



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



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Phone:

January 19, 2006

Ms. Anne Bartosewicz
Middletown - Norwalk Project Director
Northeast Utilities Service Company
107 Seldon Street
Berlin, Connecticut 06037

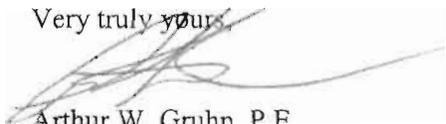
Dear Ms. Bartosewicz:

Subject: Review Comments
Connecticut Siting Council, Docket No. 272
NU's Submission 345kV Double Circuit Underground
Transmission Line Segment 4a (Bridgeport and Fairfield)

The Connecticut Department of Transportation (ConnDOT) has reviewed your Development and Management Plan submissions received December 20, 2005 and December 21, 2005. Enclosed are ConnDOT's comments relative to your submissions.

If you have any questions regarding these comments, please contact Mr. Sohrab Afrazi, Transportation Principal Engineer of the Utilities Section, at 860-594-3262.

Very truly yours,



Arthur W. Gruhn, P.E.
Chief Engineer
Bureau of Engineering
and Highway Operations

Enclosure

cc: Ms. Pamela Katz, Connecticut Siting Council
Mr. John J. Prete, United Illuminating Company

DOCKET 272 SEGMENT 4A NU

Note: For the purposes of the attached current and future comments, please refer to the legend designating the specific office from which the comment originated.

T = Traffic, R = Rails, HD = Design, EP = Environmental Planning, EC = Environmental Compliance, M = Maintenance, DC = Construction, L = LAB, U = Utilities, BD = Bridge Design, BS = Soils, H = Hydraulics, GS = Graphic Services, AG = Attorney General, BM = Bridge Maintenance, MS = Miscellaneous, F = Financial CBD = Consultant Bridge Design

All comments referenced in these comments number 1 through 109 shall carry equal weight, unless it is discovered that there is a conflict between or among any of those requirements. In the case of such a conflict, the comment with the stricter requirements, as determined by the Connecticut Department of Transportation (ConnDOT), will take precedence.

1U All work within the ConnDOT Right-of-Way shall be completed in accordance with the State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816 and the Supplemental Specifications dated 7/1/05, attached hereto as Exhibit A.

2U The following reports were never provided to ConnDOT as promised: Single vault structure study, water crossing, vault load design and inspection criteria, vault spacing, and EMI study due 8/05 (see Exhibits B and D).

3U Route 1 is a back-up artery to I-95. NU and UI must include provisions in their upcoming construction contracts that will require contractors to immediately cease construction activities in the event of a major accident on I-95 and restore the travel lanes that may have been closed (see Exhibit E).

4U Prior to the ConnDOT issuance of an encroachment permit, the Northeast Utilities Service Company (NU) and ConnDOT shall enter into an Encroachment Agreement that will memorialize understandings relative to the installation of the proposed transmission system within the ConnDOT right-of-way.

5U Encroachment Permit – Pursuant to the Connecticut Highway Encroachment Permit Regulations, an encroachment permit(s) must be secured before any work is performed in the State highway right-of-way. The encroachment permit(s) does not become effective until all necessary local and State licenses and permits are obtained by NU or his agent, and further, NU shall be subject to all federal, State and local regulations.

6U In the event of an issue not approved by ConnDOT by a specific waiver request, the Department requirement shall stand.

7U In Volume 1 of 3 D&M, page 2-1, item 2.3, the number of vaults with respective locations does not agree with D&M plan submittal. Two sets of vaults were to be within ConnDOT rights-of-way outside of the roadway, and the submission shows five vaults; and three pairs within the ConnDOT rights-of-way, and we found four. Please verify.

8U In Volume 1 of 3 D&M, page 2-5, item 2.4 (#8), locations of DOT parcels are unclear. Please delineate clearly.

9U Edge of roadway on plans should be distinguished more clearly.

10R Install an at-grade rod for crossing the railroad.

