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June 15, 2007

VIA HAND-DELIVERY

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **DOCKET NO. 327** The Connecticut Light and Power Company Application for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance, and Operation of a Proposed Substation Located Off of Commerce Park Drive, Oxford, Connecticut

Dear Chairman Caruso:

In connection with the above-referenced docket, enclosed please find an original and twenty (20) copies of the Memorandum in Support of Application and Proposed Findings of Fact. Copies of these documents will also be filed electronically.

Very truly yours,

Marianne Barbino Dubuque

MBD/pam
Enclosures

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

NORTHEAST UTILITIES SERVICE COMPANY, ON BEHALF OF THE CONNECTICUT LIGHT AND POWER COMPANY (CL&P) CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A PROPOSED SUBSTATION LOCATED OFF OF COMMERCE PARK DRIVE, OXFORD, CONNECTICUT	:	DOCKET NO. 327
	:	JUNE 15, 2007

THE CONNECTICUT LIGHT & POWER COMPANY'S
MEMORANDUM IN SUPPORT OF APPLICATION

I. INTRODUCTION

An application by The Connecticut Light & Power Company ("CL&P") for a Certificate of Environmental Compatibility and Public Need for the Oxford Substation was filed on December 15, 2006 with the Connecticut Siting Council ("Council"). In its application, CL&P proposes to construct a new substation in an industrial zone in Oxford, Connecticut to be called the Oxford Substation (the "Substation"). The Substation will add capacity in response to the increasing demand for electricity in Oxford and its surrounding area and will improve electric distribution system reliability. (CL&P 1, Vol. 1, Sec. A)

The proposed project will include the construction of a new electric power 115 to 13.8-kV substation, the construction of an access drive from a new Town road associated with the Oxford Commerce Park, now known as Commerce Drive (formerly designated by the Town of Oxford as Commerce Park Drive), and the construction of three new wood-pole transmission line structures to connect the Substation to one existing 115-kV transmission line. (CL&P 1, Vol. 1, Sec. A) CL&P has designed the Substation in a manner that minimizes potential environmental and visual effects and has incorporated measures to ensure the protection of existing resources during construction and operation of the Substation facilities. (CL&P 1, Vol. 1, Sec. A)

CL&P has proposed to construct the Substation on its property located north of Jacks Hill Road, east of Christian Street, and west of North Larkey Road, in Oxford, Connecticut (the "Property"). CL&P purchased the Property along with an easement over an adjacent property in 2005. That acquisition was supported by the Town of Oxford and approved by the Council (Docket No. 304) under CGS §16-50z(a) and Regulations of Connecticut State Agencies §16-50z-1-4. (CL&P 1, Vol. 1, Sec. A)

Based on the existing conditions of the Property and the Substation's design, the construction and operation of the Substation is not expected to have significant permanent adverse effects on the environment. CL&P has incorporated measures into all phases of

Substation development and implementation to ensure that the environment is protected in accordance with Federal, State and local requirements. (CL&P 1, Vol. 1, Sec. L)

(a) Statutory Criteria

The criteria for issuing a certificate for an electric power substation or switchyard, as described in CGS §16-50i(a)(4); i.e. one designed to change or regulate the voltage of electricity at 69 kV or higher, or to connect two or more circuits at such voltage which may have substantial environmental effect, is found chiefly in CGS §16-50p(a)(3)(A) – (C). Such criteria includes public need for the facility and the basis for that need, the nature of the environmental impact alone and cumulatively with other existing facilities and why the adverse effects are not sufficient reasons to deny the application.

(b) CL&P Met All Filing Prerequisites

Pursuant to CGS §16-50*l*(e), beginning on October 2, 2006, which was at least 60 days before filing the Application, CL&P undertook a detailed and formal Municipal Consultation with Oxford. (CL&P 1, Vol. 1, Sec. O) During the period prior to filing the application with the Council, CL&P also consulted with the Oxford Conservation Commission/Inland Wetlands Agency ("CC/IWA") and the Oxford Planning and Zoning Commission ("P&Z"), and filed substation Location Approval applications with each commission. (CL&P 1, Vol. 1, Sec. O) Both land-use agencies approved the location of the project. (CL&P 1, Vol. 2, App. K)

Notices were provided to abutting property owners and Notice of the Application was published in the *Connecticut Post* in accordance with CGS §16-50*l*(b). (CL&P 1, Vol. 1, Sec. Q) Service of the Application was made on all state and local officials and agencies described in CGS §16-50*l*(b). (CL&P 1, Vol. 1, Sec. Q) A duly noticed hearing was held by the Council in the Oxford Town Hall, 486 Oxford Road, Oxford, Connecticut, on May 16, 2007 at 3:30 p.m. and 7:05 p.m. (Tr. 1; Tr. 2)

II. PROJECT DESCRIPTION

The Property on which the Substation would be located is approximately 15.77 acres in area and is owned by CL&P. In 2005, CL&P acquired the Property for the development of the Substation. The Substation would occupy approximately 1.1 acres centrally located on the Property. The Property is accessed from Commerce Drive, associated with the Oxford Commerce Park. CL&P proposes to construct a gravel access drive extending approximately 600 linear feet from Commerce Drive into the Substation. The access drive would be approximately 15 feet wide to accommodate CL&P's maintenance vehicles. Crossing of an inland wetland and an associated intermittent watercourse would be required to provide this access to the Substation. (CL&P 1, Vol. 1, Sec. F)

An existing CL&P transmission line easement crosses the Property and continues to the north and south. Abutting the north side of the Property and the west side of the existing CL&P

easement is a 4.44-acre transmission line easement expansion. This additional easement was acquired by CL&P for expansion of the existing transmission line right-of-way. (CL&P 1, Vol. 1, Sec. F) That acquisition was approved by the Council in Docket 304.

The Substation would be supplied from the existing 115-kV 1575 transmission circuit that traverses the Property. The Substation would be constructed alongside CL&P's transmission lines supporting the 1575, 1585 and 1990 circuits. The 1575 transmission circuit would be "looped through" the Substation and a new 115- kV circuit breaker would be installed to split the existing transmission circuit into two circuits. Three new wood-pole transmission line structures would be installed to make the connections between the existing 115-kV transmission circuit and the Substation. (CL&P 1, Vol. 1, Sec. F)

A single 74-foot laminated wood pole would be installed to the north of the Substation within CL&P's existing transmission line corridor; a 55-foot wood-pole H-Frame structure would be installed north of the Substation within CL&P's new easement; and a single 74-foot laminated wood pole would be installed south of the Substation on the Property, all for the tie into the existing transmission circuit. The Substation would be an approximately 226- by 229-foot area with a trap-rock surface and would be secured by a 7-foot high chain link fence topped with one foot of barbed wire. The 115-kV circuit's interconnection with the Substation would be

made using two, up to 55-foot high, line terminal structures inside of the Substation. (CL&P 1, Vol. 1, Sec. F)

The Substation would consist of two 47-Megavolt Ampere ("MVA") power transformers, two metal-clad distribution switchgear enclosures, five 115-kV circuit switchers, one 115-kV circuit breaker, nine 115-kV disconnect switches, a relay and control enclosure (approximately 48 feet by 14 feet) and a battery enclosure (approximately 24 feet by 14 feet) all located within the fenced area of the Substation. The relay and control enclosure would contain protective relaying and control equipment associated with the transmission portion of the Substation. Also within the switchgear and control enclosures, equipment for full Supervisory Control and Data Acquisition system functions and digital metering would be installed for control and monitoring of the Substation from a remote location. (CL&P 1, Vol. 1, Sec. F)

Distribution cable getaways would exit the Substation underground in conduits. The getaways will pass under an engineered culverted crossing designed for the entrance road, protecting them from any vehicle-related impacts. The underground distribution cable getaways would surface near to the intersection of the access drive with Commerce Drive and rise up wood poles to interconnect with overhead line spans. The distribution lines would then continue overhead via newly installed wood poles along Commerce Drive. (CL&P 1, Vol. 1, Sec. F)

Switchgear equipment would be installed in two steel enclosures, each 22 feet long by 14 feet wide and 14 feet in height. The switchgear would contain a total of six feeder positions and three sets of feeder cables would be installed and activated initially. (CL&P 1, Vol. 1, Sec. F)

