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195 Church Street
P.O. Box 1950
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December 13, 2017

VIA E-MAIL AND HAND DELIVERY

Attorney Melanie Bachman
Executive Director/Staff Attorney
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: **DOCKET NO. 461A** - Eversource Energy Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 115-kilovolt (kV) bulk substation located at 290 Railroad Avenue, Greenwich, Connecticut, and two 115-kV underground transmission circuits extending approximately 2.3 miles between the proposed substation and the existing Cos Cob Substation, Greenwich, Connecticut, and related substation improvements.

Dear Attorney Bachman:

In connection with the above-referenced Docket No. 461A, enclosed please find an original plus fifteen (15) copies of Response of Eversource Energy to Town of Greenwich Petition for Reconsideration and Affidavit of Kenneth Bowes.

Very truly yours,

Anthony M. Fitzgerald

AMF/kas
Enclosures

cc: Service List dated July 11, 2017 attached (with enclosure)

{N5427092}

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	☒ E-Mail	Eversource Energy	Kathleen Shanley Manager-Transmission Siting Eversource Energy 56 Prospect Street Hartford, CT 06103 kathleen.shanley@eversource.com Raymond Gagnon Director – Transmission Projects Eversource Energy 56 Prospect Street Hartford, CT 06103 Raymond.gagnon@eversource.com Jeffery Cochran, Esq. Senior Counsel, Legal Department Eversource Energy 107 Selden Street Berlin, CT 06037 **jeffery.cochran@eversource.com** Marianne Barbino Dubuque Carmody Torrance Sandak & Hennessey LLP 50 Leavenworth Street Waterbury, CT 06702 mdubuque@carmodylaw.com Anthony M. Fitzgerald, Esq. Carmody Torrance Sandak & Hennessey LLP 195 Church Street New Haven, CT 06509 afitzgerald@carmodylaw.com
Party Approved on July 23, 2015	☒ E-Mail	Office of Consumer Counsel	Lauren Henault Bidra, Esq. Staff Attorney Office of Consumer Counsel Ten Franklin Square New Britain, CT 06051 Lauren.bidra@ct.gov

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Party Approved on July 23, 2015	☒ E-Mail	Office of Consumer Counsel continued	Joseph A. Rosenthal, Esq. Principal Attorney Office of Consumer Counsel Ten Franklin Square New Britain, CT 06051 Joseph.rosenthal@ct.gov
Intervenor Approved on September 1 , 2015	☒ E-Mail	Parker Stacy 1 Kinsman Lane Greenwich, CT 06830 pstacy@optonline.net	
Intervenor Approved on September 1, 2015	☒ E-Mail	Field Point Estate Townhouses, Inc.	Carissa Depetris Dwight Ueda Field Point Estate Townhouses 172 Field Point Road, #10 Greenwich, CT 06830 carissa.depetris@gmail.com d_ueda@yahoo.com
Intervenor Approved on September 1, 2015	☒ E-Mail	Christine Edwards 111 Bible Street Cos Cob, CT 06807 SeeEdwards@aol.com	
Intervenor Approved on September 1, 2015	☒ E-Mail	Richard Granoff, AIA, LEED AP Granoff Architects 30 West Putnam Avenue Greenwich, CT 06830 rg@granoffarchitects.com	
Grouped Intervenor Approved on September 1, 2015	☒ E-Mail	Anthony Crudele Bella Nonna Restaurant & Pizzeria 280 Railroad Avenue Greenwich, CT 06830 bellanonnagreenwich@gmail.com	
Intervenor Approved on September 1, 2015	☒ E-Mail	Cecilia H. Morgan 3 Kinsman Lane Greenwich, CT 06830 cecimorgan@aol.com	

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Grouped Intervenor Approved on September 17, 2015	☒ E-Mail	Joel Paul Berger 4208 Bell Boulevard Flushing, NY 11361 communityrealty@msn.com	
Grouped Intervenor Approved on October 1, 2015	☒ E-Mail	Meg Glass 9 Bolling Place Greenwich, CT 06830 glass50@hotmail.com	
Party Approved on January 12, 2016	☒ E-Mail	The Honorable Peter J. Tesei First Selectman Town of Greenwich 101 Field Point Road Greenwich, CT 06830 ptesei@greenwichct.org	David A. Ball, Esq. David E. Dobin, Esq. Cohen and Wolf, P.C. P.O. Box 1821 Bridgeport, CT 06601 dball@cohenandwolf.com ddobin@cohenandwolf.com (203) 368-0211 (203) 394-9901 – fax
Intervenor Approved on May 25, 2017	☒ E-Mail	Morningside Circle Association	P. Jude Collins, President Morningside Circle Association 67 Circle Drive Greenwich, CT 06830 (203) 918-1076 Mail@morningsidecircle.org

CONNECTICUT SITING COUNCIL

Eversource Energy Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 115-kilovolt (kV) bulk substation located at 290 Railroad Avenue, Greenwich, Connecticut, and two 115-kV underground transmission circuits extending approximately 2.3 miles between the proposed substation and the existing Cos Cob Substation, Greenwich, Connecticut, and related substation improvements.	DOCKET NO. 461A December 13, 2017

RESPONSE OF EVERSOURCE ENERGY

To

TOWN OF GREENWICH PETITION FOR RECONSIDERATION

Introduction

The Town of Greenwich (Town) has filed a Petition for Reconsideration (Town Petition) asking that this Docket be reopened to modify the Council's certificate "to require that any new substation be fully-enclosed and moved to 281 Railroad Avenue." (*See, e.g.* Town Petition at 13). The alleged basis for this request is the release, on October 19, 2017, of "new planning recommendations and sea level rise projections published by the Connecticut Institute for Resilience and Climate Adaptation ('CIRCA')." *Town Petition,* at 1. The Town submitted its petition pursuant to Conn. Gen. Stats. § 4-181a(a)(1), *Id.,* which, in pertinent part, allows reconsideration of a final decision because "new evidence has been discovered which materially affects the merits of the case and which for good reasons was not presented in the agency proceeding" or "other good cause for reconsideration has been shown."

Discussion

A. The Proposed proof is not "new evidence...which for good reasons was not presented in the agency proceeding."

The Town asserts that since CIRCA's planning recommendations and sea level rise projections were not officially published until October 19, 2017, after the close of the record on October 5, 2017, they constitute "new evidence that has been discovered...which for good reasons was not presented in the agency proceeding" within the meaning of Conn. Gen. Stats. §4-181a(a)(1). *Town Petition,* at 1. However, such a claim fails if substantially similar evidence was available during the proceeding. *Connecticut Resources Recovery Authority v. City of Norwich, et al,* 1994 WL 60061 at *10-12 (Conn. Super Ct., J.D. New Britain, Feb. 16, 1994, D. Shea, J.) (No error to decline to reopen proceeding under §4-181a(a)(1)(B) to consider evidence of waste disposal plant's capacity based on operations following agency decision, where experience prior to agency decision was substantially similar and could have been presented.)

The CIRCA recommendations were not delivered by a lightning bolt on October 19, 2017, but rather had been in gestation for a long time beforehand. Indeed, while this proceeding was still open, CIRCA published on its website a Final Draft Executive Summary of its report and recommendations, in which it made the specific recommendation on which the Town bases its claim for reopening - that planners anticipate that" the sea level will be 0.5 m (1ft 8) inches higher than the national tidal datum in Long Island Sound by 2050." (Ex. A, at 3; *Town Petition,* at 3; *Town Supplemental Testimony,* at 4). While this published Executive Summary was labelled a "Draft", not only its recommendations, but its every word, were identical to that of the finished product published a month later. *Compare, Draft Executive Summary,* Ex. A hereto, to (Final) *Executive Summary,* Town's Supplemental Testimony, Schedule 1, pp. 1, 2. If

this evidence of the anticipated sea level rise were truly relevant to this Docket, the Town could have brought the Final Draft to the Council's attention and either presented it as evidence or asked for an opportunity to present the finished product.

B. The proposed proof would not "materially affect... the merits of the case."

The argument of the Town Petition is that the Council must reconsider its final decision because "in an open air substation, the equipment is *generally* placed on grade," whereas in indoor substations, "*generally*...the equipment is positioned several feet above grade." *Petition,* at 4; *Proposed Supplemental Testimony,* at 5 (emphasis added). Therefore, the argument goes, unless the proceeding is reopened and the substation ordered to be sited in a different location and enclosed, the new substation equipment will not be above grade, and the design of the new substation will not reflect the latest data and opinions concerning sea level rise. The Town's premise is flawed and its reasoning is fallacious.

1. The Siting Council has retained the ability to assure that the design of the new Greenwich Substation will be consistent with the CIRCA recommendations, to the extent the Siting Council finds them to be relevant.

The Decision and Order issued in this case requires that, prior to construction, the applicant submit for the Council's approval a substation Development and Management Plan (D&M Plan) that includes, among other things:

> A detailed site plan showing the placement of all substation equipment, structures and buildings within the substation perimeter, access, provision for storm water management and transformer oil containment and fencing.
>
> *Decision & Order,* p.1, #3, Condition a

(The substation drawings submitted with the application are merely "preliminary" and "not for construction." *Motion to Reopen,* Eversource Ex. 1, Ex. A, p. A-5; Appendix 4.)