11R Relative to the parallel installation, we have made certain assumptions to date that there would be no impact. This assumption was based on having NU's report in hand by fall 2005 and having that report confirm the lack of impact. We have seen no report, hence cannot sanction the installation until such time as a report is provided that demonstrates no impact to the railroad.

12R The 345kV installation in Old Post Road, Fairfield under the railroad will require a utility crossing agreement with Metro-North. The utility has done these before for other crossings. As usual, the railroad will be looking for the utility to bury the cable in the middle of the roadway to avoid abutment footings. I noticed that the installation favors the west side of the road. If this design remains, this crossing will require further coordination. The railroad will also be concerned with all construction activities and methods employed under the rail bridge.

13R The east end of the installation parallels the railroad for about 1.6 miles. This concerns us greatly. First, we are still waiting for an EMI study from NU (originally due August 2005) that addresses the potential impact of the 345 kV power line on railroad signal and power systems. Without a study, we cannot sanction the proposed parallel installation. Second, the installation is closer to the railroad side of the roadway for much of this 1.6 mile stretch. This places the trench too close to our retaining wall footings. We will be looking for more separation and for specific details of utility trenching methods that will protect our retaining walls.

14R Segment 3: The actual RR crossing in Devon (Milford) has been left out of our copy with a note stating that the crossing will be addressed in a separate CSC submission. The last I heard, NU plans to go under the main line and over the east leg of the wye at the start of the Waterbury Branch. The detail of this crossing must be provided to this office for review.

15R Segment 4a: Station 480 (Old Post Road, Southport): The installation hugs the west side of the road under our rail bridge. This could conflict with or determine our abutment.
Station 720 to 800 (Bridgeport): The utility is buried in Railroad Ave. (parallel to the railroad); so, we are concerned about the potential impact to our retaining wall. From Station 775 to 800, the installation "hugs" the railroad, which may conflict with our retaining wall footing or compromise the stability of our 100+ year-old wall.

16M It is highly recommended that the project progress in short segments of approximately 2000 feet with full road restoration prior to advancement of construction.

17M Since the installation of this utility line will affect numerous traffic signals, it is highly recommended that the utility company hire an approved electrical contractor to be available 24 hours a day, at the State inspector's discretion, for all traffic signal repairs.

18M Since more than 35 system loop detectors and more than 20 turn lane loop detectors fall within this project, it is suggested that the utility company purchase at least 20 "Pre-Fabricated Loop Detectors or Surface Mount Loop Detectors" (Form 816, supplement item No. 1111403A) to be used temporarily through the project's business districts or high volume areas.

19M Establishment of temporary "NO PARKING ZONES" may be required for on-street parking in the project limits.

20M The Route 130 median divider in Bridgeport was constructed with specific granite and brick material. Any cuts through this median require the contractor to preserve this material and store it temporarily to assure these islands are restored to original condition.

21M Pavement restoration limits will be determined in accordance with Highway Maintenance Directive 93-1 (see Exhibit C).

22M The District has been experiencing the pumping of water (groundwater) from trenches on Route 7, Wilton. If necessary, remedial measures may be needed (i.e. perforated pipe) as part of the contract.

23M Show how the Route 1 drainage is accommodated at STA 459+00 (36" RCP).

24M Check the elevation of the drainage crossing at STA 468+50 on Route 1 and Rennel Drive, STA 476+20 at Route 1 and Old Post Road, and STA 542+50 at Route 1 and Bungalow.

25CBD In the vicinity of Stations 465+00 to 467+00, the duct bank will pass below an existing twin 48" box culvert and also Bridge No. 76, I-95 over Old Post Road. Will the culvert be affected by the installation of the duct? The Designer should investigate and verify any potential conflict between the I-95 Bridge footings and the proposed duct bank.

26CBD MNRR Bridge No. 49.01 over Old Post Road and the duct bank. The Designer should investigate and verify the footing locations and any specialty construction techniques that may be required at this location.

27CBD The Southport Harbor/Mill River crossing is being shown as a separate submission. This submission must be forwarded to this office for review, whether or not it is carried on a Department-owned structure.

