

# *G-185S 115kV Transmission Line Reconductoring Project*

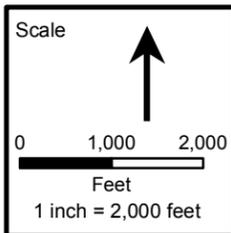
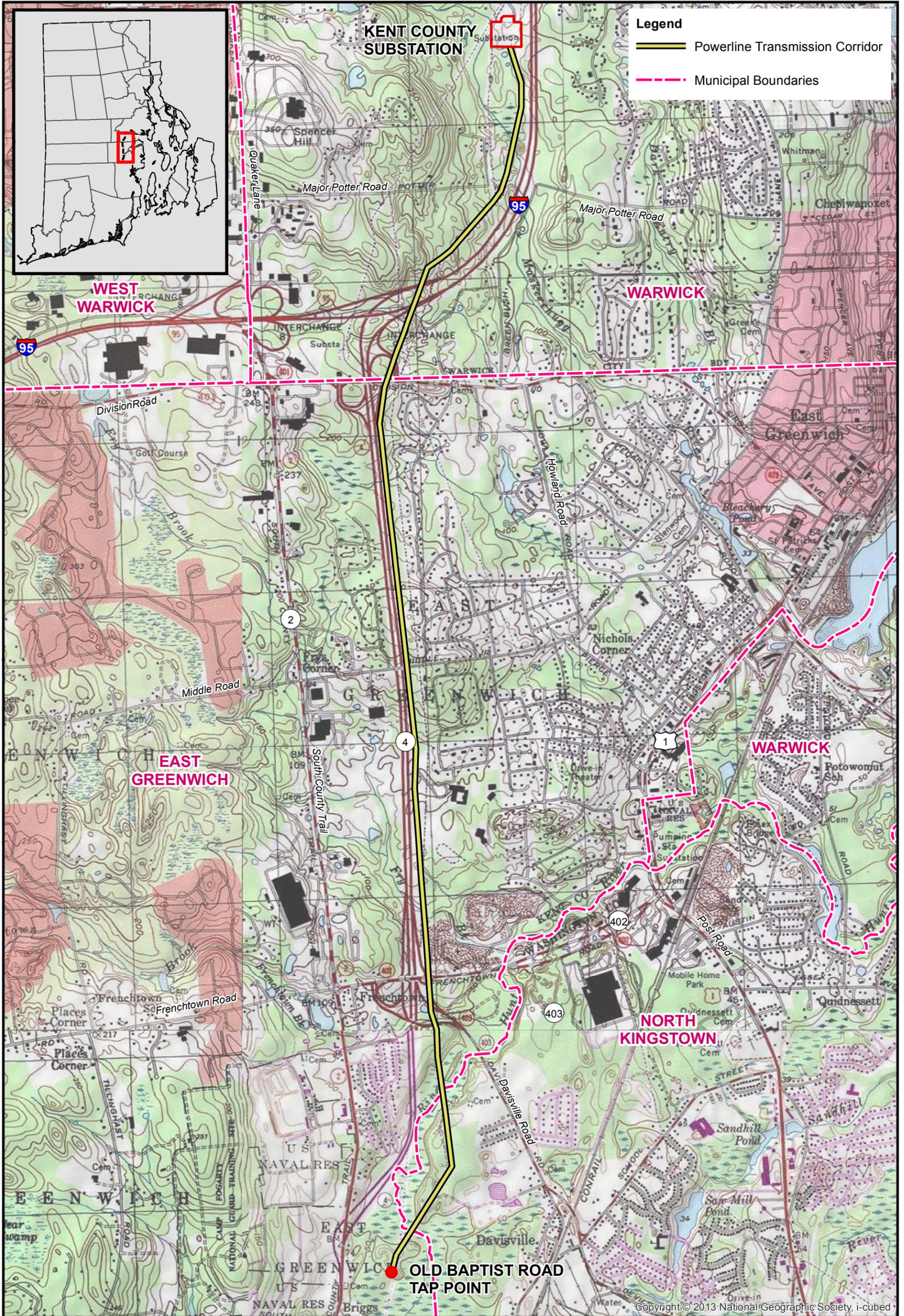
Warwick, East Greenwich, and North Kingstown  
Rhode Island

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Prepared for **The Narragansett Electric Company d/b/a National Grid**  
280 Melrose Street  
Providence, Rhode Island 02907

Prepared by **Vanasse Hangen Brustlin, Inc.**   
10 Dorrance Street, Suite 400  
Providence, Rhode Island 02903

January 2014



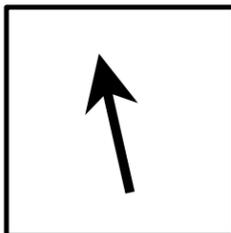
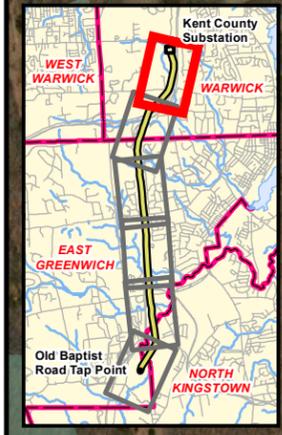
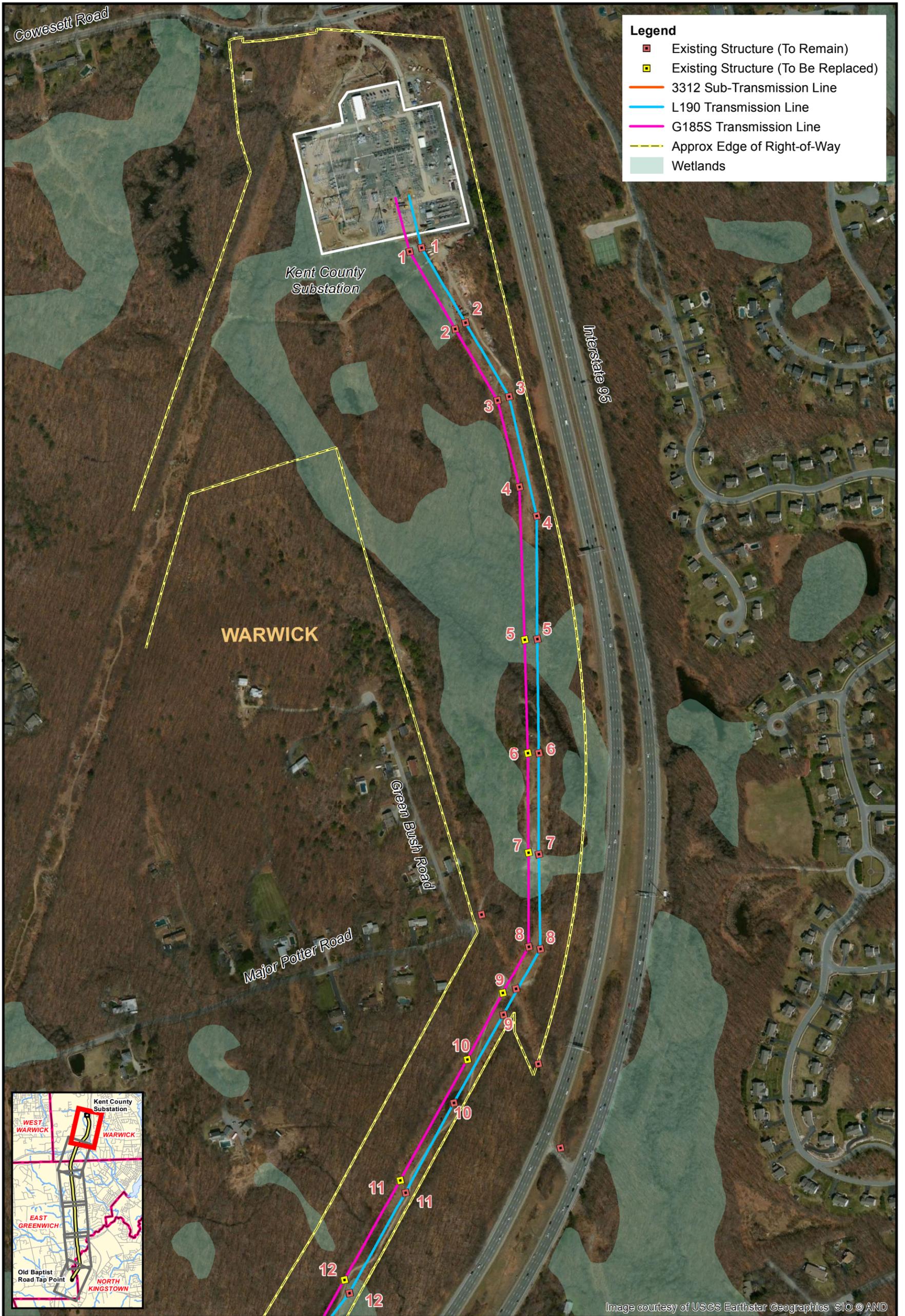
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Site Location Map  
Figure 1-1**

Source:  
USA Topo Maps (2012)

