by United States of America, dated August 3, 1931, recorded in Book 1378, Page 361.
- (4) Deed to Portland Water District, dated November 4, 1931, recorded in Book 1376, Page 389.
- (5) Deed to Elvira Thomas, dated January 5, 1934, recorded in Book 1427, Page 251.
- (6) Deed to Joseph A. Warren, dated July 20, 1934, recorded in Book 1442, Page 256.
- (7) Condemnation proceedings by State of Maine Highway Commission, dated April 3, 1936, recorded in Book 1495, Page 116.
- (8) Deed to State of Maine, dated April 16, 1936, recorded in Book 1498, Page 447.
- (9) Deed to Carrie S. Weymouth, dated February 2, 1938, recorded in Book 1545, Page 174.

- (10) Deed to Harry C. Deans, dated February 2, 1938, recorded in Book 1539, Page 360.
- (11) Deed to Ernest A. Rolfe, dated November 4, 1931, recorded in Book 1558, Page 304.
- (12) Condemnation proceedings by Portland Water District, dated October 10, 1938, recorded in Book 1561, Page 384.
- (13) Deed to Seth B. Hilborn et als, dated December 27, 1938, recorded in Book 1566, Page 71.
- (14) Deed to Phyllis L. Verrill, dated April 18, 1940, recorded in Book 1607, Page 32.
- (15) Deed to State of Maine, dated October 14, 1940, recorded in Book 1607, Page 418.
- (16) Deed to Chester L. Spiller, dated January 22, 1942, recorded in Book 1663, Page 211.
- (17) Deed to Portland Pipe Line Company, dated February 18, 1942, recorded in Book 1668, Page 227.
- (18) Deed to State of Maine, acknowledged January 22, 1942, recorded in Book 1663, Page 303.
- (19) Lease to Shell Oil Company, Incorporated, dated March 19, 1942, recorded in Book 1672, Page 192.
- (20) Condemnation proceedings by United States of America, recorded July 6, 1942, in Book 1685, Page 1.
- (21) Condemnation proceedings by United States of America, recorded July 22, 1942, in Book 1685, Page 221.
- (22) Condemnation proceedings by State Highway Commission of Maine, recorded August 24, 1942, in Book 1694, Page 67.
- (23) Condemnation proceedings by United States of America, recorded August 28, 1942, in Book 1194, Page 84.

Instruments recorded in York County Registry of
Deeds to the following Grantees respectively:

- (1) Deed to Roland R. Siskind, dated April 29, 1926, recorded in Book 746, Page 510.
- (2) Lease to Pepperell Manufacturing Company, dated September 22, 1930, recorded in Book 795, Page 271.
- (3) Deed to Saco Lowell Shops, dated December 15, 1931, recorded in Book 827, Page 159.
- (4) Deed to Olivia F. Briggs, dated January 12, 1933, recorded in Book 851, Page 167.
- (5) Deed to Joseph J. Mullen et al., dated January 17, 1934, recorded in Book 852, Page 277.
- (6) Deed to William H. Nason, dated October 18, 1934, recorded in Book 850, Page 162.
- (7) Deed to Albion H. Nutting, dated January 2, 1937, recorded in Book 890, Page 174.
- (8) Deed to Sanford Mills, dated January 2, 1937, recorded in Book 890, Page 175.
- (9) Deed to Edwin F. Maddox, dated January 2, 1937, recorded in Book 890, Page 176.
- (10) Lease to Alice M. Chase, dated March 27, 1937, recorded in Book 902, Page 102.
- (11) Deed to Ella Harding, dated September 10, 1938, recorded in Book 914, Page 385.
- (12) Deed to Alice W. Chase, dated October 1, 1938, recorded in Book 914, Page 447.
- (13) Deed to Charles S. Burnham, dated February 2, 1938, recorded in Book 915, Page 24.
- (14) Deed to J. G. Deering & Son, dated August 3, 1939, recorded in Book 937, Page 244.
- (15) Lease to Colonial Beacon Oil Co., dated August 24, 1939, recorded in Book 944, Page 220.
- (16) Deed to Inhabitants of Hollis, dated March 18, 1940, recorded in Book 946, Page 464.
- (17) Agreement with Clifford M. Cheney, dated August 5, 1940, recorded in Book 956, Page 143.
- (18) Condemnation proceedings by State of Maine Highway Commission, dated June 4, 1941, recorded in Book 966, Page 1.

- (19) Deed to Pepperell Manufacturing Company, dated April 6, 1941, recorded in Book 967, Page 486.
- (20) Agreement with Effie T. Chaso, dated June 14, 1937, recorded in Book 898, Page 333.

Instruments recorded in Carroll County Registry of Deeds to the following Grantees respectively:

- (1) Lease to Elmer C. Adams, dated June 28, 1934, recorded in Book 200, Page 135.
- (2) Deed to Public Service Co. of New Hampshire, dated September 20, 1937, recorded in Book 209, Page 239.
- (3) Deed to Lois Farrington, dated November 9, 1938, recorded in Book 213, Page 592.
- (4) Deed to Chester Littlefield, dated July 12, 1939, recorded in Book 216, Page 272.
- (5) Deed to Ellsworth H. and Ora E. Berry, dated September 27, 1939, recorded in Book 219, Page 500.

This conveyance is also made expressly subject to all the terms and conditions as to rights of way, together with any and all other easements and reservations, all as the same are specifically set forth in the various deeds by which the Grantor obtained title to the above described premises, to which deeds reference shall be had for a more particular description of said terms, conditions and easements.

All of the above described property is conveyed subject to said mortgage of this Grantor to Old Colony Trust Company, dated as of June 1, 1926, and all indentures confirmatory thereof or supplemental thereto.

This deed is given merely for the purpose of confirming the conveyance and transfer of the Grantor's above described properties to Central Maine Power Company, under and by virtue of the Agreement of Merger between Cumberland County Power and Light Company and Central Maine Power Company, dated the eighteenth day of November, 1942, filed in the office of the Secretary of the State of Maine and recorded, among other places, in Kennebec County Registry of Deeds Book 789, Page 559, and is not to be construed as in any way enlarging or limiting the generality of the conveyance and transfer of said properties under and by virtue of said Agreement of Merger.

X.F. 24-87
York Reg.
985/512

TO HAVE AND TO HOLD the same, together with all privileges and appurtenances thereunto belonging, to the said CENTRAL MAINE POWER COMPANY, its successors and assigns forever.

IN WITNESS WHEREOF, the said CUMBERLAND COUNTY POWER AND LIGHT COMPANY has caused its corporate name to be signed and its corporate seal to be affixed by FRED D. GORDON, its Vice President and Treasurer, thereunto duly authorized, as of the third day of December, 1942.

Executed in several original counterparts for convenience of recording.

Signed, Sealed and Delivered
in Presence of:

John D. Glavin

CUMBERLAND COUNTY POWER AND
LIGHT COMPANY

By: Fred D. Gordon
Its Vice President and
Treasurer

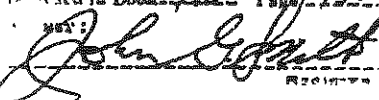
STATE OF MAINE
CUMBERLAND, SS.

December 3, 1942.

Then personally appeared the above named
FRED D. GORDON, Vice President and Treasurer of Cumber-
land County Power and Light Company, who executed the
foregoing instrument on behalf of said Corporation, and
acknowledged the same to be his free act and deed in his
said capacity and the free act and deed of said Cumber-
land County Power and Light Company.

Before me,


Notary Public

YORK, ss. REGISTRY OF DEEDS
Here recorded DECEMBER 3, 1942 10
at 10 h. 37 m. 4 A.M., and
recorded in Book 985 Page 450
Notary: 

John D. Davis

Know all Men by these Presents,

That CANAD. NATIONAL BANK, a national banking association with a principal place of business at 188 Middle Street, City of Portland, County of Cumberland and State of Maine,

in consideration of One Dollar (\$1.00) and other valuable considerations,

paid by CENTRAL MAINE POWER COMPANY, a Maine corporation, with a principal place of business at 9 Green Street, City of Augusta, County of Kennebec and State of Maine,

the receipt whereof it does do hereby acknowledge, do hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said CENTRAL MAINE POWER COMPANY, its successors

Heirs and Assigns forever,

a certain lot or parcel of land situated on the proposed easterly side of Union Street in the City of Portland, County of Cumberland and State of Maine, being bounded and described as follows: Beginning at an iron on the proposed easterly side of Union Street, said iron being distant 14.50 feet easterly and at right angles to the present easterly side of Union Street and distant 82.00 feet northwesterly on the proposed sideline of Union Street from the northerly sideline of Fore Street; (said proposed line being 14.50 feet easterly and parallel with the existing easterly sideline of Union Street); thence by the said proposed sideline of Union Street northwesterly a distance of 135.00 feet to an iron; thence easterly at right angles to said proposed sideline of Union Street a distance of 157.00 feet to a point; thence southerly and at right angles to the last mentioned course a distance of 135.00 feet to an iron; thence westerly and at right angles to the last mentioned course a distance of 157.00 feet to the point of beginning.

Reference is made to the deed of Earle D. Reed, et al, to Grantor dated January 29, 1971, recorded in Cumberland County Registry of Deeds, Book 3158, Page 761, the deed of Stanley J. Leen Co., Inc. to Grantor dated March 30, 1971 and recorded in said Registry of Deeds in Book 3164, Page 456, and the deed of Grantee to Grantor recorded herewith.

Reference is further made to the deed of Grantor to City of Portland also so recorded, which deed conveys to said City land for the purpose of widening said Union Street, in which deed to said Union Street, a public way, as widened, is reserved as an appurtenance to the premises herein conveyed.

222



To have and to hold the same, together with all the
privileges and appurtenances thereunto belonging to
the said CENTRAL MAINE POWER COMPANY, its successors

heirs assigns forever.

And ~~Grantor~~ ^{successors} ~~es~~ ~~remains~~ with the said Grantee, its/ ~~heirs~~
and assigns, that it will Warrant and forever Defend the premises
to the said Grantee, its/ ^{successors} ~~heirs~~ and assigns forever,
against the lawful claims and demands of all persons claiming by,
through, or under it.

In Witness Whereof, the said CANAL NATIONAL BANK has caused this instrument to be sealed and executed by R. N. Walker and its Vice President hereunto duly authorized, wife of the said

Joining, doth its deed as grantor, and relinquishing and conveying its right by descent and all other rights in the above described premises, have hereunto set xxxxxxxx hand and seal this 31st day of October in the year of our Lord one thousand nine hundred and seventy-two.

Signed, Sealed and Delivered in presence of

R. N. Walker

CANAL NATIONAL BANK

By *R. N. Walker*
Its Vice President

State of Maine,
Cumberland

} ss.

203
October 31, 1972

Personally appeared the aboved named R. N. Walker of said Canal National Bank aforesaid,

and acknowledged the above instrument to be his free act and deed, in said capacity and the free act and deed of said corporation.

Before me,

R. N. Walker
Justice of the Peace.

NOV 3 1972
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 4 H 58 PM, and recorded in
BOOK 3821 PAGE 221

R. N. Walker
Register

*As
C. H. ...*

6

Quit-Claim Deed

(WITH COVENANT)

FROM

CANAL NATIONAL BANK

TO

CENTRAL MAINE POWER COMPANY

Dated _____, 19

State of Maine,

so, Registry of Deeds

Received NOV 3 1972, 19

at _____, M., and recorded in Book _____, Page _____.

ATTEST _____
Register.

FROM THE OFFICE OF
Verrill Dana Philbrick Putnam
& Williamson, 57 Exchange St.,
Portland, Maine 04111

No. 101 - ROBERTS OFFICE SUPPLY COMPANY
Portland, Maine

ACCOUNTING DEPT. NOTATIONS	
VOUCHER NO. <i>1-4126</i>	INITIALS <i>D.W.W.</i>
LEADY RECORDED	<i>W.P.</i>
PROPERTY RECORDS	<i>1/2/72</i>
LEDSLA	
REVENUE AUDIT	
FFO LICENSE PROJ	
EXEMPTION	<i>D.W.W.</i>

SEARCHED	
INDEXED	
SERIALIZED	
FILED	
NOV 3 1972	
REGISTRY OF DEEDS	
PORTLAND, MAINE	
REGISTER	<i>D.W.W.</i>

4-3-72

2005 11/11/01
CENTRAL MAINE POWER COMPANY

COPY

FOR YOUR INFORMATION

September 28, 1972

Mr. Wiggery Thomas, Jr.
Chairman of the Board
Canal National Bank
188 Middle Street
Portland, Maine 04111

Re: Relocation of Central Maine Power
Company's Plum Street Substation

Dear Wiggery:

As you may know, Mr. R. N. Walker from your Bank, together with your architect, Mr. Duff, and a representative of your contractor, Mr. Bouchard, met with our engineers last month to discuss replacing the proposed retaining wall on the south-easterly side of our new substation lot with a slope on your land on which you would plant decorative cedars, at our expense. We are willing to go along with this modification, with the understanding that if sometime in the future the Bank should want to remove the slope, it should be required, at its cost, to then install a retaining wall together with a decorative barrier, if we should deem the same reasonably necessary.

To attain these objectives, paragraph 4 of the letter agreement between your Bank and our Company should be amended. We would propose that existing paragraph 4 be deleted and a new paragraph 4 be added to read as follows:

CMP agrees that if its said substation lot is higher in elevation than CNB's land situated south-easterly of it to Fore Street, CMP, at its expense, shall provide a graded slope of earth all along the southeasterly line of its lot, but upon the land of CNB, such slope to be at a 30° angle or other angle acceptable to CNB.

CNB's developer shall, at CMP's cost, install and replace as necessary natural or other screening from time to time, such screening and costs to be subject to CMP's advance approval. CNB, or its successors, may remove the sloped earth on its said land for development purposes and shall provide, at its cost, a retaining wall together with a decorative barrier, if CMP deems such barrier reasonably necessary.

COPY

FOR YOUR INFORMATION

14003 12.00

CENTRAL MAINE POWER COMPANY

2

COPY

FOR YOUR INFORMATION

Mr. Wiggery Thomas, Jr.
September 28, 1972

If the above is acceptable to your Bank, we would appreciate your signing the attached copy of this letter and returning it to me.

