February 28, 2007

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

Re: Docket No. 326 - 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 at Stepstone Hill Road, Guilford, Connecticut.

Dear Mr. Caruso:

This letter provides the response to requests for the information listed below.

Response to CSC-01 Interrogatories dated 02/07/2007
CSC-001, 002, 003, 004, 005, 006, 007, 008, 009

Very truly yours,

Robert Carberry
Manager
Transmission Siting and
Permitting
NUSCO
As Agent for CL&P

cc: Service List

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Page M-3, Volume I of The Connecticut Light and Power Company's (CL&P) Application for a Certificate of Environmental Compatibility and Public Need states that "Contributions to EF and MF from distribution circuits crossing or close to the property line were not included." Does this mean that the proposed feeders were not included in the calculation? Would this significantly affect the results of the magnetic field analysis?

Response:
Yes, proposed and existing distribution feeders which cross or run close to the property line are not included in the calculation. Unbalanced feeder currents due to varying customer loads, switching operations and frequent changes to distribution feeder circuits, and also levels of current in the neutral wires are considerations which make modeling of distribution feeder-caused magnetic fields impractical. Distribution lines near to the westerly and southerly property borders would affect the magnetic field analysis if they could reasonably be modeled.

An existing CL&P overhead distribution feeder runs parallel to and close to the westerly property boundary with Durham Road. It will remain there and will experience no change in use after the substation is completed. Similarly, an existing overhead distribution feeder runs parallel to and very close to the southerly property boundary with Stepstone Hill Road. This feeder section will remain there, and the portion between Durham Road and Little Meadow Road will experience a changed load use after the substation is completed. Additionally, new underground cables for distribution feeders exiting the substation will run close to this same property line to reach cable-riser poles along the road.

In the near vicinity of each of the above-described distribution feeder sections there will be no detectable change in ground-level electric fields, and magnetic fields will not change except for possible increases near to the spans on Stepstone Hill Road that will experience changed load use. Directly beneath sections of overhead distribution feeders or directly above sections of underground distribution feeders, ground-level magnetic field levels are typically found in a range of 1 to 20 mG. Magnetic fields within this range should be expected where such distribution feeders border the substation property. (See Figure M8 in Volume 1 of CL&P's Application for magnetic field measurements which show evidence of such levels from a nearby distribution line.) Because of the relatively close wire/cable spacings on such distributon feeders, the magnetic field levels drop-off to much lower levels within a few tens of feet.

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Would the proposed substation and modification to the existing transmission line increase magnetic fields at any of the abutting residences (including the home located at 840 Durham Road)? If yes, indicate the increase in milligauss.

Response:
The substation will cause no changes in magnetic field levels at any of the abutting residences.

Current flows over the section of the transmission line proceeding east from the substation property are expected to decrease following the interconnection of Stepstone Substation. Therefore, magnetic fields which are attributable to this transmission line at any abutting residence to the east of Stepstone Substation will decrease. For example, an abutting residence at 70 Stepstone Hill Road is east of the proposed substation and closest to the existing transmission line; its nearest point is approximately 50 feet from the center of the transmission line. At this nearest point of the residence, the projected peak-day average magnetic field level in the year 2013 will be reduced from approximately 8.3 mG to approximately 6.4 mG.

Current flows over the section of the transmission line proceeding west from the substation property are expected to increase following the interconection of Stepstone Substation. Therefore, magnetic fields which are attributable to this transmission line at the one abutting residence to the west of Stepstone Substation (i.e., along the west side of Durham Road) will increase. The nearest residence, 840 Durham Road, is located approximately 140 feet from the center of the existing transmission line, at its nearest point. At this nearest point of the residence, the projected peak-day average magnetic field level in the year 2013 will increase from approximately 1.1 mG to approximately 1.6 mG.

All other abutting residences are located at distances of more than 250 feet from the existing transmission line. As stated on pages M-10 and M-11 in Volume 1 of CL&P's Application, magnetic field levels at such a relatively large distance from the transmission line will remain essentially unchanged at low background levels.

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
How many 13.8-kV and 23-kV feeders does CL&P initially plan to have exit the proposed substation? Where would feeders rise to overhead?

Response:
CL&P's initial plans are to establish two 13.8-kV feeders and one 23-kV feeder emanating from Stepstone Substation underground via the access road. One of the two 13.8-kV feeder cables will rise to overhead on the first pole along the north side of Stepstone Hill Road to the west of the substation accessway, and the other will rise to overhead on the first or second pole along the north side of Stepstone Hill Road to the east of the substation accessway. The overhead 13.8-kV line conductors between these riser poles will remain in place, and a normally-open switching device will remain here. The cables for the 23-kV feeder will rise to overhead on the second pole to the west of the substation accessway along the north side of Stepstone Hill Road. Existing wood poles may be replaced for the cable-riser additions where required clearances or pole-strength requirements dictate.

