CROFTON
Diving Corporation 16 Harper Ave - Portsmouth, VA 23707 (757) 397-1131 ph or (757) 397-8693 fax
Since 1949

T/L No. 224 Strs. No. 53-58, 182-184, 228-232 LANEXA-NORTHERN NECK
T/L 224

RAPPAHANNOCK RIVER CROSSING
MATTAPONI RIVER CROSSING
PAMUNKEY RIVER CROSSING

INSPECTION FINDINGS

Introduction

Towers within the Line 224 inspection requirements this year run from the Rappahannock River to the North, Crossing the Pamunkey and Mattaponi Rivers to the south. The final report for Line 224 will indicate several towers that require further investigation and rehabilitation efforts.

Overall Summary

Rappahannock River Crossing: Strs. 53-58
The structures crossing the Rappahannock River near Tappahannock, VA seemed to have stabilized with the recent repairs however Tower 58 onshore to the south (neither previously inspected nor rehabilitated) exhibits 100% loss of section to structural steel pile flanges beneath the concrete cap.

Mattaponi River Crossing: Strs. 182-184
These structures exhibit minor loss of steel section but heavy cracking and efflorescence at the concrete caps.

Pamunkey River Crossing: Strs. 228-232
These structures exhibit some of the same concrete cap degradation indicated above in addition to loss of steel section to the supporting piles beneath. Towers 228 through 231 all exhibit 100% loss of steel section to structural steel pile flanges.

Recommendations

Near immediate rehabilitation efforts are recommended for towers 58 and 228 through 231. It is apparent that each of these structures requires structural rehabilitation and protection of the structural members from further corrosion.

Further investigation is recommended for structures 182-184 that exhibit extensive cracking to the concrete foundation caps.

LEVEL I
FOUNDATION INSPECTION FORM

TOWER LINE/STRUCTURE #: 224/182 **DATE OF INSPECTION:** 9-28-2014

SITE CONDITIONS MARSH OPEN WATER FRESH/SALT WATER TIDAL 11:10 (Record Time)
WATER DEPTH 1"

FOUNDATION COMPOSITION
WOOD STEEL CONCRETE STEEL PILE SUPPORTED CONCRETE CAP

FOUNDATION INVENTORY
NUMBER OF FOUNDATIONS 4
NUMBER OF SUPPORT PILES PER FOUNDATION 3
PILE ENCAPSULATIONS YES NO TYPE

TOWER PHOTOGRAPH (INCLUDE IN FINAL REPORT)

OVERALL CONDITION OF FOUNDATION GOOD FAIR POOR
NOTES:
1/2" CRACK ON UNDERSIDE OF FOUNDATION 4 CAP

LEVEL I

FOUNDATION INSPECTION FORM

FOUNDATION DESCRIPTION: 3 STEEL H PILES UNDER A CONCRETE CAP

FOUNDATION EVALUATIONS

FOUNDATION 1:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

39" CAP TO MUD LINE. 1" WATER DEPTH.

FOUNDATION 2:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

36" CAP TO MUD LINE. NO WATER RIGHT NOW.

FOUNDATION 3:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

36" CAP TO MUD LINE. NO WATER RIGHT NOW.

FOUNDATION 4:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

38" CAP TO MUD LINE. 4" WATER DEPTH.

ENCAPSULATION DIMENSIONS

	FOUNDATION 1-DISTANCES		FOUNDATION 2-DISTANCES		FOUNDATION 3-DISTANCES		FOUNDATION 4-DISTANCES	
PILE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE
A								
B								
C								
D								

STEEL H-PILE INSPECTION

MATTAPONI RIVER

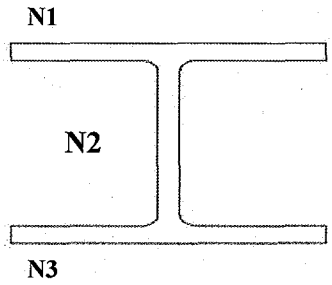
DATE INSPECTED
9-28-2014

TOWER NO. 224/182

FOUNDATION & PILE NO.	RECORDED MEASUREMENTS					
	NDT MEASUREMENT			DISTANCE FROM CAP		
	N1	N2	N3	N1	N2	N3
1A						
1B	0.610	0.610	0.550	41"	41"	41"
1C						
1D						
2A						
2B	0.555	0.610	0.620	38"	38"	38"
2C						
2D						
3A	0.640	0.620	0.630	39"	39"	39"
3B						
3C						
3D						
4A	0.620	0.605	0.550	37"	37"	37'
4B						
4C						
4D						

COMMENTS:

ALL NDT READINGS TAKEN AT OR BELOW MUD LINE.



CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/182 LEG # 1

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☐ **SATISFACTORY**
- ☑ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
EAST SIDE 1/4" CRACK AT BASE TO 1/8" CRACK AT TOP OF CAP
1/4" CRACK ON BOTTOM OF CAP FROM NORTH WEST TO SOUTH EAST SIDES OF CAP. STOPS AT PILE B.

INSPECTED BY: CURTIS WADE **DATE:** 9-28-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/182 LEG # 2

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☐ **SATISFACTORY**
- ☑ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
EAST FACE TWO 1/2" CRACKS AT BASE UP TO 1/8" CRACK AT TOP OF CAP
SOUTH WEST CORNER SPALL 7"W x 4"H x 1/2"D

INSPECTED BY: CURTIS WADE **DATE:** 9-28-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/182 LEG # 3

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☐ **SATISFACTORY**
- ☑ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST

1/16" TO 1/8" MAP CRACKING WITH HEAVY EFFLORESCENCE

1/4" CRACK ON BOTTOM OF CAP ON SOUTH SIDE TO PILE B WITH EFFLORESCENCE

INSPECTED BY: CURTIS WADE **DATE:** 9-28-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/182 LEG # 4

1.) GENERAL CONDITION OF THE CONCRETE FOUNDATION:

- ☐ GOOD
- ☐ SATISFACTORY
- ☑ POOR

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) SURFACE DEFECTS:

- ☐ SPALLING / SCALING
- ☐ POPOUTS
- ☑ CRACKS ≤ 1/16" WIDE
- ☑ CRACKS ≥ 1/16" TO ¼" WIDE
- ☐ SHRINKAGE CRACKS
- ☑ EFFLORESCENCE
- ☐ EVIDENCE OF ALKALI – AGGREGRATE REACTION
- ☐ EXPOSED REINFORCEMENT / CORROSION
- ☐ VISIBLE DAMAGE

3.) COMMENTS:

RUNNING RUST.

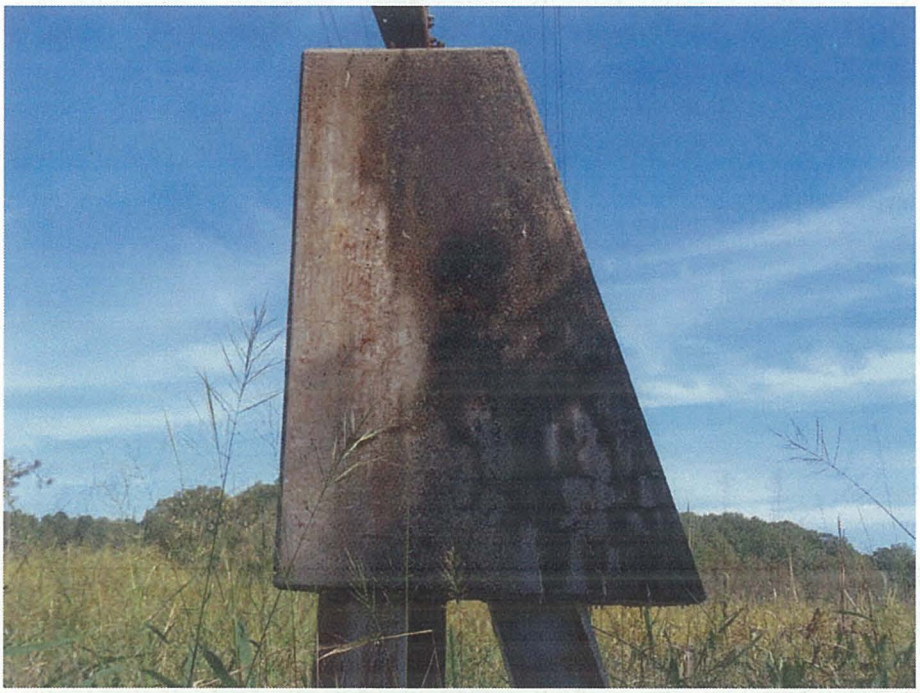
1/16" TO 1/2" CRACKS AND 1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
SOUTH FACE 1/4" CRACK AT BASE TO 1/8" CRACK AT TOP OF CAP.
1/2" CRACK ON BOTTOM OF CAP ON NORTH SIDE OF PILE B WITH RUST STAINS

INSPECTED BY: CURTIS WADE DATE: 9-28-2014

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 182

CROFTON Diving Corporation Since 1949

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 182



FOUNDATION 1

FOUNDATION 1

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 182

FOUNDATION 2

FOUNDATION 2

CROFTON
Diving Corporation
Since 1949

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 182

FOUNDATION 3

FOUNDATION 3

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 182

FOUNDATION 4

FOUNDATION 4

LEVEL I
FOUNDATION INSPECTION FORM

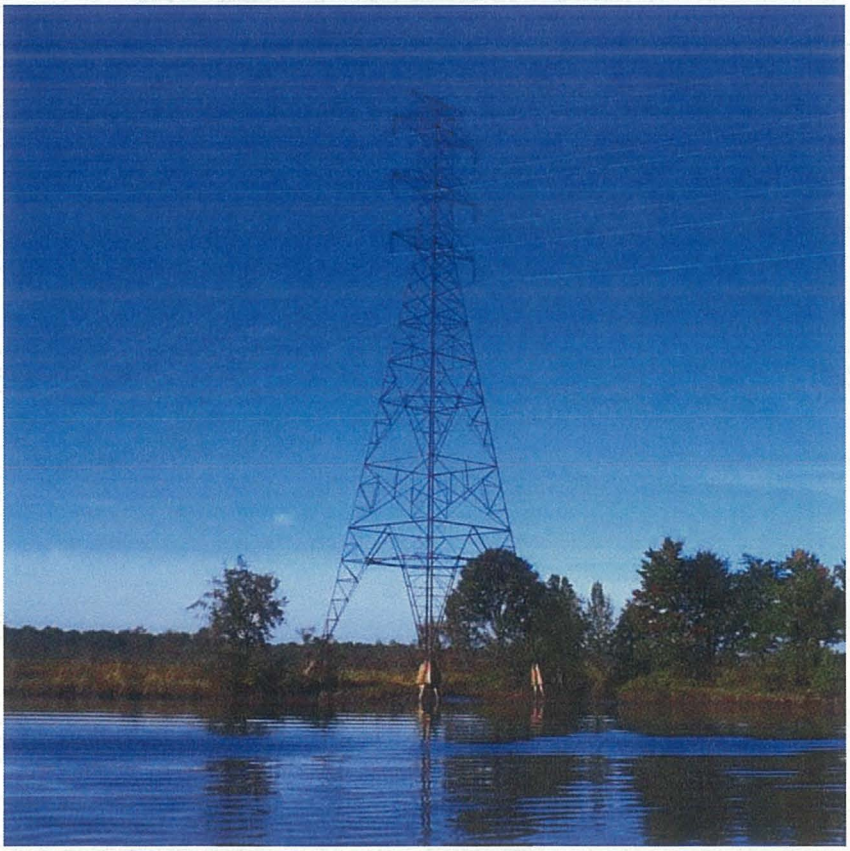
TOWER LINE/STRUCTURE #: 224/183 **DATE OF INSPECTION:** 9-28-2014

SITE CONDITIONS MARSH OPEN WATER FRESH/SALT WATER TIDAL 09:05 (Record Time)
WATER DEPTH 0"

FOUNDATION COMPOSITION
WOOD STEEL CONCRETE STEEL PILE SUPPORTED CONCRETE CAP

FOUNDATION INVENTORY
NUMBER OF FOUNDATIONS 4
NUMBER OF SUPPORT PILES PER FOUNDATION 3
PILE ENCAPSULATIONS YES NO TYPE

TOWER PHOTOGRAPH (INCLUDE IN FINAL REPORT)



OVERALL CONDITION OF FOUNDATION GOOD FAIR POOR
NOTES:

LEVEL I

FOUNDATION INSPECTION FORM

FOUNDATION DESCRIPTION: 3 STEEL H PILES UNDER A CONCRETE CAP

FOUNDATION EVALUATIONS

FOUNDATION 1:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

56" CAP TO MUD LINE. NO WATER RIGHT NOW.

FOUNDATION 2:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

44" CAP TO MUD LINE. NO WATER RIGHT NOW.

FOUNDATION 3:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

41" CAP TO MUD LINE. NO WATER RIGHT NOW.

FOUNDATION 4:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

45" CAP TO MUD LINE. NO WATER RIGHT NOW.

ENCAPSULATION DIMENSIONS

	FOUNDATION 1-DISTANCES		FOUNDATION 2-DISTANCES		FOUNDATION 3-DISTANCES		FOUNDATION 4-DISTANCES	
	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE
PILE	A		A		A		A	
	B		B		B		B	
	C		C		C		C	
	D		D		D		D	

STEEL H-PILE INSPECTION

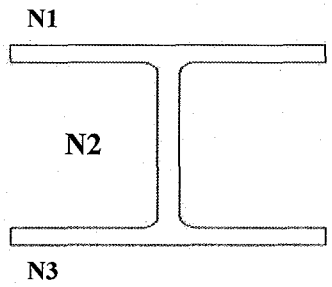
MATTAPONI RIVER

DATE INSPECTED
9-28-2014

TOWER NO.	FOUNDATION & PILE NO.	RECORDED MEASUREMENTS					
		NDT MEASUREMENT			DISTANCE FROM CAP		
224/183		N1	N2	N3	N1	N2	N3
	1A						
	1B	0.645	0.605	0.540	56"	56"	56"
	1C						
	1D						
	2A						
	2B						
	2C	0.620	0.595	0.610	46"	46"	46"
	2D						
	3A						
	3B						
	3C	0.630	0.615	0.565	43"	43"	43"
	3D						
	4A	0.585	0.605	0.565	47"	47"	47'
	4B						
	4C						
	4D						

COMMENTS:

ALL NDT READINGS TAKEN AT OR BELOW MUD LINE.



CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/183 LEG # 1

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☑ **SATISFACTORY**
- ☐ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE

INSPECTED BY: CURTIS WADE **DATE:** 9-28-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/183 LEG # 2

1.) GENERAL CONDITION OF THE CONCRETE FOUNDATION:

- ☐ GOOD
- ☑ SATISFACTORY
- ☐ POOR

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) SURFACE DEFECTS:

- ☐ SPALLING / SCALING
- ☐ POPOUTS
- ☑ CRACKS ≤ 1/16" WIDE
- ☑ CRACKS ≥ 1/16" TO ¼" WIDE
- ☐ SHRINKAGE CRACKS
- ☑ EFFLORESCENCE
- ☐ EVIDENCE OF ALKALI – AGGREGRATE REACTION
- ☐ EXPOSED REINFORCEMENT / CORROSION
- ☐ VISIBLE DAMAGE

3.) COMMENTS:

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
EAST FACE 1/4" CRACK AT BASE UP TO 1/16" MAP CRACKING WITH EFFLORESCENCE

INSPECTED BY: CURTIS WADE DATE: 9-28-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/183 LEG # 3

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☑ **SATISFACTORY**
- ☐ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE

INSPECTED BY: CURTIS WADE **DATE:** 9-28-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/183 LEG # 4

1.) GENERAL CONDITION OF THE CONCRETE FOUNDATION:

- ☐ GOOD
- ☑ SATISFACTORY
- ☐ POOR

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) SURFACE DEFECTS:

- ☐ SPALLING / SCALING
- ☐ POPOUTS
- ☑ CRACKS ≤ 1/16" WIDE
- ☑ CRACKS ≥ 1/16" TO ¼" WIDE
- ☐ SHRINKAGE CRACKS
- ☑ EFFLORESCENCE
- ☐ EVIDENCE OF ALKALI – AGGREGRATE REACTION
- ☐ EXPOSED REINFORCEMENT / CORROSION
- ☐ VISIBLE DAMAGE

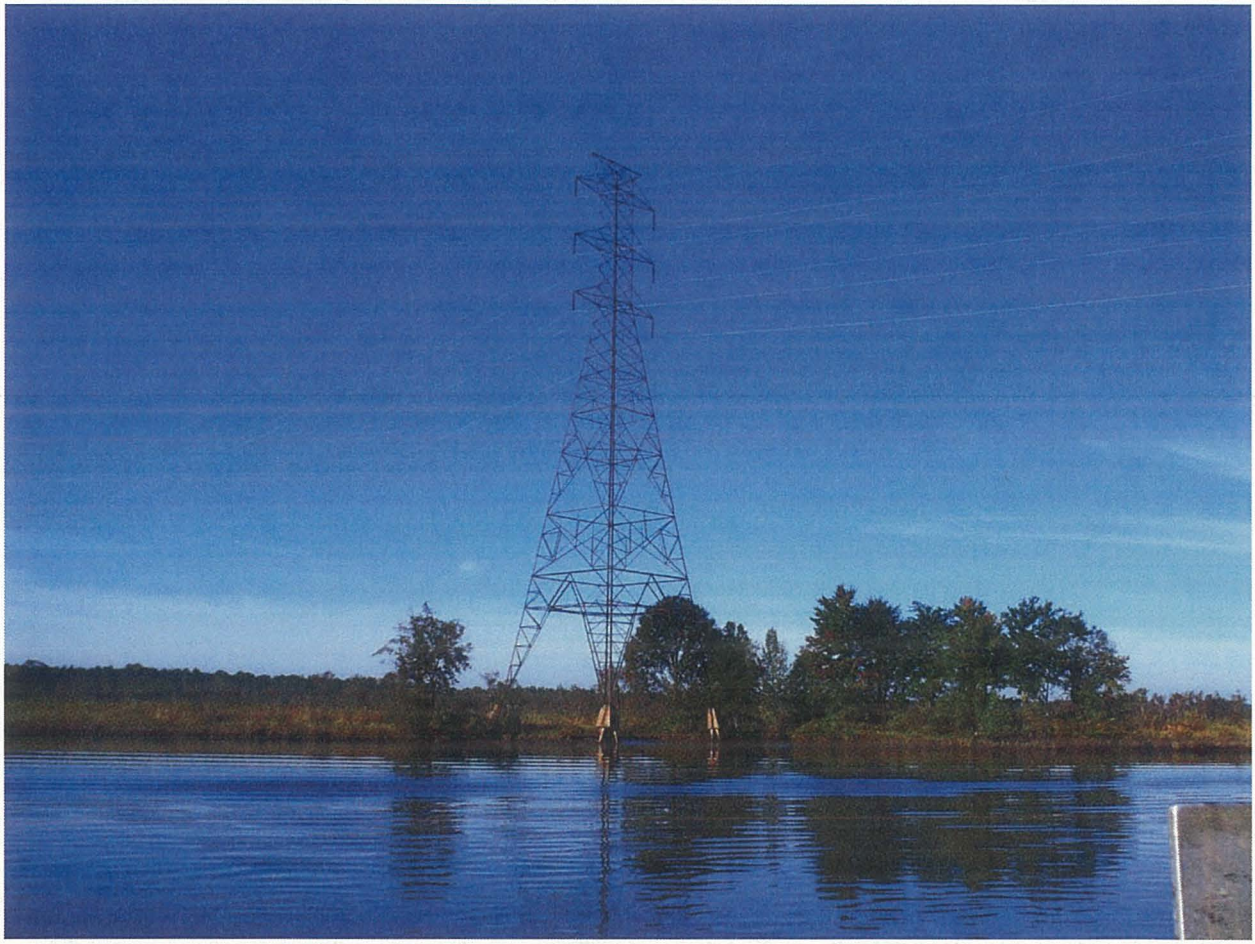
3.) COMMENTS:

RUNNING RUST.

HAIR LINE TO 1/16" MAP CRACKING WITH EFFLORESCENCE

INSPECTED BY: CURTIS WADE DATE: 9-28-2014

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 183



STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 183

FOUNDATION 1

FOUNDATION 1

CROFTON Diving Corporation Since 1949

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 183

FOUNDATION 2

FOUNDATION 2

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 183

FOUNDATION 3

FOUNDATION 3

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 183

FOUNDATION 4

FOUNDATION 4

LEVEL I
FOUNDATION INSPECTION FORM

TOWER LINE/STRUCTURE #: 224/184 **DATE OF INSPECTION:** 9-14-2014

SITE CONDITIONS MARSH OPEN WATER FRESH/SALT WATER TIDAL 14:30 (Record Time)
WATER DEPTH 68"

FOUNDATION COMPOSITION
WOOD STEEL CONCRETE STEEL PILE SUPPORTED CONCRETE CAP

FOUNDATION INVENTORY
NUMBER OF FOUNDATIONS 4
NUMBER OF SUPPORT PILES PER FOUNDATION 3
PILE ENCAPSULATIONS YES NO TYPE

TOWER PHOTOGRAPH (INCLUDE IN FINAL REPORT)

OVERALL CONDITION OF FOUNDATION GOOD FAIR POOR
NOTES:
SOUNDING IS DULL ON BOTTOM OF WEST FACE.

LEVEL I

FOUNDATION INSPECTION FORM

FOUNDATION DESCRIPTION: 3 STEEL H PILES UNDER A CONCRETE CAP

FOUNDATION EVALUATIONS

FOUNDATION 1:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

51" CAP TO MUD LINE. 23" WATER DEPTH.

