



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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January 19, 2007

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director

RE: **DOCKET NO. 317** - The United Illuminating Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed 115-kV/13.8-kV electric substation and associated facilities located at 3-7 Wildflower Lane, Trumbull, Connecticut.

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As stated at the hearing in New Britain on December 5, 2006, after the Council issues its draft findings of fact, parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record; however, no new information, evidence, argument, or reply briefs will be considered by the Council.

Parties and Intervenors may file written comments with the Connecticut Siting Council on the Draft Findings of Fact issued on this docket by February 2, 2007.

SDP/laf

Enclosure



**LIST OF PARTIES AND INTERVENORS**  
**SERVICE LIST**

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<b>Applicant</b>	<p>The United Illuminating Company 157 Church Street P.O. Box 154 New Haven, CT 06506</p>	<p>Richard J. Reed Vice President – Electric System The United Illuminating Company 801 Bridgeport Avenue Shelton, CT 06484 P: 203-926-4500 F: 203-926-4457 <a href="mailto:Rich.Reed@uinet.com">Rich.Reed@uinet.com</a></p> <p>Eugene Kallaur Program Manager Transmission &amp; Substation Projects The United Illuminating Company 801 Bridgeport Avenue Shelton, CT 06484 P: 203-926-4605 F: 203-926-4664 <a href="mailto:Gene.Kallaur@uinet.com">Gene.Kallaur@uinet.com</a></p> <p>Kathleen Shanley Director of Environmental Safety &amp; Real Estate The United Illuminating Company 801 Bridgeport Avenue Shelton, CT 06484 P: 203-926-4695 F: 203-926-4696 <a href="mailto:Kathleen.Shanley@uinet.com">Kathleen.Shanley@uinet.com</a></p> <p>Linda L. Randell, Esq. Bruce L. McDermott, Esq. Wiggin and Dana LLP One Century Tower New Haven, CT 06508-1832 P: 203-498-4400 F: 203-782-2889 <a href="mailto:Lrandell@wiggin.com">Lrandell@wiggin.com</a> <a href="mailto:bmcdermott@wiggin.com">bmcdermott@wiggin.com</a></p>
<b>Party</b> <i>(Approved on 8/31/06)</i>	<p>The Wildflower Coalition Petitioners</p>	<p>Julie D. Kohler, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 P: 203-368-0211</p>

**LIST OF PARTIES AND INTERVENORS**  
**SERVICE LIST**

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<p style="text-align: center;"><b>Party</b> <i>(Approved on 10/10/06)</i></p>	<p>The Town of Trumbull</p>	<p>Daniel F. Schopick, Esq. Town Attorney 572 White Plains Road Trumbull, CT 06611 P: 203-261-6565 F: 203-261-8420</p>
<p style="text-align: center;"><b>Intervenor</b> <i>(Approved on 10/24/06)</i></p>	<p>The Connecticut Light and Power Company</p>	<p>Anthony M. Fitzgerald, Esq. Carmody &amp; Torrance LLP 195 Church Street, 18<sup>th</sup> Floor P.O. Box 1950 New Haven, CT 06509-1950 P: (203) 777-5501 F: (203) 784-3199 <a href="mailto:afitzgerald@carmodylaw.com">afitzgerald@carmodylaw.com</a></p> <p>Robert E. Carberry Manager – Transmission Siting and Permitting Northeast Utilities Service Company P.O. Box 270 Hartford, CT 06141-0270 P: (860) 665-6885</p> <p>Kathleen A. Shea Associate Counsel Northeast Utilities Services Company P.O. Box 270 Hartford, CT 06141-0270 P: (860) 665-3395 F: (860) 665-5504</p>
<p style="text-align: center;"><b>Intervenor</b> <i>(Approved on 10/24/06)</i></p>	<p>Mark Waggner 65 Oakridge Road Trumbull, CT 06611 P: (203) 365-0573 <a href="mailto:Mark_waggner@conair.com">Mark_waggner@conair.com</a></p>	

DOCKET NO. 317 - The United Illuminating Company	}	Connecticut
application for a Certificate of Environmental Compatibility and	}	
Public Need for the construction, maintenance, and operation of a	}	Siting
proposed 115-kV/13.8-kV electric substation and associated	}	
facilities located at 3-7 Wildflower Lane, Trumbull, Connecticut.	}	Council
	}	
	}	January 10, 2007

**DRAFT Findings of Fact**

**Introduction**

1. The United Illuminating Company (UI), in accordance with the provisions of Connecticut General Statutes (CGS) § 16-50g et seq., and § 16-50j-1 et seq. of the Regulations of Connecticut State Agencies (RCSA), applied to the Connecticut Siting Council (Council) on June 30, 2006 for the construction, operation, and maintenance of a new substation to be located on UI's 4.85-acre property located at 3-7 Wildflower Lane, Trumbull, Connecticut. (UI 1, Vol. I, pp.1-2)
2. The purpose of the proposed facility is to provide increased distribution system capacity to ensure and improve electric system reliability in response to increasing load growth in the Town of Trumbull and surrounding communities. (UI 1, Vol. I, p. 2)
3. The parties in this proceeding are the applicant, the Wildflower Coalition Petitioners (WCP), and the Town of Trumbull (Town). The intervenors in this proceeding are The Connecticut Light and Power Company (CL&P) and Mark Waggoner. (Transcript 1 - 10/24/06 at 3:15 p.m. [Tr. 1], pp. 5-6)
4. Pursuant to General Statutes § 16-50m, the Council, after giving due notice thereof, held a public hearing on October 24, 2006, beginning at 3:00 p.m. and continuing at 7:00 p.m. The hearing was noticed for the Trumbull Town Hall, the Court Room, 2<sup>nd</sup> Floor, 5866 Main Street, Trumbull. However, the location was changed to the Madison Middle School, 4630 Madison Avenue, Trumbull prior to the hearing. (Council's Revised Hearing Notice dated October 12, 2006 (original notice dated September 22, 2006); Tr. 1, p. 3; Transcript 2 - 10/24/06 at 7:00 p.m. [Tr. 2], p. 3)
5. The Council and its staff made an inspection of the proposed substation site on October 24, 2006, beginning at 1:00 p.m. The Council and its staff also inspected the Quail Trail site (Site 6) and the Quarry Road site (Site 11). (Council's Revised Hearing Notice dated October 12, 2006; Tr. 1, p. 4)
6. UI utilized a bucket truck to simulate the height of proposed transmission structure NB31A at Site 1 during the field review. (Tr. 3, p. 151)
7. Pursuant to CGS § 16-50l (b), public notice of the application was published in *The Trumbull Times*, *The Bridgeport News*, and *The Stratford Sun* on June 22, and 29, 2006. (UI 1, Vol. II, Exh. H; UI 4, response 1)
8. Pursuant to CGS § 16-50l (b), notice of the application was provided to all abutting property owners by certified mail. UI and its attorney sent redundant letters June 21 and