28CBD At Station 610+50, the duct bank is shown passing over a 19-foot twin culvert. Will the existing culvert be affected by the new installation?

29CBD The Ash Creek Crossing (Station 633+50 to 642+00) is not included with this submission. This submission must be forwarded to this office for review, whether or not it is carried on a Department-owned structure.

30CBD Bridge No. 100 carries I-95 over Fairfield Avenue in the vicinity of Station 716+00 to 718+50. The Designer should investigate and verify the location of the existing substructure to avoid any conflict during construction.

31CBD At Station 720+00, the duct goes from Fairfield Avenue to Railroad Avenue. MNRR Bridge No. 53.42 goes over Fairfield Avenue at this location. This bridge is being replaced in its entirety and both Fairfield Avenue and Railroad Avenue are being re-profiled. The design is under Project No. 170-1375. The duct design should be coordinated with the project.

32CBD The duct bank will parallel the MNRR mainline along Railroad Avenue. The Office of Rails/MNRR may offer comments on the installation in that area.

33CBD Bridge No. 105 carries I-95 over Railroad Avenue between Station 768+00 and 772+00. The Designer should investigate and verify the location of any existing substructure items in this area prior to construction.

34T *Previous 60% Review Comment No. 61T – Although the traffic volumes may be low enough to allow a lane closure, the Contractor should be restricted from interfering with traffic during both the a.m. and p.m. peak hours on Routes 1 and 130.*

NU's Response 61T: Where traffic volumes are low, interference with a.m. or p.m. peak hour traffic in the opposite direction or major peak hour flow would be minimal and should not cause adverse effect to traffic in the major flow direction.

Due to the many drives and businesses along these heavily traveled commuter routes, lane closures during the peak hours will likely reduce capacity.

35T In Response to 60% Review Comment No. 76T, it states that TPCBC is necessary to protect the mobile unit and that when the cable splicing is taking place, the TPCBC will be set before each shift and removed at the end of the shift. Is there enough time to install and remove the TPCBC in addition to accomplishing the work within the allowable time period? If TPCBC will be needed at all vault locations during cable splicing, NU must ensure that all work can be completed within the allowable lane closure period at each location.

36T In the response to 60% Review Comment Nos. 80T and 87T, it states that Sunday work schedules are no longer being proposed. However, the Traffic Inventory Report still includes a Sunday work proposal for some of the vault locations.

37T The following questions in the 60% Review Comment No. 90T (Vaults 6443 and 7543 formerly Vault MN-B-43) were not answered: “Will this [steel support system] be in an area where traffic will be stopping for the traffic signal? Is it feasible to relocate the vault to the south to the eastbound lanes?”

38T Many of the hourly restrictions listed in the responses to the 60% comments on the Fairfield Traffic Inventory Report do not match the revised Traffic Inventory Report. In addition, many of these hours are not recommended by the Department. Please refer to the attached marked-up pages of the Traffic Inventory Report.

Traffic Inventory Reports

39T For Routes 1 and 130, please refer to the comments marked in red on the attached pages of the Traffic Inventory Report.

40T Please revise the Allowable Work Hours Map and any other sections of the Traffic Inventory Report, as commented herein.

41T Based on the traffic volumes, there are some areas where it will not be feasible to allow a lane closure during the daytime and provide a sufficient work period and, therefore, it will not be feasible to restrict night work.

42T Please ensure that it is specified that all of the vault work shall conform to the hourly lane closure restrictions as specified on the attached marked-up pages of the Traffic Inventory Report for each section of roadway.

43T Please ensure that requirements for maintaining the I-95 ramps are included in the transmission line contract.

44T Vaults 7540 and 6440 (formerly Vault Location MN-B-40) – It is proposed to have a lane closure on Route 130 Eastbound between 7:00 a.m. and 6:00 p.m.. As previously commented, the Contractor would typically be restricted from utilizing a lane closure during the peak periods. The allowable period for a lane closure during the day in this area is 8:30 a.m. to 4:00 p.m. Equipment to reduce the noise should be investigated so that night work can be done in this area, which would provide a longer allowable period for a lane closure. Justification should be provided for the need for a lane closure during the requested time period. If approved, requirements should be included in the transmission line contract such as the following: that the Contractor must open the lanes if congestion occurs, as directed by the Engineer, that the Contractor will only be allowed to utilize the longer work period for certain operations (which shall be specified), and that the Contractor will only be allowed the longer work period for a maximum number of days.