FOUNDATION 2:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

92" CAP TO MUD LINE. 68" WATER DEPTH

FOUNDATION 3:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

30" CAP TO MUD LINE. 6" WATER DEPTH

FOUNDATION 4:

LOSS OF SECTION/PILE		RUNNING RUST/PILE		IMPACT DAMAGE/PILE		ENCAPSULATION/PILE	
NONE	A B C D	NONE	A B C D	NONE	A B C D	MISSING	A B C D
MINOR	A B C D	MINOR	A B C D	MINOR	A B C D	CRACKED	A B C D
MODERATE	A B C D	MODERATE	A B C D	MODERATE	A B C D	OVERALL LENGTH	
SEVERE	A B C D	SEVERE	A B C D	SEVERE	A B C D		

COMMENTS

62" CAP TO MUD LINE. 41" WATER DEPTH.

ENCAPSULATION DIMENSIONS

	FOUNDATION 1-DISTANCES		FOUNDATION 2-DISTANCES		FOUNDATION 3-DISTANCES		FOUNDATION 4-DISTANCES	
	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE	FROM CAP	**FROM MUDLINE
PILE A								
B								
C								
D								

STEEL H-PILE INSPECTION

MATTAPONI RIVER

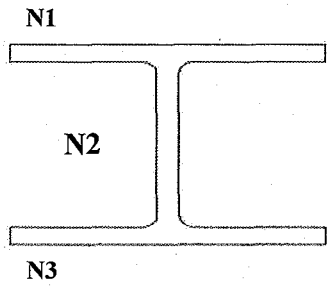
DATE INSPECTED
9-14-2014

TOWER NO. 224/184

FOUNDATION & PILE NO.	RECORDED MEASUREMENTS					
	NDT MEASUREMENT			DISTANCE FROM CAP		
	N1	N2	N3	N1	N2	N3
1A	0.605	0.605	0.570	29"	29"	29"
1B						
1C						
1D						
2A						
2B	0.620	0.610	0.575	29"	29"	29"
2C						
2D						
3A	0.605	0.615	0.590	24"	24"	24"
3B						
3C						
3D						
4A						
4B						
4C	0.615	0.615	0.605	24"	24"	24"
4D						

COMMENTS:

ALL NDT READINGS TAKEN 3" BELOW WATER LINE.



CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/184 LEG # 1

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☐ **SATISFACTORY**
- ☑ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☑ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☑ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE

BOTTOM SPALL OUTSIDE C PILE WITH EXPOSED REBAR 6"L x 3"W x 1"D

INSPECTED BY: MATT TRAHAN **DATE:** 9-14-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/184 LEG # 2

1.) GENERAL CONDITION OF THE CONCRETE FOUNDATION:

- ☐ GOOD
- ☐ SATISFACTORY
- ☑ POOR

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) SURFACE DEFECTS:

- ☑ SPALLING / SCALING
- ☐ POPOUTS
- ☑ CRACKS ≤ 1/16" WIDE
- ☑ CRACKS ≥ 1/16" TO ¼" WIDE
- ☐ SHRINKAGE CRACKS
- ☑ EFFLORESCENCE
- ☐ EVIDENCE OF ALKALI – AGGREGRATE REACTION
- ☐ EXPOSED REINFORCEMENT / CORROSION
- ☐ VISIBLE DAMAGE

3.) COMMENTS:

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
SOUTH FACE 1/2" CRACK AT BASE UP TO 1/16" MAP CRACKING WITH EFFLORESCENCE AT TOP OF CONCRETE CAP
EAST FACE 1/4" CRACK BASE TO 1/16" CRACK AT TOP OF CONCRETE CAP
SOUTH FACE 7 FACE SPALLS 3" DIA x 1/2"D WITH 1/16" CRACKS THROUGH 3 SPALLS

INSPECTED BY: MATT TRAHAN DATE: 9-14-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/184 LEG # 3

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☐ **SATISFACTORY**
- ☑ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

3.) **COMMENTS:**

RUNNING RUST
WEST FACE 3/8" CRACK FROM BASE TO 1/16" CRACK AT TOP OF CONCRETE CAP
SOUNDING IS DULL ON BOTTOM OF WEST FACE
1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
EAST FACE/NORTH EAST CORNER, 19" UP FROM BASE, SPALL 13"H x 8"W X 1.5"D
WITH 4 HAIRLINE CRACKS WITH EFFLORESCENCE THROUGH CENTER
SOUTH FACE 3/8" CRACK FROM BASE TO 1/16" CRACK AT TOP OF CONCRETE CAP

INSPECTED BY: MATT TRAHAN **DATE:** 9-14-2014

CONCRETE FOUNDATION INSPECTION CHECKLIST
STR. # 224/184 LEG # 4

1.) **GENERAL CONDITION OF THE CONCRETE FOUNDATION:**

- ☐ **GOOD**
- ☐ **SATISFACTORY**
- ☑ **POOR**

FND. TO BE SOUNDED TO DETERMINE VOIDS, LAMINATIONS, SOUNDNESS, ETC.

2.) **SURFACE DEFECTS:**

- ☐ **SPALLING / SCALING**
- ☐ **POPOUTS**
- ☑ **CRACKS ≤ 1/16" WIDE**
- ☑ **CRACKS ≥ 1/16" TO ¼" WIDE**
- ☐ **SHRINKAGE CRACKS**
- ☑ **EFFLORESCENCE**
- ☐ **EVIDENCE OF ALKALI – AGGREGRATE REACTION**
- ☐ **EXPOSED REINFORCEMENT / CORROSION**
- ☐ **VISIBLE DAMAGE**

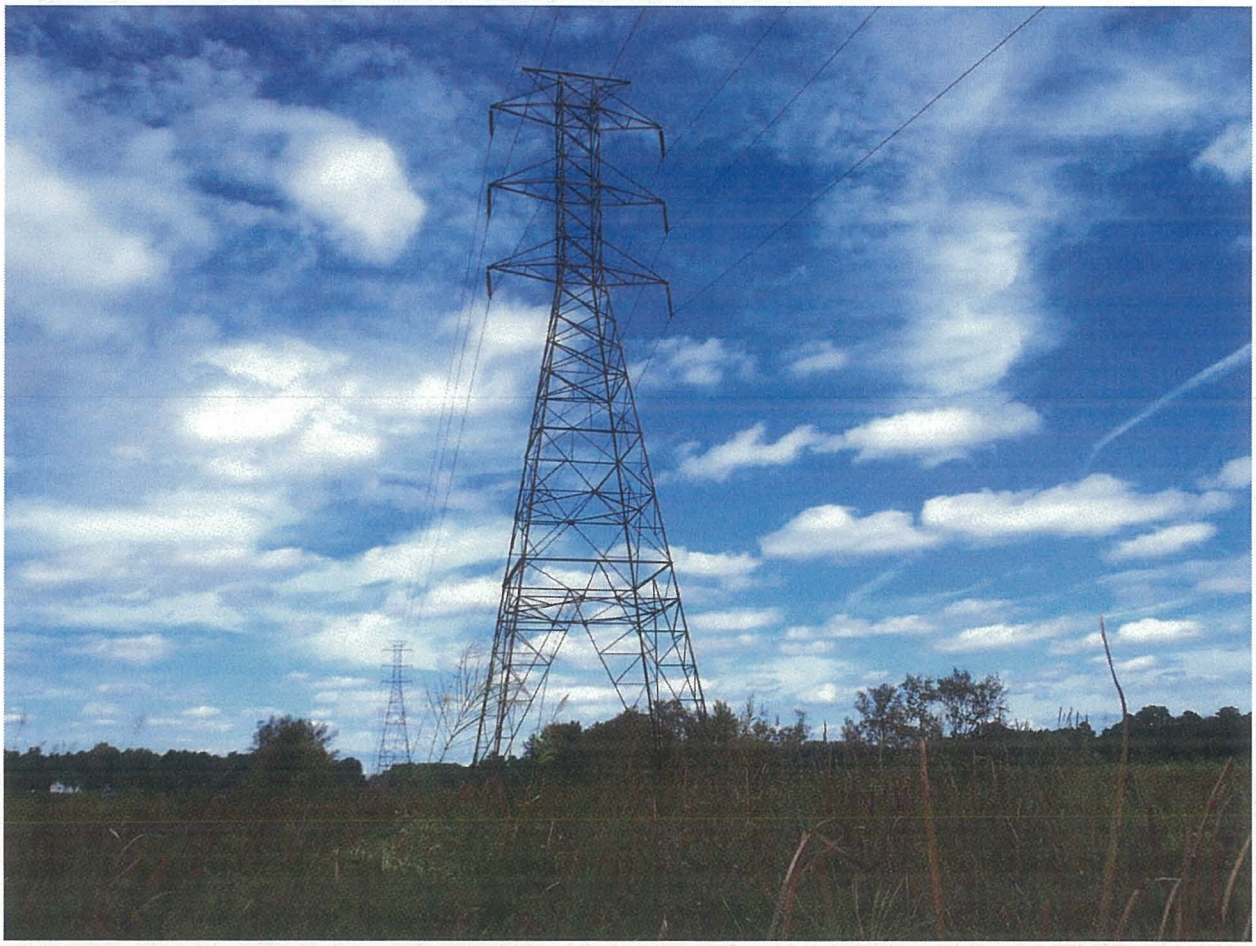
3.) **COMMENTS:**

RUNNING RUST.

1/16" TO 1/8" MAP CRACKING WITH EFFLORESCENCE
NORTH FACE 1/4" CRACK BASE TO 1/16" CRACK AT TOP OF CONCRETE CAP
1/8" HORIZONTAL CRACK 10" BELOW TOP OF CAP ON ALL 4 SIDES.

INSPECTED BY: MATT TRAHAN **DATE:** 9-14-2014

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184



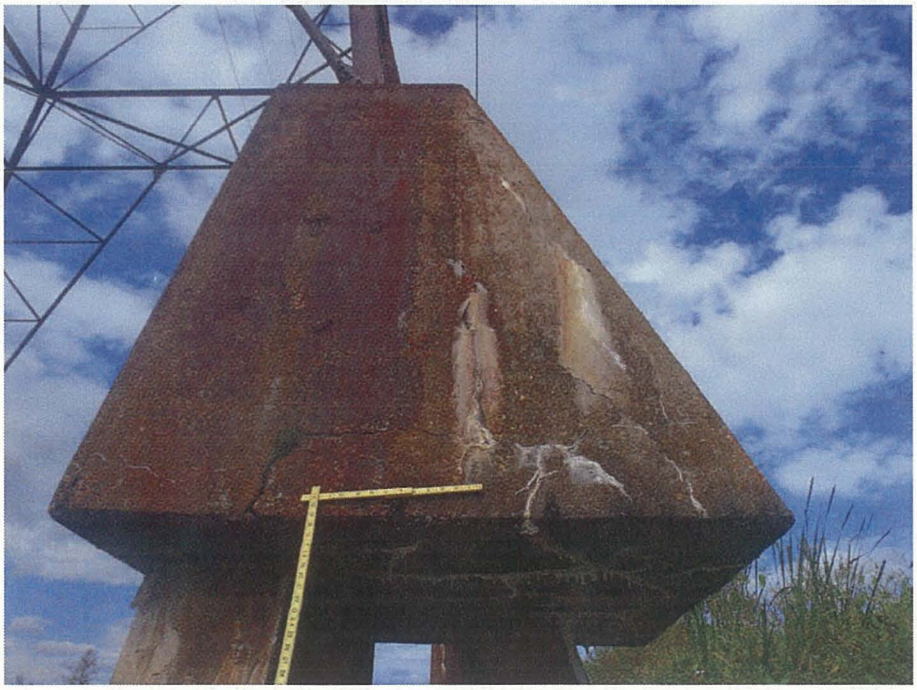
STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184

FOUNDATION 1

FOUNDATION 1

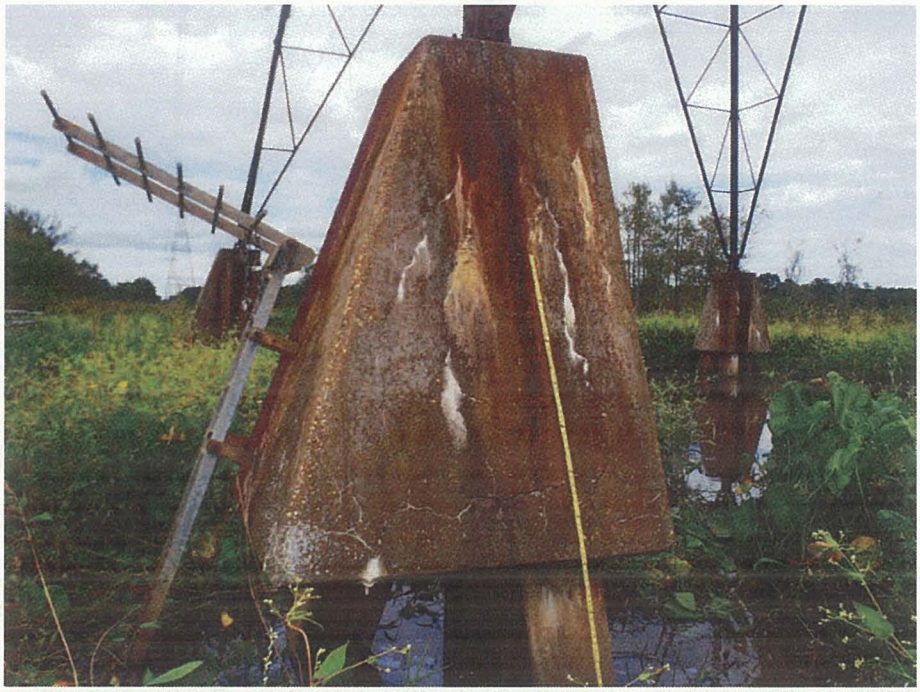
STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184

FOUNDATION 2



FOUNDATION 2

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184



FOUNDATION 3

FOUNDATION 3

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184

FOUNDATION 3

FOUNDATION 3

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184

FOUNDATION 3

FOUNDATION 3

STRUCTURE INVESTIGATION PHOTOGRAPHIC LOG
T/L No. 224 Structure No. 184

FOUNDATION 4

FOUNDATION 4

I. NECESSITY FOR THE PROPOSED PROJECT

M. In addition to the other information required by these guidelines, applications for approval to construct facilities and transmission lines interconnecting a Non-Utility Generator ("NUG") and a utility shall include the following information:

1. The full name of the NUG as it appears in its contract with the utility and the dates of initial contract and any amendments;

2. A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG;

3. a. For Qualifying Facilities ("QFs") certificated by Federal Energy Regulatory Commission ("FERC") order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;

b. For self-certificated QFs, provide a copy of the notice filed with FERC;

4. Provide the project number and project name used by FERC in licensing hydroelectric projects; also provide the dates of all orders and citations to FERC Reports, if available; and

5. If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.

Response: Not applicable for the Line #224 Partial Rebuild Projects.

I. NECESSITY FOR THE PROPOSED PROJECT

N. Describe the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations and other ground facilities associated with the proposed project.

Response: Not applicable for the Pamunkey River Rebuild, the I-64 Rebuild or the Diascund Rebuild.

Mattaponi River Rebuild

The Company's service territory north of the Mattaponi River is served from the West Point Substation 34.5 kV Circuit #333 via a distribution line currently attached to the Line #224 structures crossing the Mattaponi River from south to north. It is an islanded load area of approximately 400 customers with only the West Point Substation source. During the Mattaponi River Rebuild, the 34.5 kV river crossing will be unavailable for approximately six months. The Company plans to utilize a 230 kV/34.5 kV temporary mobile substation to provide service to the customers on the north side of the Mattaponi River. The temporary mobile substation will be located on a Company-owned site within the 230 kV right-of-way.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

1. Provide the length of the proposed corridor and viable alternatives.

Response: ***Length of the Proposed Corridor***

Pamunkey River Rebuild

The length of the existing right-of-way to be used for the Pamunkey River Rebuild is approximately 1.7 miles from the northern side of Sweet Hall Road (SR 634) to the southern side of Old Sweet Hall Ferry Crossing (SR 624).

Mattaponi River Rebuild

The length of the existing right-of-way to be used for the Mattaponi River Rebuild is approximately 1.3 miles from the eastern side of Court House Landing Road (SR 655) to the northern side of Wakema Road (SR 640). The temporary mobile substation will consist of installing a single switch structure, Structure #224/173A north of the intersection of The Trail (SR 14) and Carltons Corner Road (SR 617).

I-64 Rebuild

The length of the existing right-of-way to be used for the I-64 Rebuild is approximately 0.5 mile from the northern side of Stage Road (SR 632) to the eastern side of Good Hope Road (SR 627).

Diascund Rebuild

The Diascund Rebuild will consist of replacing a single structure with two structures, Structure #224/297, 2016/6, located east of North Waterside Drive (SR 627), on the western bank of the Diascund Creek Reservoir.

Viable Alternatives

No alternative routes are proposed for the Line #224 Partial Rebuild Projects. See Section II.A.9 for an explanation of the Company's route selection process and consideration of alternatives for the Rebuild Projects.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

2. Provide color maps of suitable scale (including both general location mapping and more detailed GIS-based constraints mapping) showing the route of the proposed line and its relation to: the facilities of other public utilities that could influence the route selection, highways, streets, parks and recreational areas, scenic and historic areas, open space and conservation easements, schools, convalescent centers, churches, hospitals, burial grounds/cemeteries, airports and other notable structures close to the proposed project. Indicate the existing linear utility facilities that the line is proposed to parallel, such as electric transmission lines, natural gas transmission lines, pipelines, highways, and railroads. Indicate any existing transmission ROW sections that are to be quitclaimed or otherwise relinquished. Additionally, identify the manner in which the Applicant will make available to interested persons, including state and local governmental entities, the digital GIS shape file for the route of the proposed line.

Response: The existing transmission line right-of-way for the Line #224 Partial Rebuild Projects does not parallel any other existing linear utilities and no portion of the right-of-way is proposed to be quitclaimed or relinquished.

The Company will make the digital Geographic Information Systems ("GIS") shape file available to interested persons upon request to counsel for the Company as listed in the Application for the Line #224 Partial Rebuild Projects.

Pamunkey River Rebuild

See Attachment II.A.2.a.

Mattaponi River Rebuild

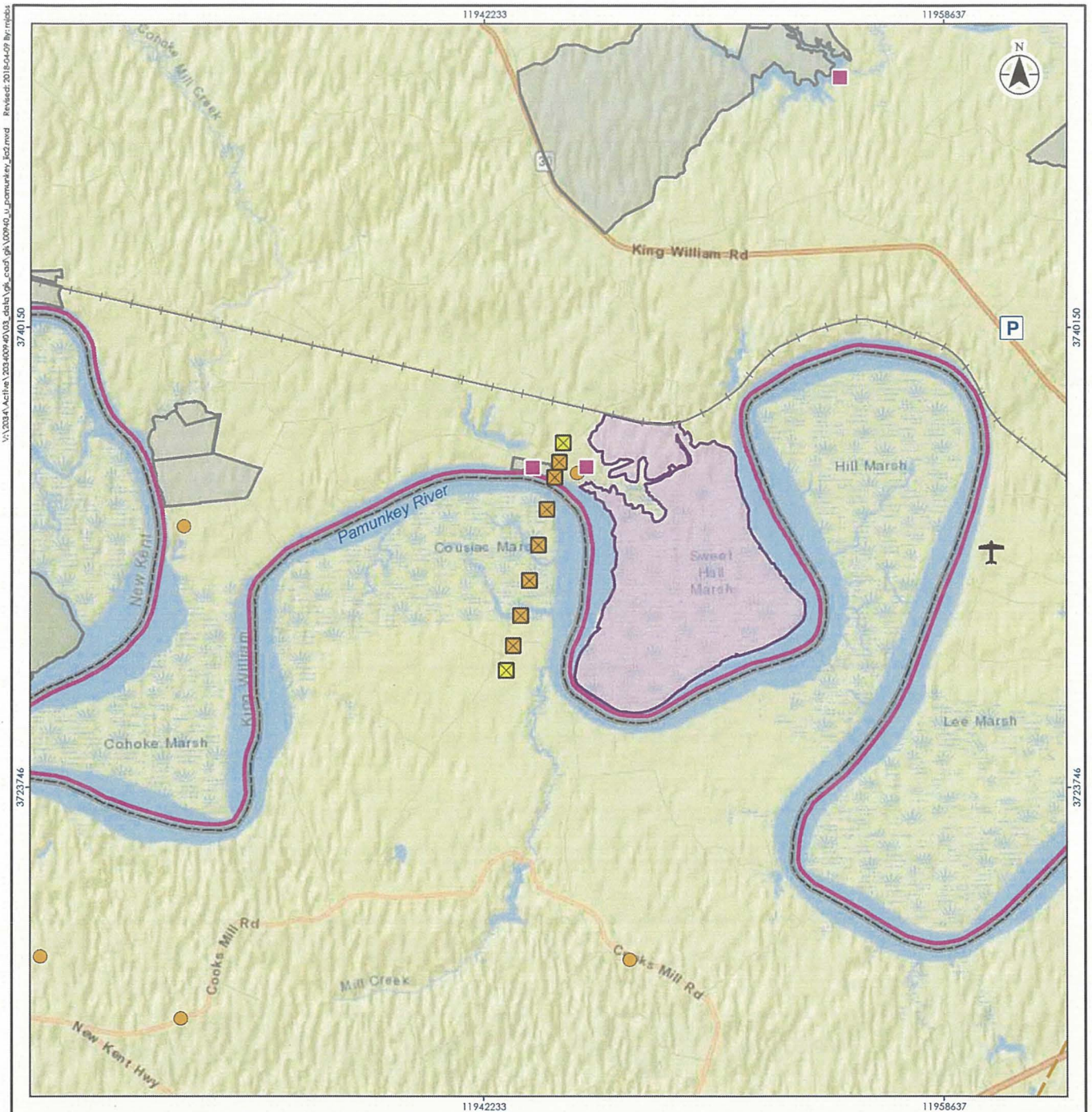
See Attachment II.A.2.b.