- June 22, 2006. Return receipts were received from six out of the seven addresses. Return receipts were not received from Chet and Julie Jawor. (UI 1, Vol. II, Exh. H; UI 4, response 1)
9. Pursuant to CGS § 16-50I (b), CL&P provided notice to all federal, state and local officials and agencies listed therein. (UI 1, Vol. II, Exh. H)
  10. UI erected a four-foot by six-foot sign on its property on Wildflower Lane, close to Huntington Turnpike, which provided a brief description of the proposal and notice of the Council's October 24, 2006 hearing. The sign also indicated that a copy of the application and additional information is available at the Council's website or by calling the Council's office. An identical sign was placed on Nichols Avenue near the current access road to the proposed site. The sign on Wildflower Lane was installed on October 10, 2006 and the sign on Nichols Avenue was installed on October 12, 2006. (UI 7)
  11. UI also installed four signs at the Site 6 property (owned by the Town of Trumbull) on October 12, 2006. These signs also included a brief description of the proposal and notice of the Council's October 24, 2006 hearing. The sign indicated that a copy of the application and additional information is available at the Council's website or by calling the Council's office. The sign also noted that Site 6 was proposed as an alternative location for the substation by the WCP and the Town. (UI 7)
  12. On or about June 30, 2006, UI sent copies of its application to the Connecticut Energy Advisory Board (CEAB). (UI 1, Vol. II, Exh. H).
  13. On June 30, 2006, the CEAB issued a Request for Proposals (RFP) seeking alternatives to the proposed substation, pursuant to CGS § 16a-7c. (Council Admin. Notice, Item 33)
  14. Proposals for alternatives to the proposed substation were to be submitted to the CEAB no later than July 14, 2006. None were received. (Council Admin. Notice, Item 19)
  15. On October 26, 2006, the CEAB issued its final report indicating that the proposed substation conforms to the most relevant of the Preferential Criteria for this project, which is enhanced reliability. Thus, the CEAB views the proposed project favorably. (Council Admin. Notice, Item 19)

#### State Agency Comment

16. Pursuant to CGS § 16-50I, on September 22, 2006 and December 6, 2006, 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). (Record)
17. The Council received responses from the DOT's Bureau of Engineering and Highway Operations on October 13, 2006, and from the DEP on October 20, 2006.

18. In its comments, DOT does not object to the proposed site. DOT stated that if the proposed project involves any work to be performed in the state highway right of way, an encroachment permit is required. (DOT Comments dated October 13, 2006)
19. DEP states the primary site has no wetlands or watercourses. Site 1 is also level, largely cleared and already used for utility purposes. Most of the substation footprint has herbaceous or small shrub cover with principle species being milkweed, goldenrod, inkberry, scrub-oak, tree-of-heaven, sumac, pin cherry, poison ivy, and autumn olive. (DEP Comments dated October 20, 2006)
20. DEP visited the following streets adjacent to Site 1: Stella Drive, Wildflower Lane, Huntington Turnpike and Nichols Avenue to assess the potential for visual impacts to those areas. The two closest homes on Stella Drive are those at 45 and 52 Stella Drive, at the northern end of that street. DEP notes that those homes would benefit from ample deciduous screening. The homes at 40 and 46 Stella Drive are higher in elevation and may see more of the taller elements of the substation, such as the tap structures, through or above the upper portions of the intervening woods. (DEP Comments dated October 20, 2006)
21. DEP noted that the home at 6 Wildflower Lane would experience a significant loss of existing forest cover across the street. Proper landscape plantings could obscure much of the view of the substation, but the existing view would be significantly altered. DEP recommends that existing trees be preserved on this side of the substation. (DEP Comments dated October 20, 2006)
22. DEP states that the home at 1500 Huntington Turnpike would have a view of some elements of the substation. The homes at 1514 and 1526 Huntington Turnpike may experience seasonal views of the taller elements of the substation. The home at 1536 Huntington Turnpike will probably not see the substation. Homes north of this point and west of Huntington Turnpike would not see the substation. (DEP Comments dated October 20, 2006)
23. DEP notes that several homes along the south side of Nichols Avenue may have some view of the proposed substation, but the home at 2911 would be the only home significantly impacted. (DEP Comments dated October 20, 2006)
24. DEP notes that at least three homes on Quail Trail and two homes on Leffert Road would be visible from Site 6A. (DEP Comments dated October 20, 2006)
25. DEP believes that Site 6B has the most screening from views from residences than all other sites in the application. (DEP Comments dated October 20, 2006)
26. DEP believes that Site 11 would be an appropriate location for the substation. However, the soil could be contaminated due to dumping activities or the site's close proximity to industrial areas. (DEP Comments dated October 20, 2006)
27. The DPH responded to the Council's solicitation for comments, but had no comments. (DPH Comments dated December 21, 2006)