The Council is aware of the potential hazards of climate change. Thus, for instance, the Council has taken administrative notice of the following items in this Docket:

62. Final Report of the Two Storm Panel, January 9, 2012, *available at* http://www.governor.ct.gov/malloy/lib/malloy/two_storm_panel_final_report.pdf

63. STATE OF CONNECTICUT, DEPARTMENT OF EMERGENCY SERVICES AND PUBLIC PROTECTION, DIVISION OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY, *State of Connecticut State Response Framework, Version 2.0*, August 2011, *available at* http://www.ct.gov/demhs/lib/demhs/ct_srf_aug_2011.pdf

65. GOVERNOR'S STEERING COMMITTEE ON CLIMATE CHANGE, ADAPTATION SUBCOMMITTEE, *Connecticut Climate Change Preparedness Plan, Adaptation Strategies for Agriculture, Infrastructure, Natural Resources and Public Health Climate Change Vulnerabilities*, 2011, *available at* http://www.ct.gov/deep/lib/deep/climatechange/connecticut_climate_preparedness_plan_2011.pdf

Accordingly, in 2014 the Council determined that facilities should be designed for the 500-year flood plain elevation where practical. *Letter of Executive Director Re: FEMA Flood and Radio Frequency Mapping,* Ex. B hereto. Moreover, the Council is aware of Eversource's ongoing effort to harden its existing facilities and design new facilities to address increased flood hazards. In particular, the Council may take administrative notice in this Docket of, CL&P's February 28, 2014 report to it concerning its substation flood mitigation strategies. *CL&P's Substation Flood Mitigation, Report to the Connecticut Siting Council*, Ex. C hereto. In that document, CL&P reviewed flood mitigation criteria for existing open-air substations, undertook to incorporate flood mitigation criteria into design standards for new substations (p. 9), and undertook to "finalize mitigation strategies for hurricane, 500 and 100 +1' year flooding events." (p. 10)

As explained in the affidavit of Kenneth Bowes submitted herewith and demonstrated by its attachments, Eversource has since adopted design standards for new substations that are, in fact, consistent with the recent CIRCA recommendations.

Eversource is well motivated to protect its new equipment from flood hazards, and the Council will have the opportunity to assure that it does so appropriately in the D&M process.

2. The Town's Petition is Rife with Errors

Whether any special design features will be needed to address flood hazards at the 290 Railroad Avenue site during the D&M Process remains to be seen. Certainly, the Town has not made the case for that necessity in its Petition for Reconsideration. For instance,the Town asserts that the Council must adopt the CIRCA recommendations as a rule of Decision because of the state's policy, as reflected in various statutes, of considering the potential impact of a rise in sea level in the planning process. *Proposed Supplemental Testimony* at 1, 2. However, as the materials the Town proposes to submit recognize, although these Connecticut statutes recommend considerations to be taken into account in the planning process "*such consideration is not required during decision-making processes.*" *Proposed Supplemental Testimony,* Schedule 3, Slide 18 (emphasis added).

To make its case, the Town simply asserts that the substation site is within the 500-year flood zone (*Town Petition,* at 5, fn. 1), citing only its own statement: "Indeed, 290 Railroad Avenue is in a FEMA flood zone." It offers no evidence at all to contradict FOF #422 in Docket 461, which the Council incorporated in FOF #256 in this Docket:

> The proposed [new Greenwich] substation site is not within a 100-year or 500-year flood zone as determined by the Federal Emergency Management Agency. The southern portion of the site is 10 feet from the edge of a designated 500-year flood zone associated with Horseneck Brook.

This relationship between the 500-year flood zone boundary and the southernmost portion of the site is illustrated by Figure B-1 in Exhibit A (p. B-2) to Eversource's Motion to Reopen (Eversource Ex. 1 in this proceeding); and by Figure I-1 in Eversource's Application in Docket

461 (Eversource Ex. A in that proceeding). Furthermore, in the discussion of "Flood Hazard Areas" in section 1.2.2.2 of the Docket 461 Application, the statement that the proposed site is not within the 100-year or 500-year flood zones is buttressed by a reference to the specific FEMA flood zone map section that includes 290 Railroad Ave. (Dkt. 461, Eversource Ex. A, p. I-19)

The Town goes on to say that "the Siting Council correctly found that 290 Railroad Avenue is situated within the coastal resource boundary" *Id.,* while ignoring that it found:

> None of the coastal resources identified by the CCMA would be adversely affected by construction or operation of the Project. (FOF # 266)

Nor does the Town make an effort to show how the CIRCA planning recommendations would require a different finding.

To support its claim that only a fully enclosed substation will mitigate flood hazards, the Town submits a presentation of Pepco Holdings concerning its program for mitigating flood hazards to its plant located in Delaware and Maryland. This program does not consist of the wholesale replacement of open air substations with enclosed substations, but includes such measures as "elevating switchgear, transformers and control houses…" in open-air substations. (*Town Petition,* Schedule 4, Slide 12.) More to the point is Eversource's own flood mitigation plan for its existing open-air substations, with which the Council is intimately familiar by reason of Eversource's filings with the Council. *See, e.g.,* em-ever-103-160812e, *Notice of Exempt Modification Pursuant to RCSA § 16-50j-57(a) to Existing Energy Facility Site at 98 Manresa Island Road, Norwalk, Connecticut,* d. Aug. 12, 2016. Ex. D hereto.

Finally, the Town erroneously submits that Conn. Gen. Stat. § 16-50p(a)(3)(B) required the Council to find specifically that the "siting of [the] new substation is consistent with 'public

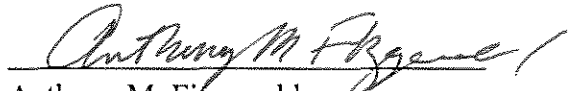
health and safety.'" (*Town Petition,* at 9). In fact, the Council found that the "Proposed Project" is consistent with public health and safety, Opinion, at 8; Decision & Order, at 1, and that is all that is required. The Council is not required to make a separate finding with respect to each element of a Project.

Conclusion

The Town of Greenwich presents no good reason for reopening this proceeding to reconsider the location and design of the new Greenwich Substation. Specifically, it has failed to show a good reason for not bringing the proposed CIRCA recommendations to the Council's attention before the close of the record, and it has failed to show any reason to believe that these findings and recommendations are inconsistent with the siting of an open-air substation at 290 Railroad Avenue, or that the Council will not be able to assure that the new substation will incorporate appropriate flood protection measures. The Town's petition is simply an attempt to get a "second bite at the apple." In this case, the "apple" is the costly architectural substation enclosure for which the Town has an aesthetic preference. The Town's Petition for Reconsideration should be denied.

Respectfully submitted,

THE CONNECTICUT LIGHT AND POWER COMPANY
d/b/a EVERSOURCE ENERGY,

By: 

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CERTIFICATION

I hereby certify that a copy of the foregoing Applicant's Response of Eversource Energy to Town of Greenwich Petition for Reconsideration has been electronically mailed on this 13th day of December, 2017 upon all parties and intervenors as referenced in the Connecticut Siting Council's Service List dated July 11, 2017.

Anthony M. Fitzgerald

EXHIBIT A
to Eversource Response

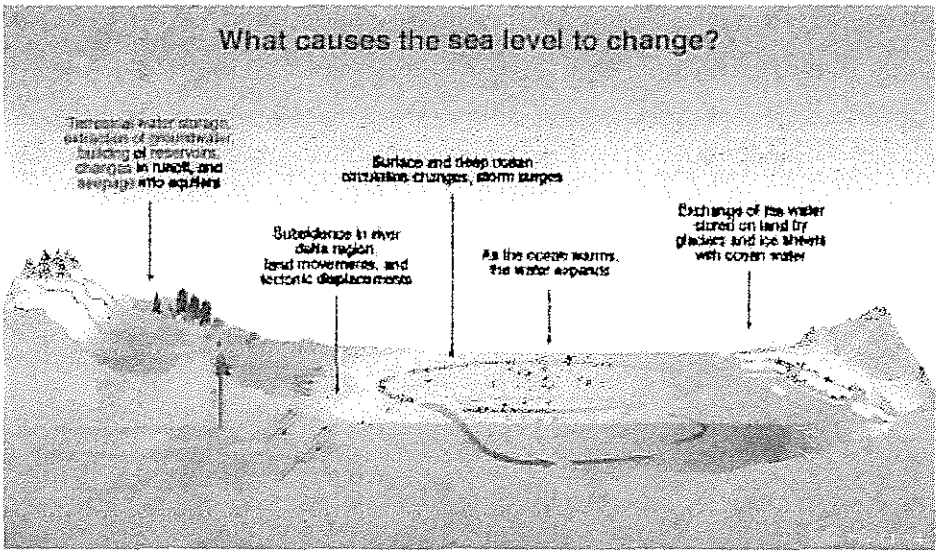
Draft Circa Executive Summary and Notice of Meeting

UCONN UNIVERSITY OF CONNECTICUT

Connecticut Institute for Resilience & Climate Adaptation (CIRCA)

9:30-11am on October 19 Public Meeting on CIRCA Updated Projections of Sea Level Rise for the State of Connecticut

Posted on September 18, 2017 by Rebecca French



The factors that contribute to sea level change, both on land and in the sea. Source: IPCC (2001)

Please note that the time changed for this event from an earlier post due to the rescheduled meeting of the Governor's Council on Climate Change. 9:30-11am is the new time. Apologies for any inconvenience that this may cause.

