PETITION NO. 1120 – The United Illuminating Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	June 25, 2015

Findings of Fact

Introduction

1. The United Illuminating Company (UI), in accordance with provisions of Connecticut General Statutes (C.G.S.) §16-50k and §4-176(a), submitted a petition (Petition) to the Connecticut Siting Council (Council) on November 5, 2014 for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the proposed modifications to the existing Hawthorne Substation at 180 Hawthorne Drive, Fairfield, Connecticut (refer to Figure 1). (UI 1, p. 1)

2. UI is an electric transmission and distribution company based in Orange, Connecticut that services portions of Fairfield and New Haven Counties. (UI 6)

3. The parties to the proceeding are UI and the Town of Fairfield (Town). The grouped intervenors are Arthur Tournas and Vincent Giandurco. (Tr. 1, p. 5)

4. A study of electric reliability in southwest Connecticut performed by the regional Independent System Operator for New England (ISO-NE) has shown that under certain planning contingencies the electric transmission system in the vicinity of the Hawthorne Substation could experience low voltages and identified the need for two 20 megavolt ampere reactive (MVAR) 115-kV transmission capacitor banks to be installed at Hawthorne Substation. The purpose of the project is to meet North American Electric Reliability Corporation (NERC) reliability compliance requirements and improve the reliability of the electric transmission system in the Fairfield-Bridgeport area. (Council Administrative Notice Item No. 11; UI 1, pp. 1-2)

5. Pursuant to C.G.S. § 16-50j-40(a), on November 5, 2014, UI provided notice to the Council that the petition was provided to the Town of Fairfield First Selectman, Michael Tetreau, and five property owners abutting the site. (UI 1, 1b)

6. On November 6, 2014, the Council deemed the petition incomplete and identified deficiencies in notice. The Council requested proof of service notification to all required parties, pursuant to C.G.S. § 16-50j-40(a). (Record)

7. A field review of the petition was conducted on December 1, 2014. Council Chairman Robert Stein and Council staff member Robert Mercier met UI representatives and a local resident at the site to discuss the project. Notice of the field review was posted to the Council's website, provided to the Secretary of the State, the Town and residents who expressed interest in the project prior to December 1, 2014. (Council Petition 1120 Field Review Notice dated November 25, 2014)

8. Pursuant to C.G.S. § 16-50j-40(a), on December 4, 2014 UI provided proof of service of notice to the Council that the petition was provided to the Town of Fairfield and property abutters. (UI 1b; UI 2)

9. On January 8, 2015, the Council voted to hold a public hearing on this project. (Council meeting minutes of January 8, 2015)

10. Pursuant to C.G.S. §16-50m, the Council published a legal notice in the Fairfield Citizen on January 30, 2015 indicating the date and time of the March 31, 2015 public hearing and field review. (Record)

11. In compliance with RCSA §16-50j-21, on March 12, 2015, UI installed a sign at the entrance to the substation access drive that contained a brief description of the project, public hearing information, and Council contact information. (UI 7)

12. The Council and its staff conducted a public field inspection of the proposed project on March 31, 2015, beginning at 2:00 p.m. (Council Petition 1120 Field Review Notice dated March 23, 2015; Tr. 2, pp. 140-141)

13. Pursuant to C.G.S. §16-50m, the Council, after giving due notice thereof, held a public hearing on March 31, 2015, beginning with the evidentiary portion of the hearing at 3:00 p.m. and continuing with the public comment session at 7:00 p.m. at The Education Center, 501 Kings Highway East, Fairfield, Connecticut. (Transcript 1 – March 31, 2015 at 3:00 p.m. [Tr. 1], p. 1; Transcript 2 – March 31, 2015, at 7:00 p.m. [Tr. 2], p. 1)

