November 30, 2015

Mr. Robert Stein
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 461 - CSC 461 Greenwich Substation and Line Project

Dear Mr. Stein:

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

Response to OCC-04 Interrogatories dated 11/17/2015
OCC-041, 042, 044, 045, 046, 047, 048, 049, 050, 051, 052, 053, 054, 055, 056, 057, 058, 059, 060, 061, 062, 063

Very truly yours,

John Morissette
Project Manager
Siting
As Agent for CL&P
dba EversourceEnergy

cc: Service List

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Transcript of 10/06/2015 hearing ("Tr. of 10/06") at 172-174. Please provide the information requested at the hearing regarding: Energize CT participants; an August energy efficiency mailing; and participants in the individualized energy efficiency program.

Response:
Please refer to Eversource's response in HD-01, Q-LF-006 and Q-LF-007.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Tr. of 10/06 at 53-56. Explain in detail the circumstances and the resolution of the referenced cable failure that occurred in July 2015. Include the age of the failed cables, the load at the time of failure, an assessment of why the failure occurred, and any outages that occurred as a result of the failure. Regarding the resolution, include a description of repair work, and detail the replacement infrastructure/equipment and cost. Explain the referenced "emergency rating" for the feeders.

Response:
In the month of July 2015, Eversource experienced three feeder failures. All three interruptions were due to cable failures of the Company's 40+ year old cable segments of three Cos Cob feeders.

I. The first feeder failure occurred on July 20, 2015 at 17:00 and the load before failure was 25 MVA. This feeder was returned to service on July 22, 2015 at 06:00. The estimated cost of these repairs is $20,000.

II.

III. The second feeder failure occurred on July 27, 2015 at 17:30 and the load before failure was 7.5 MVA. This feeder was returned to service on July 29, 2015 at 04:15. The estimated cost of these repairs is $35,000 (the higher cost is due to the longer segment of cable replaced).

IV.

V. The third feeder failure occurred on July 28, 2015 at 22:30 and the load before failure was 14 MVA. This feeder was returned to service on July 30, 2015 at 02:45. The estimated cost of these repairs is $20,000.

Restoration of these cable faults involved the identification of the fault locations, switching, manhole cleaning for safe access, damage assessments, cable segment replacements and cable splicing, followed by safely returning these feeders to their normal operating conditions via safe switching practices.

During the cable failures, the feeders that remained in service were used to carry the total load to prevent customer outages, which caused them to operate over their normal ratings. This action avoided customer outages, but also took the feeders that remained in service into their emergency ratings, which causes an incremental reduction in the expected remaining life of those feeders.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Tr. of I 0/06 at 163-164. Explain whether cost sharers, such as Western Massachusetts Electric Company and Public Service Company of New Hampshire, could object to certain aspects of this local Project, e.g., the extensive undergrounding, the indoor substation, etc., and potentially have their contribution lowered or eliminated by an ISO-NE determination or a FERC ruling. Also, does CL&P have any intention to make a filing with FERC to exempt WMECO or PSNH from any cost sharing of this proposal? If not, can CL&P commit that they will not make such a filing?

Response:
Please see the response to OCC-01, Q-OCC-005 which explains how the company proposes to recover the costs of the Greenwich Substation and Line project. The response to OCC-02, Q-OCC-019 Attachment 1 contains a listing of the Schedule 21-NU, Category A transmission service customers. Customers under a FERC tariff have the rights afforded to them under the Federal Power Act concerning rates, terms and conditions of transmission service.

At this time the company does not intend to submit a filing at FERC to propose recovery from a different set of customers for this project than described in Q-OCC-001, Q-OCC-005.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Response to OCC-20.

Given:

(a) the 10% contingency in the Company's estimate and the very costly unknowns in the Project, e.g., potential for blasting and associated risks, blowouts, clean-ups of various chemicals and materials, etc., and

(b) the Company's higher (than distribution) rate of return for transmission, and the estimated cost of $140 million,

Then:

(c) how would the extra cost be covered if the project went 25 or 30 percent over the estimate?

(d) would the Company be willing to commit to covering or contributing to any costs that exceed the 10% contingency?

Response:
See Eversource's responses to OCC-01, Q-OCC-005 and CSC-01, Q-CSC-011.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
For CL&P's territory as a whole, provide a table listing usage by residential, commercial and industrial customers for the past five years, and for 2015 year to date.

Response:
The data table provides the electrical usage in MWh for Eversource Connecticut customers broken down by residential, commercial and industrial for the past 5 years and year to date 2015.

Eversource-CT Electric Actual Annual Calendar Usage			
MWH			
Year	Residential	Commercial	Industrial
2010	10,196,086	9,716,200	2,467,288
2011	10,092,687	9,524,740	2,413,631
2012	9,977,975	9,414,412	2,425,907
2013	10,313,528	9,482,894	2,319,835
2014	10,025,847	9,378,287	2,376,675
2015*	8,578,059	7,948,357	1,980,320

* YTD Actual usage through October 2015

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
What is the maximum output for the Cos Cob substation? Provide a table showing each of the Cos Cob transformers; their nameplate values; and their forced oil/forced air capacity values. Explain in detail the Company's basis for its assessment of the maximum capacity; include an explanation of transformer capability for the duration of a typical summer peak load level; and detail provisions for emergency contingencies.

Response:
The permissible load on the Cos Cob Substation 27.6-kV system is 135 MVA. The following table provides the manufacturer's nameplate MVA ratings as well as Eversource's allowable load ratings for the three 115- to 27.6-kV transformers at Cos Cob Substation.

Transformer	Nameplate Ratings	Maximum Forced Oil/Forced Air rating	Eversource's Summer Normal Rating
Cos Cob 1X	30.24/40.32/50.4 MVA	50.4 MVA	61 MVA
Cos Cob 2X	28/37.3/46.7 MVA	46.7 MVA	61 MVA
Cos Cob 3X	28/37.3/46.7 MVA	46.7 MVA	61 MVA

Eversource uses the provisions of IEEE Standard C57.91, "IEEE Guide for Loading Mineral-Oil-Immersed Transformers and Step Voltage Regulators" for determining the permissible loading of Eversource's substation transformers. This loading guide allows for the temporary loading above the manufacturer's nameplate values. Eversource has calculated an allowable summer normal rating of 61 MVA for these transformers based on the load profile for Cos Cob Substation. Although the summer normal ratings are 61 MVA, Eversource's policies and procedures allow for short-term emergency loading during contingency events such as the loss of a transformer. At Cos Cob Substation, the maximum short-term loading is a total of 135 MVA on two transformers for a maximum of two hours.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Tr. of 10/06 at 36-37.
(a) Provide a detailed explanation for the scenario of transferring 20 MVA fi·om Cos Cob to Waterside or Tomac Avenue substations.
(b) Provide a detailed explanation of how a 115-to-27.6kV transformer could be added at Cos Cob.
(c) Provide a detailed explanation for the scenario of upsizing the present 115-to-27.6kV transformers at Cos Cob.
(d) Provide a detailed explanation for the scenario of accommodating two sets of 115kV cable risers and the required circuit breakers, disconnects and arrestors in unused space at Cos Cob.
(e) Provide a detailed explanation for the scenario of adding a 27.6kV feeder to the Prospect substation. Provide a detailed explanation for upsizing transformers at Prospect.

Response:

a) Transferring 20 MVA via a single 27.6-kV circuit has significant limitations based on the system configuration and the capability of Tomac and Waterside substations. Tomac Substation cannot accept 20 MVA of load from Cos Cob Substation, since it does not have 20 MVA of available spare capacity. In addition, Tomac Substation could not provide a source into the 27.6-kV network. When supplying a network system, all transformers must be supplied from a common 115-kV supply and also must have their secondary side tied together in a common bus with special voltage controls that link all transformers and therefore maintain a common voltage with minimum circulating current. Therefore, Tomac Substation cannot be an additional supply into the 27.6-kV network. Waterside Substation could not supply 27.6 kV because it does not have 115- to 27.6 kV transformers. Furthermore, if a 115- to 27.6-kV transformer were installed at Waterside Substation, it would not be able to supply the Greenwich 27.6-kV network for the same reasons as stated above for Tomac Substation.

b) Due to space limitations, a 115- to 27.6-kV transformer cannot be added to Cos Cob Substation. See response to HD-01, Q-LF-001 for more details.

c) Due to space limitations, the existing 115- to 27.6-kV transformers at Cos Cob Substation cannot be uprated. See response to HD-01, Q-LF-001 for more details.

d) Eversource's Application section G.2.3 describes the detailed plan, with a drawing provided in Appendix C.

e) See response to HD-01, Q-LF-001 for a detailed description of adding a 27.6-kV feeder to Prospect Substation as well as replacing Prospect Substation's existing transformers with larger transformers. Note that this addition would not address the overload of Cos Cob Substation's 115- to 27.6-kV transformers.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Application Table E-2.
(a) Provide a revised Table E-2 to include actuals for 2005 through 2013; actuals for 2014 and 2015; plus forecasts for years 2016 through 2024. Explain the basis for the forecasted numbers.
(b) Provide a second table for the same years as revised Table E-2 showing actual and projected residential, commercial and industrial customers served out of the Prospect substation.