When:

Thursday, October 19, 2017

9:30-11 am

Where:

Remote Attendance:

Register for Webinar

In Person Attendance:
Marine Sciences Building Room 103
University of Connecticut
Avery Point Campus
1080 Shennecossett Rd
Groton, CT 06340

Agenda:

Marine Sciences Professor and CIRCA Executive Director, James O'Donnell will present sea level rise projections for the state of Connecticut. These projections update the global sea level rise projections produced by NOAA (2012 CPO-1 report) using Connecticut's local tide gauge information and the current best available science. Based on the updated projections, CIRCA recommends that planning anticipates that sea level will be 0.5 m (1ft 8 inches) higher than the national tidal datum in Long Island Sound by 2050 and that it is likely that sea level will continue to increase after 2050. (More details are available in the Executive Summary below).

UConn Law School CEEL Professor-in-Residence, Joe MacDougald and CEEL legal fellow, Bill Rath will also present their CIRCA study on the legal and policy implications of sea level rise for Connecticut and their survey of state sea level rise policies.

Who Should Attend:

This meeting is free and open to the public. Municipal staff and elected leaders concerned about or in the process of planning for sea level rise and coastal resilience are encouraged to attend. Following the presentations, there will be an opportunity for questions from the audience.

Registration for In Person Attendance and Parking on Campus:

Registration is not required to attend the meeting in person. However, CIRCA can cover your parking fees, if you email Lauren Yaworsky at lauren.yaworsky@uconn.edu by noon on October 18 with your license plate number. If you have not preregistered for parking, visitor parking on campus is available in pay by phone (PBP) or in metered spots in the areas marked on this map.

Sea Level Rise Projections Executive Summary

Sea Level Rise and Coastal Flood Risk in Connecticut: An Overview

James O'Donnell,
Connecticut Institute for Resilience and Climate Adaptation, University of Connecticut

Measurements of sea level by instruments in the water and satellite altimeters provide unambiguous evidence that the annual mean level of the ocean surface is rising. Coastal communities should expect that the frequency of coastal flooding will increase. The National Oceanic and Atmospheric Administration (NOAA) report CPO-1 (Parris et al. 2012) provided guidance on the magnitude of potential changes in the global mean sea level based on analyses of both models and data. Four projections were shared so that managers could select what they judged to be appropriate. To provide more local guidance for Connecticut we have reviewed and modified the projections to include the effects of local oceanographic conditions, more recent data and models, and local land motion (O'Donnell, 2017). A concise summary of the results are shown in Figure 1.

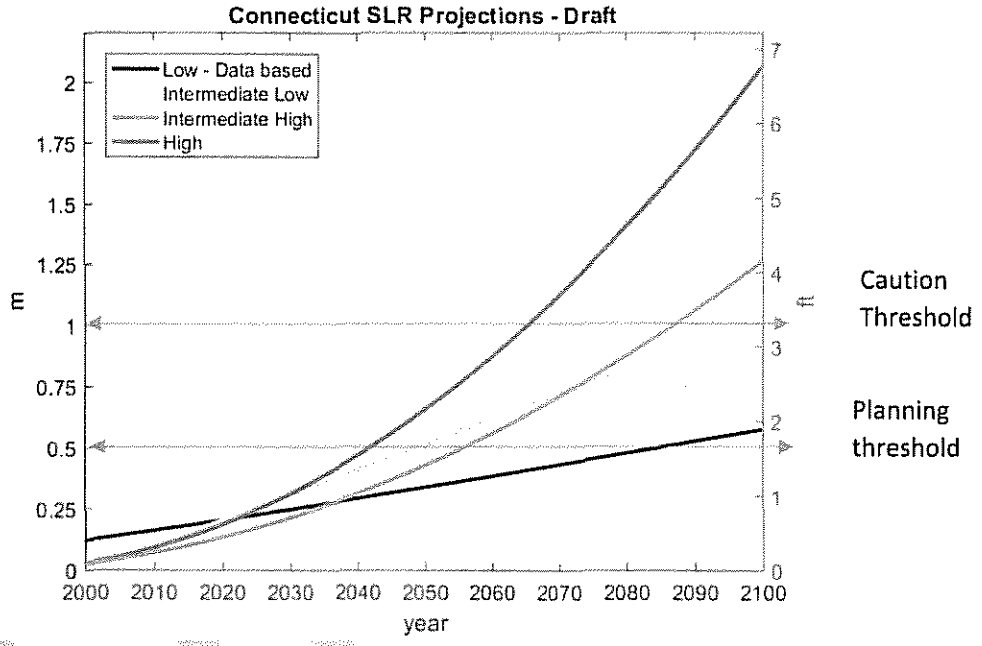


Figure 1. Sea level rise projections for Connecticut based on local tide gage observations (blue), the IPCC (2013) RCP 4.5 model simulations near Long Island Sound (yellow line), the semi-empirical models (orange line) and ice budgets (magenta line) as employed in the NOAA CPO-1 report (Parris et al., 2012).

Though we show the results of four different approaches for forecasting future annual mean sea level in Long Island Sound in Figure 1, the differences between them are not great until after mid-century. We do not expect a significant refinement in the accuracy of longer term forecasts until the character of future emissions of greenhouse gases can be predicted. We note the yellow line anticipates that emissions peak in 2040 and then fall rapidly, however, sea level late in the century is sensitive to emissions between now and 2050. We recommend that planning anticipates that sea level will be 0.5 m (1ft 8 inches) higher than the national tidal datum in Long Island Sound by 2050. It is likely that sea level will continue to increase after 2050. We recommend that global mean sea level measurements and projections be monitored and new assessments be provided to towns at decadal intervals to ensure that planning be informed by the best available science.

References

O'Donnell J., (2017) Sea Level Rise and Coastal Flood Risk in Connecticut. Draft Report to the CT Department of Energy and Environmental Protection.

Parris, A., P. Bromirski, V. Burkett, D. Cayan, M. Culver, J. Hall, R. Horton, K. Knuuti, R. Moss, J. Obeysekera, A. Sallenger, and J. Weiss (2012) Global Sea Level Rise Scenarios for the US National Climate Assessment. NOAA Tech Memo OAR CPO-1. 37 pp.

EXHIBIT B
to Eversource Response

CSC Letter re: FEMA Flood and Radio Frequency Mapping, d. May 16, 2014

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

VIA ELECTRONIC MAIL

May 16, 2014

TO: Kenneth C. Baldwin, Esq., Verizon Wireless
Christopher B. Fisher, Esq., AT&T
Julie D. Kohler, Esq., T-Mobile
Thomas J. Regan, Esq., Sprint/Nextel
John R. Morissette, Northeast Utilities
Bruce L. McDermott, Esq., United Illuminating

FROM: Melanie A. Bachman, Acting Executive Director MAB

RE: **FEMA Flood and Radio Frequency Mapping**

Pursuant to Section 16-50/ of the Connecticut General Statutes and consistent with Sections 16-50j-39, 16-50j-59 and 16-50j-74 of the Regulations of Connecticut State Agencies, the Connecticut Siting Council (Council) considers all relevant information, and may request additional information, before rendering a decision on any application for a certificate or petition for a declaratory ruling.

Radio Frequency Coverage Maps

Radio frequency coverage maps are provided as supporting documentation for telecommunication proposals. Also, follow up radio frequency coverage material is submitted either by response to an interrogatory or supplemental information. The Council requests that all such mapping submitted be consistent in scale and color, and that identifiers for tower locations, roads, adjacent sites, and frequency be labeled accurately and appropriately. This will aid in the comparison of this documentation.

FEMA Flood Maps

For both telecommunications and energy proposals, the question of flood impacts is of serious concern. The Council requests that the Federal Emergency Management Agency's (FEMA) most current Flood Insurance Rate Maps be submitted with the proposed and alternate site(s) identified on the map and a description of mitigation for those locations within a flood zone.

FEMA 500-Year Flood Elevation

Historically, the Council has requested facilities to be designed for 100-year flood elevation. However, in the response to recent influx of severe storms in the state, the Council requests facilities to be designed for the 500-year flood elevation, to the extent practicable. The Council's due diligence in this matter is further explained in the Connecticut Climate Preparedness Plan.
http://www.ct.gov/deep/cwp/view.asp?a=4423&Q=528012&deepNav_GID=2121

CSC
CONNECTICUT SITING COUNCIL

The strategies outlined in the Climate Preparedness Plan center around five basic themes:

- Intensify efforts to ensure preparedness planning;
- Integrate climate change adaptation into existing plans;
- Update existing standards to accommodate change expected during infrastructure design life;
- Plan for flexibility and monitor change; and
- Protect natural areas and landscape features that buffer potential impacts from climate change.

Thank you in advance for your cooperation.