45T Vaults 7541 and 6441 (formerly Vault Location MN-B-41) – It is proposed to have a lane closure in both directions on Route 130 E.B. and W.B. between 8:30 a.m. and 6:00 p.m. As previously commented, the Contractor would typically be restricted from utilizing a lane closure during the peak periods. The allowable period for a lane closure during the day in this area is 8:30 a.m. to 3:30 p.m. Equipment to reduce the noise should be investigated so that night work can be done in this area which would provide a longer allowable period for a lane closure. Justification should be provided for the need for a lane closure during the requested time period. If approved, requirements should be included in the transmission line contract such as the following: that the Contractor must open the lanes if congestion occurs, as directed by the Engineer; that the Contractor will only be allowed to utilize the longer work period for certain operations (which shall be specified); and that the Contractor will only be allowed the longer work period for a maximum number of days.

46T Vaults 7542 and 6442 (formerly Vault Location MN-B-42) - It is proposed to have a lane closure in both directions on Route 130 E.B. and W.B. between 7:00 a.m. and 6:00 p.m. As previously commented, the Contractor would typically be restricted from utilizing a lane closure during the peak periods. The allowable period for a lane closure during the day in this area is 8:00 a.m. to 3:00 p.m. Equipment to reduce the noise should be investigated so that night work can be done in this area, which would provide a longer allowable period for a lane closure. Justification should be provided for the need for a lane closure during the requested time period. If approved, requirements should be included in the transmission line contract such as the following: that the Contractor must open the lanes if congestion occurs, as directed by the Engineer; that the Contractor will only be allowed to utilize the longer work period for certain operations (which shall be specified); and that the Contractor will only be allowed the longer work period for a maximum number of days.

47T Vaults 7543 and 6443 (formerly Vault Location MN-B-43) – As previously commented, the allowable hours for an alternating one-way traffic operation are between 10:00 p.m. and 6:00 a.m.

48T For vault locations MN-F-27, MN-F-30, MN-F-31, MN-F-33, MN-F-36, and MN-F-37, the responses to the 60% review comments state that a lane closure will not be necessary. This should be noted in the Traffic Inventory Report.

49T Why were the sections for vault locations MN-F-36 and MN-F-37 removed from the Traffic Inventory Report?

50T District 3 Maintenance and District 3 Construction must review all allowable work periods.

51T On the Drawing Index sheet (PG 001), the Traffic Typical sheets are not Standard Drawings and should be removed from the list of Standard Drawings. The sheet number and FHWA dates listed only apply to the metric sheets.

52T Please ensure that the temporary impact attenuation systems are adequate for 85% speeds.

- 53T** Please ensure that the taper rates for the TPCBC are adequate for 85% speeds.
- 54T** Please call for a Type DE-9 Delineator on the first module of each temporary impact attenuation system and ensure that the item is included in the Contract.
- 55T** Please ensure that the appropriate items for temporary plastic pavement marking tape and black mask tape are included in the transmission line contract.
- 56T** Please call for the appropriate Type DE-7 delineators to be installed on TPCBC.
- 57T** Please review all runs of TPCBC for installation of delineators and include the appropriate delineator items in the Contract. Type DE-7 Delineators are to be installed on runs of TPCBC to the right of traffic and Type DE-7A Delineators are to be installed on runs of TPCBC to the left of traffic. Please refer to Traffic Typical Sheet 7 “Typical Delineation and Delineator and Object Marker Details” for additional information.
- 58T** M&PT Plan PG 007 – The sidewalk on the north side of Route 130 is closed. Please show how pedestrians will be detoured and include the appropriate signing.
- 59T** M&PT Plan PG 008 – For Vault Nos. 6440 and 7540, the Traffic Inventory Report states that the lane closure will occur during construction and that the steel support system will be used to maintain traffic during non-construction periods. However, this plan shows a continuous lane closure with TPCBC. According to the Traffic Inventory Report, this M&PT plan is not needed. As previously commented, traffic volumes in the peak hours are too high to allow a continuous lane closure. This M&PT plan has not been reviewed.