Response:
A) The tables attached display the actuals in peak load demand for the Prospect Substation transformers from 2005-2015 and the forecasted peak load demand for 2016 to 2024. The forecasted values are based off of a 1% load growth from the peak load in 2013.

B) The table below shows the actual customer counts served out of the Prospect Substation in 2014 and 2015 broken down by customer type. Previous year's customer counts are not available. Eversource also does not project customer counts from year to year; instead, the Company's load forecasts are based on the peak demand over the previous five years.

Customer	**2014**	**2015**
Residential	25,203	25,177
Commercial	2,657	2,689
Industrial	18	18

Attachment Q-OCC-049

Peak Demand Actuals (MVA)											
Prospect 13.2kV	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1X	10.3	12.9	12.9	12.4	14.8	12.8	14.2	12.5	13.3	11.5	13.1
2X	10.3	16.1	13.7	13.2	9.8	13.1	14	11.3	11.9	10.8	11.4
3X	0*	0*	9.1	12.1	10.1	12.5	10.4	9.4	9.8	8.3	8.8
4X	12.5	18.7	16.1	9.3	11.2	12.4	16.3	15.3	16.2	13.4	14
Total 13.2kV	33**	48**	52	47	46	51	55	49	51	44	47

* Data is unavailable. The meters were not functional at this time.

** Total 13.2 kV load missing the 22E-3X transformer data.

Peak Demand Forecasted (MVA)									
Prospect 13.2kV	2016	2017	2018	2019	2020	2021	2022	2023	2024
1X	13.7	13.8	14	14.1	14.3	14.4	14.5	14.7	14.8
2X	12.3	12.4	12.5	12.6	12.8	12.9	13	13.1	13.3
3X	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9
4X	16.7	16.9	17	17.2	17.4	17.5	17.7	17.9	18.1
Total 13.2kV	53	53	54	54	55	55	56	57	57

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Provide a single table, for the years 2010 through year-to-date 2015, listing each of the substations fed by Cos Cob; the capacity of their incoming feeders; the output capacity of their transformers; and their actual peak usage.

Response:
The table below shows the three substations that are fed by Cos Cob Substation, the associated incoming feeders' capacity, the transformer output capacity and the actual peak usage for each of those substations.

Note: One of the circuits that feeds North Greenwich Substation and another circuit that feeds Byram Substation are not dedicated feeders and they each deliver power directly to some Eversource customers in Greenwich. In addition, the four circuits that feed Prospect Substation and the secondary Greenwich Network are not dedicated feeders and they also deliver power directly to some Eversource customers in Greenwich.

Substation	**Data**	**2010**	**2011**	**2012**	**2013**	**2014**	
Prospect	Incoming Feeder Capacity	116	116	116	116	116	
	Transformer Capacity	55	55	55	55	55	
	Actual Peak	51	55	49	51.2	44	
North Greenwich	Incoming Feeder Capacity	68	68	68	68	68	
	Transformer Capacity	35.65	48.15	48.15	75	75	
	Actual Peak	27.2	15.8*	24.6*	31	34.1	
Byram	Incoming Feeder Capacity	30	30	30	30	30	
	Transformer Capacity	25	25	25	25	25	
	Actual Peak	28.1	24.1	27.6	15.9	18.6	

*Reading from 2 of the 3 substation transformers. 1 of the meters was unavailable at this time.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Application at ES-11. The Application states that the issues of most concern to the Town of Greenwich were: the location and the facade of the proposed substation; impacts on Kinsman Lane; and the Cos Cob substation design modifications. However, in the Transcript of the 09/01 Public Hearing, pp. 14-18 and 20, the Greenwich Town Planner Katie DeLuca details major concerns about the proposed high-pressure fluid filled lines. Construction related concerns expressed by the Town Planner at the hearing include: heavy machinery on town streets; traffic issues and access issues for businesses; replacement of trees removed during construction; the possibility of damage to other utilities' buried infrastructure; and a number of other safety, cost and environmental concerns. Does the Company believe that its list fairly reflects the Town's major concerns? Does the Company have the Town's agreement that the four concerns mentioned in its Application are the Town's issues of most concern?

Response:
At the time of the filing of the Application, Eversource fairly summarized the Town's key concerns that were communicated during the Municipal Consultation Filing process. Additional concerns by Town representatives were communicated during the public hearing on September 1, 2015, which were not known to Eversource prior to that time. Eversource believes that it has addressed as many of the Town's concerns as possible; however, the Town representatives are in a better position to voice their opinions on this subject.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Regarding the line placements under the Metro North Railroad and Interstate 95:
(a) Explain in detail the vibration stress level to which the lines will be subjected from heavy train, truck and car traffic, and how the placements will be engineered to counteract this.
(b) Detail the effect on the lines of stray DC voltage.

Response:
(a) The 115-kV underground transmission lines are expected to be installed at depths of 20 feet to 50 feet below the railroad and automobile thoroughfares where effects of traffic generated vibrations are negligible.

(b) The project will be designed with a cathodic protection system that will prevent corrosion which may ottherwise be caused by DC voltage or other galvanic voltage on the pipeline. In addition, the pipeline will have a continuous mastic coating on its surface to provide additional protection against corrosion.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
At several points in the Application, and during the 10/06 hearing, the Company makes reference to alternate routes that it described as more costly than the Company's preferred route. Provide detailed explanations and cost estimates for the rejected routes. See, e.g., Tr. of 10/06 at 93-94; 103-1 06; 135; 149

Response:
Please see Eversource's response to CSC-01, Q-CSC-08 for information concerning both the underground Southern Route Alternative and the Northern Route Alternative. See Appendix E of the Application for CDOT route evaluation letter.

Other transmission line routes that Eversource considered and rejected with their approximate route costs are as follows:

- Overhead Southern Route through private property (29 easements, 17 acquisitions) $218 Million
- Overhead Central Route through private property (27 easements, 70 acquisitions) $299 Million
- Marine Route $155 Million

An Overhead Northern Route through the Greenwich Avenue Historic District was deemed not viable. Please see Section H.4.2.3 , H.4.3 and H.4.4 of the application for additional routes that Eversource considered and rejected.

In addition, please see Eversource's response to HD-01, Q-LF-003 for information concerning minimal ROW width railroad corridor alternatives requested by the Siting Council.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Provide the following information regarding the proposed high-pressure, fluidfilled cable system: (a) the pressure per square inch; (b) the type of fluid running through the system; and (c) the gallons of fluid per linear foot.

Response:

(a) The proposed pressure per square inch is 200 psig;

(b) the proposed type of fluid running through the system is polybutene; and

(c) the proposed gallons of fluid per linear foot is1.6 gallons/foot.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Tr. of 10/06 at 207-208 and 221. At one point, the Company stated that it might have to do blasting in the Park, and at another point, it stated that the underlying soil is mostly sand and gravel. Provide a detailed explanation of the proposed construction and the geology of Bruce Park. Include a map of Bruce Park, mark out the areas where borings were done, and provide the results.

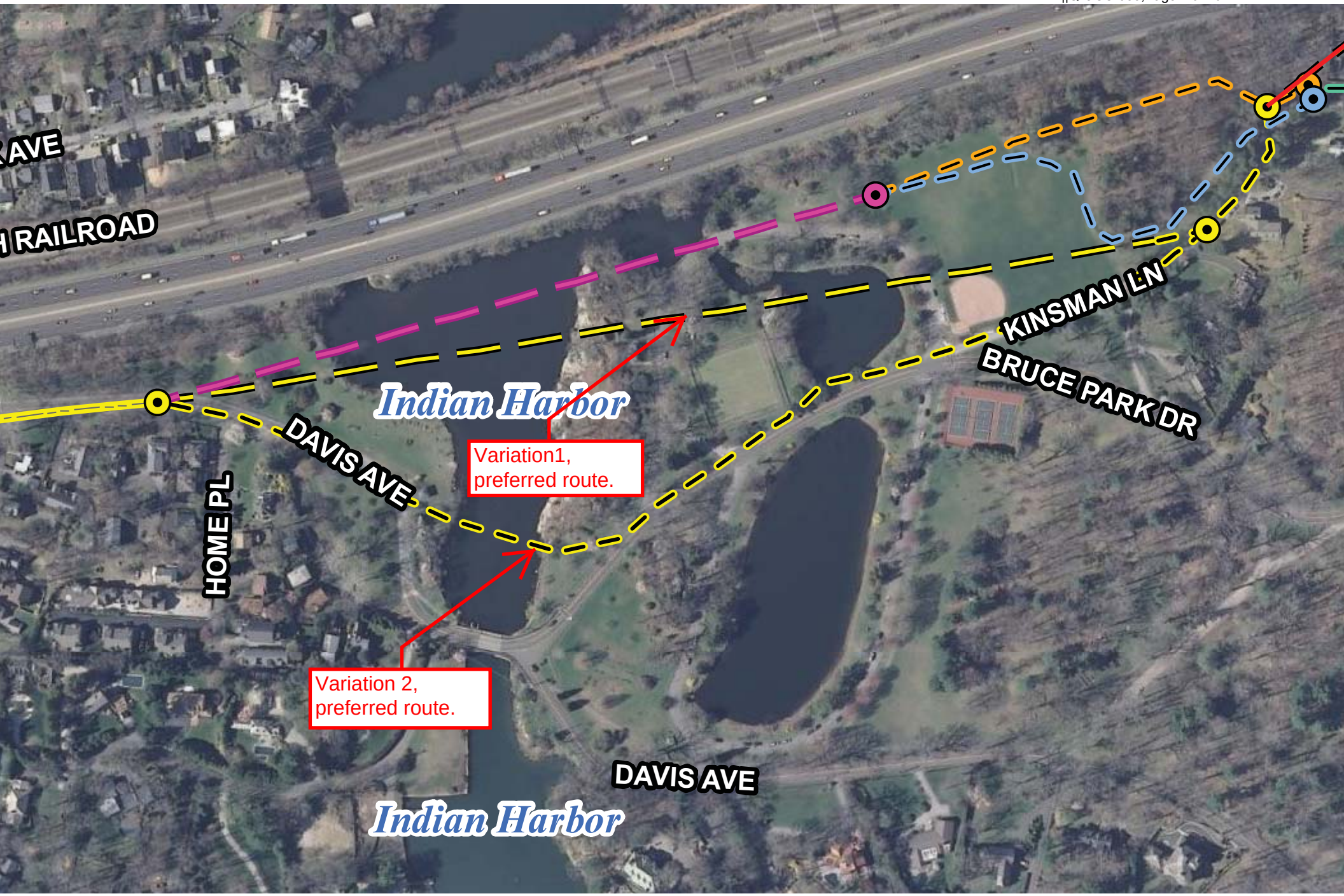
Response:
Both of the Company's statements are correct, depending on which route variation is under discussion. There are four (4) alternate routes for crossing Bruce Park, and based solely on the borings conducted to date, only the Orange section is a likely candidate for blasting. See attached file for route map and boring locations with logs in Bruce Park area. The underlying geology of Bruce Park is situated on an area with some surfacial bedrock and areas with bedrock covered by organic silt or sandy gravel overburden.