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

#### Municipal Consultation

29. Previously, UI met with Trumbull's Planning and Zoning Administrator, First Selectman Raymond J. Baldwin, and UI's consultants in October 2002. (UI 3)
30. UI notified The Town of Trumbull of the proposal on November 28, 2005 by sending technical reports to First Selectman Raymond J. Baldwin. (UI 1, Exh. G)
31. UI also met with the Town prior to the start of the municipal consultation process on December 1, 2005. (UI 3)
32. Pursuant to CGS § 16-50I (e), UI notified the City of Bridgeport and the Town of Stratford of the proposal by sending technical reports to Mayor John M. Fabrizzi and Mayor James Miron, respectively, on December 21, 2005. Both the City of Bridgeport and the Town of Stratford are located within 2,500 feet of the proposed substation. (UI 1, Exh. G)
33. On June 30, 2006, UI filed applications with the following municipal agencies: Trumbull Inland Wetlands & Watercourse Commission, Bridgeport Zoning Department, Bridgeport Regional Planning Agency, Stratford Planning and Zoning Administrator, Trumbull Engineering Department, Bridgeport Office of Planning/Economic Development, Bridgeport Inland Wetland Agency, Stratford Zoning Commission, and Stratford Conservation Commission. (UI 1, Exh. H)
34. On July 19, 2006, the Trumbull Planning and Zoning Commission (Town P&Z) held a meeting and voted unanimously to deny the location and construction of UI's substation. On July 24, 2006, the Town P&Z notified UI of this result by a letter. (Town 1)
35. On August 9, 2004, UI responded by letter, stating that UI had not been informed of the meeting of the Town P&Z. UI also noted that it is willing to meet with the Town P&Z and address any concerns. (UI 3)

#### Need

36. The proposed substation is needed to provide the necessary substation capacity to meet the growing needs of the great Trumbull region. Construction of the substation would eliminate the growing risk of overloads and associated load shedding and thereby maintain the overall system reliability in the greater Trumbull area. (UI 1, Vol. I, p. 23)
37. UI presently has no substation located in Trumbull. The Old Town Substation (Old Town) in Bridgeport supplies power to approximately half of Trumbull and the northernmost portion of Bridgeport. The Trap Falls Substation (Trap Falls) in Shelton serves the easternmost section of Trumbull, the southern half of Shelton and the northernmost section of Stratford. These two substations serve 95 percent of Trumbull's electric load and are currently operating over or near capacity. (UI 1, Vol. I, p. 23)

38. During the summer of 2005, Old Town had a peak load of 83.3 mega-volt-amperes (MVA), which is 97 percent of its maximum rated capacity of 86.5 MVA. Trap Falls had a peak load of 77.3 MVA in the summer of 2005, which is 101 percent of its maximum rated capacity of 76.5 MVA. Trap Falls is expected to reach 117 percent of its maximum rating by the summer of 2008. (UI 1, Vol. I, p. 5 and 23)
39. UI's design criteria require substations to be built with two transformers. The criteria stipulate that one transformer must be able to carry the load of the substation through one 24-hour load cycle and remain within the transformer rating. The peak load at Trap Falls Substation is currently above the transformer rating, and continues to grow. If one transformer at Trap Falls Substation failed, the remaining transformer would be overloaded. This would require immediate load shedding, which may result in several thousand customers in Trumbull, Shelton, Stratford, and Bridgeport experiencing outages. (UI 1, Vol. I, pp. 5-6)
40. The capacity problems at both Old Town and Trap Falls will increase in severity by the summer of 2007 due to the addition of new customer load, including a 5 megawatt customer on Research Drive in Shelton. Further load increases are expected in the next five years. (UI 1, Vol. I, p. 6)
41. UI has identified the potential for an additional 8 MVA of temporary load transfers from Trap Falls. These measures will need to be taken in the summer of 2007 to transfer load from Trap Falls to other neighboring substations if loads approach their forecast levels. Transferring load in this manner reduces the distribution system performance and reliability by increased feeder lengths and degrading voltage levels. These temporary measures can allow UI to continue to provide service while the proposed substation is being constructed, but these measures are not sustainable in the long term. (UI 1, Vol. I, p. 8)
42. UI considered several alternatives to building a new substation. These included: distribution load transfers to adjacent substations; replacing the existing substation transformers with larger units; the installation of a modular substation in the region; distribution automation; distributed generation; and conservation and load management. None of these alternatives would produce the required capacity increase in the greater Trumbull region. (UI 1, Vol. I, p. 8)

#### Site Alternatives

43. To ensure that the proposed substation location was a viable site, UI reviewed and evaluated a total of sixteen sites. Some of these sites are different locations on the same parcel. (UI 1, Vol. I, pp. 35-53)
44. In its site evaluations, UI used the following criteria to judge a particular location's viability: transmission and distribution; substation construction and access; environmental; and real estate. UI prefers to own property rather than lease. (UI 1, Vol. I, pp. 35-53; UI 1, Vol. II, p. 13)
45. The sixteen sites evaluated were: the proposed substation site at 3-7 Wildflower Lane (Site 1); Connecticut Route 8 (Site 2); 2878 Nichols Avenue (Site 3); Huntington Turnpike (Sites 4A and 4B); 1446 Huntington Turnpike (Site 5); Rocky Ridge Road or

Quail Trail (Sites 6A, 6B, 6C, and 6D); 330-336 White Plains Road (Site 7A); 364 White Plains Road (Site 7B); Unity Park (Site 8); Huntington Turnpike (Site 9); 1460 Huntington Turnpike (Site 10); and Quarry Road (Site 11). (UI 1, Vol. I, pp. 39-40)

