January 5, 2005

Ms. Pamela B. Katz
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 272 - Middletown-Norwalk 345kV Transmission Line

Dear Ms. Katz:

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

Response to CSC-03 Interrogatories dated 06/07/2004
CSC - 068 , 069 , 070

Very truly yours,

Anne B. Bartosewicz
Project Director - Transmission Business

ABB/tms
cc: Service List

Status: **File Pending**

CL&P/UI
Docket No. 272

Data Request CSC-03
Dated: 06/07/2004
Q- CSC-068

Witness: **Anne Bartosewicz; John J. Prete**
Request from: **Connecticut Siting Council**

Question:
For the Black Pond substation provide the following (maps and/or photographs scale 1 inch = 100 feet):

a. site location and site boundary
b. delineation of inland wetlands and/or watercourses within 100 feet of the site
c. nearest residence
d. identification of adjacent land use
e. identification of nearest species and natural diversity database buffer zone
f. identification of nearest historic and/or archeological resource
g. existing and proposed electric and magnetic fields at the site boundary
h. noise assessment
i. sensitive receptors as identified in Public Act 04-246

Response:
During the hearings, the Companies were asked to review the potential for having a switching station at Black Pond Junction rather than Beseck. Please see the attached map showing a preliminary layout of a switching station if it were located at Black Pond Junction showing:

a. site location and boundary
See attached Segment 34 drawings at 1"=100' and 1"=200' scales which show a modified breaker and a half arrangement for a potential switching station at Black Pond Junction.

b. delineation of inland wetlands and/or watercourses within 100 feet of the site
The attached Segment 34 drawings have delineated the wetlands and watercourses.

c. nearest residence
The attached Segment 34 drawings are overlaid on the aerial photos. The nearest residence is approximately 600 feet south of the potential switching station.

d. identification of adjacent land use
The attached Segment 11 from Volume 9 of the Application identifies the adjacent land uses.

e. identification of nearest species and natural diversity database buffer zone
No rare, threatened or endangered species were identified in the Application along the proposed route in the town of Meriden where a potential Black Pond Switching Station would be located. See Volume 1 of the Application.

f. identification of nearest historic and/or archeological resource
No historic or archaeological resources were identified in the Application within approximately one quarter mile of

the proposed overhead route in the town of Meriden where a potential Black Pond Switching Station would be located. See Volume 3 of the Application.

g. existing and proposed electric and magnetic fields at the site boundary
Electric and magnetic fields for the site boundary of a potential Black Pond Switching Station have not been measured or calculated. The nearest residential structure is approximately 600 feet south of the potential switching station. It is expected that this is beyond the range of any anticipated electric and magnetic fields for the potential switching station. There is no existing switching station or substation at this location.

h. noise assessment
Noise assessment for a potential Black Pond Switching Station would be comparable to that of the Beseck Switching Station as explained in Volume 1 of the Application. The site would be dominated by traffic noise from Interstate 691, which is adjacent to the site.

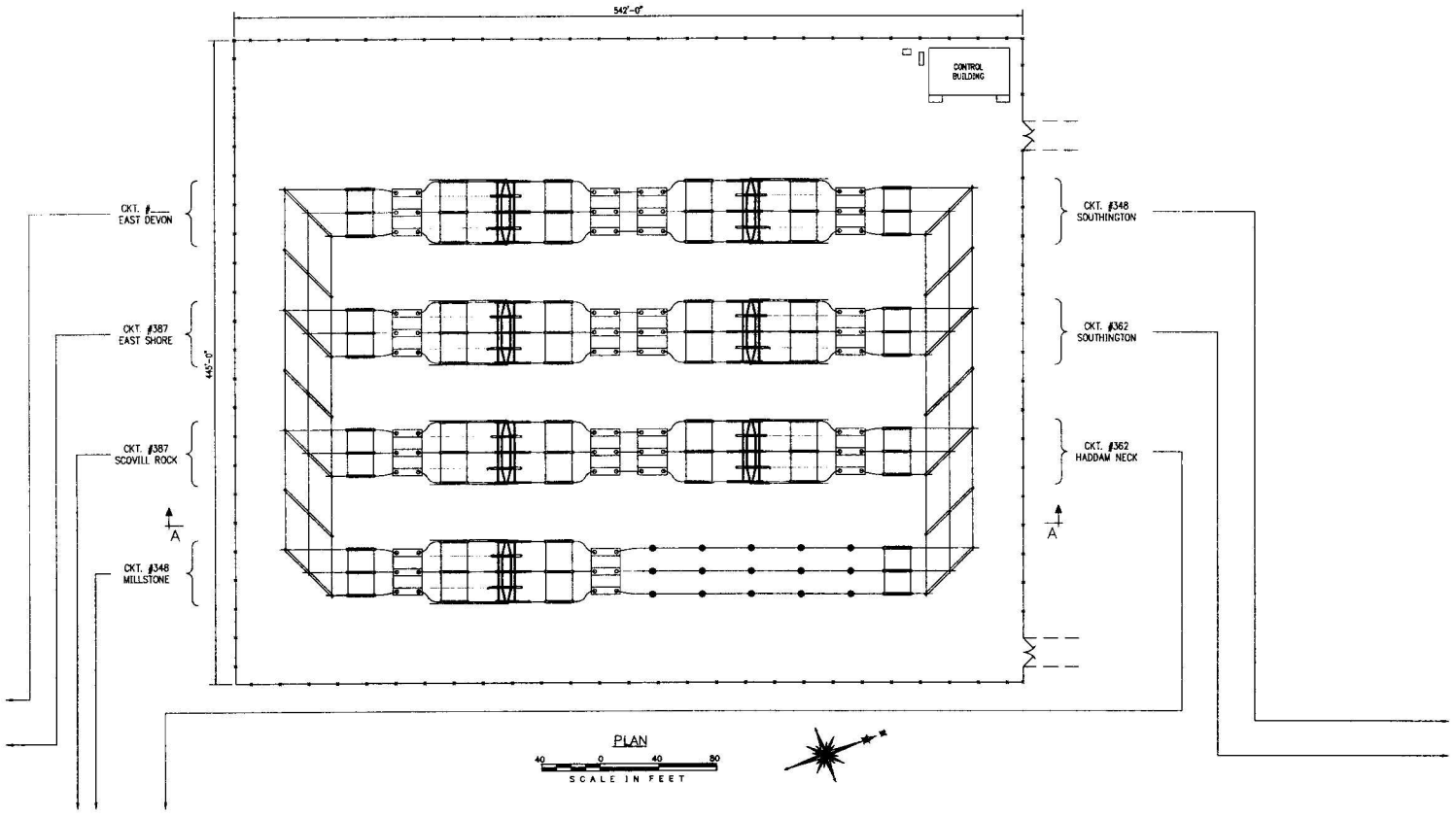
i. sensitive receptors as identified in Public Act 04-246
Maps have been filed with the Council on July 26, 2004 that show the facilities as identified in Public Act 04-246.