III. NEED

(a) Existing Service Area Conditions

Currently, electric load in Oxford is served by three primary 115- to 13.8-kV substations: Beacon Falls Substation in Beacon Falls, Bates Rock Substation in Southbury, and South Naugatuck Substation in Naugatuck. In addition to sharing the load needs of Oxford, these three 115- to 13.8-kV substations also serve the load needs of the towns in which they are located. Reliance on neighboring substations is considered acceptable as long as cumulative load growth does not exceed available capacity and distribution feeders are not so long as to degrade reliability. (CL&P 1, Vol. 1, Sec. G)

Currently, very little margin exists to meet area growth as substations in neighboring towns near their rated capacity. Beacon Falls, Bates Rock and South Naugatuck have a combined rated capacity of 184 MVA. These three substations experienced a combined peak load of 180.9 MVA in 2006. The expected load growth in Oxford alone, not to mention load growth in the surrounding towns, is forecasted to consume this available margin by 2008. (CL&P 1, Vol. 1, Sec. G)

(b) Oxford's Need

Responding to increasing peak-load demands, the purpose of the Substation is to improve electric distribution system adequacy and reliability in Oxford and its surrounding areas by increasing the capacity to deliver electric power from the 115-kV transmission system to the local 13.8-kV distribution system. From 2004 to 2006, Oxford's peak demand grew by more than 5 MVA, reaching 24.3 MVA in the summer of 2006, an increase of nearly 26%. Demand is forecasted to increase at an even faster rate in the years to come as the Town experiences additional development. (Tr. 1. pp. 6-9) Based on planned development in Oxford, peak demand may reach nearly 60 MVA by the year 2012, representing more than a threefold increase in just 8 years. (CL&P 1, Vol. 1, Sec. G)

Capacity must be added to meet this demand, and it must be added in a way that provides an adequate and reliable source of power to Oxford for many years to come. The ISO-NE approved the plan for implementation of the Oxford Substation on January 26, 2006. Additionally, a substation for the Oxford area has been listed in the Council's Forecast of Loads and Resources since 2003. (CL&P 1, Vol. 1, Sec. G)

Significantly, the need projected by CL&P was acknowledged by the Town. Both the First Selectman, August A. Palmer, III, and the Economic Development Director, Herman Schuler, testified as to the development projects recently built in the Town as well as those

projects planned in the near future. (Tr. 1, pp. 6-9; Tr. 2, pp. 5-8) Finally, the Connecticut Energy Advisory Board ("CEAB") also recognized the immediate need for the proposed substation. (Council Admin. Notice, Item 30) The CEAB concluded that "reliability in the Oxford area is indeed a growing concern and that the proposed substation is a reasonable way to address the need and enhance reliability." (Council Admin. Notice, Item 30, p. 5)

IV. PROXIMITY TO OXFORD AIRPORT

Although the Connecticut Department of Transportation ("DOT") has raised some concerns purportedly about the proposed substation, it is clear that the DOT comments are not directed at the substation but at the existing transmission line structures and are, in fact, an attempt by the DOT to use the substation siting as an opportunity to effect change in the existing transmission line structures. The existing transmission line structures were in place prior to the establishment of the Oxford Airport (the "Airport"). (Tr. 1, pp. 26, 35; CL&P 3, K. Bowes p. 31) CL&P has been a good neighbor as evidenced by its action in voluntarily lighting and marking its structures many years ago. (Tr. 1, pp. 35, 38) Discussions between CL&P and the DOT have been held on and off over the years about lowering the height of existing transmission structures, as the DOT contemplated improvements to the Airport. (CL&P 3, K. Bowes pp. 33-36; Tr. 1, pp. 26-27) Unfortunately, over all this time and still today there was one significant stumbling

block for the DOT to pursue any such improvements, that being the funds necessary for the work to lower the existing transmission structures. (CL&P 3, K. Bowes, p. 33)

CL&P carefully designed the Oxford Substation so that no new structures would exceed the height of its existing structures in the Airport's runway protection zone ("RPZ").[1] (CL&P 3, K. Bowes, pp. 38-39; Tr. 1, p. 29) Moreover, CL&P modified its terminal structures and moved the Substation location to clear locations for two (2) medium intensity approach light system with runway indicator light masts. (CL&P 3, K. Bowes, p. 32). CL&P also acquired additional right-of-way adjacent to its existing right-of-way to the north to facilitate future lowering of several of its transmission line structures (CL&P 3, K. Bowes, p. 35).

Additionally, as described by Mr. Kenneth Bowes of CL&P, CL&P and the DOT officials have had many discussions over the course of 32 years. More recently, it is significant that DOT drawings in December 2004 and January 2005 in connection with the Airport's master plan updates clearly depict the proposed substation in its present location. (CL&P Letter Agreement, May 30, 2007). Finally, the DOT received a copy of CL&P's Application to the Council in mid-December 2006. However, CL&P was unaware of any DOT concerns about the substation location until the DOT filed its comments in this proceeding.

[1] Significantly, the RPZ came into effect long after CL&P's transmission line structures were in place. Additionally, as recognized by the DOT in their comments, the substation is "not a prohibited land use" in the RPZ and the RPZ is "for the protection of people and property on the ground." (DOT Comments dated May 9, 2007)

Notwithstanding CL&P's disappointment with the timing and nature of the DOT's comments, CL&P remains committed to working with the DOT. (Tr. 1, p. 29). CL&P has provided additional information to the DOT and pledged its cooperation (CL&P Letter Agreement, May 30, 2007).

(b) Electronic Noise

In its comments, the DOT also expressed concerns about what they termed "electronic noise". CL&P was never informed by Airport officials in the past that there were any such concerns. (CL&P 3, K. Bowes, p. 37) Nevertheless, Kenneth Bowes of CL&P testified that CL&P would propose a noise analysis study to confirm that the Substation design would not adversely impact any of the existing or future electronic equipment for aircraft. (Tr. 1, p. 61-62)

Since the date of the DOT's comments, CL&P has undertaken an investigation into electromagnetic interference (including "electronic noise") issues in regard to Oxford Airport's navigational aids, which has included contact with the Federal Aviation Administration ("FAA"). According to the FAA, the possible electromagnetic interference is not a concern because (1) "[t]he small profile of the poles used to tie in the substation lines will not reflect a sufficient amount of energy to impact the navigational systems .... (2) [t]he impact to the localizer signal is minimal .... and [a]ny marginal contribution by the tie-in wires to the overall [glide slope] signal interference will not put the overall interference beyond allowable tolerances

.... and (3) [i]t is not anticipated that the substation will generate a significant amount of broad spectrum noise to impact the navigational or communication systems at the airport." (FAA Letter, June 11, 2007)

Since the FAA is the federal agency entrusted with airport safety issues and has concluded that electromagnetic interference will not endanger navigational or communication systems, it certainly appears that the DOT's concerns will not materialize once the Substation is in operation.

In summary, there is no credible evidence in the Record that the Substation will pose any safety issues for the Airport. Moreover, CL&P has planned the Substation to be compatible with future modifications to the Airport, if and when they occur. Therefore, the Council should not rely on the DOT's comments when there is strong evidence in the Record to support the conclusion that the Oxford Substation is a well-planned project that is intended to address an immediate need in the Town of Oxford.

V. ENVIRONMENTAL EFFECTS

(a) Electric and Magnetic Fields

All alternating current devices produce Electric and Magnetic Fields ("EMF") which some suspect might cause adverse health effects, particularly for long-term exposures to above-

background magnetic field levels; however, there is no credible evidence of a causal link between such long-term exposures and adverse health effects. For many years now, the focus of concern has been on magnetic fields ("MF") and not the electric fields. With the proposed Substation, the dominant source of MF on and beyond the property boundaries would not be from the proposed Substation but would continue to be from the existing transmission and distribution power lines (the 115-kV line and the 13.8-kV circuits). MF exposure from the Substation equipment beyond the fence line around the Substation would quickly fall to very low background levels. Likewise, any MF levels from the transmission lines and distribution lines would also fall to background levels over short distances because MF decreases as the distance increases from the source. The Substation has been located at a sufficient distance from property lines so that the Substation equipment will make no noticeable contribution to EMF levels off the Property. The existing and proposed EMF levels at and beyond the property lines of the Substation which are caused by the entering and exiting transmission and distribution lines are typical for all similar Substations and will be well below limits set by the Institute of Electrical and Electronic Engineers and the International Commission on Non-ionizing Radiation Protection. (CL&P 1, Vol.1, Sec. M; CL&P 2, R. 2)

