

ENGINEERING EXHIBIT

Application for Construction Permit

prepared for

Hampton Roads Educational Telecommunications Association, Inc.

WHRV(FM) Norfolk, VA

Facility ID 25933

Ch. 208B (89.5 MHz) 34 kW 182 m

Hampton Roads Educational Telecommunications Association, Inc. (“HRETA”) is the licensee of non-commercial educational FM radio station WHRV(FM) Ch. 208B, Norfolk, VA (BLED-20021008AAX). WHRV is licensed to operate with 8.8 kW effective radiated power (“ERP”) and an antenna height above average terrain (“HAAT”) of 350 meters, which is equivalent to a maximum Class B facility.

HRETA herein seeks a minor modification of the WHRV facility to utilize an adjacent tower structure and employ a reduced antenna height with a commensurate increase in ERP to maintain a maximum equivalent Class B facility. As specified herein, WHRV will operate with a nondirectional ERP of 34 kW at 182 meters antenna HAAT.

It is proposed to move the WHRV facility to the tower structure associated with FCC Antenna Structure Registration number 1027474, located immediately adjacent to the licensed WHRV facility. The intended tower structure was employed by the analog WHRO-TV television facility (Channel 15, Hampton-Norfolk, VA), under common ownership with WHRV.¹

The top-mounted Channel 15 television antenna has been removed, and the tower’s overall height will be reduced further. The final overall height above ground will be 193.6 meters, which is 112.7 meters reduced from its original overall height. Notification to the FAA of the reduction in tower height will be made by the structure owner and the corresponding FCC ASR #1027474 will be

¹WHRV was previously licensed to operate on this tower (BLED-19990810KB), at 22 kW ERP and 229 m HAAT.

modified upon approval from the FAA. The WHRV antenna will be side-mounted on the upper portion of the tower structure, following the height reduction.

The antenna will be shared with WHRO-FM (Ch. 212B Norfolk, VA) which is proposing to use the subject antenna as an auxiliary facility. WHRO-FM is also licensed to *HRETA*, and a separate application for construction permit regarding WHRO-FM is being filed contemporaneously. WHRV and WHRO-FM presently utilize a shared antenna, and the existing combining equipment will be employed during the condition where WHRV (main) and WHRO-FM (auxiliary) must simultaneously use the new antenna.

The principal community of Norfolk is encompassed by the proposed WHRV 60 dBμ coverage contour as depicted in the coverage contour map of **Figure 1**. A comparison of the licensed and proposed 60 dBμ contour locations is provided in **Figure 2**, showing that the proposal clearly complies with §73.3573(a)(1) regarding a minor modification.

Allocation Considerations

A study of the minimum separation requirements for the proposed transmitter site shows that the following FM facilities are close enough to warrant study in regard to prohibited overlap under §73.509 of the Commission's Rules:

Channel Status	Call Sign Service	City/State File Number	Fac. ID	Latitude Longitude	Power HAAT	Distance Bearing
206B LIC	WWIP FM	CHERITON, VA BLED-20050429AEW	90265	37 10 53 75 57 47	20.0 137	63.44 49.05
207A LIC	WJYA FM	EMPORIA, VA BLED-20050128ARN	88666	36 46 04 77 43 39	2.0 135	109.34 267.96
207C2 CP	WJYA FM	EMPORIA, VA BPED-20070905ABK	88666	36 56 39 77 37 14	23.0 161.2	100.71 278.94
208A LIC	WWED FM	SPOTSYLVANIA, VA BLED-20051107AAB	90679	38 11 48 77 33 45	0.38 132	180.25 329.13
208B1 CP MOD	WWED FM	SPOTSYLVANIA, VA BMPED-20090730AAL	90679	38 11 48 77 33 45	8.0 151	180.25 329.13
208B CP	WNRS-FM FM	SWEET BRIAR, VA BPED-20070907AFD	74157	37 26 06 78 48 15	20.0 190	215.94 289.54
208B LIC	WSCL FM	SALISBURY, MD BLED-19940922KA	58660	38 39 15 75 36 42	33.0 178	219.38 20.65
209B1 LIC	WAUQ FM	CHARLES CITY, VA BLED-20000118ABI	82970	37 25 58 77 11 38	10.0 107	92.51 318.79
210C2 LIC	WRVS-FM FM	ELIZABETH CITY, NC BLED-19910110KD	19249	36 16 55 76 12 44	41.0 70	64.03 155.96

The attached **Figures 3, 4, and 5** depict the pertinent protected and interfering contours of the stations listed and the proposed WHRV facility. Co-channel stations and first-adjacent channel stations protected and interfering contours are depicted in **Figures 3 and 4**, respectively. **Figure 5** provides an allocation map regarding second and third adjacent stations.