**nationalgrid**

**VHB** Yvanse Hangen Brustlin, Inc.



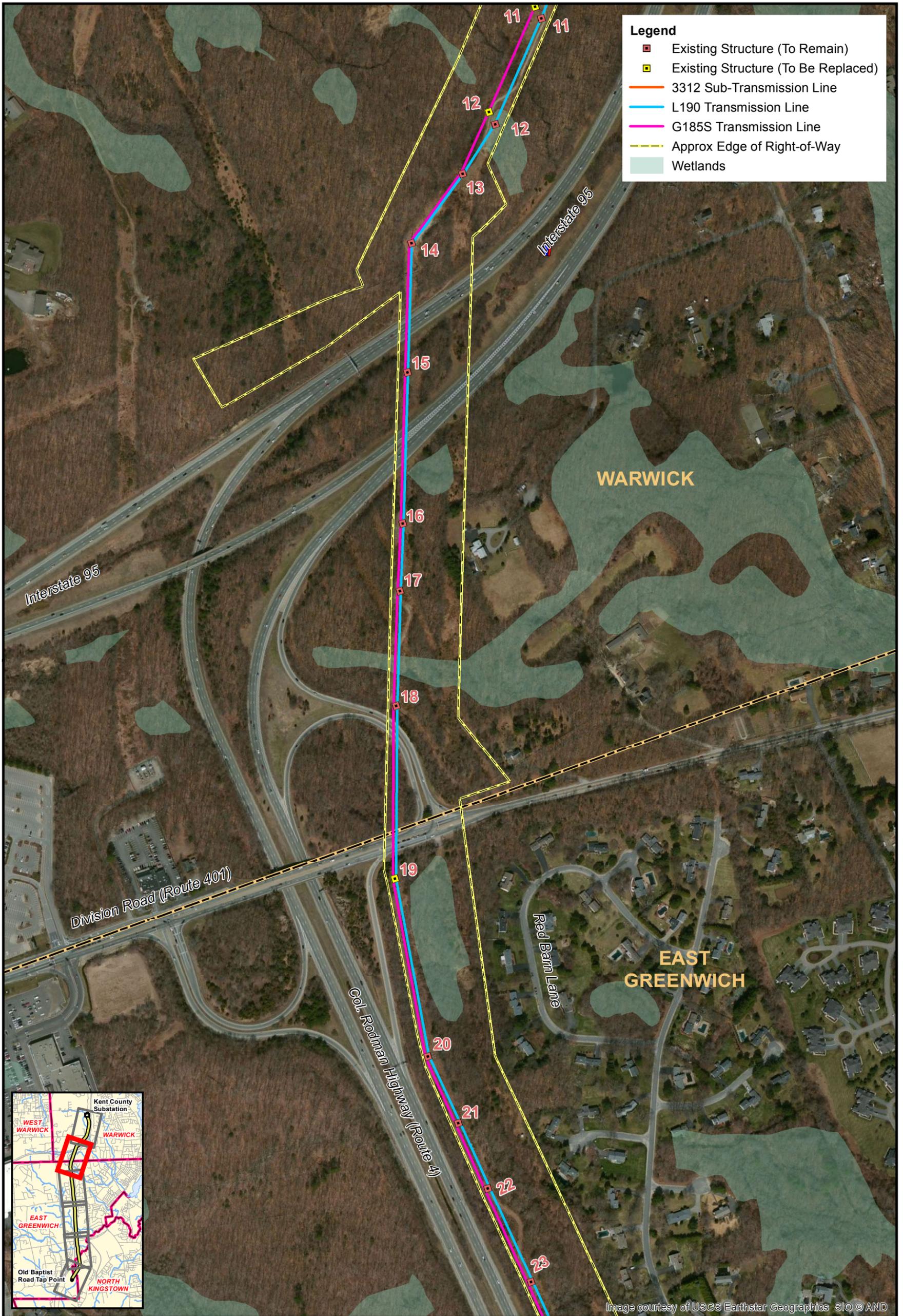
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment  
Figure 3-1 (Sheet 1 of 6)**

Source:  
Bing Aerial Maps (2013)  
RIGIS Wetlands (1993)

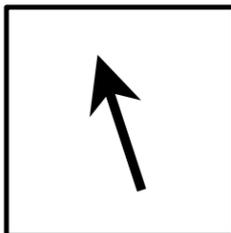
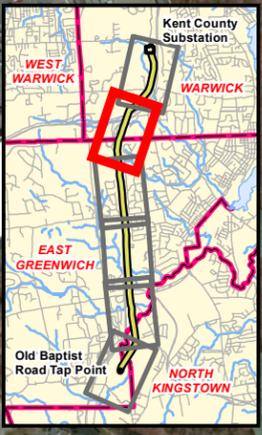
**nationalgrid**

**VHB** Yvanasse Hangen Brustlin, Inc.



**Legend**

- Existing Structure (To Remain)
- Existing Structure (To Be Replaced)
- 3312 Sub-Transmission Line
- L190 Transmission Line
- G185S Transmission Line
- Approx Edge of Right-of-Way
- Wetlands

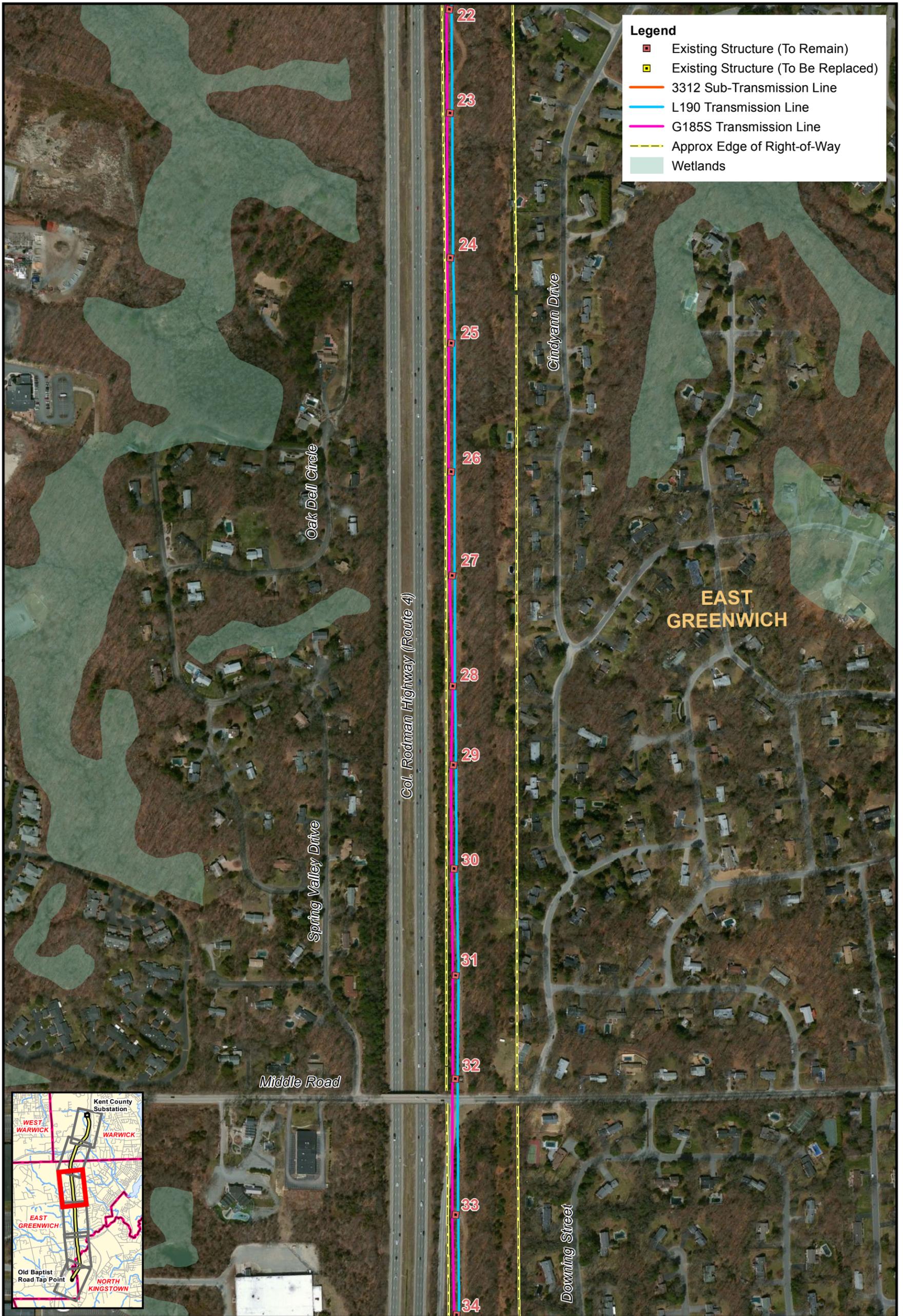


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment  
Figure 3-1 (Sheet 2 of 6)**

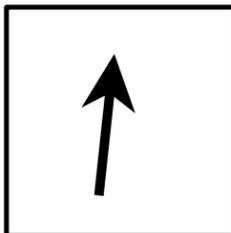
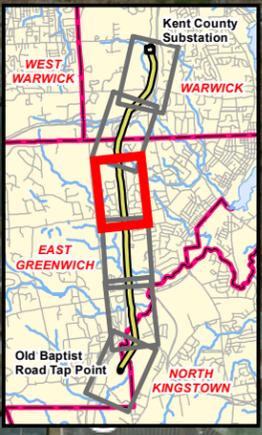
Source:  
Bing Aerial Maps (2013)  
RIGIS Wetlands (1993)