(b) The Natural Environment and Wildlife

The Substation facility is sited outside of wetlands and the locally regulated 100-foot upland review area. Site preparation and grading activities for the construction of the Substation will extend into portions of the upland review area. Approximately 22,700 square feet of upland review area will be disturbed during the construction phase. The proposed work within the 100-foot upland review area will be predominantly grading activities to construct the embankments around the Substation and to construct the gravel access drive, and an associated drainage swale to the Substation. (CL&P 1, Vol. 1, Sec. K)

Access to the Substation would require crossing an inland wetland and intermittent watercourse. The first crossing will be approximately 50 linear feet across and the second wetland/watercourse crossing will be approximately 40 linear feet across. There is no other feasible means of upland access from a public road to the site. CL&P has evaluated multiple crossing locations to reduce the overall inland wetland and watercourse effects from the construction of a new access drive. CL&P would construct the minimum width driveway required to safely access and egress the Substation. The watercourse crossing would be accomplished while maintaining ambient base flows of the stream. (CL&P 1, Vol. 1, Sec. K; CL&P 4, A. Carroll pp. 4-5)

Constructing the overhead tie-ins from the existing 115-kV transmission circuit into and out of the Substation will require new transmission line spans, which results in the clearing/removal of trees within the forested wetland bordering the Substation to the north and south. The clearing of trees will result in secondary impacts to wetlands, as defined by the U.S. Army Corps of Engineers ("USACE"). CL&P proposes to remove the trees in the winter months to minimize tracking disturbances within the wetlands. No removal of stumps or grubbing is proposed within the wetland portion of this new easement, nor are any permanent structures proposed to be erected within the wetlands crossed by the new easement. CL&P has filed a permit application to the USACE in accordance with the Category 2 provisions of the Department of the Army Programmatic General Permit of the State of Connecticut. CL&P would implement its Construction Best Management Practices to minimize or eliminate potential adverse environmental effects during the construction phase of the Project. CL&P's Development and Management ("D&M") Plan for the Substation would also incorporate the mitigation measures outlined in the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control.* (CL&P 1, Vol. 1, Sec. K; CL&P 4, A. Carroll pp. 5-6)

(c) Oxford Substation Would Not Adversely Affect Wildlife in the Area

The effects on the existing habitats would be predominantly temporary in nature and would be mitigated through the restoration of disturbed areas and supplemental plantings. (CL&P 1, Vol. 1, Sec. K; CL&P 4, A. Carroll pp. 7-8)

According to the State and Federal Listed Species and Significant Natural Communities Map for the Town of Oxford (June 2006) prepared by the DEP NDDB, the Property is not located within any mapped NDDB area of concern. The southernmost portion of the Property is located within ½ mile (upstream) of a mapped area of concern located south of Jack's Hill Road. Projects within or less then ½ mile away from an area of concern must consult with the NDDB. (CL&P 1, Vol. 1, Sec. I)

The DEP NDDB indicated that a state-listed threatened species, American kestrel (*Falco sparverius*) occurred historically in the vicinity of the Property. An ENSR biologist performed a habitat assessment on the Substation site. Upon completion of the survey, ENSR and the DEP Wildlife Division ("Division") recommended that CL&P install and monitor American Kestrel nest boxes for a period of three years between the months of March through July and provide the Division with a yearly report documenting the success rate of the nest boxes, measures taken to prevent/minimize predation on the nest boxes, and any other observations of significance.

CL&P has agreed to these recommendations. (CL&P 1, Vol. 1, Sec. K; CL&P 4, A. Carroll pp. 7-8)

(d) No Effect On Nearby Resources

The development of the Oxford Substation would not have significant, long-term adverse effects on the scenic, historic or recreational values of the surrounding area. (CL&P 1, Vol. 1, Sec. K) The Larkin Trail is the only known recreational area located within ¼ mile of the Substation Property. Mature forested land exists at the northwestern portion of the Property between the Substation footprint and the trail itself. The Larkin Trail may provide seasonal (winter months) views of some of the upper portions of the Substation facilities and transmission structures. CL&P's Landscape Plan incorporates measures to minimize visual effects on the trail to the extent feasible. The development of the Substation would not have significant, long-term adverse effects on the existing environment or ecological characteristics of the Property, or on the scenic, historic or recreational values of the surrounding area. The project benefits from a full review by relevant local agencies in Oxford. (CL&P 1, Vol. 1, Sec. K)

Jack's Hill Cemetery is located to the east of the Property. The Substation is to be constructed to the west side of the existing transmission line corridor away from the cemetery by over 600 feet. A forested upland and wetland provides a buffer between the cemetery and the

Substation. Due to the distance and dense tree cover, it is unlikely that the Substation will be visible from the Jacks Hill Cemetery. (CL&P 1, Vol. 1, Sec. K)

(e) No Adverse Effect On Public Health And Safety

Noise from the operation of the Substation is projected to be below those levels allowed by Regulations of Connecticut State Agencies § 22a-69-3.5 for a Class C Emitter (Substation) to a Class C Receptor (Industrial Uses). Impulse noise, though rare, would be generated from switching and circuit breaker opening and closing. The impulse noise levels would not exceed the levels permitted at the Property line by Regulations of Connecticut State Agencies § 22a-69-3.2. (CL&P 1, Vol. 1, Sec. K; CL&P 4, A. Carroll p. 9)

The Substation would contain manually-operated lights affixed to the Substation terminal structures. The floodlights would be used to facilitate work at nighttime or during inclement weather. Additional lighting would be installed on the building structures within the Substation yard for safety and security purposes; however, these lights would be recessed or activated manually to minimize visual effects at night. Such lighting would not affect existing residences in the vicinity of the Property. (CL&P 1, Vol. 1, Sec. K)

CL&P would install an oil sump to serve as a spill-containment chamber around the two proposed transformers. The sumps would be sized with sufficient capacity to contain a spill in the event of an inadvertent release of oil and to quench an oil fire. (CL&P 3, K. Bowes p. 22)

CL&P would propose to install an Imbiber Beads Drain Protection System® similar to containment systems installed at other CL&P Substations, such as the Shunock Substation in North Stonington and the proposed Wilton Substation in Wilton. (CL&P 1, Vol. 1, Sec. J)

According to the Town of Oxford, there are no public water-supply wells located within ¼ mile of the Property. (CL&P 1, Vol. 1, Sec. I) The Property is not located within a State designated Aquifer Protection Area and there are no high yield public water-supply wells located within ¼ mile of the Property. (CL&P 1, Vol. 1, Sec. I)

(f) DEP's Findings

It is well-established that the DEP plays a critical role in protecting and preserving Connecticut's natural resources. In this case, after a thorough review, the DEP concluded that "The proposed site is an appropriate choice for the Oxford substation in terms of compatible surroundings, environmental impacts, ease of constructability and system needs". (DEP Comments, May 3, 2007, p. 2) Given that the design of a substation involves the complex balancing of many factors, it is clear that the DEP's opinion recognizes that CL&P has done so very successfully with the proposed Oxford Substation.

(g) CL&P's Application Should Not Be Denied

Based on the documents in the Record, the proposed Substation would have a minimal effect on the present environment. More importantly, the project would meet the present vital

electric reliability need that will only worsen as Oxford's load continues to grow. The extensive mitigation measures, active participation of the local land-use agencies, and the thoughtful design and careful location of the proposed facility meet and exceed all the requirements for a Certificate of Environmental Compatibility and Need.

Furthermore, the proposed facility received strong support from Town officials. (CL&P, Vol. 1, p. 89; CL&P 1, Vol. 2, App. K) No one requested party or intervenor status, and there were no members of the public who spoke at the hearing. (Tr. 2, p. 9) Finally, CL&P is not aware of any post-hearing comments being filed with the Council.

VI. CONCLUSION

The Connecticut legislature has entrusted the Council with balancing the need for adequate and reliable public utility services with protection of the environment and ecology of the State. CL&P's application in this docket is based on a demonstrated need for a new and larger bulk power substation in Oxford where the distribution system is nearing its limit. CL&P's proposal addresses that need in a manner that minimally affects the environment and

ecology of the State and minimizes damage to those resources. Accordingly, CL&P respectfully requests that its Application for a Certificate of Environmental Compatibility and Public Need for the Oxford Substation be approved.