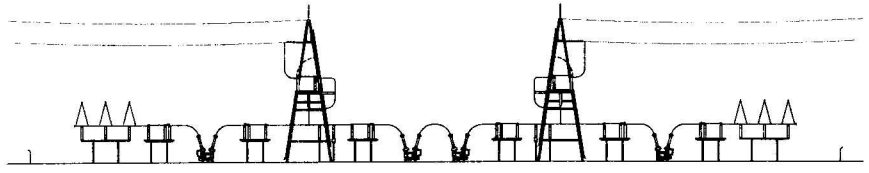

page 3 of 5.pdf


CSC-068 Page 4 of 5.pdf


CSC-068 Page 5 of 5.pdf

MIDDLETOWN–NORWALK CONSTRUCTION OF A 345–kV TRANSMISSION LINE
BLACK POND 345–kV SWITCHING STATION





PRELIMINARY

CAD GENERATED DWG. MAKE NO MANUAL CHANGES

BEFORE CHANGES	VOID DWG.
AFTER CHANGES	NO BEFORE DWG.
REVISIONS DURING CONSTRUCTION	

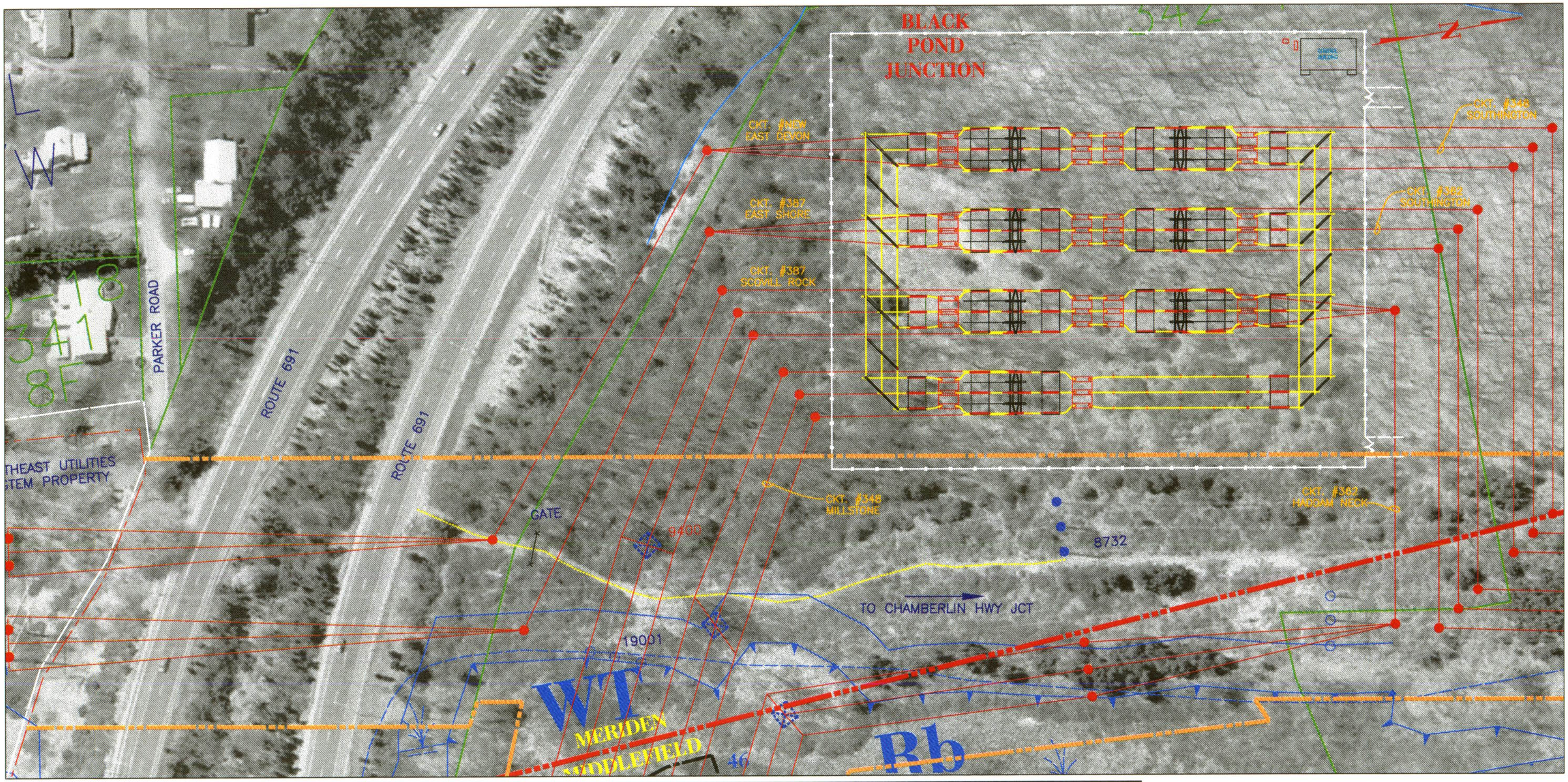
NORTHEAST UTILITIES SERVICE CO.