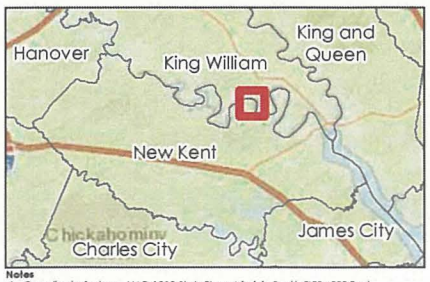
I-64 Rebuild

See Attachment II.A.2.c.

Diascund Rebuild

See Attachment II.A.2.d.





Legend

- Private Conservation Land/Easement
- Federal Conservation Land/Easement
- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Captain John Smith Chesapeake National Historic Trail
- Cemetery
- Airport/Landing Strip
- Police
- Architectural Resource
- Gas Pipeline
- Railroad

0 0.5 1 Miles

1:63,360 (at original document size of 8.5x11)

Stantec

Dominion Energy

Project Location
King William and New Kent Counties, Virginia

203400940
Prepared by MGS on 2018-01-09
Technical Review by ECL on 2018-01-16
Independent Review by JTH on 2018-01-16

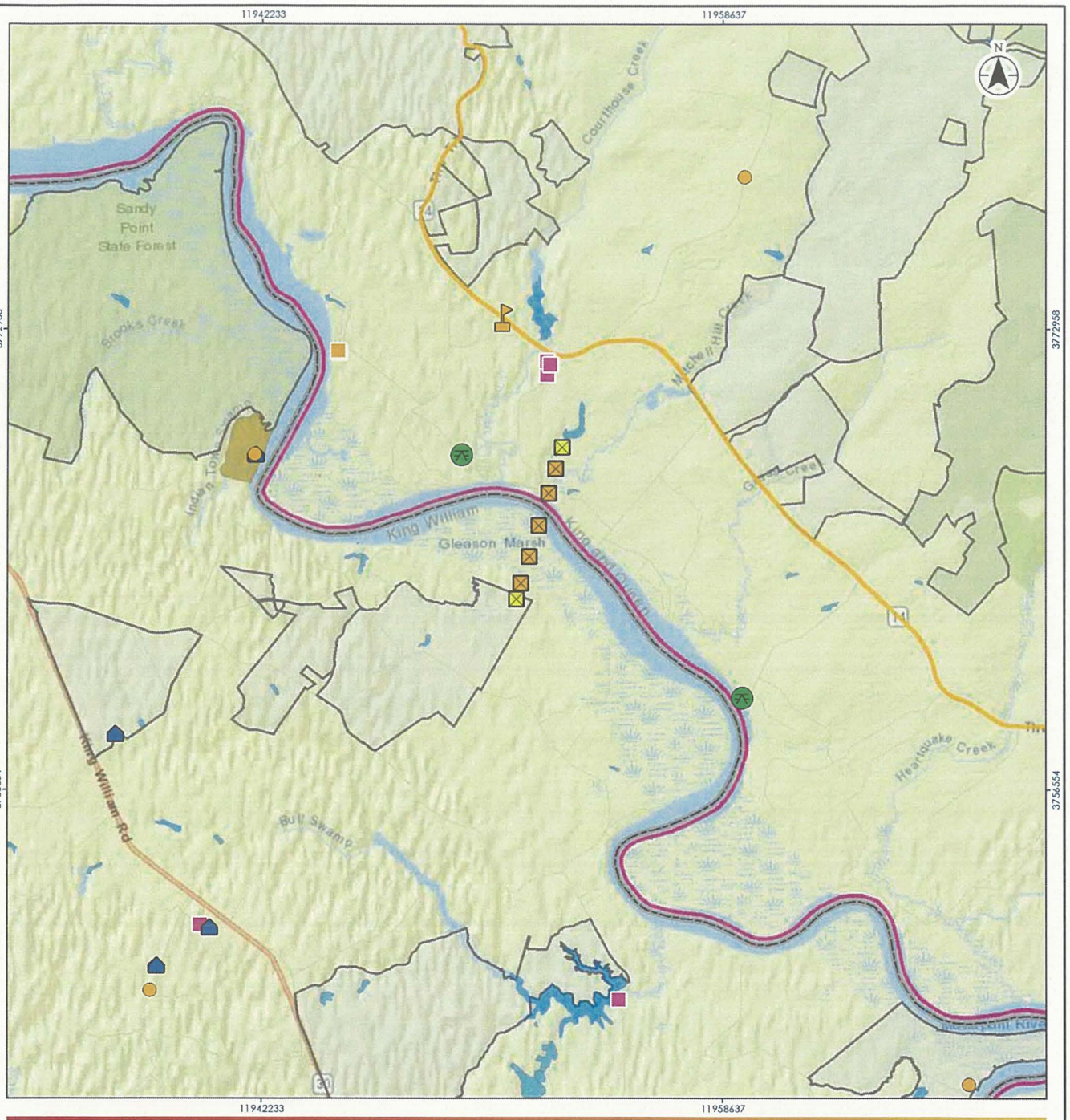
Client/Project
Dominion Energy Virginia
Line #224 Partial Rebuild Projects
Pamunkey River Rebuild

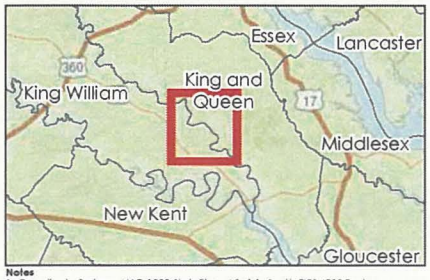
Attachment
II.A.2.a

Title
Environmental Constraints Map

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. World Street Map © ESRI
3. Data Sources: ESRI, Google Earth, USGS NHD, VA DCR Natural Heritage Program, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) PADUS, NPMS, FAA, and Ventyx
4. Tower Locations provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering

Page 01 of 01





Legend

- Private Conservation Land/Easement
- Mattaponi Indian Reservation
- Proposed 3-Pole Structure
- Proposed Lattice Tower
- Captain John Smith Chesapeake National Historic Trail
- Virginia Scenic Byway
- Cemetery
- Park/Recreation
- Place of Worship
- School
- Archaeological Resource
- Architectural Resource

0 0.5 1 Miles

1:63,360 (at original document size of 8.5x11)

Stantec

Dominion Energy

Project Location
King and Queen and King William Counties, VA

20340940
Prepared by LJB on 2018-02-21
Technical Review by MGJ on 2018-02-26
Independent Review by JBJ on 2018-03-08

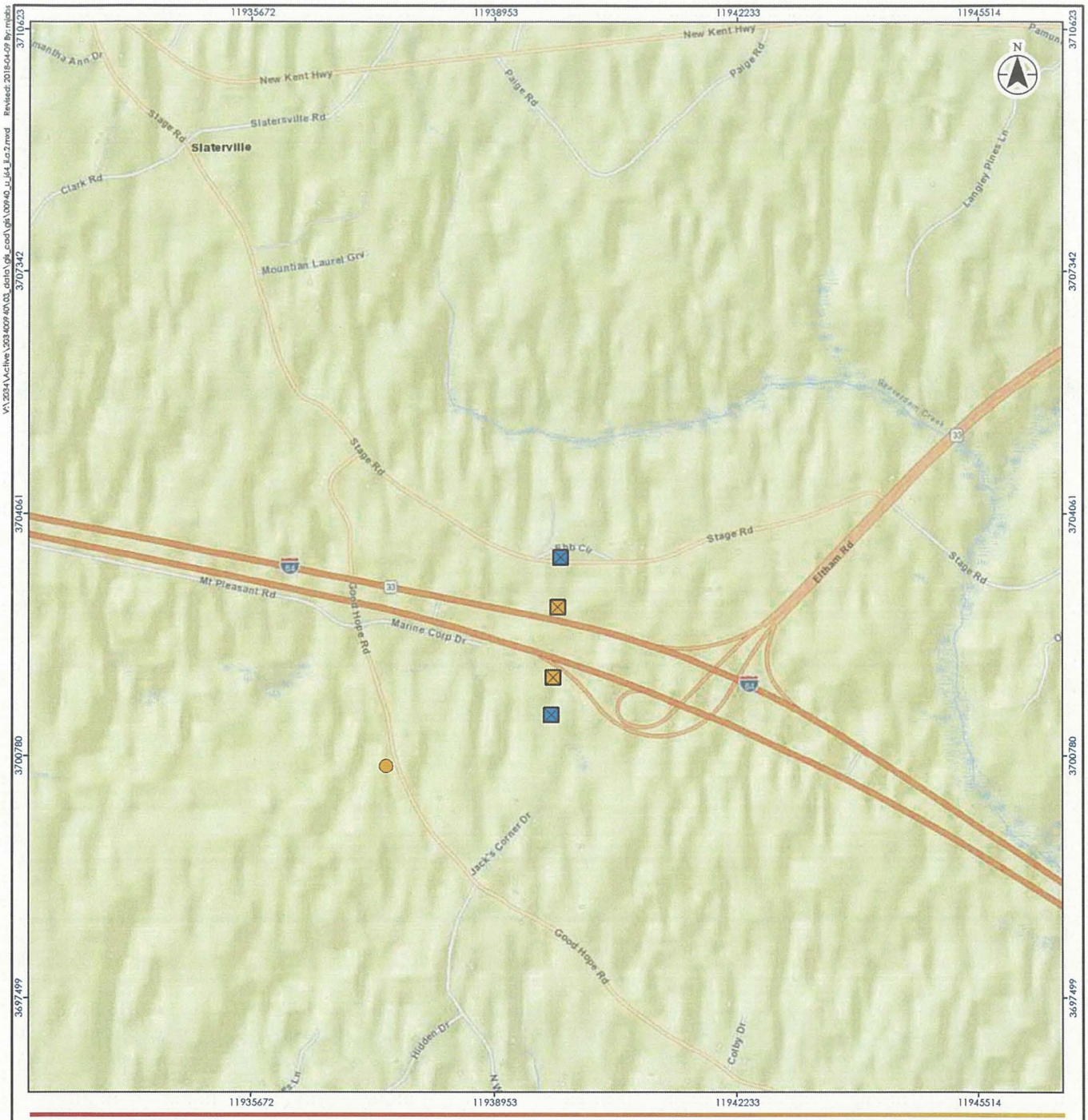
Client/Project
Dominion Energy Virginia
Line #224 Partial Rebuild Projects
Mattaponi River Rebuild

Attachment
II.A.2.b

Title
Environmental Constraints Map

Page 01 of 01

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. World Street Map © ESRI
3. Data Sources: ESRI, Google Earth, USGS NHD, VA DCR Natural Heritage Program, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) PADUS, NPMS, FAA, and Ventyx
4. Tower Locations provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering



Legend

- Proposed H-Frame Structure
- Proposed Lattice Tower
- Cemetery

*Only features present within map extents of those described in Section II.A.2.

0 990 1,980 Feet

1:24,000 (at original document size of 8.5x11)

Stantec

Dominion Energy

Project Location
New Kent County, Virginia

20340094O
Prepared by LJB on 2018-02-21
Technical Review by MGS on 2018-02-26
Independent Review by JBJ on 2018-03-08

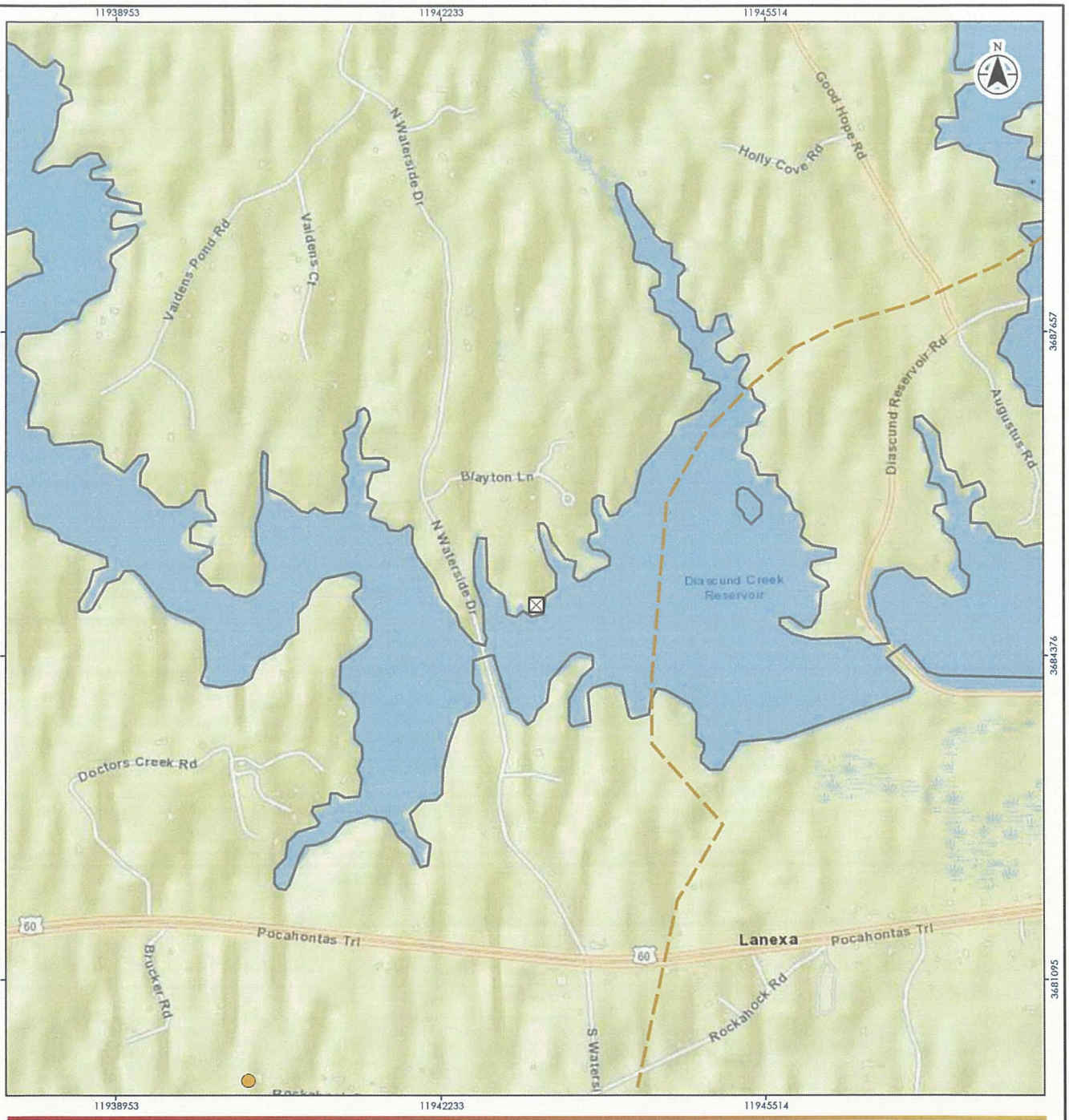
Client/Project
Dominion Energy Virginia
Line #224 Partial Rebuild Projects
I-64 Rebuild

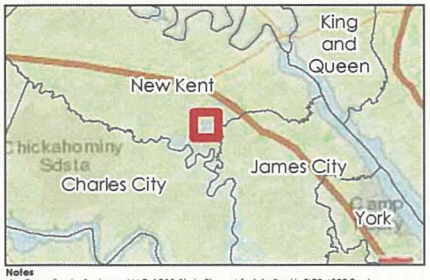
Attachment
II.A.2.c

Title
Environmental Constraints Map

Page 01 of 01

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: ESRI, Google Earth, USGS NHD, VA DCR Natural Heritage Program, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) PADUS, NPMS, FAA, and Ventyx
3. World Street Map © ESRI
4. Tower Locations provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering





Legend

- Local Recreation Area
- Proposed Monopole Structures (2)
- Cemetery
- Gas Pipeline

*Only features present within map extents of those described in Section II.A.2.

0 750 1,500 Feet

1:18,000 (at original document size of 8.5x11)

Stantec

Dominion Energy

Project Location
New Kent County, Virginia

203400940

Prepared by LJB on 2018-02-21
Technical Review by MGS on 2018-02-26
Independent Review by JBJ on 2018-03-08

Client/Project
Dominion Energy Virginia
Line #224 Partial Rebuild Projects
Diascund Rebuild

Attachment
II.A.2.d

Title
Environmental Constraints Map

Page 01 of 01

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: ESRI, Google Earth, USGS NHD, VA DCR Natural Heritage Program, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS) PADUS, NPMS, FAA, and Ventyx
3. World Street Map © ESRI
4. Tower Locations provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

3. Provide a separate color map of a suitable scale showing all the Applicant's transmission line ROWs, either existing or proposed, in the vicinity of the proposed project.

Response: See Attachment I.G.1.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

4. To the extent the proposed route is not entirely within existing ROW, explain why existing ROW cannot adequately service the needs of the Applicant.

Response: Not applicable for the Line #224 Partial Rebuild Projects. The proposed route is entirely within existing rights-of-way.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

5. Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the ROW. These drawings should include:

a. ROW width for each cross section drawing;

b. Lateral distance between the conductors and edge of ROW;

c. Existing utility facilities on the ROW; and

d. For lines being rebuilt in existing ROW, provide all of the above (i) as it currently exists, and (ii) as it will exist at the conclusion of the proposed project.

Response:

Pamunkey River Rebuild

See Attachments II.A.5.a – h.

Mattaponi River Rebuild

See Attachments II.A.5.i – n.

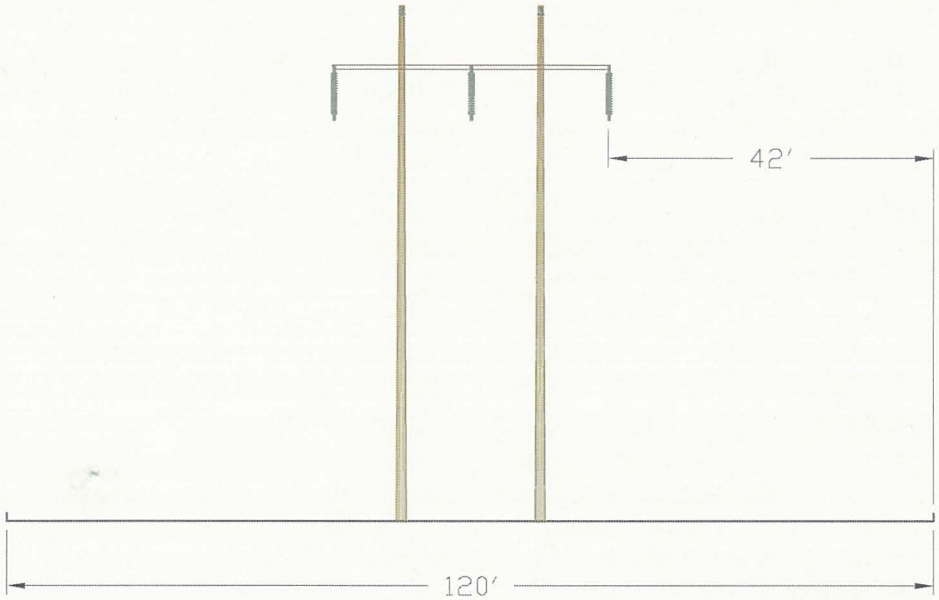
I-64 Rebuild

See Attachments II.A.5.o – v.

Diascund Rebuild

See Attachments II.A.5.w – x.