MAB/cm

c: Council Members

EXHIBIT C
to Eversource Response

CL&P Presentation to Connecticut Siting Council
February 28, 2014

Connecticut Light & Power
A Northeast Utilities Company

Connecticut Light & Power Co.
Docket No. 12-07-06
Compliance Order No. 1 - Supplement
Dated February 28, 2014

CL&P's Substation Flood Mitigation

Report to the Connecticut Siting Council

February 28, 2014

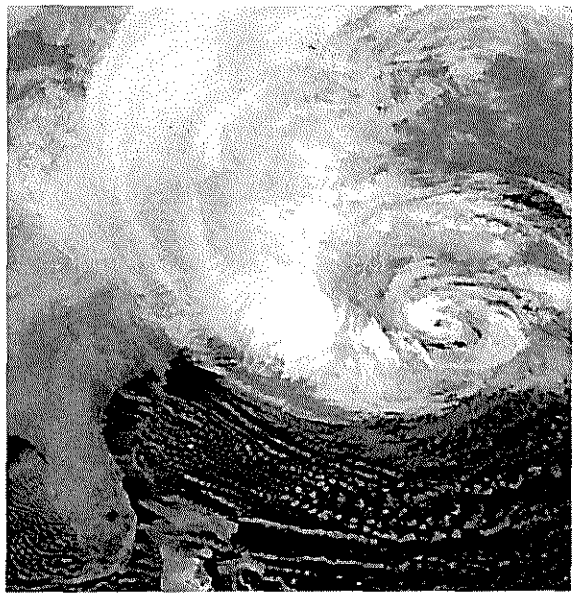
Agenda

- Introduction
  - Guiding Principles
  - Substation Resiliency
- CL&P's Substation Assessment and Results
- Substation Mitigation Plans
  - Short-term and Long-term

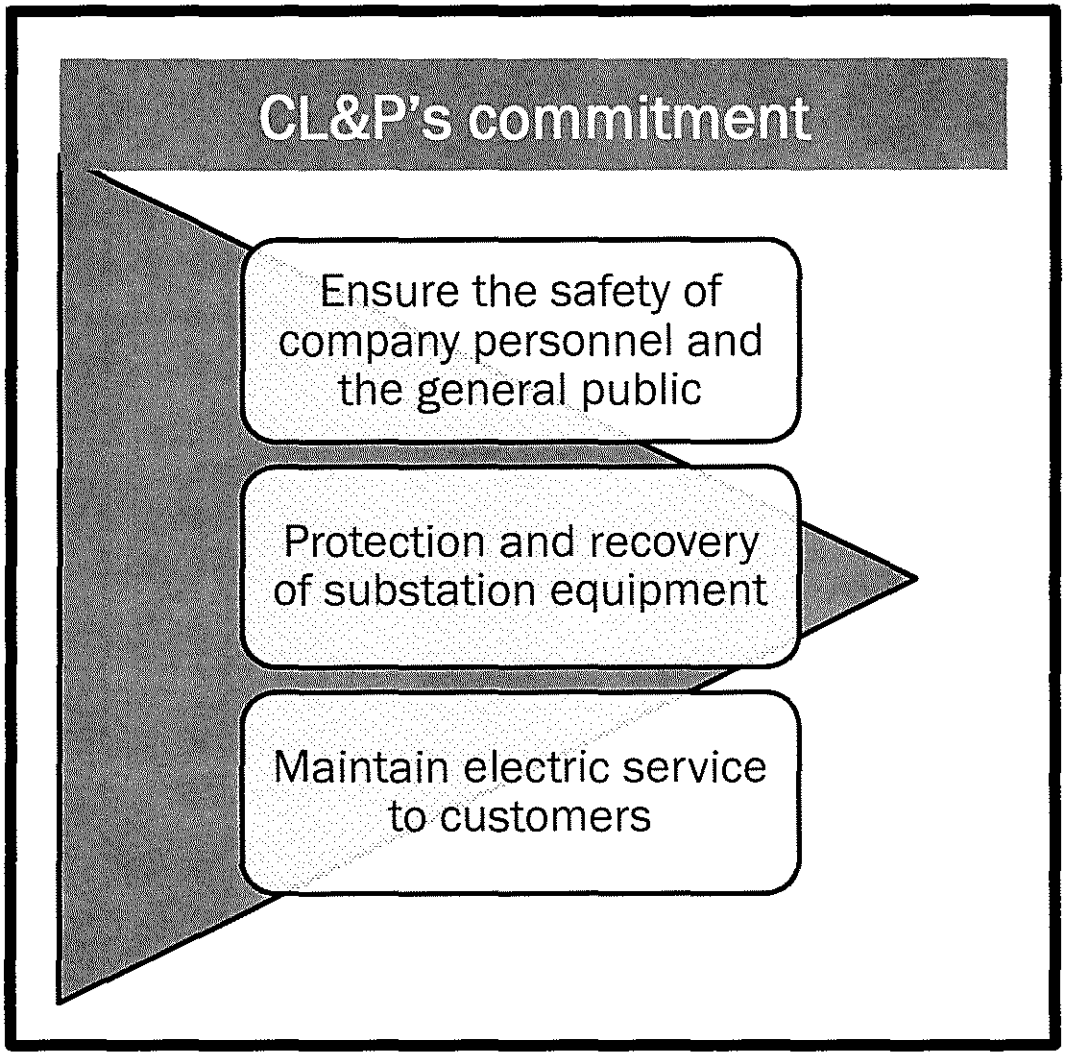
Introduction

- Subsequent to Superstorm Sandy, the Connecticut Siting Council requested information from Connecticut Light & Power (CL&P) regarding substation mitigation plans for hurricane and flood

- This document provides an overview of:
  - The substation assessment conducted in 2013 to evaluate the resiliency of substation equipment towards extreme weather, particularly hurricanes and flooding
  - The results from the assessment
  - CL&P's long-term and short-term mitigation plan to reduce the risk to substation equipment



Guiding Principles



- All pre-emptive preparation prior to an event, direct action during an event, and post event recovery conform to these guiding principles

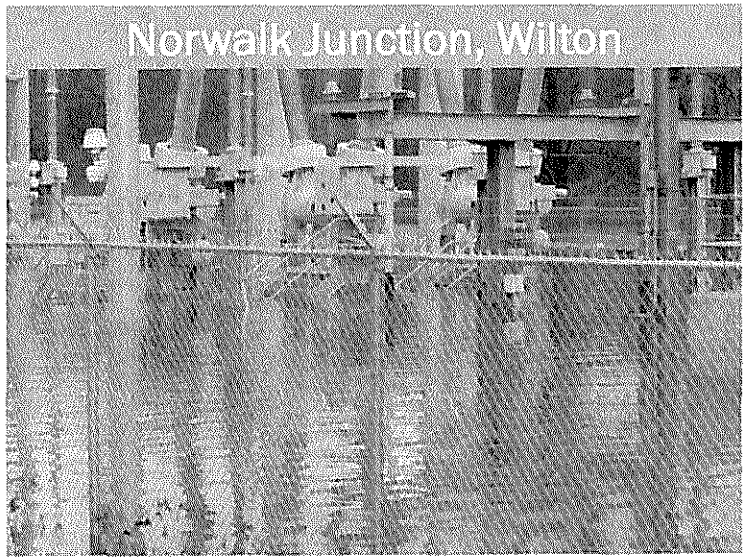
Substation Resiliency

- CL&P's proactive approach to substation resiliency helps to mitigate hurricane and flood risk

Examples:

- Norwalk Junction Substation, Wilton
  - Flooding occurred in 2003 and 2007 from the Norwalk River
  - In 2010, CL&P raised 11 control boxes to 100 year +1' level

- South End Substation, Stamford
  - In preparation to Superstorm Sandy, CL&P constructed temporary flood barrier



Substation Assessments

Connecticut Light & Power Co.
Docket No. 12-07-06
Compliance Order No. 1 - Supplement
Dated February 28, 2014

Connecticut Light & Power
A Northeast Utilities Company

Identify

- Determine substation flood risk using National Weather Service SLOSH Maps *(Sea Lake and Overland Surge from Hurricanes Maps- June 2008)*
- Based on: Hurricane Category 1, 2 and 3 storm surge inundation and 100 year and 500 year flooding areas

Evaluate

- Conduct field review of each substation determined to be at risk for flooding
- Review: Mark equipment with elevations and determine specific equipment at risk
- Risk Criteria: Risk of electric outage, equipment loss, lead time to replace, and cost

Mitigate

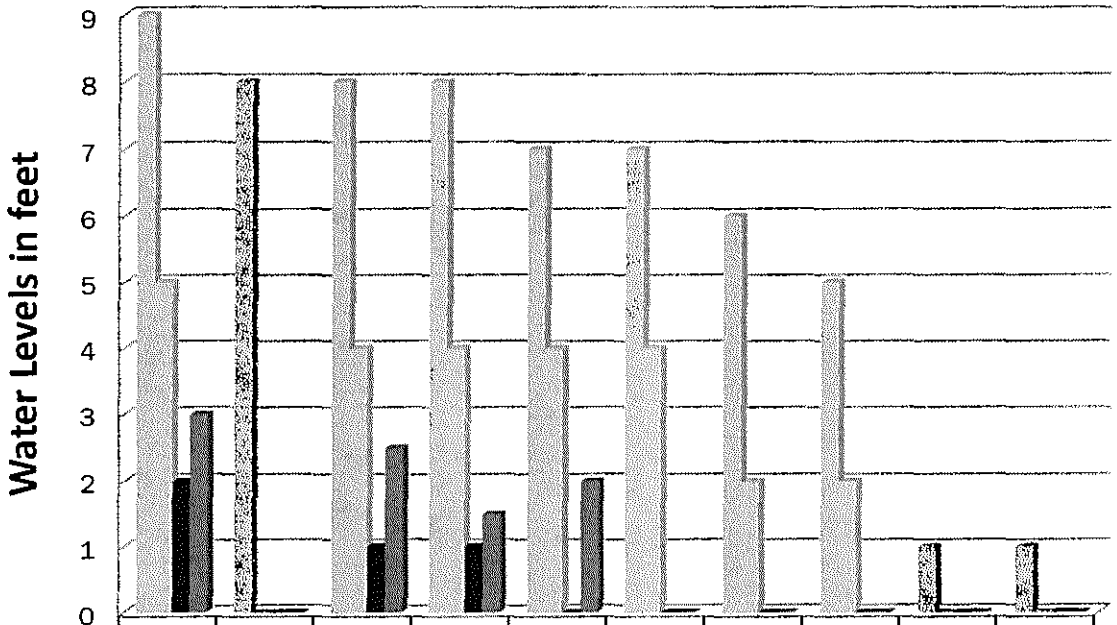
- Develop mitigation strategies and prioritization for each site identified during Step 1
- Strategy Criteria: Flooding risk, terrain, size of substation, load served, and estimated cost