46. UI determined that the proposed site would be the best site suited for both transmission and distribution system access. Site 1 is the only site that does not require dead end tap structures. (A dead end tap structure is a transmission structure that can structurally support the conductors on one side going slack.) Site 1 does not require distribution ductline right of way because it is adjacent to Wildflower Lane. Site 1 also requires the least amount of ductline construction since it is within 300 feet of the existing distribution feeders on Huntington Turnpike. Site 1 also has the lowest combined total transmission and distribution costs of all the evaluated sites. (UI 1, Vol. I, p. 36)
47. UI determined that Site 1 requires the least preparation and development work, as compared to other locations, due to its topography and existing improvements. Site 1 also can be accessed directly from Wildflower Lane and does not require the construction of access roads to the substation. (UI 1, Vol. I, p. 37)
48. UI also prefers Site 1 because no wetlands or streams are on or adjacent to the site. (UI 1, Vol. I, p. 37)
49. UI is current owner of Site 1. All other identified sites require the purchase of property and the acquisition of land rights for the associated right of way. (UI 1, Vol. I, p. 37)
50. UI determined that Site 2, located on DOT property adjacent to the Route 8/Merritt Parkway Interchange, was unsuitable because the topography is not suitable for substation construction and site preparation costs would be extraordinarily high. Access to the right of way to the site would not provide adequate street frontage width. (UI 1, Vol. II, p. 6)
51. UI determined that Site 3, located on the City Line Florist Property on 2878 Nichols Avenue, was unsuitable because: much of the useable portion of the property is heavily sloped requiring a substantial amount of site preparation work; access right of way to the site would not provide adequate street frontage width; a stream traverses the center of the useable portion of the parcel and would have to be diverted; and the property owner expressed no interest in selling the property (UI 1, Vol. II, p. 7)
52. UI determined that Site 5, located on the Bill Property on 1445 Huntington Turnpike, was unsuitable because: the site is south of the CL&P right of way and a 115-kV crossing tap would be required; the major portion of the southern area of this property is designated inland wetland; the property owner was approached by UI's consultant and expressed no interest in selling any of the property associated with that site location. (UI 1, Vol. II, p. 8)
53. UI determined that Site 7B, located on the Chisarik Property on White Plains Road, was unsuitable because: a 250-foot transmission line extension from the CL&P right of way to the site would be required; the transmission line extension would be highly visible from White Plains Road to surrounding residences; and the general topography consists of extreme slopes. (UI 1, Vol. II, p. 9)

54. UI determined that Site 8, located on the Town Property at Unity Park, was unsuitable because: the substation transmission tap and switchyard would be in the direct vicinity of the Town outdoor recreation facilities; portions of the site location property are located within a flood plain, resulting in added substation grading and increased foundation costs; the useable area is located adjacent to wetlands, ponds and watercourses; and the transmission line crossing and extension to the site would be highly visible to residences. (UI 1, Vol. II, p. 9)
55. UI determined that Site 9, located on DOT property south of the Merritt Parkway, was unsuitable because: the most viable transmission route to the site would extend approximately 1,200 feet from a transmission line tap located within Site 6; a marsh and stream encumber the portion of the property where a substation may be constructed; access right of way to the site would not provide adequate street frontage width; and approximately 80 percent of the property is located within the boundaries of designated inland wetlands. (UI 1, Vol. II, p. 10)
56. UI determined that Site 10, located on the Armenian Church Property, 1460 Huntington Turnpike, was unsuitable because: routing the double circuit transmission line supply to the site would require the longitudinal occupation of public roadways or the crossing of developed residential properties; due to the significant slope at the rear of the property and the irregular configuration of the site, it would be difficult to place the substation at this site would demolishing the existing church building; and the site is located in immediate proximately to a stream and to sizeable inland wetland area to the north. (UI I, Vol. II, p. 11)
57. UI gave further consideration to the following sites: Site 4 (with includes two placement areas: 4A and 4B), Site 6 (which includes three placement areas: 6A, 6B, and 6C), and site 7A, before deciding on Site 1. (UI 1, Vol. II, p. 14).
58. Site 4A is located on Town property on the west side of Huntington Turnpike south of Rocky Ridge Drive. The property is relatively level and mostly wooded with an adjacent area designated as inland wetlands. The most direct distribution access route would be 800 feet to Huntington Turnpike. The total differential cost (including transmission and distribution) associated with this site relative to Site 1 is \$1,118,000. (UI 1, Vol. II, p. 19)
59. Site 4B is located adjacent to site 4A and the total differential cost (including transmission and distribution) associated with this site relative to Site 1 is \$1,441,000. (UI 1, Vol. II, p. 20)
60. Site 6A, 6B, and 6C are all located on Town property off of Rocky Ridge Drive. This property is heavily wooded with gentle to moderate slope. The CL&P 1710 and 1730 transmission lines are already on this property. The total differential costs of Sites 6A, 6B, and 6C (including transmission and distribution) associated with this site relative to Site 1 are \$1,557,000, \$2,317,000, and \$1,434,000, respectively.
61. All of the Site 6 properties were ultimately rejected by the Town and are no longer considered viable. (Tr. 4, p. 182; Tr. 1, pp. 38-39; Tr. 4, p. 28)

62. Site 7A is located on the Chisarik Property on 330-336 White Plains Road. The property is flat, level and heavily wooded. The CL&P 1710 and 1730 transmission lines are already on the property. The site is adjacent to a designated inland wetland. The total differential cost of Site 7A (including transmission and distribution) relative to Site 1 is \$1,861,000, respectively.