230KV CIRCUIT
LINE #224



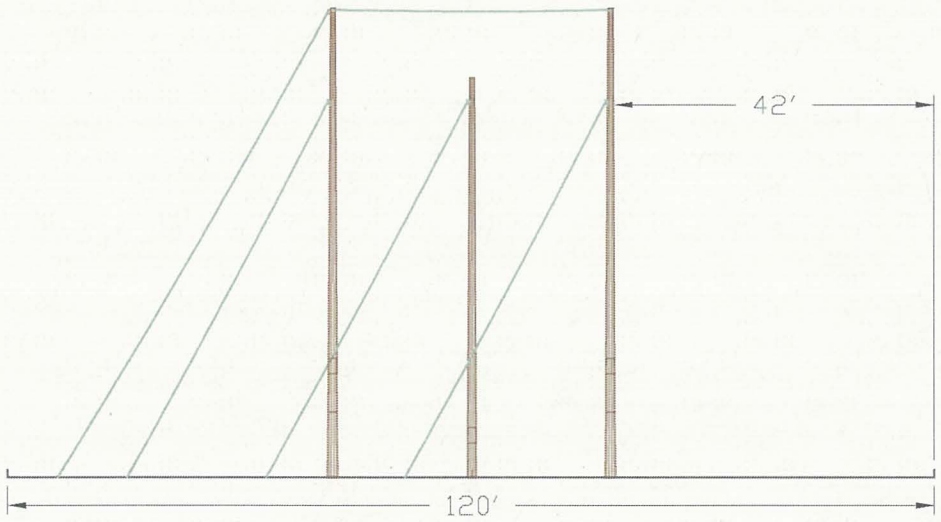
STRUCTURES 224/226 & 224/234
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION H-FRAME
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (2)
MATERIAL FOR STRUCTURE:	WOOD
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	18'
AVERAGE SPAN LENGTH (RANGE):	1009' (650' - 1304')
AVERAGE STRUCTURE HEIGHT (RANGE):	69' (67' - 71')
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224



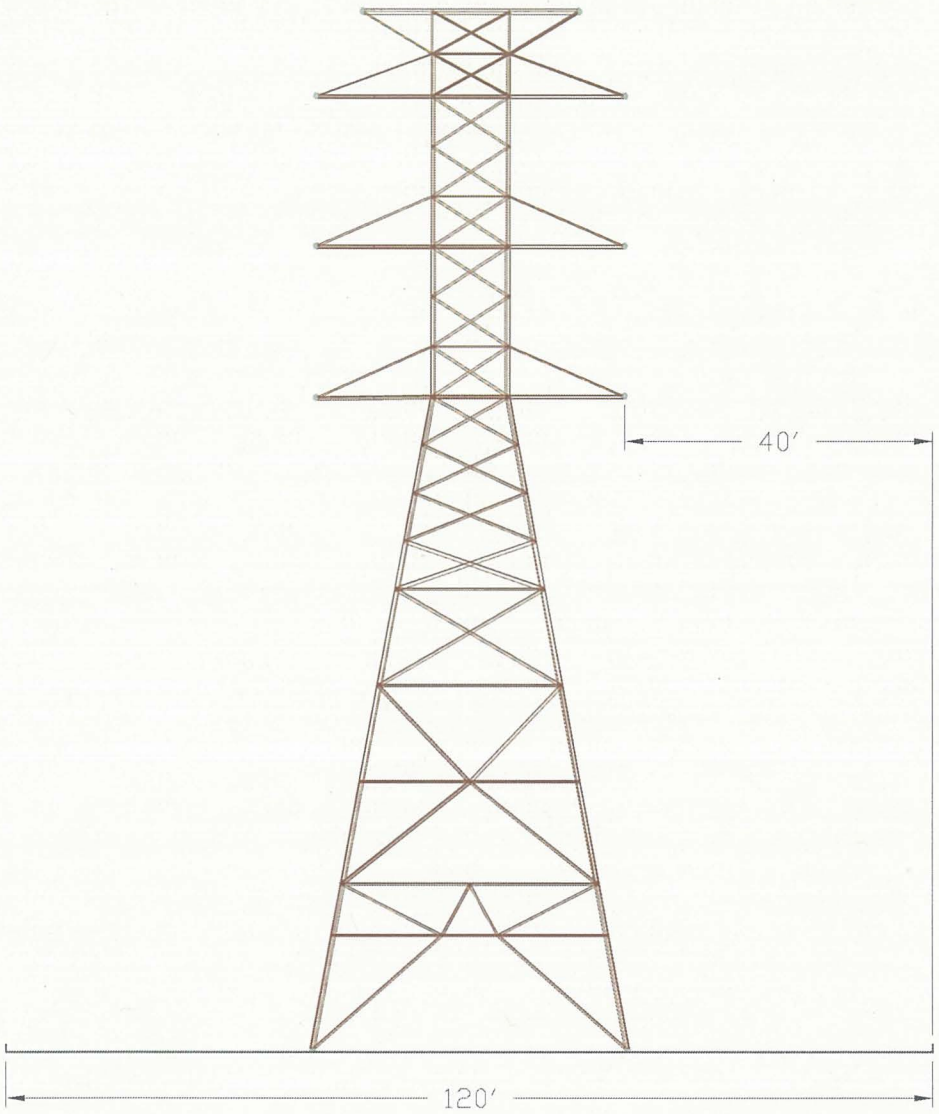
STRUCTURES 224/226 & 224/234
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND 3-POLE
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (2)
MATERIAL FOR STRUCTURE:	STEEL
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	N/A
WIDTH AT BASE (RANGE):	36'
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	64' (61' - 65.5')
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224
(2 - PHASES TOP AND BOTTOM)

230KV CIRCUIT
LINE #224
(1-PHASE MIDDLE)



STRUCTURE 224/233
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

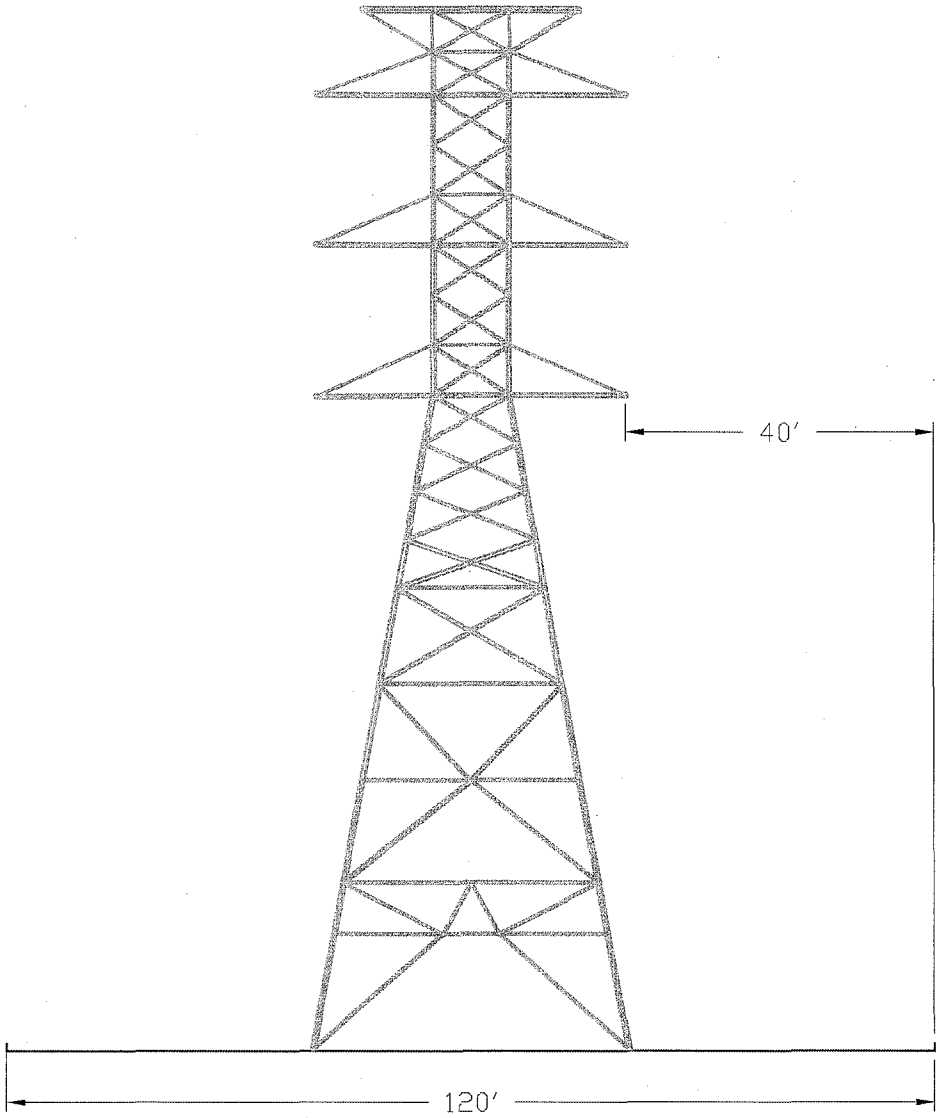
STRUCTURE TYPE:	DEADEND LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	1.7'
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	42'
AVERAGE SPAN LENGTH (RANGE):	1009' (650' - 1304')
AVERAGE STRUCTURE HEIGHT (RANGE):	135'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

IDLE
POSITION



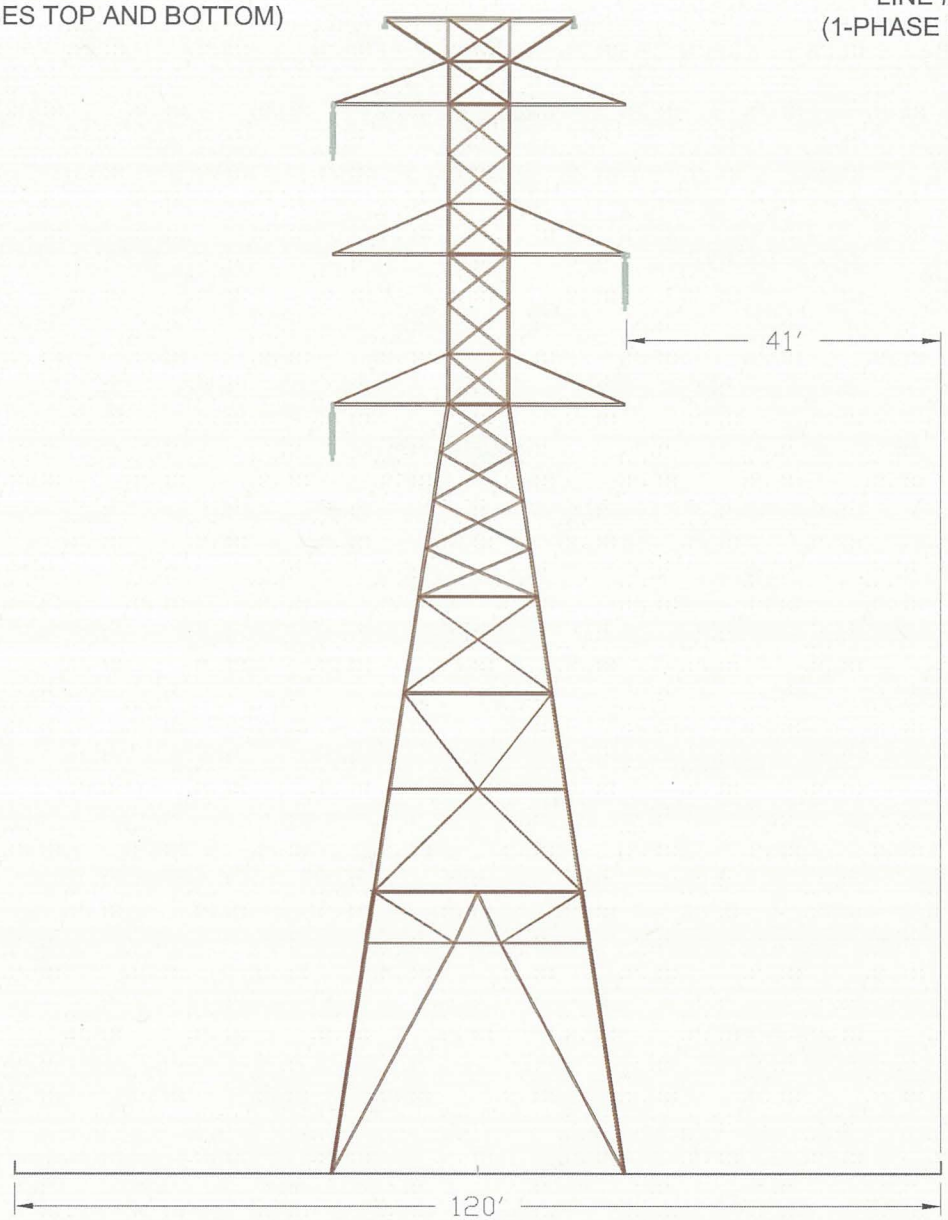
STRUCTURE 224/233
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (1)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	1.7'
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	42'
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	135'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224
(2 - PHASES TOP AND BOTTOM)

230KV CIRCUIT
LINE #224
(1-PHASE MIDDLE)



STRUCTURES 224/228 - 228/232
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

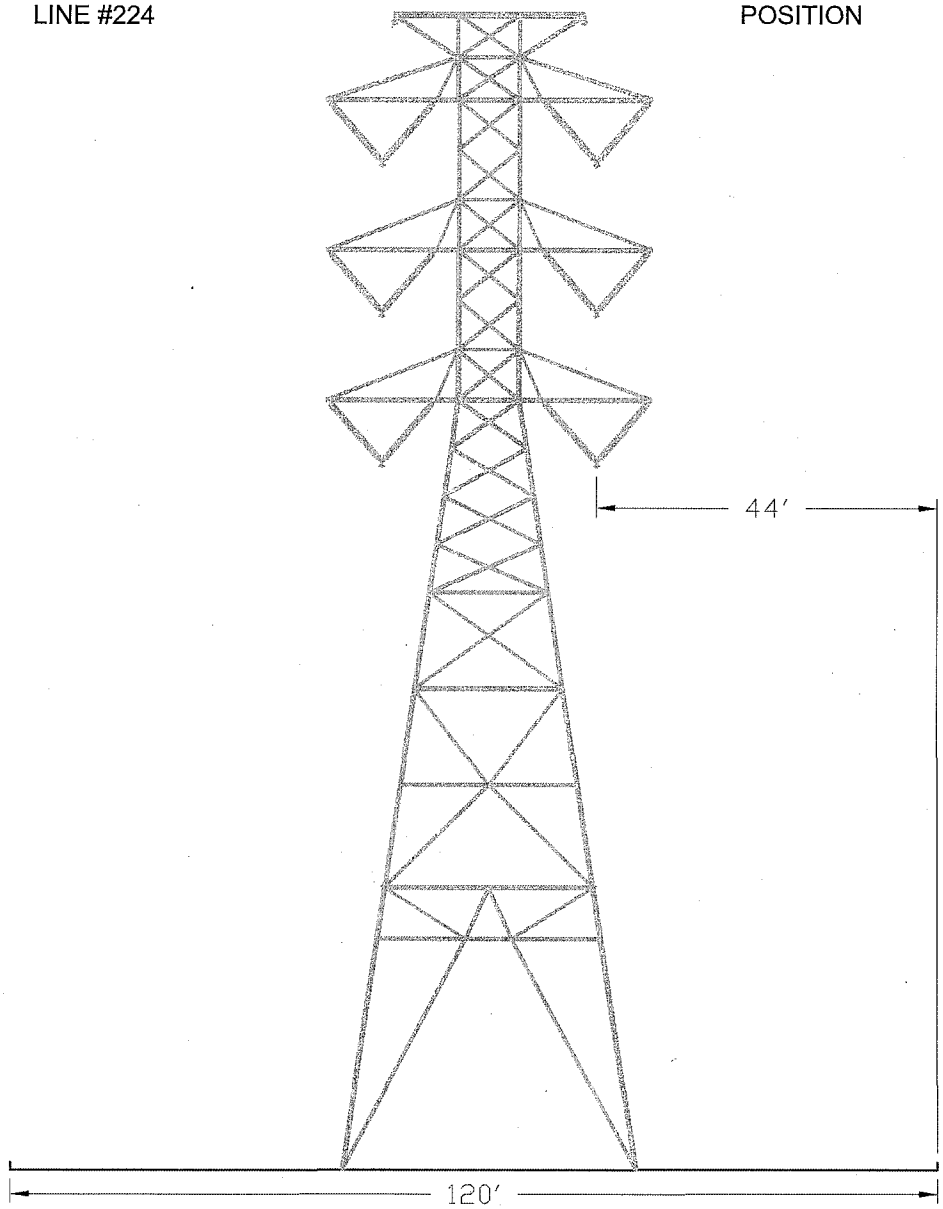
STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (5)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	7.7' (6.5' - 10')
WIDTH AT CROSSARM:	38'
WIDTH AT BASE (RANGE):	42' (38' - 47')
AVERAGE SPAN LENGTH (RANGE):	1009' (650' - 1304')
AVERAGE STRUCTURE HEIGHT (RANGE):	162' (150' - 180')
MINIMUM CONDUCTOR - TO -MHW:	90'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

IDLE
POSITION



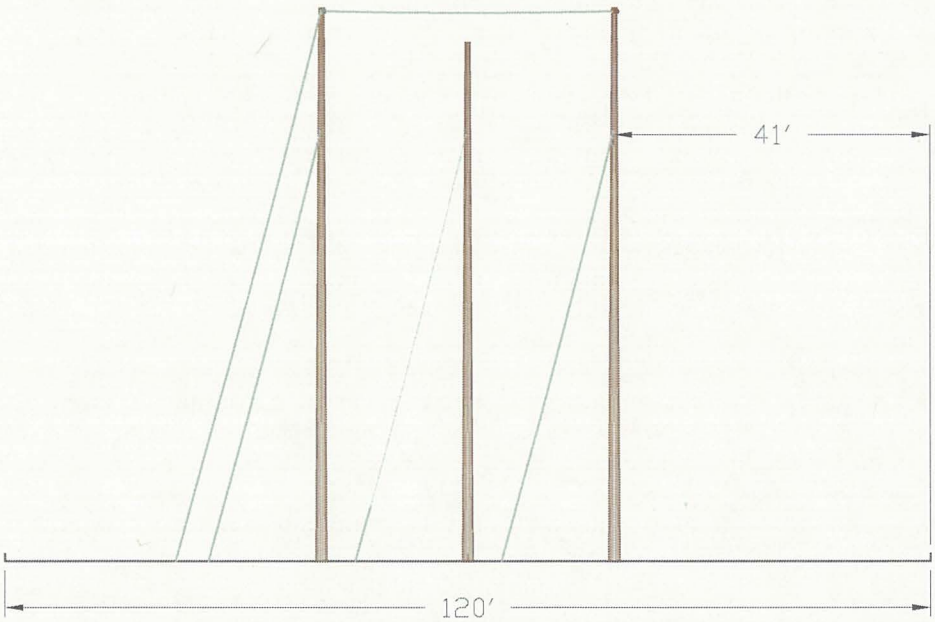
STRUCTURES 224/228 - 224/232

RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (5)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	15.7' (15.5' - 16')
WIDTH AT CROSSARM:	42'
WIDTH AT BASE (RANGE):	42' (38' - 47')
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	162' (150' - 180')
MINIMUM CONDUCTOR - TO - MHW:	90'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224



STRUCTURE 224/227
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

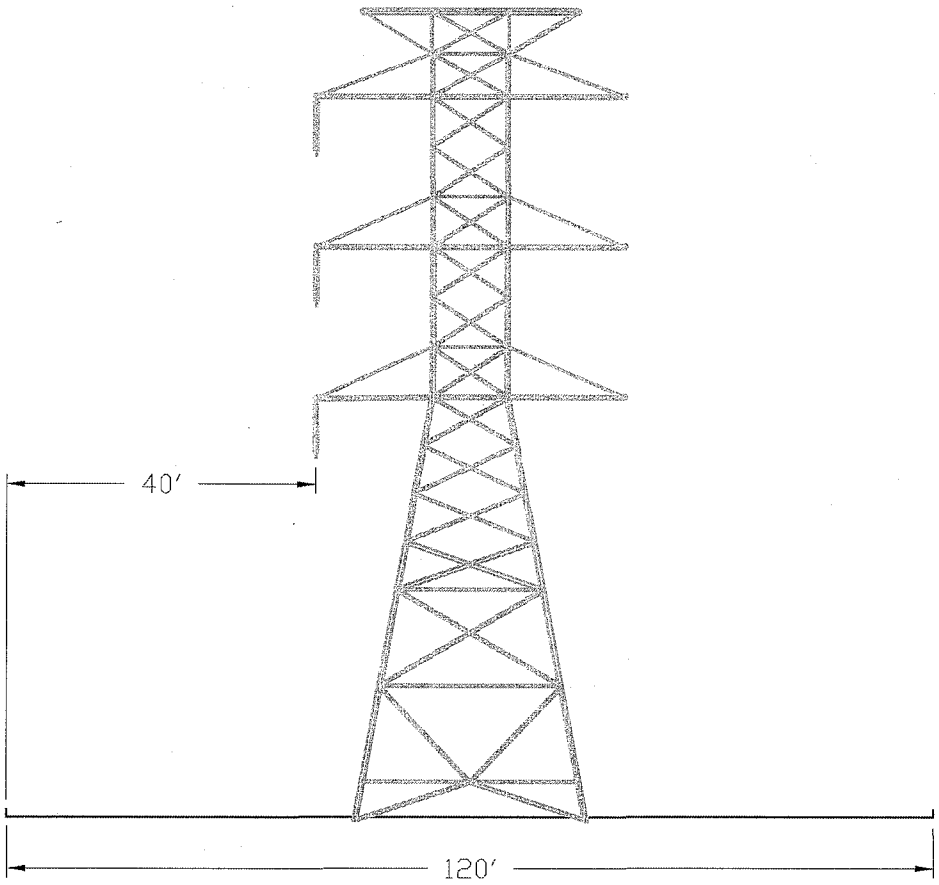
STRUCTURE TYPE:	DEADEND 3-POLE
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (1)
MATERIAL FOR STRUCTURE:	STEEL
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	38'
AVERAGE SPAN LENGTH (RANGE):	1009' (650' - 1304')
AVERAGE STRUCTURE HEIGHT (RANGE):	72'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

IDLE
POSITION

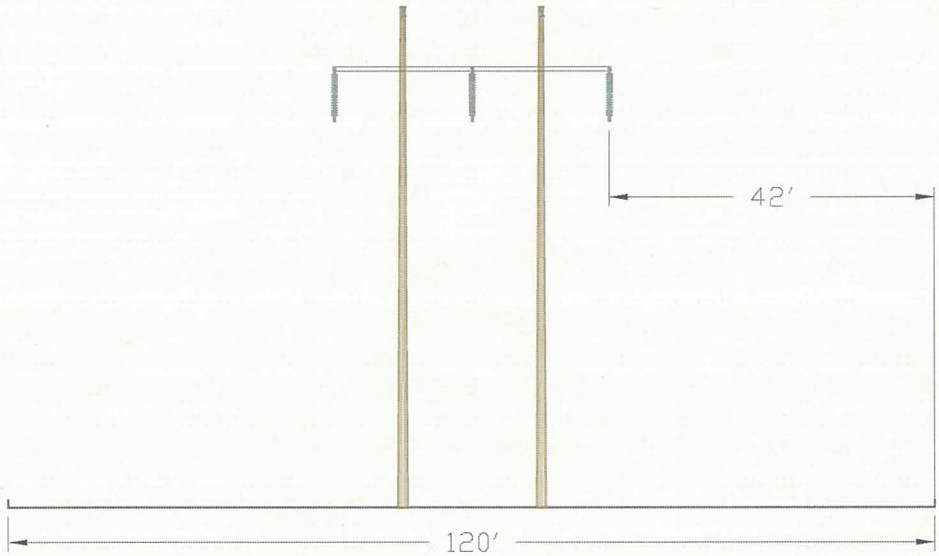


STRUCTURE 224/227
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.72 MILES (1)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	1.5'
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	31'
AVERAGE SPAN LENGTH (RANGE):	1010' (569' - 1302')
AVERAGE STRUCTURE HEIGHT (RANGE):	105'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224