FOR THE CONNECTICUT LIGHT & POWER COMPANY

TITLE BLACK POND SWITCHING STATION
GENERAL ARRANGEMENT – PLAN & SECTIONS
MODIFIED BREAKER AND A HALF
MILFORD, CT.

BY	CHKD	APP	APP
DATE JULY 2004	DATE	DATE	DATE
SCALE AS NOTED		DWG. NO.	BLACK POND SS01

NF	NO.	DATE	REVISIONS	BY	CHK	APP	APP



DATE OF AERIAL PHOTOGRAPHY:
SPRING 2002

Northeast Utilities System

The United Illuminating Company

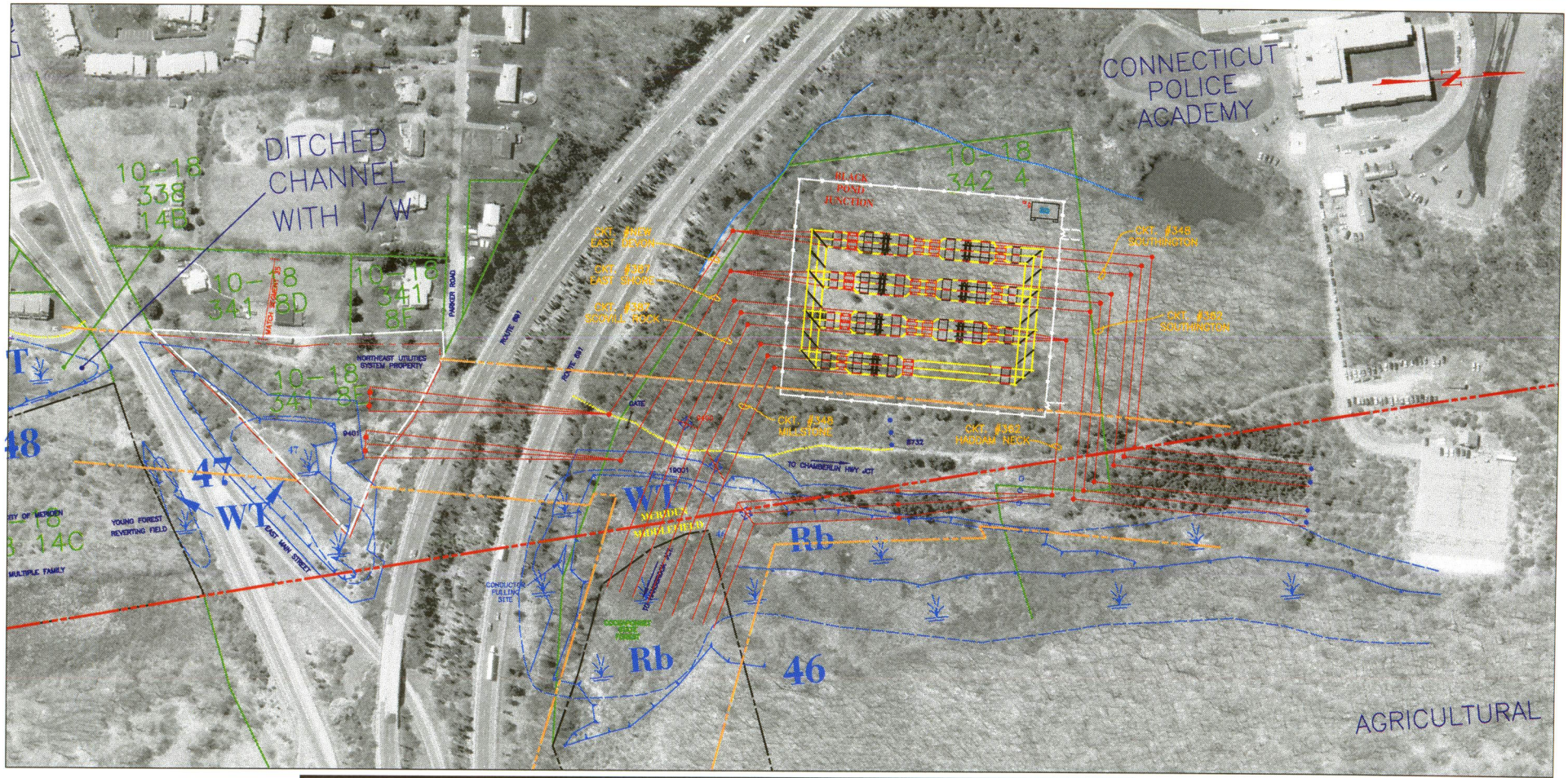
LEGEND

CONTOUR LINE (LIDAR SURVEY, 2000)	SUPPORTED CHANGE
WATERCOURSE (FIELD INVENTORY, 2002)	TOWN LINE
PROPOSED STRUCTURE (±100')	WETLAND FLAGS (FIELD SURVEY, 2003)
EXISTING STRUCTURE TO REMAIN	CULVERT (FIELD INVENTORY, 2002)
EXISTING STRUCTURE TO BE REMOVED	LIMIT OF R.O.W.
UNDERGROUND TRANS. LINE	PROPOSED LIMIT OF R.O.W.
NORTHEAST UTILITIES SYSTEM PROPERTY LINE	ACCESS ROAD (FIELD INVENTORY, 2002)

PROPOSED ROUTE
MIDDLETOWN - NORWALK
345-kV TRANSMISSION LINE
CITY OF MERIDEN
BLACK POND JUNCTION
MODIFIED BREAKER AND A HALF

SCALE 1" = 100'

SEGMENT 34



LEGEND

- CONTOUR LINE (LIDAR SURVEY, 2000)
- WATERCOURSE (FIELD INVENTORY, 2002)
- PROPOSED STRUCTURE (±100')
- EXISTING STRUCTURE TO REMAIN
- EXISTING STRUCTURE TO BE REMOVED
- UNDERGROUND TRANS. LINE
- NORTHEAST UTILITIES SYSTEM PROPERTY LINE
- SUPPORTED CHANGE TOWN LINE
- WETLAND FLAGS (FIELD SURVEY, 2003)
- CULVERT (FIELD INVENTORY, 2002)
- LIMIT OF R.O.W.
- PROPOSED LIMIT OF R.O.W.
- ACCESS ROAD (FIELD INVENTORY, 2002)

DATE OF AERIAL PHOTOGRAPHY: SPRING 2002

Northeast Utilities System

The United Illuminating Company

PROPOSED ROUTE
MIDDLETOWN - NORWALK
345-kV TRANSMISSION LINE
CITY OF MERIDEN
BLACK POND JUNCTION
MODIFIED BREAKER AND A HALF

SCALE 1" = 200'

SEGMENT 34

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Status: **File Pending**

CL&P/UI
Docket No. 272

Data Request CSC-03
Dated: 06/07/2004
Q- CSC-069

Witness: **Anne Bartosewicz; John J. Prete**
Request from: **Connecticut Siting Council**

Question:
For the East Shore Route, a new line adjacent to the existing 387 line provide the following (maps and/or photographs scale 1 inch = 100 feet):

a. Existing and proposed right-of-way boundaries
b. Identification of fee owned and/or easement
c. cross-section profile of existing and proposed structures