- In 2013, CL&P conducted the following assessments
  - Assessment for Hurricane mitigation
  - Assessment for 500 and 100 +1-foot year flood mitigation

Assessment Results: Hurricane Surge Level Flood Results

- Projected inundation levels, per facility
  - Ten (10) substations identified to be potentially impacted by hurricanes
- *Note*:
  - Substation identity has not been provided (alphabet letter designations for purposes of this summary)

Predicted Hurricane Surge Levels (+/- 20% accuracy, excluding waves)



	Sta A	Sta B	Sta C	Sta D	Sta E	Sta F	Sta G	Sta H	Sta I	Sta J
Cat 3	9	8	8	8	7	7	6	5	1	1
Cat 2	5	0	4	4	4	4	2	2	0	0
Cat 1	2	0	1	1	0	0	0	0	0	0
Sandy*	3	0	2.5	1.5	2	0	0	0	0	0

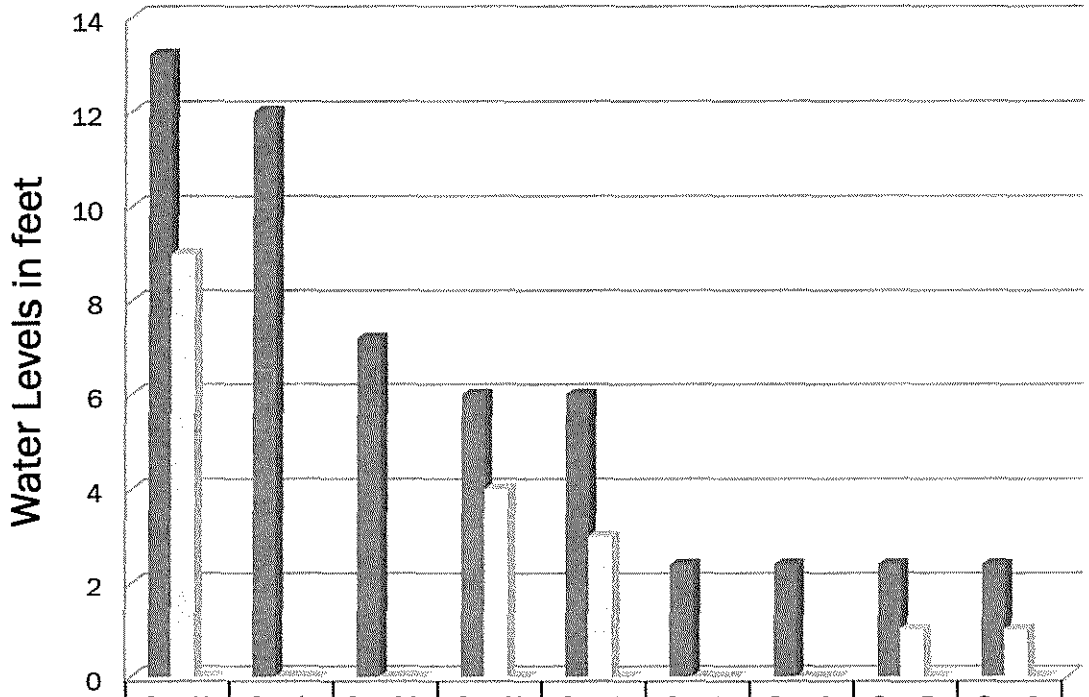
***If Sandy storm surge was coincident with high tide, water levels would have been several feet higher**

Assessment Results: 500 and 100 Year Flood Level Flood Results

Connecticut Light & Power
A Northeast Utilities Company

- Projected inundation levels, per facility
  - Nine (9) substations for 100 year flood and/or 500 year flood events
- *Note*:
  - Substation identity has not been provided (alphabet letter designations for purposes of this summary)

Predicted 500 and 100 Year Flood Levels (+/- 20% accuracy)



	Sta K	Sta L	Sta M	Sta N	Sta O	Sta P	Sta Q	Sta R	Sta S
500 yr	13.2	12	7.2	6	6	2.4	2.4	2.4	2.4
100 yr +1'	9	0	0	4	3	0	0	1	1
Sandy	0	0	0	0	0	0	0	0	0

***If Sandy storm surge was coincident with high tide, water levels would have been several feet higher**

Short-term Mitigation: 2014 Plan

Connecticut Light & Power Co.
Docket No. 12-07-06
Compliance Order No. 1 - Supplement
Dated February 28, 2014

Connecticut Light & Power
A Northeast Utilities Company

- Finalize substation mitigation designs planned for 2014 execution

South End Substation	Norwalk Junction Substation
– South End Substation is part of Docket 435 – Currently undergoing a 3rd party study to determine permanent flood mitigation design – Mitigation design under consideration: construction of a permanent wall around the substation to attenuate a worst case water level inundation • Wall construction will be based on cost versus risk criteria	– A study is underway to confirm potential for various flood events – Evaluation of mitigation techniques and costs will be determined for the different scenarios – Mitigation design considerations will be reviewed after evaluation is complete

- Evaluate remaining substations identified from assessment results
  - Mark equipment with elevations and determine specific equipment at risk
  - Develop mitigation solutions and costs for equipment at risk
    - See appendix for typical mitigation techniques
- Incorporate flood mitigation criteria into design standards for new substations

Long-term Mitigation

- CL&P will
  - Finalize mitigation strategies for hurricane, 500 and 100 +1' year flooding events
  - Design mitigation solutions for each substation
  - Develop long-term funding mechanism

- Assisting others with risk mitigation
  - Offer to assist with any telecommunication tower's assessment
    - Risk and mitigation for electric service supply

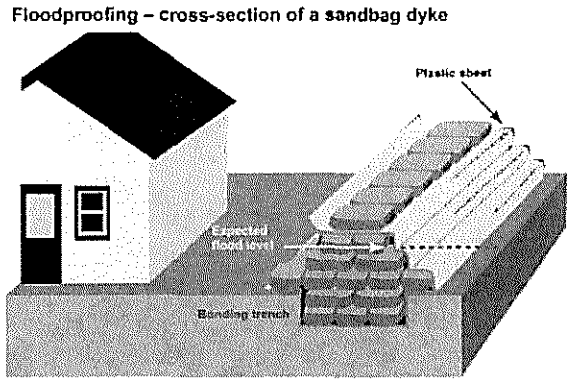
Strategic mitigation plans are key to a more resilient electric system!

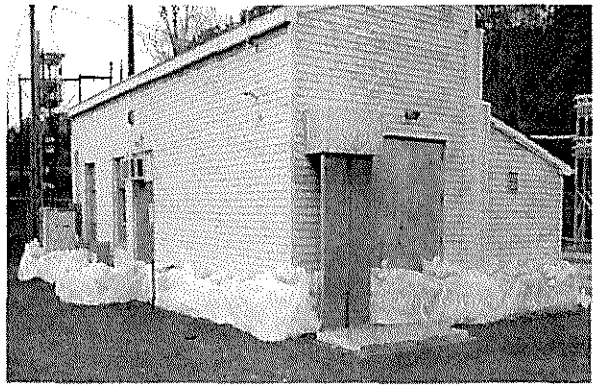
Appendix
Flood Mitigation Techniques

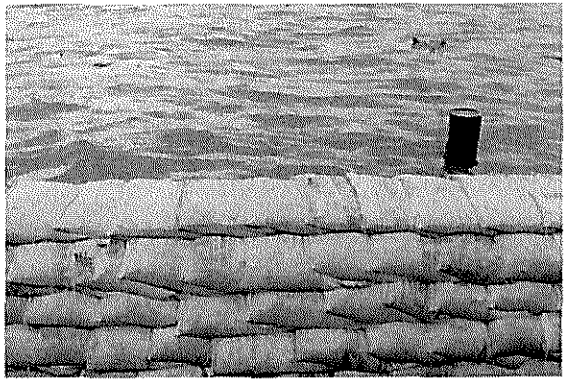
Short Term Plan Solutions

- For Predicted Flood Level Less Than Three (3) feet: Sandbags & Sealing
  - Place sandbags up to 3' high around entire substation or just around control house
  - Seal all conduits
  - Install sump pump(s), generator and fuel inside sandbagged area(s)
  - Plug toilets and sinks