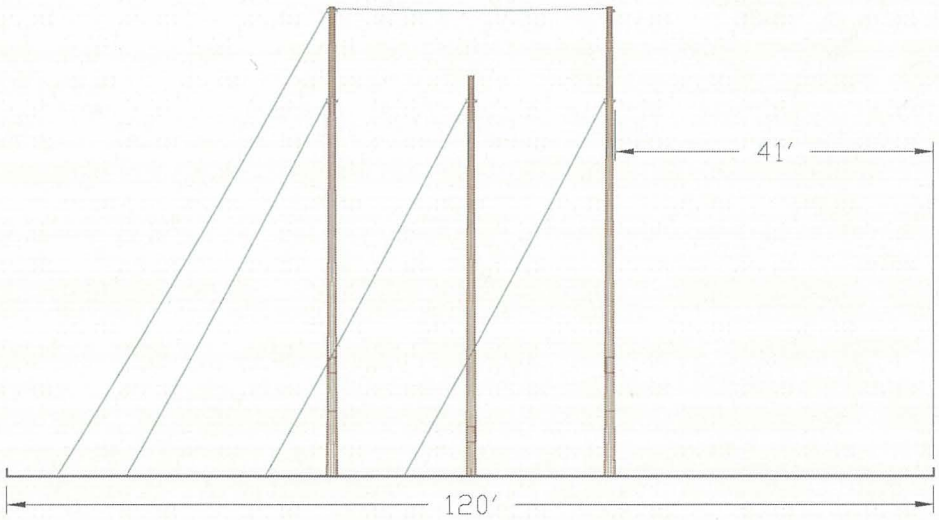
STRUCTURES 224/180 & 224/186
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION H-FRAME
LENGTH OF R/W (TOTAL QUANTITY):	1.06 MILES (2)
MATERIAL FOR STRUCTURE:	WOOD
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	18'
AVERAGE SPAN LENGTH (RANGE):	894' (600' - 1140')
AVERAGE STRUCTURE HEIGHT (RANGE):	63' (62' - 65')
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

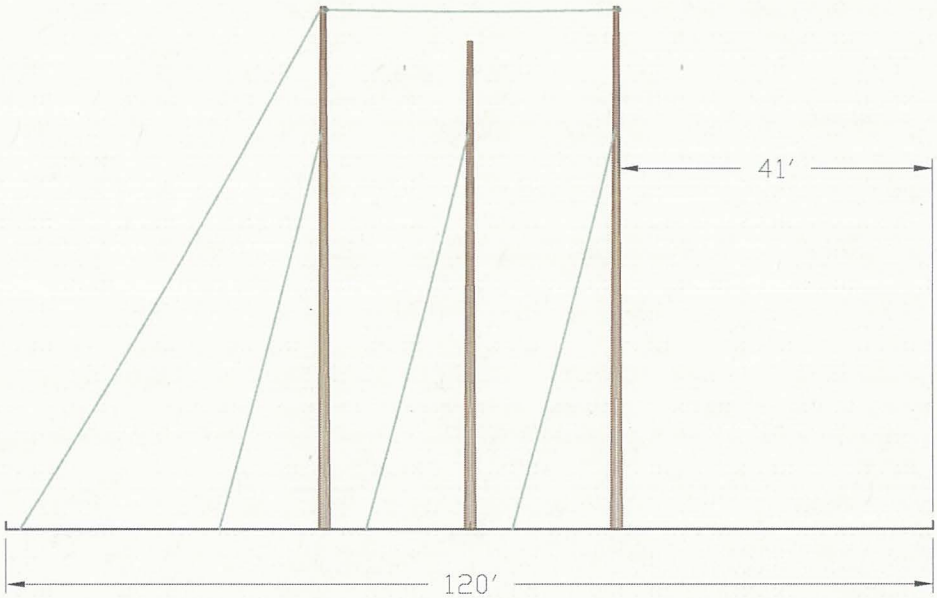


STRUCTURES 224/180 & 224/186
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND 3-POLE
LENGTH OF R/W (TOTAL QUANTITY):	1.07 MILES (2)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	NA - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	NA - DIRECT EMBED
WIDTH AT CROSSARM:	N/A
WIDTH AT BASE (RANGE):	36'
AVERAGE SPAN LENGTH (RANGE):	896' (595' - 1160')
AVERAGE STRUCTURE HEIGHT (RANGE):	61'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224



STRUCTURES 224/181 & 224/185
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

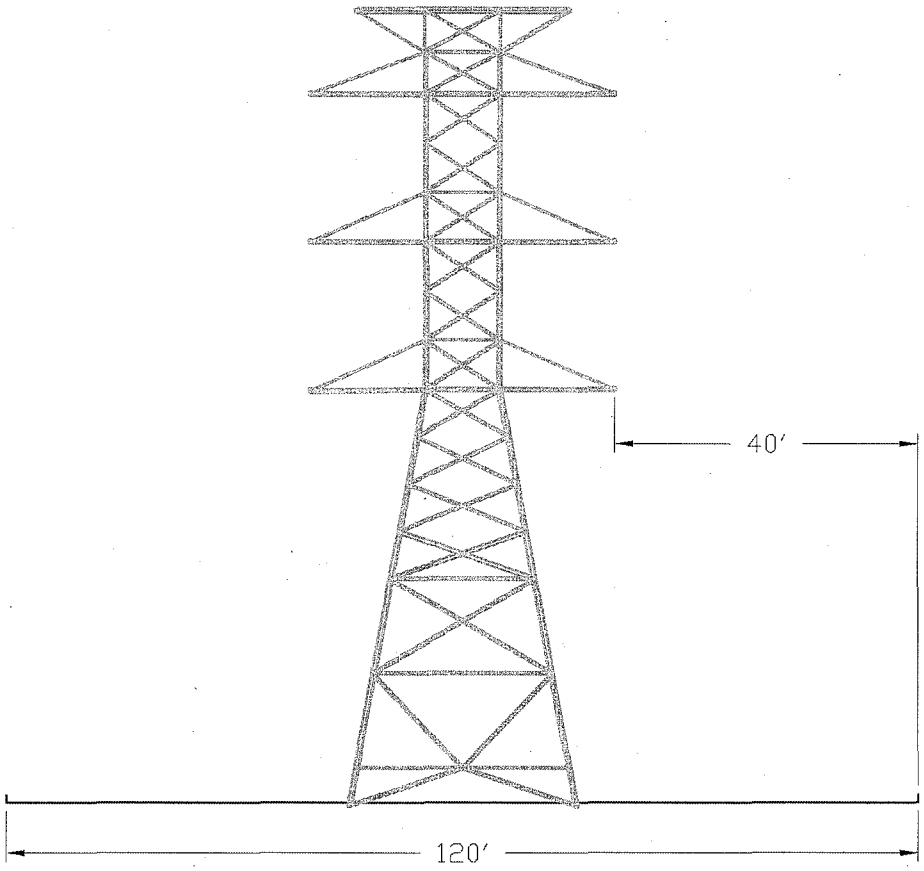
STRUCTURE TYPE:	DEADEND 3-POLE
LENGTH OF R/W (TOTAL QUANTITY):	1.06 MILES (2)
MATERIAL FOR STRUCTURE:	STEEL
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	38'
AVERAGE SPAN LENGTH (RANGE):	894' (600' - 1140')
AVERAGE STRUCTURE HEIGHT (RANGE):	65' (61' - 68')
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

DISTRIBUTION
CIRCUIT



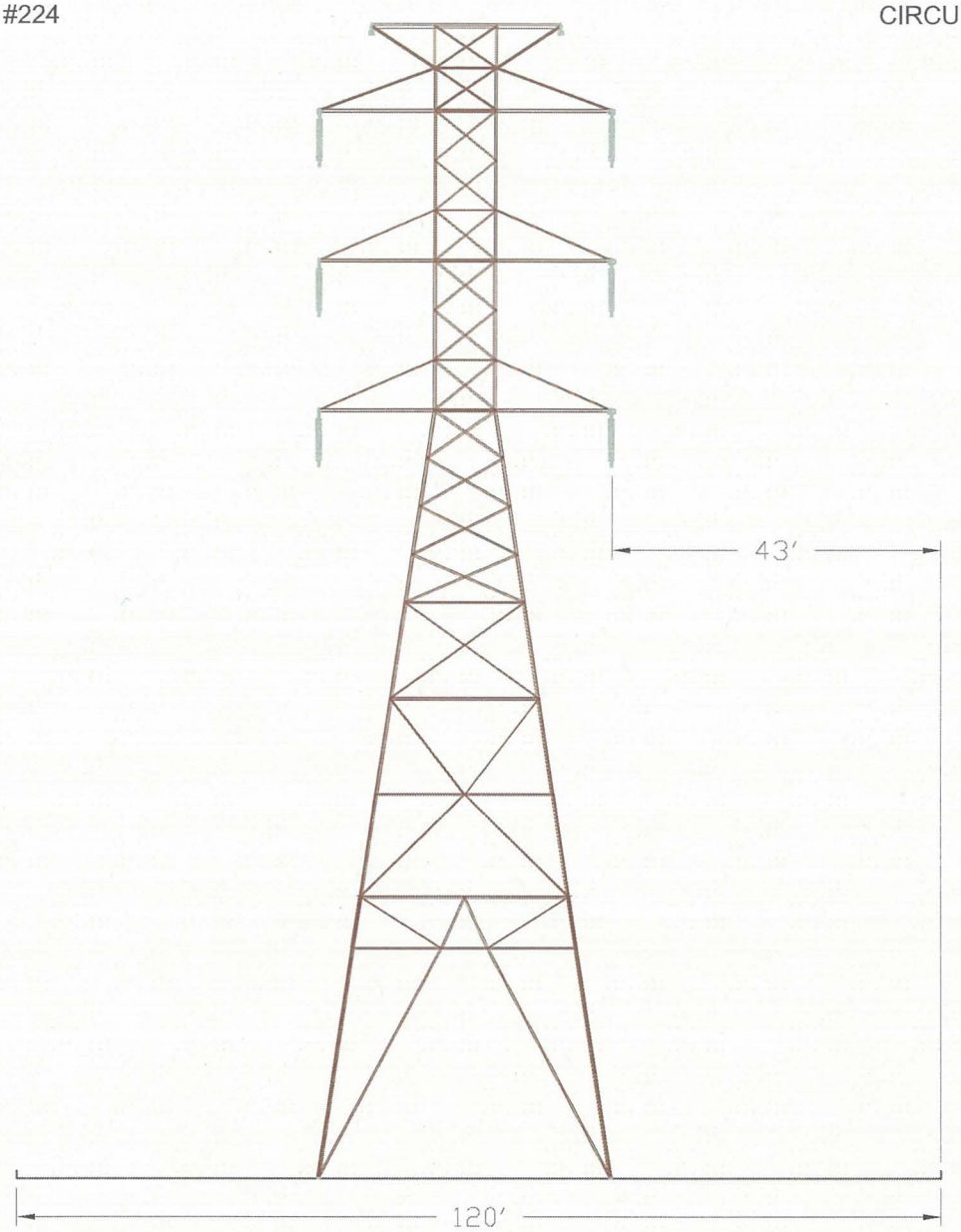
STRUCTURES 224/181 & 224/185
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEADEND LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.07 MILES (2)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	1.5'
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	31'
AVERAGE SPAN LENGTH (RANGE):	896' (595' - 1160')
AVERAGE STRUCTURE HEIGHT (RANGE):	105'
MINIMUM CONDUCTOR - TO - MHW:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224

DISTRIBUTION
CIRCUIT



STRUCTURES 224/182 - 224/184
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

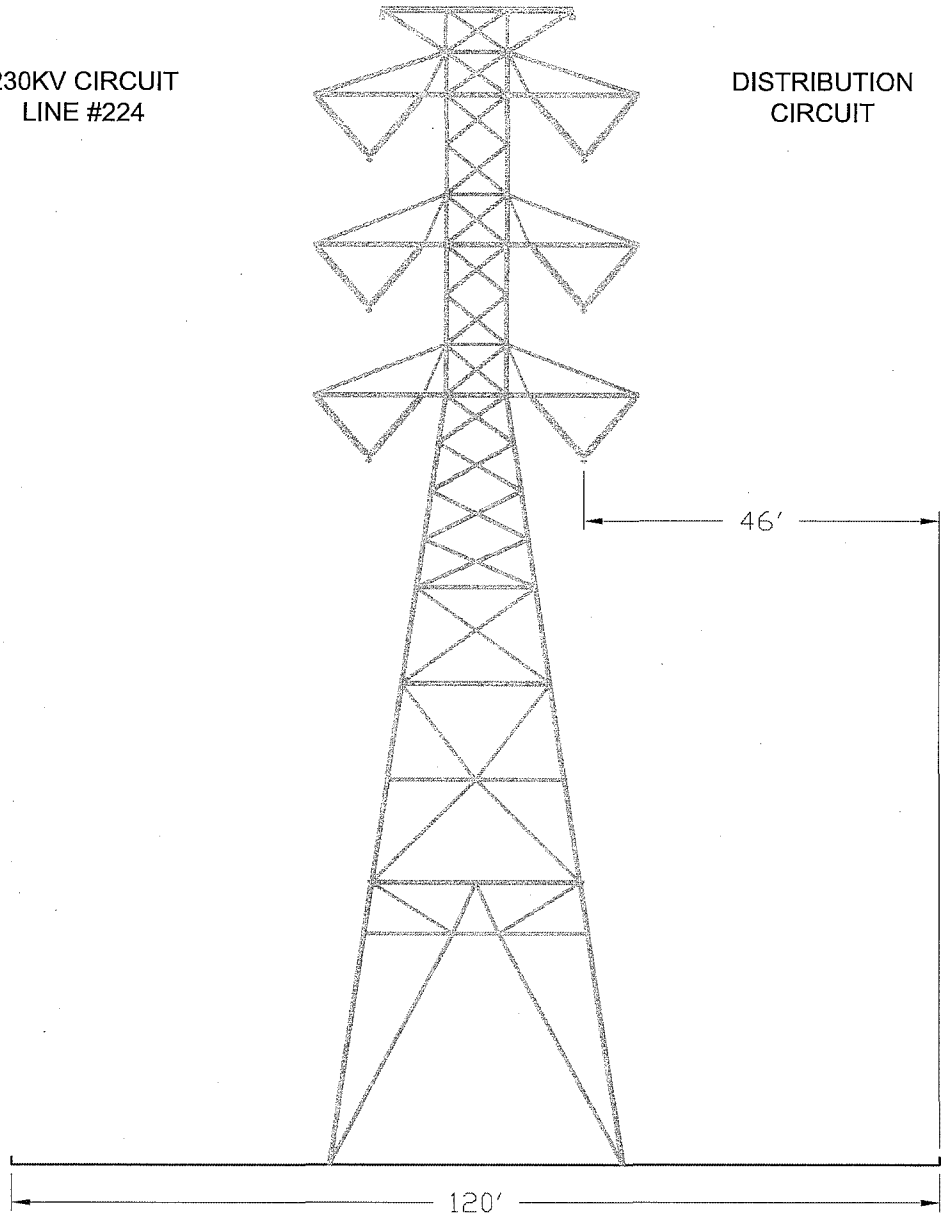
STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.06 MILES (2)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	8.9' (8.6' - 9')
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	41' (38' - 47')
AVERAGE SPAN LENGTH (RANGE):	894' (600' - 1140')
AVERAGE STRUCTURE HEIGHT (RANGE):	170' (150' -180')
MINIMUM CONDUCTOR - TO - MHW:	90'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

DISTRIBUTION
CIRCUIT



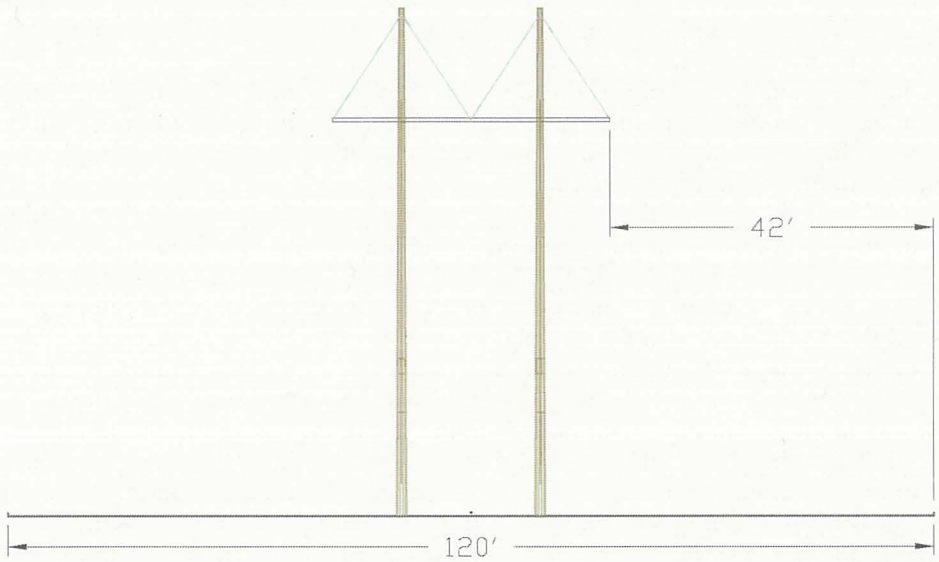
STRUCTURES 224/182 - 224/184
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	1.07 MILES (2)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL (RANGE):	16.2' (15.6' - 17')
WIDTH AT CROSSARM:	40'
WIDTH AT BASE (RANGE):	42' (38' - 47')
AVERAGE SPAN LENGTH (RANGE):	896' (595' - 1160')
AVERAGE STRUCTURE HEIGHT (RANGE):	170' (150' - 170')
MINIMUM CONDUCTOR - TO - MHW:	90'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

MATTAPONI RVR XING

230KV CIRCUIT
LINE #224



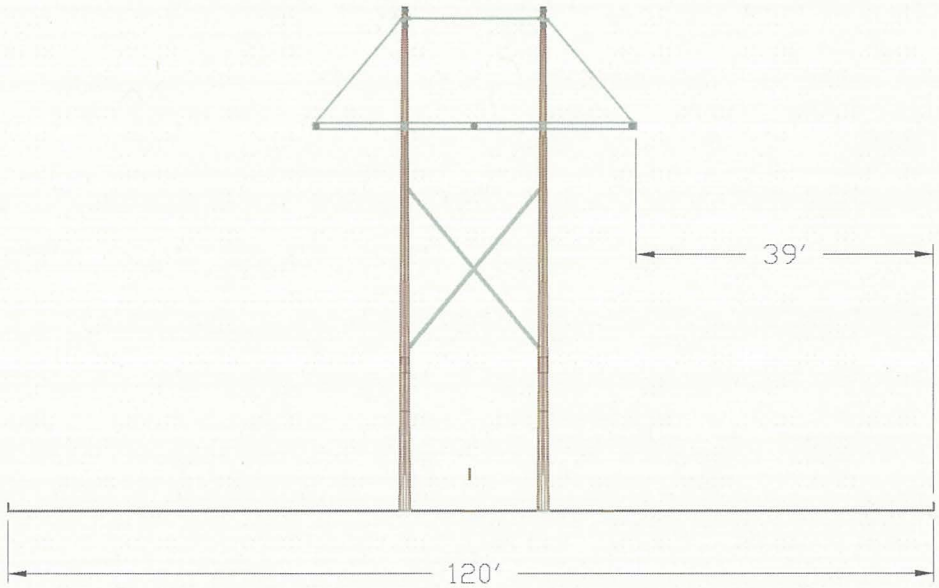
STRUCTURE 224/271
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEAD END H-FRAME
LENGTH OF R/W (TOTAL QUANTITY):	0.53 MILES (1)
MATERIAL FOR STRUCTURE:	WOOD
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL:	N/A - DIRECT EMBED'
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	18'
AVERAGE SPAN LENGTH (RANGE):	698' (562' - 860')
AVERAGE STRUCTURE HEIGHT (RANGE):	66'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224



