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VIA MESSENGER

May 25, 2004

Pamela B. Katz
Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Docket 272 - The Connecticut Light and Power Company and The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Construction of a New 345-kV Electric Transmission Line and Associated Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, Modifications at Scovill Rock Switching Station and Norwalk Substation and the Reconfiguration of Certain Interconnections

Dear Chairman Katz:

I enclose an original and twenty copies of the Pre-file Testimony of The Connecticut Light and Power Company and The United Illuminating Company regarding "Routing and Environmental Matters Concerning the Portion of the Project between Scovill Rock Switching Station and East Devon Substation (Segments 1 & 2)".

If you have any questions about this filing, please do not hesitate to contact me.

Very truly yours,

Bruce L. McDermott

cc: Service List

Enclosures

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STATE OF CONNECTICUT

SITING COUNCIL

Re:	The Connecticut Light and Power Company and The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Construction of a New 345-kV Electric Transmission Line and Associated Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, Modifications at Scovill Rock Switching Station and Norwalk Substation and the Reconfiguration of Certain Interconnections	)	Docket 272 May 25, 2004

DIRECT TESTIMONY OF ROGER ZAKLUKIEWICZ, ANNE BARTOSEWICZ, JOHN PRETE, RICHARD REED, JAMES HOGAN, CYRIL WETLER, AND LOUISE MANGO REGARDING ROUTING AND ENVIRONMENTAL MATTERS CONCERNING THE PORTION OF THE MIDDLETOWN TO NORWALK PROJECT BETWEEN SCOVILL ROCK SWITCHING STATION AND EAST DEVON SUBSTATION (SEGMENTS 1 & 2)

EXECUTIVE SUMMARY

Q. Would you please identify yourself and the other members of the panel who will respond to cross examination regarding environmental matters?

A. I am Roger Zaklukiewicz, Vice President, Transmission Projects, employed by Northeast Utilities Service Company ("NUSCO"), on behalf of The Connecticut Light and Power Company ("CL&P"). With me on this panel are Anne Bartosewicz, NUSCO Project Director, Transmission Projects; John Prete, Project

Director for The United Illuminating Company ("UI"); Richard Reed, Vice President, UI Electric System; James Hogan and Cyril Welter from the Companies' engineering consultant, Burns & McDonnell; and Louise Mango, an environmental consultant from Phenix Environmental, Inc. The resumes of these panel members are attached to our direct testimony that was previously filed with the Connecticut Siting Council or have already been made an exhibit in this proceeding.

Q. Do the Companies expect to call on any other personnel to respond to routing or environmental issues?

A. Other UI employees, NU employees, and specialized Project consultants may be called upon to respond to questions relating to specific routing, engineering design, or environmental topics. These include NU employees Jeffrey Borne and Donald Biondi. Project consultants include Kenneth Stevens, Registered Professional Soil Scientist from Soil Science and Environmental Services, Inc. ("SSES"), the firm that performed wetland and amphibian studies for the Project; Michael Raber of Raber Associates ("Raber"), the firm that performed cultural resource studies for the Project; and Douglas Bell of Cavanaugh Tocci Associates, Inc., the firm that conducted noise studies of Scovill Rock Switching Station, the proposed Beseck Switching Station, and the proposed East Devon Substation.

Q. What is the purpose of your testimony?

A. The purpose of this testimony is to provide an overview of the 45-mile overhead portion of the Project (Segments 1 and 2) and to summarize the routing criteria relevant to the development and analysis of plans for this portion of the route, which would encompass the area from the Scovill Rock Switching Station in Middletown to the

new Beseck Switching Station in Wallingford and thence to the new East Devon Substation in Milford. In addition, certain of the municipalities along the proposed route requested that the Companies review a routing option for the northern portion of Segment 1 (referred to herein as the "Northerly Route") that would traverse between Chestnut Junction and Black Pond Junction. Likewise, during the April 2004 hearings, the Siting Council asked the Companies whether a new switching station could be developed at Black Pond Junction (in Meriden), rather than at Beseck (Wallingford), as proposed. The testimony summarizes the results of the Companies' review of both of these suggestions.

The testimony also describes how the avoidance or minimization of environmental effects were considered in identifying the proposed route, and will continue to be important as the Project design, certification, permitting, and construction proceed. Environmental matters regarding the proposed Beseck Switching Station also are reviewed.

Eight primary topics are discussed, as listed below. The first four topics pertain to routing matters, while the latter four relate principally to environmental issues.

Routing:

1. General location of Segments 1 and 2, including the supported route change in Cheshire (identified in the Companies' Siting Council Application).

2. Summary review of routing criteria for Segments 1 and 2.

3. Discussion of the Northerly Route.

4. Discussion of Black Pond Junction as an alternative to the development of a new switching station location at Beseck.

The "East Shore routes" are discussed in separate pre-filed testimony also filed today (May 25, 2004).

Environmental:

5. Approach used to compile baseline environmental data.

6. Principal environmental resources along the proposed overhead route.

7. Potential environmental effects and mitigation measures.

8. Environmental matters regarding the proposed development of the Beseck Switching Station.

1. LOCATION OF SEGMENTS 1 AND 2 OF THE PROJECT

Q. Please describe generally the location of the Segments 1 and 2 of the Project.

A. Segments 1 and 2 are the overhead portion of the proposed transmission line and would be located principally within CL&P's existing rights of way (ROWs) between Scovill Rock Switching Station and the proposed East Devon Substation. These ROWs have been in existence for periods ranging from 40 to 80 years.

Segment 1 would extend along 12.3 miles of ROW and would traverse portions of six municipalities and Segment 2 would extend along 33.4 miles of existing transmission line ROWs and would traverse portions of eight municipalities, as summarized in Table 1 and Figures 1 and 2 below:

Table 1

Segment Name	Length (miles)	Additional ROW (feet)	Municipality	Cross Section
Scovill Rock SS to Chestnut Jct.	2.5	85	Middletown	1
Oxbow Jct. to Beseck SS	7	0	Middletown, Haddam, Durham, Middlefield, Wallingford	2
Black Pond Jct. to East Meriden Substation	1.4	0	Meriden	3
East Meriden Substation to proposed Beseck SS	1.4	0	Meriden, Wallingford	4
Proposed Beseck SS to E. Wallingford Jct.	5.9	0	Wallingford	5
East Wallingford Jct. to Wallingford Jct.	2.1	0	Wallingford	6
Wallingford Jct. to Cook Hill Jct.	2.9	0	Wallingford, Cheshire	7
Cook Hill Jct. to proposed East Devon Substation	22.5	0	Cheshire, Hamden, Bethany, Woodbridge, Orange, West Haven, Milford	8