Examples of Sandbag Deployment





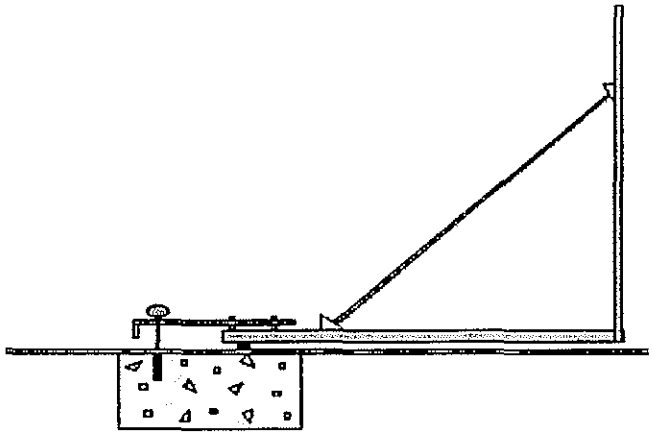


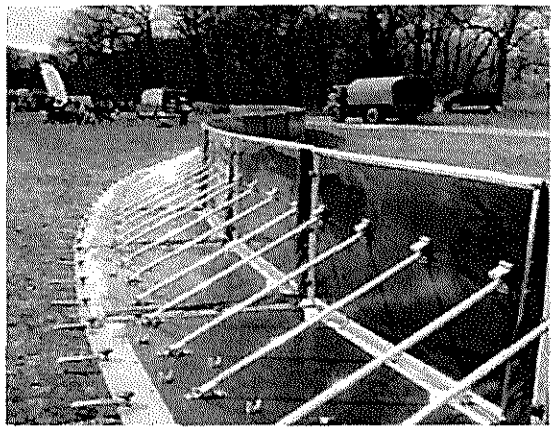
Short Term Plan Solutions

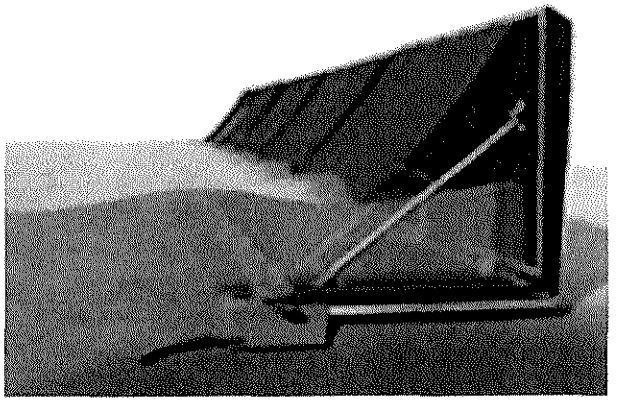
Connecticut Light & Power
A Northeast Utilities Company

- For Predicted Flood Level Between Three (3) feet & Six (6) feet: AquaFence® & Sealing
  - Install AquaFence® around the entire station
  - Seal all conduits
  - Install sump pump(s), generator and fuel inside Aquafence ®
  - Plug toilets and sinks

Examples of AquaFence®



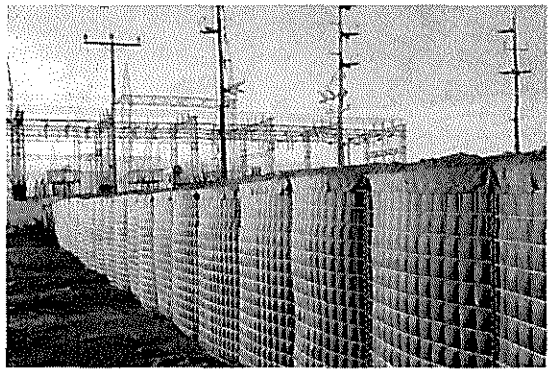


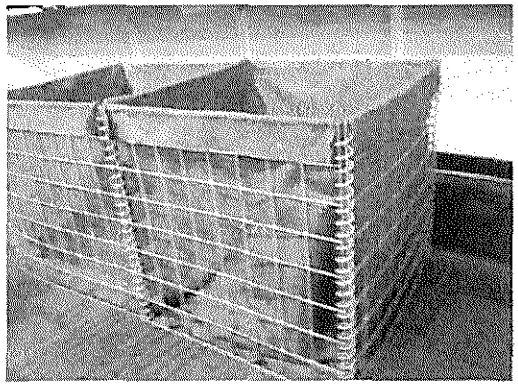


Short Term Plan Solutions

- For Predicted Flood Level of Six (6) feet or Greater: HESCO® Barriers & Sealing
  - Install HESCO® Barriers at predicted maximum flood level height plus 20%
  - Seal all conduits and control cabinets
  - Install sump pump(s), generator and fuel inside HESCO® Barrier area(s)
  - Plug toilets and sinks

Examples of HESCO® Barriers





Long Term Plan Solutions

- For Flood Level mitigation at substations where HESCO ® Barriers & Sealing have not been determined to be cost justified for the assessed risk, the following options may be considered:
  - Convert 4.8kV and 4.16kV circuits to higher voltage & completely eliminate the substation
  - Install step-transformers on poles inside the substation fence line and eliminate all other surface installed equipment
  - Raise all station equipment onto retrofit concrete or steel platforms
- Note: Certain substations may be de-energized and allowed to flood; damaged transformers would be relatively easy to replace after the event

EXHIBIT D
to Eversource Response

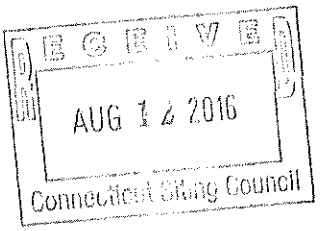
Notice of Flood Mitigation Improvements to Norwalk Harbor Substation

EVERSOURCE ENERGY

56 Prospect Street
P.O. Box 270
Hartford, CT 06103

em-ever-103-160812e

August 12, 2016



Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification Pursuant to RCSA § 16-50j-57(a) to Existing Energy Facility Site at 98 Manresa Island Road, Norwalk, Connecticut ("Notice of Exempt Modification")

Dear Chairman Stein:

The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource") hereby gives notice to the Connecticut Siting Council of its intent to undertake modifications to Eversource's Norwalk Harbor Substation ("Project") described herein.

Proposed Modifications

The Project would take place on property owned by NRG Energy ("NRG") over which Eversource has easement rights for its Norwalk Harbor Substation ("Substation") located at 98 Manresa Island Road in Norwalk. Following an evaluation of its substations' susceptibility to flooding due to storm tide surges during hurricane and tropical storm events, Eversource has determined that flood mitigation is required at the Substation to mitigate the potential for equipment damage due to flooding.

The Substation interconnects three 115-kV underground cable transmission lines, the power station's two generator lead lines and its backup station service power transformer, and, through a 300-MVA 115/138-kV autotransformer, the 138-kV submarine cables that extend to the Long Island Power Authority's (LIPA's) Northport Substation on Long Island, New York.

The Substation is mostly at a grade of 10.7 feet with the western portion sloping to an elevation of 8.2 feet. Eversource's flood mitigation plan for this Substation proposes to raise existing equipment, and to install precast concrete barriers within the Substation fence line for flood

protection during storm events. The modifications consider the potential range of storm surge values, and accounts for expected wave height at the Substation site during these events.

The proposed modifications to the Substation would include the following:

a) Raise two 138-kV circuit breakers one foot above their current positions, by utilizing the existing adjustable leg supports supplied with the existing circuit breaker.

b) Raise one 138-kV circuit breaker two feet by replacing the existing adjustable leg supports supplied with the circuit breaker with new adjustable leg supports to accommodate the proposed elevation change.

c) Install two-foot high concrete foundation wall extensions on the west, south and east sides of the existing control enclosure.

d) Install two-foot high removable flood concrete barriers at the existing control enclosure door locations.

e) Raise the existing emergency generator 18 inches by installing a steel mounting support, which will be secured to the existing foundation.

f) Install a sump pump within the control enclosure, which would be powered by the existing emergency generator.

g) Install 965 linear feet of Type "F" precast concrete barriers around the perimeter of the Substation. The barriers will be 55 inches high by 40 inches wide at the base and 22 inches wide at the top.

The existing Substation arrangement with the modifications is shown in Drawing No. 20305-92001 Norwalk Harbor Substation - Yard Arrangement Plan & Sections

The Project would not have a substantial adverse environmental effect or cause a significant adverse change or alteration in the physical or environmental characteristics because:

a) The barriers would be located within the substation's existing fence line; the Substation's fenced area would not be expanded.

b) The equipment being raised will be no taller than the tallest existing equipment within the Substation.

c) There would be no change to the existing television or radio interference resulting from the modifications of the Substation.

d) Sound-pressure levels at all points along properties lines would continue to meet state regulations set out in Regulations of Connecticut State Agencies §§ 22a-69-1 et seq.

e) The Project work would not affect water resource areas.

f) The Substation is within a 100-year flood zone, but there will be no excavation during the Project.

g) Eversource's review of the Connecticut Department of Energy and Environmental Protection's ("CT DEEP") Natural Diversity Data Base did not identify any state-listed endangered, threatened, or special concern species in the vicinity of the Project.

h) Electric and magnetic field levels at the Substation boundary would not change as a result of the modifications.

Eversource proposes to commence construction in September 2016. Work is scheduled to be completed by December 2016.

Enclosed are two (2) copies of this Notice of Exempt Modification along with the filing fee of $625.00.

A notice has been provided to the City of Norwalk and the property owner, NRG.

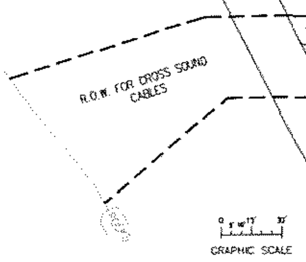
Communications regarding this Notice of Exempt Modification should be directed to Kathleen M. Shanley at (860) 728-4527.