**Legend**

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- Wetlands



**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment  
Figure 3-1 (Sheet 3 of 6)**

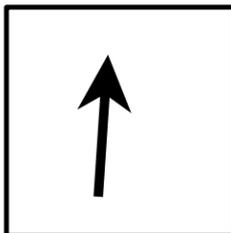
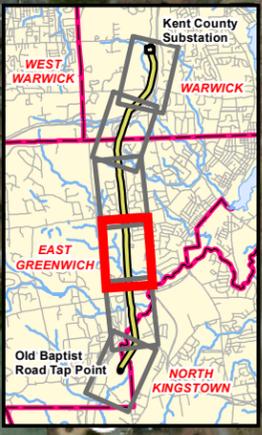
Source:  
Bing Aerial Maps (2013)  
RIGIS Wetlands (1993)

**nationalgrid**  
Yanase Hangen Brustlin, Inc.



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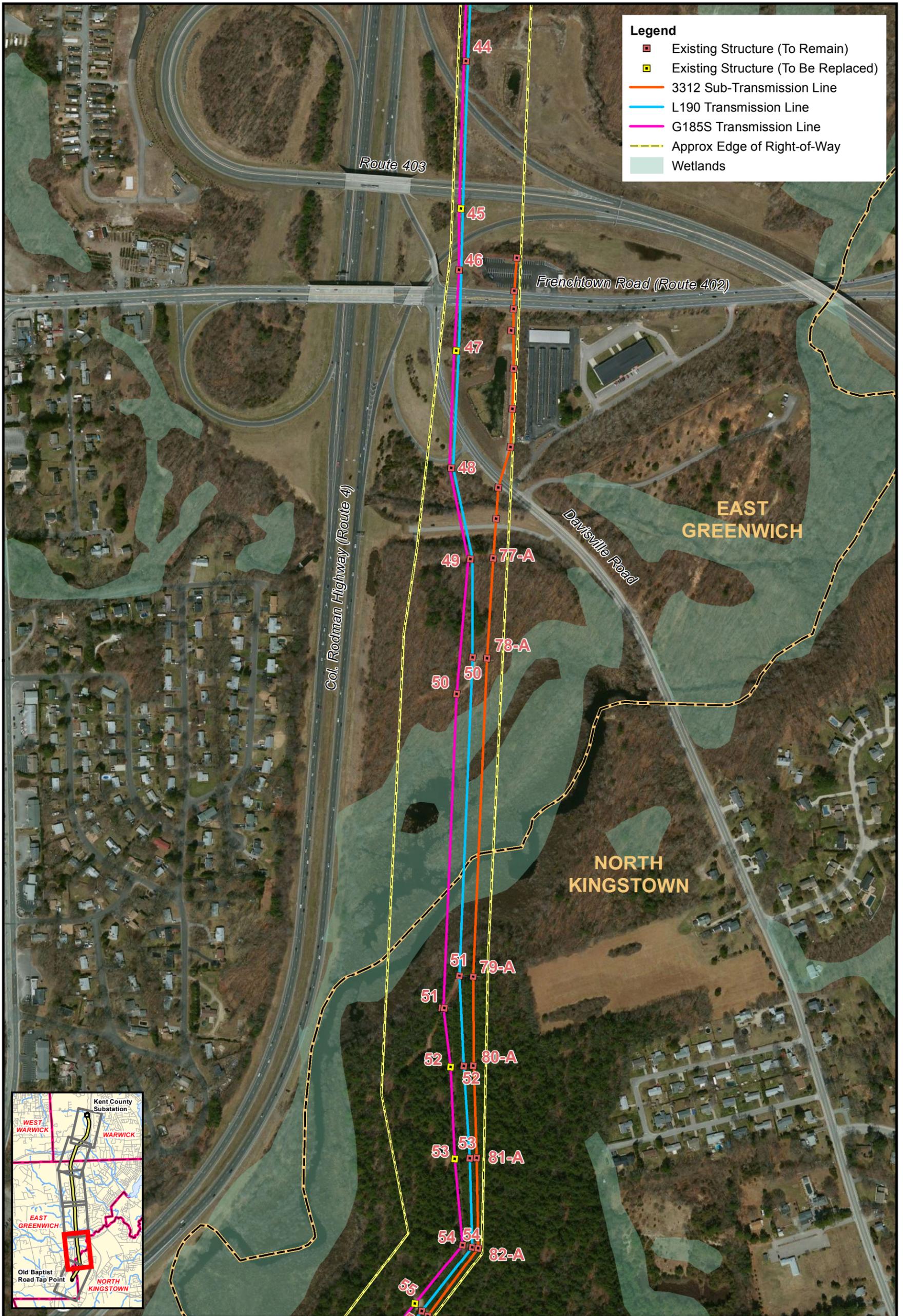


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment  
Figure 3-1 (Sheet 4 of 6)**

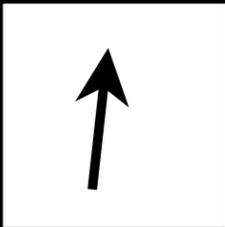
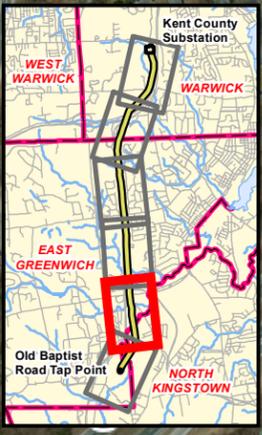
Source:  
Bing Aerial Maps (2013)  
RIGIS Wetlands (1993)

**nationalgrid**  
Yanase Hangen Brustlin, Inc.



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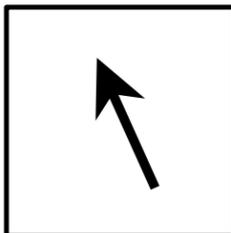
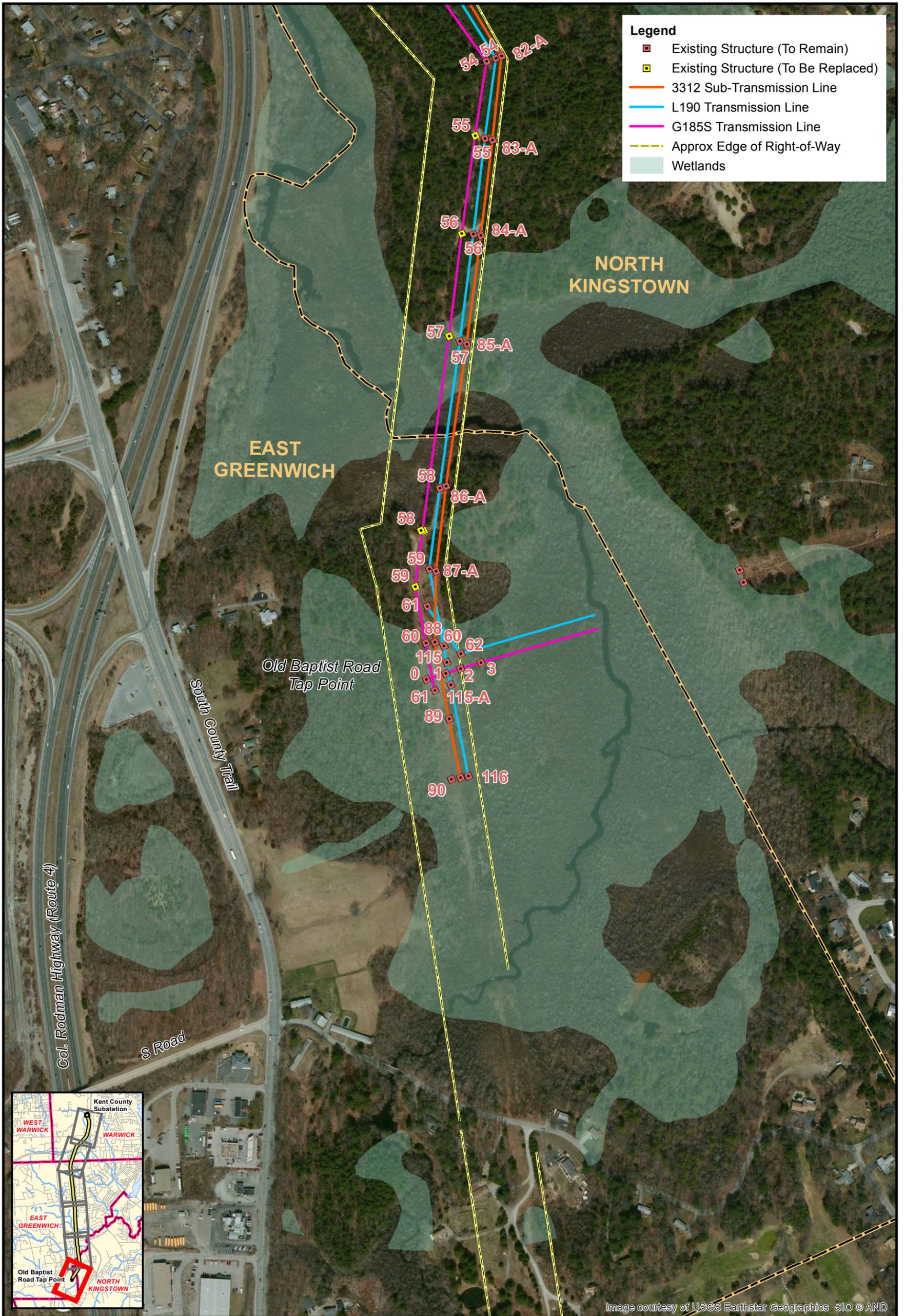
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment  
Figure 3-1 (Sheet 5 of 6)**

Source:  
Bing Aerial Maps (2013)  
RIGIS Wetlands (1993)

**nationalgrid**

VHB Yanasse Hangen Brustlin, Inc.