Very truly yours,

Henry W. Mertens
Henry W. Mertens
Executive Vice President

AGREED TO:

CANAL NATIONAL BANK

By *W. D. ...*
Chairman of the Board

COPY

FOR YOUR INFORMATION



CANAL NATIONAL BANK

Widgery Thomas, Jr.
Chairman of the Board

Middle Street Office
188 Middle Street
Portland, Maine

May 31, 1972

Mr. Henry W. Mertons
Executive Vice President
Central Maine Power Company
9 Green Street
Augusta, Maine 04330

Dear Henry:

I am enclosing the signed Agreement of May 2nd,
for the re-location of the Central Maine Power
Company Plum Street Substation.

We greatly appreciate Central Maine Power's
cooperation in helping us with Canal Plaza.

Very truly yours,

Widgery
Chairman of the Board

WTJR./w

encl.

CENTRAL MAINE POWER COMPANY

General Office -- 9 Green Street -- Augusta, Maine 04330

May 2, 1972

Mr. Wiggery Thomas, Jr.
Chairman of the Board
The Canal National Bank
188 Middle Street
Portland, Maine 04111

Re: Relocation of Central Maine Power
Company's Plum Street Substation

Dear Wiggery:

This letter will serve to summarize the agreements made between The Canal National Bank ("CNB") and Central Maine Power Company ("CMP") concerning the relocation of CMP's Plum Street substation in Portland.

1. CNB will convey to CMP a parcel of land on the northeasterly side of Union Street to be used for the new substation lot. The new rectangular lot to be owned by CMP will measure 135.0 feet along Union Street and will be 157.0 feet deep, containing approximately 21,195 square feet. The side bordering Union Street will be the northeasterly line of Union Street as relocated in 1972. (This line is parallel to and approximately 10 feet from the northeasterly curbline established by the proposed 1972 reconstruction of Union Street.) The southerly corner of the premises will be 82.0 feet northwesterly from the intersection of said northeasterly line of Union Street and the northwesterly line of Fore Street. Excepted from this conveyance, of course, will be the land already owned by CMP that is within the limits of this lot.

2. Simultaneously with CNB's conveyance to CMP, CMP will convey to CNB that portion of its existing substation lot northeasterly of Union Street that is outside the limits of the new substation lot. Those portions are shown on the attached sketch as the area between the lines marked "P/L", where outside the lines of the new substation lot, and the lines of the new substation lot.

3. The following edge areas on the new substation lot will be used permanently for plantings and other means of screening:

- A. a 5-foot strip on the Exchange Street side;
- B. a 5-foot strip on the Spring Street side; and

Mr. Wildgery Thomas, Jr.
May 2, 1972

- C. a 15-foot strip for a total of 120 feet on the Union Street side (the 135-foot frontage less 15 feet for access).

The natural and other screening will be owned by and within the control of CMP. The natural screening will be installed and replaced as necessary from time to time by CNB's developer at CMP's expense but subject to CMP's advance approval both as to type and cost.

4. CMP will build a retaining wall approximately 4 feet high along the Fore Street side of the parcel conveyed to it by CNB in order to provide a relatively level substation area. CNB agrees and its developer will agree not to undermine or damage this wall in the development of the area between Fore Street and the wall, and CNB agrees and its developer will agree to reimburse CMP for any damages caused to said wall.

5. CMP, at the expense of CNB, will raze the existing buildings. At the option of CMP, the old meter shop, so-called, may be razed separately from the remaining portion of the buildings. CMP in connection with said razing will perform said work, including the deposit of rubble and fill in cellar holes and the erection of devices necessary to protect CMP's equipment, all in a manner satisfactory to CMP. Such work shall only proceed after CMP has received the bids of at least two demolition contractors, if possible, and CMP has chosen the lowest responsible bidder as its contractor therefor.

6. CMP will retain use of the existing ductway from Fore Street to the substation lot until such time as this ductway interferes with CNB's development of the area. When the ductway does interfere with the development of the area, CMP will relocate said ductway within six (6) months after receiving notice in writing to relocate, or, if municipal permits are required, the obtaining of said permits, whichever is later.

7. CNB will provide CMP with permanent vehicular access at all reasonable times to the Spring Street side of the substation lot in order to provide CMP with access necessary for the construction, reconstruction or maintenance of its equipment on the lot. During the construction period, with CMP's permission, such access way may be temporarily blocked for CNB's purposes. CMP also has CNB's permission for similar access to the Exchange Street side of the substation but CNB may revoke such permission when it or its developers choose to develop CNB's land on that side of said substation.

Mr. Wiggery Thomas, Jr.
May 2, 1972

8. CMP will cause its existing ductways along Plum Street to be vacated not more than six (6) months after the latest of the following dates: (a) the date when CMP is allowed to start work on relocating the Plum Street ductlines and cables; (b) the date when Spring Street and Union Street rights-of-way are available to CMP for ductlines and cables; (c) the date when an unobstructed substation site is available for construction; and (d) the date when CMP receives a deed to the property, as stated in paragraph 1, above.

9. CMP will have thirty-six (36) months after the latest of the dates specified as (a)-(d) in paragraph 8 in which to complete the reconstruction and removal of its substation to the new location, together with such further time as may be required for delays caused by acts of God, strikes, delays in delivery of equipment or materials, or by any other cause beyond CMP's reasonable control.

10. CNB will pay to CMP the amount of \$95,780.00 as the estimated reimbursement for CMP's costs for removal and reconstruction of its substation equipment. \$35,780.00 will be paid at the latest of the dates specified in (a)-(d) in paragraph 8; \$30,000.00 will be paid eighteen (18) months after said date; and \$30,000.00 will be paid when CMP has completed the removal and reconstruction.

If the above is your understanding, we would appreciate your signing the attached copy of this letter and returning it to me. With the agreement in hand, we can then have our lawyers draw the necessary deeds and any other agreement that may be necessary.

Very truly yours,

Henry W. Metters
Henry W. Metters
Executive Vice President

AGREED TO:

THE CANAL NATIONAL BANK

By *Wiggery Thomas, Jr.*
Chairman of the Board



CANAL NATIONAL BANK

Roger N. Walker
Vice President

Middle Street Office
188 Middle Street
Portland, Maine
04112

October 4, 1972

Mr. Seward B. Brewster
Attorney-at-Law
Central Maine Power Company
9 Green Street
Augusta, Me. 04330

Dear Mr. Brewster:

We are enclosing our check in the amount of \$35,780 in accordance with our Letter of Agreement dated May 2nd, 1972.

We are also enclosing a signed copy of the amendments to the letter of agreement dated September 28, 1972.

Sincerely,

R. N. Walker
Vice President

RNW/mw

encls.

Law Offices

AREA CODE 207 • 523-3525

NINE GREEN STREET • AUGUSTA, MAINE 04330

SEWARD B. BREWSTER
WILLIAM M. FINN

October 5, 1972

TO: N. M. Curtis
FROM: S. B. Brewster
SUBJECT: Plum Street Substation

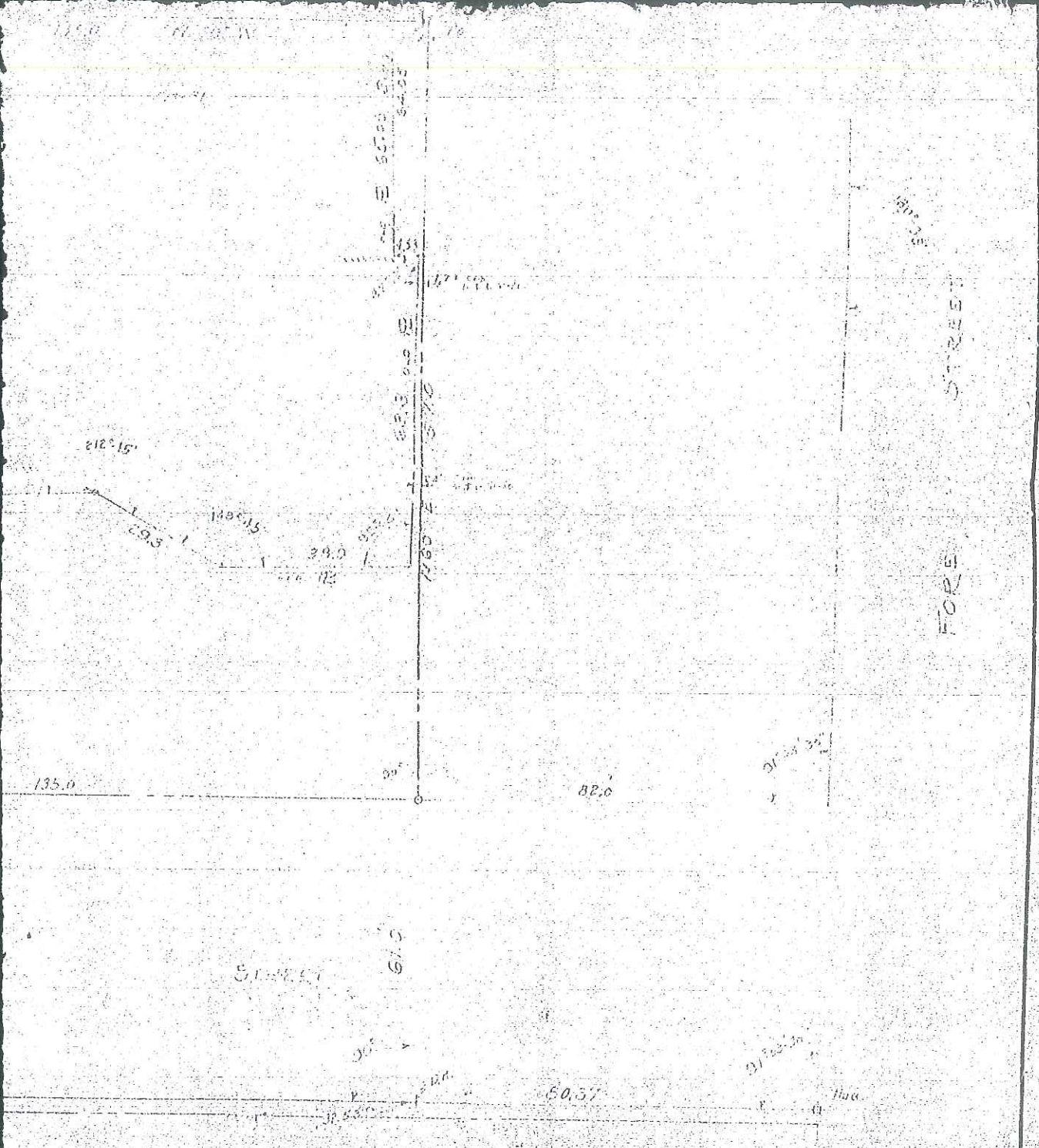
Attached are copies of letters received this morning from Roger Walker, Vice President of the Canal National Bank, together with the original of the Bank's expense check No. 30538, dated October 3, 1972, made payable to the order of Central Maine Power Company in the amount of \$35,780.00.

I am sending a signed copy of the amendment letter of September 28, 1972, to the General Files.

SBB/smf



cc: E. V. Gray
R. G. Ifill
H. W. Mertens
C. E. Monty
E. J. Surowiec
W. L. Worthing
General Files



BY	DATE	NO.	REVISION	DATE	BY
CKL		1	ADD 15' APPROX	4-27-72	ir
APPR.					
PROPERTY PLAN UNION ST. S/S LOT WITH PLUM ST. S/S LOT SUPERIMPOSED PORTLAND					
CENTRAL MAINE POWER COMPANY DEPARTMENT					
ENG. PREVIEW	WORK ORDER	ACCOUNT		SCALE 1"=20'	DATE 4-14-72
				SH. OF	SH. 547-1

FILE ROOM JUN 2 1972

ACCOUNTING DEPT. ROTATIONS	
	INITIALS
RESEARCH REC.	<i>DLK</i>
LEASE RECORDS	
PROPERTY RECORDS	<i>DLK</i>
LEDGER	<i>DLK</i>
SOFTWARE AUDIT	
OFF. LICENSE TAGS	
OFF. MAILER	<i>DLK</i>

SEARCHED	<i>DLK</i>
SERIALIZED	
INDEXED	<i>DLK</i>
FILED	<i>DLK</i>
JUN 2 1972	
FBI - [illegible]	

EXHIBIT 4
FINANCIAL AND TECHNICAL CAPABILITY

CMP FINANCIAL CAPACITY

The Union Street Substation upgrade will be financed by CMP and will be financially responsible for operation and maintenance of the transmission line.

CMP is a wholly owned subsidiary of IBERDROLA USA, a Spain-based holding company primarily engaged in the energy sector. Attached are recent Consolidated Financial Statements that provide an overview of the capital and financial resources of both CMP and its parent company. On December 31, 2011, IBERDROLA USA had book equity capital of \$3.4 billion and assets of \$11.4 billion on a consolidated basis. On December 31, 2011, CMP had a book equity capital of \$1.1 billion and assets of \$3 billion¹.

CMP has direct access to the debt capital markets under which it issues unsecured and secured long-term debt. On December 31, 2011, there was \$588 million in such debt outstanding at an average coupon of 5.34%. CMP's unsecured debt is rated BBB+ by S&P, Baa1 by Moody's, and A- by Fitch. CMP's secured debt is rated A- by S&P, A2 by Moody's, and A by Fitch.

CMP is a party to a joint revolving credit facility along with two other IBERDROLA USA regulated affiliate companies. CMP has access to up to \$350 million in short-term credit through this facility and is able to borrow at 1.05 basis points over the London Inter-Bank Offer Rate (LIBOR). LIBOR is a daily reference rate based on the interest rates banks offer to lend unsecured funds to other banks. LIBOR rates are widely used as a reference rate for financial instruments such as forward rate agreements, short-term interest rate futures, interest rate swaps, syndicated loans, etc. This facility currently has an expiration date in June 2016. As of February 2012, CMP established a commercial paper program with a limit of \$350 million. The joint revolving credit facility serves as the backstop to the commercial paper program. CMP has an inter-company credit facility with IBERDROLA USA that provides financing of up to \$500 million. As of December 31, 2011, CMP had a total of \$25 million of short term debt outstanding bearing an average interest rate of 1.17%. CMP has access to equity capital through the retention of earnings and from equity capital infusions from IBERDROLA USA.