Figure 1
Proposed Route – Segment 1: Scovill Rock to Beseck

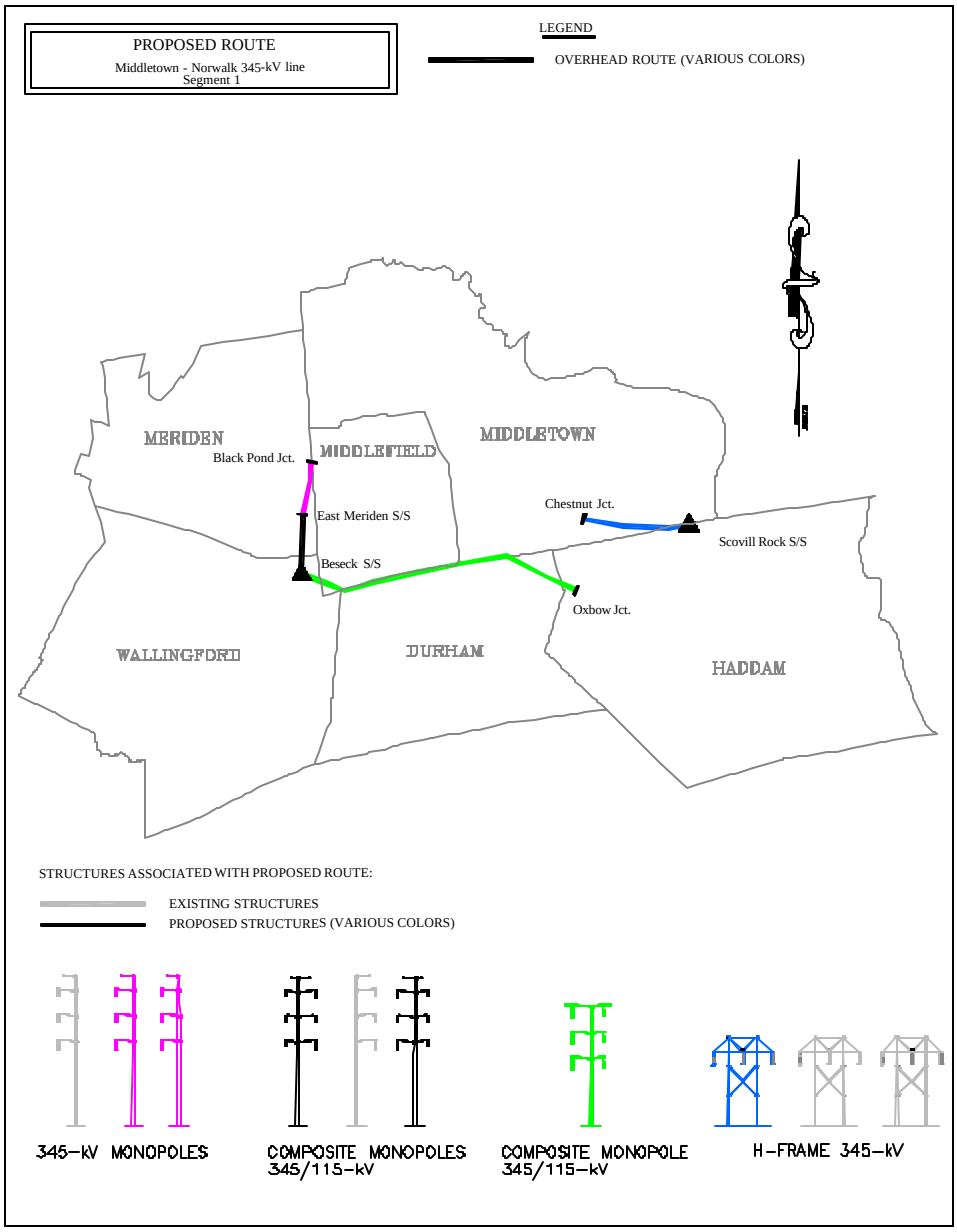
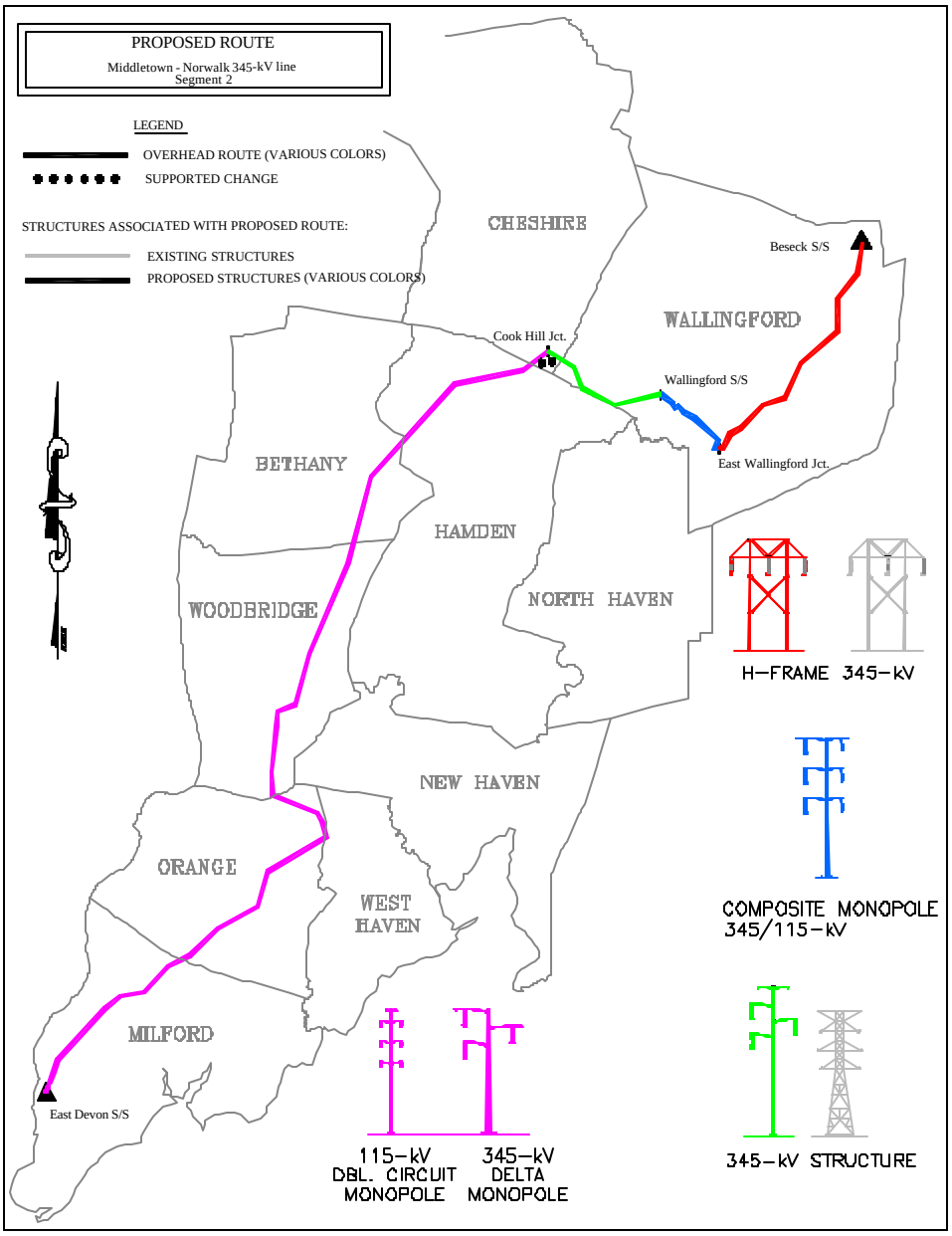


Figure 2

Proposed Route - Segment 2: Beseck to East Devon



Q. Is the Segment 1 area between Scovill Rock Switching Station and Chestnut Junction the only location where additional ROW easements would have to be acquired for the overhead transmission line?