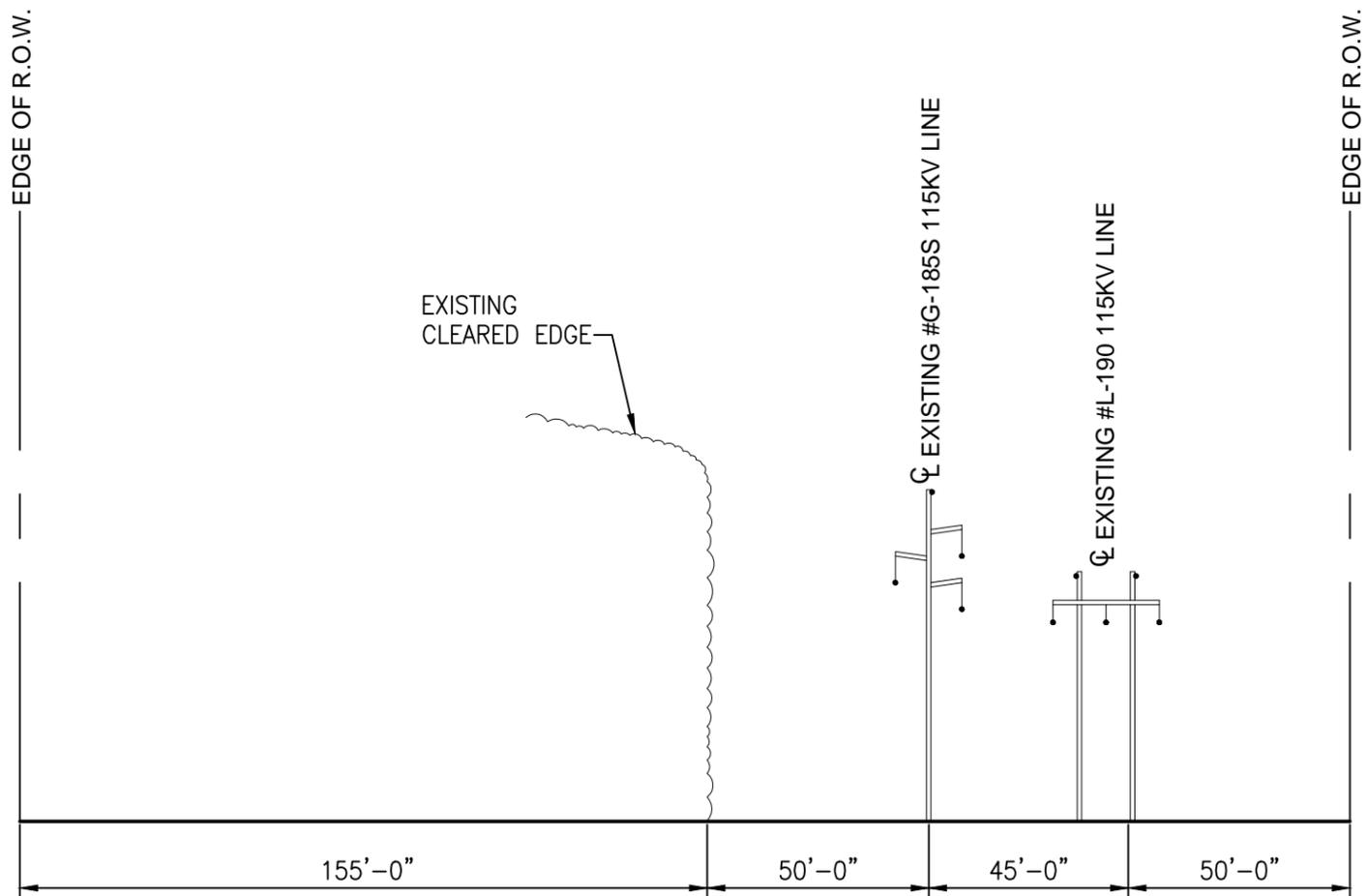


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment  
Figure 3-1 (Sheet 6 of 6)**

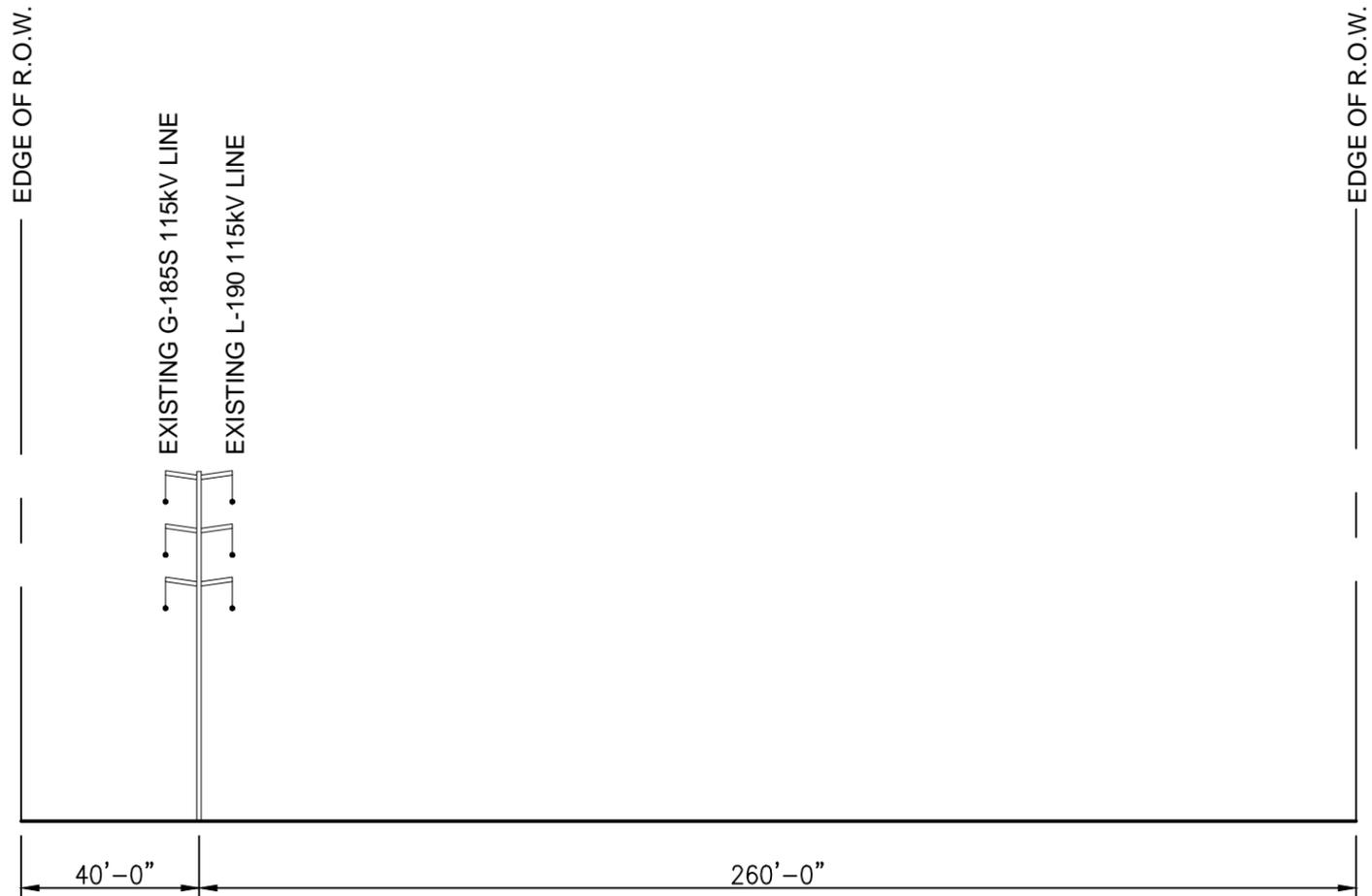
Source:  
Bing Aerial Maps (2013)  
RIGIS Wetlands (1993)