TECHNICAL CAPABILITY

CMP has significant experience in the development of electric infrastructure projects, and will utilize staff capabilities and consultants for this effort. To support the proposed development, CMP has retained a team of highly qualified and experienced consultants and contractors to supplement its staff. CMP has not yet chosen the contractor that will build the various project components. CMP rigorously evaluates the credentials, capabilities, staff, and experience of the contractors they hire for this type of work. They also evaluate these same aspects of the subcontractors, which must be approved by CMP.

¹ CMP book values include Goodwill of \$325 million.

TRC is providing civil and electrical engineering and permitting support for this substation upgrade. TRC has over 25 years of experience working on all aspects of electrical power transmission and distribution in Maine. Experience includes environmental licensing for the Maritimes & Northeast Pipeline Project, the Bangor Hydro-Electric Company 345 kV Transmission Line Project, and design and construction management of several 115 kV transmission line and substation projects throughout the CMP service territory. Resumes for key TRC staff are attached.

EXHIBIT 4a

**CMP AND IBERDROLA USA
FINANCIAL STATEMENTS**

**Central Maine Power Company
and Subsidiaries**

Consolidated Financial Statements (Unaudited)
For the quarterly periods ended September 30, 2012 and 2011

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September 30, 2012 and 2011

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Central Maine Power Company
Consolidated Statements of Income (Unaudited)

Periods ended September 30,	Three Months		Nine Months	
	2012	2011	2012	2011
(Thousands)				
Operating Revenues				
Sales and services	\$182,857	\$165,458	\$457,322	\$446,569
Operating Expenses				
Electricity purchased	16,275	18,327	46,372	51,673
Other operating expenses	60,212	54,646	165,069	160,601
Maintenance	15,799	14,487	46,310	45,797
Depreciation and amortization	13,046	11,209	37,602	33,063
Other taxes	6,302	4,947	16,345	14,209
Total Operating Expenses	111,634	103,616	311,698	305,343
Operating Income	71,223	61,842	145,624	141,226
Other (Income)	(1,854)	(2,137)	(6,575)	(4,376)
Other Deductions	63	142	357	378
Interest Charges, Net	11,171	9,525	34,584	26,490
Income Before Income Taxes	61,843	54,312	117,258	118,734
Income Taxes	22,233	14,117	40,013	38,855
Net Income	39,610	40,195	77,245	79,879
Less: Net Income Attributable to Noncontrolling Interest	52	(54)	142	96
Net Income Attributable to CMP	39,558	40,249	77,103	79,783
Preferred Stock Dividends	9	33	93	99
Earnings Available for CMP Common Stock	\$39,549	\$40,216	\$77,010	\$79,684

Central Maine Power Company
Consolidated Statements of Comprehensive Income (Unaudited)

Periods ended September 30,	Three Months		Nine Months	
	2012	2011	2012	2011
(Thousands)				
Net Income	\$39,610	\$40,195	\$77,245	\$79,879
Other Comprehensive Income, Net of Tax	513	179	965	832
Comprehensive Income	40,123	40,374	78,210	80,711
Less: Comprehensive Income Attributable to Other Noncontrolling Interest	52	(54)	142	96
Comprehensive Income Attributable to CMP	\$40,071	\$40,428	\$78,068	\$80,615

Central Maine Power Company
Consolidated Balance Sheets (Unaudited)

	September 30, 2012	December 31, 2011
(Thousands)		
Assets		
Current Assets		
Cash and cash equivalents	\$3,361	\$3,115
Accounts receivable and unbilled revenues, net	151,194	181,123
Accounts receivable from affiliates	1,337	1,453
Materials and supplies, at average cost	14,860	11,853
Deferred income taxes	4,294	6,536
Prepayments and other current assets	19,921	13,845
Total Current Assets	194,967	217,925
Utility Plant, at Original Cost		
Electric	2,158,035	1,947,957
Less accumulated depreciation	647,176	625,750
Net Utility Plant in Service	1,510,859	1,322,207
Construction work in progress	687,169	548,958
Total Utility Plant	2,198,028	1,871,165
Other Property and Investments	9,780	10,144
Regulatory and Other Assets		
Regulatory assets		
Nuclear plant obligations	-	20,101
Unfunded future income taxes	227,158	220,072
Other postretirement employee benefits	8,242	9,528
Pension and other postretirement benefits	198,357	215,412
Other	75,757	72,376
Total regulatory assets	509,514	537,489
Other assets		
Goodwill	324,938	324,938
Other	21,698	18,185
Total other assets	346,636	343,123
Total Regulatory and Other Assets	856,150	880,612
Total Assets	\$3,258,925	\$2,979,846

Central Maine Power Company
Consolidated Balance Sheets (Unaudited)

	September 30, 2012	December 31, 2011
(Thousands)		
Liabilities		
Current Liabilities		
Current portion of long-term debt	\$37,375	\$55,334
Notes payable	58,990	19,800
Notes payable to affiliates	61,460	4,725
Accounts payable and accrued liabilities	81,644	126,723
Accounts payable, construction	105,380	110,110
Accounts payable to affiliates	6,431	20,465
Accounts payable, electricity purchased	24,368	20,925
Interest accrued	8,168	10,338
Taxes accrued	11,435	8,094
Other	55,800	63,812
Total Current Liabilities	451,051	440,326
Regulatory and Other Liabilities		
Regulatory liabilities		
Accrued removal obligation	89,485	100,020
Deferred income taxes	152,168	167,404
Pension benefit	8,678	14,750
Other	38,961	12,634
Total regulatory liabilities	289,292	294,808
Other liabilities		
Deferred income taxes	354,764	287,987
Nuclear plant obligations	-	13,431
Pension and other postretirement benefits	197,479	228,956
Other	20,713	33,081
Total other liabilities	572,956	563,455
Total Regulatory and Other Liabilities	862,248	858,263
Long-term debt	742,883	554,526
Total Liabilities	2,056,182	1,853,115
Commitments		
Preferred Stock		
Preferred stock	571	2,661
Common Stock Equity		
Common stock	156,057	156,057
Capital in excess of par value	613,893	613,893
Retained earnings	440,668	363,658
Accumulated other comprehensive loss	(10,386)	(11,351)
Total CMP Common Stock Equity	1,200,232	1,122,257
Noncontrolling Interest	1,940	1,813
Total Equity	1,202,172	1,124,070
Total Liabilities and Equity	\$3,258,925	\$2,979,846

Central Maine Power Company
Consolidated Statements of Cash Flows (Unaudited)

Nine months ended September 30,	2012	2011
<i>(Thousands)</i>		
Operating Activities		
Net income	\$77,245	\$79,879
Adjustments to reconcile net income to net cash provided by operating activities		
Depreciation and amortization	40,854	36,654
Amortization of regulatory and other assets and liabilities	(9,663)	4,515
Federal income taxes and investment tax credits deferred, net	46,031	92,604
Pension expense	12,121	7,896
Changes in current operating assets and liabilities		
Accounts receivable and unbilled revenues, net	15,015	(3,015)
Materials and supplies	(3,007)	(1,123)
Prepayments and other current assets	(32)	63
Accounts payable and accrued liabilities	(18,494)	33,077
Interest accrued	(2,170)	(727)
Taxes accrued	(4,030)	(58,275)
Other current liabilities	(1,503)	5,960
Pension and other postretirement contributions	(19,827)	(25,077)
Other assets	(17,505)	(18,283)
Other liabilities		
Transmission annual true up	39,181	-
Other	5,873	14,344
Net Cash Provided by Operating Activities	160,089	168,492
Investing Activities		
Utility plant additions	(432,946)	(336,599)
Grants received from governmental entities	9,272	24,410
Other property additions	(619)	-
Investments	288	(28)
Net Cash Used in Investing Activities	(424,005)	(312,217)
Financing Activities		
Issuances of first mortgage bonds	225,000	150,000
Repayments of first mortgage bonds	(52,500)	-
Repayment of preferred stock	(2,089)	-
Long-term note repayments	(2,064)	(27,044)
Notes payable three months or less, net	39,189	1,700
Notes payable to affiliates	56,735	-
Dividends preferred stocks	(93)	(99)
Dividends paid to noncontrolling interest	(16)	(16)
Net Cash Provided by Financing Activities	264,162	124,541
Net Increase (Decrease) in Cash and Cash Equivalents	246	(19,184)
Cash and Cash Equivalents, Beginning of Period	3,115	23,025
Cash and Cash Equivalents, End of Period	\$3,361	\$3,841

Central Maine Power Company
Consolidated Statement of Changes in Common Stock Equity (Unaudited)

	Common Stock		Accumulated			Total
	Outstanding Shares	\$ Par Value Amount	Capital in Excess of Par Value	Retained Earnings	Comprehensive Loss	
(Thousands)						
Balance, January 1, 2012	31,211	\$156,057	\$613,893	\$363,658	(\$11,351)	\$1,813
Net income attributable to CMP				77,103		142
Other comprehensive loss, net of tax					965	
Dividends						
Preferred stock				(93)		(93)
Dividends to noncontrolling interest						(15)
Balance, September 30, 2012	31,211	\$156,057	\$613,893	\$440,668	(\$10,386)	\$1,940
						\$1,202,172

Iberdrola USA, Inc.

Consolidated Financial Statements (Unaudited)

For the quarterly periods ended September 30, 2012 and 2011

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September 30, 2012 and 2011

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Iberdrola USA, Inc.
Consolidated Statements of Income (Unaudited)

Periods ended September 30, (Thousands)	Three Months		Nine Months	
	2012	2011	2012	2011
Operating Revenues	\$742,648	\$801,774	\$2,273,606	\$2,497,522
Operating Expenses				
Electricity purchased and fuel used in generation	190,515	259,163	499,964	701,520
Natural gas purchased	13,955	29,428	172,921	263,099
Other operating expenses	208,722	202,291	608,241	590,143
Maintenance	65,609	75,566	175,013	176,628
Depreciation and amortization	60,010	55,533	175,121	165,425
Other taxes	63,615	61,971	192,242	188,327
Total Operating Expenses	602,426	683,952	1,823,502	2,085,142
Operating Income	140,222	117,822	450,104	412,380
Other (Income)	(10,462)	(22,008)	(26,265)	(36,202)
Other Deductions	206	11,764	969	43,981
Interest Charges, Net	56,424	50,778	170,032	151,629
Income From Continuing Operations Before Income Taxes	94,054	77,288	305,368	252,972
Income Taxes	21,625	15,688	68,988	45,972
Income From Continuing Operations	72,429	61,600	236,380	207,000
Discontinued Operations				
Income on Discontinued Operations	104,317	6,775	133,365	12,577
Income Tax Benefit (Expense)	43,693	(7,884)	55,849	(5,613)
Income From Discontinued Operations	60,624	14,659	77,516	18,190
Net Income	133,053	76,259	313,896	225,190
Less:				
Preferred Stock Dividends of Subsidiaries, Noncontrolling Interests	9	132	662	396
Net Income Attributable to Other Noncontrolling Interests	409	334	992	1,297
Net Income Attributable to Iberdrola USA	\$132,635	\$75,793	\$312,242	\$223,497

Iberdrola USA, Inc.
Consolidated Statements of Comprehensive Income (Unaudited)

Periods ended September 30, (Thousands)	Three Months		Nine Months	
	2012	2011	2012	2011
Net Income	\$133,053	\$76,259	\$313,896	\$225,190
Other Comprehensive Income, Net of Tax	5,145	(83,691)	13,364	(3,062)
Comprehensive Income	138,198	(7,432)	327,260	222,128
Less:				
Preferred Stock Dividends of Subsidiaries, Noncontrolling Interest	9	132	662	396
Comprehensive Income Attributable to Other Noncontrolling Interests	409	334	992	1,297
Comprehensive Income Attributable to Iberdrola USA	\$137,780	(\$7,898)	\$325,606	\$220,435

Iberdrola USA, Inc.

Consolidated Balance Sheets (Unaudited)

	September 30, 2012	December 31, 2011
(Thousands)		
Assets		
Current Assets		
Cash and cash equivalents	\$27,769	\$65,862
Accounts receivable and unbilled revenues, net	502,649	612,619
Notes receivable from affiliates	109,000	-
Fuel and natural gas in storage, at average cost	61,098	78,741
Materials and supplies, at average cost	41,361	35,898
Deferred income taxes	62,346	74,189
Prepaid income taxes	102,706	9,813
Broker margin account	9,089	32,043
Prepayments and other current assets	143,840	100,852
Total Current Assets	1,059,858	1,010,017
Utility Plant, at Original Cost		
Electric	7,132,790	6,817,975
Natural gas	1,532,221	1,481,997
Common	577,798	567,218
	9,242,809	8,867,190
Less accumulated depreciation	3,231,560	3,167,250
Net Utility Plant in Service	6,011,249	5,699,940
Construction work in progress	993,293	849,095
Total Utility Plant	7,004,542	6,549,035
Other Property and Investments		
Other property and investments	124,991	139,043
Tax equity investments	417,217	420,856
Total Other Property and Investments	542,208	559,899
Regulatory and Other Assets		
Regulatory assets		
Nuclear plant obligations	17,329	50,256
Unfunded future income taxes	456,941	433,366
Environmental remediation costs	157,816	175,312
Unamortized loss on debt reacquisitions	33,848	37,473
Nonutility generator termination agreements	14,703	23,524
Natural gas hedges	8,007	36,435
Pension and other postretirement benefits	974,782	1,105,474
Other	430,294	364,841
Total regulatory assets	2,093,720	2,226,681
Other assets		
Goodwill	981,645	983,646
Derivative assets	607	158
Other	67,219	71,706
Total other assets	1,049,471	1,055,510
Total Regulatory and Other Assets	3,143,191	3,282,191
Total Assets	\$11,749,799	\$11,401,142

Iberdrola USA, Inc.
Consolidated Balance Sheets (Unaudited)

	September 30, 2012	December 31, 2011
(Thousands)		
Liabilities		
Current Liabilities		
Current portion of long-term debt	\$37,689	\$155,637
Notes payable	58,989	74,800
Accounts payable and accrued liabilities	344,055	479,245
Accounts payable, electricity purchased	58,324	62,936
Accounts payable, natural gas purchased	57,880	25,356
Interest accrued	31,257	30,550
Interest accrued on debt to affiliates	13,144	7,568
Taxes accrued	151,138	46,037
Derivative liabilities	9,170	40,237
Environmental remediation costs	53,341	50,258
Other	188,980	221,855
Total Current Liabilities	1,003,967	1,194,479
Regulatory and Other Liabilities		
Regulatory liabilities		
Accrued removal obligation	699,754	712,378
Deferred income taxes	438,054	486,507
Gain on sale of generation assets	46,978	44,945
Pension benefits	8,678	14,750
Positive benefit adjustments	84,159	124,416
Other	250,531	194,799
Total regulatory liabilities	1,528,154	1,577,795
Other liabilities		
Deferred income taxes	1,382,264	1,200,935
Nuclear plant obligations	122,101	135,473
Pension and other postretirement benefits	537,410	629,266
Environmental remediation costs	144,035	146,775
Derivative liabilities	-	8,346
Other	161,783	186,225
Total other liabilities	2,347,593	2,307,020
Total Regulatory and Other Liabilities	3,875,747	3,884,815
Long-Term Debt		
Other long-term debt	2,568,549	2,232,998
Long-term debt owed to affiliates	550,000	650,000
Total Long-Term Debt	3,118,549	2,882,998
Total Liabilities	7,998,263	7,962,292
Commitments and Contingencies		
Preferred Stock of Subsidiaries		
Redeemable preferred stock, noncontrolling interest	571	12,464
Iberdrola USA Common Stock Equity		
Common stock	-	-
Capital in excess of par value	2,009,101	2,009,101
Retained earnings	1,808,471	1,496,229
Accumulated other comprehensive loss	(80,694)	(94,059)
Deferred compensation	(8)	-
Total Iberdrola USA Common Stock Equity	3,736,870	3,411,271
Other Noncontrolling Interest	14,095	15,115
Total Equity	3,750,965	3,426,386
Total Liabilities and Equity	\$11,749,799	\$11,401,142

Iberdrola USA, Inc.