Respectfully submitted,

APPLICANT,
THE CONNECTICUT LIGHT AND POWER COMPANY

BY: Marianne B. Dubuque

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Its Attorneys

DOCKET NO. 327 – Northeast Utilities Service Company, on behalf of The Connecticut Light and Power Company (CL&P)	}	Connecticut
Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a proposed substation located off of Commerce Park Drive, Oxford, Connecticut	}	Siting
	}	Council
	}	June 15, 2007

Proposed Findings of Fact

Introduction

1. Northeast Utilities Service Company, acting on behalf of The Connecticut Light and Power Company ("CL&P"), in accordance with provisions of Connecticut General Statutes ("CGS") Sections 16-50g et seq., and Section 16-50j-1 et seq. of the Regulations of Connecticut State Agencies ("RCSA"), applied to the Connecticut Siting Council (Council) on December 15, 2006 for the construction, operation, and maintenance of a new substation to be located on CL&P's 15.77-acre site located off of Christian Street, Oxford, Connecticut. (CL&P 1)

2. The purpose of the proposed facility is to add capacity in response to the increasing demand for electricity in Oxford and its surrounding area and by so doing, improve electric distribution system reliability in the Town of Oxford. (CL&P 1, Vol. 1, p. 7)

3. The party in this proceeding is the applicant. (Transcript 1 -3:30 p.m. [Tr. 1], pp. 4-5)

4. Pursuant to CGS § 16-50m, the Council, after giving due notice thereof, held a public hearing on May 16, 2007, beginning at 3:30 p.m. and continuing at 7:05 p.m.. The hearing was noticed for Oxford Town Hall, Main Meeting Room, 486 Oxford Road, Oxford, Connecticut. (Council's Hearing Notice dated April 17, 2007; Tr. 1, p. 3; Transcript 2 – 7:05 p.m. [Tr. 2], p. 3)

5. The Council and its staff made an inspection of the proposed substation site on May 16, 2007, beginning at 2:30 p.m. (Council's Hearing Notice dated April 17, 2007)

6. Pursuant to CGS § 16-50*l* (b), public notice of the application was published in the *Connecticut Post* on November 29, 2006 and December 1, 2006. (CL&P 1, Vol. 1, p. 97 & Exh. 1)

7. Pursuant to CGS § 16-50*l* (b), notice of the application was provided to all abutting property owners by certified mail. (CL&P 1, Vol. 1, p. 97 & Exh. 1)

8. Pursuant to CGS § 16-50*l* (b), CL&P provided notice to all federal, state and local officials and agencies listed therein. (CL&P 1, Vol. 1, p. 96 & Exh. 1)

9. CL&P erected a sign at the corner of the access road, identified now as Commerce Road on April 30, 2007. The sign included the Applicant's name, the type of facility proposed, the maximum structure heights for both the substation and transmission line structures, the public hearing date and location, the availability of the applicable documents for Docket 327, and contact information for the Council. (Tr. 1, pp. 22-23)

10. On December 15, 2006, CL&P sent copies of its application to the Connecticut Energy Advisory Board ("CEAB"). (CL&P 1, Vol. 1, p. 98; CL&P 1, Vol. 2, App. L)

11. On December 29, 2006, the CEAB issued a Request for Proposals ("RFP") seeking alternatives to the proposed substation, pursuant to CGS § 16a-7c. (Council Admin. Notice, Item 30)

12. Proposals for alternatives to the proposed substation were to be submitted no later than February 27, 2007. None were received. (Council Admin. Notice, Item 30)

13. On April 5, 2007, the CEAB issued its final report indicating that the proposed substation was a reasonable approach to maintaining and improving local area reliability. (Council Admin. Notice, Item 30)

State Agency Comment

14. Pursuant to CGS § 16-50*l*, on April 17, 2007, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Environmental Protection ("DEP"), Department of Public Health ("DPH"), Council on Environmental Quality ("CEQ"), Department of Public Utility Control ("DPUC"), Office of Policy and Management ("OPM"), Department of Economic and Community Development ("DECD"), and the Department of Transportation ("DOT"). (Council's Hearing Notice dated April 17, 2007)

15. The Council received responses from the DOT on April 26, 2007, later revised on May 9, 2007, and from the DEP on May 4, 2007. (Record)

16. In its comments, DOT notes that the proposed substation and poles would be located within or adjacent to the existing and future Runway Protection Zone's ("RPZ") of Runway 36 of the Waterbury-Oxford Airport ("Airport"). (DOT Comments dated May 9, 2007)

17. The DOT further notes that a substation located within a RPZ is not a prohibited land use. However, the FAA has stated that it prefers no development exist within the RPZ. (DOT Comments dated May 9, 2007)

18. According to the DOT, the FAA regulates the airspace around all public use airports per Federal Aviation Regulation ("FAR") Part 77. FAR Part 77 defines obstruction clearing requirements by identifying the maximum acceptable height of objects in and around the airspace. (DOT Comments dated May 9, 2007)

19. The DOT notes that the proposed substation itself is located beneath the precision FAR Part 77 Approach Surface to Runway 36 at the Airport. (DOT Comments dated May 9, 2007)

20. The DOT also notes that the existing towers and their accompanying power lines that will be modified to connect with the proposed substation do penetrate the FAR Part 77 Approach Surface Threshold Siting Surface. (DOT Comments dated May 9, 2007)

21. CL&P has had discussions with the DOT for many years concerning the existing transmission line structures. CL&P is committed to working with the DOT to develop a solution to DOT's concerns about the existing transmission structures and the new structures for the proposed substation. (Tr. 1, pp. 26-29)

22. CL&P's existing transmission line structures pre-date the Airport's operations. The circuits on the easterly tower line were energized in 1923, and the circuits on the westerly tower were energized in 1961. (Tr. 1, pp. 26; 35; CL&P 3, K. Bowes p. 31)

23. The new structures associated with the substation will be lower than the existing transmission structures. (Tr. 1, p. 29)

24. In the late 1960s, CL&P voluntarily lighted and marked the transmission line structures after discussions with the State Aeronautical Commission. Four towers are lighted and five towers are marked with red and white paint. (Tr. 1, pp. 35, 38)

25. The substation was designed by CL&P so as not to interfere with any planned lighting improvements when DOT funds are available for such improvements (Tr. 1, p. 51)

26. CL&P did not include a plan to lower the existing transmission structures because the DOT did not receive the necessary funding for such improvements and the lowering of the structures is not necessary for CL&P to construct and operate a safe and reliable substation. (CL&P 3, K. Bowes pp. 33; 36; Tr. 1, p. 26)

27. CL&P provided a letter agreement to DOT dated May 30, 2007 with additional information on tower lowering issues and restated its commitment to find a long-term solution that meets the needs of both parties. (CL&P Letter Agreement of May 30, 2007)

28. CL&P intends to file a notice of proposed construction with the FAA. (Tr 1, pp.41-42)

29. In its comments, the DEP stated that the proposed substation site is well isolated from the nearest residences, none of which can be seen from the site.
(DEP Comments dated May 3, 2007)

30. The DEP also notes that there will be either no visibility or very negligible visibility of the substation from the Jacks Hill Cemetery. (DEP Comments dated May 3, 2007)

31. The DEP commented that the Larkin State Park Trail runs northwest of the proposed substation, approximately 400 feet from the nearest point of the facility. According to the DEP, the proposed substation will probably be visible from the trail, but its presence will be largely screened by intervening forest, at least during the warmer months, and by the difference in elevation with the substation sitting well above the trail. The DEP further stated that the attention of hikers and riders would be drawn toward the Airport runway, a much more prominent visual feature in this area of the trail, rather than toward the substation. (DEP Comments dated May 3, 2007)

32. According to the DEP, the proposed site is an appropriate choice for the Oxford substation in terms of compatible surroundings, environmental impacts, ease of constructability, and system needs. (DEP Comments dated May 3, 2007)

33. The DEP concluded that the proximal DEP property, the Larkin State Park Trail, will not be unduly impacted by the facility. (DEP Comments dated May 3, 2007)

34. The DPH responded to the Council's solicitation for comments, but had no comments. (DPH Comments dated May 3, 2007)

35. The following agencies did not respond with comments on the application: CEQ, DPUC, OPM, and DECD. (Record)

Municipal Consultation

36. On August 15, 2006, First Selectman, August A. Palmer, III provided CL&P a letter of support for the project. (CL&P 1, Vol. 1, p. 89)

37. CL&P formally notified the Town of Oxford of the substation proposal on October 2, 2006 by sending a Municipal Consultation Filing ("MCF") to First Selectman, August A. Palmer, III. Thereafter, the Town Board of Selectmen adopted a resolution supporting the proposed project. (CL&P 1, Vol. 1, p. 89; CL&P 1, Vol. 2, App. K)

38. CL&P consulted with the Oxford Conservation Commission/Inland Wetlands Agency ("CC/IWA") and the Oxford Planning and Zoning Commission ("P&Z"). (CL&P 1, Vol. 1, p. 89)