**nationalgrid**  
Yanase Hangen Brustlin, Inc.



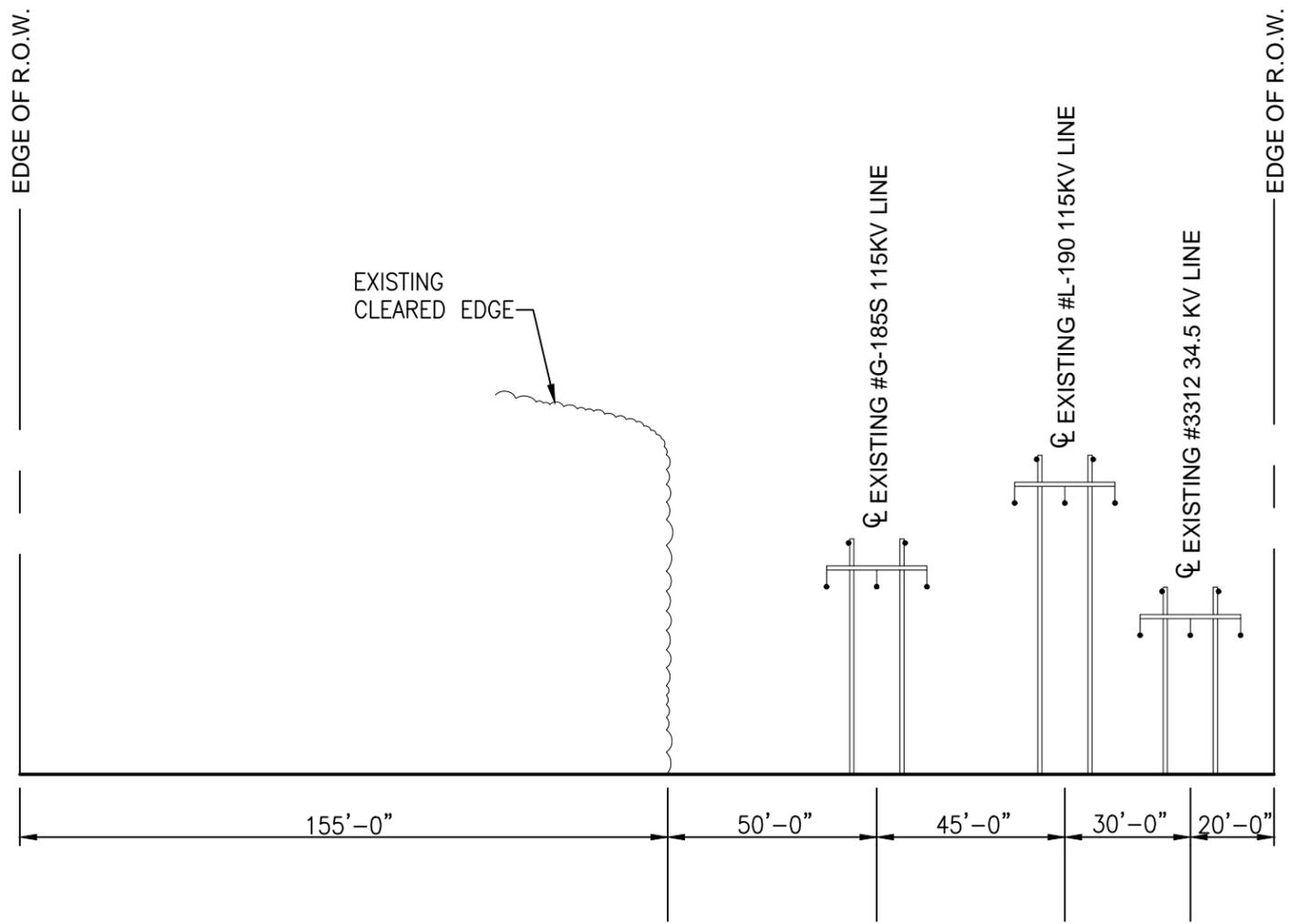
300' RIGHT-OF-WAY  
CROSS-SECTION SHOWING TYPICAL ARRANGEMENT OF LINES  
BETWEEN KENT COUNTY SUBSTATION AND INTERSTATE 95  
 FACING NORTH

Scale  NTS	<b>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</b> <b>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</b>  ROW Cross Section Kent County Substation to Interstate 95 Figure 3-2	Source: National Grid (2013)   
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300' RIGHT-OF-WAY  
CROSS-SECTION SHOWING TYPICAL ARRANGEMENT OF LINES  
BETWEEN INTERSTATE 95 AND FRENCHTOWN ROAD  
 FACING NORTH

Scale  NTS	<b>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</b> <b>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</b>  ROW Cross Section-I-95 to Frenchtown Road Figure 3-3	Source: National Grid (2013)   
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300'± RIGHT-OF-WAY

**CROSS-SECTION SHOWING TYPICAL ARRANGEMENT OF LINES  
BETWEEN FRENCHTOWN ROAD AND OLD BAPTIST ROAD TAP POINT  
FACING NORTH**

Scale

NTS

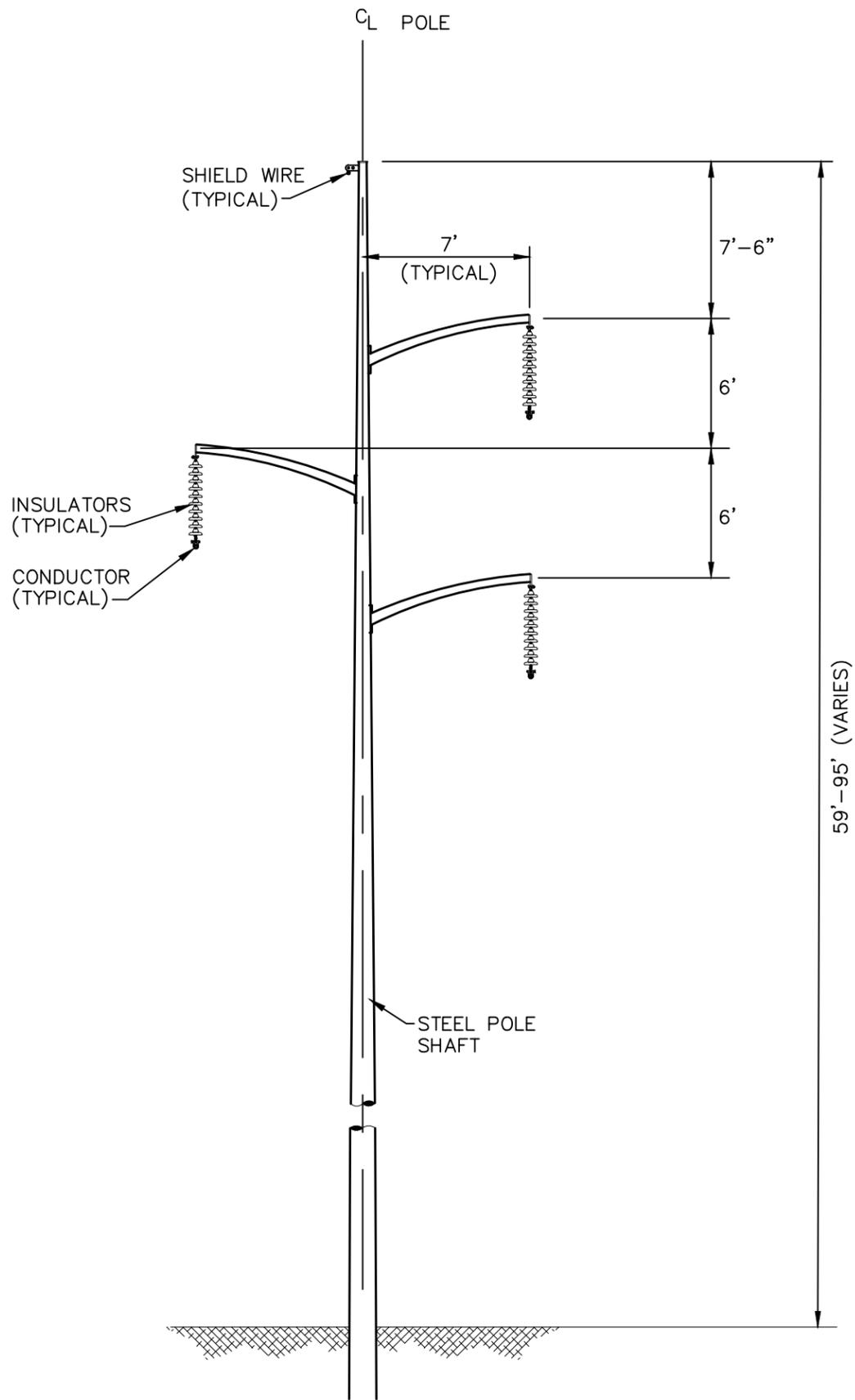
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**ROW Cross Section  
Frenchtown Road to Old Baptist Road Tap Point  
Figure 3-4**

Source:  
National Grid (2013)

**nationalgrid**

Yonkers Hargrett Drustler, Inc.