Consolidated Statements of Cash Flows (Unaudited)

Periods ended September 30,	2012	2011
(Thousands)		
Operating Activities		
Net income	\$313,896	\$225,190
Adjustments to reconcile net income to net cash provided by operating activities		
Depreciation and amortization	181,259	167,765
Amortization of regulatory and other assets and liabilities	17,692	96,746
Gain on sale of companies	(118,222)	(12,640)
Federal income taxes and investment tax credits deferred, net	101,013	149,092
Pension expense	59,507	45,158
Positive benefit adjustments including carrying costs	(40,257)	(61,922)
Changes in current operating assets and liabilities		
Accounts receivable and unbilled revenues, net	94,866	99,389
Inventory	12,180	(17,849)
Broker margin accounts	22,954	44,058
Prepaid income taxes	(23,551)	(3,570)
Prepayments and other current assets	(39,189)	(11,847)
Accounts payable and accrued liabilities	(22,870)	8,661
Interest accrued	707	4,953
Interest accrued on debt to affiliates	5,576	6,510
Taxes accrued	37,269	(188,766)
Other current liabilities	(25,970)	(16,131)
Pension and other postretirement contributions	(20,079)	(25,077)
VEBA withdrawal	7,800	16,304
Changes in other assets		
Deferred storm costs	(21,136)	(59,004)
Preliminary engineering	(6,615)	(4,745)
Nonbypassable charges	(12,386)	(2,857)
Other	(9,799)	67,084
Changes in other liabilities		
Constellation settlement	10,000	-
Transmission revenue true up	39,679	-
Other	(4,614)	(18,498)
Net Cash Provided by Operating Activities	559,710	508,004
Investing Activities		
Utility plant additions	(743,171)	(582,207)
Grants received from governmental entities	9,978	24,445
Proceeds from sale of companies	155,820	65,000
Other property additions	(86)	-
Other property sold	28	-
Notes receivable from affiliate	(550,000)	-
Repayment of notes receivable from affiliate	441,000	-
Investments available for sale	1,426	(32)
Net Cash (Used in) Investing Activities	(685,005)	(492,794)
Financing Activities		
Long-term note repayments	(257,420)	(220,492)
Long-term issuances	375,000	407,000
Repurchase of preferred stock	(11,893)	-
Notes payable three months or less, net	(15,811)	(142,575)
Dividends to other noncontrolling interest	(2,012)	(1,319)
Dividends paid on preferred stock of subsidiaries, noncontrolling interests	(662)	(396)
Net Cash Provided by Financing Activities	87,202	42,218
Net (Decrease) Increase in Cash and Cash Equivalents	(38,093)	57,428
Cash and Cash Equivalents, Beginning of Period	65,862	75,688
Cash and Cash Equivalents, End of Period	\$27,769	\$133,116

Iberdrola USA, Inc.
Condensed Consolidated Statements of Changes in Equity (Unaudited)

	Iberdrola USA Shareholder					Total
	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Noncontrolling Interests	Other Interests	
(Thousands, except per share amounts)						
Balance, January 1, 2012	\$2,009,101	\$1,486,229	(\$94,059)	\$15,115		\$3,426,386
Net income*		312,242		992		313,234
Other comprehensive income, net of tax			13,365			13,365
Comprehensive income*						326,599
Dividends to other noncontrolling interests				(2,012)		(2,020)
Balance, September 30, 2012	\$2,009,101	\$1,808,471	(\$80,694)	\$14,095	(\$8)	\$3,750,965

*Amounts do not include Preferred Stock Dividends of Subsidiaries. Noncontrolling Interests of \$662 for 2012.

**EXHIBIT 4b
KEY RESUMES**

GERARD R. BOIVIN, P.E.
SNC Lavalin Project Manager
Phone: (207)-626-9564
E-mail: gerry.boivin@cmpco.com

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer in the State of Maine
Registered Professional Engineer in the State of New Hampshire
Institute of Electrical and Electronic Engineers
Planning board for the town of Cumberland, Maine.

Twenty Five Years Total Experience including Transmission and Distribution, Fossil Electric Generation, Emissions Controls, Gas Electric Generation, Commercial Nuclear Power, Naval Ship Building, and the United States Navy Nuclear Program.

Fields of Expertise include Transmission and Distribution Systems, Distributed Control System Design, Power Generation Instrumentation and Control Logic Development, Power Plant Operations and Engineering/ Project Management.

Summary of Experience:

SNC-Lavalin Inc., March 2011-Present

- ***Program Manager***
 - Program manager of a multi million dollar Utility NERC Alert corrective action and implementation program.
- ***Project Manager***
 - Project manager of several multi million dollar Reinforcement Projects for Saco/ Old Orchard Beach, Portland, Midcoast, Skowhegan and Lakes Region.

CG Power Solutions/ MSE Power Systems Inc., April 2008-March 2011

- ***Senior Consultant***
 - Responsible for the development of Utility/ Wind Farm proposals to include job scoping, client and subcontractor interface and identification of new business opportunities; Interact extensively with existing clients to monitor current and anticipated needs for engineering services; Project Manager for various Utility Reliability Projects; Lead Project Engineer for wind farm projects.

Stantec Consulting Inc., 2000-April 2008

- ***Electrical & Instrumentation Department Manager***
 - Design Engineering Manager of 20-25 engineering and technical staff within the Electrical / Instrumentation Department. Duties included the development and maintenance of client relations, generate and oversee capitol cost estimates, performed engineering studies and project scope for various clients; provided project management and lead electrical design engineer services for numerous projects.

Bath Iron Works, 1999-2000

GERARD R. BOIVIN, P.E.
SNC Lavalin Project Manager
Phone: (207)-626-9564
E-mail: gerry.boivin@cmpco.com

➤ *Shipbuilder Lead System Engineer*

- Responsible for developing and maintaining ships configuration for the Machinery Control System (Electrical Distribution/ Propulsion/ Damage Control) and the Universal Engine Controller (Gas Turbines); Worked with the Government and Subcontractors to generate and promote new ideas/solutions to enhance the operation and reduce the construction and lifecycle costs for Naval Destroyers; Provided direct shipbuilder support to production personnel to ensure new shipboard design changes were completed in a timely and cost efficient manner.

Maine Yankee (1993-1997), CP&L (1997-1998), Millstone (1998-1999)

➤ *Commercial Nuclear Plant/ System Engineer*

United States Navy-Submarines, 1987-1993

SCOTT LIZOTTE, E.I.

EDUCATION

B.S., Civil Engineering, University of Maine Orono, May 2011

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Engineering Intern Certificate October 2010, Maine

AREAS OF EXPERTISE

Mr. Scott Lizotte, E.I., has program management and technical experience in the following general areas:

- Civil Design
- Civil Drafting

REPRESENTATIVE EXPERIENCE

Mr. Lizotte has over two years of experience and progressive responsibility in civil engineering consulting. His qualifications include extensive hands-on planning and design. Mr. Lizotte's background includes extensive service to public and private-sector clientele including Central Maine Power and Public Service of New Hampshire. He currently serves in the capacity of Civil Engineer.

Public Service of New Hampshire, Thornton 34kV Greenfield Substation Project – Merrimack, NH (Civil Engineer: 2011-2012)

Mr. Lizotte created loading worksheets for various substation structures and equipment. He designed pile supported foundations for substation structures and equipment. He reviewed engineering contractor's calculation submittals for accuracy and consistency. He also provided construction support for the field throughout construction process.

Central Maine Power Company, Maintenance Upgrade Project – ME (Civil Engineer: 2010 – 2011)

Mr. Lizotte was involved in the replacement of various structures and equipment at 15 substations throughout Maine. He designed slab and pier and footing reinforced concrete foundations. He designed steel structures to support substation equipment. He designed anchorage in accordance with ACI 318-08 Appendix D. He also provided pre-cast foundation design options for the client to accommodate an aggressive schedule.

SPECIALIZED TRAINING

- MathCad
- Mat3D
- Risa3D
- STAAD Pro
- AutoCAD

SCOTT J. MCKERNAN, EIT

EDUCATION

M.S., Mechanical Engineering, Naval Postgraduate School, 1990

B.S., Mechanical Engineering, University of Colorado, Boulder, 1982

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Engineer-In-Training, (#XE074681), California

AREAS OF EXPERTISE

Mr. Scott J. McKernan has technical and management experience in the following general areas:

- Project Management
- Program Management
- Project Scheduling
- Cost Estimating
- Facilities Engineering
- Contract Administration
- Manufacturing, Production & Industrial Engineering

REPRESENTATIVE EXPERIENCE

Mr. McKernan has over 28 years of experience and progressive responsibility in engineering, operational, facilities and systems management. He has proven performance in project/process planning and development, team building, and project management with execution within schedule, cost, and quality targets in both the public and private sectors. He currently serves as a Project Manager.

Central Maine Power Co., Union Street Substation Switchgear Replacement, Portland, ME (Project Manager: 2012-present)

Mr. McKernan serves as the Project Manager for a design, permitting, and construction management contract to replace the antiquated metal-clad switchgear assemblies in a highly space-constrained, urban substation with new gas-insulated switchgear and requisite below-grade assemblies.

Central Maine Power Co., Berwick Reinforcements Project Phases II and III, Berwick/Lebanon/Sanford, ME (Project Manager: 2011-present)

Mr. McKernan serves as the Project Manager for a multiple-site engineering, permitting, and commissioning contract for two new 34.5/12kV substations, expansion and substantive rebuild of a third 34.5/12kV substation, and two new 34.5kV transmission lines totaling approximately seventeen miles.

Central Maine Power Co., Portland/North Upgrade Project, Portland/Westbrook/Gray, ME (Project Manager: 2011-present)

Mr. McKernan serves as the Project Manager for a multiple-site engineering, permitting, and commissioning contract involving the physical expansion of the

Bishop Street Substation to include the addition of a 34.5kV/12kV transformer, three 34.5kV circuit breakers, control house, plus other associated equipment. This project also includes re-rating a four-mile section of one 34.5kV transmission line, and rebuilding nearly four miles of another 34.5kV line

Central Maine Power Co., Camden-Rockport Substation Upgrade Project, Portland/Rockland/Rockport, ME (Project Manager: 2011-present)

Mr. McKernan serves as the Project Manager for a two-site engineering and commissioning contract involving the addition of three 34.5kV capacitor banks with associated zero-crossing circuit breakers, a 34.5kV bay extension, plus other associated equipment and circuitry, at the Park Street and Meadow Road Substations.

Central Maine Power Co., Bowman Street Substation Project, Farmingdale, ME (Project Manager: 2011-2012)

Mr. McKernan served as the Project Manager for a single-site engineering and construction management contract involving the addition of a 115kV/34.5kV transformer, a 115kV circuit switcher, a 34.5kV circuit breaker, other associated equipment, relocation and reconnection of a section of transmission line, and significant expansion of the existing control house.

South Portland School Department, South Portland, ME (Facilities Director: 2010 – 2011)

Mr. McKernan led a school district Maintenance Department with 40 custodians and maintenance workers, and an annual operating budget of \$3.9 million. He managed all cleaning, maintenance, security, capital upgrade, environmental, inventory control, and energy management processes and functions for eight school buildings, their campuses and their associated distributed systems. During his tenure, Mr. McKernan successfully managed major capital improvement and district-wide energy efficiency improvement contracts worth approximately \$3.5 million to on-time and on-budget substantial completion and with no interference with on-going school operations.

Brunswick School Department, Brunswick, ME (Facilities Director: 2003-2010)

Mr. McKernan led a school district Facilities Department with 27 custodians and an average annual operating budget of \$4 million. He managed all cleaning, maintenance, security, capital upgrade, environmental, inventory control, and energy management processes and functions for eight school buildings, their campuses and their associated distributed systems. During his tenure, Mr. McKernan successfully managed numerous major capital improvement, district-wide energy efficiency improvement, and historic building conversion projects totaling over \$5 million. All were completed within extremely tight budgetary and operational constraints.

U.S. Navy - USS HARRY S. TRUMAN (CVN 75) (Chief Engineer: 2000- 2002)

Commander McKernan led the Engineering Department of a nuclear aircraft carrier consisting of 350 technicians and firefighters in the operation and maintenance of extensive fluid, electrical, climate control, hydraulic, cryogenic, firefighting and environmental protection systems and machinery. He directed all onboard safety, repair, maintenance, quality assurance programs. During his tenure, he managed a 66,000 man-day onboard repair project during a six-month shipyard maintenance period with all work done exclusively by ship's crew within strict operational constraints, and coordinated with the upgrade project work being done by Norfolk Naval Shipyard personnel at the same time.