14. The public evidentiary hearing was continued on April 23, 2015 beginning at 1:00 p.m. at the Council's office in New Britain, Connecticut. A portion of the written transcript containing the opening statement of the Council, verification of additional UI exhibits and swearing in of additional UI witnesses was not received by the Council due to the abrupt dissolution of the transcription vendor. All parties and intervenors in this case have provided written confirmation of witnessing of the Council's opening statement, verification of additional UI exhibits and swearing in of additional UI witnesses, as well as a waiver of any claim of procedural error regarding the transcript. The written transcript that was received by the Council begins with cross examination of UI by the Town. (Record; Transcript 3 – April 23, 2015 at 1:00 p.m. [Tr. 3], pp. 1-3; Council's May 14, 2015 memorandum; UI response to Council's memorandum, May 15, 2015; Town of Fairfield response to Council's memorandum, May 19, 2015; Giandurco response to Council's memorandum, May 19, 2015; Tournas response to Council's memorandum, May 15, 2015)

State Agency Comment

15. Pursuant to C.G.S. § 16-50j(g), on January 23, and April 24, 2015, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); State Historic Preservation Office (SHPO); and Department of Emergency Services and Public Protection (DESPP). (Council Correspondence dated January 23, 2015, and April 24, 2015)

16. No State agencies commented on the proposal. (Record)

Municipal Consultation

17. UI sent a copy of the petition to the Town of Fairfield on November 5, 2014. (UI 1, UI 2)

18. The Town of Fairfield (Town) requested party status on January 13, 2015. The Council approved the Town's request on January 22, 2015. (Town 1; Council meeting minutes of January 22, 2015)

19. In response to the Council's request of January 8, 2015, UI notified the Town of Easton of the project on January 22, 2015 as Easton is within 2,500 feet of the facility. (UI 5)

20. UI held an information meeting with Town officials and area residents on February 4, 2015. Presentation boards as well as information sheets were made available to meeting attendees. (UI 6)

21. UI met with area residents and Town representatives on April 21, 2015 to discuss project landscaping, lighting, placement of lightning masts, fence arrangement and electromagnetic field levels. (Tr. 3, pp. 48-51, 58-60).

22. The proposed project was modified after its initial filing date with the Council in response to comments from the Town, area residents and the Council. Modifications include the alteration of the height of lightning masts, addition of landscaping, changes in the fence alignment, reduction in night-time security lighting, additional protection for wetland resources, and the removal of paved surfaces to reduce storm water flow. These modifications are described in detail in the *Proposed Modification* and *Environmental Considerations* sections of this document. (Record; Tr. 3, pp. 14-16)

Project Need

23. NERC, which has federal authority to set and enforce electric system reliability standards, requires that electric utilities perform a contingency analysis on an annual basis. A contingency analysis involves modeling an electric systems' performance under extreme stress, such as a line loss at peak load, and determining the effects of such a condition on key electric system components, such as substations. The analysis identifies weaknesses in the electric system, often referred to as contingency issues, allowing for engineered solutions to these contingencies to improve electric system reliability. (UI 6)

24. UI identified low-voltage contingency issues associated with the Hawthorne Substation in 2012. (UI 6)

25. UI determined that installing two 20 MVAR capacitor banks at the Hawthorne Substation would be the most cost-effective solution to resolve the low-voltage contingency issues. (UI 1, p. 4; UI 6)

26. The project was listed in the ISO-NE 2014 Regional System Plan as ISO-NE's preferred solution for meeting contingency needs. (Council Administrative Notice Item 11, pp. i, 108-110; UI 6)

27. The modification to the Hawthorne Substation to install two 115-kV capacitor banks was projected in the Council's 2102-2013 Forecast of Loads and Resources. (Council Administrative Notice Item No. 14)

28. The existing Hawthorne Substation has a capacity rating of 77 MVA. The addition of the capacitor banks would increase the substation capacity rating to 88 MVA, serving to correct potential low voltages within the surrounding electric system. (UI 6, FAQ sheet; Tr. 3, pp. 11-12; Tr. 4, p. 4)

29. The substation has operated at an average of 90 percent of its rated capacity under peak summer loading conditions during the last seven years. It reached full capacity once in the last seven years during peak summer load. The proposed modifications would ensure the substation does not exceed its rated capacity during peak summer conditions. (UI 13, R. 38, R. 40; Tr. 3, p. 12)