39. CL&P filed an application with CC/IWA on August 7, 2006 and at its regular meeting on August 14, 2006, CC/IWA unanimously approved the conceptual location for the proposed substation with possible future conditions. CL&P was not notified of any conditions. (CL&P 1, Vol. 1, p. 89; CL&P 1, Vol. 2, App. K; Tr. 1, p. 71)

40. CL&P filed an application with the P&Z on August 14, 2006 and at its regular meeting on August 17, 2006, the P&Z unanimously approved the location of the proposed substation after a presentation by CL&P. (CL&P 1, Vol. 1, p. 90; CL&P 1, Vol. 2, App. K)

41. CL&P received letters of support from the Oxford Economic Development Commission and its Director, Herman Schuler. (CL&P 1, Vol. 2, App. K)

Need

42. The purpose of the proposed substation is to improve electric distribution system adequacy and reliability in the Town of Oxford and its surrounding areas by increasing the capacity to deliver electric power from the 115-kV transmission system to the local 13.8-kV distribution system. (CL&P 1, Vol. 1, p. 14; CL&P 3, K. Bowes p. 9)

43. Increasing the capacity to deliver electric power from the 115-kV transmission system to the local 13.8-kV distribution system is necessary to respond to increasing peak-load demands. (CL&P 1, Vol. 1, p. 14; CL&P 3, K. Bowes p. 9)

44. Currently, electric load in the Town of Oxford is served by three primary 115-kV to 13.8-kV substations: Beacon Falls Substation in Beacon Falls, Bates Rock Substation in Southbury, and South Naugatuck Substation in Naugatuck. (CL&P 1, Vol. 1, p. 14; CL&P 3, K. Bowes p. 10)

45. In addition to sharing the load needs of Oxford, these three 115-kV to 13.8-kV substations also serve the load needs of the towns in which they are located. Reliance on neighboring substations is considered acceptable as long as cumulative load growth does not exceed available capacity and distribution feeders are not so long as to degrade reliability. (CL&P 1, Vol. 1, p. 14)

46. From 2004 to 2006, Oxford's peak electric power demand grew by more than 5 MVA, reaching 24.3 MVA in the summer of 2006, an increase of nearly 26%. (CL&P 1, Vol. 1, p. 14; CL&P 3, K. Bowes p. 10)

47. Peak demand in Oxford is forecasted to increase at an even faster rate in the years to come as the Town experiences additional development. Based on planned development in Oxford, peak demand may reach nearly 60 MVA by the year 2012, representing more than a threefold increase in just 8 years. (CL&P 1, Vol. 1, p. 14; CL&P 3, K. Bowes p. 10)

48. Currently, very little margin exists to meet area growth as substations in neighboring towns are operating near their rated capacity. Beacon Falls, Bates Rock and South Naugatuck have a combined rated capacity of 184 MVA. These three substations experienced a combined peak load of 180.9 MVA in 2006, and it is forecasted that by 2008 this margin will be consumed. (CL&P 1, Vol. 1, p. 16; CL&P 3, K. Bowes p. 11)

49. Capacity must be added to meet the increasing demand, and it must be added in a way that provides adequate and reliable source of power to the Town of Oxford for years to come. (CL&P 1, Vol. 1, p. 14; CL&P 3, K. Bowes p. 10)

50. The proposed substation would resolve capacity deficiencies by creating a new bulk power substation to provide a distribution power source for the Town of Oxford. (CL&P 1, Vol. 1, p. 17; CL&P 3, K. Bowes p. 11)

51. The proposed substation would be similar in size to the Beacon Falls and Bates Rock Substations, providing between 70 and 75 MVA of initial substation capacity to the system. (CL&P 1, Vol. 1, p. 17; CL&P 3, K. Bowes p. 11)

52. The additional capacity provided by the proposed substation would not only provide enough supply to meet the needs of Oxford for years to come, it would also improve the reliability of the Town's distribution system by eliminating reliance on neighboring substations. (CL&P 1, Vol. 1, p. 17; CL&P 3, K. Bowes p. 11)

53. First Selectman August A. Palmer, III testified at the Council's hearing about the Town of Oxford's imminent corporate and industrial expansion, the soaring electric demand in Oxford and the need for the substation. (Tr. 1, pp. 6-9)

54. CL&P offers an array of traditional energy efficiency or demand side management ("DSM") programs though the Connecticut Energy Efficiency Fund ("CEEF") to residential, commercial and industrial customers. (CL&P 5, K. Bowes p. 3)

55. Since 2005, CL&P estimates that through participation in the CEEF programs, customers in the surrounding participating towns have achieved peak-demand savings of approximately 11 MW and will save approximately 475,923,852 kWH of energy over the life of the installed measures. (CL&P 5, K. Bowes p. 3)

56. CL&P Residential Energy Efficiency Programs include the Comprehensive In-home Services Program, the Weatherization Residential Assistance Partnership Program, promoting the purchase of energy-efficient lighting products and clothes washers by retail incentives/markdowns though CEEF, promoting the installation of geothermal heat pumps and the ENERGY STAR ® -qualified home Program.
(CL&P 5, K. Bowes pp. 3-4)

57. CL&P commercial and industrial energy reduction efforts include the Energy Opportunities Program, the Energy Conscious Blueprint Program, Demand Response and Price Response Programs. (CL&P 5, K. Bowes pp. 4-5)

58. CL&P continues to pursue conservation and load management programs throughout its system and offers programs to customers located in the areas that will be served by the proposed substation. (CL&P 5, K. Bowes p. 6)

Site Alternatives

59. CL&P reviewed and evaluated a total of four (4) sites concluding that the selected parcel was the most viable option for the new substation. (CL&P 1, Vol. 1, p. 24)

60. In its site evaluations, CL&P used the following criteria to evaluate a particular location's viability: proximity to an existing 115-kV transmission circuit; central location with respect to local distribution (customer) load areas; sufficient space for needed facilities; proximity to residential neighbors and other surrounding features; natural resource (i.e. inland wetlands) and cultural resource constraints; existing and future land use; access from a public road; earthwork requirements based on existing topography; and availability of property, if not owned by CL&P, for purchase, or at a minimum, negotiable for purchase. (CL&P 1, Vol. 1, pp. 22-24)

61. The four sites evaluated were: the proposed substation site, Jacks Hill Road - South Side of Road ("Site 2"); Prokop Road ("Site 3"); and Oxford Road ("Site 4").
(CL&P 1, Vol. 1, pp. 26-28)

62. CL&P determined that the proposed site was ideally located given its central location relative to the load and its easy interconnection to 115-kV transmission circuits that already traverse the property along a CL&P right of-way. The property consists of Woodbridge, Paxton and Ridgebury soils (two general upland soil series, and one general wetland soil series). The Paxton soil series is characterized by a moderate soil erosion hazard. Both the Woodbridge and the Ridgebury series have a seasonal high water table. Steep slopes of excavation are unstable when the soil is saturated and tend to slump. (CL&P 1, Vol. 1, p. 26)

63. The proposed substation itself would have no effect on any inland wetlands or 100-foot upland review area. (CL&P 1, Vol. 1, p. 26)

64. The proposed substation site allows CL&P to design a substation that meets the needs of the Town, is in an area already zoned for industrial use, minimizes adverse environmental effects and does not create visual effect on residential neighbors. (CL&P 1, Vol. 1, p. 26)

65. The proposed substation site was also selected because: the Company was concerned about the growing demand in Oxford due to aggressive economic development efforts and planned residential complexes and the availability of only one circuit feeding the entire town coming out of Beacon Falls over a mile and a quarter of mountainous terrain; the significant commercial and residential development planned for the area surrounding the subject property necessitated a purchase before acquisition and development by a third party; the acquisition of the subject property was supported by Town officials and the property owner, and the DOT did not object in CSC Docket No. 304. (CL&P 3, K. Bowes, pp. 30-31)

66. CL&P purchased the proposed substation site and a contiguous length of additional transmission line easement in accordance with Council's approval in Docket No. 304, on October 30, 2005. (CL&P 1, Vol. 1, p. 24; CL&P 1, Vol. 2, App. C)

67. CL&P determined that Site 2 was unsuitable because the site was recently changed from Industrial to Residential as part of an approval from P&Z for development of senior housing (the Glendale residential development), and the site is not available for purchase. The residential development is already under construction. Additionally, according to the State and Federal Species and Significant Natural Communities Map for Oxford, CT, published by the DEP Natural Diversity Database ("NDDB"), this location is near a NDDB Area of Concern. (CL&P 1, Vol. 1, p. 27)