Other Relevant U.S. Navy Experience:

- Commander McKernan co-managed, with his Bath Iron Works counterpart, the class-wide repair, maintenance, and material support program, worth over \$25 million per year, for 25 guided-missile destroyers homeported throughout the world. This groundbreaking joint government-industry was nominated for the Department of Defense Acquisition Innovation Award in 1999.
- Lieutenant Commander McKernan, as Deputy Chief Engineer for the Supervisor of Shipbuilding, Bath, ME, guided the department of 40 civilian engineers and designers through numerous performance, integration, and construction issues for fifteen new destroyers and the lead ship for a new class of amphibious warfare ship, with two of the destroyers delivered to the Navy ahead of schedule.
- Lieutenant Commander McKernan managed the in-country portion of a \$30 million project for the delivery, acceptance, and life-cycle support of ten U.S.-built patrol boats for the Royal Saudi Naval Forces, along with crew training and support facilities construction. This project was completed under budget and within schedule despite numerous logistical issues between the two countries.

SPECIALIZED TRAINING

- American Red Cross CPR and First Aid Certified
- Completed OSHA Asbestos Management and Operations Course, Environmental Management, Inc., Brunswick, ME
- Level III (Advanced) Acquisition Professional Certification (Manufacturing, Production, and Quality Assurance), U.S. Department of Defense

MICHAEL SMALLWOOD, PE

EDUCATION

B.S., Secondary Education, University of Maine, 1972

A.S., Electrical Power Technology, 1981

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer, Maine, (#10130), 2001

AREAS OF EXPERTISE

Mr. Michael Smallwood has technical experience in the following general areas:

- System Engineering Management
- Substation Design
- Protection and Control Design
- Procurement
- SCADA Design
- AC&DC Service Design

REPRESENTATIVE EXPERIENCE

Mr. Smallwood has over 28 years of experience and progressive responsibility in Engineering and Substation Design. His qualifications include extensive substation design, substation specifications, estimation of projects and budgeting. Mr. Smallwood currently serves in the capacity of Substation Engineer for the Substation Engineering and Design Support of the Power Delivery Engineering Division.

Central Maine Power Company, Augusta, ME – (Supervisor, System Engineering: 2008 – 2010)

Mr. Smallwood was responsible for the supervision of three Transmission Engineers and seven Protection and Control/Substation Design Engineers.

Central Maine Power Company, Augusta, ME – (Engineering Assistant III, Substation Designer, Lead Engineer in Substation Design: 1986 – 2008)

Mr. Smallwood's duties in Substation Design included the estimation of substation projects for CMP budget, customer and merchant plant requirements. He prepared the Substation Specifications and bid packages for the following: Unit Switchgear, Air Break and Disconnect Switches, Circuit Breakers, Substation Steel and Batteries, Yard Site Construction Contracts, Yard Electrical Equipment Installations and Control House Installations. He completed substation drawings for the following: general location plans, foundation plans, fence and grounding plans, conduit plans, general arrangement plans, sections and elevations, bill of materials lists, power line diagrams, area phasing diagrams and control house plans, elevations, and equipment installations. Mr. Smallwood procured substation yard equipment and was the Secretary of CMP's Substation Standards Committee for five years.

Central Maine Power Company, Augusta, ME – (Engineering Assistant I & II: 1981 – 1986)

Mr. Smallwood was responsible for design drawings for Protection and Control including Elementary (Schematic) Diagrams, Panel Wiring Diagrams and Front Views, Interconnection Diagrams, Three Line Wiring Diagrams, AC/DC wiring for substation control houses and yard equipment, SCADA and annunciator control wiring and was involved in hydro automation control wiring.

EXHIBIT 5a

**EXISTING CONDITIONS SURVEY and
PROPOSED CONDITIONS**

C-1 Existing Conditions Plan & Boundary Survey

C-2 Site Grading Plan

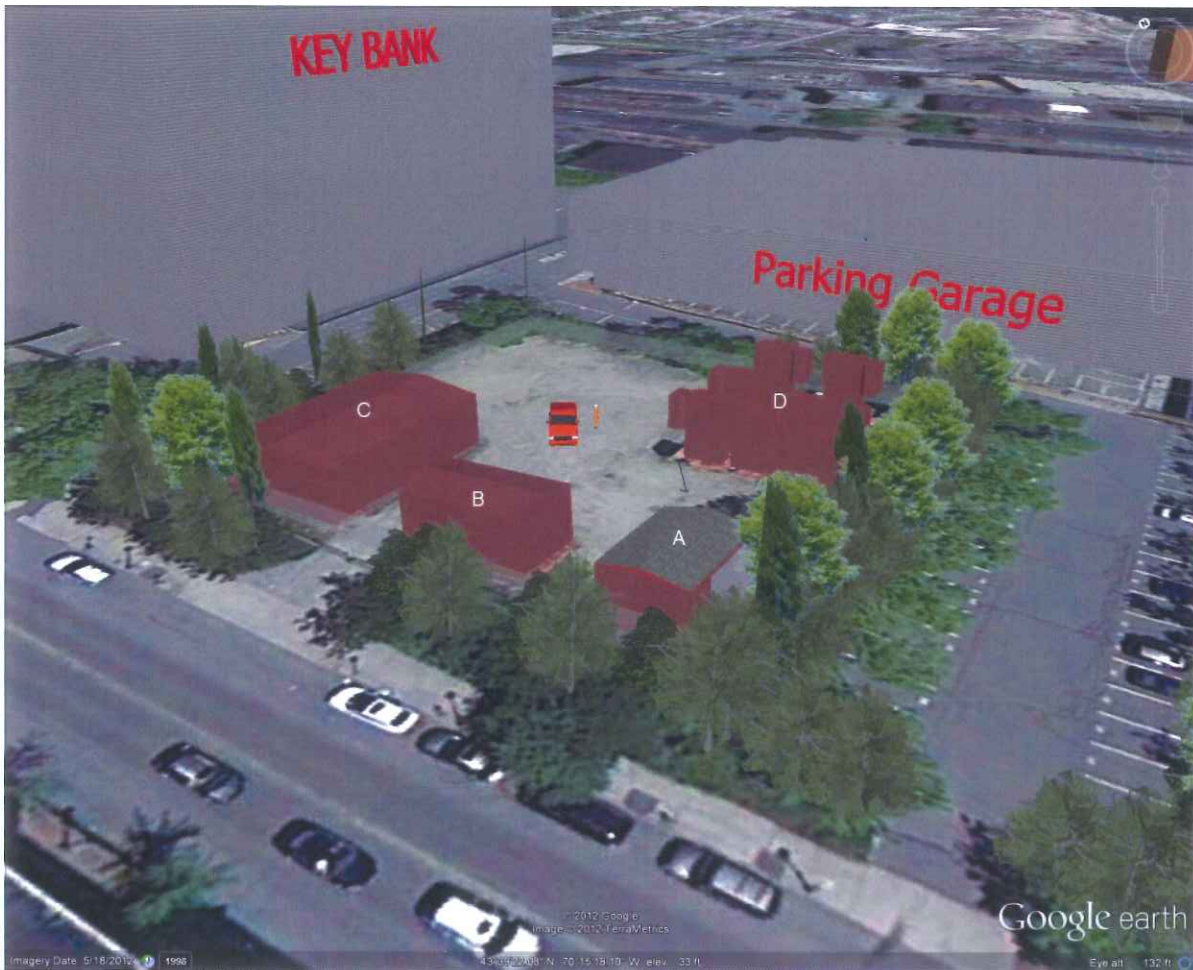
C-3 Sections and Details

C-4 Erosion Control Notes and Details

EXHIBIT 5b

**BIRD'S EYE VIEW OF THE EXISTING CONDITIONS
(for informational purposes only)**

*Central Maine Power Company
Union Street Substation
Portland, Maine*

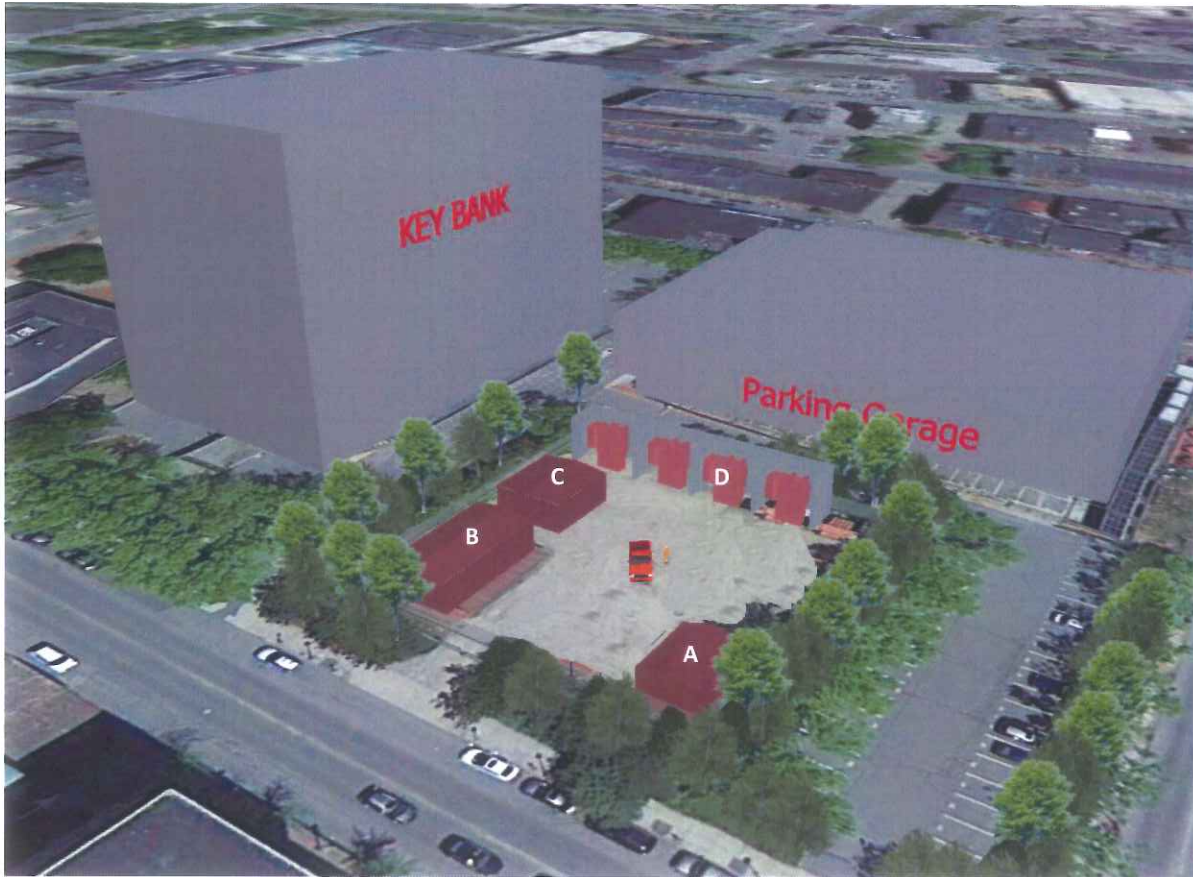


- A: Existing Control House
- B: Existing 11.5KV Switchgear
- C: Existing 34.5KV Switchgear
- D: Existing 12KV Switchgear and Transformers

EXHIBIT 5c

**BIRD'S EYE VIEW OF THE PROPOSED CONDITIONS
(for informational purposes only)**

*Central Maine Power Company
Union Street Substation
Portland, Maine*



- A: Existing Control House
- B: New 11 kV & 12 kV Switchgear
- C: New 34.5 kV Switchgear
- D: New Transformer Locations and Firewall System

EXHIBIT 6a
STORMWATER MANAGEMENT SUMMARY

STORMWATER MANAGEMENT REPORT

UNION STREET SUBSTATION IMPROVEMENTS

**33 Union Street
Portland, ME**

Prepared for

**Central Maine Power Company
83 Edison Drive
Augusta ME 04336**

Prepared by

**TRC
249 Western Avenue
Augusta, ME 04330
(207) 621-7000
Project # 183112**

March 2013



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1. INTRODUCTION.....	1
A. Project Location	1
2. EXISTING CONDITIONS	1
A. General Topography.....	1
B. Land Cover	1
C. Soil Types.....	1
D. Surface Water on or Abutting the Site	1
3. METHODOLOGY	1
A. Curve Number Comparison	2
B. Basic standards.....	2
4. CONCLUSION	2

APPENDICES:

- A. CALCULATIONS
- B. STORMWATER MANAGEMENT PLANS AND DETAILS
- C. STORMWATER INSPECTION AND MAINTENANCE LOG

1. INTRODUCTION

A. Project Location

The Union Street Substation is located at 33 Union Street on a 0.50 acre parcel owned by Central Maine Power. Substation yard upgrades will involve building renovations, equipment replacement, and some demolition work. There will also be improvements to the grounding grid and replacement of the existing surface materials. The four existing transformers will be placed along the east side of the yard.

The property is bounded by Union Street to the West, a parking garage to the East, a parking lot to the South and a commercial building to the North.

2. EXISTING CONDITIONS

A. General Topography

According to the site survey, the high point of the parcel is about elevation 36 feet NGVD. This occurs on the northeastern corner of the substation parcel. The low point, about elevation 30 feet NGVD, occurs at the southwestern corner of the property boundary. The property generally slopes from north to south, with slopes ranging from 1% to a steep portion at 34%.

B. Land Cover

The substation parcel is comprised mostly of a gravel substation yard with some trees along the perimeter of the site.

C. Soil Types

Soil types on the project site are derived from the USDA-NRCS Soil Survey of Cumberland County, Maine January 2009.

The following soils are located within the project boundaries:

Soil Symbol	Soil Name	Hydrologic Group
HIB	Hinkley gravelly sandy loam	A

D. Surface Water on or Abutting the Site

There are no water bodies within the area of proposed development. The site generally drains from north to south where it drains off site in the southwest corner of the property. The runoff is either infiltrated into the yard surface or directed and then collected by an on-site catch basin.