d. delineation of inland wetlands and/or watercourses within the right-of-way
e. identification of adjacent land use
f. identification of species and natural diversity database buffer zone(s) along the right-of-way
g. identification of historic and/or archeological resource along the right-of-way
h. existing and proposed electric and magnetic fields for the cross-section profiles
i. noise assessment
j. sensitive receptors as identified in Public Act 04-246

Response:
An East Shore Route does not solve the reliability problems of Southwest Connecticut, because significant additional lengths of 345-kV underground cable would be required between East Shore and East Devon Substations. Routing options would include (1) an underground route from East Shore to a transition station in West Haven (5.8 miles) and then going overhead on an existing transmission ROW to East Devon; and all underground transmission line between East Shore to East Devon Substations, requiring three additional 13.8 miles of 345-kV underground cables. These underground sections would be incremental to the 24 miles already included in the project. Additional lengths of underground transmission cannot be utilized and still meet system performance criteria. Additional investigation of this route has not been performed since it is not a viable alternative. However, facilities as identified in Public Act 04-246 have been identified on maps filed with the CSC on July 26, 2004.

Status: **File Pending**

CL&P/UI
Docket No. 272

Data Request CSC-03
Dated: 06/07/2004
Q- CSC-070

Witness: **Anne Bartosewicz; John J. Prete**
Request from: **Connecticut Siting Council**

Question:
For the Durham/Middletown Royal Oaks route deviation provide the following:

a. Identification of property owners
b. cross-section profile of existing and proposed structures
c. delineation of inland wetlands and/or watercourses within the right-of-way
d. identification of adjacent land use
e. identification of species and natural diversity database buffer zone(s) along the right-of-way
f. identification of historic and/or archeological resource along the right-of-way
g. existing and proposed electric and magnetic fields for the cross-section profiles
h. noise assessment
i. sensitive receptors as identified in Public Act 04-246.