68. CL&P determined that Site 3 was unsuitable because the site, although zoned for industrial use, the land west of the site contains a residential development and is a mixed use commercial/residential zone. To the north of Site 3, the land is used for residential purposes. Site 3 contains steep grades and is adjacent to inland wetlands. Finally new easements (resulting in additional tree clearing and upland disturbance) would be required because Site 3 is not directly traversed by the existing transmission line and a new corridor would be needed to tie-in the transmission lines to the proposed substation. (CL&P 1, Vol. 1, p. 27)

69. CL&P determined that Site 4 was unsuitable because the parcel contains standing water and inland wetlands. The Little River flows across a portion of the site and an additional portion of the site is located in the floodplain of the river. In addition, construction at this site would require a significant amount of earthwork and tree clearing in order to obtain access and to make the site suitable for construction of the proposed substation. Transmission tie-ins would also result in wetland impacts as the wetland area would need to be traversed in order to gain access to the existing transmission line which crosses the western portion of the site. Zoning for the site is commercial; public utility stations are not permitted in such zones. Adjacent parcels to the northwest and to the north of Oxford Road contain residential uses. (CL&P 1, Vol. 1, p. 28)

Description of Proposed Project

70. The proposed substation would be located on a 15.77-acre parcel. An adjacent 4.4-acre transmission line easement is located to the immediate north of the 15.77-acre parcel and west of the existing right-of-way. (CL&P 1, Vol. 1, p. 11)

71. The proposed substation would occupy 1.1-acres centrally located on the 15.77-arcre parcel. (CL&P 1, Vol. 1, p. 11)

72. Access to the proposed substation would be from a new road, Commerce Drive, associated with Oxford Commerce Park that is currently being constructed. CL&P would construct a 15-foot wide gravel access drive extending approximately 600 linear feet from Commerce Drive into the substation. (CL&P 1, Vol. 1, p. 11)

73. The proposed substation would be supplied from the existing 115-kV 1575 transmission circuit that traverses the property. (CL&P 1, Vol. 1, p. 11)

74. The proposed substation would be constructed alongside CL&P's transmission lines supporting the 1575, 1585 and 1990 circuits. The 1575 transmission circuit would be "looped through" the proposed substation and a new 115-kV circuit breaker would be installed to split this existing transmission circuit into two circuits.
(CL&P 1, Vol. 1, p. 11; CL&P 3, K. Bowes p. 18)

75. Three new transmission line structures would be installed to make the connections between the existing 115-kV transmission circuit and the proposed substation.
(CL&P 1, Vol. 1, pp. 11-12; CL&P 3, K. Bowes p. 18)

76. A single 74-foot laminated wood pole would be installed to the north of the proposed substation within CL&P's existing transmission line corridor; a 55-foot wooden H-Frame structure would be installed north of the substation within CL&P's new easement area; and a single 74-foot laminated wood pole would be installed south of the proposed substation to serve as an intermediate structure for the tie-in into the existing transmission lines. (CL&P 1, Vol. 1, p. 12; CL&P 3, K. Bowes p. 19)

77. The proposed substation would be an approximately 226- by 229-foot area with a trap-rock surface. (CL&P 1, Vol. 1, p. 12)

78. The 115-kV line interconnection within the proposed substation would be made using two, up to 55-foot high, line terminal structures. (CL&P 1, Vol. 1, p. 12)

79. The proposed substation would consist of two 47-MVA power transformers, two metal-clad distribution switchgear enclosures, five 115-kV circuits switchers, one 115-kV circuit breaker, nine 115-kV disconnect switches, a relay and control enclosure (approximately 48 feet by 14 feet) and a battery enclosure (approximately 24 feet by 14 feet) all located within the fenced area of the proposed substation.
(CL&P 1, Vol. 1, p. 12)

80. Distribution power-cable getaways would exit the proposed substation underground in conduits. The getaways will pass under a culverted crossing designed for the entrance road, protecting them from any vehicle-related impacts. The underground distribution getaways would surface at the intersection of the access drive with Commerce Drive. The initial distribution lines would then be installed overhead via new wood poles along Commerce Drive. (CL&P 1, Vol. 1, p. 12; CL&P 3, K. Bowes p. 19)

81. Switchgear equipment would be installed in two steel enclosures, each 22 feet long by 14 feet wide and 14 feet in height. The switchgear would contain a total of six feeder positions, and three feeder cables would be installed and activated initially. (CL&P 1, Vol. 1, p. 13)

82. The equipment has a nominal service life in excess of 40 years. (CL&P 1, Vol. 1, p. 13; CL&P 3, K. Bowes p. 6)

83. The construction phase of the project is expected to begin in November of 2007. (CL&P 3, K. Bowes p. 6)

84. The tentative in-service date is December, 2008. (CL&P 1, Vol. 1, p. 87; CL&P 3, K. Bowes p. 6)

85. The proposed substation would be located in an industrial zone that lacks any significant residential development. There are no existing homes in the area adjacent to the proposed substation location site. The nearest residence is approximately 1,078 feet to the east of the center point of the substation. (CL&P 1, Vol. 1, p. 32; CL&P 4, A. Carroll p. 12; CL&P 1, Vol. 1, p. 48 & Fig. I-3)

86. The estimated construction cost of the proposed facility, excluding feeder project costs, is:

Materials & Equipment	$5,859,473
Siting & Engineering	$1,066,856
Construction	$3,144,314
Total	$10,070,643

(CL&P 1, Vol. 1, p. 13)

Environmental Considerations

87. The Connecticut Commission on Culture and Tourism (formerly the Connecticut Historical Commission) has indicated that the proposed undertaking would have no adverse effect on historic, architectural or archaeological resources on or eligible for the National Register of Historic Places. (CL&P 4, A. Carroll p. 9 & Exh. B)

88. According to the State and Federal Listed Species and Significant Natural Communities Map for the Town of Oxford (June 2006) prepared by the DEP NDDB, the proposed substation is not located within any mapped NDDB area of concern. (CL&P 1, Vol. 1, p. 38; CL&P 4, A. Carroll p. 9)

89. The DEP NDDB indicated that a state-listed threatened species, American kestrel (*Falco sparverius*), occurred historically in the vicinity of the proposed substation. CL&P will install a minimum of two American kestrel nest boxes north of the proposed substation in accordance with specifications provided by the DEP, in order to mitigate any potential effects on its habitat. (CL&P 1, Vol. 1, p. 38, p. 58)

90. The proposed substation is sited outside of inland wetlands and the locally regulated 100-foot upland review area. Site preparation and grading activities for the construction of the proposed substation will extend into portions of the upland review area. Approximately 22,700 square feet of upland review area will be disturbed during the construction phase. (CL&P 1, Vol. 1, p. 54)

91. The proposed work within the 100-foot upland review area will be predominately grading activities to construct the embankments around the proposed substation and to construct the gravel access drive and associated drainage swale to provide access to the proposed substation. (CL&P 1, Vol. 1, pp. 54-55)

92. Access to the proposed substation would require crossing an inland wetland and intermittent watercourse. There is a scrub-shrub/emergent wetland located at the southern portion of the site with two "finger-like" projections of wetland that extend easterly across the site. The first crossing would be approximately 50 linear feet across and the second wetland/watercourse crossing will be approximately 40 linear feet across. (CL&P 1, Vol. 1, p. 55)

93. There is no other feasible means of upland access from a public road to the proposed substation. Constructing a new access drive for the proposed substation would temporarily affect approximately 1,300 square feet of wetlands and permanently affect approximately 3,400 square feet of wetlands. (CL&P 4, A. Carroll p. 4)

94. At the intermittent watercourse, CL&P's culvert crossing design would include an 18-inch reinforced concrete pipe with the capacity to maintain ambient stream flow and to handle anticipated storm flows. (CL&P 4, A. Carroll p. 5)

95. A second culvert has been designed by CL&P to be installed just north of Commerce Drive to maintain the local watershed characteristics of the wetland crossed by the proposed access drive. (CL&P 4, A. Carroll p. 5; CL&P 1, Vol. 1, App. H)

96. To construct the overhead tie-ins from the existing 115-kV transmission line, it will be necessary to clear some trees within the forested wetland bordering the proposed substation to the north and south. The clearing of trees will result in secondary impacts to wetlands, as defined by the U.S. Army Corps of Engineers ("ACOE"). CL&P is pursuing a Category 2 Permit with the ACOE. (CL&P 4, A. Carroll p. 5; CL&P 1, Vol. 1, p. 56; Tr. 1, pp. 74-75)