3. METHODOLOGY

A curve number comparison analysis is used to demonstrate the site's runoff characteristics from pre-development conditions to the post-development conditions. The following resources were incorporated into the computations:

1. Site topographic survey and existing conditions survey by TRC, October 2011
2. Surficial Soils of Cumberland County, Maine, USDA-NRCS
3. Site reconnaissance by TRC personnel in April, 2011

A. Curve Number Comparison

The runoff curve numbers were developed from Appendix A-12: "Runoff Curve Numbers for use in TR-55 and TR-20" of the MDEP *Maine Stormwater Best Management Practices Manual, Volume III* and HydroCAD, based on the observed cover types and hydrologic soil groups.

B. Basic standards

Erosion and sedimentation control measures will be implemented and maintained per the Maine Erosion and Sedimentation Control BMP's during substation construction. Stabilization measures for the site will include temporary and permanent erosion and sedimentation controls; revegetation of disturbed areas; and provisions for future maintenance of the site. These treatment practices will be used to reduce the impacts of site runoff on downstream water quality.

Central Maine Power will be responsible for the inspection and maintenance of the stormwater management system after construction is completed. A Stormwater Management System Inspection and Maintenance log is included in **Appendix C**.

4. CONCLUSION

The information in this report demonstrates that, as proposed, the Union Street Substation will meet the stormwater management requirements of the City of Portland as well as the Maine DEP. It has been shown that the substation yard surface and existing stormwater features will provide treatment a collection of runoff from the site. The curve number analysis shows that the post developed weighted curve number for the site is slightly higher than that of the pre-developed weighted curve number, thus signifying a negligible increase in runoff.

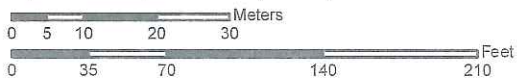
APPENDIX A

CALCULATIONS


















Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(Union Street Substation)



Map Scale: 1:978 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)
Soils		Soil Map Units
Soil Ratings		A
		A/D
		B
		B/D
		C
		C/D
		D
		Not rated or not available
Political Features		Cities
Water Features		Streams and Canals
Transportation		Rails
		Interstate Highways
		US Routes
		Major Roads
		Local Roads

MAP INFORMATION

Map Scale: 1:978 if printed on A size (8.5" x 11") sheet.
The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.
Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 7, Jan 8, 2009

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Cumberland County and Part of Oxford County, Maine (ME005)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Cu	Cut and fill land	C	1.6	37.6%
HIB	Hinckley gravelly sandy loam, 3 to 8 percent slopes	A	2.7	62.4%
Totals for Area of Interest			4.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified



Tie-break Rule: Higher



249 Western Avenue
 Augusta, ME 04330
 207.621.7000 PHONE
 207.621.7001 FAX
 www.TRCSolutions.com

PROJECT:	CMP - Union Street Substation
Project No:	183112.0000.0000
Subject:	Curve Number Comparison
Calculated By:	PGT
Checked By:	DTB
Date:	March 15, 2013
Revised Date:	

Assumptions:

Runoff curve numbers for cover types as referenced from Table 2-2c USDA, 1986, Urban Hydrology for Small Watersheds: TR55.
 Land cover types as referenced from existing conditions survey October 2011.
 Soil types and hydrologic soil groups are referenced from the USDA web soil survey for Cumberland County Dated 1/8/09

Determine the weighted curve number (CN)

Pre-development

Cover Description	Land Area (square feet)	Land Area % of total	CN	Product of CN x Area
Open space, Poor, HSG A	3918	18.486%	68	266424
Gravel area, HSG A	13216	62.357%	76	1004416
Impervious areas, building and foundations	3579	16.887%	98	350742
Pavement, HSG A	481	2.270%	98	47138
Total site =	21194	100.00%		1668720
Total Weighted CN :				79

Post-development

Cover Description	Land Area (acres)	Land Area % of total	CN	Product of CN x Area
Open space, Poor, HSG A	3918	18.486%	68	266424
Gravel surface, HSG A	12458	58.781%	76	946808
Impervious areas, building and foundations	4337	20.463%	98	425026
Pavement, HSG A	481	2.270%	98	47138
Total site =	21194	100.00%		1685396
Total Weighted CN :				80

APPENDIX B

STORMWATER MANAGEMENT PLANS AND DETAILS

APPENDIX C

STORMWATER INSPECTION AND MAINTENANCE LOG

CMP Union Street, Portland				
Stormwater Management System Inspection & Maintenance Log				
	Schedule		Inspector Initials and Date	Inspector Comments
	Quarterly Inspection	Maintenance		
Paved Access Driveway:				
Inspect driveway surface and remove sand/sediment as necessary.	X	As Required		
Repair pavement as necessary.		As Required		
Substation Surface:				
Inspect stone surface for irregularities in the surface due to snow plowing or other stone displacement. Re-grade areas as necessary.	X	As Required		
Inspect for yard any rutting, trash or vegetation. Remove and correct as necessary.	X	As Required		
Catch Basin:				
Inspect catch basin grate. Remove excessive sediments and debris from the catch basin inlet grate.	X	As Required		
Remove excessive sediments and debris from the bottom of catch basin and piping.	X	As Required		

EXHIBIT 6b
OIL CONTAINMENT SYSTEM, SPCC
PLAN, AND MONITORING



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ETHEL BALDACC
DIRECTOR

DMC
CC

June 5, 2008

Roy Koster
Central Maine Power
83 Edison Drive
Augusta, ME 04336

RE: DEP Stormwater Management Regulations and how they apply to
Central Maine Power Company Substations and Switchyards

Dear Mr. Koster:

I am writing to provide clarification on how substations and switchyards designed by Central Maine Power Company (CMP) can meet DEP Stormwater Management rules, Chapter 500 and the Site Location of Development Law. This letter supersedes a previous DEP letter on this subject dated February 29, 2008 and is a follow-up to further discussions between CMP and DEP staff.

Based on the report prepared by John Simon of Balance Engineering, dated March 8, 2008, regarding the stormwater runoff coefficient at CMP substations and switchyards, the required gravel fill and surface nature of these structures performs differently than most common construction practices and a modeling variance will be allowed for CMP substations and switchyards as follows:

When Flooding Standard requirements apply to a CMP project, modeling must demonstrate that peak runoff from the substation structure does not exceed predevelopment flow rates at the property line. Because of the permeability plus storage within the gravel fill and roughness of the crushed rock surface, the curve number (CN) specified in John Simon's report (March 2008) may be used for the substation area. As reported, a CN of 55 may be used for substations and switchyards that are built on areas that are mapped as HSG "A", "B", and "C", and a CN of 60 must be used when the area is mapped as HSG "D" for the HydroCAD model. However, all impervious surfaces will have to be added for an averaged curve number.

The General Standards of Chapter 500 (water quality) will be considered as met by the CMP substation/switchyard design specifications as long as the structure includes the typical CMP substation profile overlaying the natural ground surface. The soil layers within the CMP substation profile consist of 4 inches of crushed stone, 50:50 mix of 1.5"

USTA
STATE HOUSE STATION
USTA, MAINE 04113-0007
287-7885 FAX: (207) 287-7826
BLDGL. HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
1001940450 FAX: (207) 9404594

PORTLAND
312 CANOE ROAD
PORTLAND, MAINE 04103
(207) 822-6100 FAX: (207) 822-6000

PRESQUE ISLE
1315 CENTRAL DRIVE, SKYW
PRESQUE ISLE, MAINE 04769
(207) 764-9477 FAX: (207) 769

and 0.75" diameter stone overlaying 18 inches or more of gravel fill, MDOT 703.06 Type A. Saturation within the granular fill will detain and provide treatment for the one-inch design standard under that requirement. Groundwater can never be any higher than 18 inches below the top of the gravel fill. Other treatment considerations will need to be provided for all impervious structures anticipated on the substation and switchyard and for the roadway.

The Basic Standards of Chapter 500 (erosion and sedimentation control, inspection and maintenance, and housekeeping) will be met by the standard CMP substation and switchyard design specification and erosion control/construction plan as developed by CMP for each Stormwater Management application. These are minimum erosion control measures that will need to be maintained until the site is fully stabilized. However, based on site and weather conditions during construction, additional erosion control measures may be needed.

While there are several ways to approach the design standards discussed above, these must be considered the minimum requirements in meeting the Stormwater Management and Site Location of Development Laws. However, in some situations where the local hydrology and site conditions warrant more resource protection, additional BMPs may be required. Also, the access drive and associated roadside swales are included in the disturbed area for permitting purposes and the treatment of these areas must be addressed separately from the substation or switchyard and be treated with standard practices. The natural hydrology of these areas will need to be maintained and will have to meet all applicable standards as established in Chapter 500 (page 11, Section 5).

I hope this addresses your request and will make the DEP permitting process more straight forward. If you have further questions, please contact Marianne Hubert at (207) 287-4140.

Sincerely,



Don Witherill, Director
Watershed Management Division
Bureau of Land and Water Quality

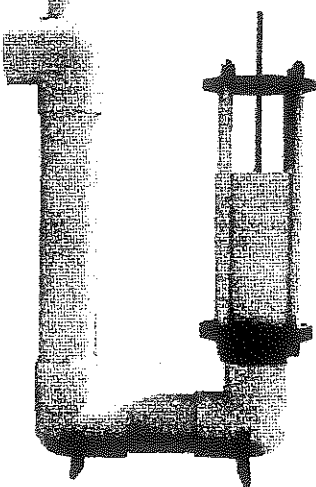
Cc: Marianne Hubert, PE, DEP program manager
Andy Fisk, DEP L&W Bureau Director
Dan Butler, PE, TRC
Gerry Mirabile, CMP



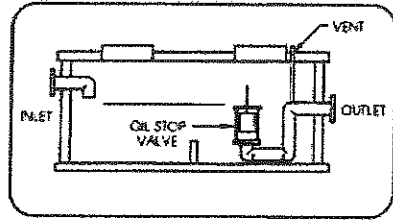
AFL Industries Inc.

OIL STOP VALVES

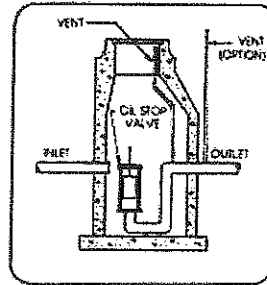
If you would like more information please fill out a [LITERATURE REQUEST FORM](#).

TYPICAL APPLICATIONS	FEATURES	
<ul style="list-style-type: none"> • Oil/Water separators • Oil interceptors • Catch basins 	<ul style="list-style-type: none"> • Gravity operation • Single moving part • Large flow capacity • Self-opening • Corrosion resistant construction • Sizes: 4", 6", 8", 10", & 12" • Flow rates to 1400 GPM through a single valve 	<p data-bbox="771 982 901 1050">Oil stop valve employs oil/water gravity differential to prevent discharge of oil spill.</p> 

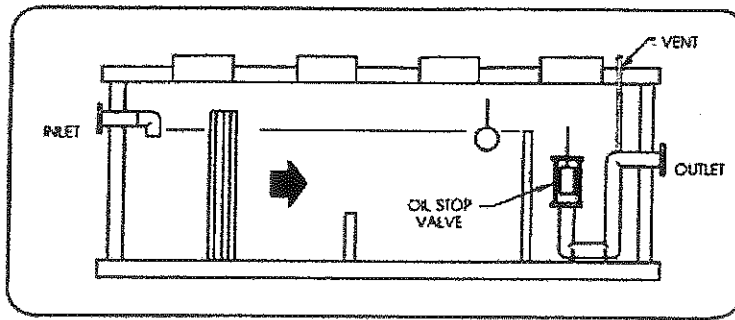
AFL Oil Stop Valve



OIL INTERCEPTOR



CATCH BASIN



OIL/WATER SEPARATOR

WALSH, LONG & COMPANY, INC.

25 South Washington Street

Naperville, IL 60540

Phone: (630) 527-9933 - Fax: (630) 527-0097

HOME

EXHIBIT 7

**POSSIBLE REPLANTING PLAN
(Provided for Discussion Purposes)**

*Central Maine Power Company
Union Street Substation
Portland, Maine*

Suggested Landscape Planting Using “Street Hardy” Trees (assume 250-foot length to be replanted which includes 50-foot length of new plantings in sparse areas. (BB = balled and burlapped).

Species	Size	Quantity	Unit Cost	Subtotal
Hedge maple (<i>Acer campestre</i>)	2-2.5” dia, BB	10	\$250	\$2,500
Rocky Mountain Glow (<i>Acer gradidentatum</i>)	2-2.5” dia, BB	10	\$300	\$3,000
Leprechaun ash (<i>Fraxinus pensylvanicum</i>)	2-2.5” dia, BB	10	\$300	\$3,000
<i>Ginkgo biloba</i>	2-2.5” dia, BB	10	\$325	\$3,250
Tea Crabapple (<i>Malus hyphensis</i>)	3-3.5” dia, BB	10	\$250	\$2,500
Bayberry (<i>Myrica pensylvanica</i>)	3-4’ tall, BB	10	\$75	\$750
Emerald green arborvitae (<i>Thuja occidentalis smaragd</i>)	8-10’ tall, BB	10	\$200	\$2,000
Subtotal Cost (Assumed 250 linear feet, with 5-foot spacing)				\$17,000
Installation				\$10,000
Total Cost				\$27,000

EXHIBIT 8
NON-CONDUCTIVE SECURITY FENCE



**UNION ST SWITCHGEAR REPLACEMENT
NON-CONDUCTIVE FENCE SYSTEM**

SECTION 32 31 00
Revision 00
Date: 3/14/2013

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Fence framework, fabric, and accessories
 - 2. Excavation for post bases
 - 3. Concrete foundation for posts and center drop gates
 - 4. Manual gates and related hardware

1.02 RELATED SECTIONS

- A. Section 03 30 10 – Cast-in-Place Concrete
- B. Section 03 41 02 – Miscellaneous Precast Concrete
- C. Section 28 05 53 – Identification for Electrical Equipment Safety & Security – Substation Markers & Labels.

1.03 REFERENCES

- A. Manufacturer's Certified Test Reports attesting the level of non-conductivity

1.04 SYSTEM DESCRIPTION

- A. Work includes layout and installation of substation security fence and gates. Also included is miscellaneous fences and fence related appurtenances. Fencing system specifically designed and tested to be non-conductive to electricity for providing a safe and secure barrier around electrical substation locations.
- B. Fence line layout, gate location and fence dimensional information is provided on the project drawings. Fence component dimension are provided in this specification and project drawings.