A. Yes. Approximately 9.5 acres of new easement would have to be acquired from private landowners in this area. Along the rest of the route between Scovill Rock and Chestnut Junction, the additional ROW expansion would be on lands owned by Northeast Utilities.

Q. Do the Companies support any changes to the proposed route in Segments 1 or 2?

A. Yes. The Companies have supported one change in Segment 2. This change was identified during the Municipal Consultation Process for the Project and is described in the Application (refer to Section I.1) and depicted on the Volume 11 Map Segments (Nos. 80-83). The supported change would involve a minor modification to minimize impacts to a residential subdivision in Cheshire. It would entail the removal of one of the existing 115-kV overhead circuits (Circuit 1640) from the existing ROW to accommodate the proposed 345-kV facilities and the remaining 115-kV line (Circuit 1208) on a single structure. The 115-kV line that would be removed would be rebuilt underground, using cross-linked polyethylene ("XLPE") cable.

Q. Where would the underground 115-kV line be located and how long would it be?

A. The line would be approximately 4,900 feet in length, and would be installed primarily within two local roads (Old Farms Road and Old Lane Road in Cheshire). The beginning and end of the underground segment would be buried for short

distances within CL&P's existing ROW. At the northern end of the supported change in Cheshire, the cable would be connected to the overhead line at a location about 100 feet within CL&P's ROW; at the intersection of the ROW with Old Farm Road, the cable would be aligned within the road.

At the southern end of the supported change, from Old Lane Road in Cheshire, the cable would extend approximately 450 feet along CL&P's existing ROW (425 feet of which would be in Hamden), before reconnecting to the overhead line.

The supported change would eliminate the need to clear approximately 3 acres of tree buffer adjacent to the residential area.

Q. Would the underground 115-kV XLPE cable contain any dielectric fluid?

A. No. The 115-kV XLPE cable would be solid dielectric.

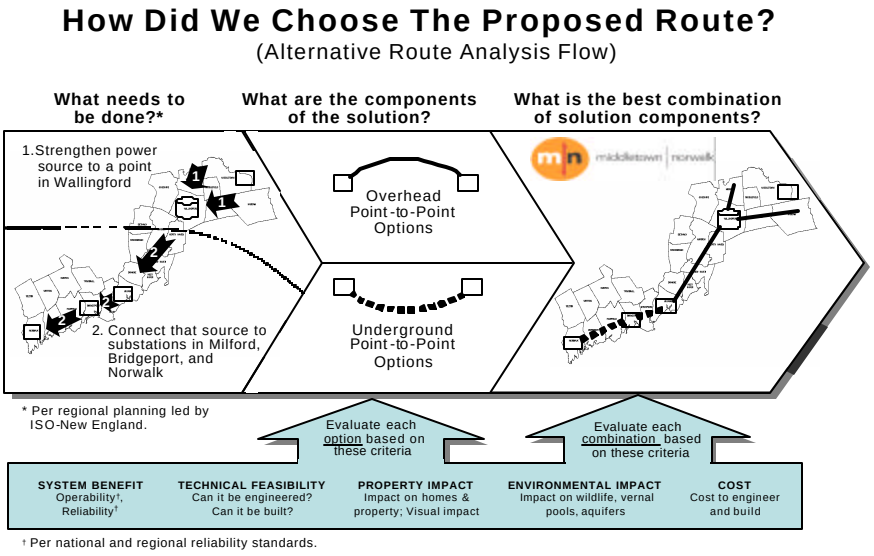
Q. Would private property have to be acquired for Project modifications to the Scovill Rock Switching Station or to construct the Beseck Switching Station?

A. No. The modifications to the Scovill Rock Switching Station would be within the existing property boundaries. The Beseck Switching Station would be located on approximately 5.4 acres within a 52-acre undeveloped parcel that CL&P owns in fee.

2. REVIEW OF ROUTING CRITERIA

Q. In your April 8, 2004, direct testimony regarding the underground portion of the Project (Segments 3 and 4), you described the criteria used to evaluate routes for the Project. Please review the routing criteria that were used to identify the proposed route along Segments 1 and 2.

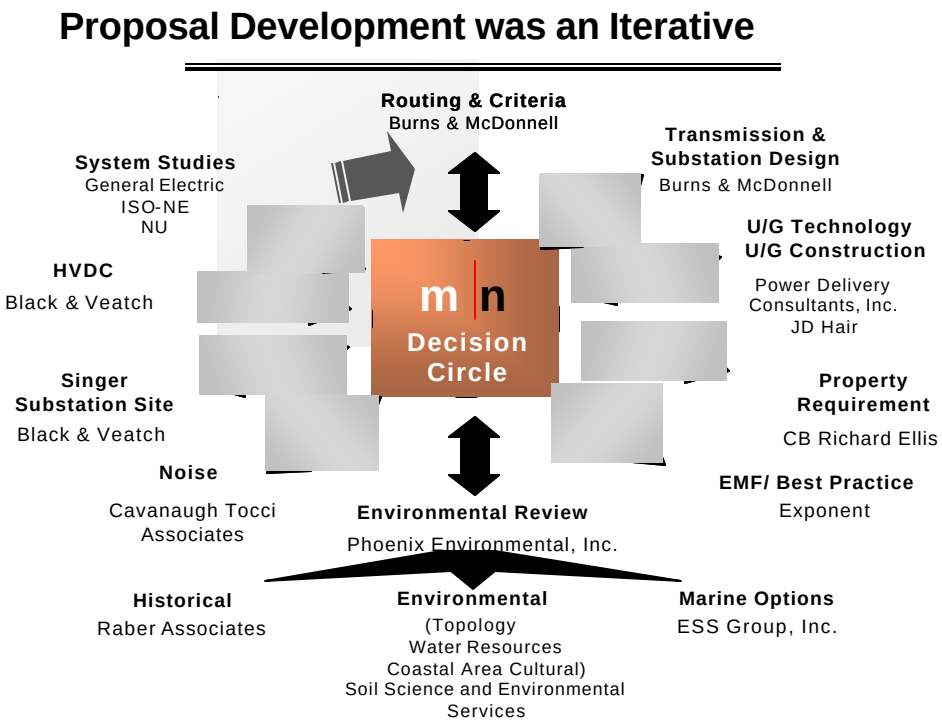
A. The criteria used to evaluate alternatives and to select the proposed route for Segments 1 and 2 were generally the same as described for the underground portion of the Project. Applying the route evaluation criteria, the Companies and their consultants began an iterative process to identify and investigate potential overhead and underground routes for the transmission facilities. This process began with the identification of a variety of potential alignment alternatives for the overall location of the Project. Once these alignments were identified, each alignment was studied for operability and reliability consideration, technical feasibility, property impacts, environmental impacts and cost, as depicted below.