30. The addition of the two capacitor banks is necessary to eliminate low voltage conditions if the 115-kV transmission line between the Old Town Substation (Bridgeport) and the Hawthorne Substation (Fairfield) were to fail. The project would also provide additional capacity during peak summer load conditions. If the transmission line failed or the capacity of the substation was exceeded, low voltage (brownout) conditions would occur in the surrounding area, crippling electrical equipment. (UI 6; UI 13, R. 47; Tr. 2, pp. 145-146)

31. Other methods of remedying the low-voltage contingency issues at the substation include transformer upgrades or the addition of transmission lines in the existing right-of-way, but these options are not cost-effective. (UI 6; Tr. 3, p. 13)

32. Although the low-voltage contingency issues could be also resolved by upgrading the Old Town Substation in Bridgeport, located east of the Hawthorne Substation, this solution is not cost-effective or timely, as the entire substation would need to be reconstructed. (UI 6; Tr. 3, p. 11)

33. Once the project is completed, UI does not expect to perform additional upgrades at the Hawthorne Substation or to construct a new substation in Fairfield in the next 10 years. (UI 8, R. 7; UI 12; UI 14, R. 18)

34. The estimated project cost is $8,900,000. (UI 1, p. 7)

35. UI would begin construction in July 2015, with completion in April 2016. Construction work hours would typically be 7:00 a.m. to 5:00 p.m. Monday through Friday. Work outside of these hours and days may occur for the installation of critical equipment. (UI 1, p. 7; Tr. 2, p. 148)

Existing Substation

36. The existing Hawthorne Substation is a 115-kV to 13.8-kV distribution substation constructed in the early 1970's. (UI 1, p. 7)

37. The substation is located on a 2.8-acre parcel owned by UI, including a 0.72-acre parcel west of the existing substation that was recently purchased from General Electric (GE). (UI 1, p. 7; Tr. 1)

38. The existing substation is accessed by a paved driveway extending west from Hawthorne Drive. The lower portion of the driveway extends through the property at 160 Hawthorne Drive. UI holds an easement across the 160 Hawthorne Drive property for access to UI's landlocked substation property. (UI 1, p. 7; UI 8, R. 1)

39. The existing substation yard is approximately 30,800 square feet and is surfaced with crushed stone. The existing southern substation fence line is approximately 55 feet from the southern property line. (UI 4, Site Plan)

40. Surrounding properties include the GE office complex to the north, woodland owned by GE to the west, and residential development to the south and east. (UI 8, R. 1)

41. An Eversource transmission line right-of-way is located immediately south of the substation and contains two separate transmission lines. The existing substation is interconnected to one of the Eversource 115-kV transmission lines. (UI 4, Site Plan)

Proposed Modifications

42. The existing substation yard would be expanded by approximately 20,700 square feet, primarily to the south and west, to accommodate the new capacitor banks. The expanded substation yard would have a crushed stone surface to match the existing yard. (UI 4, Site Plan)

43. The proposed capacitor banks and associated equipment would be approximately 205 feet long and 26 feet high at their highest point. They are of similar height to existing substation equipment: for example, the existing substation buswork is at a height of 26 feet and the dead-end structures at the south end of the substation are 35 feet in height. (UI 1a, Site Plan; Tr. 1, pp. 100-101)

44. The substation would feature protection systems and remote monitoring systems that disconnect malfunctioning equipment immediately upon detection of an operational issue, minimizing any effect on the system reliability, public safety, and the environment. (UI 9, R. 1)

45. A new 14-foot high chain link fence with a two-inch mesh would be installed around the perimeter of the entire substation. The fence would feature an anti-climb slat design woven throughout the mesh. (UI 1a, Site Plan; Tr. 1, pp. 63-65)

46. The western expansion area consists of a north-sloping wooded hillside with a depressed seep area at the north end. The southern expansion area also has a northward slope and is dominated by shrubby vegetation. UI would re-grade the south and west expansion area to create a level yard. (UI 4, Site Plan).