M&PT Plan PG 009

- 60T** The sidewalk on the south side of Route 130 is closed. Please show how pedestrians will be detoured and include the appropriate signing.
- 61T** On Route 130 westbound, please show a Left Lane Closed Ahead sign, sign no. 80-9847, after the Road Work Ahead sign.
- 62T** On Route 130 westbound, please remove sign no. 80-9911 Lane Ends Merge Right, because it could be confusing to motorists in the right lane.
- 63T** On Route 130 eastbound, please show a Right Lane Closed Ahead sign, sign no. 80-9848, after the Road Work Ahead sign.
- 64T** It is recommended to label the lane closure taper areas.
- 65T** Please add “minimum” to the lane closure taper length.
- 66T** It is recommended to decrease the spacing between merge symbol sign, sign nos. 80-9917 and 80-9918 and the beginning of the lane closure taper to 100 feet.

67T Drums should be shown at the along the lane closure tapers. Please refer to the MUTCD and/or the Typical Traffic Control Plans for Maintenance Operations.

68T Please label the shifting tapers and show the minimum shifting taper length for the shifting taper prior to the work area and the one after the work area.

69T Please label the Sidewalk Closed signs.

70T Sign No. 80-9451 (the large horizontal arrow sign) should be replaced with a keep right symbol sign.

71T What modifications to the existing traffic signal(s) will be needed? Please specify and include the necessary items for temporary signalization in the transmission line contract.

M&PT Plan PG 010

72T The sidewalk on the south side of Route 130 is closed. Please show how pedestrians will be detoured and include the appropriate signing.

73T On Route 130 eastbound, please show a Right Lane Closed Ahead sign, sign no. 80-9848, after the Road Work Ahead sign.

74T On Route 130 westbound, please show a Left Lane Closed Ahead sign, sign no. 80-9847, after the Road Work Ahead sign.

75T On Route 130 westbound, please remove sign no. 80-9911 Lane Ends Merge Right because it could be confusing to motorists in the right lane.

76T It is recommended to label the lane closure taper areas.

77T Please add "minimum" to the lane closure taper length.

78T It is recommended to decrease the spacing between merge symbol sign, sign nos. 80-9917 and 80-9918, and the beginning of the lane closure taper to 100 feet.

79T Drums should be shown at the along the lane closure tapers. Please refer to the MUTCD and/or the Typical Traffic Control Plans for Maintenance Operations.

80T Please label the shifting tapers and show the minimum shifting taper length for the shifting taper prior to the work area and the one after the work area.

81T What modifications to the existing traffic signal(s) will be needed? Please specify and include the necessary items for temporary signalization in the transmission line contract.

82T On Route 130 eastbound, please show a Left Lane Closed Ahead sign, sign no. 80-9847, after the Road Work Ahead sign.

83T On Route 130 eastbound, please remove sign no. 80-9911 Lane Ends Merge Right because it could be confusing to motorists in the right lane.

84T It is recommended to decrease the spacing between merge symbol sign, sign no. 80-9918, and the beginning of the lane closure taper to 100 feet.

85T On Route 130 westbound, please show the advance warning signs.

86T Please label the lane closure taper area and the minimum length.

87T Please label the shifting taper areas and minimum lengths.

88T What modifications to the existing traffic signal(s) will be needed? Please specify and include the necessary items for temporary signalization in the transmission line contract.

SPECIAL PROVISIONS

89T Any other locations that will require specific M&PT plans?

90T Will any bus stops need to be relocated? If so, please coordinate with the applicable bus company and provide the appropriate signing as needed.