Response:
a. Identification of property owners
The property owners along the route deviation depicted on the attached map are: Linda D. Wilson, Nancy Boscarino Trustee et al., Hamden Greenhouse LLC, Middletown Water Co., and John T. Moss. The map on page 3 identifies the respective parcels.

b. Cross section profile of existing and proposed structures
There are no existing structures on the Royal Oak bypass depicted on the attached map. The standard structure that would be used for the bypass is a 345-kV Compact Delta Monopole Structure with a typical height of 85 feet, as shown on Drawing No. XS-002 Figure 5 in Volume 10 of the Application.

c. Delineation of inland wetland and/or watercourses within the right-of-way
In November 2004, Soil Science Environmental Services conducted wetlands inventories, evaluations and mapping for a potential ROW for the Royal Oak route deviation. The attached map and report, which summarizes their findings, note that wetlands are present along the right of way, provide wildlife habitat, and are characterized as varying in functional value from high quality to low quality.

d. Identification of adjacent land use
Adjacent land uses are identified on Segments 6 and 7 in Volume 9 of the Application.

e. Identification of species and natural diversity database buffer zone(s) along the right-of-way
The Companies have not identified any rare, threatened or endangered species in the area of this route deviation. See Volume 1 of the Application.

f. Identification of historic and/or archeological resource along the right-of-way

In December 2004, Raber Associates conducted a cultural resource assessment of a potential right of way for the Royal Oak route deviation. Raber Associates concludes that approximately 52% of the Royal Oak route deviation appears sensitive for possible Native American resources. If this deviation were certified by the Council, prior to construction, reconnaissance archaeological testing would be necessary to confirm the presence or absence of Native American sites. The Raber report is nearly complete and will be filed shortly.

g. Existing and proposed electric and magnetic fields for the cross section profiles.

Since the bypass is a new ROW, there are presently no transmission lines on the bypass, accordingly there are no electric or magnetic fields associated with existing lines on the bypass. Calculated electric and magnetic fields for the new 345-kV line on the bypass are shown on page 6 of this response for the Compact Delta Monopole configuration and for five low magnetic field design options. Additional calculated magnetic field profile information is provided on pages 7 through 10 of this response for the design options at 15GW and 27.7GW New England loads.

h. Noise assessment

Audible noise levels along the route deviation would be comparable to the noise levels along the proposed route.

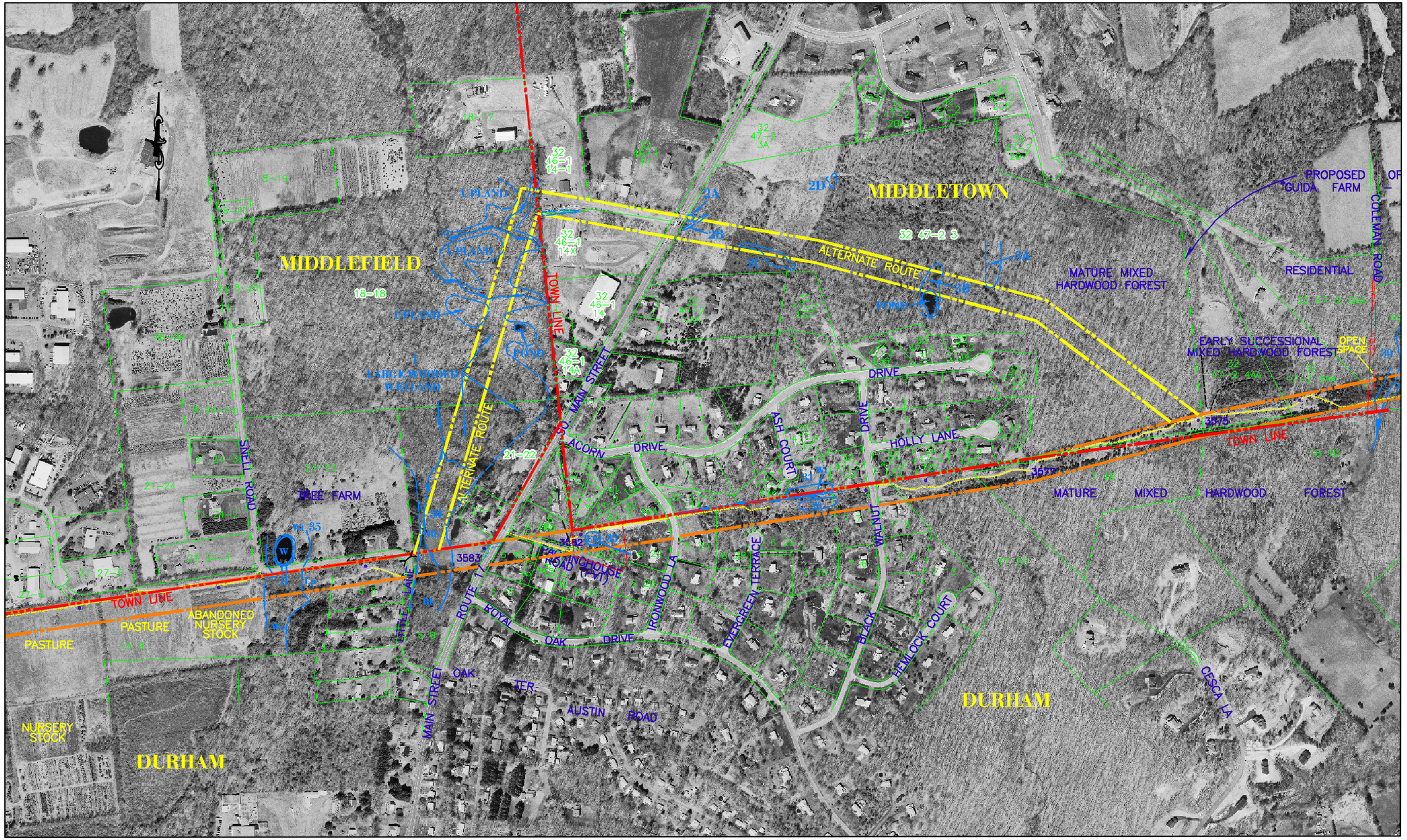
i. Sensitive receptors as identified in Public Act 04-246