47. The proposed grading limits on the south edge of the substation would be at the edge of UI's property line. Grading would cut into the existing slopes, creating an approximate six to seven-foot side slope above the expansion area on the west and south sides. (UI 4, Site Plan)

48. The proposed fence line along the south side of the substation would be approximately 17 feet from the property lines at 172 and 186 Schiller Road, and at 274 Hawthorne Drive. (UI 13, R. 11)

49. The nearest residential dwelling to the proposed fence line is 173 feet to the south at 172 Schiller Road. (UI 8, R. 4)

50. Although UI submitted Site Plans that depict square corners on the southeast and southwest sides of the substation and a small expansion on the east side of the substation that creates an irregular fence line, UI would examine the feasibility of creating angled corners and a straight fence line to reduce the overall expansion area. Additionally, UI would examine a reduction of the expansion area to the south, increasing the distance from the new fence to abutting property lines. (UI 19; Tr. 3 p. 15)

51. To facilitate site construction and the potential for the delivery of a mobile transformer in the event of a emergency, UI is proposing to add 8,500 square feet of crushed stone surfaces outside of the substation yard, extending to the northeast corner of the property. (UI 4, R. 1; UI 19; Tr. 1, p. 100)

52. Approximately 1,385 square feet of pavement would be removed west of the existing substation control building to accommodate the expansion. A narrow 650 square foot strip of pavement would be added to existing pavement on the north side of the control building to create an access drive for an additional proposed substation access gate on the northwest side. (UI 19)

53. A third access gate would be installed along the west side of the substation to provide maintenance access to exterior areas of the substation yard. No access drive would serve this gate. (UI 4, R. 7)

54. UI proposes to install seven 70-foot lightning masts in addition to three existing 70-foot masts to ensure proper lightning protection. The number of masts necessary to offer proper lightning protection of critical electric infrastructure was determined using recommended electric industry standards. (UI 1, p. 4; UI 11, R. 3; UI 13, R. 1; Tr. 1, p. 25)

55. Based on comments from abutting residents, UI could alter the proposed lightning protection system by reducing the height of the proposed lightning masts to 55 feet. This reduction in height would require one additional mast on the west side of the substation and the installation of five-foot poles on the existing dead-end structures in the substation to achieve the same level of required lightning protection as the original proposal. (Tr. 3, pp. 16, 33, 81)

56. UI could also relocate the eastern lightning mast from the southeast corner of the substation, close the property line at 274 Hawthorne Drive, to a more interior location. (Tr. 3, pp. 16, 33, 81)

57. UI proposes to install new security lighting to be used on an as-needed basis except for one light mounted on a 30-foot wood pole that would be kept on at night, illuminating the access gate area of the substation. When operational, all lighting is designed to illuminate the substation yard and perimeter fence area and would not extend beyond the property boundaries. (UI 10, R. 1; UI 13, R. 7; Tr. 1, pp. 17-18; Tr. 3, pp. 14, 30-31)

Environmental Considerations

58. UI performed a Phase I and Phase II Environmental Assessment of the newly-acquired GE parcel. The assessments determined the parcel was used as a gravel quarry prior to GE acquiring the land in 1974. The quarry reverted to the present day woodland. Soil samples taken in the former quarry area found no evidence of environmental contamination from past disturbance and site use. (UI 9, Response 3; UI 18, R. 9)

59. A seep area is located along the north end of the parcel and within the substation expansion area. According to the petitioner, the seep area was surveyed in September 2014 and again in April 2015 for the presence of hydric soils using guidelines established by the U.S. Army Corp of Engineers, United States Department of Agriculture Central-Northeast, and the State of Connecticut. The seep area did not meet wetland criteria. (UI 4, R. 4; UI 1, 18; Tr. 3, pp. 34-35, 86-87)

60. The seep area appears to contribute to the hydrology of a wetland identified on GE's property, 19 feet from UI's north property line. Although the seep area would be filled to expand the substation, development of the project would not affect the hydrology of the wetland as post development run-off characteristics would not be significantly altered. (UI 4, R. 4, Site Plan; UI 18, R. 4, R. 6; Tr. 3, pp. 80-81)

61. The identified wetland on the abutting GE property is described as an isolated non-vegetated concave depression wetland. It has a discharge flow channel that leads to a roadside drainage swale on GE property. (UI 4, R. 4, Site Plan; UI 18, R. 7)