Regarding first-adjacent stations, **Figure 4A** supplies a detailed map of the contours which are close but do not overlap with WJYA (CP Ch. 207C2, Emporia, VA) and WAUQ(FM) (Ch. 209B1 Charles City, VA). **Tables 1 and 2** provide companion “FM Over” computations for the WJYA and WAUQ contours at one-degree increments. These exhibits demonstrate that no prohibited contour overlap will occur with these first-adjacent facilities.

The allocation study summarized above concludes that the WHRV proposal is in compliance with §73.509 regarding prohibited contour overlap. The contour locations were determined using the actual ERP and height above terrain along each radial for each facility, as specified in §73.509(c). For the facilities under study, the antenna elevation above mean sea level, geographic coordinates, and ERP (including directional antenna relative field values, where appropriate) were retrieved from the FCC’s engineering database. The requisite contours were determined using USGS 3 second digitized terrain data along each radial of interest from each transmitter site and an implementation of the Commission’s TVFMFS computer program which simulates the FM propagation curves. The F(50,10) distances are used to calculate distance to interfering contours, however if the distance is less than 16 km the F(50,50) curves are used, as specified by §73.509(c)(2).

A spacing study as required by §73.507(c) regarding facilities differing in frequency by 10.6 or 10.8 MHz from the proposal is summarized in the following. The proposed facility meets the minimum distance separation requirements of §73.207 in all such instances.

Channel Status	Call Sign Service	City/State File Number	Fac. ID	Latitude Longitude	Power HAAT	Distance Bearing	Required Clear
261C2 LIC	WBXB FM	EDENTON, NC BLH-19901212KC	18649	36 07 11 76 35 29	50.0 92	76.88 185.87	20.00 56.88
262A LIC	WARV-FM FM	PETERSBURG, VA BLH-20090413AFK	21826	37 10 55 77 24 01	4.5 116	89.92 297.79	15.00 74.92

TV Channel 6 Considerations

Under §73.525(a)(1), an affected TV Channel 6 station must be considered with a proposed non-commercial educational facility on Channel 208 if the distance between the respective transmitter sites is 196 km or less. No authorized Channel 6 full power or Class A television station is located within 196 km of the proposed site. The only Low Power Television (“LPTV”) or television translator station within 196 km is WMTO-LP (analog Ch. 6, Wanchese, NC, 132.9 km distant).

Figure 6 depicts the WMTO-LP 62 dBμ F(50,50) service contour, which is not overlapped by the proposed WHRV 67.5 dBμ F(50,10) contour. Owing to their secondary status, protection to LPTV stations on Channel 6 such as WMTO-LP is not believed to be necessary. Nevertheless, there would not be an interference conflict in this case. Accordingly, the instant proposal complies with the television Channel 6 protection criteria of §73.525.

Other Allocation Matters

The nearest FCC monitoring station is 263 km distant at Laurel, MD. This exceeds by a great margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with “quiet” zones specified in §73.1030(a) and (b). There are no AM broadcast stations located within 3.2 km (2 miles) of the proposed site, according to information extracted from the Commission’s engineering database. The site location is beyond the border areas that require international coordination.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

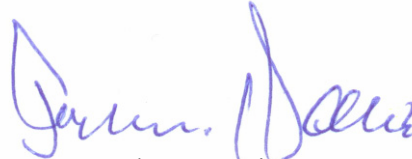
The proposed transmitting antenna will be side-mounted on an existing antenna support structure. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission’s rules.