Maps have been filed with the Council on July 26, 2004 that identify the Facilities and uses listed in Public Act 04-246.

SSES Report.pdf

CSC-070 pages 6 thru 10.pdf

Royal Oak Drive.PDF



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SCALE
0 200 400 600

ROYAL OAK BY-PASS
MIDDLETOWN-NORWALK
345-kV TRANSMISSION LINE
CITY OF MIDDLETOWN
TOWNS OF DURHAM
AND MIDDLEFIELD

MAP-BLOCK-LOT#	OWNER	OWNER ADDRESS
32 47-2 3	WILSON LINDA D.	591 BOW LA. MIDDLETOWN, CT 06457
32 46-1 14-1	BOSCARINO NANCY TRUSTEE ETALS	31 LAUREATE DR. MIDDLETOWN, CT 06457
32 46-1 14X	HAMDEN GREENHOUSE LLC	2301 SOUTH MAIN ST. MIDDLETOWN, CT 06457
18-18	MIDDLETOWN WATER CO.	DEKOVEN DR. MIDDLETOWN, CT 06457
21-22	MOSS, JOHN T.	200 PINE ORCHARD RD. BRANFORD, CT 06405

MIDDLETOWN TO NORWALK PROJECT

POTENTIAL ROYAL OAK BYPASS

During the course of the Connecticut Siting Council (CSC) proceedings for the Middletown to Norwalk Project, the CSC requested that the Companies investigate potential alignment options adjacent to the Royal Oaks Subdivision in the Town of Durham. As part of these analyses, the Companies retained Soil Science and Environmental Services (SS&ES) to conduct wetland identification and evaluations along a possible route that would bypass the subdivision. The potential alternative route would create a new right-of-way (ROW) across private property.

SS&ES conducted wetlands identification and evaluations of this potential bypass route on November 22, 2004. Weather and ground visibility conditions were favorable for wetland delineations (i.e., no snow cover or frozen ground). As a result of the wetland delineation, SS&ES identified several wetlands along the potential bypass route. These wetlands are described as follows:

WETLAND 1

Wetland 1 is a portion of a very large wooded swamp, roughly over 50 acres in size that extends to the south, west and north. The wetland mainly occurs on gently sloping to nearly level ground with soils which are poorly and very poorly drained and are transitional from glacial till to medium textured glacial outwash. Several streams traverse the wetland and combine to form one large stream, likely perennial, which flows in a northerly direction. The wetland forms important headwaters for maintaining flow to these streams. A small pond is present near the easterly edge of the wetland in the approximate central section of the wetland. To the west of this small pond there were several small areas, ranging up to 100 feet across, of slight depressional topographic areas in the wetland which contained shallow inundation. The small pond and inundated areas may likely provide amphibian breeding habitat. The wetland was rated as providing high quality wetland functions, including wildlife habitat, storm water control, maintenance of stream flow and water quality maintenance. The wetland may also provide for ground water recharge. The amount of clearing in Wetland 1 would be approximately 10 acres for a 150 foot ROW.

WETLAND 2

Wetlands 2A, 2B, 2C & 2D consist of small, isolated wetlands occurring in old fields and young forest. The wetlands are situated on moderate slopes on a large sloping hillside. They are seasonally wet and developed as poorly drained

glacial till soils with compact subsoils. There are no distinct watercourses or waterbodies found in the wetlands. The wetlands are characterized mainly as shrub / sapling swamps with some wet meadow vegetation. The main value of the wetlands is in providing wildlife habitat. However, the wetlands only possess low to moderately low functional values, because they are small in size, isolated, seasonally wet, occur on sloping ground and are not associated with water bodies or watercourses.

WETLAND 3

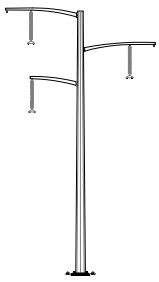
Wetlands 3A & 3B are wooded swamps on poorly drained, glacial till soils. They are gently sloping to nearly level. The small isolated wetland furthest south, Wetland 3B, contains a very small, man-made pond. These wetlands provide low to moderate wetland functions. Their main values are for providing wildlife habitat and flood control. The small pond likely provides amphibian breeding habitat.