**TYPICAL STRUCTURE**  
FACING NORTH

Scale

NTS

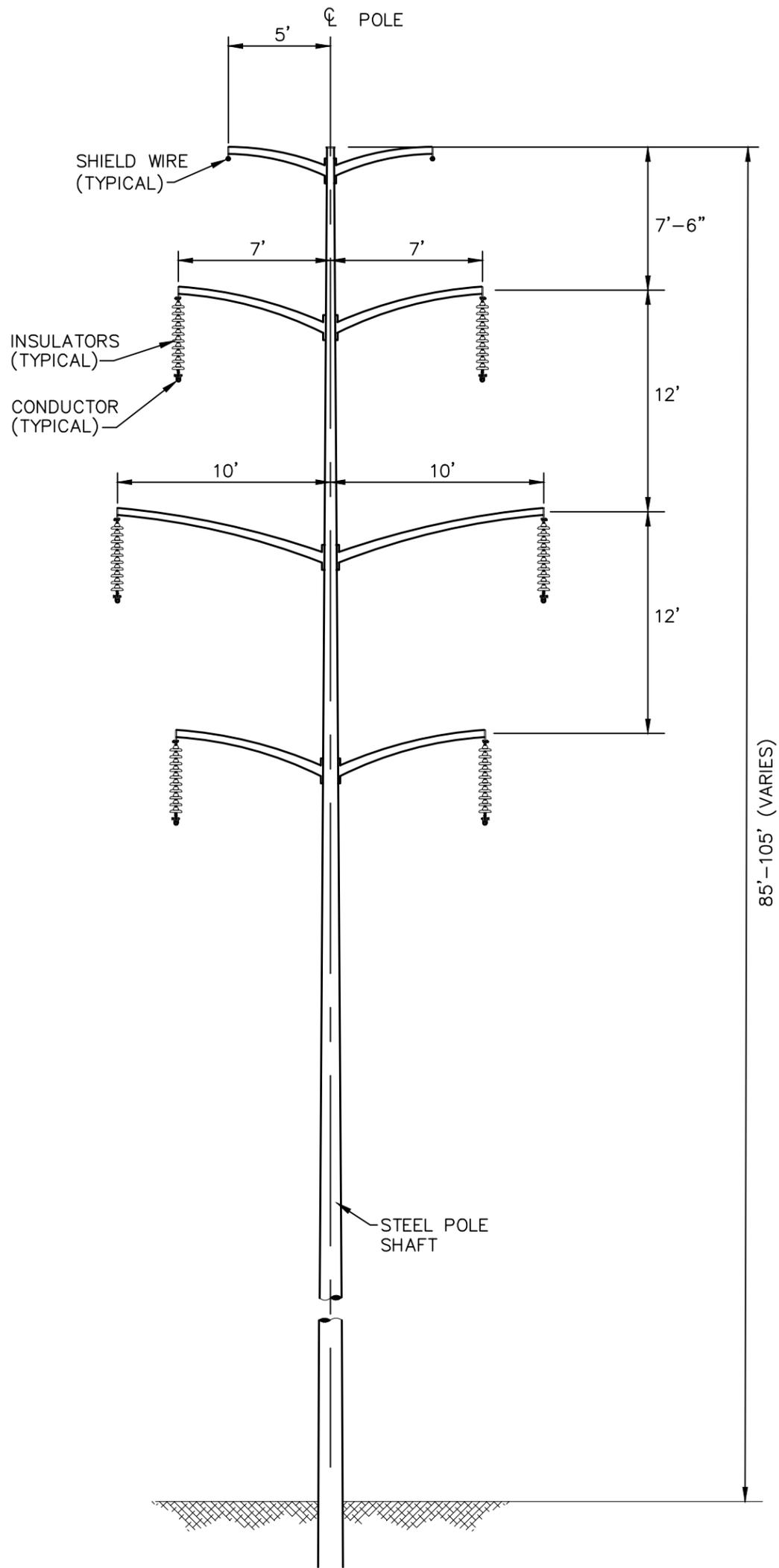
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT**  
**WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Typical Single Circuit Steel Pole**  
**Davit Arm Structure**  
**Figure 3-5**

Source:  
National Grid (2013)

**nationalgrid**

Yoncosse Hoaggen Brasfield, Inc.



Scale  
  
NTS

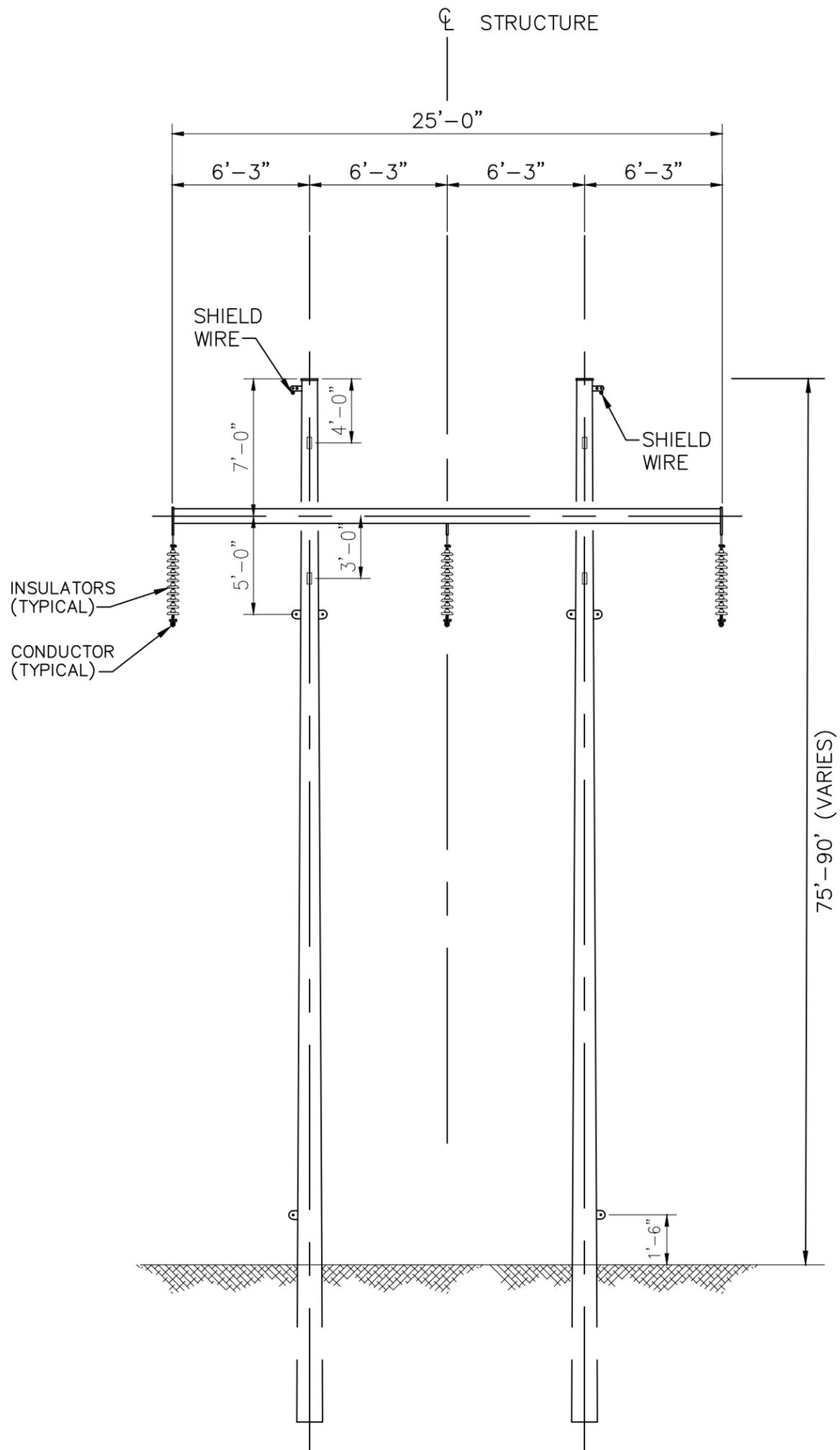
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Typical Double Circuit Steel Pole  
Davit Arm Structure  
Figure 3-6**

Source:  
National Grid (2013)

**nationalgrid**

Yonkers Hargrett Brastoff, Inc.



Scale

NTS

**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Typical Single Circuit H-Frame Structure  
Figure 3-7**

Source:  
National Grid (2013)

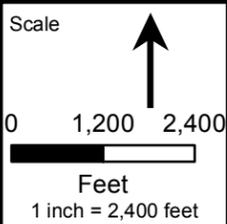
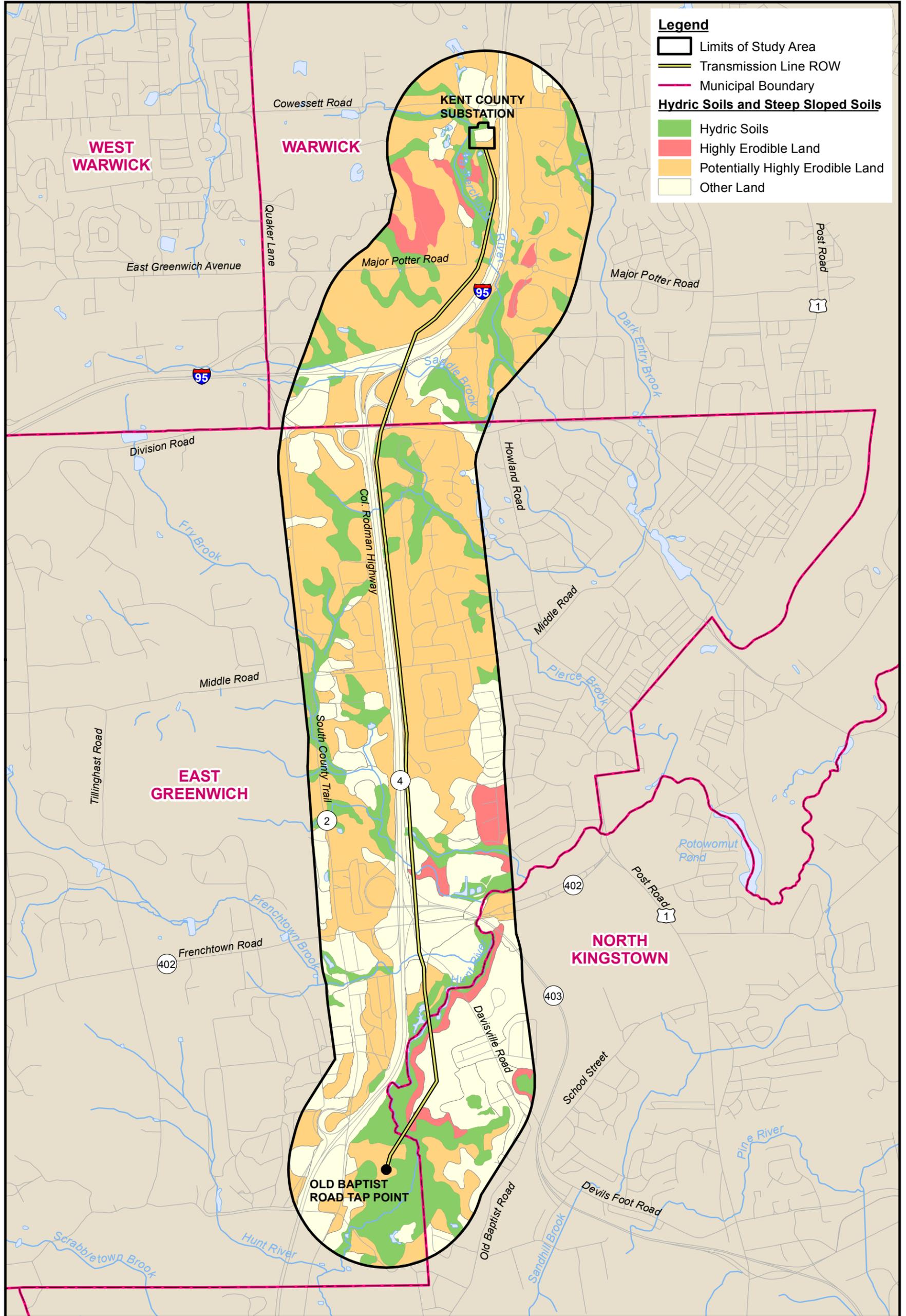
**nationalgrid**

Yonkers Hargrett, Inc.