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Will an emergency generator be needed for backup power in addition to the battery backup system? If yes, provide the specifications of the emergency generator and fuel type and storage.

Response:
No generator will be needed.

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Describe the visibility of the proposed substation from the abutting residences. Indicate if the view is expected to be seasonal or year-round.

Response:
The proposed location of the Substation on the CL&P Property was selected, in part, to take advantage of the lot's size, topography and vegetative borders as a natural screen. No direct views of the facility from neighboring properties are anticipated during the months of the year when leaves are present on the deciduous trees. The proposed substation may be visible through the trees on a seasonal basis from portions of the property at 70 Stepstone Hill Road (owned by Donald & Rosemary Jewett – see Figure K-1 of the Application). The residence occupying that parcel is located approximately 725 feet from the proposed Substation site. Seasonal views would be limited, due to sufficient distances and tree cover, primarily to the top portions of support structures. This neighbor currently has seasonal views of one or more of the existing transmission line support structures occupying the Property.

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Describe the visibility of the proposed substation from the following state and local scenic roads in the vicinity of the substation. Indicate if the views would be seasonal or year-round. Also estimate the distance on the road for which there would be a view of the substation.

a) Route 77
b) North Madison Road
c) Moose Hill Road

Response:
The proposed substation will not be visible from State and/or local scenic roads in the vicinity at any time of the year. The CL&P Property rises steeply up from Route 77 eastward and is heavily forested. The proposed facility will be located more than 300 feet east of Route 77. Existing transmission line structures in close proximity to the proposed facility location cannot be seen from Route 77 due primarily to the rugged topography. The nearest portion of North Madison Road, a locally designated scenic road, extends to within approximately one-half mile to the east of the Substation site. The proposed substation will not be visible from this distance and direction. The road then extends northeastward further away from the site. Similarly, the proposed substation will not be visible from Moose Hill Road, another local scenic road that is located two miles to the west.

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Approximately how many trees with a diameter at breast height of six inches or greater would have to be removed to construct the substation and access drives?

Response:
Development of the facility will require the removal of up to 256 trees with 6-inch or greater diameters. This is a conservative estimate which accounts for the Substation footprint, a 20-foot area beyond the fence limits in consideration of construction activities, the access drive, and areas where the transmission line interconnections will occur (please see Site Plan drawings C-3 and C-3a in Volume 2, Appendices, of the Application).

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Approximately how much cut and fill would be required to prepare the substation site and access drives?

Response:
The approximate cut and fill required for the Stepstone project is as follows:

Cut: 1,212 cubic yds
Fill: 6,097 cubic yds
Net: 4,885 cubic yds (Fill)

Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Does CL&P own and operate substations in proximity to residential areas? Is CL&P aware of any safety concerns raised by residents? If so, provide CL&P's response.

Response:
More than half of CL&P's 234 substations, including many of similar size and nature to the proposed Stepstone Substation, are within or proximate to residential areas. Attached to this response are nine aerial photos taken in 2004 showing examples of bulk power substations proximate to residences.

During a public hearing held on September 12, 2006 by the Guilford Planning and Zoning Commission on CL&P's application for substation location approval, members of the public asked questions about the proposed Stepstone Substation. Several local residents voiced their opposition based on issues of fire safety, EMF and general family safety. CL&P responded orally to those concerns with an explanation of its practices, including its experience with many substations that are located in residential areas. Specifically, as to fire safety, CL&P explained that substations are equipped with smoke or heat detectors and that associated alarms and equipment interruptions alert CL&P's dispatch center in the event of a fire. If such an event occurs, CL&P will immediately dispatch an operator and contact the fire department. The burning of any spilled oil from a breeched power transformer will be contained and quenched by the trap-rock-filled sump around the transformer. Transformers are physically separated from each other and from the control enclosure and the substation fence to reduce the risk of fire spreading. CL&P works with local fire departments on emergency response practices and training for substation fires.

As to EMF, CL&P summarized the information that is contained in Section M of the Application. Finally , as to family safety, CL&P indicated that it will follow the National Electrical Safety Code requirements for electric supply stations by erecting a 7-foot tall chain-link fence topped by several strands of barbed wire and that entry gates will be locked and safety signs will be posted.