Q. Who was involved in the identification and evaluation process?

A. In addition to the Companies' engineers and environmental and planning staff, the Companies utilized specialized engineering and environmental consultants to facilitate the identification and evaluation process. The figure below identifies the

various specialized engineering and environmental consultants hired by the Companies to assist the Companies in determining the optimal route for the Project.



With respect to Segments 1 and 2, the availability of established transmission line ROWs, with sufficient existing easements to allow the construction and operation of the Project facilities, was a critical consideration. Other factors considered, as described in Section H.1.2 of the Application, included avoidance of conflicts with developed areas,

consideration of visual effects, avoidance or minimization of effects to environmental resources, construction feasibility constraints, and ROW accessibility for both construction and maintenance purposes.

3. DISCUSSION OF THE NORTHERLY ROUTE.

Q. Please describe the Northerly Route.

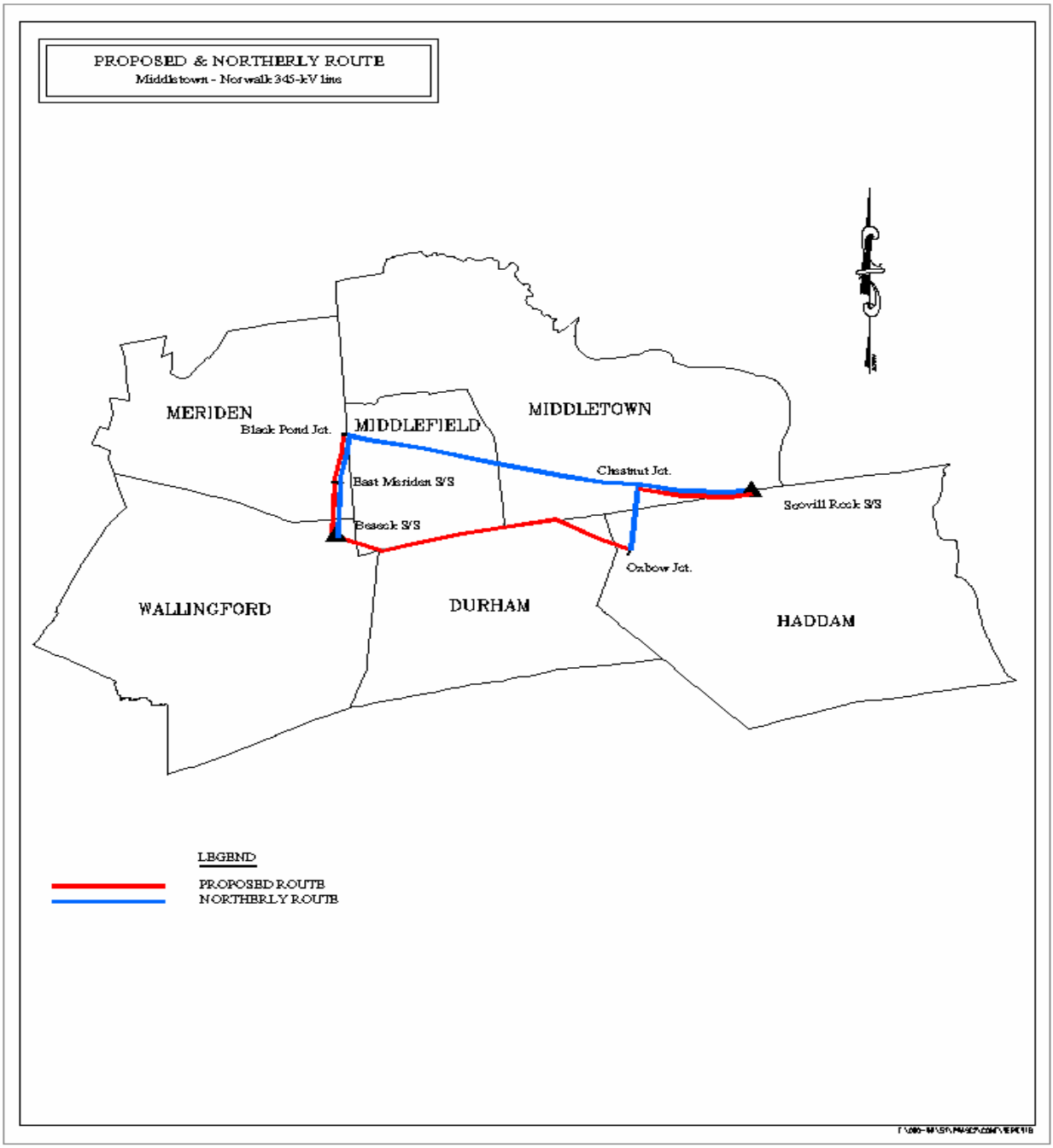
A. The Northerly Route was suggested by the Town of Durham as an alternative to the use of the proposed ROW between Oxbow Junction and the proposed Beseck Switching Station. With this routing option, the 345-kV line would be installed along the following existing CL&P ROWs:

- Traversing west from Chestnut Junction, through Hans Brook Junction and then to Black Pond Junction, the route would follow a ROW presently occupied by three 345-kV transmission lines (the 387, 362, and 348 lines). From Hans Brook Junction to Chestnut Junction, a 115-kV line also is located on the ROW. This configuration would place four 345-kV lines on a common ROW.

- Extending south from Black Pond Junction to the proposed Beseck Switching Station, the route would be aligned along the same ROW as the proposed route. This ROW is presently occupied by one 345-kV transmission line (the 387 line). Three additional 345-kV lines would be added to the ROW which would place four 345-kV lines on a common ROW.

The Northerly Route would traverse portions of Middletown, Middlefield, Meriden, and Wallingford. In comparison, the proposed route would follow existing CL&P ROWs through Haddam, Durham, Middlefield, and Wallingford. Figure 3 shows the two routes.

Figure 3



Q. Did the Companies examine this Northerly Route as part of the evaluation process that was used to select the proposed route?

A. The Companies evaluated potential routes based on system benefit, technical feasibility, property impact, environmental impact, and cost. The Companies eliminated this route early in the review process due to reliability concerns (system benefit). This route would require approximately 11 miles of four 345-kv lines on a common ROW.

Q. What analyses of this route did the Companies perform?

A. The Companies conducted a comparative analysis of the Northerly Route and the portion of the proposed route that it would replace (i.e., the proposed route between Oxbow Junction and the Beseck Switching Station).

Q. Is the proposed route preferable to the Northerly Route?

A. Yes. The Companies have identified system operational factors (reliability issues), construction issues, and potential social impacts that make this option less preferable than the proposed route. The Northerly Route would require the location of four 345-kV circuits along a common ROW between Chestnut Junction and Black Pond Junction, and between Black Pond Junction and the proposed Beseck Switching Station, raising reliability concerns should contingencies arise. In comparison, the proposed route would involve the placement of one 345-kV circuit and one 115-kV circuit on a common ROW between Oxbow Junction and Beseck, where there are presently no existing 345-kV lines.