1.05 SUBMITTALS

- A. Fence Installer Qualifications: Submit name, address, references, and general qualifications of the firm responsible for the fence installation.
- B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
- C. Placement Drawings: Include plans, elevations and sections showing construction, installation and fasteners.
- D. Product Data: Submit data on fabric, posts, accessories, fittings, hardware and method of joining non-conductive materials.

- E. Manufacturer's Installation Instructions: Submit installation requirements.
- F. Submit As-Built details of fence, gate(s), locations & details of terminal posts (end, corner, pull and gate), and their respective foundation(s). Record and submit information as required under Section 01 00 00 - General Requirements.

1.06 QUALITY ASSURANCE

- A. At time of submittal, certified test results must be presented confirming non-conductivity.
- B. Field measurements shall be taken prior to submittal of final shop drawings and fabrication.
- C. Each product type shall be the same and be made by the same manufacturer.
- D. The Non-Conductive Fence shall be capable of sustaining a horizontal load of 1500 pounds.
- E. Perform Work in accordance with State, local and Owner requirements.

1.07 COORDINATION

- A. Grading-Ensure site grading is ready to accommodate fencing work before setting fence posts. Coordinate the start of the fence installation with the site work Contractor.

1.08 QUALIFICATIONS

- A. Manufacturer shall be a company regularly engaged in the manufacture of fence and fence components of a non-conductive fencing system.
- B. Installer shall be a company specializing in performing work of this section with minimum three (3) years experience, or having provided similar services on Owner projects and acceptable to the Owner.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be protected against damage from weather, vandalism, and theft. In the event of freight damage, note freight bill and contact manufacturer immediately.
- B. Care shall be taken when storing materials to insure and prevent damage from excessive or uneven storage and or damage to the finish.
- C. Store fence materials in secure and dry place, off of ground and protected from weather and construction traffic.
- D. Do not install damaged material.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. The Electrically Non-Conductive panels shall conform to material specifications as manufactured by Alabama Metal Industries Corporation (AMICO), Birmingham, AL. Security Products Department: Telephone 800/366-2642 or approved equal.

2.02 MATERIALS

- A. The materials and accoutrements for this fencing system are unique. All panels, fittings and methods of securing are of a design implemented for the purpose of creating an electrically non-conductive barrier. All design, construction and components shall be approved by the owner's grounding engineer to meet the desired level of non-conductivity. Construction and design of the fence shall comply with the non-conductive fence manufacturer's recommendations and be approved by the owner's grounding engineer. Common materials not manufactured specifically for a non-conductive fence are NOT acceptable for this work.
- B. Color of materials shall be dark gray.
- C. The finish shall not rust or corrode.

2.03 PANELS

- A. Non-Conductive Panel Style as noted on drawing(s) (ANC 1.0-1.75).

2.04 NON-CONDUCTIVE FRAMEWORK

- A. 100 percent non-conductive construction shall only incorporate non-conductive materials for posts and supports members as required. Color shall be dark gray.
- B. Line posts shall be an H-Type post 6-inches x 4-inches x 2-inches with a minimum thickness of 0.375-inches.
- C. Gate posts shall be 12-inches x 12-inches x 1/2-inch H-Posts.

2.05 METHODS OF ATTACHMENT

- A. 100 percent non-conductive construction shall only incorporate non-conductive materials for posts, gates, supports, fittings and fasteners as supplied by the manufacturer.

2.06 SWING GATES

- A. Gates shall be manufactured from the same non-conductive mesh panels and materials as specified above.

- B. Gate sizes and locations shall be noted on the drawings.
- C. Gate hinges and bolts securing the gate members shall be galvanized steel.
- D. Gates shall be the same height as the fence.

2.06 FABRICATION

- A. Exposed joints will butt tight and flush.
- B. Verify dimensions on site prior to shop fabrication.

2.07 CONCRETE PRODUCTS

- A. Post Foundation Concrete: Provide 3000 psi minimum 28-day compressive strength concrete for post foundations in accordance with 03 30 10 – Cast-In-Place Concrete.
- B. Gate Concrete Thresholds: Contractor shall supply and install precast concrete threshold as shown on Contract Drawings & specified in 03 41 02 – Miscellaneous Precast Concrete.
 - 1. Threshold shall include a gate stop cast integral with the unit.
 - 2. Contractor shall provide rigid insulation and prepare site accordingly to accept thresholds.
- C. Non-Shrink Grout: ASTM C1107, quick set expansive hydraulic cement grout designed for exterior post setting in rock. Free of chlorides and metallic aggregates.
 - 1. 5000psi, 28-day minimum compressive strength as determined in accordance with ASTM C109.
 - 2. Polymer modified or epoxy grouts designed for application may also be used with Owner approval.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordinate post setting, and guidelines for installation of materials with other trades.
- B. Installation and lay-out of the job shall be approved by the owner or general contractor prior to installation.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's drawings and direction.
- B. Fit materials together to form tight joints except as necessary for expansion and change in grade.
- C. Perform cutting, drilling, and fitting required for installation.

UNION ST. SWITCHGEAR REPLACEMENT
NON-CONDUCTIVE FENCE SYSTEM

SECTION 32 31 00
REVISION 00
DATE: 3/14/2013

- D. The ANC Fence must be installed using AMICO non-conductive panels and fittings.
 - E. Vertical joints must be staggered on the ANC 1.0-1.75 mesh panels.
 - F. Follow the cutting, sealing and safety information as recommended by the manufacturer.
 - G. Posts shall be plumb, spaced and installed as noted on drawings.
- 3.03 CLEANING
- A. The contractor shall be responsible to clean up the jobsite of any unused materials and trash.
 - B. Post hole excavations shall be scattered uniformly away from posts.

END OF SECTION


[Home](#)
[Products](#)
[Secura Clips](#)
[Literature](#)
[Contact AMICO](#)
[Specs](#)

ANC Non-Conductive Fence System®

AMICO introduces the ANC Non-Conductive Fence System® that allows the security barrier to be non-conductive (does not conduct electricity or allow induced voltage) and it greatly reduces radar reflectivity (microwave transmissions). Designed for new or the retrofit of existing fencing.

Features:

- Mesh Pattern Allows for Generous Air Flow
- Mesh has minimum 70% open area
- Mesh sizes range from 1/2" - 2"
- Can provide medium / maximum level of security
- Only non-conductive components used
- Non-magnetic
- Corrosion Resistant
- Fire retardant
- Withstands ultraviolet rays
- Easy to install
- Light weight
- Low maintenance



[Download brochure](#)

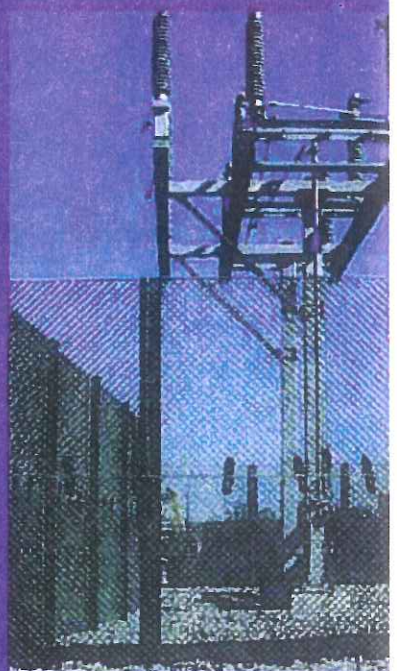
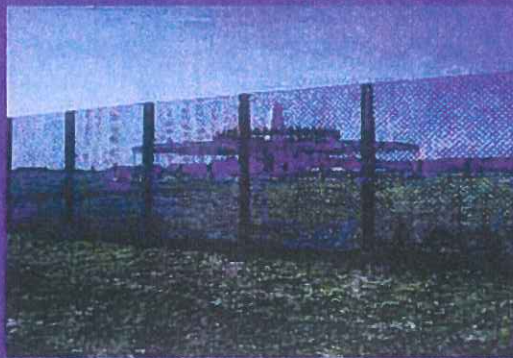
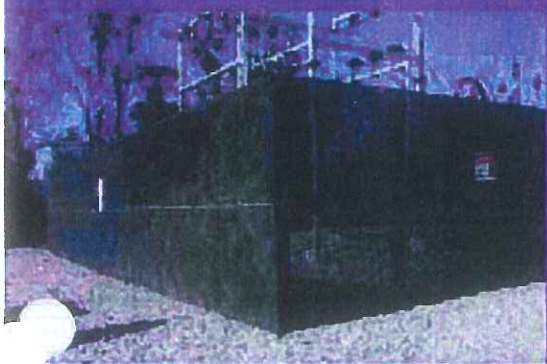
ANC 1.0-1.75, ANC .50-2.25, 09206, 09 29 00

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A GIBRALTAR INDUSTRIES COMPANY 

AMICO

ANC NON-CONDUCTIVE FENCE SYSTEM



ANC COMPOSITE FENCE SYSTEM™

Non-Conductive Fencing

Alabama Metal Industries Corporation, AMICO, produces the ANC Composite Fence System™. The ANC System™ is a revolutionary concept that allows the security barrier to be non-conductive (does not conduct electricity) and invisible to radar (microwave transmissions).

AMICO continues to introduce and improve physical security products with many added features. The ANC System is no exception. This composite fence system is also:

Non-Magnetic
Fire Retardant
Corrosion Resistant

and available in either Medium or Maximum Security.

The System

For ease of new construction and the retrofit of existing fences the basic components have been designed to be similar to standard fencing. Utilizing the AMICO network of Certified and Approved Dealer/Installers we can recommend skilled installers throughout the United States and Canada. Since the system is not made of metal the weight per square foot is much lighter than steel yet almost as strong. Typical ANC Composite Panels are capable of sustaining impact loads in excess of 2,000 lbs.

Materials

The ANC Composite Fence System utilizes panels, posts, fittings and fasteners all made from materials proven to be non-conductive and invisible to microwaves.

Panels

Panels are manufactured in two standard sizes; 3-ft x 12-ft long and 4-ft x 12-ft long.

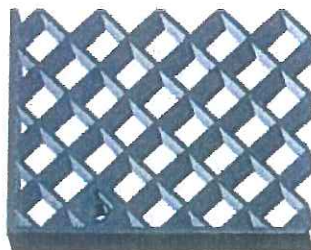
Standard Stock Panel Sizes		
Style	High	Wide
ANC 1.0-1.75	3'	12'
ANC 1.0-1.75	4'	12'
ANC .50-2.25	3'	12'
ANC .50-2.25	4'	12'

The 3 and 4-ft sizes provide barriers 6-ft high through 15-ft high. The 12-ft panel width allows ease of installation and added strength with each panel spanning on three posts.

Panels are available with different size openings. The different opening sizes of the panels allow for different levels of security.



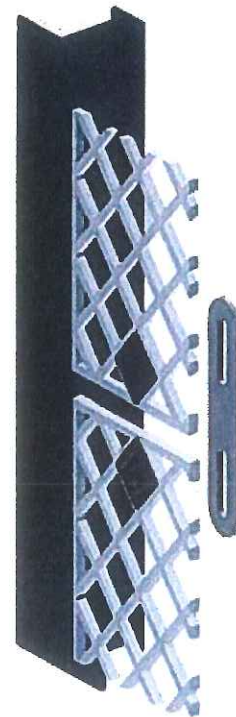
ANC .50-2.25 Medium Security



ANC 1.0-1.75 Maximum Security
Dark gray is the standard color



CMP will use this model with one 4' and two 3' tall panels for a total height of 10'.



Isometric view of H-Post, ANC Panels, Panel Plugs and Back Straps.



For more information on our security products, visit www.amico-securityproducts.com or call 800/366-2642.

ANC COMPOSITE FENCE SYSTEM™

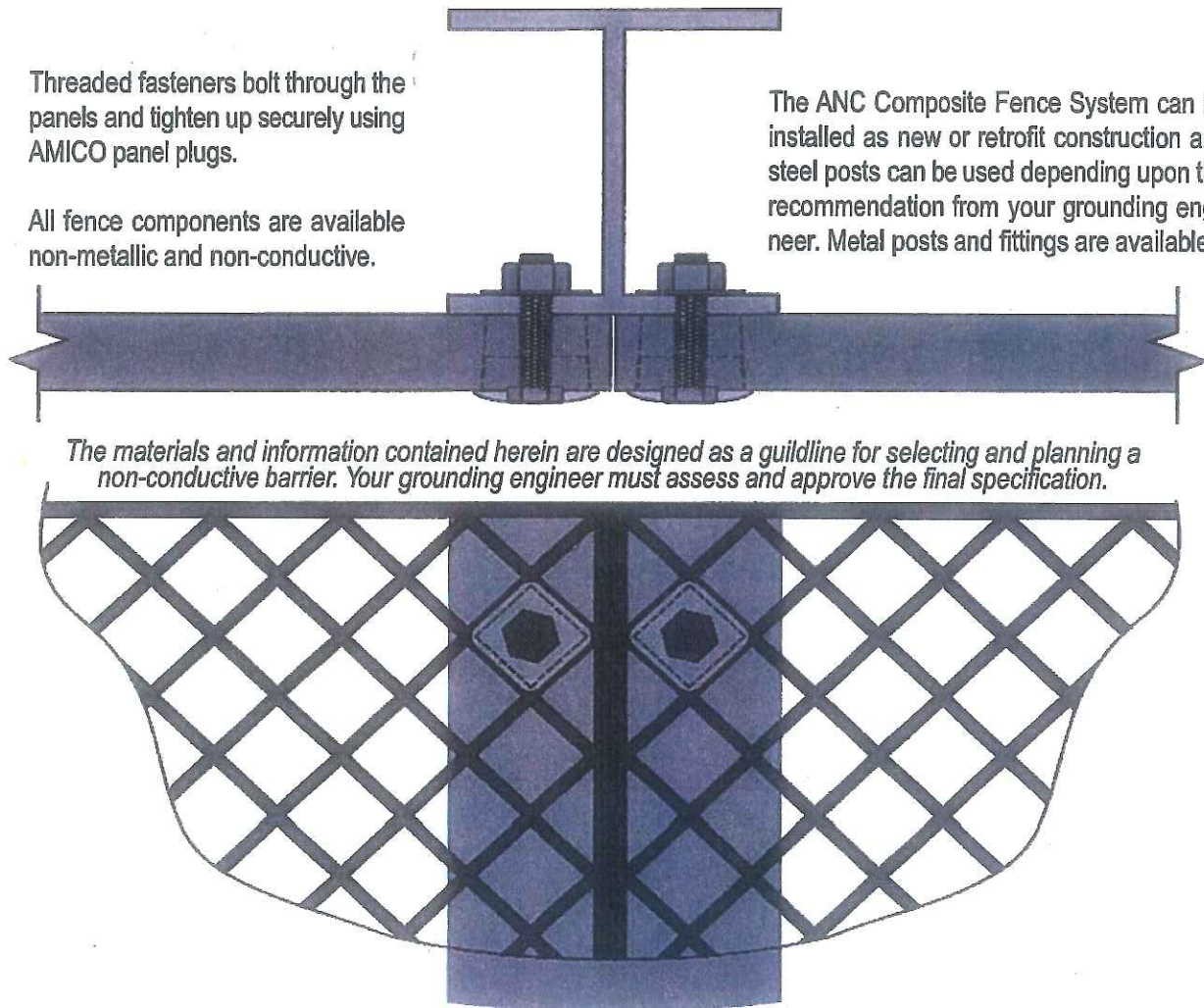
Non-Conductive Fencing

The ANC Composite Fence System™ combines non-conductivity and security into an easy to install solution for the energy industry, air and marine transportation

Threaded fasteners bolt through the panels and tighten up securely using AMICO panel plugs.