*Site 11: Quarry Road*

63. UI determined that Site 11, located on the D'Addario Property, Quarry Road, was not suitable because: it would require the installation of two single-circuit deadend structure; differential distribution costs over Site 1 were estimated to be \$3,612,000; the site is in the proximity of wetlands and the Pequonnock River; and UI does not own the property. (UI 1, Vol. II, p. 13; UI 14, p. 11)
64. Site 11 is the only site recommended by the Town, WCP, and Mr. Waggnar. (Tr. 4, p. 182; Tr. 1, pp. 38-39; Tr. 4, p. 28)
65. Mr. D'Addario has offered to sell the property to UI for \$7.5 million. (Town 7)
66. UI has not performed any formal environmental assessments of Site 11, but believes it is located within the 100-year flood plain. (UI 13, response 9)
67. The nearest home is roughly 1,000 feet to the east/southeast of Site 11. (UI 13, response 9)
68. The reliability benefits of the Trumbull Substation project can be achieved at Site 11. (UI 14, p. 1)
69. Achieving a transmission reliability benefit at Site 11 would require relocating the 1730 transmission junction from Site 1 to Site 11. This would require a 115-kV transmission line between Site 1 and Site 11. (UI 14, p. 2)
70. A direct overhead transmission line from Site 1 to Site 11 over CL&P's existing right of way would cost approximately \$3,168,182 to achieve a transmission reliability benefit. (UI 14, p. 4)
71. A direct underground transmission line from Site 1 to Site 11 over CL&P's existing right of way would cost approximately \$17,670,000 to achieve a transmission reliability benefit. (UI 14, p. 5)
72. An underground transmission line from Site 1 to Site 11 under public roadways would cost approximately \$23,720,000 to achieve a transmission reliability benefit. (UI 14, p. 6)
73. If the proposed substation is sited at Site 11, UI would not construct the transmission reliability benefit part of the project. Further studies would be performed and a new project at Site 1 would likely be proposed to achieve this benefit. (UI 14, p. 6)
74. Construction of the substation at Site 11 would reduce the Norwalk-Stamford transfer capacity by connecting to CL&P's 1730 line. This is an area of concern until the

Middletown-Norwalk (M-N) project is completed. The M-N project is not expected to be complete until late 2009, which is estimated to be two years after the proposed substation is projected to be in service. (CL&P 1)

### Description of Proposed Project

75. The proposed project would be located on a 4.85 acre parcel of land zoned Residence AA and located at 3-7 Wildflower Lane, Trumbull, immediately west of the Connecticut State Route 8/Nichols Avenue (Route 108) interchange. The property is situated on a cul-de-sac at the easterly terminus of Wildflower Lane within a triangular area bounded by Huntington Turnpike, Nichols Avenue and Route 8 in Trumbull. The junction of UI's 1710 and 1730 transmission lines with CL&P's 1710 and 1730 lines occurs at this site. (UI 1, Vol. I, pp. 2, 14, 64)
76. There are currently two transmission structures on the site that include two sets of motor operated disconnect switches. Over half of the proposed site is within UI's existing transmission line right of way. UI's existing transmission line right of way and switch support structure border the eastern section of the site. UI's right of way is 200 feet wide and supports its 115-kV transmission lines (1710 and 1730) on a double circuit monopole structure in a vertical configuration and a double circuit lattice structure in a horizontal configuration. CL&P's existing transmission line right of way borders the northern portion of the site. CL&P's right of way is 110 feet wide and supports CL&P's 115-kV transmission lines (1710 and 1730) on lattice structures in a vertical configuration. (UI 1, Vol. I, p. 14)
77. The proposed substation would consist of an outdoor, air-insulated, low profile 115-kV switchyard and includes the following equipment: two 24/32/40 MVA, 115/13.8-kV power transformers with load tap changers; one 13.8-kV bus duct system connected to the power transformers; low profile 115-kV aluminum tubular bus work supported by station post insulators; three 115-kV SF<sub>6</sub> gas insulated circuit breakers; five vertical break disconnect switches; six center break disconnect switches; instrument transformers; three tubular steel H-frame takeoff structures within the fenced switchyard; miscellaneous steel structures for equipment and bus work support to be installed on concrete-filled drilled pier foundations; five shielding masts for lightning protection; one control/switchgear building; and two single pole tubular steel dead-end structures. (UI 1, Vol. I, p. 15)
78. UI proposes to erect a single-story prefabricated control/switchgear building on the western edge of the proposed site. The 13.8-kV metal-clad switchgear, the protection, control and metering equipment and the alternating current and direct current power equipment would be located in the control/switchgear building. The building would be 15-feet high above grade. The building, transformers, circuit breakers, and station post insulators will be specified with an American National Standards Institute light gray exterior color. (UI 1, Vol. I, p. 15)
79. The proposed substation's lightning shielding masts would extend approximately 55 feet above grade, and the takeoff structures would extend approximately 48 feet above grade. The three takeoff structures would be designed as tubular steel H-frame structures. The switchyard high voltage (115-kV) bus would be approximately 26 feet above grade. A new single pole tubular steel dead-end structure, located within the substation fenceline, would be approximately 75 feet above grade. A second new single pole tubular steel

- dead-end structure would be approximately 85 feet above grade and would be located within CL&P's existing transmission line right of way. (UI 1, Vol. I, p. 16)
80. No additional right of way or other property acquisition would be required to complete the proposed substation. The configuration of the 1710 line would remain unchanged. (UI 1, Vol. I, p. 16)
  81. The proposed site is located at the junction of CL&P's east/west section and UI's north/south section of the 1730 line. This makes it possible to break down the existing three terminal 1730 line into three two terminal lines without significant investment in transmission infrastructure to route the junction to a new site. The three existing terminals are located at Devon, Pequonnock and Weston. Sectionalizing the transmission line in this way provides a reliability benefit by reducing the overhead transmission line exposure to outages for roughly half of the customers fed from the proposed substation from 20.4 miles to 12.6 miles. (UI 1, Vol. I, p. 17)
  82. By breaking down the tap on the 1730 line at the proposed site into three two-terminal transmission lines, an alternative power flow is created. This increases the opportunity to conduct maintenance on the greater Trumbull area 115-kV lines without unacceptably impairing the capacity or reliability of the system. (UI 1, Vol. I, p. 18)
  83. The existing UI 1730 transmission line would be routed into and out of the substation. The proposed design would break down the three terminal tap on the 1730 line and would effectively create three transmission lines from the existing 1730 line. These new lines would be created by adding 115-kV breakers at the north-south and east-west junction of the 1730 line. The transmission lines would be re-numbered after the substation is completed. The substation would have a three-position ring bus that is fed by three 115-kV transmission lines. Line 1714 to Weston and line 1730 from Devon (Milford) would enter the substation from the north, and the line 1713 to Pequonnock (Bridgeport) would enter the substation from the south. (UI 1, Vol. I, p. 18)
  84. From the existing tap structure (833A) in CL&P's right of way, CL&P's 1730 transmission line would be routed south for approximately 115 feet to one of the two proposed take-off structures inside the substation. The line would be routed through a circuit breaker and then exit the substation from the second takeoff structure. To reconnect to CL&P's transmission line, the line would span approximately 115 feet from the north takeoff structure to the new single pole tubular steel dead-end structure (833B) to be located within the CL&P right of way. (UI 1, Vol. I, P. 19)
  85. UI's 1730 line would exit the substation from the southeast takeoff structure and span approximately 80 feet to UI's existing right of way via a new single pole tubular steel dead-end structure (NB 31A). (UI 1, Vol. I, p. 19)
  86. Both the CL&P 1730 line and the UI 1730 line would transition from a vertical configuration to a horizontal configuration as the lines approach the substation's north takeoff structures. (UI 1, Vol. I, p. 9)
  87. The proposed substation would have a "loop through" design in a ring bus configuration. The three shorter transmission lines would be created. This would improve power quality to customers served by the 1730 line, improve power flows during maintenance and