Activity	2013				2014				2015			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Preliminary Engineering	█											
Licensing and Permitting			█									
Engineering			█									
Procurement				█								
Construction									█			

Scale	<b>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</b> <b>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</b>	Source: National Grid (2013)
NTS	<b>Project Schedule</b> <b>Figure 3-8</b>	 





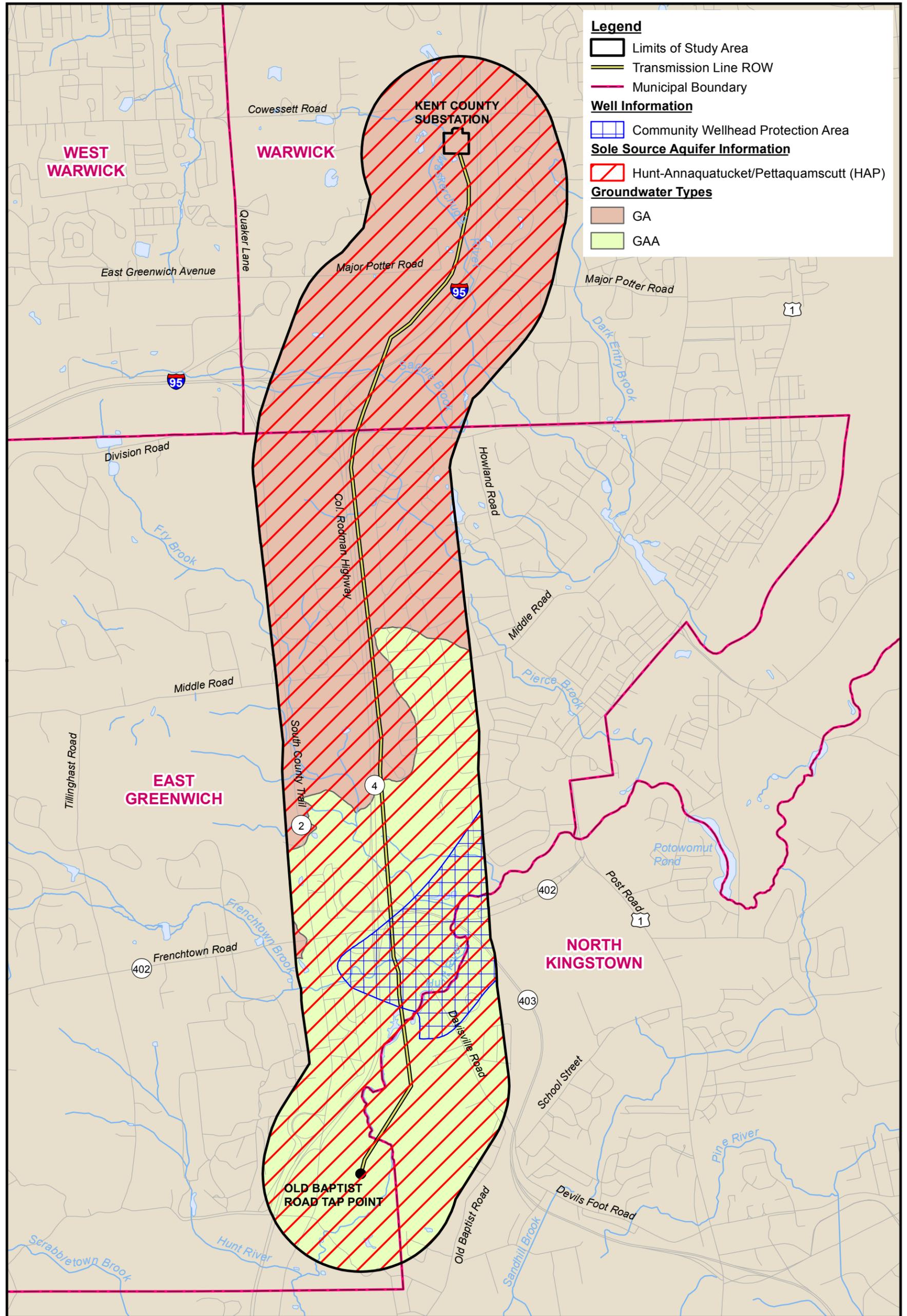
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Soils Plan  
Figure 5-2**

Source:  
RIGIS Soils Data (2013)

**nationalgrid**

**VHB** Vanasse Hangen Brustlin, Inc.



**Legend**

- Limits of Study Area
- Transmission Line ROW
- Municipal Boundary

**Well Information**

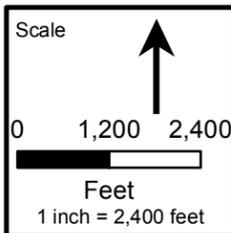
- Community Wellhead Protection Area

**Sole Source Aquifer Information**

- Hunt-Annaquatucket/Pettaquamscutt (HAP)

**Groundwater Types**

- GA
- GAA



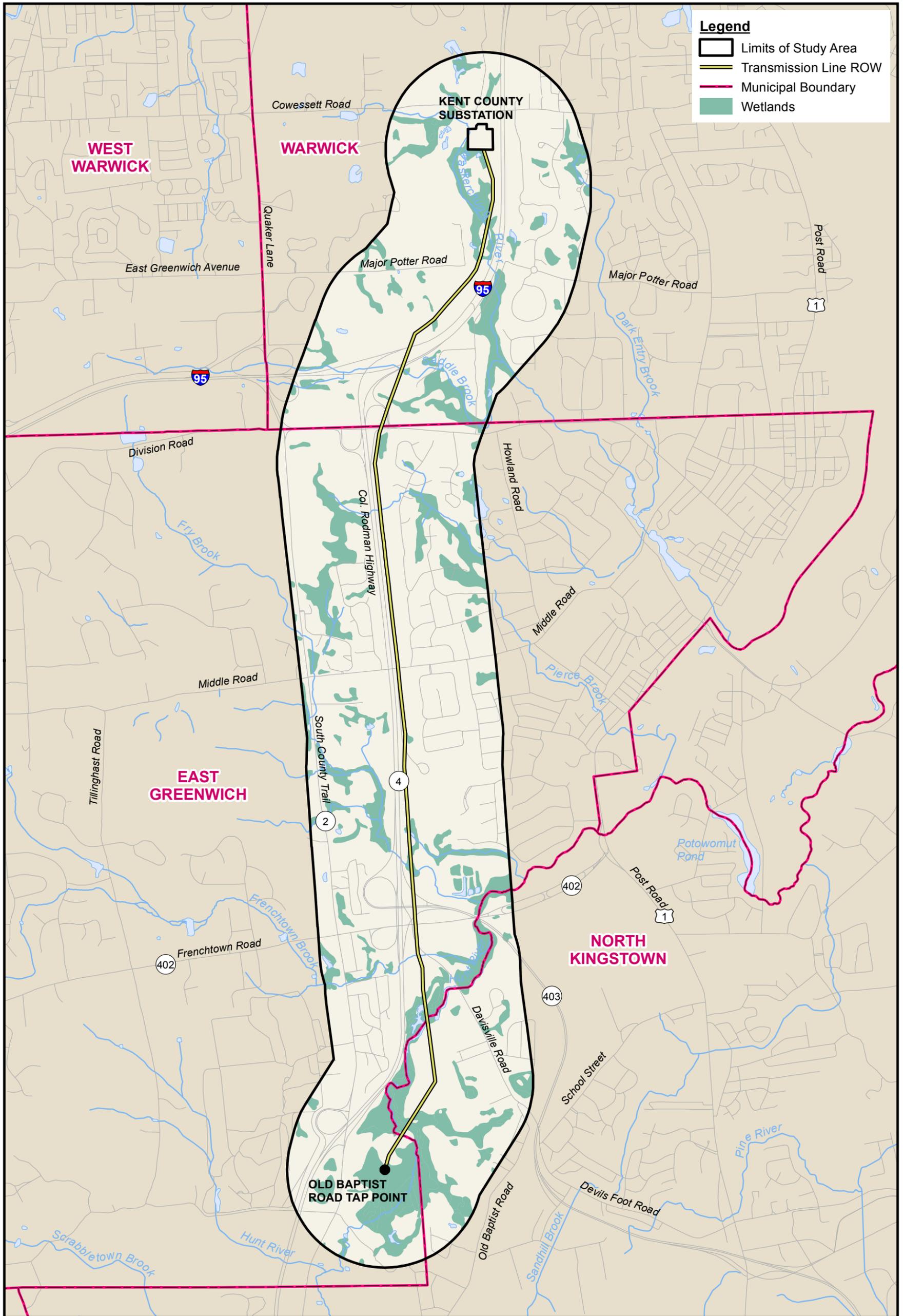
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Surface and Groundwater Resources Plan**