N
Bokum Substation
Old Saybrook
0
200
400
Feet
Source: 2004 CT DOT

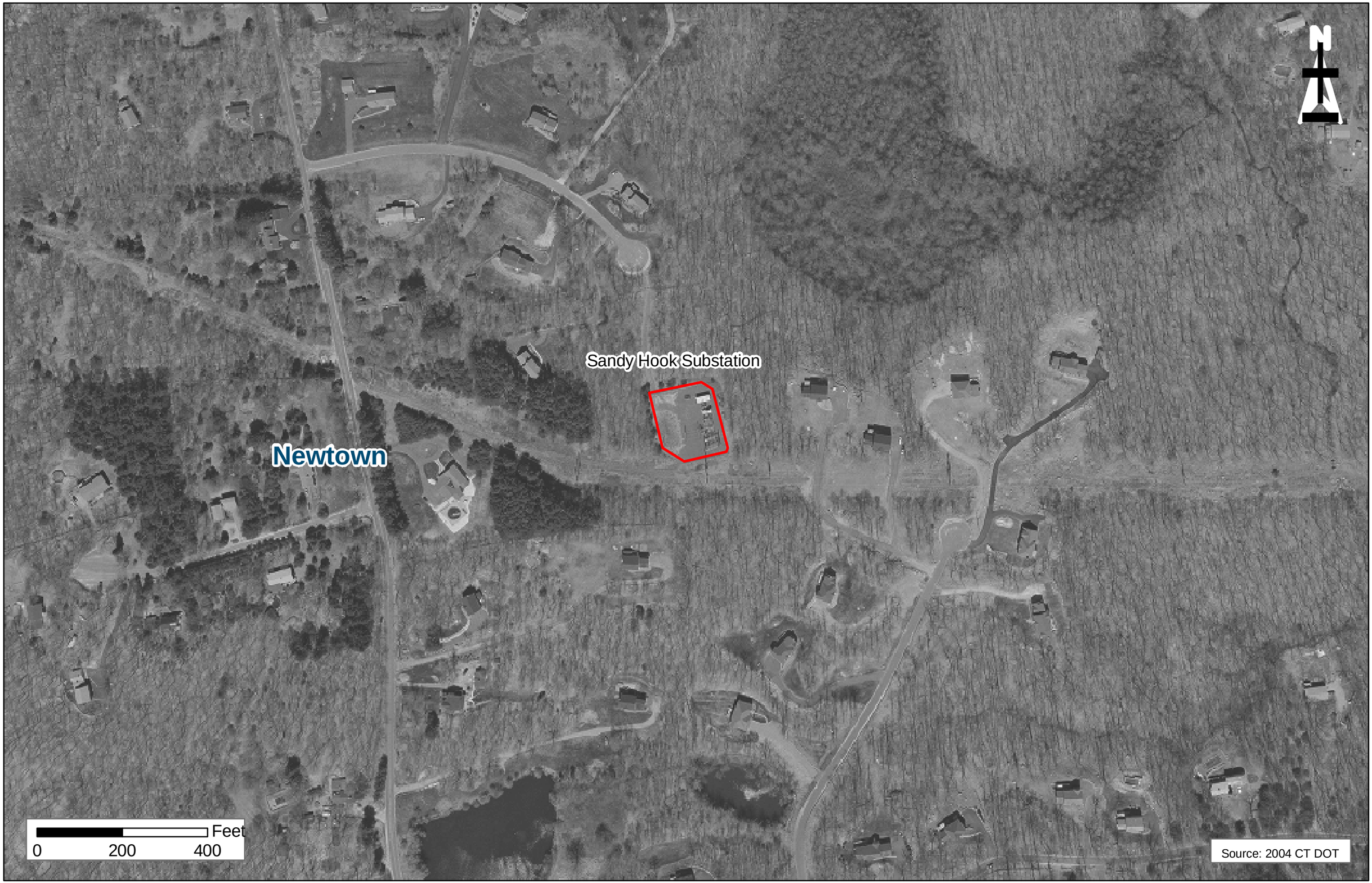

N
Cedar Heights Substation
Stamford
0
200
400
Feet
Source: 2004 CT DOT


N
Middlefield
East Meriden
Meriden
0
200
400
Feet
Source: 2004 CT DOT


Flax Hill Substation
Norwalk
N
Feet
0
200
400
Source: 2004 CT DOT


Green Hill Substation
Madison
N
0
205
410
Feet
Source: 2004 CT DOT


Mystic Substation
Groton
Stonington
N
0
305
610
Feet
Source: 2004 CT DOT


Sandy Hook Substation
Newtown
N
0
200
400
Feet
Source: 2004 CT DOT


N
South Naugatuck Substation
Naugatuck
Feet
0
320
640
Source: 2004 CT DOT


N
Todd Substation
Wolcott
0
200
400
Feet
Source: 2004 CT DOT