contingency conditions, and provide UI and CLP with more frequent opportunities to perform line maintenance. (UI 1, Vol. I, p. 20)

88. The protective relaying and related equipment as well as a Supervisory Control and Data Acquisition (SCADA) system for remote control and equipment monitoring would be located in the switchgear and control house and would be monitored from a remote location. (UI 1, Vol. I, p. 20)
89. The service life of the substation equipment is expected to be 40 years or more. (UI 1, Vol. I, p. 21)
90. The proposed substation could be accessed directly from Wildflower Lane. No new access roads are required. (UI 1, Vol. I, p. 37)
91. The proposed substation would have a footprint approximately 335 feet by 200 feet. (UI 6, p. 2)
92. The tentative in-service date is December 31, 2007. (UI 1, Vol. I, p. 83)
93. There are 40 residences within 1,000 feet of the proposed site. The nearest occupied residence is 220 feet west of the proposed site on Wildflower Lane. (UI 1, Vol. I, p. 70)
94. The estimated construction cost of the proposed facility is:

Materials & Equipment	\$9,049,000
Permitting, Engineering and Construction Management	\$2,481,000
<u>Construction</u>	<u>\$5,770,000</u>

Total \$17,300,000  
(UI 1, Vol. I, p. 21)

95. UI has determined that the proposed substation could be shifted a maximum of 20 feet north if required by the Council. This would still comply with CL&P's clearance standard of 25 feet to the base of CL&P's transmission structures. (UI 14, p. 12)
96. UI also evaluated alternative design configurations to minimize effects on the surrounding environment, particularly the visual impacts.
  - Option A involves the construction of an architectural wall around all sides of the substation. The incremental cost of this configuration over UI's proposed configuration is \$1,200,000.
  - Option B involves the construction of the architectural wall around the substation and also includes the use of indoor gas insulated substation (GIS) technology. The 115-kV substation equipment would be enclosed by a building on all sides to minimize the visual impacts. The incremental cost of this configuration over UI's proposed configuration is \$3,100,000.

- Option C involves GIS equipment surrounded by a building that resembles a barn, along with a 14' high chain link fence. The incremental cost of this configuration is \$2,300,000. (UI 1, Vol. I, pp. 77-78)

### Environmental Considerations

97. The Connecticut Commission on Culture and Tourism, formerly the Connecticut Historical Commission has indicated that the proposed undertaking would have no effect on historic, architectural or archaeological resources listed on or eligible for the National Register of Historic Places. (UI 1, Vol. I, p. 72)
98. In the event prehistoric archaeological and/or historic resources are discovered during the construction of the substation, UI would stop work in the immediate area and notify the State Historic Preservation Officer. (UI 1, Vol. I, p. 72).
99. There are no known existing populations of federal or state endangered or threatened species, or any state special concern species at the proposed site. (UI 1, Vol. I, p. 68)
100. No regulated wetlands were identified on the proposed site. (UI 1, Vol. I, p. 56)
101. Approximately 60 trees with a diameter at breast height of six inches or greater would be removed for the proposed substation and access roads. (UI 4, Response 10)
102. The proposed project would require approximately 450 cubic yards of cut and 1,800 cubic yards of fill. (UI 4, response 11)
103. After construction is complete, UI would landscape and re-vegetate to prevent soil erosion, provide screening and enhance the area's appearance. (UI 1, Vol. I, pp. 67-68)
104. Construction and operation of the substation would not affect watercourses. (UI 1, Vol. I, p. 69)
105. Groundwater is probably non-existent or located at a significant depth based on the shallow depth to bedrock. (UI 1, Vol. I, p. 55)
106. There are no designated floodplains in the vicinity of the proposed site. (UI 1, Vol. I, p. 67)
107. The nearest state-designated scenic road is the Merritt Parkway, which is located approximately 1,800 feet from the proposed substation property line. (UI 4, response 3)
108. There are no parks, designated recreational open spaces or open space areas, maintained by Trumbull or the state which either abut or are located near the proposed site. Abraham Nichols Memorial Park, the closest recreation facility to the substation site, is approximately 0.8 miles north of the site. (UI 1, Vol. I, p. 60)  
(UI 1, Vol. I, p. 18)
109. The proposed substation would meet the Town's noise ordinance which specifies a limit of 55 dBA for daytime and 45 dBA for nighttime areas zoned Residence AA. The