Further, the Northerly Route would be 50% longer than the proposed route. In addition, depending on structure configurations (involving trade-offs between shorter structures on a wider ROW vs. taller structures on the existing ROW), the alternative

would require the expansion of the existing ROW up to 80 feet, require ROW clearing of up to 62 acres and the acquisition of up to eight residences.

Q. What are the possible structure configurations?

A. With many public concerns being voiced about the aesthetic impacts of overhead transmission structures, the Companies investigated expanding the existing ROW and constructing the new 345-kV transmission facilities on steel H-Frame structures similar in height and appearance to the wood H-Frame structures already in place between Chestnut Junction and Black Pond Junction. This configuration requires for the ROW to be expanded by 80 feet, would have no overall increase in the structure height in the area, but would require the expansion of the ROW by approximately 62 acres. Much of this land is not currently owned by Northeast Utilities and would have to be acquired from private, municipal, and state landowners. This is Configuration A.

Configuration B provides the opportunity to construct a new 345-kV transmission line with less expansion of the ROW as well as preserving the existing facilities. This configuration calls for constructing the new 345-kV transmission line in a vertical configuration on steel monopoles typically 130 feet tall in a vertical configuration. The ROW would have to be expanded by 40 feet between Chestnut Junction and Hans Brook Junction; by 30 feet between Hans Brook Junction and Black Pond Junction; and by 35 feet between Black Pond Junction and East Meriden Substation. The total amount of ROW expansion would be approximately 38 acres. Much of this property is not currently owned by Northeast Utilities and would have to be acquired from private, municipal and state landowners. This configuration reduces the amount of property affected; however, it increases the overall structure height in the area.

The Companies examined a design configuration that would require no ROW expansion. Configuration C. This design, however, calls for the complete reconstruction of all of the transmission lines within the ROW from 80 foot H-frame construction to 130 foot steel monopoles. The complete removal of all existing structures and the erection of all new structures along a longer route would triple the cost. Additionally, 18.2 circuit miles of conductor will need to be replaced - further increasing the cost as compared to Configurations A and B. Furthermore, the 345-kV transmission lines in this corridor carry a substantial amount of power. The long-term outages necessary for the complete reconstruction of all existing lines would compromise the reliability of the electric system. Finally, the need to replace the capacity of the affected lines while they are out of service would result in significant additional costs for electricity as the older, less efficient local generation is used to supply the electricity normally carried by the affected lines.

Any structure configurations along the Northerly Route would require higher costs compared to the proposed route. The specific dollar amount of increased costs will depend on the transmission line configuration and ROW requirements. The direct increased cost could be as high as an incremental $47 million. Under Configuration C, extended outages of all three existing 345-kV circuits would be required in order to construct the Northerly Route. This would result in significant uplift charges that would further increase costs. In particular, Configuration C would require several long duration outages of major 345-kV transmission lines. There currently exist three 345-kV separate lines within this ROW. Configuration C would call for all of them to be rebuilt on steel monopoles in a vertical configuration. This would require temporary outages of these

existing transmission lines. The project schedule and the total project cost will be severely affected by trying to schedule those outages if this design is utilized. As an example, a recent project in this corridor to replace structures required an outage that lasted four days on the 348 line between Millstone Generating Station and the Southington Substation resulting in uplift costs in excess of $600,000. This type of major capital expenditure seriously affects the cost of any project requiring outages of major transmission lines.

The following table helps to compare the differences between the proposed route and the Northerly Route:

	Northerly Route			Proposed Route
	Configuration			
	A (H-Frame)	B (Monopole)	C (Monopole)	(Composite Monopole)
Circuit Length (miles)	10.5	10.5	25.9*	7.0
ROW Width Increase (feet)	80	40	0	0
Structure Height (feet)	90	130	130	105
ROW Clearing (acres)	62	38	0	0
Home Acquisitions	8	4	0	0
Cost (not including uplift)	$24.5M	24.9M	70.3M	$22.9M
Reliability	Less Reliable			More Reliable

* Configuration C requires the existing three sets of 345-kV H-Frames between Chestnut Jct. and Black Pond Jct. to be removed and replaced with 130' monopole structures.

4. DISCUSSION OF BLACK POND JUNCTION AS AN ALTERNATIVE SITE FOR THE PROPOSED BESECK SWITCHING STATION

Q. At the April 2004 hearings, the Siting Council requested that the Companies provide additional information concerning why Beseck (in Wallingford), and not Black Pond Junction (in Meriden, adjacent to the Middlefield boundary), was selected as a site for the new switching station. Have you conducted such reviews?

A. Yes. The Companies selected Beseck as the preferred site for a switching station because it meets the requirements for a strong source of power to serve SWCT and it also meets the Companies' site selection criteria for substations and switching stations, as described in the Siting Council Application (Volume 1, Section H.6.1).

Q. Please elaborate on the factors that led to the selection of Beseck over Black Pond Junction for the proposed switching station.

A. As discussed in the Siting Council Application (Volume 1, Section G.4.1), the identification of the best strong source of power available for transmission to SWCT was critical to the 345-kV transmission system design. Transmission system supply options were evaluated from three sources outside of the SWCT region: Southington Substation, Frost Bridge Substation, and the Middletown area. From among these, the Middletown area was selected as the strongest source because eastern Connecticut is rich in generation resources. Within the Middletown area, both Beseck and Black Pond Junction are electrically equivalent and would meet the "best strong source" requirement.

However, the Companies prefer the Beseck site, for several reasons:

- Line routing: To reach Black Pond Junction, the new 345-kV line would be installed along the Northerly Route. As discussed above, the Companies prefer the proposed route.
- Land Acquisition Requirements: Because neither of the Companies owns property at Black Pond Junction, land for a new switching station would have to be acquired. The Beseck site is located on land that has been owned by Northeast Utilities for 40 years. Only 5.4 acres of the 52 acre Beseck site would be developed for the switching station.

- Terrain: Preliminary analysis suggests that extensive cut and fill earthwork, including blasting, would be required to develop the site for a switching station at Black Pond. The terrain at Beseck appears to be less challenging.
- Restricted Access: Access to the Black Pond Junction site is limited by Route 691 on the South and by wetlands on the East and West. Accordingly, access to the site will need to come from the North, which may conflict with access to the Police Academy. Ample access to the Beseck site is available.
- Land Use: The area around Black Pond Junction is wooded and is zoned for rural residential use. The Beseck site is also wooded, but is zoned for industrial use.
- State Forest / Recreational: Black Pond Junction borders the Cockaponset State Forest and is located west of and in close proximity to Mt. Higby (a trap rock ridge and recreational area). The proposed switching station would be visible from the Mattabassett Trail (Connecticut blue-blazed trail system) located on Cockaponset State Forest property at the top of Mt. Higby, and from other vista locations along the ridge top.

Thus, Black Pond Junction does not rate as well as Beseck under the Companies' substation / switching station site evaluation criteria (Volume 1, Section H.6.1 of the Siting Council Application), including minimizing the need to acquire private lands for the Project and selecting sites that are zoned for industrial use.