1) The Preferred Route option with Yellow variation 1 that includes some open trench and a horizontal directional drill (HDD) to cross beneath the park waterways; and Yellow variation 2, which involves open trench along Kinsman Lane and Davis Avenue and also utilizes a cofferdam to cross the park waterways. Based on the exploratory borings conducted to date, no blasting is expected.

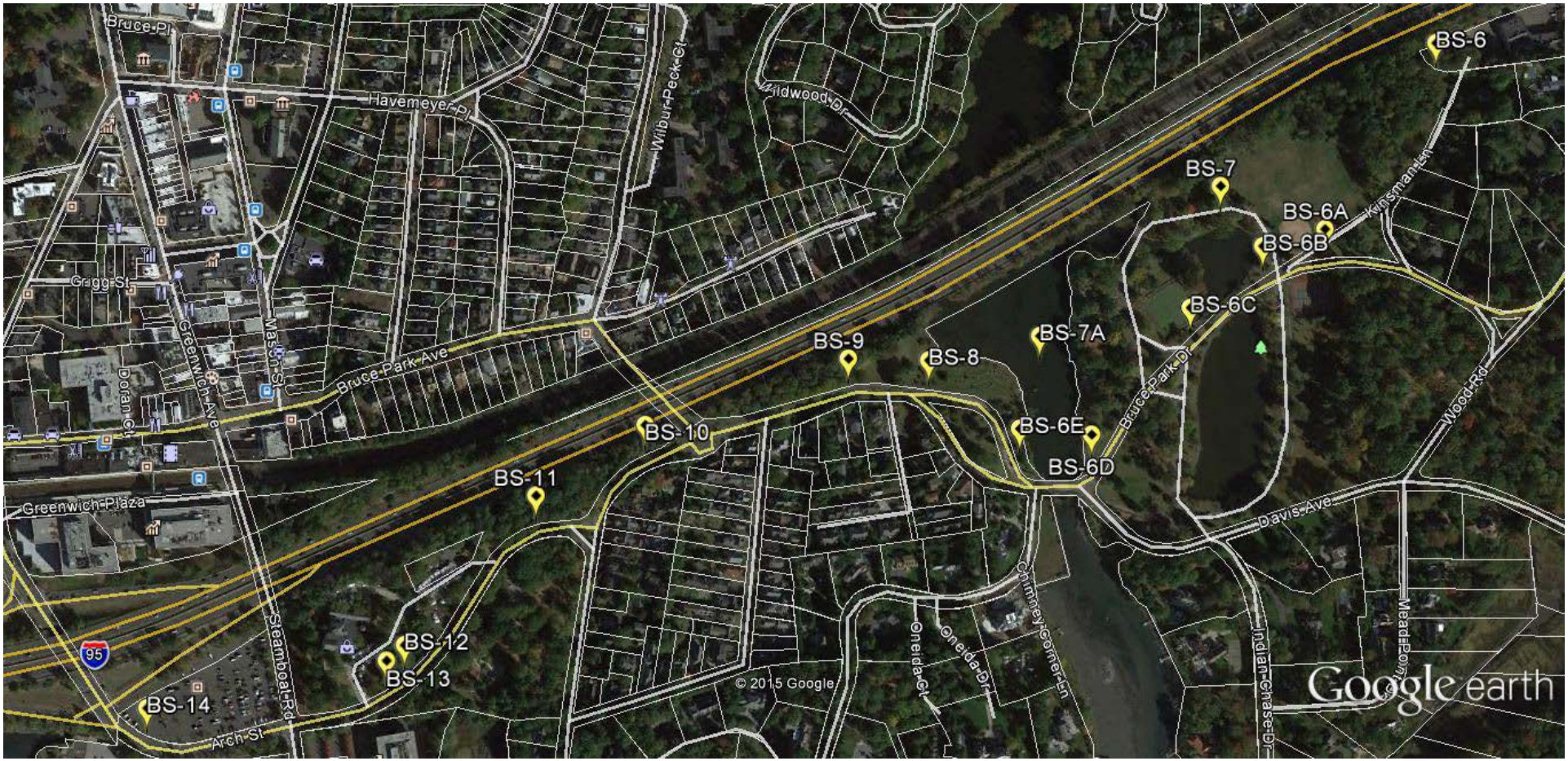
2) The Blue route option, which extends through a grassy area of the park around the ball field to the entrance of a HDD that crosses under the park waterways. Exploratory borings indicate that open trench is a viable approach but complicated by a high water table. The HDD would be subject difficult drilling through the Harrison Gneiss bedrock found through the park. Based on the exploratory borings conducted to date, no blasting is expected.

3) The Orange route option, which follows along the I-95 corridor, includes a 500 foot section that extends up and over a wooded area of exposed ledge or shallow rock and then through a grassy area to the entrance of a HDD that crosses under the park waterways. Due to the relative isolation, the Orange route option is the one alternative that might be candidate for blasting.

It is expected that an open trench of minimum depth (since there are on crossings of foreign utilities) would be accomplished by drilling pilot holes into the rock ledge at 12-18 inch intervals in a grid pattern to the desired depth followed by fracturing the rock with a hydraulic / pneumatic rock hammer or by using blasting techniques, if required.


AVE
RAILROAD
KINSMAN LN
BRUCE PARK DR
Indian Harbor
DAVIS AVE
HOME PL
Variation1, preferred route.
Variation 2, preferred route.
DAVIS AVE
Indian Harbor

GoogleEarth™ Screenshot of Bruce Park Boring Locations



CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-6

GROUND WATER OBSERVATIONS
AT 9.0 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/7/14
FINISH DATE 7/7/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-3-3-3	0.00'-2.00'		BR. FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL - FILL	
					2.0	
	2	3-4-2-4	2.00'-4.00'		BR. SILT AND FINE SAND	
	3	5-9-9-13	4.00'-6.00'			
5					5.5	
					BR. FINE-CRS. SAND, SOME GRAVEL, LITTLE SILT	
					9.5	
10					WEATHERED ROCK	
	4	60	10.00'-10.17'		10.0	
					CORED BEDROCK - HARRISON GNEISS	
					RUN #1 10.0' - 15.0' RECOVERED 57" RQD=14%	
15					15.0	
					BOTTOM OF BORING @ 15.0'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-6**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-6A

GROUND WATER OBSERVATIONS
AT 3.9 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 9/8/14
FINISH DATE 9/8/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-4-2-5	0.00'-2.00'		TOPSOIL 0.5	
					BR. FINE-CRS.SAND, SOME SILT, TRACE ROOTS & GRAVEL - FILL	
	2	3-4-7-9	2.00'-4.00'			
					GREY FINE SAND AND SILT 3.0	
	3	7-10-10-11	4.00'-6.00'		GREY FINE-CRS. SAND, LITTLE SILT, TRACE FINE GRAVEL 4.0	
5						
10	4	4-4-5-5	10.00'-12.00'			
15	5	3-4-5-6	15.00'-17.00'			
					GREY SILT, LITTLE FINE SAND 16.5	
					BOTTOM OF BORING @ 17.0' 17.0	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-6A**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-6B