Soil Science and Environmental Services, Inc. December 2004

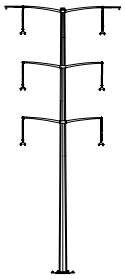
Royal Oak By-pass
Overhead Line Design Options
(Magnetic and Electric Field Values are for the 15GW Case)

Site Condition		ROW Edge S/E		ROW Edge N/W		Structure Type in ROW	Typical Height
		(mG)	(kV/m)	(mG)	(kV/m)		
	There are no Existing Lines on the By-pass ROW	N/A	N/A	N/A	N/A	N/A	N/A
0	345kV Line on New 345kV ROW	33.5	1.06	39.7	1.07	A	85
Low Magnetic Field Design Options							
1	345kV Line on New 345kV ROW with an additional 30' in height	21.2	0.50	23.6	0.50	A	115
2	345kV Split Phase Centered on New 345kV ROW	12.4	0.68	12.4	0.68	B	105
3	345kV Split Phase Centered on New 345kV ROW with additional 30' in height	6.2	0.65	6.2	0.65	B	135
4	345kV Split Phase Centered on New 345kV ROW with additional 35' in height	5.5	0.61	5.5	0.61	B	140
5	345kV Split Phase Centered on New 345kV ROW with additional 45' in height	4.4	0.54	4.4	0.54	B	150

Structure Types



Structure Type A



Structure Type B

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Royal Oak By-Pass
Calculated Magnetic Field Levels for
Overhead Line Design Options (15GW Case)

	Site Condition	Transmission ROW																									
		150'	135'	120'	105	90'	75'	60'	45'	30'	15'	S/E Edge	50'	25'	Center	25'	50'	N/W Edge	15'	30'	45'	60'	75'	90'	105'	120'	135'	150'
		OPTIONS																										
0	345kV Line on New 345kV ROW	4.2	4.8	5.6	6.6	7.8	9.4	11.6	14.6	18.7	24.7	33.5	44.4	76.3	109.3	96.7	53.5	39.7	28.2	20.8	15.9	12.5	10.0	8.2	6.9	5.8	5.0	4.3
1	345kV Line on New 345kV ROW with an additional 30' in height	3.9	4.4	5.1	5.9	6.9	8.1	9.7	11.6	14.1	17.3	21.2	25.2	33.4	38.7	36.1	27.8	23.6	19.1	15.4	12.5	10.3	8.6	7.3	6.2	5.3	4.6	4.0
2	345 kV Split Phase Centered on New 345kV ROW	0.7	0.8	1.0	1.3	1.6	2.1	2.9	4.0	5.6	8.2	12.4	18.2	36.4	48.1	35.5	17.7	12.4	8.2	5.6	4.0	2.9	2.1	1.6	1.3	1.0	0.8	0.7
3	345 kV Split Phase Centered on New 345kV ROW with additional 30' in height	0.6	0.7	0.9	1.1	1.3	1.7	2.1	2.7	3.6	4.7	6.2	7.7	10.8	12.3	10.7	7.6	6.2	4.7	3.6	2.7	2.1	1.7	1.3	1.1	0.9	0.7	0.6
4	345 kV Split Phase Centered on New 345kV ROW with additional 35' in height	0.6	0.7	0.8	1.0	1.3	1.6	2.0	2.6	3.3	4.3	5.5	6.7	9.2	10.3	9.1	6.6	5.5	4.3	3.3	2.6	2.0	1.6	1.3	1.0	0.8	0.7	0.6
5	345 kV Split Phase Centered on New 345kV ROW with additional 45' in height	0.5	0.6	0.8	0.9	1.2	1.4	1.8	2.2	2.8	3.5	4.4	5.2	6.8	7.4	6.7	5.2	4.4	3.5	2.8	2.2	1.8	1.4	1.2	0.9	0.8	0.6	0.5

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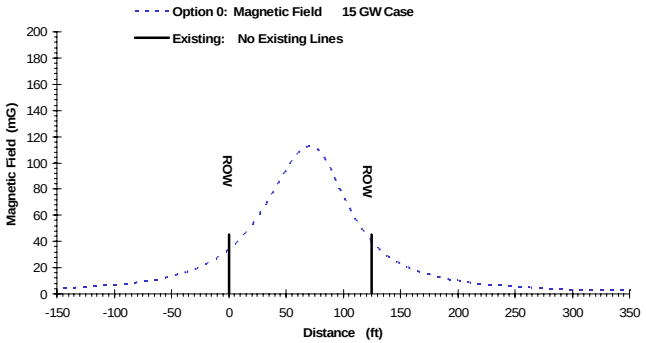
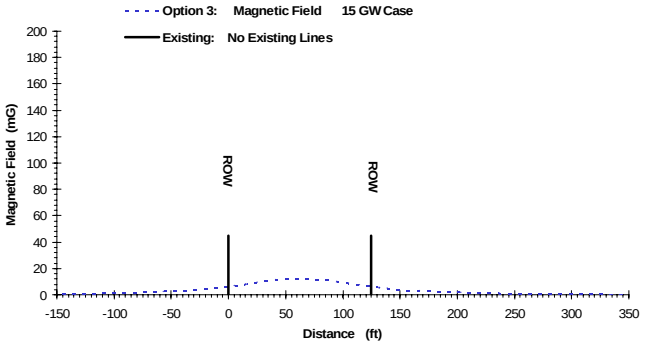
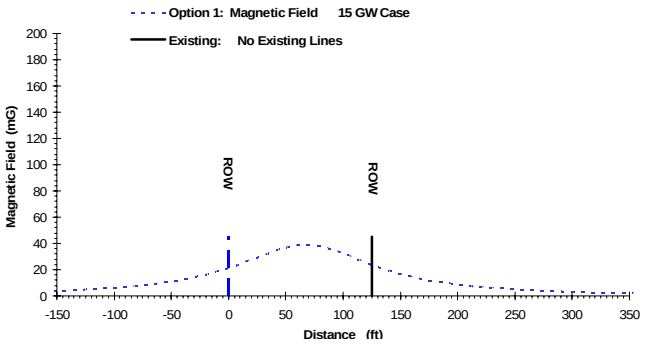
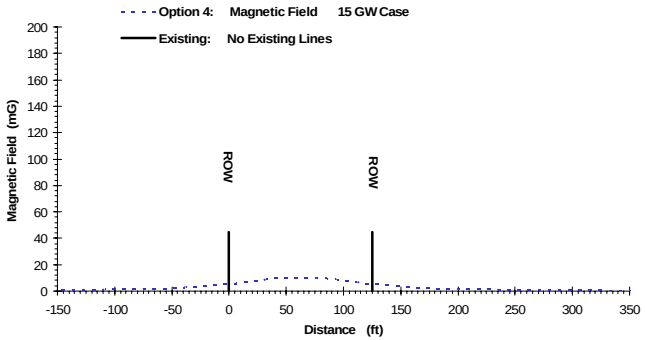
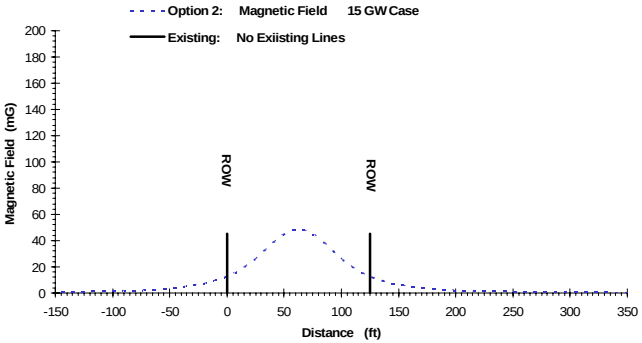
Royal Oak By-Pass
Calculated Magnetic Field Levels for
Overhead Line Design Options (15GW Case)