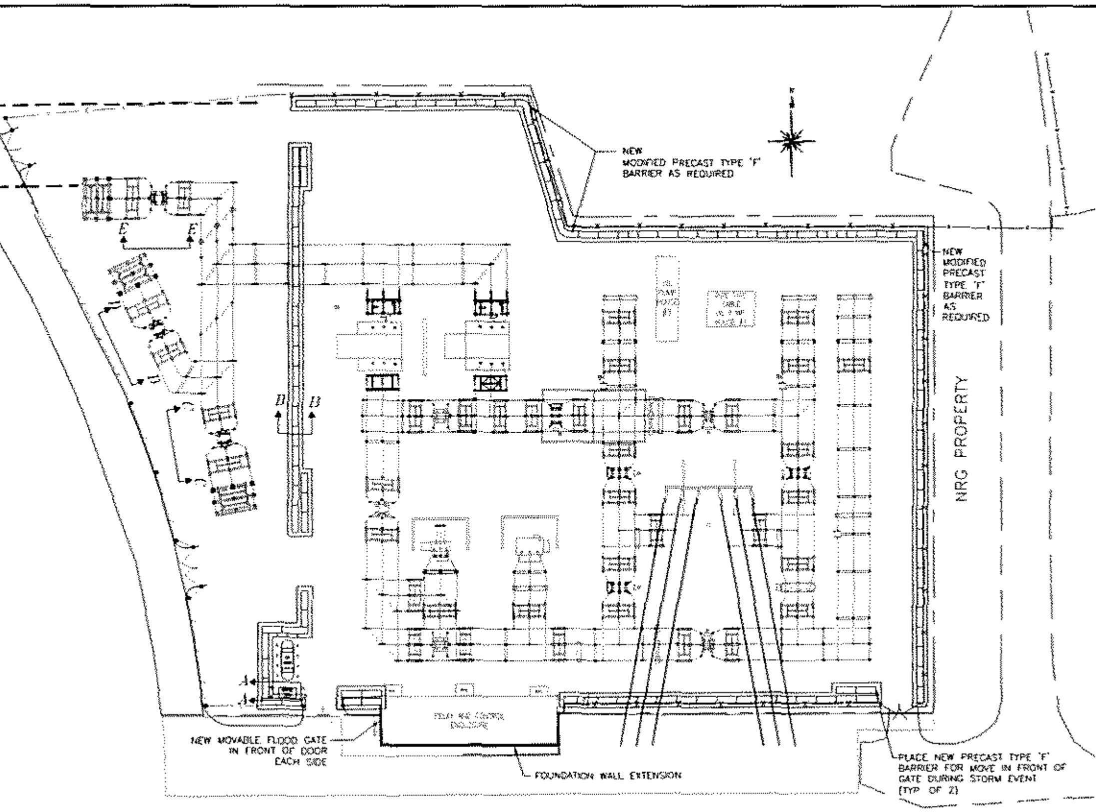
By: _____
Kathleen M. Shanley
Manager – Transmission Siting

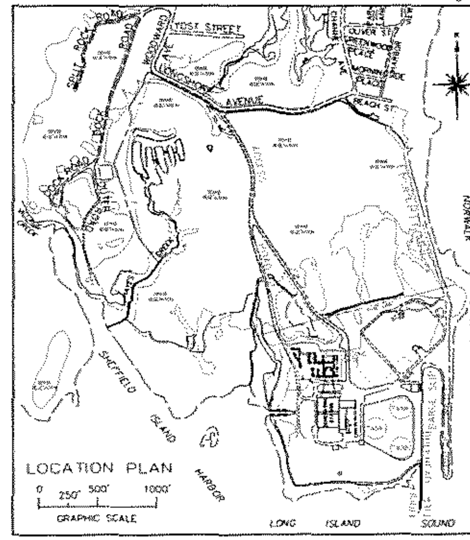
cc: Mayor Harry Rilling, City of Norwalk

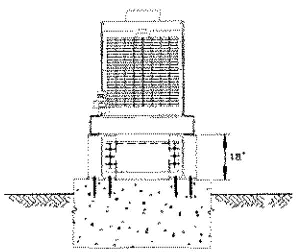
Attachment:

Attachment A: Drawing No. 20305-92001 Norwalk Harbor Substation - Yard Arrangement Plan & Sections



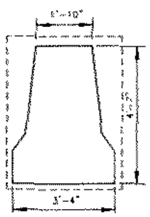






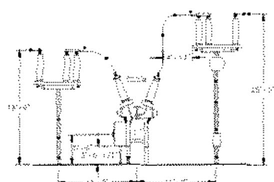
SECTION A–A

GRAPHIC SCALE



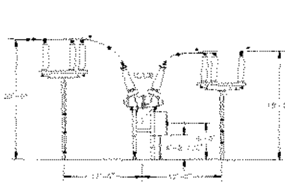
SECTION B–B

GRAPHIC SCALE



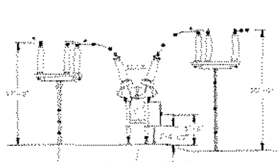
SECTION C–C

GRAPHIC SCALE



SECTION D–D

GRAPHIC SCALE



SECTION E–E

GRAPHIC SCALE

LEGEND

2016 ADDITIONS

REVISIONS DURING CONSTRUCTION

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
1	3/08	REPLACE 8X AUTOXF, W.O. #40314601 ADDED SPARE 5X AUTOXF, W.O. #40327701	VSP	REM	REM	ALG

EVERSOURCE ENERGY

NORWALK HARBOR SUBSTATION
YARD ARRANGEMENT – PLAN & SECTIONS
CONNECTICUT SITING COUNCIL
NORWALK, CT

N.T.S.
N.T.S.

20305-92001

STATE OF CONNECTICUT

ss: HARTFORD DECEMBER 11, 2017

COUNTY OF HARTFORD

AFFIDAVIT OF KENNETH B. BOWES

1. I am Vice President, Transmission Performance, of Eversource Energy. I make this oath and affidavit on my personal knowledge in support of Eversource's opposition to the Petition for Reconsideration of the Town of Greenwich in Docket 461a of the Connecticut Siting Council.
2. In 2015, Eversource developed a Design Flood Elevation guideline for new substations. A copy of that guideline is provided as Attachment 1 hereto.
3. Thereafter, in 2016, that design guideline was incorporated into the Eversource Substation Standards. Attachment 2 hereto consists of a two-page excerpt from those standards as they are in effect today. Paragraph B 1 from page 3 of the standards relates to the grade of the site and provides in part:

> As a minimum, substation elevations / grading shall be designed such that substation operation and maintenance can be readily achieved in flood conditions. The design flood condition is the FEMA 100-year flood event (as modified by applicable Development & Management (D&M) plan flood elevation changes).

Attachment 1 to the current standard (p. 2 of Attachment 2 to this affidavit) illustrates Eversource's Flood Protection Decision Process, which is designed to assure that substation equipment, whether in open air or enclosed substations, will be positioned to withstand 100-year and 500-year flooding events.

4. I am familiar with the updated projections and recommendations of CIRCA concerning sea level rise for the State of Connecticut. The CIRCA Director of

Applied Research, Professor Emmanouil Anagnostou also serves as the Director of the Eversource Energy Center at the University of Connecticut. The Eversource Energy Center (EEC) has commissioned specific research concerning the effects of sea-level rise and storm surge on substations in Connecticut. The EEC is undertaking this research with a deliberate study of the potential impact on electric grid ground-level infrastructure in coastal and riverside areas *"Evaluation of Substations Vulnerability of Flooding in Current and Climate Change Scenarios."*

5. CL&P's substation design standards for the bulk substation located at 290 Railroad Avenue, Greenwich, Connecticut are based upon the Eversource Design Flood Elevation guideline for new substations and are consistent with the latest recommendations of the CIRCA report of October 19, 2017.

Kenneth B. Bowes

Subscribed and sworn to before me, the undersigned authority, this 11th day of December, 2017.

~~Notary Public~~ Phyllis E. Lemell
Commissioner of
the Superior Court
State of Connecticut

BOWES AFFIDAVIT
ATTACHMENT 1

Design Guideline for Design Flood Elevation for Substations

Design Guideline for:

Design Flood Elevation (DFE) for Substations

Introduction

The purpose of this document is to provide the design basis for the selection of the DFE to be utilized for new and existing substations. The engineer performing the evaluation, design, and/or analysis of the subject site is required to review and be familiarized with all applicable resources pertinent to the DFE. Resources include Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies (FIS), American Society of Civil Engineers (ASCE) 24-14 – Flood Resistant Design and Construction, and FEMA recommendation for projected sea level rise.

Proposed DFE for Substations

- **New Substations**

  The DFE shall be the greater of the following:

  - 100-Year FEMA Flood Elevation + 2' + Sea Level Rise[1]
  - 500-Year FEMA Flood Elevation + Sea Level Rise[1]

The criteria listed above are based on guidance from the American Society of Civil Engineers (ASCE) 24-14 – Flood Resistant and Construction standard including sea level rise.

- **Existing Substations**

  The DFE shall be:

  - 100-Year FEMA Flood Elevation (as a minimum)

Existing Substations requiring an Independent Evaluation

Due to recent updates to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), sites that were not located within a flood zone may now be inundated based on the proposed DFE. In addition, sites that were inundated may now have an increased flood elevation.

Existing substations shall be evaluated based on the DFE criteria. If unacceptable, or the operation of the substation is impacted, site specific studies shall be performed to determine acceptable levels of impact to critical equipment, substation grade elevations, and accessibility of the site due to inundation.

---

[1] Sea Level Rise is 1' as recommended by FEMA document "Designing for Flood Levels Above the BFE After Hurricane Sandy." (HSFE60-13-0002, 0003)

Prepared by: Robert M. Niemiec

11/20/2015

An independent evaluation incorporating the factors that affect storm surge of the subject sites may be required by an outside consultant if they are determined to be significantly inundated by the proposed DFE. The independent evaluation will provide a reasonably conservative model based on the Category of Hurricane, Direction, Speed of Advance, Tide Elevation, and Wave Height (Northeast Utilities Transmission and Distribution civil engineering evaluated and determined reasonably conservative parameters to establish the storm surge criteria dated 02/12/2014). The parameters are as follows:

- *Category of Hurricane* – Over the last 100 years 21 hurricanes and tropical storms centers have passed through the Northeast. There were 8 hurricanes that passed through the area with 1 identified as a Category 3 (Unnamed, September 1938). According to the National Oceanic and Atmospheric Administration (NOAA), the recurrence interval for any major hurricane (Category 3 and above) is 70 years (1.4%) in this area. Based on this recurrence interval and the fact that a Category 3 hurricane has occurred, the Category 3 Hurricane level has been selected as the design Hurricane.