- ordinance is more restrictive than the state's noise regulations. With low noise transformers, the substation would meet Trumbull's noise ordinance. (UI 1, Vol. I, p. 65)
110. The maximum median hourly daytime background sound pressure level increase at the nearest residential locations was predicted to be 1 dB. The maximum median hourly nighttime background sound level was predicted to be 3 dB. The maximum lowest hourly nighttime background sound pressure level increase at the nearest residential locations was predicted to be 7 dB. A 3 dB change in continuous broadband noise is generally considered just barely perceptible to the average listener. (UI 1, Vol. I, pp 64-65)
  111. If the proposed substation is shifted 20 feet to the north, the noise levels at the 1500 Huntington Turnpike property would increase from 41.6 dBA to 42.6 dBA. At 6 Wildflower Lane, the noise levels would decrease from 40.9 dBA to 40.0 dBA. At 45 Stella Street, the noise levels would decrease from 39.0 dBA to 38.3 dBA. (UI 14, p. 12)
  112. Impulse noise, though rare, would be emitted from the 115-kV circuit breakers in response to system faults or transmission switching operations. The impulse noise level is 101 dBA. While these operations could occur at any time, UI expects the circuit breakers to operate less than five times per year, including maintenance operations. (UI 4, response 7)
  113. The substation would have sufficient lighting to ensure that emergency work could proceed during nighttime or inclement weather. The lighting would generally be turned off. Routine, outdoor work at the substation would generally be scheduled for daylight hours. (UI 1, Vol. I, p. 20)
  114. The transformers would be filled with non-polychlorinated biphenyl (non-PCB) mineral oil. UI would construct an oil containment pit around each transformer, which would be designed to contain 110% of the volume of transformer oil. (UI 1, Vol. I, p. 77)
  115. The proposed substation would contain two banks of lead acid batteries. Each bank would be stored within a stationary rack. Each rack would be placed within an acid resistant drip tray that contains an acid neutralizing material to contain and neutralize any potential release from the batteries. UI would routinely inspect, test, and replace substation batteries. (UI 4, Response 4)
  116. UI has no plans to install an emergency generator at the proposed substation because it would have battery backup power. (UI 4, Response 13)
  117. UI would install erosion controls at the limits of work area in accordance with the approved project plans, the D&M Plan and the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. (UI 1, Vol. I, p. 76)
  118. No blasting would be required during the proposed substation construction. UI would utilize rock augers and/or jack hammers when rock needs to be removed. (UI 4, response 5)

119. The tallest structure inside the proposed substation would be a new 76-foot transmission structure. The tallest structure for the entire project would be an 85-foot transmission structure to be located in the CL&P right of way. (UI 6, p. 2; UI 4, response 14)

#### Visibility

120. Two residences located north of the existing CL&P right of way would have unobstructed year-round views of the proposed substation. One of those residences would have an unobstructed year-round view of a new transmission structure. (UI 1, Vol. I, p. 73)
121. One residence on Wildflower Lane would have a seasonal obstructed view of the proposed substation. (UI 1, Vol. I, p. 73)
122. The residence to the northeast of the substation would have seasonal obstructed view of the proposed substation. (UI 1, Vol. I, p. 73)
122. To the south of the proposed substation, residences and visitors to the Armenian Church of the Holy Ascension would have seasonal obstructed views of the tops of some structures of the substation. (UI 1, Vol. I, p. 73)
123. The substation is not expected to be visible to motorists on Huntington Turnpike or the Merritt Parkway. (UI 1, Vol. I, p. 73)
124. Motorists on Nichols Avenue and the travel lanes and entry/exit ramps of Route 8 would have seasonal views of the substation. These would be similar to existing views of CL&P and UI transmission lines and the UI switch structure. (UI, 1, Vol. I, p. 73-74)

#### Electric and Magnetic Field Levels

125. The primary sources of electric and magnetic fields (EMFs) at the proposed site are the existing transmission lines. (UI 1, Vol. I, p. 80; UI 1, Vol. II, p. 36; UI 4, response 17; Tr. 3, pp. 82-83, 115, 140)
126. Background magnetic levels are typically found in a range of from less than 10 mG to higher, depending on the source. (Tr. 3, p. 22)
127. The proposed substation would cause the following changes in the magnetic field levels:
- a) The maximum magnetic field along the entire fence line (points C-1 to C-8) is expected to be, after the Middletown/Norwalk project (expected approximately 2010), 41.8 mG for a normal load and 50.1 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 76.3 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 51.0 mG for a normal load and 89.6 for a peak load.
  - b) The magnetic field along the driveway (point D-1) is expected to be, after the Middletown/Norwalk project, 1.0 mG for a normal load and 1.7 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 1.1 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current

condition), the magnetic field was calculated to be 1.4 mG for a normal load and 2.5 for a peak load.

c) The magnetic field at the edge of the CL&P easement (point D-2) is expected to be, after the Middletown/Norwalk project, 15.3 mG for a normal load and 25.1 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 24.4 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 23.7 mG for a normal load and 40.9 for a peak load.

d) The magnetic field at the edge of the CL&P easement (point D-3) is expected to be, after the Middletown/Norwalk project, 11.8 mG for a normal load and 19.5 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 21.0 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 18.2 mG for a normal load and 32.1 for a peak load.

e) The magnetic field at the edge of the CL&P easement (point D-4) is expected to be, after the Middletown/Norwalk project, 3.8 mG for a normal load and 10.6 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 3.9 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 7.5 mG for a normal load and 19.6 for a peak load.

f) The magnetic field at the northernmost property line of 39 Stella Street (point D-5) is expected to be, after the Middletown/Norwalk project, 0.6 mG for a normal load and 0.3 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 0.2 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 0.3 mG for a normal load and 0.2 for a peak load.

g) The magnetic field at the northernmost property line of 45 Stella Street (point D-6) is expected to be, after the Middletown/Norwalk project, 0.8 mG for a normal load and 0.5 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 0.3 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 1.2 mG for a normal load and 0.9 for a peak load.

h) The magnetic field at the northernmost property line of 52 Stella Street (point D-7) is expected to be, after the Middletown/Norwalk project, 1.3 mG for a normal load and 1.0 for a peak load. In comparison, the existing condition prior to Bethel/Norwalk project was 0.4 mG, and, post-Bethel/Norwalk but prior to Middletown/Norwalk project (the actual current condition), the magnetic field was calculated to be 1.2 mG for a normal load and 0.9 for a peak load.