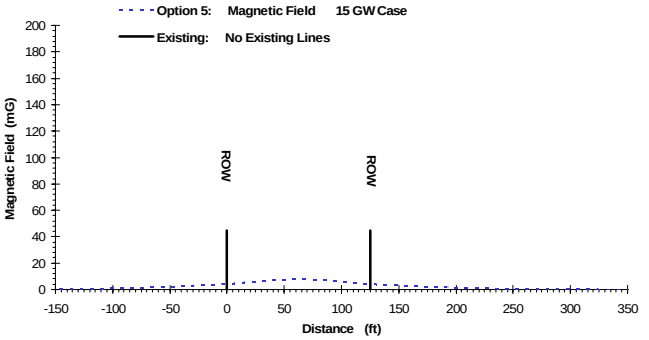












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Royal Oak By-Pass
Calculated Magnetic Field Levels for
Overhead Line Design Options (27GW Case)

		Transmission ROW																								
	Site Condition	150'	135'	120'	105	90'	75'	60'	45'	30'	15'	S/E Edge	50'	25'	Center	25'	50'	N/W Edge	15'	30'	45'	60'	75'	90'	105'	120'	135'	150'
	OPTIONS																											
0	345kV Line on New 345kV ROW	6.2	7.1	8.3	9.7	11.6	14.0	17.2	21.6	27.8	36.7	49.7	66.0	113.3	162.4	143.7	79.6	59.0	41.9	30.9	23.6	18.5	14.9	12.3	10.2	8.7	7.4	6.4
1	345kV Line on New 345kV ROW with an additional 30' in height	5.8	6.6	7.6	8.8	10.2	12.0	14.3	17.3	21.0	25.7	31.5	37.4	49.7	57.5	53.7	41.3	35.1	28.3	22.9	18.6	15.3	12.8	10.8	9.2	7.9	6.9	6.0
2	345 kV Split Phase Centered on New 345kV ROW	1.0	1.2	1.5	1.9	2.4	3.2	4.3	5.9	8.3	12.2	18.5	27.0	54.0	71.4	52.8	26.2	18.5	12.2	8.3	5.9	4.3	3.2	2.4	1.9	1.5	1.2	1.0
3	345 kV Split Phase Centered on New 345kV ROW with additional 30' in height	0.9	1.0	1.3	1.6	1.9	2.5	3.1	4.1	5.3	7.0	9.1	11.4	16.1	18.3	15.9	11.2	9.1	7.0	5.3	4.1	3.1	2.5	1.9	1.6	1.3	1.0	0.9
4	345 kV Split Phase Centered on New 345kV ROW with additional 35' in height	0.8	1.0	1.2	1.5	1.9	2.3	3.0	3.8	4.9	6.3	8.2	10.0	13.6	15.3	13.5	9.9	8.2	6.3	4.9	3.8	3.0	2.3	1.9	1.5	1.2	1.0	0.8
5	345 kV Split Phase Centered on New 345kV ROW with additional 45' in height	0.8	1.0	1.1	1.4	1.7	2.1	2.6	3.3	4.2	5.2	6.5	7.8	10.1	11.0	10.0	7.7	6.5	5.2	4.2	3.3	2.6	2.1	1.7	1.4	1.1	1.0	0.8

Royal Oak By-Pass
Calculated Magnetic Field Levels for
Overhead Line Design Options (27GW Case)