5. ENVIRONMENTAL DATA COLLECTION APPROACH

Q. In your April 8, 2004, direct testimony regarding the underground portion of the Project (Segments 3 and 4), you described the types of data that were compiled to characterize the existing environmental conditions in the Project area. Was the same approach used to characterize existing environmental conditions in the overhead portion of the Project area?

A. Yes. As discussed in Section L of the Application, the environmental data compilation effort involved the collection / analysis of documents, the performance of field investigations, and consultations with state, federal, and local agencies.

Q. Did the focus of environmental data compilation efforts differ for the overhead and underground portions of the Project?

A. The same types of data were compiled for the Project as a whole. However, because the overhead portion of the Project would involve primarily the use of existing CL&P rights of way (ROW), rather than an alignment principally within public road ROWs, additional effort was required to identify and characterize environmental features such as biological resources, visual resources, and cultural resources.

Q. Please briefly describe the field studies performed for Segments 1 and 2.

A. Like the underground portion of the Project, field studies were performed to identify and describe wetlands, watercourses, and amphibian breeding areas. Field reconnaissance or studies also were conducted with respect to cultural resources, visual resources, land uses, and noise.

Biological field surveys were performed by Soil Science and Environmental Services, Inc. ("SSES"), a consulting firm that specializes in wetland and watercourse

delineations, as well as amphibian studies. Field surveys to describe and delineate Connecticut regulated wetlands and watercourses were conducted in 2002 and 2003; the results of these studies are summarized in the CSC Application Volume 1 (Section L.2). The boundaries of Connecticut-regulated watercourses and wetlands are illustrated on the Volume 9 and Volume 11 maps. A copy of the SSES Wetland and Waterways Description Report is included in Volume 2 of the Application.

Additional wetland field studies were performed in late 2003 and in 2004. The purpose of these studies was to delineate federal jurisdictional wetlands (the criteria for which are slightly different than Connecticut jurisdictional wetlands), the boundaries of which are needed for the Companies' permit application to the U.S. Army Corps of Engineers ("ACOE"). At the same time, SSES worked with the Companies' personnel and Burns & McDonnell to identify areas where proposed structures could be moved slightly to avoid wetlands and to identify areas where wetlands or watercourses would have to be crossed to provide access during construction or operation of the Project. The results of these studies are discussed in more detail in Sections 4 and 5 of this testimony.

Amphibian breeding field studies were conducted in the spring of 2003. The SSES report describing the results of these studies is presented in Volume 3 of the Application.

Baseline noise studies were performed to characterize conditions in the vicinity of the proposed Beseck Switching Station site, which is planned for location on CL&P property adjacent to existing transmission line ROWs. The noise survey was performed by Cavanaugh Tocci Associates, Inc.

In addition, a cultural resource study, performed by Raber Associates, was completed to compile information about the history of the Project area; to identify known archaeological, historic architectural, and historic engineering resources in the vicinity; and to assess the potential archaeological sensitivity for discovering unrecorded sites along the proposed Project route.

Q. Were any other specialized studies conducted of Segments 1 and 2?

A. Yes. In accordance with the Council's *Application Guide for Terrestrial Electric Transmission Facilities* (September 9, 2003, Section H.1.d), an analysis of bird species that could potentially breed in the vicinity of the proposed ROW was performed (refer to Volume 4 of the Application).

Further, the Companies conducted analyses of existing structure heights on the existing CL&P ROWs and took visual resource factors into consideration in designing the height of the new structures for the proposed Project (refer to Volume 1, Section M.5.3 of the Application). Computer simulations were performed to portray views of the proposed structures in relation to the existing landscape (including the existing transmission structures) and Plan & Profiles also were developed (refer to Volumes 8 and 10 of the Application).

6. PRINCIPAL ENVIRONMENTAL RESOURCES ALONG THE PROPOSED OVERHEAD ROUTE.

Q. What are the environmental resources that have been identified along Segments 1 and 2?

A. The aerial photography based segment maps (Volumes 9 and 11 of the Application) illustrate the principal vegetation types and land uses along the overhead portion of the Project. Other environmental data identified on the aerial photographs or in the Application are:

- Location of existing transmission line ROWs, substations, structures and existing access roads;
- Vegetative community types;
- Areas of steep slopes and rock outcrops;
- Land uses;
- Municipal boundaries;
- Municipal zoning classifications;
- Wetlands;
- Watercourses and waterbodies, including streams, rivers and lakes, drainage ditches and culverts;
- Floodplain boundaries as identified by the Federal Emergency Management Agency;
- Public recreational, scenic, open space, and other protected areas, including forests, parks, water supplies, hunting/wildlife management areas;
- Schools and community facilities; and
- Existing infrastructure, including roads, railroads, pipelines, and cable crossings.

Q. Please describe the salient environmental features along the proposed overhead portion of the Project.

A. The overhead portion of the route along existing ROWs would span 94 perennial and intermittent streams, including the Coginchaug River (Durham); New Dam

Pond (Meriden); Muddy River, and the Quinnipiac River (Wallingford); Mill River (Hamden); West River (Bethany); Glen Dam Reservoir (Woodbridge); Indian River (Orange); and Wepawaug River (Milford). The state has designated Stream Channel Encroachment Lines ("SCELs") along the Quinnipiac River. However, no Project structures would be located within such SCELs.

The wetland field studies conducted by SSES resulted in the identification of 168 wetlands within the ROWs[1] along the overhead portion of the Project. It should be noted that 94 of these wetlands are associated with either the perennial or intermittent watercourses described above. SSES's investigations revealed that these wetlands (all of which are within the existing, long-established ROWs) are generally well-vegetated and dominated by shrub swamp and shallow marsh communities. In many locations, the shrub-swamp and shallow marsh wetlands extend off the existing ROWs, transitioning to wetlands characterized by mixed hardwood deciduous vegetation.

Amphibian studies, performed by SSES during the spring amphibian breeding period, resulted in the identification of 10 wetlands that have high amphibian breeding potential; 24 wetlands that have moderate potential for amphibian breeding; and 35 wetlands that have little or no potential for amphibian breeding habitat. Two of the 10 wetlands with high potential appear to be vernal pools; these wetlands are located in Durham and Wallingford.

Consultations with the Connecticut Department of Environmental Protection (DEP) Natural Diversity Data Base (NDDB) indicate that several state or federally designated threatened or endangered species are reported in the vicinity of the overhead

[1] Two additional small state-regulated wetlands (0.02 acre and 0.8 acre in size) are located on the proposed East Devon Substation site and would be affected by the development of this facility.

portion of the Project. These include the four Species of Special Concern: the wood turtle (Middletown and Milford); the eastern box turtle (Middlefield); the red-shouldered hawk (Woodbridge); and the blue-winged teal (Durham). In addition, the King rail, a state-listed threatened species, was identified in the Durham vicinity.