GROUND WATER OBSERVATIONS
AT 1.5 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 9/8/14
FINISH DATE 9/8/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-3-4-3	0.00'-2.00'		TOPSOIL	
					BR. FINE-CRS. SAND, TRACE SILT & GRAVEL - FILL	0.65
	2	0-0-1-1	2.00'-4.00'		BR./BLACK PEAT AND ORGANIC SILT	2.0
	3	W-0-H	4.00'-6.00'			
5	4	0-0-0-3	6.00'-8.00'			
	5	4-7-7-3	8.00'-10.00'		BR./GREY FINE-CRS. SAND, TRACE SILT & FINE GRAVEL	7.5
10	6	2-2-6-6	10.00'-12.00'			
15	7	2-3-4-3	15.00'-17.00'			
					BR. FINE-MED.SAND, SOME SILT, LITTLE FINE-CRS. SAND LAYERS	16.0
20	8	2-3-3-5	20.00'-22.00'			
25	9	8-8-8-9	25.00'-27.00'			
					BOTTOM OF BORING @ 27.0'	27.0
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **BS-6B**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-6C

GROUND WATER OBSERVATIONS
AT 3.7 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 9/9/14
FINISH DATE 9/9/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-3-4-4	0.00'-2.00'		TOPSOIL 0.40	
					BR. FINE-CRS. SAND, LITTLE SILT & GRAVEL	
	2	9-8-11-11	2.00'-4.00'			
					3.0	
	3	9-12-15-19	4.00'-6.00'		BR. FINE-CRS. SAND, SOME GRAVEL, TRACE SILT	
5						
10	4	6-4-6-5	10.00'-12.00'			
15	5	2-5-10-11	15.00'-17.00'			
					16.0	
					GREY SILT, LITTLE TO SOME FINE SAND	
20	6	0-1-0-1	20.00'-22.00'			
25	7	2-3-4-6	25.00'-27.00'			
30	8	1-2-2-3	30.00'-32.00'			
35					34.5	

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 2 | HOLE NO. **BS-6C**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
	9	36-10-10-19	35.00'-37.00'		DECOMPOSED ROCK - POSSIBLE SLOPING ROCK SURFACE	
					37.0	
					BOTTOM OF BORING @ 37.0' (AUGER REFUSAL)	
40						
45						
50						
55						
60						
65						
70						
75						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 2 OF 2 | HOLE NO. **BS-6C**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-6D

GROUND WATER OBSERVATIONS
AT 1.5 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 9/10/14
FINISH DATE 9/10/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-2-1-2	0.00'-2.00'		TOPSOIL 0.50	
					BR. FINE-CRS. SAND, SOME SILT, TRACE GRAVEL	
	2	1-2-13-14	2.00'-4.00'		3.0	
					BR. FINE-CRS. SAND, SOME GRAVEL, LITTLE SILT	
5	3	8-10-10-60	5.00'-7.00'			
					7.0	
					BR. FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL, FEW COBBLES	
					9.5	
10					CORED BEDROCK - GNEISS	
					RUN #1 9.5' - 14.5' RECOVERED 60" RQD=36%	
					RUN #2 14.5' - 19.5' RECOVERED 60" RQD=52%	
					RUN #3 19.,5' - 24.0' RECOVERED 52" RQD=22%	
15						
20						
					24.0	
					BOTTOM OF BORING @ 24.0'	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-6D**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-6E

GROUND WATER OBSERVATIONS
AT 2.5 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 9/11/14
FINISH DATE 9/11/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-3-29-11	0.00'-2.00'		TOPSOIL 0.50 BR. FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL, FEW COBBLES, TRACE WOOD - FILL	
	2	11-21-38-40	3.00'-5.00'		BR. FINE-CRS. SAND, SOME GRAVEL, LITTLE SILT 3.5	
5	3	21-60	5.00'-6.00'			
	4	11-60	9.50'-10.25'			
10					CORED BEDROCK - GNEISS 10.0 RUN #1 10.0' - 15.0' RECOVERED 60" RQD=72%	
15					BOTTOM OF BORING @ 15.0' 15.0	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-6E**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-7

GROUND WATER OBSERVATIONS
AT 5.0 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/7/14
FINISH DATE 7/7/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-2-3-3	0.00'-2.00'		TOPSOIL 0.4	
					BR. FINE-MED. SAND, LITTLE SILT & GRAVEL	
	2	5-9-10-15	2.00'-4.00'		GREY/BR. FINE-CRS. SAND, TRACE SILT & GRAVEL 2.5	
	3	9-9-9-8	4.00'-6.00'			
5						
10	4	5-7-6	10.00'-11.50'		GREY FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL 10.5	
15	5	3-60	15.00'-15.75'		WEATHERED ROCK 16.0	
					CORED BEDROCK - HARRISON GNEISS 16.5	
					RUN #1 16.5' - 21.5' RECOVERED 54" RQD=8%	
20						
					BOTTOM OF BORING @ 21.5' 21.5	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-7**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT: EVERSOURCE

PROJECT NAME: UGTL

LOCATION: BRUCE PARK, GREENWICH, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE		NW		BQ
SIZE I.D.		3.0"		1.6"
HAMMER WT.				
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. BH-7A

GROUND WATER OBSERVATIONS
AT FT. AFTER HOURS
AT FT. AFTER HOURS

START DATE 2/27/15
FINISH DATE 3/2/15

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0					ICE	
					1.25 WATER	
					2.5 BLACK ORGANIC SILT	
5						
					7.5 CORED BEDROCK - GNEISS	
					RUN #1 7.5' - 12.5' RECOVERED 58" RQD=0%	
10					RUN #2 12.5' - 17.5' RECOVERED 57" RQD=0%	
15						
					17.5 BOTTOM OF BORING @ 17.5'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: K. CHRISTIANA
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BH-7A**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-8

GROUND WATER OBSERVATIONS
AT 3.5 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/15/14
FINISH DATE 7/15/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-3-5-4	0.00'-2.00'		TOPSOIL	
					GREY/BR. FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL - FILL 0.9	
	2	2-1-1-1	2.00'-4.00'		DARK BR. FINE-MED. SAND AND SILT, TRACE ORGANICS 2.5	
	3	1-1-1-2	4.00'-6.00'			
5					GREY/BR. SILT AND FINE-MED.SAND 5.5	
	4	13-60	6.00'-7.00'		WEATHERED ROCK 7.0	
	5	60	9.00'-9.42'		CORED BEDROCK - HARRISON GNEISS 9.5	
10					RUN #1 9.5' - 14.5' RECOVERED 36" RQD=25%	
					RUN #2 14.5' - 16.5' RECOVERED 22" RQD=27%	
15					BOTTOM OF BORING @ 16.5' 16.5	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-8**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-9

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/10/14
FINISH DATE 7/10/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-10-31-8	0.00'-2.00'		TOPSOIL 0.5	
					GREY/BR. FINE-CRS.SAND, SOME SILT, LITTLE GRAVEL - FILL	
	2	2-2-2-2	2.00'-4.00'			
	3	1-2-15-13	4.00'-6.00'			
5					5.0	
					BR. FINE-CRS. SAND, SOME GRAVEL, LITTLE SILT	
					7.0	
					WEATHERED ROCK	
					9.0	
10					CORED BEDROCK - HARRISON GNEISS	
					RUN #1 9.0' - 14.0' RECOVERED 60" RQD=62%	
					14.0	
15					BOTTOM OF BORING @ 14.0'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-9**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-10

GROUND WATER OBSERVATIONS
AT 10.2 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/8/14
FINISH DATE 7/8/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	5-9-10-8	0.00'-2.00'		TOPSOIL 0.4	
					BR. FINE-MED. SAND, SOME SILT, TRACE GRAVEL, BRICK, WOOD, ROOTS - FILL	
	2	10-11-8-10	2.00'-4.00'			
	3	7-10-8-10	4.00'-6.00'			
5					7.0	
					BR. FINE-CRS.SAND, LITTLE SILT - POSSIBLE DECOMPOSED ROCK	
10	4	10-37-47	10.00'-11.50'		10.5	
					WEATHERED ROCK	
					11.5	
					CORED BEDROCK - HARRISON GNEISS	
					RUN #1 11.5' - 16.5' RECOVERED 24" RQD=17%	
					RUN #2 16.5' - 21.5' RECOVERED 48" RQD=33%	
15						
20					21.5	
					BOTTOM OF BORING @ 21.5'	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-10**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-11

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/9/14
FINISH DATE 7/9/14

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-7-9-9	0.00'-2.00'		TOPSOIL 0.4	
					GREY/BR. FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL - FILL	
	2	3-4-4-4	2.00'-4.00'			
	3	2-1-2-2	4.00'-6.00'			
5					5.5	
					BR. FINE-MED. SAND, SOME SILT, TRACE GRAVEL	
					7.0	
					BR. FINE-CRS. SAND, LITTLE SILT & GRAVEL	
					9.0	
10					CORED BEDROCK - HARRISON GNEISS	
					RUN #1 9.0' - 14.0' RECOVERED 56" RQD=38%	
					14.0	
15					BOTTOM OF BORING @ 14.0'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-11**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-12

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/10/14
FINISH DATE 7/10/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-7-7-4	0.00'-2.00'		TOPSOIL 0.5	
					GREY/BR. FINE-MED. SAND, SOME SILT, TRACE GRAVEL, FEW COBBLES	
	2	4-7-7-8	2.00'-4.00'			
					4.0	
5					CORED BEDROCK - HARRISON GNEISS	
					RUN #1 4.0' - 9.0' RECOVERED 22" RQD=7%	
					RUN #1 9.0' - 14.0' RECOVERED 17" RQD=0%	
10						
					14.0	
15					BOTTOM OF BORING @ 14.0'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-12**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-13