97. The secondary wetland impacts would total approximately 0.70 acre for the clearing of an approximately 90-foot wide corridor, of which approximately 0.60 acre is comprised of forested wetland that would be converted to scrub/shrub wetland under the new overhead lines. (CL&P 4, A. Carroll p. 6)

98. In order to mitigate secondary impacts, CL&P proposes to remove the trees in the winter months to minimize tracking disturbances on the subject property and within the new transmission easement. No removal of stumps or grubbing is proposed within the wetland portion of the new transmission line easement, nor are any permanent structures proposed to be erected within the wetlands crossed by the new easement. (CL&P 4, A. Carroll p. 6)

99. CL&P would implement its Construction Best Management Practices to minimize or eliminate potential adverse environmental effects during the construction phase. (CL&P 1, Vol. 1, p. 56)

100. Approximately 221 trees with a diameter at breast height of six inches or greater would be removed for the transmission line interconnection. Only 24 trees will be removed for the proposed substation footprint and access road. (CL&P 4, A. Carroll p. 11)

101. The approximate cut required for the project is 1,835 cubic yards and the approximate fill required is 15,571 cubic yards. (CL&P 2, Response 5)

102. CL&P's Development and Management ("D&M") Plan for the proposed substation would incorporate the mitigation measures outlined in the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. (CL&P 1, Vol. 1, p. 56)

103. There are no direct or indirect impacts on watercourses from the proposed project. (CL&P 12, J. Borne p. 8)

104. The proposed substation would not be located within a State-designated Aquifer Protection Area. According to the Town of Oxford, there are no public water supply wells within ¼ mile of the subject property. Residences located within ¼ mile of the proposed substation rely on private wells as drinking water sources. (CL&P 1, Vol. 1, p. 41)

105. There are no flood-hazard areas located within the proposed substation area. (CL&P 1, Vol. 1, p. 47)

106. Based on review of USGS-National Earthquake Hazard Program maps, the seismic risk within the proposed substation area is indicated as a peak acceleration value of 5 with 10 percent probability of exceeding in 50 years. The proposed substation area is located in a lower (probability range) seismic hazard area according to the USGS Earthquake Hazards Program. (CL&P 1, Vol. 1, p. 47)

107. There are no documented scenic areas or scenic view-sheds designated within ¼ mile of the proposed substation. According to the Oxford Public Works Department, there are no scenic roadways officially designated with ¼ mile of the proposed substation. (CL&P 1, Vol. 1, p. 41)

108. The levels of noise that would be generated by the proposed substation are projected to be below the DEP-regulated limit for a Class C Emitter (proposed substation) to a Class C receptor (industrial uses). (CL&P 1, Vol. 1, pp. 62-63)

109. Impulse noise, though rare, would be generated from switching and circuit breaker opening and closing. The impulse noise levels would not exceed the levels permitted at the property line by DEP's noise control regulations. (CL&P 1, Vol. 1, p. 63)

110. The proposed substation would contain four manually operated lights affixed to the proposed substation terminal structures. The lights would only be used to facilitate work at night or during inclement weather. (CL&P 1, Vol. 1, p. 63)

111. Additional lighting would be installed on the building structures within the proposed substation yard for safety and security purposes. These lights would be recessed or activated manually to minimize visual effects at night. (CL&P 1, Vol. 1, p. 63)

112. Lighting would not affect existing residences in the vicinity of the proposed substation. (CL&P 1, Vol. 1, p. 63)

113. CL&P has designed the proposed substation to accommodate the planned airport lighting approach scheme to the extent feasible. (CL&P 1, Vol. 1, p. 63)

114. CL&P would install an oil sump to serve as a spill-containment chamber around the two proposed transformers. The sumps would be sized with sufficient capacity to contain a spill in the event of an inadvertent release of oil.
(CL&P 1, Vol. 1, p. 51; CL&P 3, K. Bowes p. 22)

115. The sump around the transformers serves not only as an environmental protection, but also functions to retard any fire in the very rare case of spilled and burning oil from a faulted transformer with a ruptured tank or bushing. (CL&P 3, K. Bowes p. 22)

116. CL&P would propose to install an Imbiber Beads Drain Protection System® similar to containment systems installed at other CL&P Substations, such as the Shunock Substation in North Stonington and the proposed Wilton Substation in Wilton.
(CL&P 1, Vol. 1, p. 51)

117. Based upon the geotechnical boring program completed by CL&P, including the advancement of 27 soil borings, CL&P is not anticipating blasting.
(CL&P 1, Vol. 1, p. 61)

118. CL&P would install erosion controls at the limits of work in accordance with the approved Project Plans, the D&M Plan and the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control.* (CL&P 1, Vol. 1, p. 64)

119. The tallest height of the entire line (on and off the subject property) of the existing transmission structures is 100 feet. The height of new equipment proposed to be installed in the proposed substation facilities will be less than 100 hundred feet. (CL&P 3, K. Bowes pp. 31-32)

Visibility

120. Much of the proposed substation would be surrounded by an existing vegetative buffer of forested uplands and wetlands, a Landscape Plan prepared by CL&P will mitigate for, to the extent feasible, potential views of the proposed substation by providing vegetative screening. (CL&P 1, Vol. 1, p. 59)

121. The proposed substation will not create a visual effect on residential neighbors. (CL&P 1, Vol. 1, p. 26)

122. CL&P does not anticipate any adverse visual effects on the Jacks Hill Cemetery located to the east of the proposed substation, as the proposed substation is to be constructed to the west side of the existing transmission line corridor away from the cemetery by over 600 feet. A forested upland and wetland provides a buffer between the cemetery and the proposed substation. (CL&P 1, Vol. 1, p. 60)

123. A segment of the state-owned Larkin Trail is located to the northwest of the proposed substation. The section of the Larkin Trail closest to the proposed substation may be slightly affected by seasonal (winter months) views of some of the proposed substation facilities and transmission structures. (CL&P 1, Vol. 1, p. 60)

Electric and Magnetic Field Levels

124. The highest levels of power-frequency electric and magnetic fields ("EMF") around the perimeter fence of a substation come from the transmission and distribution lines entering and leaving the substation. Fields produced by the substation equipment inside the fence will decrease in level rapidly with distance, reaching very low levels at short distances beyond substation fences. (CL&P 3, K. Bowes p. 23)

125. At and beyond the boundaries of the proposed substation, the predominant existing sources of EMF are the transmission lines (circuits 1575, 1585 and 1990). (CL&P 3, K. Bowes p. 24)

126. The highest levels of EMF along the property lines will be found on the northerly and southerly property lines beneath where the three transmission circuits cross over these property lines. (CL&P 3, K. Bowes p. 24)

127. Field levels drop off rapidly with distance from a source, so the levels of EMF at all points east and west of these transmission circuits will be much lower than the levels found beneath the circuits. (CL&P 3, K. Bowes p. 24)

128. Once the proposed substation is operational, the highest levels of EMF will continue to be found on the northerly and southerly property lines directly beneath where the 115-kV transmission circuit conductors cross over these property lines. (CL&P 3, K. Bowes p. 26)

129. The highest magnetic field level along the northerly property line, post-project will be 39.69 mG under the modeled peak-load condition, and 25.81 mG under the modeled peak-day average load condition. The highest electric field level in this same location will be .97 kV/m. (CL&P 3, K. Bowes p. 27)

130. The highest magnetic field along the southerly property line, post-project, will be 10.91 mG under the modeled peak-load condition and 7.09 mG under the modeled peak-day average load condition. The highest electric field level will be 1.08 kV/m. (CL&P 3, K. Bowes p. 27)

131. The Institute of Electrical and Electronic Engineers ("IEEE") and the International Commission on Non-ionizing Radiation Protection ("ICNIRP") have issued guideline limits for long-term public exposure to EMF. (CL&P 1, Vol. 1, p. 75)

132. The existing and proposed levels of EMF at and beyond the property lines of the proposed substation are typical for all similar substations and will be well below the IEEE and ICNIRP limits. (CL&P 1, Vol. 1, p. 76)

133. CL&P incorporated the Council's (1993) Electric and Magnetic Field Best Management Practices in the design of the proposed substation. (CL&P 3, K. Bowes p. 27)