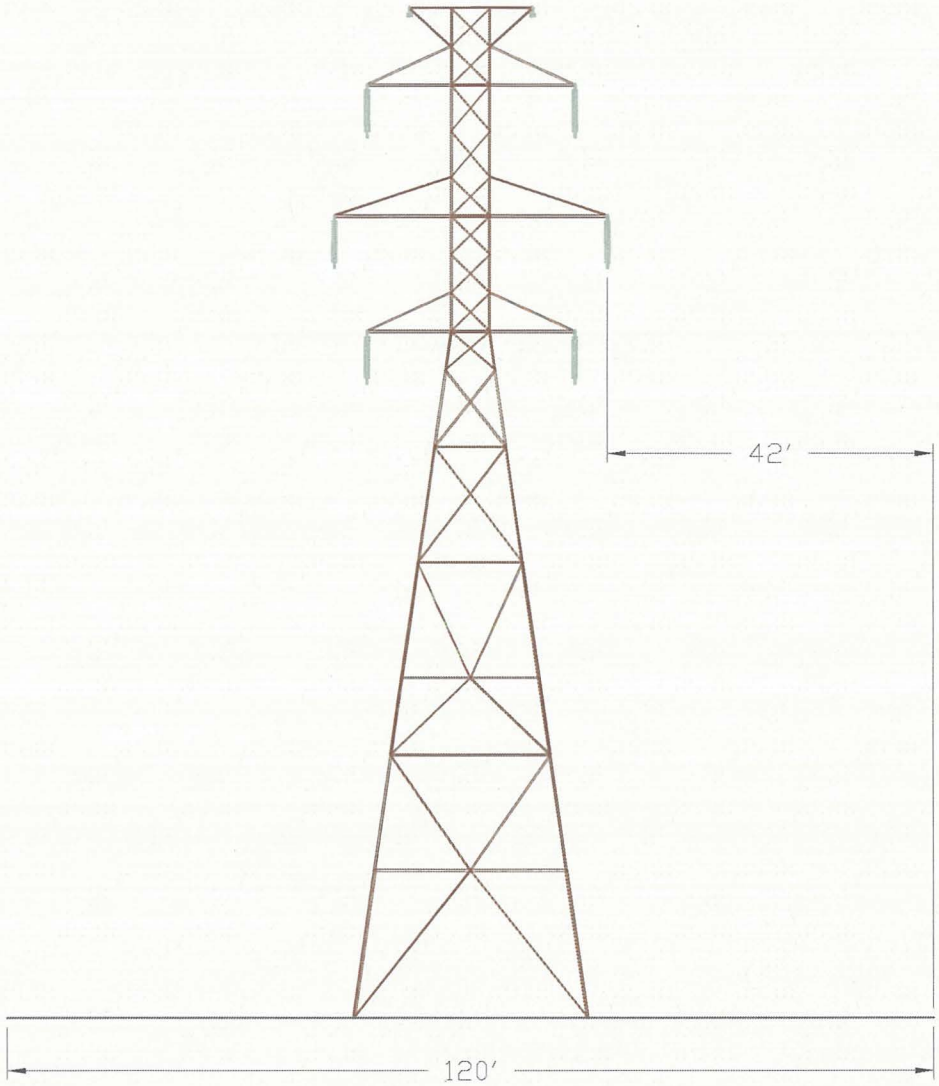
STRUCTURE 224/271
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEAD END H-FRAME
LENGTH OF R/W (TOTAL QUANTITY):	0.52 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL:	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	18'
AVERAGE SPAN LENGTH (RANGE):	695' (637' - 953')
AVERAGE STRUCTURE HEIGHT (RANGE):	66'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224

VACANT CIRCUIT
POSITION



STRUCTURE 224/270
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

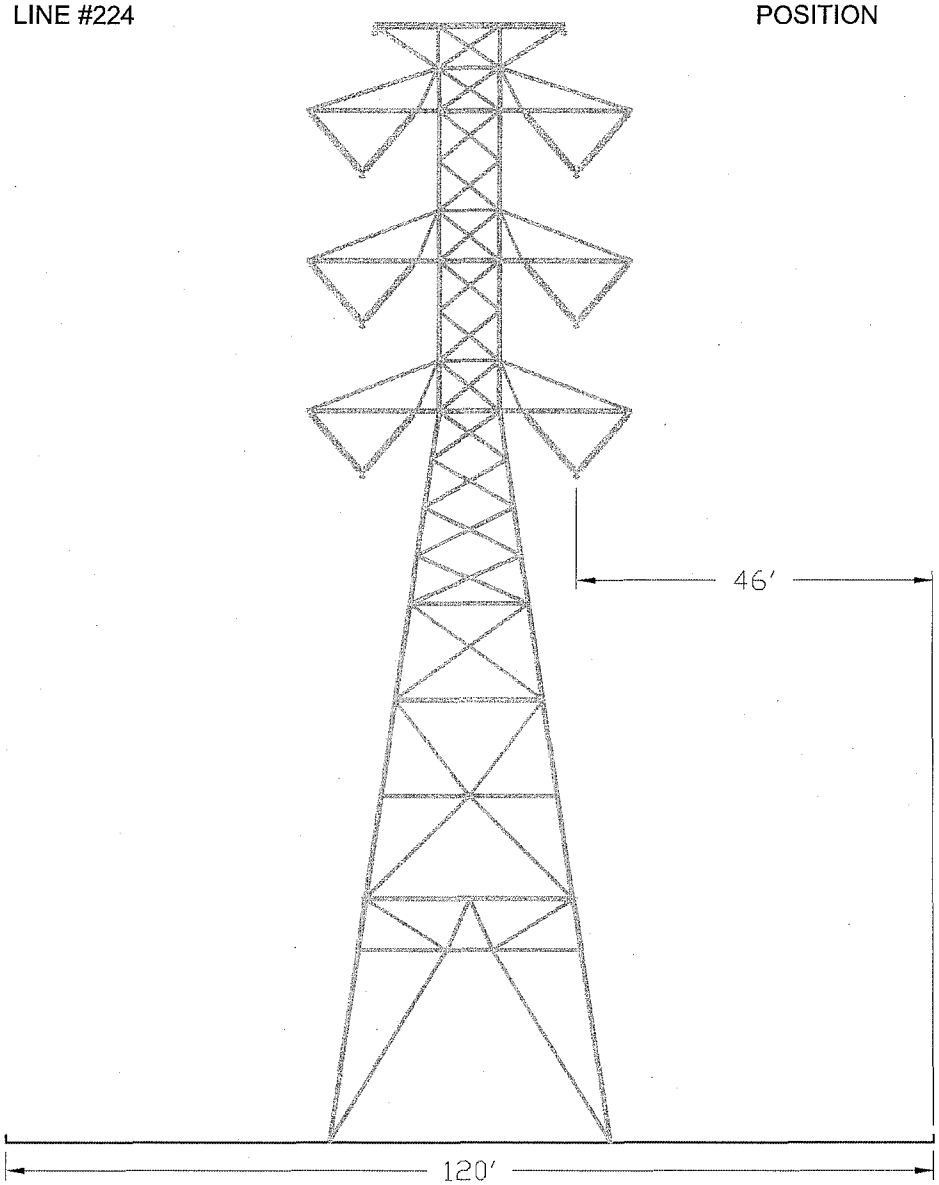
STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	0.53 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	2.5'
WIDTH AT CROSSARM:	36'
WIDTH AT BASE:	31'
AVERAGE SPAN LENGTH (RANGE):	698' (562' - 860')
STRUCTURE HEIGHT:	131'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

VACANT CIRCUIT
POSITION



STRUCTURE 224/270

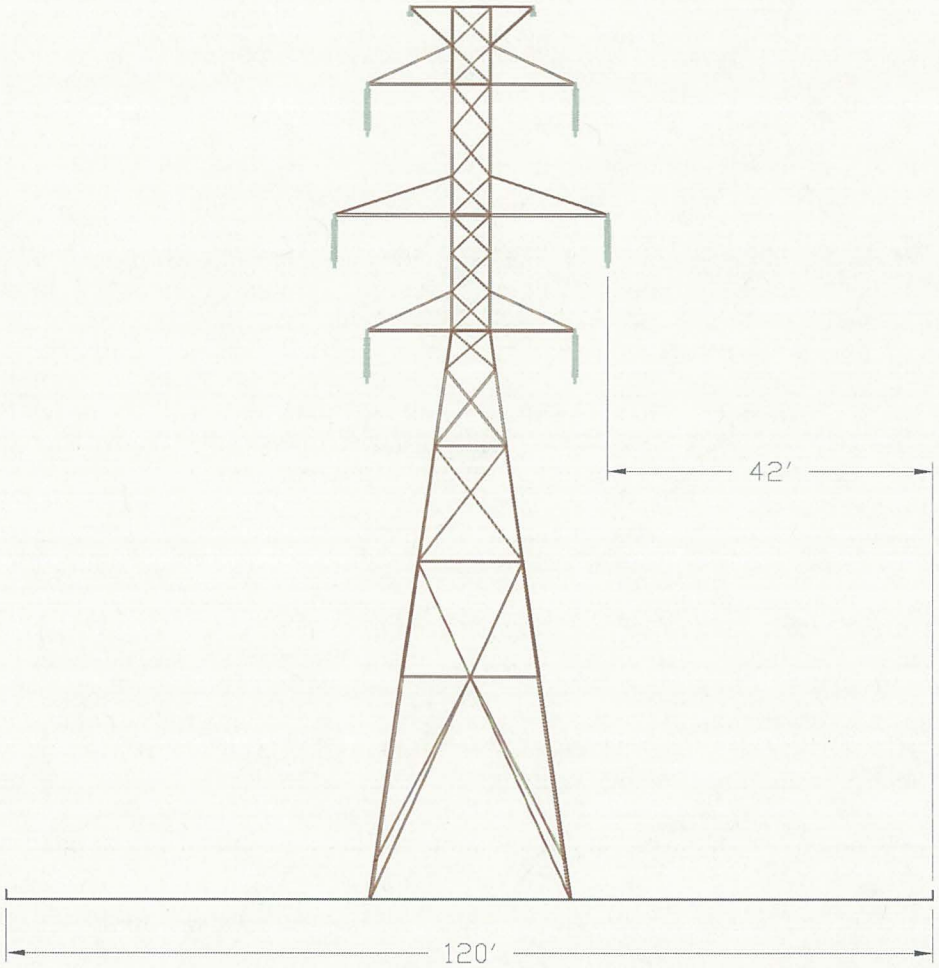
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	0.52 MILES (1)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	2.4'
WIDTH AT CROSSARM:	42'
WIDTH AT BASE:	37'
AVERAGE SPAN LENGTH (RANGE):	695' (637' - 953')
STRUCTURE HEIGHT:	145'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224

VACANT CIRCUIT
POSITION



STRUCTURE 224/269
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

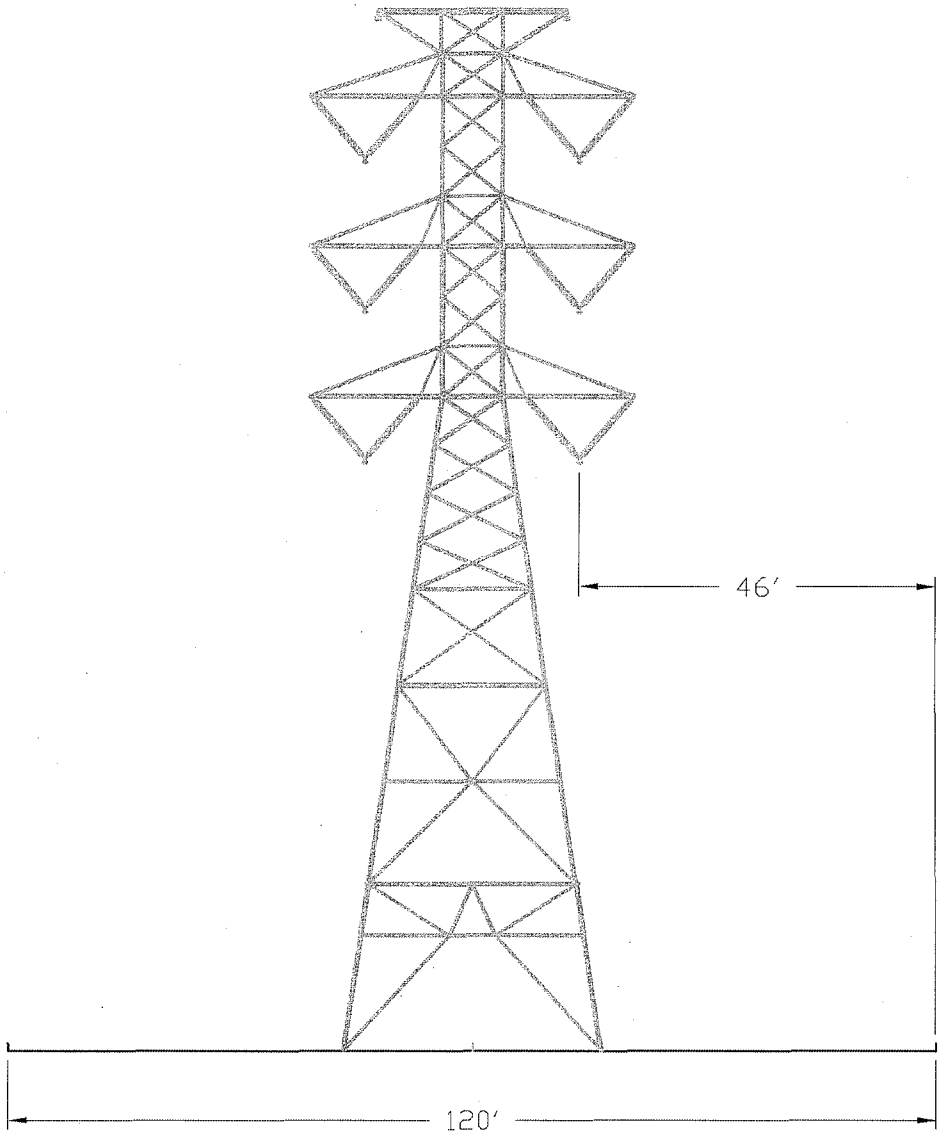
STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	0.53 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	1.1'
WIDTH AT CROSSARM:	36'
WIDTH AT BASE:	26'
AVERAGE SPAN LENGTH (RANGE):	698' (562' - 860')
STRUCTURE HEIGHT:	116'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

VACANT CIRCUIT
POSITION

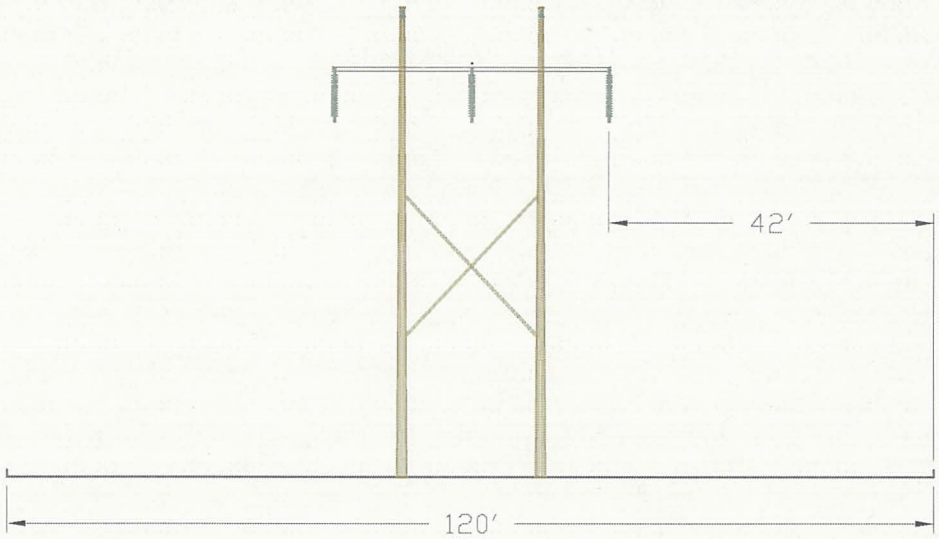


STRUCTURE 224/269
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	0.52 MILES (1)
MATERIAL FOR STRUCTURE:	GALVANIZED STEEL
FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	2.6'
WIDTH AT CROSSARM:	42'
WIDTH AT BASE:	34'
AVERAGE SPAN LENGTH (RANGE):	695' (637' - 953')
STRUCTURE HEIGHT:	135'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224

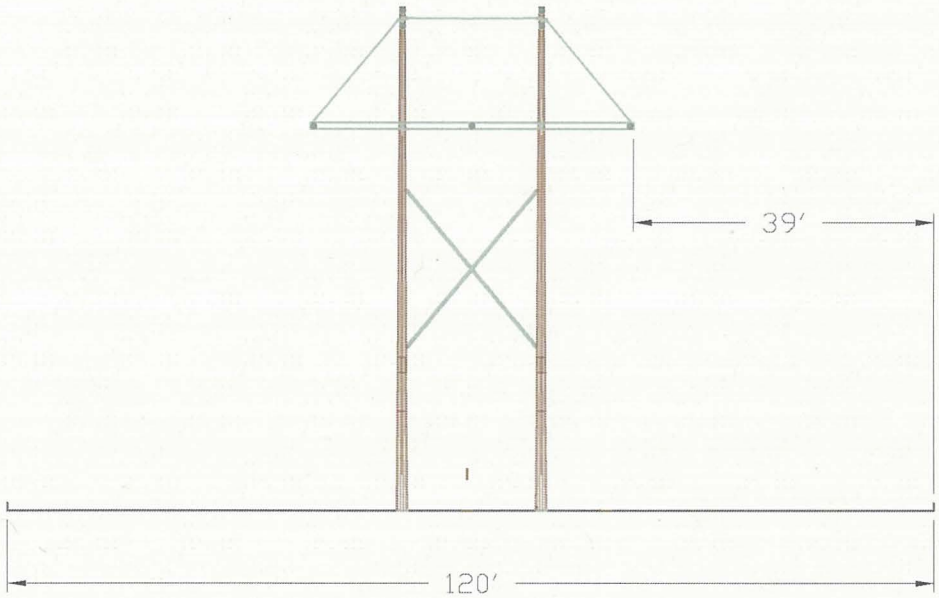


STRUCTURE 224/268
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	SUSPENSION H-FRAME
LENGTH OF R/W (TOTAL QUANTITY):	0.53 MILES (1)
MATERIAL FOR STRUCTURE:	WOOD
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	36'
WIDTH AT BASE (RANGE):	18'
AVERAGE SPAN LENGTH (RANGE):	698' (562' - 860')
AVERAGE STRUCTURE HEIGHT (RANGE):	61'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

230KV CIRCUIT
LINE #224



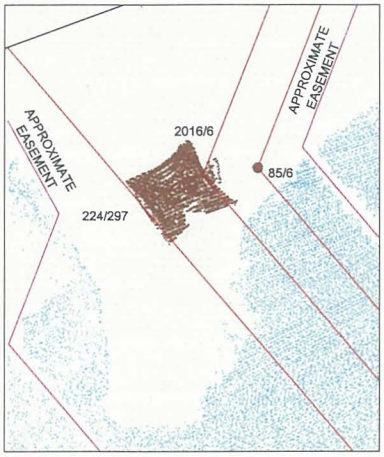
STRUCTURE 224/268
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEAD END H-FRAME
LENGTH OF R/W (TOTAL QUANTITY):	0.52 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	N/A - DIRECT EMBED
AVERAGE FOUNDATION REVEAL (RANGE):	N/A - DIRECT EMBED
WIDTH AT CROSSARM:	42'
WIDTH AT BASE (RANGE):	18'
AVERAGE SPAN LENGTH (RANGE):	661' (644' - 677')
AVERAGE STRUCTURE HEIGHT (RANGE):	66'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	120'

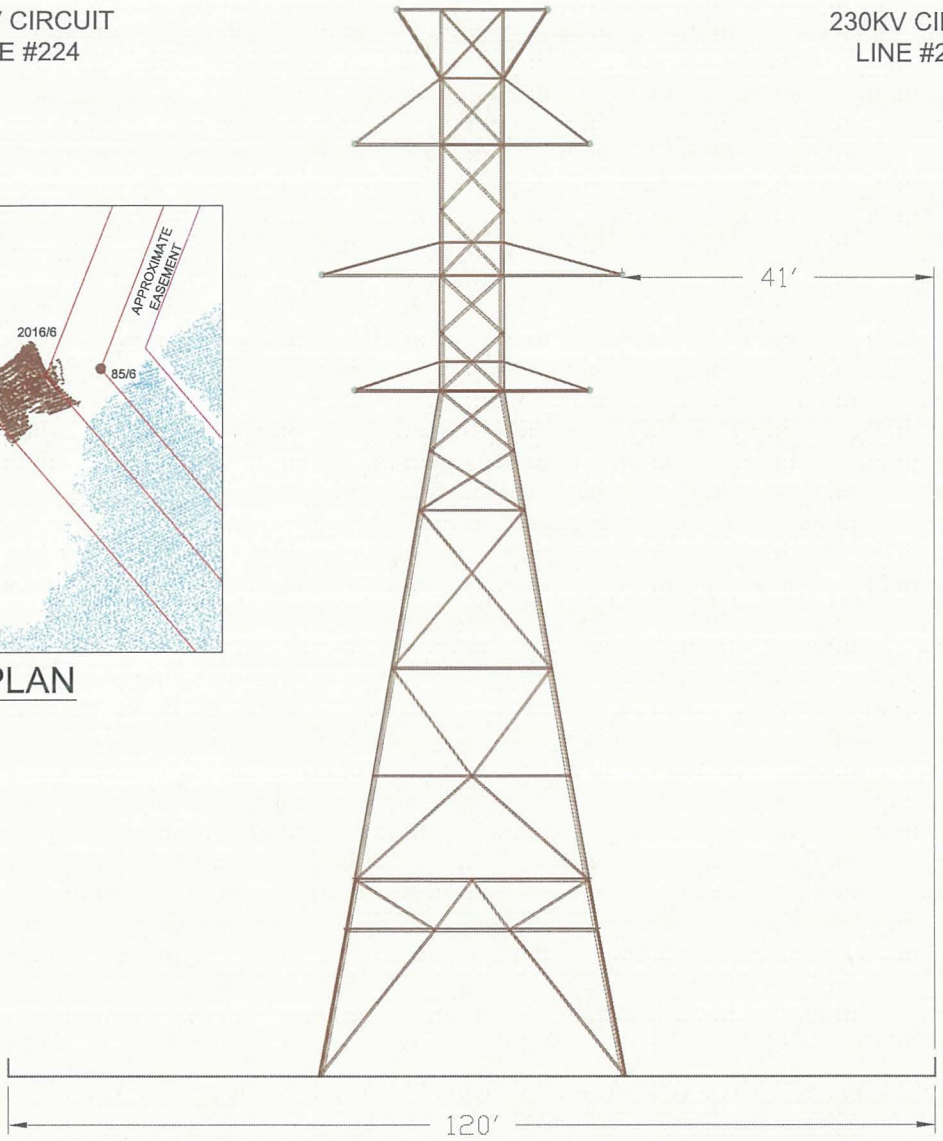
NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

230KV CIRCUIT
LINE #224

230KV CIRCUIT
LINE #2016



PLAN



STRUCTURE 224/297, 2016/6
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

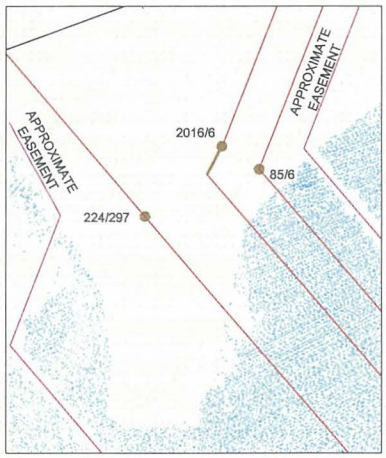
STRUCTURE TYPE:	DEAD END LATTICE TOWER
LENGTH OF R/W (TOTAL QUANTITY):	0.39 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE/STEEL
AVERAGE FOUNDATION REVEAL:	2.9'
WIDTH AT CROSSARM:	39'
WIDTH AT BASE (RANGE):	40'
AVERAGE SPAN LENGTH (RANGE):	1040' (978' - 1102')
AVERAGE STRUCTURE HEIGHT (RANGE):	139'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	VARIES

NOTES: 1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.