**Figure 5-3**

Source:  
RIGIS Wellhead Data (March 2012)  
RIGIS Aquifer Data (September 2011)  
RIGIS Groundwater Data (March 2012)





**Legend**

- Limits of Study Area
- Transmission Line ROW
- Municipal Boundary
- Wetlands

Scale

0 1,200 2,400

Feet

1 inch = 2,400 feet

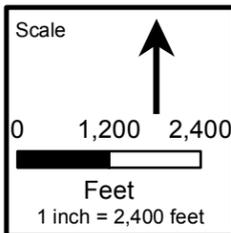
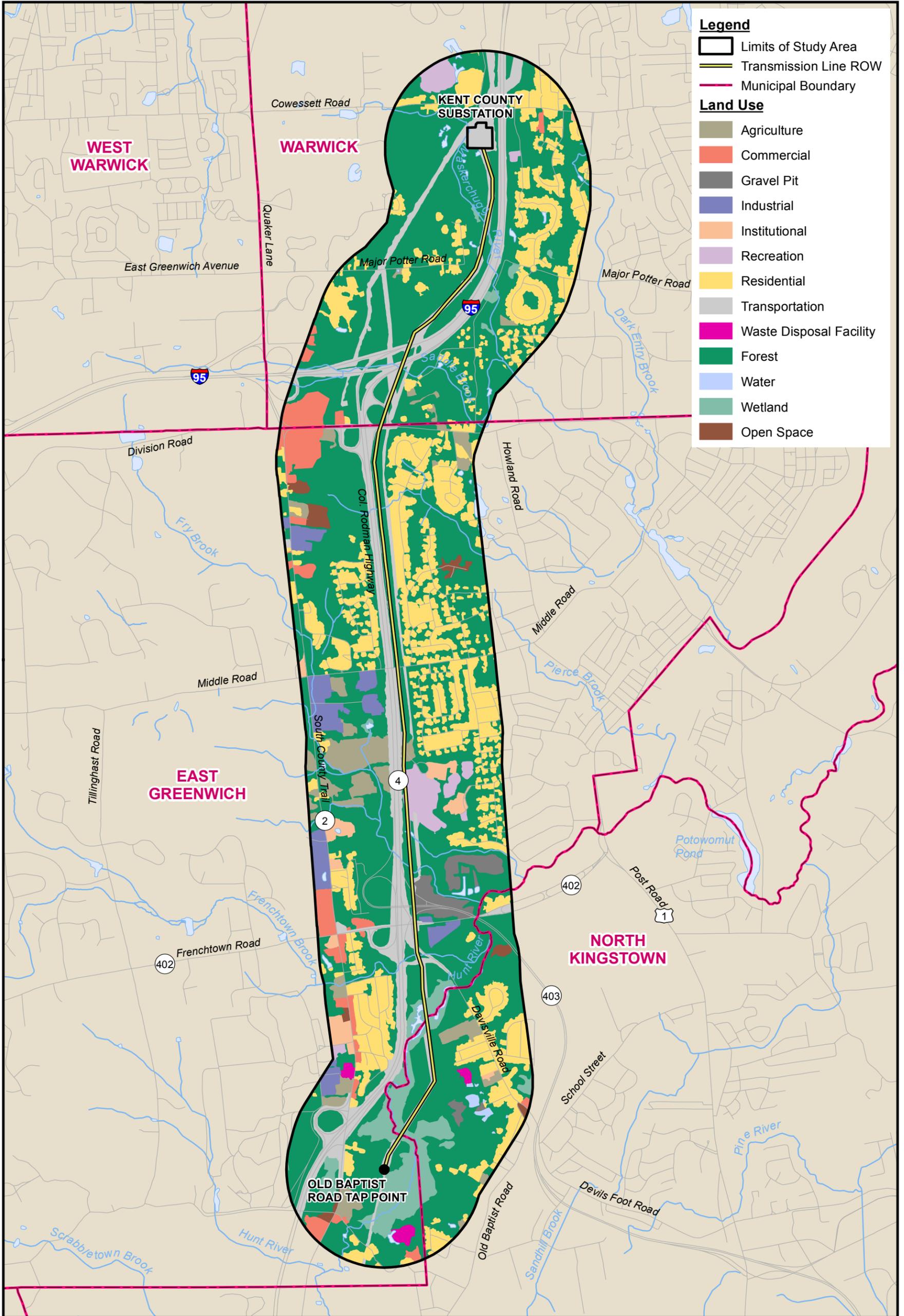
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Wetland Plan  
Figure 5-4**

Source:  
RIGIS (1993)

**nationalgrid**

**VHB** Yvanisse Hangen Brustlin, Inc.

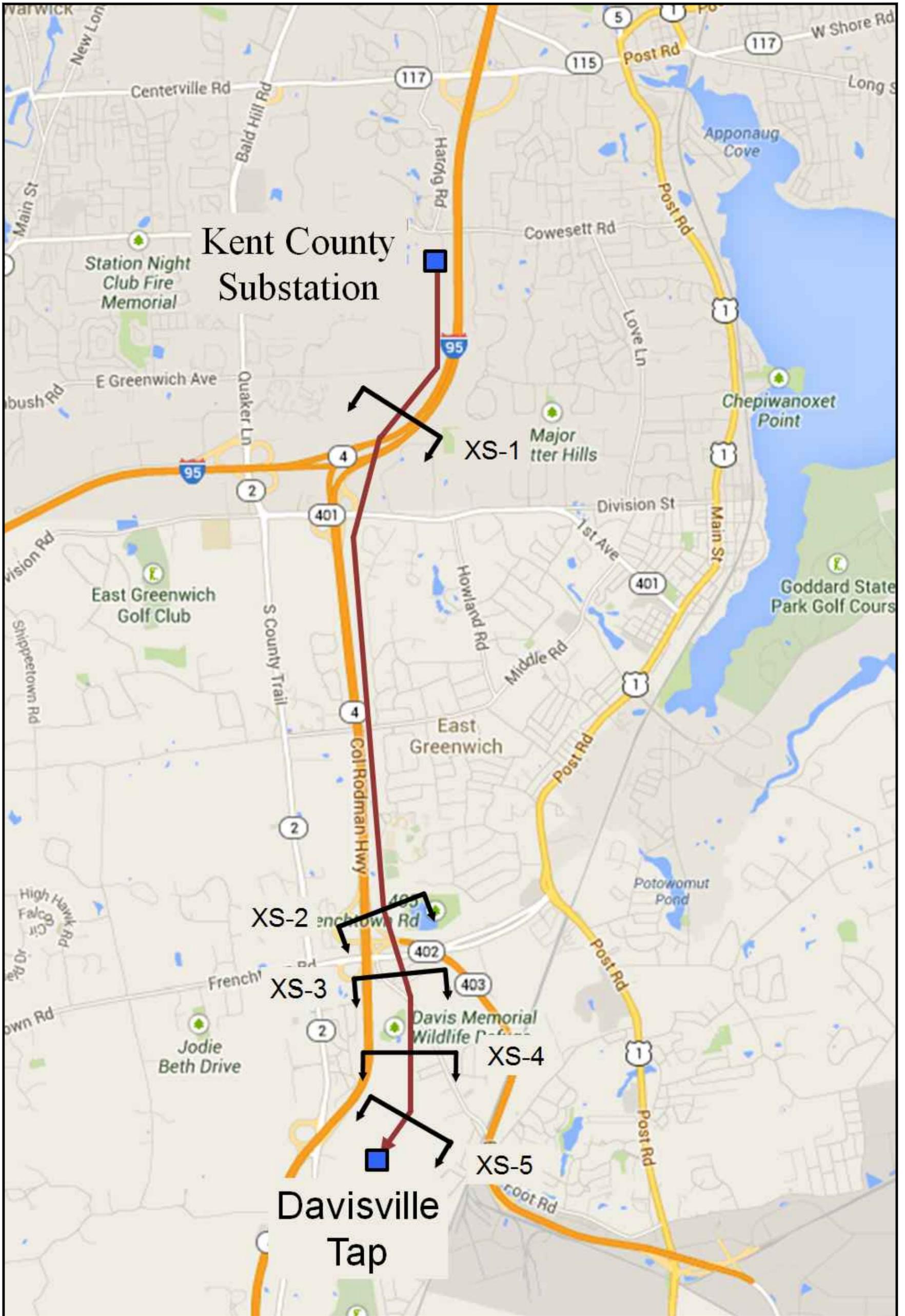


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT  
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Land Use Plan  
Figure 6-1**

Source:  
RIGIS Land Use Data (2003/2004)





<p>Scale</p> <p>NTS</p>	<p><b>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</b>  <b>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</b></p> <p><b>EMF Modeling Cross Sections</b>  <b>Figure 6-2</b></p>	<p>Source: Exponent (2013)</p> <p><b>nationalgrid</b>  <small>Vermont Hazardous Drusts, Inc.</small></p>
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