62. UI assessed the identified wetland for vernal pool characteristics in April 2015. The assessment determined the wetland does not support vernal pool obligate amphibian species and, therefore, does not have the characteristics to be classified as a vernal pool. (UI 18, R. 7)

63. Erosion and sedimentation controls would surround the construction areas. If requested, UI would deploy an additional row of erosion and sedimentation control along the north property boundary to provide additional protection of the adjacent off-site wetland. (UI 4, R. 4, Site Plan; UI 18, R. 4, R. 6; Tr. 3, pp. 80-81)

64. The substation property is not within a Federal Emergency Management Agency designated 100-year or 500-year flood zone. (UI 4, R. 4)

65. The expansion area to the west would occur in a wooded area and would require the removal of 40 trees of one-foot diameter at breast height. Expansion of the substation fence line to the south would require the

removal of mostly shrub vegetation. One tree would be removed to accommodate the gravel turnaround area in the northeast corner of the substation property. (UI 1, p. 6; UI 13, R. 14)

66. The substation expansion area is in proximity to a known record of the eastern box turtle, a State species of special concern. The record, entered into the DEEP Natural Diversity Database, was for a turtle found approximately 200 yards from the proposed construction area. The substation expansion area could be in a turtle's home-range, but the expansion area itself is suboptimal habitat for box turtle nesting and hibernating, as it contains a seep area and is located adjacent to a woodland edge, rather than interior forest habitat that box turtles prefer. (UI 4, R. 3; Tr. 1, pp. 82-86; Tr. 3, pp. 23-25)

67. UI would implement an Eastern Box Turtle Protection Program as part of their construction practices that includes DEEP-recommended construction practices to reduce impact to turtle populations. (UI 4, R. 8; Tr. 1, p. 86; Tr. 3, p. 7)

68. After its initial petition filing for this project, UI reduced the amount of substation impervious surfaces by proposing to install crushed stone access ways in lieu of pavement, and removing some existing paved areas near the control house. These changes result in a net decrease of 785 square feet of impervious paved surfaces (new and existing), thus reducing stormwater runoff. (UI 9, Sec. 5.3; UI 19; Tr. 3, pp. 75-77)

69. Once the site is constructed, stormwater flow from the site generally moves from impervious surfaces onto adjacent pervious surfaces. Stormwater flow from the paved access drive and parking area would flow down the driveway to a catch basin located in the driveway and to catch basins along Hawthorne Drive at the base of the driveway. Stormwater flow from the existing access drive and associated parking area would flow southward, down the access drive, away from the identified wetland on the GE property. (UI 9, Sect 5.3; Tr. 1, pp. 27-29)

70. UI would evaluate the existing catch basin in the driveway to determine if it is effective in collecting storm water flows. (Tr. 1, p. 29)

71. Prior to the site plan revision, the Town Conservation Department requested that UI construct stormwater mitigation to prevent accelerated stormwater flows from impacting the adjacent wetland to the north. A revised stormwater analysis based on the revised site plan was not prepared, and thus the Town did not have an opportunity to review proposed stormwater flow characteristics in order to provide further comment. (Town 5; Tr. 3, pp. 73-74)

72. Noise levels from normal operation of either existing or proposed substation equipment would not exceed Town or State regulatory criteria at the property boundaries. Existing background noise measurements taken during the early morning hours before traffic, birds, and other background noise became more prominent, determined that the noise from existing substation operations as well as noise from other sources ranged 36-38 dBA at the south property boundary, below the Town of Fairfield residential limit of 45 dBA and the State residential limit of 51 dBA. Noise modeling indicates operation of the new capacitor equipment would add minimal amounts of noise, and, collectively, subsequent substation operations would not exceed regulatory criteria. (UI 15)

73. Construction activities would require the cutting of aluminum. All cutting would be performed using non-ferrous saw blades with appropriate worker protection. Cutting activities would not create fugitive dust but rather metal shavings that would be contained within the work area. (Tr. 3, pp. 37-38, 40-42)