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/9/14
FINISH DATE 7/9/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	4-16-43-12	0.00'-2.00'		TOPSOIL 0.5	
					GREY FINE-CRS. SAND, LITTLE GRAVEL & COBBLES, TRACE SILT - FILL	
	2	6-13-28-34	2.00'-4.00'			
					3.5	
					WEATHERED ROCK	
					4.5	
5					CORED BEDROCK - HARRISON GNEISS	
					RUN #1 4.5' - 9.5' RECOVERED 57" RQD=63%	
					9.5	
10					BOTTOM OF BORING @ 9.5'	
15						
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-13**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. BS-14

GROUND WATER OBSERVATIONS
AT 14.4 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 7/26/14
FINISH DATE 7/26/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	4-6-6-3	0.00'-2.00'		TOPSOIL 0.4	
					GREY/BR. FINE-MED. SAND, SOME SILT, LITTLE GRAVEL, TRACE BRICK - FILL	
	2	4-5-11-12	2.00'-4.00'			
5	3	2-1-1-0	5.00'-7.00'			
	4	4-5-6-2	7.00'-9.00'			
10	5	4-6-12-36	10.00'-12.00'		9.5 GREY/BR. FINE-CRS.SAND, SOME GRAVEL, LITTLE TO SOME SILT	
15	6	17-20-19-60	15.00'-16.58'		16.5 CORED BEDROCK - HARRISON GNEISS	
					RUN #1 16.5' - 21.5' RECOVERED 60" RQD=66%	
20					21.5 BOTTOM OF BORING @ 21.5'	
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BS-14**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
NEU

PROJECT NAME
UNDERGROUND TRANSMISSION LINE PROJECT
LOCATION
SOUTHERN ROUTE, GREENWICH, CT.

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	SOLID			
SIZE I.D.	4.0"			
HAMMER WT.				
HAMMER FALL				

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. PROBE 6B

GROUND WATER OBSERVATIONS
AT FT. AFTER HOURS
AT FT. AFTER HOURS

START DATE 9/9/14
FINISH DATE 9/9/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0					PROBED TO BEDROCK WITH 4" SOLID STEM AUGERS	
					AUGER REFUSAL @ 46.5'	
5						
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **PROBE 6B**

DR. CLARENCE WELTI, P.E., P.C.

GEOTECHNICAL ENGINEERING

227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

March 11, 2015

Mr. Larry Li, P.E.
Eversource Energy
56 Prospect Street
Hartford, CT 06103

Re: Test Boring and Probes for Proposed Underground Transmission Line
Bruce Park, Greenwich, CT

Dear Larry:

Herewith are the data from recent boring and probes taken on the ponds in Bruce Park. The boring and probes were taken from the ice/water surface. The boring was cored 10 feet into bedrock and the probes were driven or pushed to refusal either on dense soils or bedrock. The boring and probe line locations are shown on the attached plan. The probes were taken at 25 foot intervals, starting about 20 feet from the east edge of the ponds.

At boring BH-7A there was 2.5 feet of ice/water and the top of bedrock was at 7.5 feet below the ice/water surface. The soil overburden to the top of rock consist of a very soft organic silt. The bedrock core from the boring is a medium grained gneiss and was similar to the bedrock cores taken from the previous boring taken in Bruce Park. The USGS bedrock mapping for the Bruce Park area and most of Greenwich indicates the bedrock is Harrison Gneiss. In the Bruce Park area the mapping described the bedrock as a dark to light grey medium grained foliated Gneiss with prominent Quartz-Sillimanite nodules. Photographs of the rock cores are attached. Based on this boring and previous boring taken on land along the edges of the pond (see attached logs for borings BH-6D and BH- 6D), there appears to be minimal soil overburden in the ponds apart from the soft organic silt deposits and the probe refusal depths are assumed to be on or in close proximity to the top of bedrock

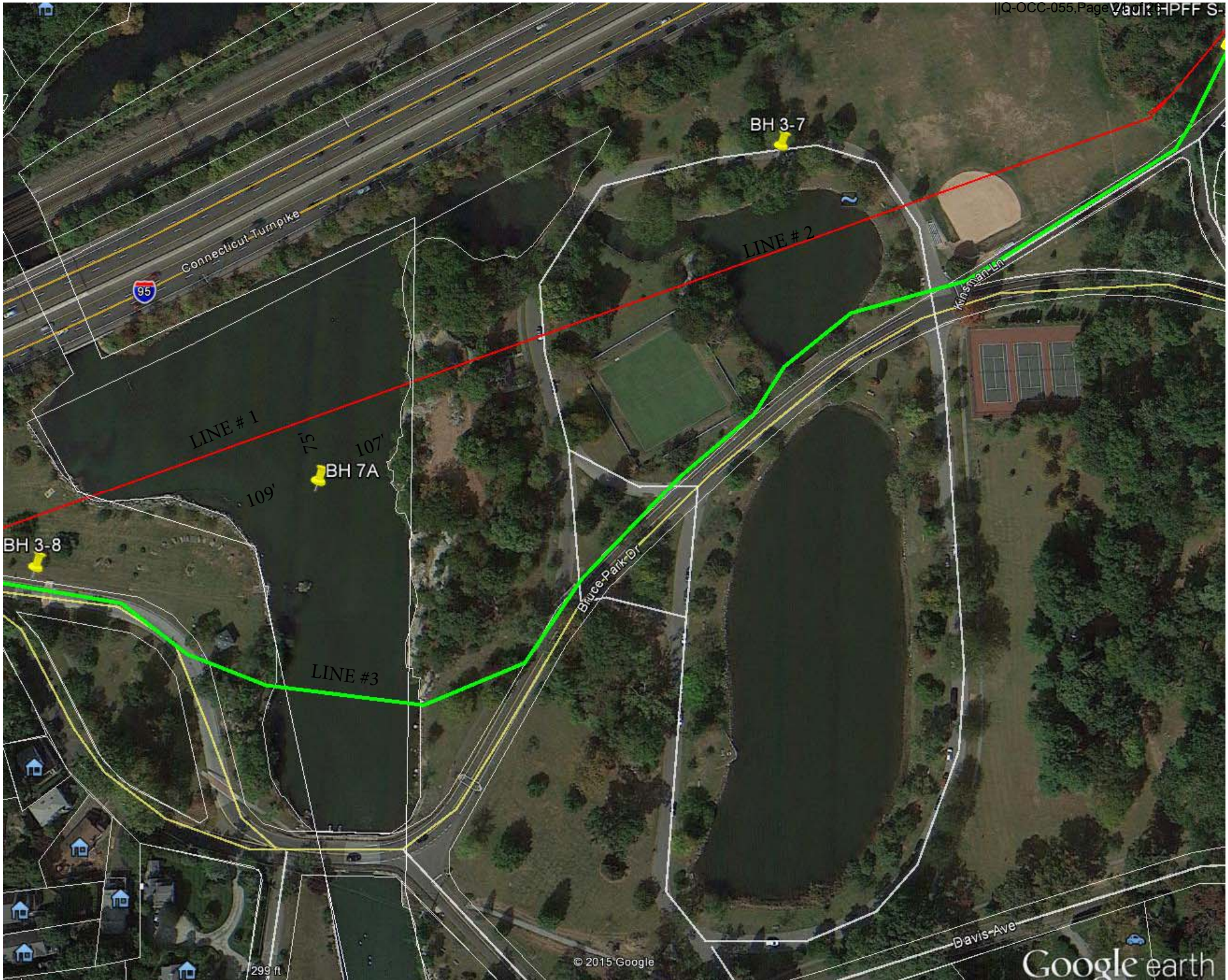
There was no significant fluctuation in the water/ice level in the ponds during the probes and borings (2/25/15 thru 3/2/15). It is our understanding that there are flood control structures, which limit potential tidal influence on the water levels in these ponds.

Very truly yours,

Max Welti, P.E.

Clarence Welti, PhD, P. E.
President, Dr. Clarence Welti, P. E., P.C.

TEST BORING & PROBE LINE LOCATIONS - 2/25/15 - 3/3/15



CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT: EVERSOURCE

PROJECT NAME: UGTL

LOCATION: BRUCE PARK, GREENWICH, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE		NW		BQ
SIZE I.D.		3.0"		1.6"
HAMMER WT.				
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. BH-7A

GROUND WATER OBSERVATIONS
AT FT. AFTER HOURS
AT FT. AFTER HOURS

START DATE 2/27/15
FINISH DATE 3/2/15

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0					ICE	
					1.25 WATER	
					2.5 BLACK ORGANIC SILT	
5						
					7.5 CORED BEDROCK - GNEISS	
					RUN #1 7.5' - 12.5' RECOVERED 58" RQD=0%	
10					RUN #2 12.5' - 17.5' RECOVERED 57" RQD=0%	
15						
					17.5 BOTTOM OF BORING @ 17.5'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: K. CHRISTIANA
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **BH-7A**

Eversource
Proposed UGTL Project
Bruce Park, Greenwich, CT

Clarence Welti Associates, Inc.