- *Direction* – The directions of the 21 hurricanes and tropical storms that have passed through the Northeast have predominately followed a north northeast (NNE) to northeast (NE) path. A majority (88%) of the hurricanes followed a north northeast (NNE) to northeast (NE) path. Therefore, based on the historical predominate path a North Northeast track has been selected as the design Direction.

- *Speed of Advance* – The speed of advance for the hurricanes that have affected this region ranged from 22mph to 45 mph. Therefore, based on this historical data the design Speed of Advance for the hurricane has been selected as 50 mph.

- *Tide Elevation* – The tide elevations vary from Mean Higher High Water (MHHW), Mean High Water (MHW), Mean Sea Level (MSL), Mean Low Water (MLW), and Mean Lower Low Water (MLLW). Mean tide level would be the minimal level to be considered because the tide level is above this value 50% of the time. Based on this it is reasonable to expect that a hurricane could occur during MHW tide level. Therefore, a reasonably conservative approach (but not worst case scenario) is to use the Mean High Water (MHW) elevation which has been selected as the design Tide Elevation.

- *Wave Height* – In addition to storm surge, waves due to hurricane force winds will add to the storm surge water level. The wave height is dependent on the physical characteristics of the coastal location under consideration, the seabed geometry, and hurricane wind speeds. Due to the variability of these characteristics, wave heights must be calculated on a case by case basis using the ACES model (or equivalent). Based on this it is reasonable to consider the contribution of wave height in all storm surge level determinations.

Existing substations requiring an independent evaluation incorporating the factors that affect storm surge shall be designed to a Category 3 Hurricane moving North Northeast at a speed of 50mph at Mean High Water (MHW) including calculated wave heights based on location.

Design Criteria for Proposed DFE

The proposed DFE for new substations was determined utilizing guidance from ASCE 24-14 – Flood Resistant Design and Construction. ASCE 24 states the minimum requirements and expected performance for the siting and design and construction of buildings and structures in flood hazard areas that are subject to building code requirements. FEMA deems ASCE 24 to meet or exceed the minimum National Flood Insurance Program (NFIP)

requirements for buildings and structures. Electrical substations are identified within the Flood Design Class 4 of ASCE 24 (-05 or later). Local State Building Codes have either adopted or will adopt the International Building Code (IBC) (2009 or later) which references ASCE 24.

The proposed DFE for existing substations was determined utilizing the 100-Year FEMA Flood Elevation. The 100-year storm has a 1% probability of reaching the indicated flood height in any given year.

Sea Level Rise has been identified as a concern for the Northeast region by NOAA. Research has been conducted by the Connecticut Department of Energy and Environmental Protection (CT DEEP), Massachusetts Office of Coastal Zone Management (CZM), and other governmental agencies. Sea Level Rise is 1' as recommended by FEMA. Refer to the flowchart provided in Attachment A for minimum elevations of critical electrical equipment and components. Critical Electrical Equipment and Components are defined by Substation Engineering.

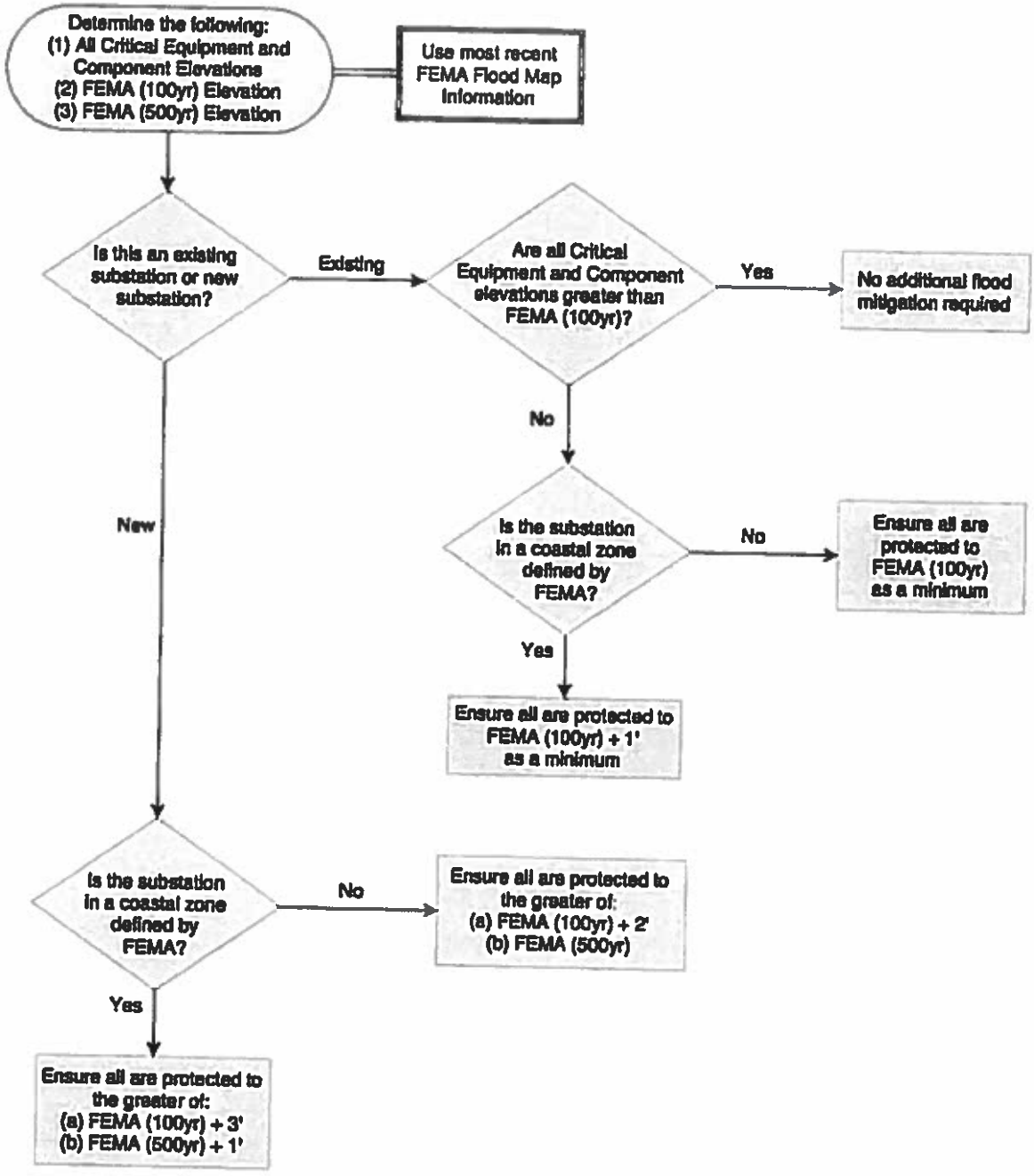
Refer to the flowchart provided in Attachment A for minimum elevations of critical electrical equipment and components. Critical Electrical Equipment and Components are defined by Substation Engineering.

Prepared by: Robert M. Niemiec

11/20/2015

Attachment A

Flood Protection Decision Process



Prepared by: Robert M. Niemiec

11/20/2015

BOWES AFFIDAVIT
ATTACHMENT 2

Excerpts from Eversource Substation Standards (pp. 3 and 11)

B. Minimum elevations

1) As a minimum, substation elevations / grading shall be designed such that substation operation and maintenance can be readily achieved in flood conditions. The design flood condition is the FEMA 100 year flood event (as modified by applicable Development & Management (D&M) plan flood elevation changes).

2) The low point of the finish grade (at top of trap rock) inside the substation fence must be at least as high as the 100 year flood. Additionally, the portion of any access road on the substation site must either be above the 100 year flood plane or designed to be useable with 80,000 lb gross weight vehicles in flood conditions.

C. Critical Equipment and Components susceptible to flooding

1) Refer to the flowchart provided in Attachment 1 for minimum elevations of critical electrical equipment and components. Critical Electrical Equipment and Components are defined by Substation Engineering.

D. Slope

1) The substation site grade preferred contour is essentially level, a maximum .5 % slope for drainage is allowed. However some sites are located in areas where a sloped design is the best solution.

2) Sloped designs are to be as shallow as possible but in no case shall the slope exceed 5%. In extreme cases a stepped grade design may be required due to severe site conditions. Sloped and stepped design approaches are to be approved by Eversource civil engineering prior to detailed design.

E. Site Surface Course (Trap Rock)

1) The surface course for the substation (inside the fence and 4 ft outside the fence) shall consist of a 4" layer of crushed gray Basalt or crushed granite (angular stone) stone meeting the following gradation requirements:

Connecticut & Massachusetts	
Sieve Designation	Percent by Weight Passing Square Mesh Sieve
1 inch	100
3/4 inch	90-100
1/2 inch	20-55
3/8 inch	0-15
No. 4	0-5

New Hampshire	
Sieve Designation	Percent by Weight Passing Square Mesh Sieve
1 1/2 inch	100
1 inch	93 - 100
½ inch	27 - 58
1/4 inch	0 - 8

Attachment 1

Flood Protection Decision Process