74. The project would have no impact on archeological or historic resources. (UI 17)

Visibility

75. The existing substation, including the substation fence, substation dead-end structures, buswork, lightning masts and electric lines connecting the substation to the Eversource transmission lines, as well as Eversource transmission towers, are visible from the backyards of the abutting properties at 274 Hawthorne Drive, 172 Schiller Road, and 186 Schiller Road. All three properties have mature evergreen and deciduous trees in rear yard areas. The westward expansion area would occur primarily behind 186 Schiller Road. (UI 6d; UI 8, R. 1; Tournas 4, Tournas 5)

76. UI would be willing to install plantings on abutting properties along the south edge of the substation, contingent upon approval from both the underlying landowner and Eversource, which requires that vegetation not exceed 15 feet in height to maintain adequate clearance for the overhead transmission lines in the adjacent right-of-way. UI could not install plantings along the south edge of its property because construction would create a steep side slope along the property line and visual clearance is required for substation security. (UI 1a, Site Plan; UI 4, R. 6; Tr. 1, p. 26, Tr. 3, p. 15)

77. The substation would also be screened by privacy slats installed on the perimeter chain link fence. The slats would feature a wing clip design that prevents slats from sliding down through the fence links. The wing slats can only be applied to two-inch mesh. (UI 14, R. 17; Tr. 1. p. 25; Tr. 3, pp. 82-83)

Magnetic Field Levels

78. International health and safety entities, including the World Health Organization, the International Agency for Research on Cancer (IARC), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), have studied the scientific evidence regarding possible health effects from magnetic fields (MF) produced by non-ionizing, low-frequency 60-Hertz alternating currents in transmission lines. Two of these entities attempted to advise on quantitative guidelines for milligauss (mG) limits protective of health, but were able to do so only by extrapolation from research not directly related to health: by this method, the maximum exposure advised by the International Committee on Electromagnetic Safety (part of IARC) is 9,040 mG, and the maximum exposure advised by the ICNIRP is 2,000 mG. Otherwise, no quantitative exposure standards based on demonstrated health effects have been set world-wide for 60-Hertz MF, nor are there any health-related state or federal standards in the U.S. (Council Administrative Notice Item 13; UI 18, R. 10, pp. 13-14)

79. Existing MF sources in the project area come from the existing 115-kV transmission lines, existing substation and underground distribution lines leading from the substation. (UI 18, R. 10, Executive Summary)

80. UI conducted modeling of existing and future MF levels around the perimeter of the substation. MF modeling indicates no significant change in MF levels at the substation fence line or property lines as a result of the project. The transmission lines contribute the greatest share, with levels under the transmission lines ranging from 35 mG to 40 mG depending on line loading. (UI 18, R. 10, Executive Summary; Tr. 1, pp. 43-49)

81. Once the project is completed, the largest increase in MF levels would occur under peak load conditions when both capacitors are operating. This increase would occur on the west side of the substation, where levels would increase by 2 mG to 7 mG at the fence line. Along the south side of the substation, the largest increase in MF levels would be 4.6 mG under the existing transmission lines, due to increased electrical loads that the lines would carry. (UI 18, R. 10, pp. 21-22; Tr. 1, pp. 43-46)

82. The existing and calculated MF levels for this project are less than 3.5 percent of the ICNIRP exposure limit advised for the general public. (UI 18, R. 10, p. 23)

83. MF levels decrease sharply with distance from the source. For instance, MF levels 150 feet from the substation would only increase 0.5 mG and 1 mG under average and peak conditions, respectively. (Tr. 1, pp. 43-46)

84. Although substations are not the subject of the Council's *EMF Best Management Practices for the Construction of Electric Transmission Lines in Connecticut,* UI studied the projected MF levels of the proposed project at the Council's request. Not only do the projected MF levels comply with recognized exposure standards, UI applied certain design elements that comport with the Council's document as follows:
    a) the new capacitor banks are proposed for the west side of the substation, a location that is farthest away from adjacent residences as possible, thus reducing MF from this source; and
    b) an approximate 17-foot buffer zone would be maintained between the UI property line and the proposed fence line.