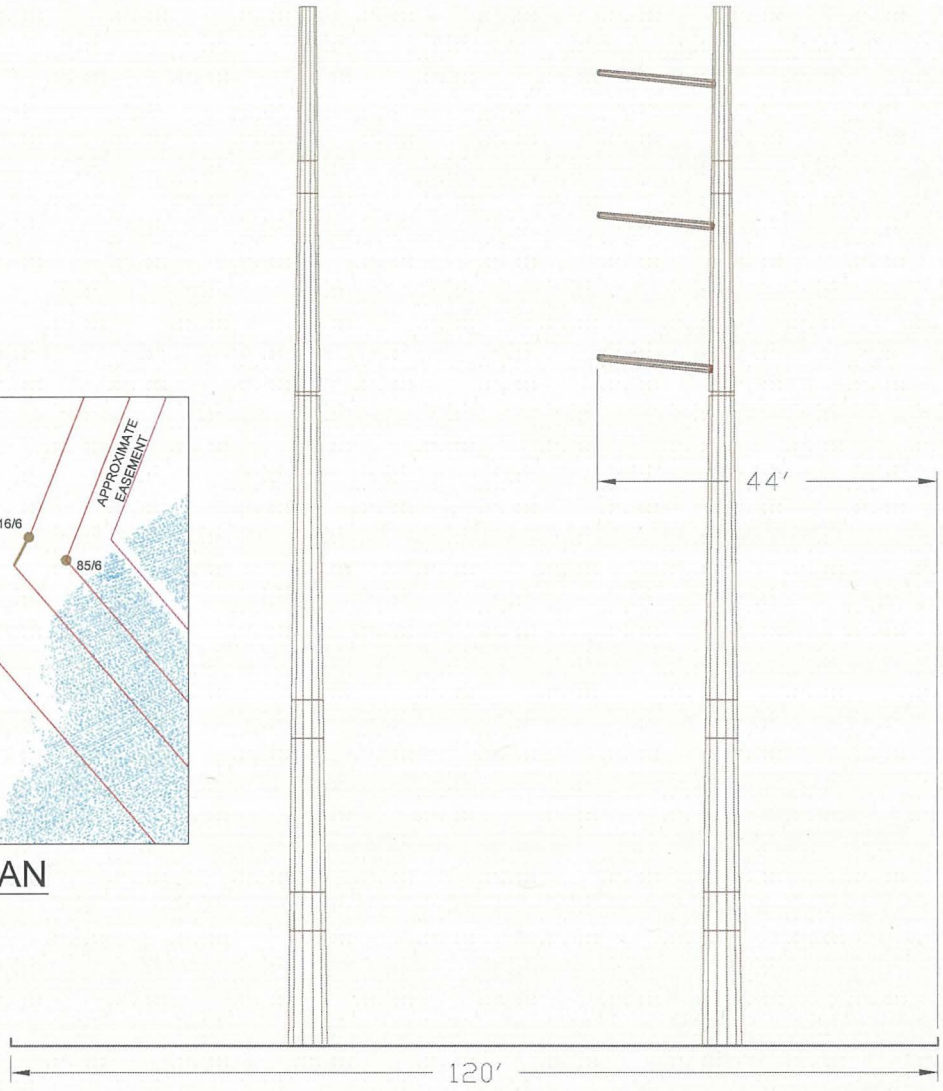
PRELIMINARY DESIGN

230KV CIRCUIT
LINE #224

230KV CIRCUIT
LINE #2016



PLAN



STRUCTURES 224/297 & 2016/6
RIGHT OF WAY LOOKING TOWARD NORTHERN NECK SUBSTATION

STRUCTURE TYPE:	DEAD END SINGLE POLE
LENGTH OF R/W (TOTAL QUANTITY):	0.39 MILES (1)
MATERIAL FOR STRUCTURE:	CORTEN STEEL
FOUNDATION MATERIAL:	CONCRETE/ STEEL
AVERAGE FOUNDATION REVEAL:	5.0'
WIDTH AT CROSSARM:	15' (0' & 15')
WIDTH AT BASE (RANGE):	8'
AVERAGE SPAN LENGTH (RANGE):	1040' (978' - 1102')
AVERAGE STRUCTURE HEIGHT (RANGE):	135'
MINIMUM CONDUCTOR - TO - GROUND:	22.5'
ROW WIDTH:	VARIES

NOTES:
1. HEIGHT DIMENSION DOES NOT INCLUDE FOUNDATION REVEAL.
2. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL ENGINEERING.

DIASCUND CROSSING STRUCTURE REPLACEMENT

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

6. Detail what portions of the ROW are subject to existing easements and over what portions new easements will be needed.

Response: The Line #224 Partial Rebuild Projects are all within existing 120-foot-wide rights-of-way, and no new easements will be required.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

7. Detail the proposed ROW clearing methods to be used and the ROW restoration and maintenance practices planned for the proposed project.

Response: The entire 120-foot-wide existing transmission line right-of-way is currently maintained for operation of the existing transmission facilities. Some trimming of tree limbs along the edge of the right-of-way may be conducted to support construction activities for the Line #224 Partial Rebuild Projects. For any such minimal clearing, trees will be cut to no more than three inches above ground level. Trees located outside of the right-of-way that are tall enough to potentially impact the transmission facilities, commonly referred to as "danger trees," may also need to be cut. Danger trees will be cut to be no more than three inches above ground level, limbed, and will remain where felled. Debris that is adjacent to homes will be disposed of by chipping or removal. In other areas, debris may be mulched or chipped as practicable. Danger tree removal will be accomplished by hand in wetland areas and within 100 feet of streams, if applicable. Care will be taken not to leave debris in streams or wetland areas. Matting may be used for heavy equipment in these areas. Erosion control devices will be used on an ongoing basis during all clearing and construction activities.

Erosion control will be maintained and temporary stabilization for all soil disturbing activities will be used until the right-of-way has been restored. Upon completion of the Line #224 Partial Rebuild Projects, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company's *Standards & Specifications for Erosion & Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities* that was approved by the Virginia Department of Environmental Quality ("DEQ"). Time-of-year and weather conditions may affect when permanent stabilization takes place.

This right-of-way will continue to be maintained on a regular cycle to prevent interruptions to electric service and provide ready access to the right-of-way in order to patrol and make emergency repairs. Periodic maintenance to control woody growth will consist of hand cutting, machine mowing and herbicide application.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

8. Indicate the permitted uses of the proposed ROW by the easement landowner and the Applicant.

Response: Any non-transmission use will be permitted that:

- Is in accordance with the terms of the easement agreement for the right-of-way;
- Is consistent with the safe maintenance and operation of the transmission lines;
- Will not restrict future line design flexibility; and
- Will not permanently interfere with future construction.

Subject to the terms of the easement, examples of typical permitted uses include but are not limited to:

- Agriculture
- Hiking Trails
- Fences
- Perpendicular Road Crossings
- Perpendicular Utility Crossings
- Residential Driveways
- Wildlife / Pollinator Habitat

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

9. Describe the Applicant's route selection procedures. Detail the feasible alternative routes considered. For each such route, provide the estimated cost and identify and describe the cost classification (e.g. "conceptual cost," "detailed cost," etc.). Describe the Applicant's efforts in considering these feasible alternatives. Detail why the proposed route was selected and other feasible alternatives were rejected. In the event that the proposed route crosses, or one of the feasible routes was rejected in part due to the need to cross, land managed by federal, state, or local agencies or conservation easements or open space easements qualifying under §§ 10.1-1009 – 1016 or §§ 10.1-1700 – 1705 of the Code (or a comparable prior or subsequent provision of the Code), describe the Applicant's efforts to secure the necessary ROW.

Response: The Company's route selection for transmission line rebuilds begins with a review of existing rights-of-way. This approach generally minimizes impacts on the natural and human environments and is consistent with FERC Guideline #1, which states that existing rights-of-way should be given priority when adding new transmission facilities, and Va. Code §§ 56-46.1 and 56-529, which also promote the use of existing rights-of-way for new transmission facilities. For the proposed Line #224 Partial Rebuild Projects, the existing right-of-way that currently contains that line is adequate.

Because the existing right-of-way is adequate to construct the proposed Line #224 Partial Rebuild Projects, no new right-of-way is necessary. Given the availability of existing right-of-way and the statutory preference given to the use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition and construction of new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for the Line #224 Partial Rebuild Projects.

See also the Company's response to Section III.G.9 for the Pamunkey River Rebuild, the Mattaponi River Rebuild, the I-64 Rebuild and the Diascund Rebuild.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

10. Describe the Applicant's construction plans for the project, including how the Applicant will minimize service disruption to the affected load area. Include requested and approved line outage schedules for affected lines as appropriate.

Response:

Pamunkey River Rebuild

Line #224 will be deenergized from Lanexa Substation to Dunnsville Substation during the Pamunkey River Rebuild. Customer service will not be disrupted. An outage request has been submitted to PJM.

Outage Submitted TOA 19-00052 Line #224 7/01/19 – 2/14/20

Mattaponi River Rebuild

Line #224 will be deenergized from Lanexa Substation to a new switch located at the proposed King and Queen temporary mobile substation during the Mattaponi River Rebuild. Customer service will not be disrupted. An outage request has been submitted to PJM. Please also refer to Section I.N of the Appendix.

Outage Submitted TOA 20-00008 Line #224 7/06/20 – 2/15/21

I-64 Rebuild

Line #224 will be deenergized from Lanexa Substation to a new switch located at the proposed temporary mobile substation during the I-64 Rebuild. This project work will be performed concurrently with the Mattaponi River Rebuild. Customer service will not be disrupted. An outage request has been submitted to PJM.

Outage Submitted TOA 20-00009 Line #224 7/06/20 – 10/16/20

Diascund Rebuild

Lines #224 and #2016 will be alternately deenergized for the Diascund Rebuild. Line #224 will be deenergized from Lanexa Substation to Dunnsville Substation. Line #2016 will be deenergized from Lanexa Substation to Correctional Substation. This project work will be performed during the outage window for the Pamunkey River Rebuild. Customer service will not be disrupted. Outage requests have been submitted to PJM.

Outage Submitted TOA 19-00055 Line #2016 5/06/19 – 5/15/19
Foundation Installation

Outage Submitted TOA 00053 Line #224 5/16/19 – 5/25/19
Foundation Installation

Outage Submitted TOA 19-00056	Line #2016	6/24/19 – 6/30/19	Structure Installation & Line work
Outage Submitted TOA 19-00054	Line #224	7/01/19 – 7/25/19	Structure Installation & Line work

For all of the Line #224 Partial Rebuild Projects, the Company has requested the outages but has not yet received approval. It is customary for PJM not to grant approval of the outages until shortly before the outages are expected to occur.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

11. Indicate how the construction of this transmission line follows the provisions discussed in Attachment 1 of these Guidelines.

Response: The FERC guidelines, included as Attachment 1 to these Guidelines, are a tool routinely used by the Company in routing its transmission line projects.

The Company utilized Guideline #1 (existing rights-of-way should be given priority when adding additional facilities) by siting the proposed Rebuild Project within the existing transmission corridor.

By utilizing the existing transmission corridor, the proposed Line #224 Partial Rebuild Projects will minimize impact to any site listed on the National Register of Historic Places ("NRHP"). Thus, the Rebuild Projects are consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the NRHP). The existing right-of-way crosses Sweet Hall (DHR ID 050-0067), which is NRHP-listed. See Section III.A for a description of the resources identified in the Stage I Pre-Application Analysis ("Stage I Analysis") prepared by Stantec Consulting Services, Inc. ("Stantec") on behalf of the Company, which are included with the DEQ Supplement as Attachments 2.H.1 and 2.H.2. Consistent with its customary practice, the Company will coordinate with the Virginia Department of Historic Resources ("DHR") regarding the findings of the Stage I Analysis.

The Company has communicated with a number of local, state, and federal agencies prior to filing this application consistent with Guideline #4 (where government land is involved the Company should contact the agencies early in the planning process). See Section III.B, III.J, and the DEQ Supplement.

The Company follows construction methods on a site-specific basis for typical construction projects (Guidelines #8, 10, 11, 15, 16, 18, and 22).

The Company also utilizes Guidelines in the clearing of right-of-way, constructing facilities and maintaining rights-of-way after construction. Moreover, secondary uses of right-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant's certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify the length of line(s) proposed to be located in the service area of an electric utility other than the Applicant; and

b. Provide three (3) color copies of the Virginia Department of Transportation "General Highway Map" for each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the Applicant. Also, where the line will be located outside of the Applicant's certificated service area, show the boundaries between the Applicant and each affected electric utility. On each map where the proposed line would be outside of the Applicant's certificated service area, the map must include a signature of an appropriate representative of the affected electric utility indicating that the affected utility is not opposed to the proposed construction within its service area.

Response:

a. ***Detail counties and localities through which the line will pass.***

The Line #224 Partial Rebuild Projects are located entirely within Dominion Energy Virginia's service territory.

Pamunkey River Rebuild

The Pamunkey River Rebuild traverses New Kent and King William Counties for a total of approximately 1.7 miles.

Mattaponi River Rebuild

The Mattaponi River Rebuild traverses King William and King and Queen Counties for a total of approximately 1.3 miles.

I-64 Rebuild

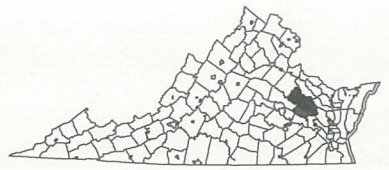
The I-64 Rebuild is located entirely within New Kent County and extends for a total of approximately 0.5 mile.

Diascund Rebuild

The Diascund Rebuild is located entirely within New Kent County.

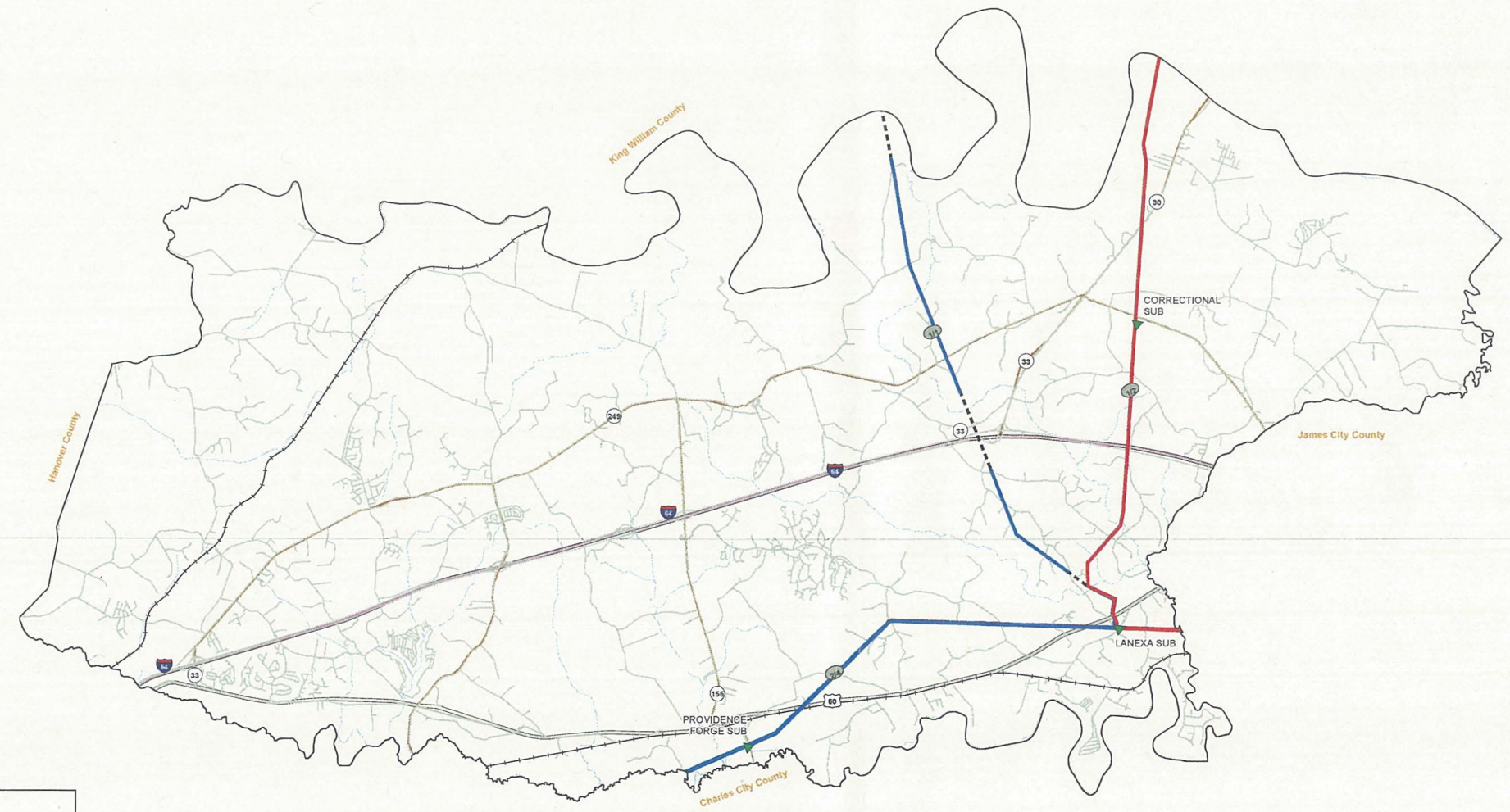
b. ***Copies of the Virginia Department of Transportation "General Highway Map"***

Three copies of the map of the Virginia Department of Transportation "General Highway Map" for New Kent, King William and King and Queen Counties have been marked as required, and filed with the Application. A reduced copy of the New Kent County map is provided as Attachment II.A.12.b.1. A reduced copy of the King William County map is provided as Attachment II.A.12.b.2. A reduced copy of the King and Queen County map is provided as Attachment II.A.12.b.3.



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of _____. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.

New Kent County Map



VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO BUILD TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK DASHES ON THIS MAP.