2/25-3/3/15

Line #1		Line #2		Line #3	
Probe #	Depth to Refusal (ft)	Probe #	Depth to Refusal	Probe #	Depth to Refusal
P-1	9.0	P-1	6.5	P-1	5.0
P-2	11.5	P-2	10.2	P-2	9.0
P-3	12.0	P-3	11.5	P-3	14.1
P-4	12.0	P-4	14.5	P-4	11.5
P-5	11.5	P-5	10.5	P-5	10.0
P-6	12.0	P-6	10.0	P-6	12.0
P-7	12.0	P-7	7.8	P-7	7.7
P-8	12.0	P-8	12.0	P-8	9.2
P-9	10.5			P-9	6.5
P-10	15.0				
P-11	7.0				
P-2A	13.5				
P-3A	12.3				
P-5A	12.8				
P-10A	14.0				

Note: Probes P-1 thru P-11 on line #1, P-1 thru P-8 on line #2, and P-1 thru P-9 on line #3 were taken on 2/25/15. These probes were taken at 25± foot intervals, starting about 20 feet from east shoreline and going west. They were taken using ½" diameter rods, which were either pushed or driven with a gas powered hammer. Additional probes P-2A, P-3A, P-5A and P-10A were taken on 3/3/15 at approximately the same locations as P-2, P-3, P-5 and P-10. These probes were taken using heavier (AW size, 1.75" OD) drill rods driven with the gas powered hammer.

Proposed UGTL
Bruce Park, Greenwich, CT
3/11/15
Rock Cores from Test Borings

Clarence Welti Associates, Inc.

Boring BH-7A - rock core Run #1 taken from 7.5 to 12.5 feet and rock core Run #2 taken from 12.5 to 17.5 feet

Boring BH-6D - rock core Run #1 taken from 9.5 to 14.5 feet and rock core Run #2 taken from 14.5 to 19.5 feet

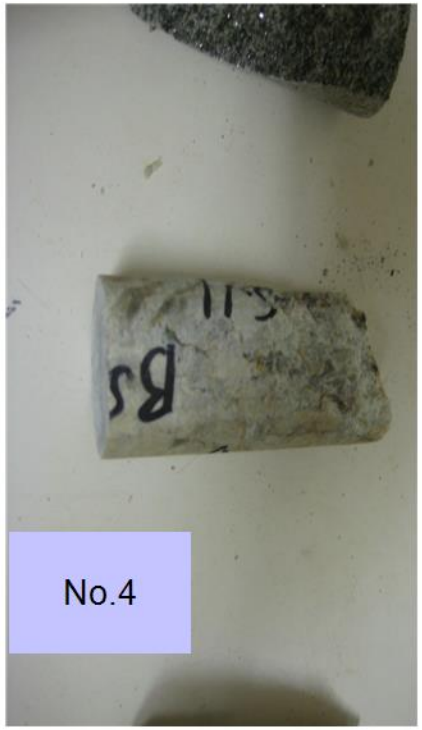
Boring BH-6D - rock core Run #3 taken from 19.5 to 14.5 feet; Boring BH-6E - rock core Run #1 taken from 10.0 to 15.0 feet

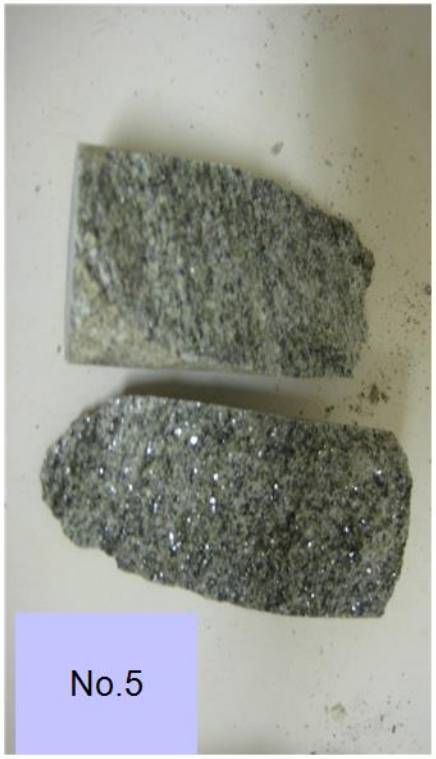
Clarence Welti Associates, Inc.

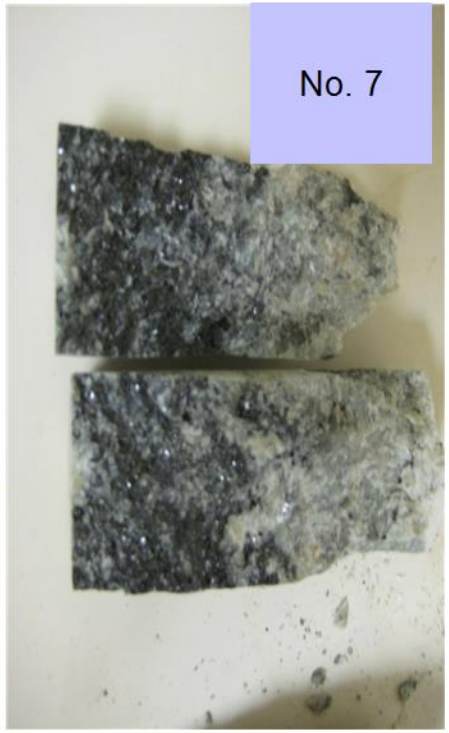
CL&P Greenwich Underground 115 kV Transmission Line
Southern Route
Greenwich, CT

Unconfined Rock Compression Tests
7/25/14

Rock Core Location	Unconfined Compressive Strength (psi)
BS-8	17,449
BS-9	4,362
BS-10	3,355
BS-11	5,033
BS-13	11,409







No1: Original Cores; No. 2: Broken Cores; No. 3 BS-10; No. 4 BS-11; No.5 BS-9; No. No. 6 BS 8; No. 7 BS-13

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Has the Company consulted the manufacturer(s) of the Cos Cob 115-to-27.6 kV transformers about retrofitting and upsizing the transformer(s)? If not, why not? If so, did the Company inquire whether the units could be retrofitted with additional cooling capabilities so as to increase their capacities? Did the Company inquire whether the existing units could be replaced with larger capacity units that fit within the same facility? Provide the recommendations/analysis the Company received from the manufacturer(s). Provide the name(s) of the manufacturer(s).

Response:
Eversource has already uprated the two smaller transformers by about 30% (46.7 MVA nameplate rating uprated to 61 MVA for normal operation in summer). While the radiator cooling could be increased, there are other design limitations internal to the transformer such as winding conductor size and ampacity limits of leads and bushings, etc. Due to the significant existing uprate, it is likely that further uprate would either be minimal or would require remanufacturing of the particular unit. The scope of a manufacturer's uprate would include removal of the transformer, sending it to the manufacturer for design analysis, retrofit and then temperature testing of the transformer to verify that desired thermal performance has been achieved. Eversource has already analyzed the installation of larger transformers and has determined that due to space limitations, the footprint of the existing transformer cannot be increased. The manufacturers of the three transformers are: Westinghouse, ABB Electric and Magnetek. Eversource believes that there is no benefit in contacting the manufacturers of the Cos Cob 115-27.6kV transformers because it is the Company's judgment that the transformers cannot be uprated above the currently applicable 61 MVA rating.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Does the North Greenwich substation have extra capacity in its 27.6-to-13.2kV transformers? Detail a scenario for having some of the existing Prospect substation 13.2kV load re-fed and served from the North Greenwich substation.

Response:
Yes, North Greenwich Substation's transformers have additional available capacity. However, since both Prospect Substation and North Greenwich Substation are supplied from Cos Cob Substation's 27.6-kV supply, transferring load from Prospect Substation to North Greenwich Substation will not provide any benefit in reducing load on Cos Cob Substation.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Regarding connections between the proposed substation and the Cos Cob substation and contingencies:

(a) Define/describe planned feeder ties between the two substations.

(b) Describe the impact on the Cos Cob substation and the proposed substation in the event that one or both of the 115kV circuits from Stamford failed at a location east of the Cos Cob substation.

(c) In the hypothetical scenario where the proposed substation is in operation and there is a failure of the remaining 27.6 kV feeders originating from the Cos Cob substation, how would the Cos Cob loads be re-fed from the proposed substation? Detail a scenario whereby the North Greenwich substation would be energized to handle contingencies from the proposed substation.

Response:

a) Please refer to the Simplified Greenwich 13.2 kV System Proposed Design attached. The Proposed Greenwich Substation would have six automatic loop scheme ties between feeders emanating from different buses at the proposed Greenwich Substation, four automatic loop scheme ties with Cos Cob Substation and three automatic loop schemes with North Greenwich Substation.

b) If one of the two 115-kV transmission lines that feed Cos Cob Substation were to fail, there would be no impact to any of the customers fed by Cos Cob or Greenwich substations. If both of these 115-kV transmission lines were to fail, all of the customers fed by Cos Cob and Greenwich substations would be impacted.

c) Under the proposed design, Cos Cob Substation would feed the Greenwich secondary network (five 27.6-kV feeders), the North Greenwich Substation (two Cos Cob Substation 27.6-kV feeders and one Prospect 27.6-kV feeder) and several Prospect commercial customers at 27.6 kV.