All fence components are available non-metallic and non-conductive.

The ANC Composite Fence System can be installed as new or retrofit construction and steel posts can be used depending upon the recommendation from your grounding engineer. Metal posts and fittings are available.



The materials and information contained herein are designed as a guideline for selecting and planning a non-conductive barrier. Your grounding engineer must assess and approve the final specification.



Blocks wind and air flow



Provides Safety and Security



Height Not a Problem

For more information on our security products, visit www.amico-securityproducts.com or call 800/366-2642.



ANC COMPOSITE FENCE SYSTEM™

Non-Conductive Fencing

PART 1 - General

1.01 DESCRIPTION OF WORK

Included work not limited to the supply and installation of an electrically non-conductive / radar invisible barrier as specified below.

1.02 SUBMITTALS

Product Data: Submit manufacturers' specifications, ANC Non-Conductive Fencing literature and samples as required prior to ordering.

1.03 QUALITY ASSURANCE

Certified and Approved Dealer / Installers shall provide experienced installation crews to install the non-conductive / radar transparent fencing system as specified.

1.04 STORAGE AND HANDLING

Materials shall be stored in such a manner to ensure proper ventilation, drainage and to protect against damage from weather, vandalism and theft. In event of any freight damage, note damage on the freight bill and contact manufacturer immediately.

PART 2 - PRODUCTS

2.01 MANUFACTURER AND ACCEPTABLE PRODUCT

The Electrically Non-Conductive mesh panels shall conform with material specifications as manufactured by Alabama Metal Industries Corporation (AMICO), Birmingham, AL. Security Products Department: Telephone 800/366-2642

2.02 MATERIALS

The materials used to manufacture the non-conductive / radar transparent fence system are not covered under any ASTM standard at this time. The materials and accoutrements for this fencing system are unique. All panels, fittings and methods of securing are of a design impletened for the purpose of creating an electrically non-conductive and or transparent to electromagnetic wave (radar transparent) barrier. All design, construction and components shall be approved by the owner's grounding engineer to meet the desired level of non-conductivity and electromagnetic wave transparency.

2.03 NON-CONDUCTIVE FENCING

A. NEW AND RETROFIT CONSTRUCTION

Depending upon grounding conditions and requirements new non-conductive fence panels may be installed utilizing either non-conductive framework or schedule 40 / SS-40 steel framework. For grounding purposes the fittings and fasteners securing panels to the framework shall be the same material as the framework; non-conductive or steel.

B. Existing metal fence framework may be incorporated into the non-conductive fence. Existing fence posts of a suitable strength and height may be reused to install AMICO non-conductive panels, metal fittings and metal fasteners. Any existing chain link fabric, barbed wire or barbed tape must be removed since these metal items will conduct electricity throughout the fence line.

2.04 RADAR TRANSPARENT FENCING NEW CONSTRUCTION

With the intent of being invisible to radar and microwave transmissions; all panels, posts, fittings, fasteners and accoutrements shall be non-metallic.

2.05 FINISH

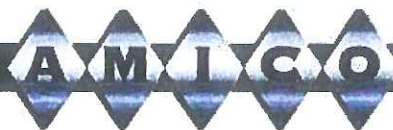
The thru color finish does not require painting. Standard colors are dark gray and green. The finish will not rust or corrode.

PART 3 - Execution

3.01 INSTALLATION

- A. Installation and lay-out of the job shall be approved by the owner or general contractor prior to installation.
- B. ANC Fencing must be installed using AMICO non-conductive panels and fittings.
- C. Fence post spacing shall be spaced to allow each panel to join on a post. If two or more panels are used to attain a certain barrier height the panels ends shall be staggered for added strength and security.

QUALITY PRODUCTS SINCE 1924



ALABAMA METAL INDUSTRIES CORPORATION

ALABAMA METAL INDUSTRIES CORPORATION

3245 Fayette Avenue u Birmingham, AL 35208

800/366-2642 u Fax 205/786-6527

For information on other AMICO physical security products

Secura Fence System® - Security Mesh® - Secura Lath® - Secura Mesh Partition System® and Ornamesh®

see our website www.amico-securityproducts.com

ANC COMPOSITE FENCE SYSTEM™

ANC .50 - 2.25

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Included work not limited to the supply and installation of an electrically non-conductive / reduced radar reflective barrier as specified below.

1.02 SUBMITTALS

Product Data: Submit manufacturers' specifications, ANC Non-Conductive Fencing literature and samples as required prior to ordering. Prior to ordering test certified test results shall be submitted providing the documented ability of the fence system to prevent the transmission of electricity through the system for electric utility applications and the level of radar reflectivity for airport installation. Further, horizontal load deflection test results shall be submitted.

1.03 QUALITY ASSURANCE

Certified and Approved Dealer / Installers shall provide experienced installation crews to install the ANC Fence System as specified.

1.04 STORAGE AND HANDLING

Materials shall be stored in such a manner to ensure proper ventilation, drainage and to protect against damage from weather, vandalism and theft. In event of any freight damage, note damage on the freight bill and contact manufacturer immediately.

PART 2 - PRODUCTS

2.01 MANUFACTURER AND ACCEPTABLE PRODUCT

The Electrically Non-Conductive mesh panels shall conform with material specifications as manufactured by Alabama Metal Industries Corporation (AMICO), Birmingham, AL. Security Products Department:

Telephone 800/366-2642 or email ancfence@gibraltar1.com

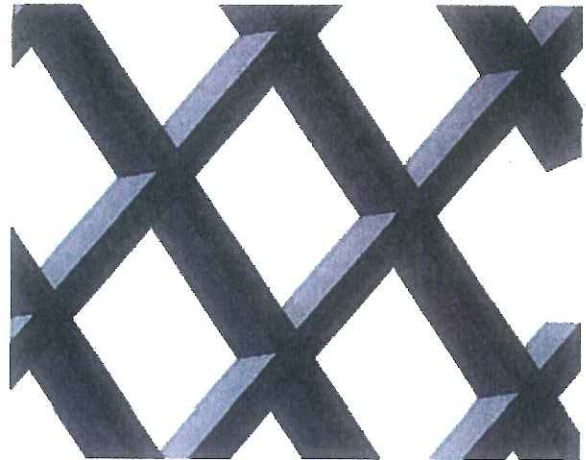
2.02 MATERIALS

The materials and accoutrements for this fencing system are unique. All panels, fittings and methods of securing are of a design implemented for the purpose of creating a barrier that does not conduct electricity and greatly reduces the barriers radar signature. All design, construction and components shall be approved by the owner to meet the desired level of non-conductivity and electromagnetic wave transparency.

A. ANC COMPOSITE FENCE PANELS - ANC .50 - 2.25

The ANC Mesh used shall conform to the following specification:

1. Width of panel - 12 ft.
2. Height of panel - 3 ft and 4 ft.
3. Mesh diamond opening - 2.25 inch x 2.25 inch nominal allowing 72% open area
4. Mesh thickness - 0.500 inch nominal
5. Weight - 1.36 pounds per square foot
6. Standard Color - Dark Gray



2.03 ELECTRICAL UTILITY NON-CONDUCTIVE FENCING

A. NEW AND RETROFIT CONSTRUCTION

Depending upon grounding conditions and requirements new non-conductive fence panels may be installed utilizing either non-conductive framework or schedule 40 / SS-40 steel framework.

B. Existing metal fence framework may be incorporated into the non-conductive fence. Existing fence posts of a suitable strength and height may be retrofitted using AMICO non-conductive panels, metal fittings and metal fasteners. Any existing chain link fabric, barbed wire or barbed tape must be removed since these metal items will conduct electricity throughout the fence line.

2.04 RADAR AND AIRPORT APPLICATIONS NEW CONSTRUCTION

All panels, posts, fittings, fasteners and accoutrements used with the intent of minimizing the radar signature of the barrier shall be non-metallic.

2.05 FINISH

The thru color finish does not require painting. The standard color is dark gray. Request information on custom colors. The finish will not rust or corrode.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation and lay-out of the job shall be approved by the owner or general contractor prior to installation.

B. ANC Fencing must be installed using AMICO non-conductive panels, fittings and installed by AMICO Certified and Approved Dealer / Installers.

C. Where possible fence post spacing shall be spaced to allow each panel to join on a post. If two or more panels are used to attain a certain barrier height the panels ends shall be staggered for added strength and security.

D. Follow the fittings usage tables for each type of application whether the application be 100% Non-Conductive non-metallic or using steel framework to assure safety and security.

E. Cutting, sealing and safety information is available upon request from the manufacturer.

ANC COMPOSITE FENCE SYSTEM™

ANC 1.0 - 1.75

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Included work not limited to the supply and installation of an electrically non-conductive / reduced radar reflective barrier as specified below.

1.02 SUBMITTALS

Product Data: Submit manufacturers' specifications, ANC Non-Conductive Fencing literature and samples as required prior to ordering. Prior to ordering test certified test results shall be submitted providing the documented ability of the fence system to prevent the transmission of electricity through the system for electric utility applications and the level of radar reflectivity for airport installation. Further, horizontal load deflection test results shall be submitted.

1.03 QUALITY ASSURANCE

Certified and Approved Dealer / Installers shall provide experienced installation crews to install the ANC Fence System as specified.

1.04 STORAGE AND HANDLING

Materials shall be stored in such a manner to ensure proper ventilation, drainage and to protect against damage from weather, vandalism and theft. In event of any freight damage, note damage on the freight bill and contact manufacturer immediately.

PART 2 - PRODUCTS

2.01 MANUFACTURER AND ACCEPTABLE PRODUCT

The Electrically Non-Conductive mesh panels shall conform with material specifications as manufactured by Alabama Metal Industries Corporation (AMICO), Birmingham, AL. Security Products Department:

Telephone 800/366-2642 or email ancfence@gibraltar1.com

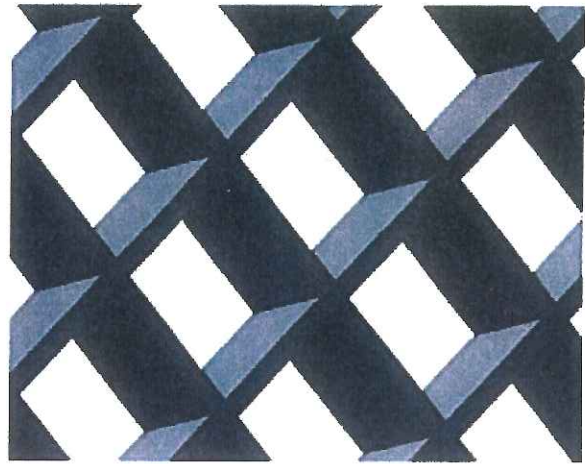
2.02 MATERIALS

The materials and accoutrements for this fencing system are unique. All panels, fittings and methods of securing are of a design implemented for the purpose of creating a barrier that does not conduct electricity and greatly reduces the barriers radar signature. All design, construction and components shall be approved by the owner to meet the desired level of non-conductivity and electromagnetic wave transparency.

A. ANC COMPOSITE FENCE PANELS - ANC 1.0 - 1.75

The ANC Mesh used shall conform to the following specification:

1. Width of panel - 12 ft.
2. Height of panel - 3 ft and 4 ft.
3. Mesh diamond opening - 1.75 inch x 1.75 inch nominal allowing 68% open area
4. Mesh thickness - 1.000 inch nominal
5. Weight - 2.36 pounds per square foot
6. Standard Color - Dark Gray



2.03 ELECTRICAL UTILITY NON-CONDUCTIVE FENCING

A. NEW AND RETROFIT CONSTRUCTION

Depending upon grounding conditions and requirements new non-conductive fence panels may be installed utilizing either non-conductive framework or schedule 40 / SS-40 steel framework.

B. Existing metal fence framework may be incorporated into the non-conductive fence. Existing fence posts of a suitable strength and height may be retrofitted using AMICO non-conductive panels, metal fittings and metal fasteners. Any existing chain link fabric, barbed wire or barbed tape must be removed since these metal items will conduct electricity throughout the fence line.

2.04 RADAR AND AIRPORT APPLICATIONS NEW CONSTRUCTION

All panels, posts, fittings, fasteners and accoutrements used with the intent of minimizing the radar signature of the barrier shall be non-metallic.

2.05 FINISH

The thru color finish does not require painting. The standard color is dark gray. Request information on custom colors. The finish will not rust or corrode.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation and lay-out of the job shall be approved by the owner or general contractor prior to installation.

B. ANC Fencing must be installed using AMICO non-conductive panels, fittings and installed by AMICO Certified and Approved Dealer / Installers.

C. Where possible fence post spacing shall be spaced to allow each panel to join on a post. If two or more panels are used to attain a certain barrier height the panels ends shall be staggered for added strength and security.

D. Follow the fittings usage tables for each type of application whether the application be 100% Non-Conductive non-metallic or using steel framework to assure safety and security.

E. Cutting, sealing and safety information is available upon request from the manufacturer.