Q. Does the overhead portion of the route cross the state-designated coastal boundary?

A. No.

Q. What other environmental resources were evaluated along the proposed underground route?

A. An ambient noise study was performed at the proposed Beseck Switching Station site. The study involved ambient sound measurements at noise sensitive receptors (e.g., homes) in the vicinity of the proposed switching station site, followed by an estimate of sound levels projected to occur as a result of the operation of the facility. The results of the study determined that existing background sound levels in the vicinity of the proposed switching station are dominated by traffic noise from I-91, which is located about 0.25 mile to the west. Further, this negligible equipment noise would comply with both Wallingford's noise ordinance and the DEP Noise Regulations.

In addition, Raber Associates identified and evaluated archaeological and historic resources for the Project. The Raber studies determined that a total of 105 Native American archaeological sites are known to occur within about 1 mile of the overhead portion of the proposed route. Of these, only six are within 500 feet of the proposed route. There are no reported historic (Euro American) archaeological sites within 600 feet of the overhead portion of the route.

Research also was performed to identify known significant historic structures within 0.25 mile of the overhead portion of the route; the viewshed distance was selected based on discussions with the State Historic Preservation Officer's staff archaeologist. A total of 14 significant above ground historic properties, including individual structures and districts listed on or eligible for listing on the National Register of Historic Places ("NRHP") were identified. Digital topographic profiles were developed to identify areas where the proposed transmission structures would be shielded from historic properties by hills, forest cover, or buildings, and photographic documentation was conducted for all historic architectural properties within 0.25 mile where the digital profiles indicated a potential for visibility of the electric transmission facilities.

Q. Are there wildlife management areas (WMAs), parks, recreational, and open space lands in the vicinity of Segments 1 and 2?

A. Yes. These areas are identified on the Volume 9 and 11 maps, and are discussed in Volume 1, Sections L.3.2.2 and L.5.3. They include the Durham Meadows WMA, Cockaponset State Forest, Black Pond WMA, Lyman Meadows Golf Course, Sleeping Giant State Park, Naugatuck State Forest, Seven Falls Sate Park, Quinnipiac River State Park, Brooksvale Recreational Area and Park, Fred P. Wolff Park, and Eisenhower Park.

7. POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Q. What potential environmental effects were evaluated with respect to the construction and operation of the overhead portion of the Project?

A. The Companies considered the following potential environmental effects:

- Topography, geology, and soils;

- Water resources and water quality (wetlands [including vernal pools], watercourses, floodplains, groundwater, and pubic water supply areas);

- Biological resources
  - riparian and upland vegetation;
  - wildlife (including birds);
  - amphibians;
  - fisheries; and
  - threatened/endangered species.

- Land uses (including scenic and recreational resources; open space and protected areas; local, state, and federal land use plans; existing and future development);

- Road, railroad, and utility crossings;

- Archaeological and historic resources; and

- Air quality and noise.

Q. What potential effects would the overhead portion of the Project have on topography, geology, and soil resources?

A. There will be negligible effects on topography, geology, and soils. All activities involving soil disturbance would be performed in accordance with the Companies' best management practices and suitable soil erosion and sedimentation controls would be installed, consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

Q. What potential effects would the overhead portion of the Project have on water resources?

A. As described in Volume 1, Section M.2.1 of the Application, along the overhead portion of the Project, structures would be located away from waterbodies wherever possible and wires would span watercourses. During construction, the

Companies would adhere to specific procedures designed to minimize or avoid impacts. Crossings of streams by construction equipment would be limited or avoided. Any equipment crossings would be performed in accordance with the conditions of the Council's certificate and the permits from the DEP and the ACOE. Further, except along existing access roads, vegetation removal along the ROW would be minimized within a 50-foot wide buffer around streams. This would preserve desirable vegetation for habitat, shading, bank stabilization, and erosion/sedimentation control.

Q. What effect would the overhead portion of the Project have on wetlands?

A. The overhead portion of the proposed route would be within existing ROWs, along which various wetlands are already spanned by existing transmission lines. In some areas, existing transmission structures are located in wetlands.

Along the existing ROWs that the overhead portion of the Project would follow, approximately 116 transmission structures are presently located in or immediately adjacent to wetlands (refer to the Application, Volume 1, Table L-5). Access to all of these structures exists as a result of the construction, maintenance, modification and repair activities that have been performed on these transmission ROWs over the past 40 to 80 years.

The Companies would attempt to avoid the installation of structures in wetlands and, where such construction cannot be avoided, would implement best management practices including temporary erosion controls, surface roughening, temporary seeding, and mulching to limit potential wetland impacts. Based on the structure location analyses for the proposed route (refer to the Volume 9 maps) and on the wetland descriptions and delineations performed by SSES, the Companies anticipate that some of the existing

structures presently located in wetlands would be removed and that fewer new structures would have to be placed in wetlands.

In most cases, where wetlands cannot otherwise be avoided, the limited and short-term construction work in wetlands would consist primarily of:

- Modifications to existing access roads or establishment of new access roads through certain wetlands to reach structure sites, where no upland access alternatives are available;

- Activities associated with the installation of new 345-kV/115-kV structures in wetlands (i.e., removal of wetland soils and vegetation in the structure foundation area); and/or

- Activities associated with the removal and reconstruction of certain of the existing structures that are presently located in wetlands.

When removing vegetation within 50 feet of wetlands, the Companies would selectively remove trees and would maintain a brush understory in order to maintain a shade canopy.

Q. Subsequent to the submission of the Application to the Council, have the Companies conducted any additional studies to minimize impacts to wetlands?

A. Yes. The Companies have conducted additional field studies and worked with Project engineers and Burns & McDonnell to make preliminary technically feasible design adjustments in order to locate proposed structures in upland areas, thereby minimizing potential impacts to wetlands, where possible. As a result of this effort, approximately 28 structures that were identified as within wetlands on the Application maps (Volumes 9 and 11) would be moved so as to be placed outside of regulated wetland boundaries.

Q. Have the Companies quantified the potential impacts to wetlands as a result of the Project construction and operation?

A. Yes. Along Segments 1 and 2, the Companies estimate that approximately 5 acres of state-regulated wetlands would be temporarily affected during construction as a result of the need for access through wetlands or for the placement of temporary work pads in wetlands in order to install new structures or remove existing structures. An additional 3 acres of wetlands would be permanently affected by the placement of structure foundations in wetlands that could not otherwise be avoided, and the development of access road extensions (that must be in wetlands in select areas) to reach new structures. After the completion of construction work in a wetland, any temporary work pads or temporary access would be removed and the wetland would be restored. Thus, after the completion of construction, the 5 acres of temporarily affected wetlands would retain wetland functions and values. The 3 acres of wetlands within which new structures or access roads must be placed would be converted to non-wetland uses.

Q. What effect would the Project have on the two vernal pools identified along the existing ROW?

A. The project would have no direct impact on these vernal pools. Structures have been located to avoid both of these areas. Construction near these areas would be timed so as not to interfere with amphibian breeding periods or other mitigation measures would be implemented, as appropriate based on consultation with the DEP and the Siting Council.

Q. Will the construction and operation of the overhead portion of the Project result in adverse impacts to vegetation or wildlife resources?

A. Because Segments 1 and 2 would be along existing ROWs, effects on vegetation and wildlife resources would be minimized. Some vegetation would have to be removed to safely accommodate construction and operation of the transmission facilities. However, the vegetation types found along the route are common in the region and vegetation removal would represent a negligible overall impact on wildlife habitats and populations.