- For failure of the two 27.6-kV Cos Cob feeders to North Greenwich, the proposed Greenwich Substation would back up the entire North Greenwich load through automatic 13.2-kV loop schemes in conjunction with the Prospect 27.6-kV feeder. No customers would be impacted

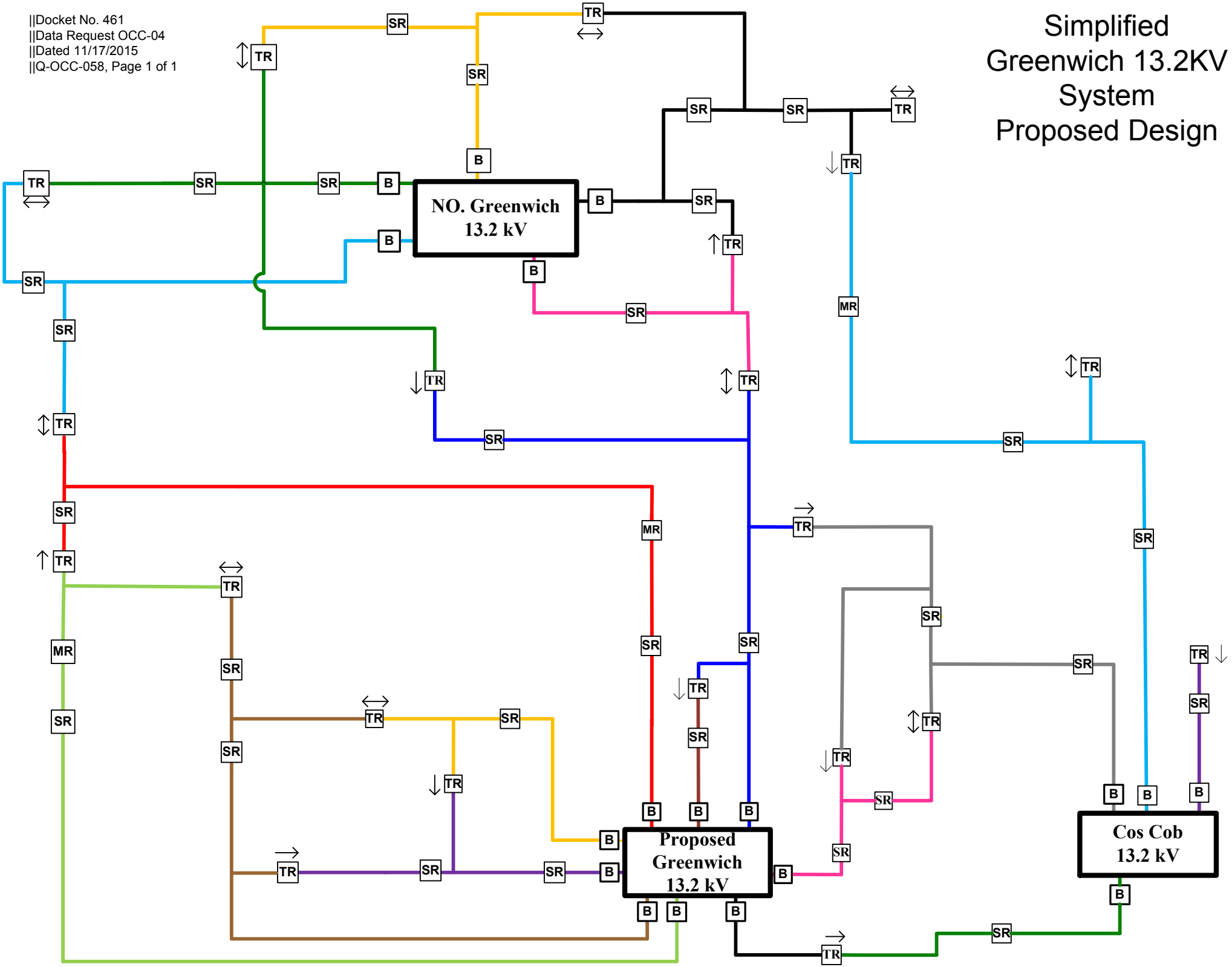
- For loss of three of four Cos Cob Substation 27.6-kV feeders that feed Prospect, North Greenwich Substation would feed the commercial customers via the 27.6-kV Prospect feeder. North Greenwich Substation transformers would be off

loaded via the proposed Greenwich Substation's 13.2-kV feeder loop schemes. No customers would be impacted.

- The proposed Greenwich Substation would have automatic loop schemes ties with North Greenwich feeders and automatic loop scheme ties between proposed Greenwich feeders that would be fed by different substation buses, different substations' transformers and different substation transmission lines. The proposed Greenwich Substation feeders will have redundant backup between themselves. The only vulnerability would be if both transmission lines from Cos Cob Substation to the proposed Greenwich Substation were lost. In this situation. North Greenwich Substation would back up most of the load of Greenwich Substation feeders via the 13.2-kV system.

||Docket No. 461
||Data Request OCC-04
||Dated 11/17/2015
||Q-OCC-058, Page 1 of 1

Simplified Greenwich 13.2KV System Proposed Design



Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Regarding resolution of capacity issues at Cos Cob, provide studies by the Company done in years past that featured the use of overhead distribution measures that could be taken, including reconfiguration of the 13 .2k V distribution circuits among the various 27.6-to-13.2kV substations in Greenwich and Stamford. Also, provide all previous studies that outlined a solution to a potential overload of the 115-to-27.6kV transformers at the Cos Cob substation.

Response:
Cos Cob Substation's Bulk 27.6-kV system is the source to the North Greenwich, Prospect, and Byram distribution substations. Moving the 13.2-kV load between any of these distribution substations would not change the load at Cos Cob Substation's Bulk 27.6-kV source. The load supplied by North Greenwich, Prospect and Byram Substation is located west of the Cos Cob Bulk Substation, while the 13.2-kV load surrounding Cos Cob Substation's geographic location and the area to the east, is already supplied by the Cos Cob Substation's 13.2-kV system and Mianus Substation, which is fed from Tomac Substation. Tomac Substation is a single transformer Bulk substation; a portion of Tomac Substation's load was off-loaded to Waterside Substation in Stamford as the supply source between 2013 and 2014. Building a 13.2-kV feeder from Stamford is not practical nor economical given the distance from Stamford to the western portion of the Greenwich. See Section F. of the Application for an explanation of transmission and non-transmission alternatives to the Project that Eversource evaluated to determine if they could address the potential overloads of the 115- to 27.6-kV transformers at Cos Cob Substation and address the other component of the need for the Project.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Reference Application Tables E-1 and E-5. Explain why the proposed substation is designed for a load capacity rating of 134 MVA, which is nearly equal to Cos Cob's capacity rating of 135MVA. Per Application Table E-1, the Company projects a peak load of 144.2 MVA in 2023 for Cos Cob, or 9.2 MVA above the current stated limit of 135 MVA. Explain why it would be necessary to add 134MV A of additional capacity.

Response:
The proposed Greenwich Substation will eliminate the four Prospect 27.6- to 13.2-kV and the two Byram 27.6- to 13.2-kV distribution transformers and will feed their respective circuits directly from the transmission 115- to 13.2-kV source. The projected load on the new Greenwich substation is about 70.5 MVA in 2018. The proposed Greenwich Substation transformer size to be installed is the standard Eversource 36/48/60 MVA transformers (which Eversource is rating it at 67 MVA normal rating). Eversource substation standard design accounts for the failure of one transformer (N-1 design). For loss of one transformer, the remaining transformer(s) must carry the total load. The projected load (70.5 MVA) is more than the rating of one transformer. Under N-1 design the proposed substation needs 2 transformers, which equates to a rating of 2X67 MVA=134 MVA.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Explain how the Company estimated the trench and horizontal directional drilling costs. Provide copies of any estimates from the construction company (-ies) that may do the work. Explain in detail all assumptions on geologic conditions used in the estimates, and the basis for each such assumption.

Response:
The Company's estimates for the open trench construction and horizontal directional drilling were based on recent project experience across the Eversource System. This includes open trench construction on the Stamford Reliability Cable Project which were placed into service in 2014.

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
Provide a detailed blueprint, including all dimensions of Cos Cob substation building and equipment, that identifies all used and unused space.

Response:
See the plot plan for a detailed blueprint of the Cos Cob Substation facility in Attachment 1, page 1. A small unused area within the Eversource-owned parcel is noted on the drawing. Note that there is also a portion of CDOT-owned property that extends on the south side of the substation as shown in Attachment 1, page 2.