The proposed WHRV operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. The WHRV facility will employ a six element Shively 6814 series antenna, with one wavelength element spacing. **Figure 7** supplies manufacturer's elevation pattern data for this series antenna, which shows that the relative field at downward elevations is less than 30 percent. Based on OET-65 equation (10), and considering 30 percent antenna relative field, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $6.4 \mu\text{W}/\text{cm}^2$, which is 3.2 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

Certification

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



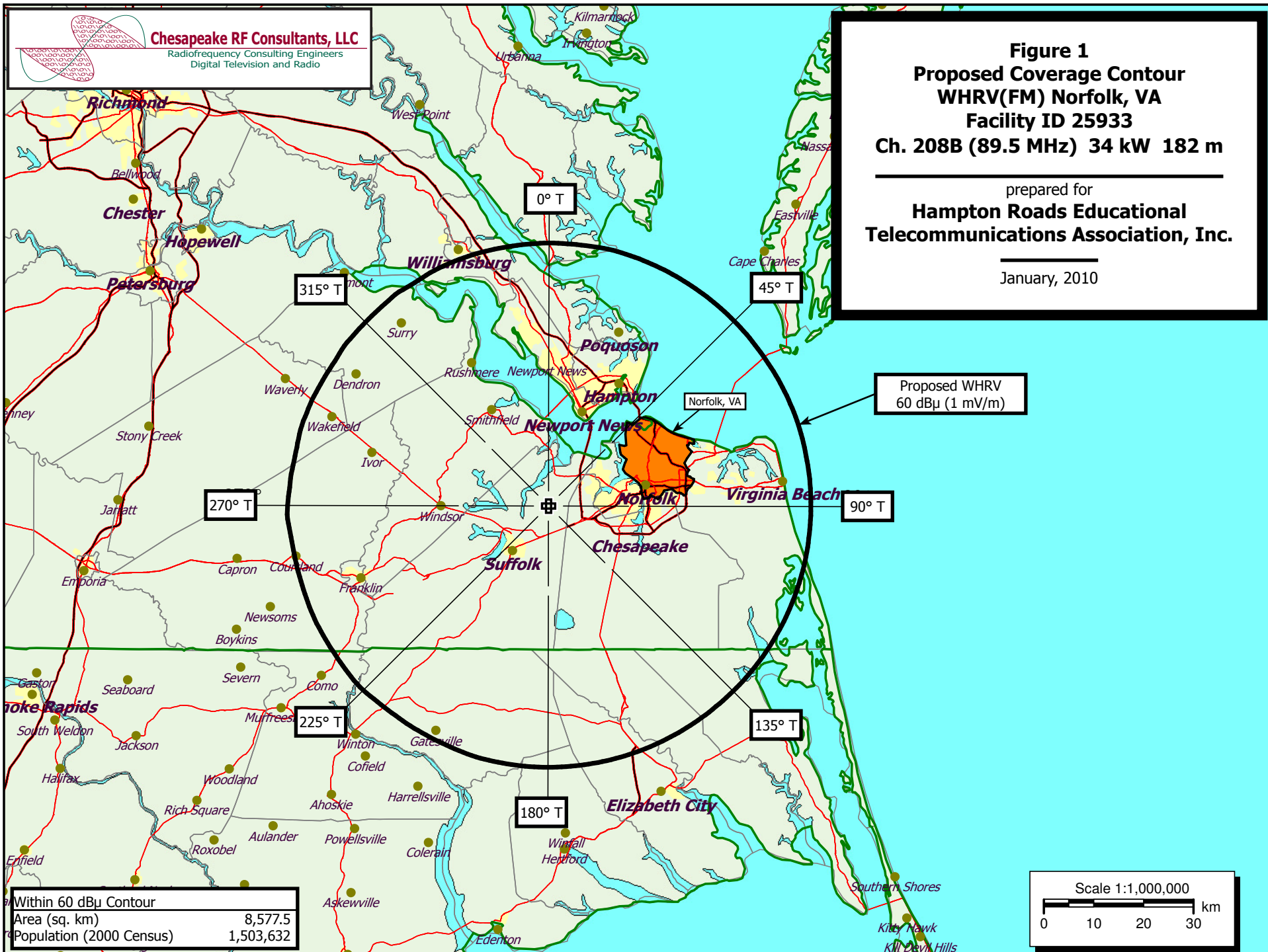
Joseph M. Davis, P.E.
January 28, 2010

Chesapeake RF Consultants, LLC
11993 Kahns Road
Manassas, VA 20112
703-650-9600

List of Attachments

Figure 1	Proposed Coverage Contour
Figure 2	Coverage Contour Comparison
Figure 3	Co-Channel Allocation Study
Figure 4, 4A	First-Adjacent Channel Allocation Study
Figure 5	Second and Third-Adjacent Channel Allocation Study
Figure 6	TV Channel 6 Allocation Study
Figure 7	Antenna Vertical Plane (Elevation) Pattern
Table 1	Contour Protection "FM Over" Report - WJYA(FM) CP Ch. 207C2 Emporia, VA
Table 2	Contour Protection "FM Over" Report - WAUQ(FM) Ch. 209B1 Charles City, VA
Form 340	Saved Version of Engineering Sections from FCC Form at Time of Upload

This material was entered January 28, 2010 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.