Legend

- Proposed 230kv Rebuild
- (101) Number of Lines of Structures/Number of Circuits
- △ Proposed Substation
- ▲ Existing Substation
- 115 kV
- 230 kV
- 500 kV
- MilitaryBases

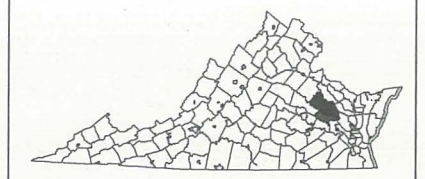
Provider Service Territory

- VEPCO
- REC

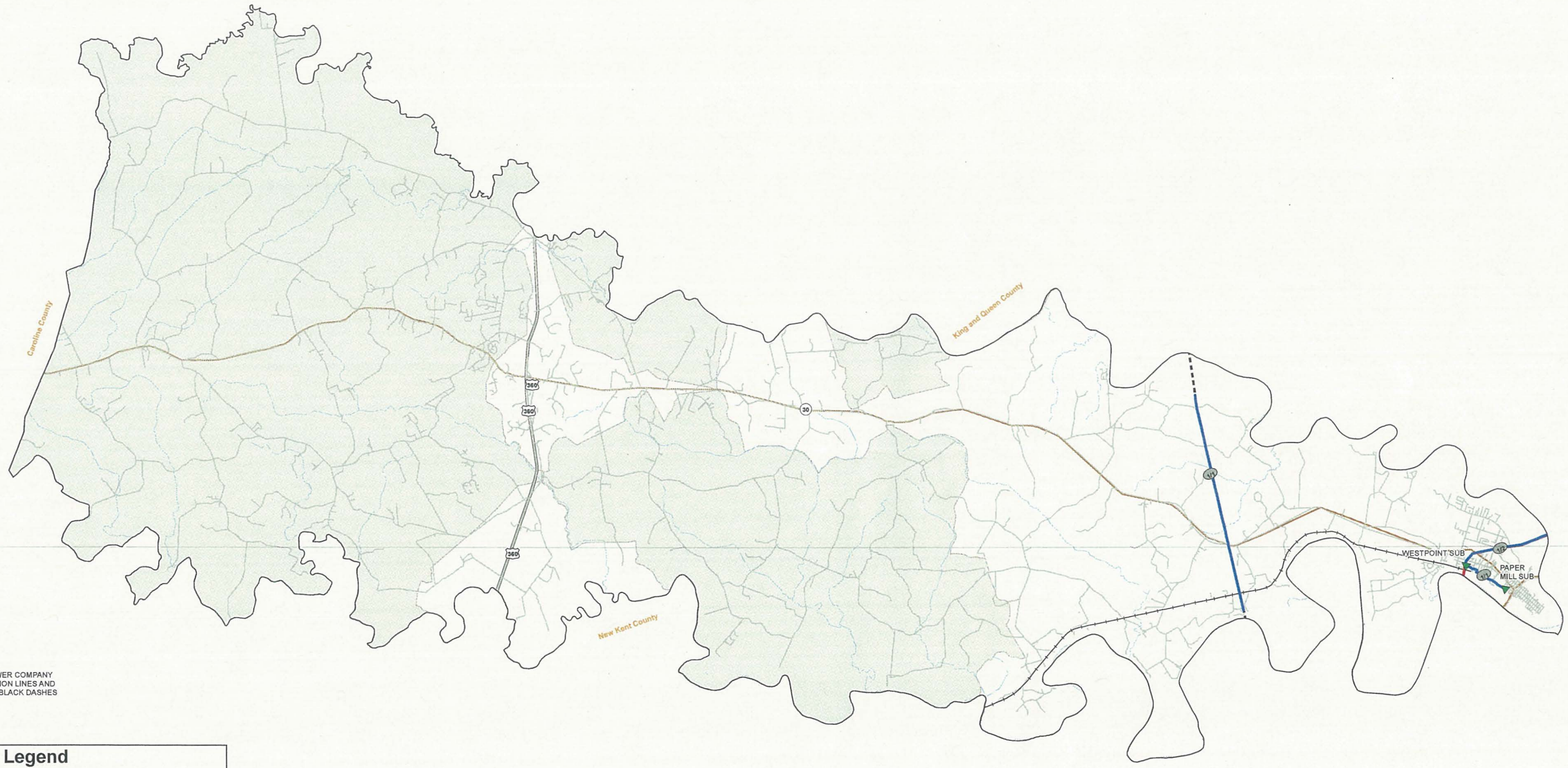
2 1 0 2 4 6 Miles

*VDOT and other road data obtained from Navteq and County data, current as of September 2009.

King William County Map



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of _____. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.



VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO BUILD TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK DASHES ON THIS MAP.

Legend

- Proposed 230kv Rebuild
- (1/1) Number of Lines of Structures/Number of Circuits
- Proposed Substation
- Existing Substation
- 115 kV
- 230 kV
- 500 kV
- MilitaryBases

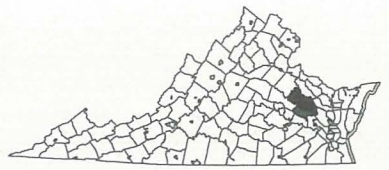
Provider Service Territory

- VEPCO
- REC

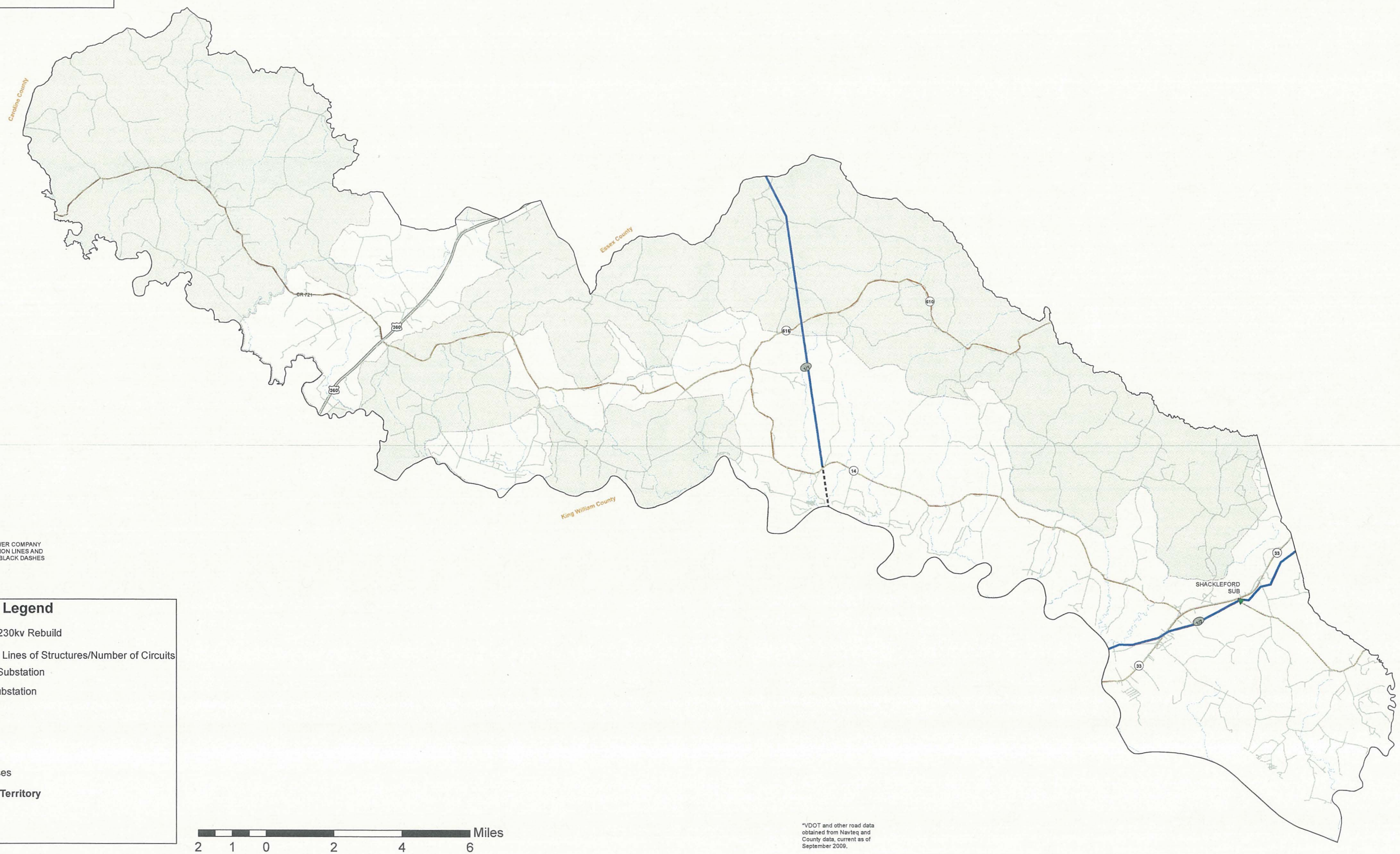
2 1 0 2 4 6 Miles

*VDOT and other road data obtained from Navteq and County data, current as of September 2009.

King and Queen County Map



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of _____. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.



VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO BUILD TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK DASHES ON THIS MAP.

Legend

- Proposed 230kv Rebuild
- (101) Number of Lines of Structures/Number of Circuits
- △ Proposed Substation
- ▲ Existing Substation
- 115 kV
- 230 kV
- 500 kV
- MilitaryBases

Provider Service Territory

- VEPCO
- REC

2 1 0 2 4 6 Miles

*VDOT and other road data obtained from Navteq and County data, current as of September 2009.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

1. Detail the number of circuits and their design voltage, initial operational voltage, any anticipated voltage upgrade, and transfer capabilities.

Response:

Pamunkey River Rebuild

One active 230 kV designed and operated circuit with summer transfer capabilities of 1047 MVA will be installed.

In addition, one 230 kV circuit is proposed to be installed but will remain idle for future use with future summer transfer capabilities of 1047 MVA. It is prudent to install a future 230 kV circuit at the time of installation based on the location being a river crossing.

Mattaponi River Rebuild

One active 230 kV designed and operated circuit with summer transfer capabilities of 1047 MVA will be installed and one active 34.5 kV designed and operated distribution circuit with a summer transfer capability of 79 MVA will be installed. This 34.5 kV distribution circuit would be designed to allow conversion to 230 kV in the future if needed.

I-64 Rebuild

The existing conductor is 230 kV designed and operated with transfer capabilities of 384 MVA. It will be transferred to the new structures.

Diascund Rebuild

The existing conductor is 230 kV designed and operated with transfer capabilities of 384 MVA. It will be transferred to the new structures.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

2. Detail the number, size(s), type(s), coating and typical configurations of conductors. Provide the rationale for the type(s) of conductor(s) to be used.

Response: **Pamunkey River Rebuild**

The two 230 kV capable lines (Line #224 and future 230 kV circuit) will each have 768 ACSS/TW/HS-285 (20/7) twin-bundled phase conductors arranged vertically. The 768 ACSS/TW/HS-285 (20/7) trapezoidal conductor meets the minimum transfer capabilities while providing additional mechanical properties conducive for river crossings including decreased sag, increased self-damping properties, and improved corrosion resistance. In addition to the phase conductor, the shield wires will also be replaced with one shield wire above each line.

Mattaponi River Rebuild

The two 230 kV capable lines (Line #224 and the 34.5 kV distribution circuit) will each have 768 ACSS/TW/HS-285 (20/7) twin-bundled phase conductors arranged vertically. The 768 ACSS/TW/HS-285 (20/7) trapezoidal conductor meets the minimum transfer capabilities while providing additional mechanical properties conducive for river crossings including decreased sag, increased self-damping properties, and improved corrosion resistance. In addition to the phase conductor, the shield wires will also be replaced with one shield wire above each line.

I-64 Rebuild

The existing 1109 ACAR (24/13) conductor will be transferred from the existing towers to the proposed structures. The existing 1109 ACAR (24/13) conductor meets the minimum transfer capabilities while providing adequate ampacity. In addition to the phase conductor, the Company will install new shield wires on the proposed structures.

Diascund Rebuild

The existing 1109 ACAR (24/13) conductor will be transferred from the existing tower to the proposed structures. The conductor meets the minimum transfer capabilities while providing adequate ampacity. In addition to the phase conductor, the shield wires will also be transferred to the proposed structures.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

3. With regard to the proposed supporting structures over each portion of the ROW for the preferred route, provide diagrams (including foundation reveal) and descriptions of all the structure types, to include:

a. mapping that identifies each portion of the preferred route;

b. the rationale for the selection of the structure type;

c. the number of each type of structure and the length of each portion of the ROW;

d. the structure material and rationale for the selection of such material;

e. the foundation material;

f. the average width at cross arms;

g. the average width at the base;

h. the maximum, minimum and average structure heights;

i. the average span length; and

j. the minimum conductor-to-ground clearances under maximum operating conditions.

Response: **Pamunkey River Rebuild**

Attachment II.A.5.b (Structures # 224/226 and # 224/234)

a. See Attachment II.B.5.a.

b. The existing wood suspension H-frame Structures #224/226 and #224/234 will not support construction loads and must be replaced. The proposed 3-pole structures will allow the existing conductor to end and transition to the new conductor.

c. See Attachment II.A.5.b.

d. Weathering Steel – the proposed weathering steel poles comply with the Company's current practice for wood pole replacements.

e. Not applicable.

f. Not applicable.

g. See Attachment II.A.5.b.

h. See Attachment II.B.5.b.

i. See Attachment II.A.5.b.

j. See Attachment II.A.5.b.

Attachment II.A.5.d (Structure #224/233)

a. See Attachment II.B.5.a.

b. The Company's rationale was to replace the existing weathering steel lattice Structure #224/233 with a galvanized steel lattice structure. Lattice structures minimize the foundation loads. Additionally, where feasible the Company typically will pursue like-type structures when replacing existing facilities.

Other project alternatives were considered such as a double circuit H-frame and a double circuit monopole, but these project alternatives were not conducive for the project due to the subsurface soil conditions. The foundation size and cost make it impractical to deviate from a four-legged lattice tower.

c. See Attachment II.A.5.d.

d. Historically, the Company has not proposed the use of chemically-dulled galvanized steel for transmission projects due to the initial incremental costs and increased maintenance costs over the life of the asset and because galvanized steel will naturally dull as it is exposed to the environment. However, given recent Commission precedent regarding its use as a means of reasonably minimizing visual impacts, the Company is providing the incremental cost to use chemically-dulled structures for the Pamunkey River Rebuild if the Commission deems prudent. The incremental cost to use chemically-dulled structures for the entire Pamunkey River Rebuild is approximately $9,803.

e. Concrete and steel.

f. See Attachment II.A.5.d.

g. See Attachment II.A.5.d.

h. See Attachment II.B.5.d.

i. See Attachment II.A.5.d.

j. See Attachment II.A.5.d.

Attachment II.A.5.f (Structures #224/228 through #224/232)

a. See Attachment II.B.5.a.

b. The Company's rationale was to replace existing weathering steel lattice Structures #224/228 through #224/232 with galvanized steel lattice structures. Lattice structures minimize the foundation loads. Additionally, where feasible the Company typically will pursue like-type structures when replacing existing facilities.

   Other project alternatives were considered such as a double circuit H-frame and a double circuit monopole, but these project alternatives were not conducive for the project due to the subsurface soil conditions. The foundation size and cost make it impractical to deviate from a four-legged lattice tower.

c. See Attachment II.A.5.f.

d. See subsection d. above under "Attachment II.A.5.d (Structure #224/233)" as it applies to the Pamunkey River Rebuild.

e. Concrete and steel.

f. See Attachment II.A.5.f.

g. See Attachment II.A.5.f.

h. See Attachment II.B.5.f.

i. See Attachment II.A.5.f.

j. See Attachment II.A.5.f.

Attachment II.A.5.h (Structure #224/227)

a. See Attachment II.B.5.a.

b. The existing wood 3-pole Structure #224/227 will not support construction loads and must be replaced. The proposed lattice tower is a full dead end structure and support the construction loads.

c. See Attachments II.A.5.h.

d. See subsection d. above under "Attachment II.A.5.d (Structure #224/233)" as it applies to the Pamunkey River Rebuild.

e. Concrete and steel.

f. See Attachment II.A.5.h.

g. See Attachment II.A.5.h.

h. See Attachment II.B.5.h.

i. See Attachment II.A.5.h.

j. See Attachment II.A.5.h.

Mattaponi River Rebuild

Attachment II.A.5.j (Structures #224/180 and #224/186)

a. See Attachment II.B.5.b.

b. The existing wood suspension H-frame Structures #224/180 and #224/186 will not support construction loads and must be replaced. The proposed 3-pole structures will allow the existing conductor to end and transition to the new conductor.

c. See Attachment II.A.5.j.

d. Weathering Steel – the proposed weathering steel poles comply with the Company's current practice for wood pole replacements.

e. Not applicable.

f. Not applicable.

g. See Attachment II.A.5.j.

h. See Attachment II.B.5.j.

i. See Attachment II.A.5.j.

j. See Attachment II.A.5.j.

Attachment II.A.5.l (Structures #224/181 and #224/185)

a. See Attachment II.B.5.b.

b. The existing wood 3-pole Structures #224/181 and #224/185 will not support construction loads and must be replaced. The proposed lattice towers are a full dead end structures and support the construction loads.

c. See Attachment II.A.5.l.

d. Historically, the Company has not proposed the use of chemically-dulled galvanized steel for transmission projects due to the initial incremental costs and increased maintenance costs over the life of the asset and because galvanized steel will naturally dull as it is exposed to the environment.

However, given recent Commission precedent regarding its use as a means of reasonably minimizing visual impacts, the Company is providing the incremental cost to use chemically-dulled structures for the Mattaponi River Rebuild if the Commission deems prudent. The incremental cost to use chemically-dulled structures for the entire Mattaponi River Rebuild is approximately $7,126.

e. Concrete and steel.

f. See Attachment II.A.5.l.

g. See Attachment II.A.5.l.

h. See Attachment II.B.5.l.

i. See Attachment II.A.5.l.

j. See Attachment II.A.5.l.

Attachment II.A.5.n (Structures #224/182 through #224/184)

a. See Attachment II.B.5.b.

b. The Company's rationale was to replace the existing weathering steel lattice Structures #224/182 through #224/184 with galvanized steel lattice structures. Lattice structures minimize the foundation loads. Additionally, where feasible the Company typically will pursue like-type structures when replacing existing facilities.

Other project alternatives were considered such as a double circuit H-frame and a double circuit monopole, but these project alternatives were found to not be conducive for the project due to the subsurface soil conditions. The foundation size and cost make it impractical to deviate from a 4-legged lattice tower.

c. See Attachment II.A.5.n.

d. See subsection d. above under "Attachment II.A.5.l (Structures #224/181 and #224/185)" as it applies to the Mattaponi River Rebuild.

e. Concrete and steel.

f. See Attachment II.A.5.n.

g. See Attachment II.A.5.n.

h. See Attachment II.B.5.n.

i. See Attachment II.A.5.n.

j. See Attachment II.A.5.n.

I-64 Rebuild

Attachment II.A.5.p (Structure #224/271)

a. See Attachment II.B.5.c.

b. The existing wood suspension H-frame Structure #224/271 must be replaced due to the change in conductor elevation between the H-frame and the tower. The proposed H-frame structure will allow the existing conductor to end and eliminate all uplift issues.

c. See Attachment II.A.5.p.

d. Weathering Steel – the proposed weathering steel poles comply with the Company's current practice for wood pole replacements.

e. Not applicable.

f. Not applicable.

g. See Attachment II.A.5.p.

h. See Attachment II.A.5.p.

i. See Attachment II.A.5.p.

j. See Attachment II.A.5.p.

Attachment II.A.5.r (Structure #224/270)

a. See Attachment II.B.5.c.

b. The Company's rationale was to replace the existing weathering steel lattice Structure #224/270 with a galvanized steel lattice structure. Lattice structures minimize the foundation loads. Additionally, where feasible the Company typically will pursue like-type structures when replacing existing facilities.

Other project alternatives were considered such as a double circuit H-frame and a double circuit monopole, but these project alternatives were not conducive to the project due to the subsurface soil conditions. The foundation size and cost make it impractical to deviate from a four-legged lattice tower.

c. See Attachment II.A.5.r.

d. Historically, the Company has not proposed the use of chemically-dulled galvanized steel for transmission projects due to the initial incremental costs

and increased maintenance costs over the life of the asset and because galvanized steel will naturally dull as it is exposed to the environment. However, given recent Commission precedent regarding its use as a means of reasonably minimizing visual impacts, the Company is providing the incremental cost to use chemically-dulled structures for the I-64 Rebuild if the Commission deems prudent. The incremental cost to use chemically-dulled structures for the entire I-64 Rebuild is approximately $1,967.

e. Concrete and steel.

f. See Attachment II.A.5.r.

g. See Attachment II.A.5.r.

h. See Attachment II.B.5.r.

i. See Attachment II.A.5.r.

j. See Attachment II.A.5.r.

Attachment II.A.5.t (Structure #224/269)

a. See Attachment II.B.5.c.

b. The Company's rationale was to replace the existing weathering steel lattice Structure #224/269 with a galvanized steel lattice structure. Lattice structures minimize the foundation loads. Additionally, where feasible the Company typically will pursue like-type structures when replacing existing facilities.

Other project alternatives were considered such as a double circuit H-frame and a double circuit monopole, but these project alternatives were not conducive for the project due to the subsurface soil conditions. The foundation size and cost make it impractical to deviate from a four-legged lattice tower.

c. See Attachment II.A.5.t.

d. See subsection d. above under "Attachment II.A.5.r (Structure #224/270)" as it applies to the I-64 Rebuild.

e. Concrete and steel.

f. See Attachment II.A.5.t.

g. See Attachment II.A.5.t.

h. See Attachment II.B.5.t.

i. See Attachment II.A.5.t.

j. See Attachment II.A.5.t.

Attachment II.A.5.v (Structure #224/268)

a. See Attachment II.B.5.c.

b. The existing wood suspension H-frame Structure #224/268 must be replaced due to the change in conductor elevation between the H-frame and the tower. The proposed H-frame structure will allow the existing conductor to end and eliminate all uplift issues.

c. See Attachment II.A.5.v.

d. See subsection d. above under "Attachment II.A.5.r (Structure #224/270)" as it applies to the I-64 Rebuild.

e. Not applicable.

f. Not applicable.

g. See Attachment II.A.5.v.

h. See Attachment II.B.5.v.

i. See Attachment II.A.5.v.

j. See Attachment II.A.5.v.

Diascund Rebuild

Attachment II.A.5.x (Structure #224/297, 2016/6)

a. See Attachment II.B.5.d.

b. The Company's rationale was to replace the existing weathering steel lattice Structure #224/297, 2016/6 with a weathering steel deadend single pole structure. This would minimize the overall scope of the Diascund Rebuild and allow the Company to re-use the existing conductor and static wires.

c. See Attachment II.A.5.x.

d. Weathering Steel – the finish of the proposed weathering steel pole is similar to the existing lattice tower.

e. Concrete and steel.

f. See Attachment II.A.5.x.

g. See Attachment II.A.5.x.

h. See Attachment II.B.5.x.

i. See Attachment II.A.5.x.

j. See Attachment II.A.5.x.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

4. With regard to the proposed supporting structures for all feasible alternate routes, provide the maximum, minimum and average structure heights with respect to the whole route.

Response: Not applicable for the Line #224 Partial Rebuild Projects.