NU VER: 02/2012

JET 12U | JET 14U | JET 11U | JET 13U | JET 10U | CONTROL MODULE 10U

FUEL FILL PUMP | WATER INJECTION BUILDING | SWITCHGEAR | DEMIN TANK | FUEL PUMPS | FUEL TANK X3

CONTROL MODULE 12U | CONTROL MODULE 14U | CONTROL MODULE 11U | CONTROL MODULE 13U | XF 10XS | CAP BANKS

11R S/S 15706 | 35K S/S 15710

181'-0 ROADWAY

COS COB 1750 LINE (L1)

1740 LINE (L4)

SEE DETAIL #1 15706-33024 PG 2

115kV "A1" BUS

STA SERV 1S | STA SERV 2S | YARD TERM BOX | FDR 55 | FDR 51

XF 2X | XF 3X | XF 5X | XF 10X

RELAY & CONTROL ENCLOSURE #1

RELAY & CONTROL ENCLOSURE #2

ROADWAY

SLIDING GATE

1272 MCM ACSR | 1000 MCM AL | 2-1590 KCMIL PER ø | 2-556.5 ACSR PER ø | 556.5 ACSR | 1/0 EPR (TAP TO PT's)

NOTE:
FOR SECTION CALLOUTS WITHOUT PAGE NUMBERS, PLEASE SEE DRAWINGS: 15706-33024 PG's 1, 2, & 3.

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
14	06/14	AS BUILT - REPLACE 11X, 12X, 13X & 14X XFMRS W.O.# 40336701	CPT	JCN	JCN	ARK
13	4/14	REPLACED WOOD H-FRAME AS BUILT PER W.O. #40385201	MJS	JCN	SM	CMS
12	02/13	REPLACE 89/10X MOD FOR NRG WO #PWCT2101	RAL	REM	REM	ARK
11	08/12	ADD 115/13.2KV XF, NEUT REACT & HMI AS BUILT PER WO 20121101	CIR	DWS	PLW	JWB
10	3/11	RPL LINE LIMITING WO# 40310901I RPL OBSOLETE EQUIPMENT WO# 40338601	WAD	RJT	RJT	VP
9	10/10	REPL 89/LT SW WO T5CN6114	DAK	PLW	PLW	
8	10/09	REPLACE 115kV DISC SWITCHES WO 40341708	JM	ASM	ASM	VP
7	7/08	REVENUE METER SERVICE CHANGE WO 20122801	DAK	PLW	PLW	JWB
6	7/08	REPLACE TRANSFORMER 11R-10X AS BUILT PER W.O. 40301006	CMM	CMM		

REVISIONS DURING CONSTRUCTION

Northeast Utilities Service Co.
FOR THE CONNECTICUT LIGHT AND POWER COMPANY

TITLE
COS COB 11R
PLOT PLAN OF COS COB 11R & RAILROAD 35K
PLAN VIEW
GREENWICH, CT

BY	AM	CHKD		APP		APP
DATE	6/75	DATE		DATE		DATE
H-SCALE	3/32"=1'-0"	SIZE	E	FIELD BOOK & PAGES		
V-SCALE	3/32"=1'-0"	W.O.		W.C. DWG		
N.E. PROJ. NUMBER				NUSCO	15706-33022	

7/25/2014 8:34 AM - smysmy - C:\MDEPTS\PEPSRT\TMPFILES\ADEPT\{6D8D9AAA-1.E0250270-32F3-4694-87A0-694FCF21B1A1.14.0\15706-33022.dwg - As Built

N/F
WANG ERIC & KIM

N/F
PHANSALKAR SHUBHA M

N/F
O'CONNOR JOHN & LISA

INTERSTATE #95

N/F
TOWN OF GREENWICH

STRICKLAND RD

N/F
MULTIPLE OWNERS
CONDOMINIUMS

N/F
STATE OF CONNECTICUT

UNDERGROUND CABLE EASEMENT TO INSTALL, MAINTAIN, REPAIR AND REPLACE AN UNDERGROUND DUCT LINE FOR HIGH VOLTAGE ELECTRIC TRANSMISSION CABLE PURPOSES
V.626, P.322
NU DOC. #000-51.214B-01

PARCEL 'A' LAND & BUILDINGS LEASED TO THE TOWN OF GREENWICH FEB 88
LEASE AREA =3.37 +/- ACRES

N/F
STATE OF CONNECTICUT
PARCEL ID # 02-4614

DISTRIBUTION UTILITY EASEMENT ON OVER OR UNDER RIGHT TO PASS & REPASS IN FAVOR OF CL&P
V.626, P.322
NU DOC. #000-51.214B-01

NEW YORK, NEW HAVEN and HARTFORD RAILOAD COMPANY

TRANSMISSION AERIAL EASEMENT B
IN FAVOR OF CL&P
V.1954, P.117
NU DOC. #056-03.037-08

STR. #1279

STR. #1280

N/F
STATE OF CONNECTICUT

TOWER EASEMENT AREA 3*

TOWER EASEMENT AREA 2*

STR. #1281

TOWER EASEMENT AREA 1*

PARCEL 'B' LAND & BUILDINGS LEASED TO THE TOWN OF GREENWICH FEB 88
LEASE AREA = 2.44 +/- ACRES

TRANSMISSION AERIAL EASEMENT A
IN FAVOR OF CL&P
V.1954, P.117
NU DOC. #056-03.037-08

DISTRIBUTION UTILITY EASEMENT ON OVER OR UNDER RIGHT TO PASS & REPASS IN FAVOR OF CL&P
V.222, P.198
NU DOC. #000-51.214B-01
PASSING EASEMENT IN FAVOR OF THE STATE OF CONNECTICUT
V.1959, P.80

*TOWER EASEMENT AREAS
RIGHTS INCLUDE;
- UNDERGROUND RIGHTS BOXED OUT AREA ONLY,
- COMMUNICATION SERVICE,
- WIRES AND CONDUCTORS SUITABLE FOR ELECTRICITY,
- ACCESS

IN FAVOR OF CL&P
V.1954, P.117
NU DOC. #056-03.037-08

RIGHT TO PASS & REPASS AND TYPICAL RIGHTS FOR OVERHEAD AND UNDERGROUND ELECTRIC, TO INDIAN FIELD RD.
IN FAVOR OF CL&P
V.785, P.341
NU DOC. #056-03.037-04

N/F
THE CONNECTICUT LIGHT AND POWER COMPANY
V.626, P.322
NU DOC. #000-51.214B-01

N/F
8 SOUND SHORE ASSOC. LLC.

GENERATING EASEMENT AREA CONVEYED TO CONNECTICUT JET POWER LLC
NU DOC. #056-03.037-C-5

N/F
STATE OF CONNECTICUT

CL&P EASEMENT RELEASED
V.1972, P.137
NU DOC. #000-51.214B-C-1

SUBSTATION EASEMENT IN FAVOR OF CL&P
NU DOC. #056-03.037-08

CROTON RIVER

APPROX. LOCATION OF DRAINAGE EASEMENT IN FAVOR OF CL&P
V.801, P.224
NU DOC. #056-03.037-05

N/F
TOWN OF GREENWICH
V.1959, P.80

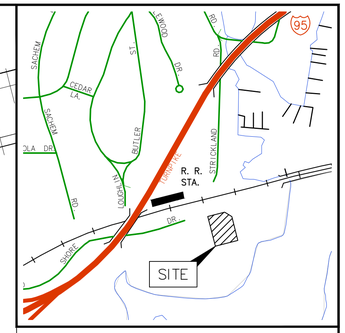
N/F
MULTIPLE OWNERS
"WATERFORD OF GREENWICH"
CONDOMINIUMS

MAP # 6289,6325 & 6573

EASEMENT GRANTED THROUGH THE PROPERTY OF MONTOGMERY & LEE TO CL&P on AUG 21-1986
V.1643, P.52

MATCHLINE - A

MAP SCALE
60 0 30 60 120
(IN FEET)
1 inch = 60 ft.



LOCUS MAP
N.T.S.

LEGEND
- N.U. PROPERTY LINE
- PROPERTY PARCELS
- N.U. TRANSMISSION ROW
- N.U. EASEMENT LINE
- OTHER EASEMENT LINE
- LEASE AREA

PRELIMINARY

Northeast Utilities Service Co.

FOR: THE CONNECTICUT LIGHT & POWER COMPANY

TITLE:
SKETCH #2
COS COB SUBSTATION
GREENWICH, CT

BY: CPB	CHKD: CCD	APP:	APP:
DATE:	DATE:	DATE:	DATE:
H-SCALE: 1" = 60'	SIZE: ARCH D	SURVEY JOB #:	S20655
V-SCALE:	V.S.:	R.E.DWG.:	SHEET 1 OF 2
R.E. PROJ. NUMBER:	056-03.037	NUSCO:	

05/13/2015 7:31am - deedsa - \\nu.com\ghfs\DepartmentData\TB-Transmission Business\Real Estate\RE Work Files\CE Cases\S20655\Research\Internal\From Web\From WebEOcs Cob SS.dwg

Witness: **Witness Panel**
Request from: **Office of Consumer Counsel**

Question:
How often in the past five years has CL&P installed pipe-type cable feeders using dielectric fluid as an insulating medium within 75 feet of a school, playground, or body of water? Provide a list of all such installations, and the repairs made to these feeders since they were first put in service.

Response:
The most recent installation of HPFF underground transmission cable on the Eversource system in Connecticut has been the Bethel-Norwalk Project, which was placed in-service in October 2006. This cable is located within 75 feet of the properties of the Wilton High School (Wilton), Allens Meadow Park (Wilton), Norwalk River (Wilton), Pat Fortin Memorial Park (Wilton), the G&B Cultural Center (Wilton) and Moffitts Pond (Ridgefield).

Since the Bethel-Norwalk HPFF transmission cable was placed in-service, there have been no repairs along the cable.