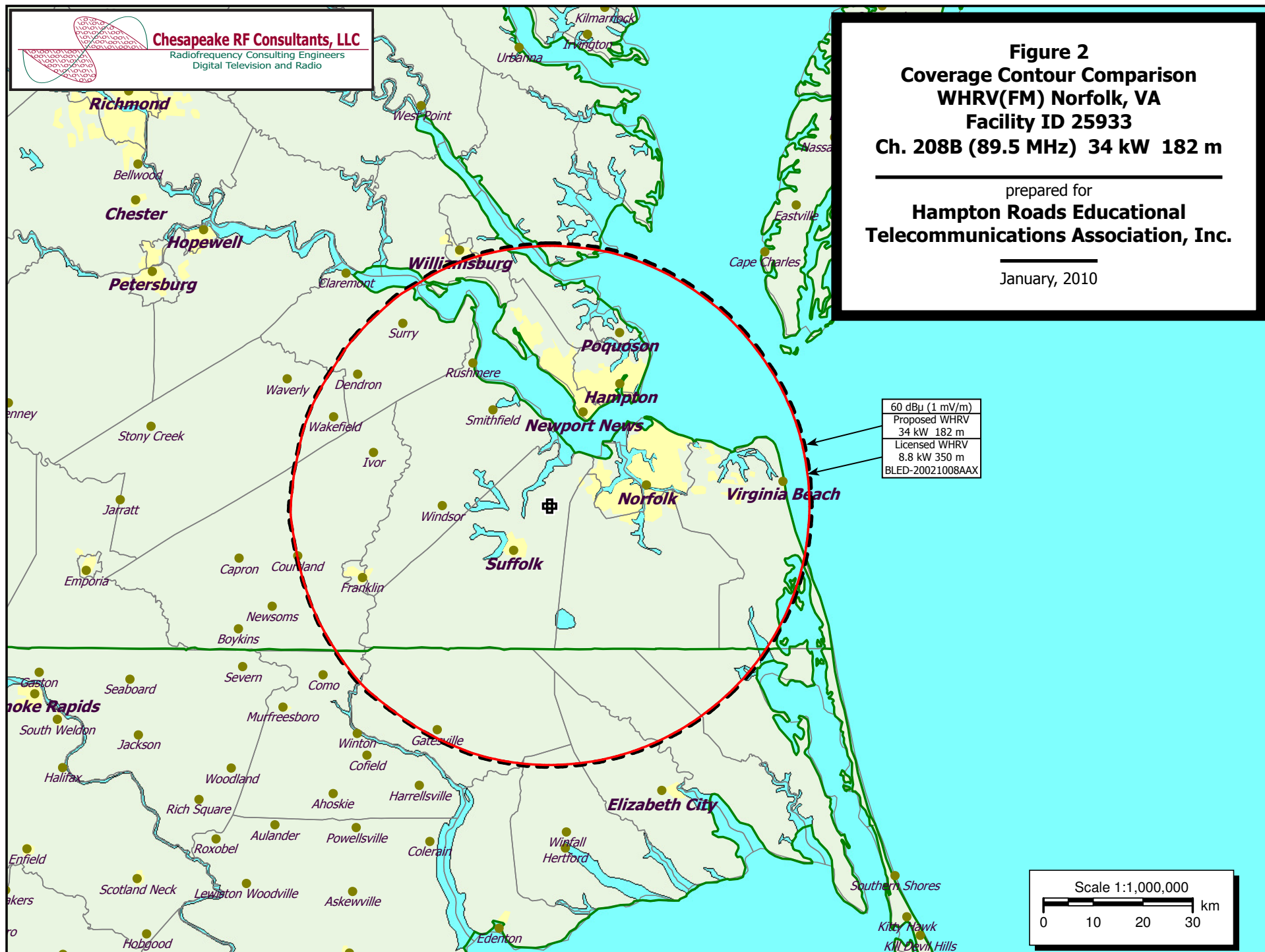


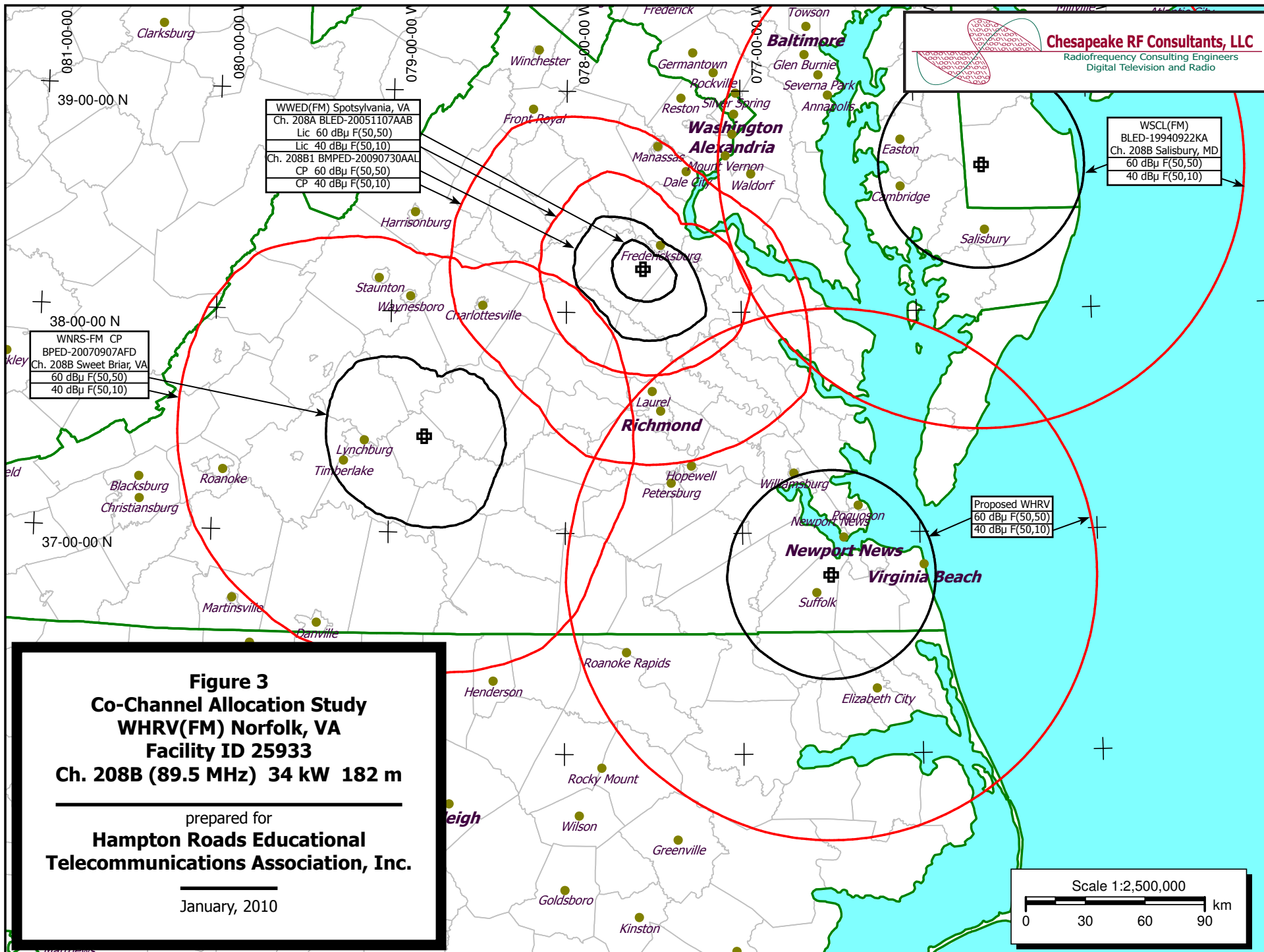
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