The creation of additional shrubland habitat (and the preservation of such existing habitat) along the maintained ROWs would represent a long-term positive effect because shrubland habitat (like any other early successional habitat) is otherwise declining in New England as a result of various factors (e.g., development, ecological succession, absence of fire). In Connecticut, transmission line ROWs are considered a major source of shrubland habitat.

The Project would result in the disturbance of a maximum of approximately 98 acres of primarily forested vegetation, which would be converted to shrubland habitat. In areas where forest lands presently exist, the conversion to shrubland would represent a long-term, but not an adverse, effect.

Q. Would the overhead portion of the Project affect amphibians or amphibian habitat or species listed by the federal or state governments as threatened, endangered or of concern?

A. To the extent possible, new structures would be located outside of wetlands that provide high or moderate potential for productive amphibian breeding. However, because several of the potential breeding areas are large wetlands that presently

contain a number of structures; it might not be possible to avoid such areas entirely. As a result, some new structures would have to be placed in such wetlands.

To minimize adverse effects on amphibians, the Companies would schedule construction activities in and near the amphibian breeding areas to avoid impacts during critical periods in these species' life cycles. The Companies would consult with the DEP to identify appropriate time periods during which construction could be performed so as to minimize such effects.

Q. Would the overhead portion of the Project affect species listed by the federal or state governments as threatened, endangered or of concern?

A. Potential effects on the listed species of turtles and birds identified in the vicinity of the overhead portion of the Project are primarily temporary and would be avoided by restricting construction activities in the vicinity of the species known habitats. To avoid critical periods in these species' lifecycles, the DEP has recommended that construction in the vicinity of the species' reported habitats be conducted in accordance with specified schedules. The Siting Council Application, Volume 1, Section M, Table M-4 (*DEP-Recommended Construction Windows for Threatened, Endangered and Special Species of Concern*) identifies the timing restrictions that have been recommended by DEP to date.

The Companies expect to continue to consult with the involved resource agencies during the certification and permitting phases of the Project and to assess the need, if any, for further field studies to document the presence/absence of these species in the Project area. The Companies anticipate that issues regarding potential threatened or endangered

species in the Project vicinity may be addressed by avoiding construction during critical periods in these species' lifecycles.

Q. Have you reviewed local, state, and federal land use plans, particularly with respect to existing and future development, for the areas along the overhead portion of the Project?

A. Yes.

Q. Will the proposed overhead portion of the Project be consistent with the land uses and policies presented in these plans?

A. Yes. The proposed Project transmission facilities would be installed within existing, long-established electric transmission ROWs, which have been dedicated to utility use for 40 to 80 years.

Q. What effects would the overhead portion of the Project have on visual resources?

A. Given public concerns regarding the visibility of overhead transmission structures, the Companies have attempted to minimize the height of the proposed structures to the extent possible. For example, from Cook Hill Junction to East Devon the companies have proposed the use of 345-kV compact delta structures and have designed the structures with the shield wires placed on the side of the structures and have increased the tension of the conductors. This design allows the structures to be only 85 feet high. Without these design features, the structures would be at least 105 feet high. Further, the Companies have sought to lessen the impact of the new structures on visual resources because the proposed Project would be aligned entirely along existing corridors (where transmission lines have been established for 40 to 80 years) and because – for the

most part – the new structures are expected to be in the same general locations as the existing structures.

The long-term effect on visual resources in any particular area also would depend on various factors, such as:

- The appearance (type and height) of the transmission structures that presently occupy the ROW;
- The appearance (type and height) of the transmission structures proposed for the ROW;
- The extent to which vegetation presently screens the ROW and existing structures from view;
- The amount of vegetation clearing that would be required to accommodate the new 345-kV facilities (and in certain areas, the rebuilt 115-kV facilities);
- The extent to which topographic conditions limit views of the ROW;
- The land uses adjacent to and near the ROW; and
- Individual public perceptions concerning views of the transmission line ROW and structures.
- Removal of many existing structures.

Q. What effect will the construction and operation of the overhead Project have on transportation and traffic patterns?

A. The construction of Segments 1 and 2 would result in limited and localized effects on transportation patterns, whereas the operation of the Project would have no effect.

The well-established public road network in the Project area would afford ready access to most work sites for construction vehicles and equipment. During the

construction period, construction workers traveling to work sites, as well as the movement of construction equipment, may cause temporary localized increases in traffic volumes on local roads near the proposed route. The Companies would employ police personnel to direct traffic at construction work sites along roads, as needed, and would erect appropriate traffic signs to indicate the presence of construction work zones.

The ROW access roads that are present along the existing transmission lines are expected to be used for most construction activities. These existing access roads are depicted in the aerial photographs in Volume 9, and are identified in Volume 1, Table K-1. The overhead portion of the Project also would cross various roads, railroads, and pipelines. All such crossings would be overhead and would result in no adverse effects.

8. ENVIRONMENTAL MATTERS REGARDING THE BESECK SWITCHING STATION

Q. What environmental effects would occur as a result of the development of the Beseck Switching Station?

A. The Beseck Switching Station is proposed for location on a 5.4-acre portion of a 52-acre undeveloped, forested property that is owned by CL&P in Wallingford. The 5.4-acre site would be cleared of vegetation, and then graded and filled to create a level area for the switching station facilities. The site is located at the junction of existing transmission ROW, and is within an industrially zoned area. The station would be consistent with the existing industrial use designation and would be compatible with the other industrial uses located to the west and south.

The operation of the Beseck Switching Station would result in a long-term change in the land use of the site, creating long-term but minor changes to topography, soils,

vegetation and wildlife, visual resources, and noise. However, these changes would be localized.

Q. Would the development of the switching station affect water resources?

A. No. The construction of the proposed Beseck Switching Station, which is not located within any 100-year floodplain boundary, would not directly affect any water resources or wetlands. Although a wetland is located east and down-slope of the proposed site, adjacent to the existing transmission line, appropriate temporary erosion and sedimentation controls would be installed around disturbed areas within the station. Similarly, although the site is within a large area designated by Wallingford for watershed protection, neither the construction nor the operation of the switching station is expected to affect Wallingford's watershed protection area. Appropriate spill prevention, control and countermeasure procedures would be implemented during the construction and during operation of the facility.

Q. How would the development of the switching station affect visual resources?

A. The construction and operation of the station would alter the visual characteristics of the site, resulting in a long-term change. However, this development would be consistent with the property's industrial zoning, as well as with the character of the facilities in the industrial park along Carpenter Road and Technology Drive. Further, the Companies have mitigated the potential adverse visual impacts associated with views of the switching station from nearby residential areas by proposing to locate the station on the west side of the existing CL&P transmission corridor, thereby separating the station site from the residential areas by approximately 600 - 1,000 feet. The property

between the existing transmission corridor and High Hill Road is owned by CL&P and consists of undeveloped mature forestland, which would serve as a visual screen. The Companies would plant additional vegetative screening around the station.

Q. Does this conclude your testimony?

A. Yes.

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