(UI 1, Vol. II, Exh. F, p. 32; UI 6, p. 10; UI 9, response 10).

128. The magnetic field resulting from the existing transmission lines and proposed substation would be less at the residence at 6 Wildflower Lane than at the driveway (point D-1), since the residence is located approximately 120 feet farther away from the source on the other side of Wildflower Lane. The nearest abutting property to the proposed substation

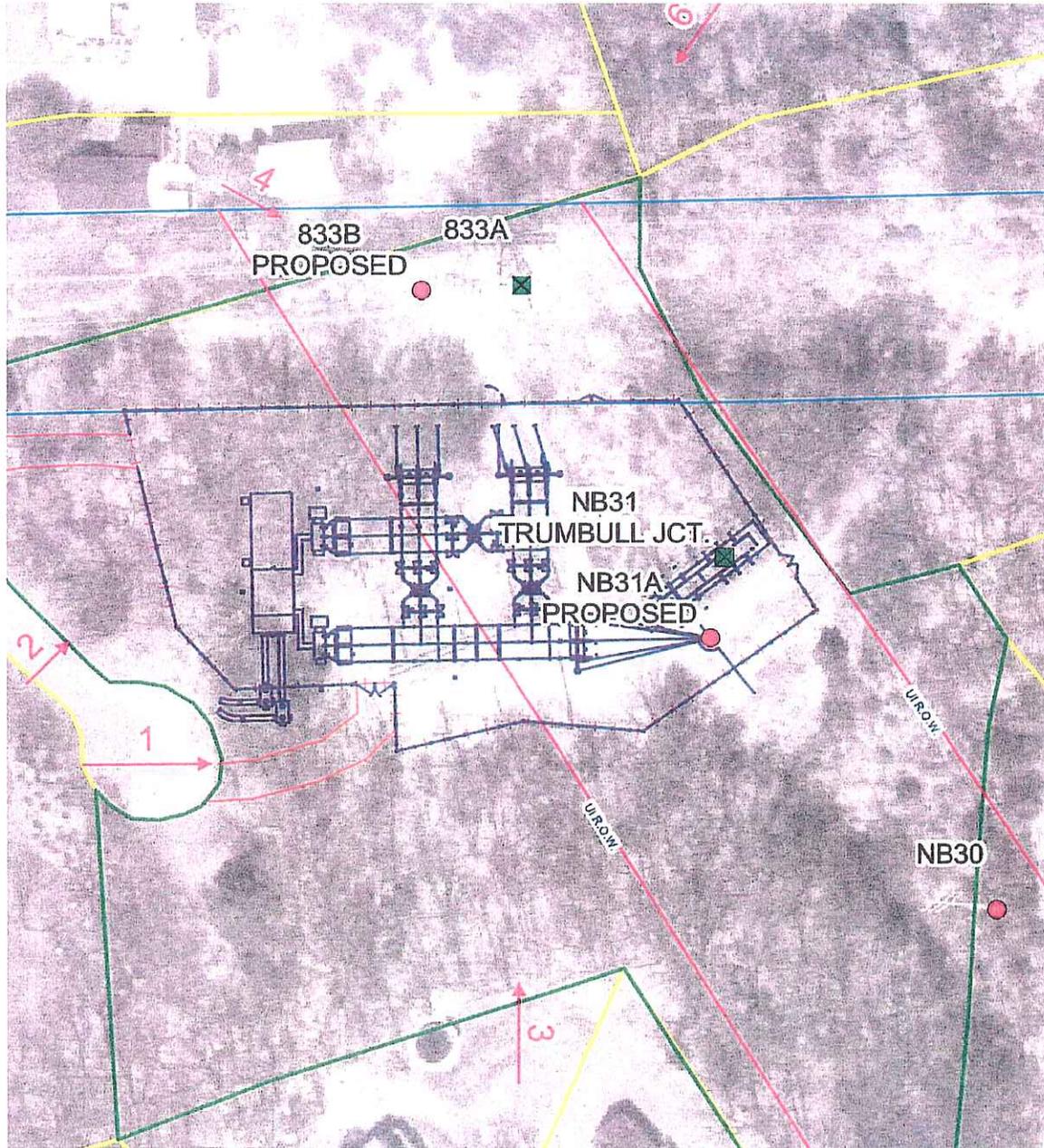
on Stella Street is approximately 225 feet from the substation fenceline (points C-1 to C-8). Since the magnetic field decreases with distance from the source, the magnetic field at this Stella Street location would be less than that on Wildflower Lane. (UI 4, response 17).

129. Shifting the substation north 20 feet would result in no increase in magnetic fields over existing levels for points D-1, D-2, D-5, D-6, and D-7. (UI 14, p. 14)
130. The EMF levels due to the proposed project will be further reduced (by 50% or more at the CL&P ROW edges) when CL&P implements an optimal phasing project for the 115-kV lines passing by the Site. CL&P will likely do so when UI connects the new substation to the existing CL&P transmission lines. (Tr. 4, pp. 189-190, 211-212)
131. The proposed substation's design is consistent with the Siting Council's 1993 Best Management Practices for Electric and Magnetic Fields. (UI 1, Vol. I, p. 79).

#### Safety and Reliability

132. The substation would be equipped with protective relaying equipment to automatically detect irregular system conditions and send a protective trip signal to the circuit breakers at each end of the line to segregate the faulted section of the transmission line. The protective relaying measures incorporate fully redundant primary and backup equipment. (UI 1, Vol. I, p. 20)
133. Smoke detectors would be installed in the switchgear and control house, and would be monitored from a remote location. The control house would be equipped with fire extinguishers. (UI 1, Vol. I, p. 20)
134. The proposed substation would be installed within a 14 foot high chain link fence. The substation would also be equipped with security cameras and motion detectors so UI can monitor unauthorized access to the substation. (UI 1, Vol. I, pp. 20-21)

### Location Map



(UI 1, Vol. II, Exh. L)