    (Council Administrative Notice Item 13; UI 18, R. 10, p. 13; Tr. 1, pp. 72-73)

Figure 1: Location of existing Hawthorne Substation at 180 Hawthorne Drive. (UI 4, R. 4, Attch. A)

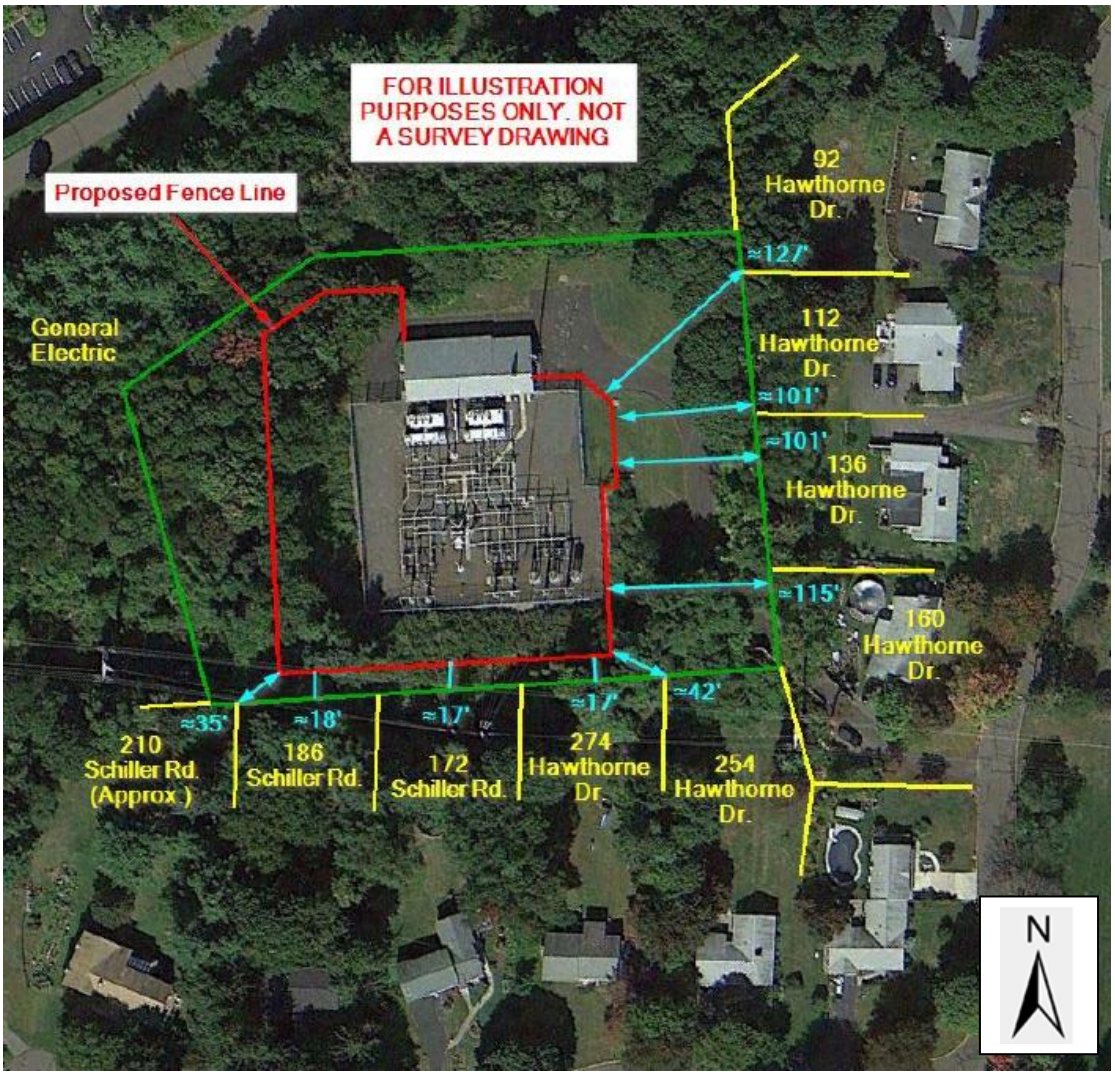

Figure 2: Proposed expansion area of Hawthorne Substation. Distances to abutting residences from initial proposed fence line shown - UI would increase the distance of the proposed fence to the south abutting properties. (UI 13, R. 11)