Safety and Reliability

134. The construction of the proposed substation would be performed in full compliance with the standards of the National Electrical Safety Code and good utility practice. Should equipment experience a failure, protective relaying would immediately remove the equipment from service thereby protecting the public and the equipment within the proposed substation. (CL&P 3, K. Bowes p. 20)

135. The proposed substation will be equipped with measures to ensure continued service in the event of outages or faults on transmission or substation equipment. (CL&P 3, K. Bowes p. 20)

136. Reliability would be increased by incorporating a "loop through" configuration from an existing 115-kV overhead transmission circuit, transformer protection and redundant automatic protective relaying equipment. (CL&P 3, K. Bowes p. 20)

137. Protective relaying equipment is incorporated into the proposed substation design to automatically detect abnormal system conditions and send a protective trip signal to respective circuit breaker(s) at each end of a line to isolate the faulted section of the transmission system. The protective relaying schemes include fully redundant primary backup equipment so that an outage of one scheme does not require the portion of the transmission system being monitored by protective relaying equipment to be removed from service. (CL&P 3, K. Bowes p. 20)

138. The protective relaying and associated equipment, along with a SCADA system for remote control and equipment monitoring, would be housed in the switchgear enclosures as well as in the control enclosure. These enclosures would have smoke detectors installed which would be monitored from a remote location. (CL&P 1, Vol. 1, p. 51)

139. Fire/smoke detection would automatically activate an alarm at Connecticut Valley Electric Exchange and the system operators would then take the appropriate action. The control enclosure would be equipped with fire extinguishers. (CL&P 1, Vol. 1, p. 50)

140. The access drive to the proposed substation would be gated and the perimeter of the proposed substation would be enclosed with a 7-foot high chain link fence topped with an additional foot of 3 strands of barbed wire to discourage unauthorized entry and vandalism. (CL&P 1, Vol. 1, p. 51)

DOT/FAA

141. CL&P and the FAA discussed possible electromagnetic interference on Airport equipment created by the proposed substation. (FAA Letter, June 11, 2007)

142. According to the FAA, the proposed substation will not render the Non-Directional Beacon, Localizer, Glide Slope, Distance Measuring Equipment or communications frequencies serving the Airport unusable. (FAA Letter, June 11, 2007)

143. The FAA stated that possible electromagnetic interference is not a concern because "[t]he small profile of the poles used to tie in the substation lines will not reflect a sufficient amount of energy to impact the navigational systems .... (2) [t]he impact to the localizer signal is minimal .... and [a]ny marginal contribution by the tie-in wires to the overall [glide slope] signal interference will not put the overall interference beyond allowable tolerances .... and (3) [i]t is not anticipated that the substation will generate a significant amount of broad spectrum noise to impact the navigational or communication systems at the airport." (FAA Letter, June 11, 2007)

144. Even though the existing transmissions impact the localizer and the glide slope facilities, the impacts are either minimal or within allowable tolerances. (FAA Letter, June 11, 2007)

145. The FAA notes that broad spectrum noise generated by gaps or loose hardware on transmission lines has not impacted the navigational or communications systems at the Airport. (FAA Letter, June 11, 2007)

146. The FAA does not anticipate that the substation will generate a significant amount of broad spectrum noise to impact the navigation or communication systems at the Airport. (FAA Letter, June 11, 2007)

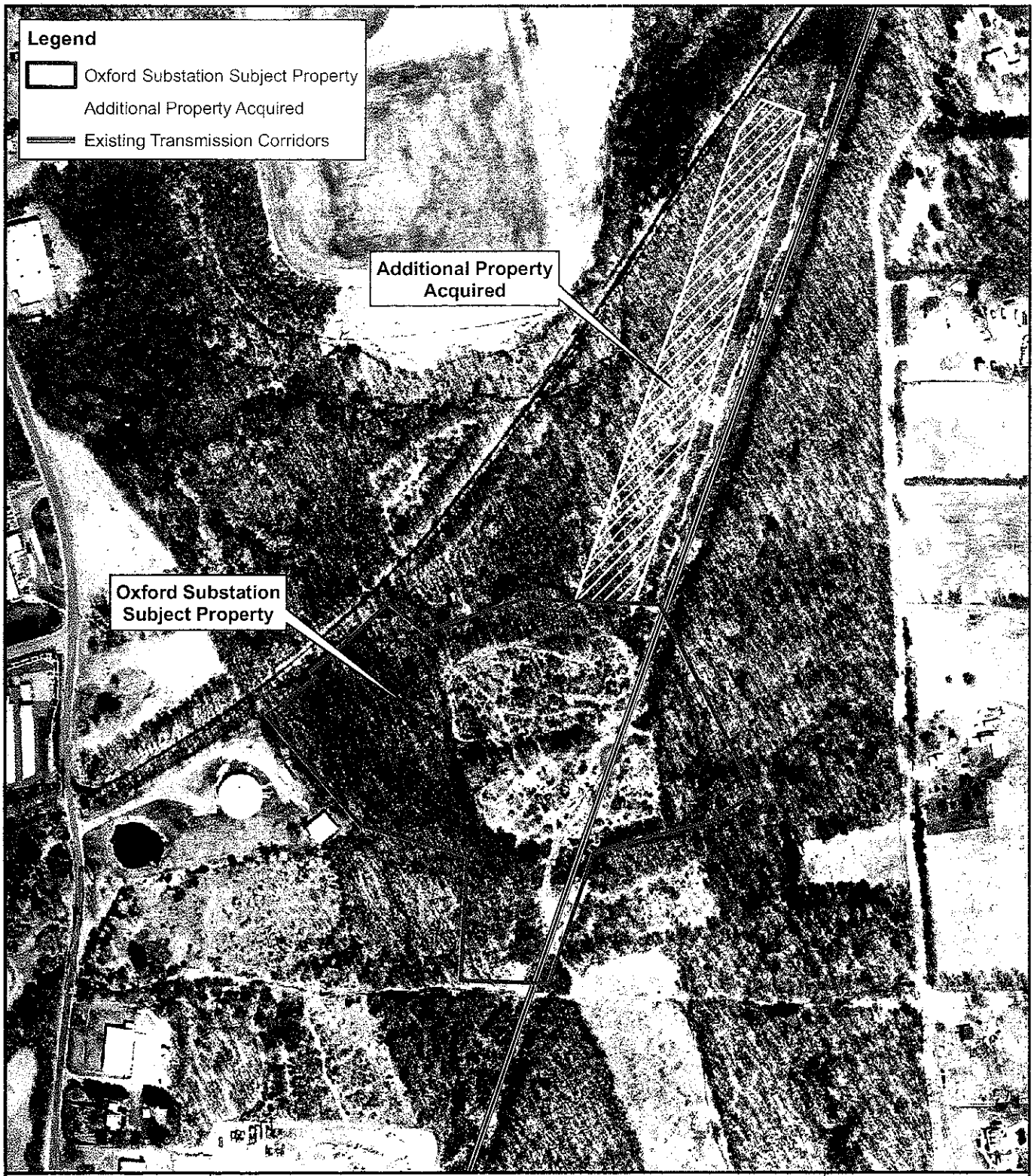
147. CL&P provided the DOT preliminary design drawings illustrating a potential reconfiguration of existing transmission lines and lowering of certain existing transmission structures within CL&P's existing right-of-way south of the Airport. (CL&P Letter Agreement, May 30, 2007)

148. The preliminary design would remove existing towers and transmission lines from the 50:1 approach path from the Airport. (CL&P Letter Agreement, May 30, 2007)

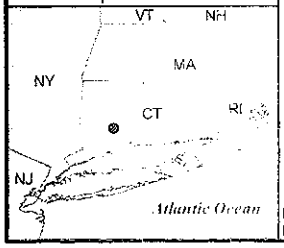
149. CL&P prepared a planning grade estimate showing the approximate cost being $4.1 million (not including contingency) for reconfiguration and structural modifications. (CL&P Letter Agreement, May 30, 2007)

150. CL&P is committed to working closely with the DOT and the Airport to address concerns raised relative to the existing transmission lines near the Airport and identifying and pursuing a long-term solution. (CL&P Letter Agreement, May 30, 2007)

Map 1
Location Map



Map Location



Site Location Map - Aerial View

Oxford 115- to 13.8-kV Substation

N

0 100 200 400 600 800 1,000 1,200 Feet

0 30 60 120 180 240 300 Meters

Map Projection: CT State Plane , NAD 83, US Feet.
Image Source: SBC aerials.

Scale: 1:4,200
(1 inch = 350 ft)

Northeast Utilities System

ENSR

Figure A-2

Date: November 2006

Project #: 05022-012