91T Please include notes, similar to the following, on the plans:

- Existing conflicting pavement markings shall be removed or covered, including those pavement markings outside of the travelway.
- The appropriate Type DE-7 and Type DE-7A Delineators shall be installed on the TPCBC, as specified on the typical sheet "Typical Delineation and Delineator and Object Marker Details."
- Existing signs are to be relocated as needed and as directed by the Engineer during construction so that they are in the appropriate location and visible to motorists. Some signs may have to be temporarily located within the work area. This work will be paid for under Item #0971001A – Maintenance and Protection of Traffic.
- Existing signs in conflict with temporary signs shall be covered, removed or revised to meet field conditions.
- The locations of temporary signs shown on the plans are approximate and shall be adjusted by the Contractor to meet field conditions.
- Temporary signs shall be mounted on posts when feasible.
- The locations of Traffic Drums shown on the plans are approximate and shall be adjusted by the Contractor to meet field conditions and to clearly define access to and egress from all roadways and driveways.
- The height of temporary sheet piling shall not extend above the height of the TPCBC.

92T Please include the following specifications in the transmission line contract:

- Notice to Contractor - NCHRP Report 350 Requirements for Work Zone Traffic Control Devices
- Notice to Contractor – Traffic Drums and Cones
- Item No. 1220011A – Construction Signs – Type III Reflective Sheeting

93T Please include the special provision for Item No. 111805_A - Temporary Signalization (Site No. _).

94T Please refer to the attached list of traffic items and descriptions. It may be beneficial to include some of these items in the transmission line contract (see Exhibit G).

Prosecution and Progress (P&P) special provision

95T Please revise the P&P special provision to match the hourly restrictions as commented on the Traffic Inventory Report contained herein.

96T Please add the word “existing” in front of “traffic operations”.

97T Please add the following for the I-95 Ramps:

The Contractor will not be allowed to perform any work that will interfere with existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 9:00 p.m.

98T Under “Other Limitations” please add the following:

All transverse height differentials on all roadway surfaces shall be tapered to negate any "bump" to traffic as specified elsewhere in this contract or as approved by the Engineer. Material for this taper shall be as approved by the Engineer.

Maintenance and Protection of Traffic (M&PT) special provision

99T Please refer to comments marked in red on the attached M&PT special provision (see Exhibit F).

100T Please replace the first statement under the “I-95 Ramps” section with the following:

The Contractor shall maintain and protect existing traffic operations. Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect the existing number of lanes of traffic, each lane on a paved travel path not less than 11 feet in width.

101T Please replace the submitted traffic control plans with the Traffic Control Plans for Maintenance Operations.

102T Should Traffic Control Plan #9 be added?

103DC Several projects, which are in design phase, and ongoing projects may have areas of conflict with the 345 kV line. Coordination of the 345 kV line with the CDOT Designer for these projects needs to identify and address the potential conflicts.

104DC Is there any concern for rock blasting adjacent to the 345 kV XLPE transmission cable circuits when it is energized? Please identify the restrictions required to work adjacent to the 345 kV duck bank and vaults.

105DC The 345 kV line must be installed below all existing drainage structures.

106DC State roadways are to be restored in accordance with Highway Maintenance Directive No. 93-1. Indicate on the M&PT plans the limits of milling and resurfacing for the restoration of the roadway (see Exhibit C).

107DC The M&PT plans must include the proposed sequence of construction detailing the logical steps to complete every phase of the work. Include requirements to maintain all existing traffic signals within each phase.

108BM Although they have attempted to reduce the number of junction chambers in the roadway, there will still be some junction chambers subject to vehicular loads. These vaults will be subject to periodic inspections by N.U. and must be designed for at least HS-20 live loading, in accordance with Exhibit B.

109L Specification for concrete within the duct bank, as shown on drawing 01224-46003 PG 001, does not specify at what time (3 hrs., 6 hrs., 3 days, 7 days, 28 days?) . If this trench will be filled in quickly to maintain traffic, any strength specification beyond the time the trench is open is of no use. Also, given the number of obstructions in the trench, does the designer anticipate using a self-consolidating mix so that the concrete can flow around the ducts and keep any voids to a minimum?