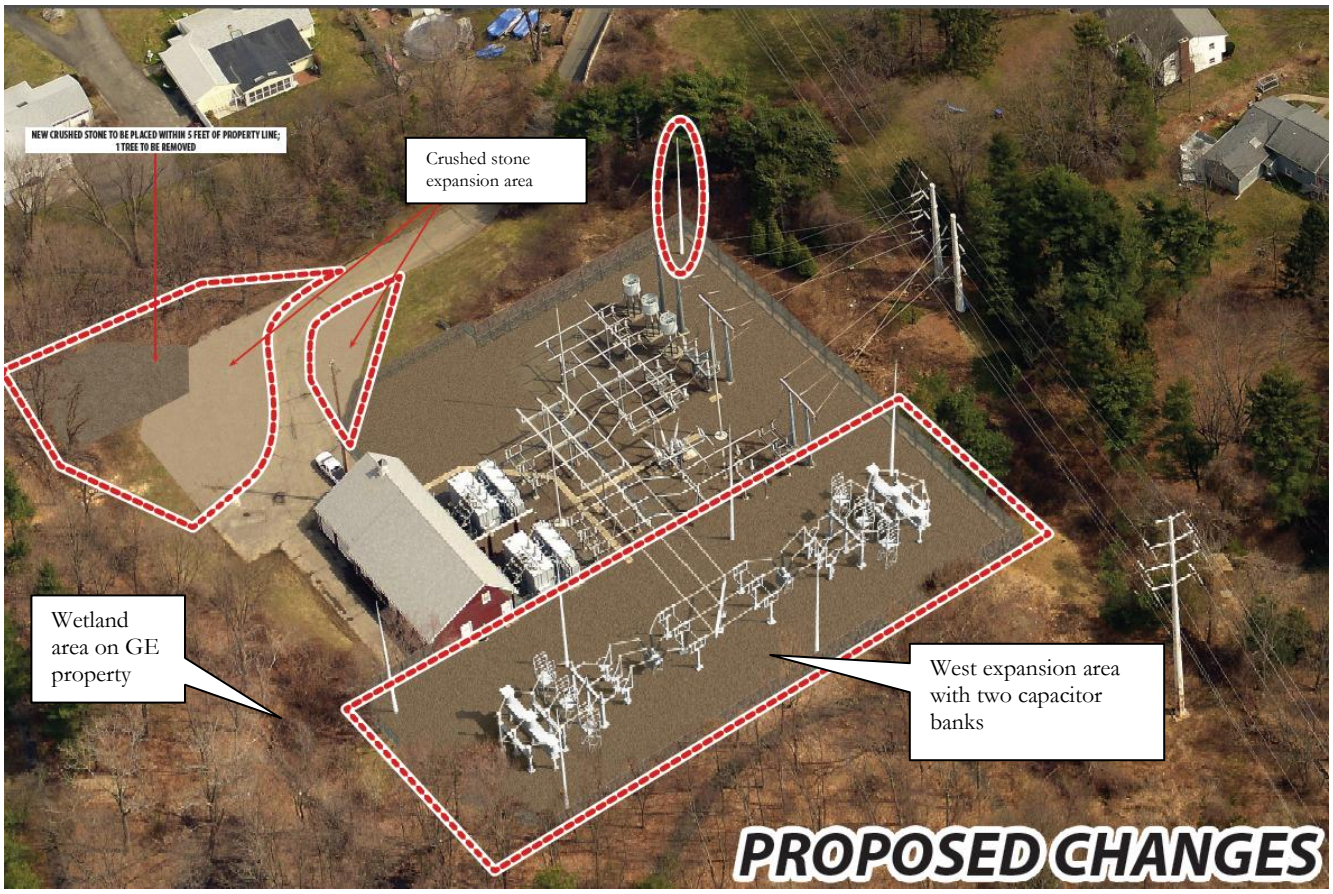

Figure 3: Photosimulation of proposed modifications. (UI 3) (alternative fence alignment and alternative lightning mast protection system not shown)