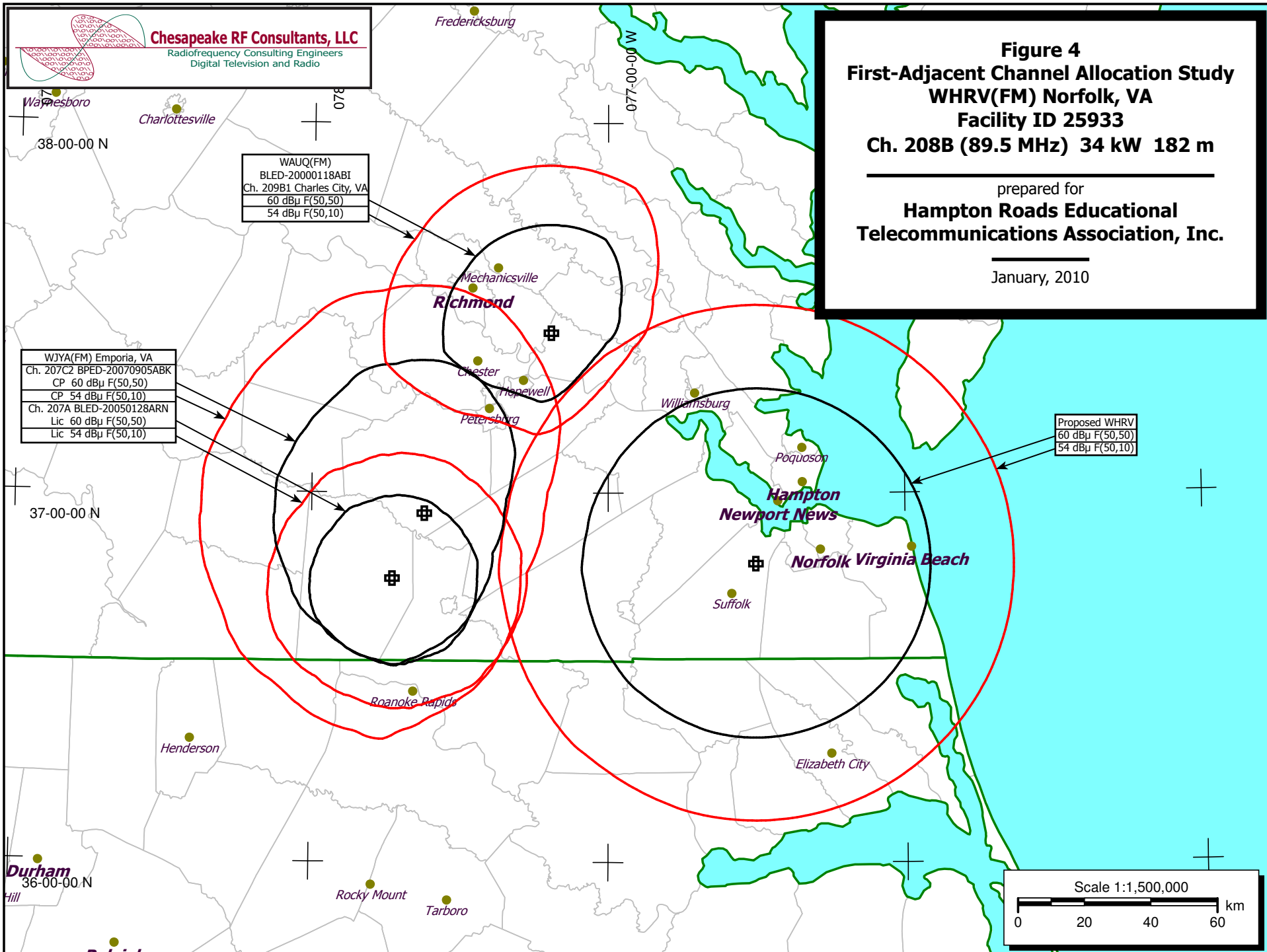
Figure 2
Coverage Contour Comparison
WHRV(FM) Norfolk, VA
Facility ID 25933
Ch. 208B (89.5 MHz) 34 kW 182 m

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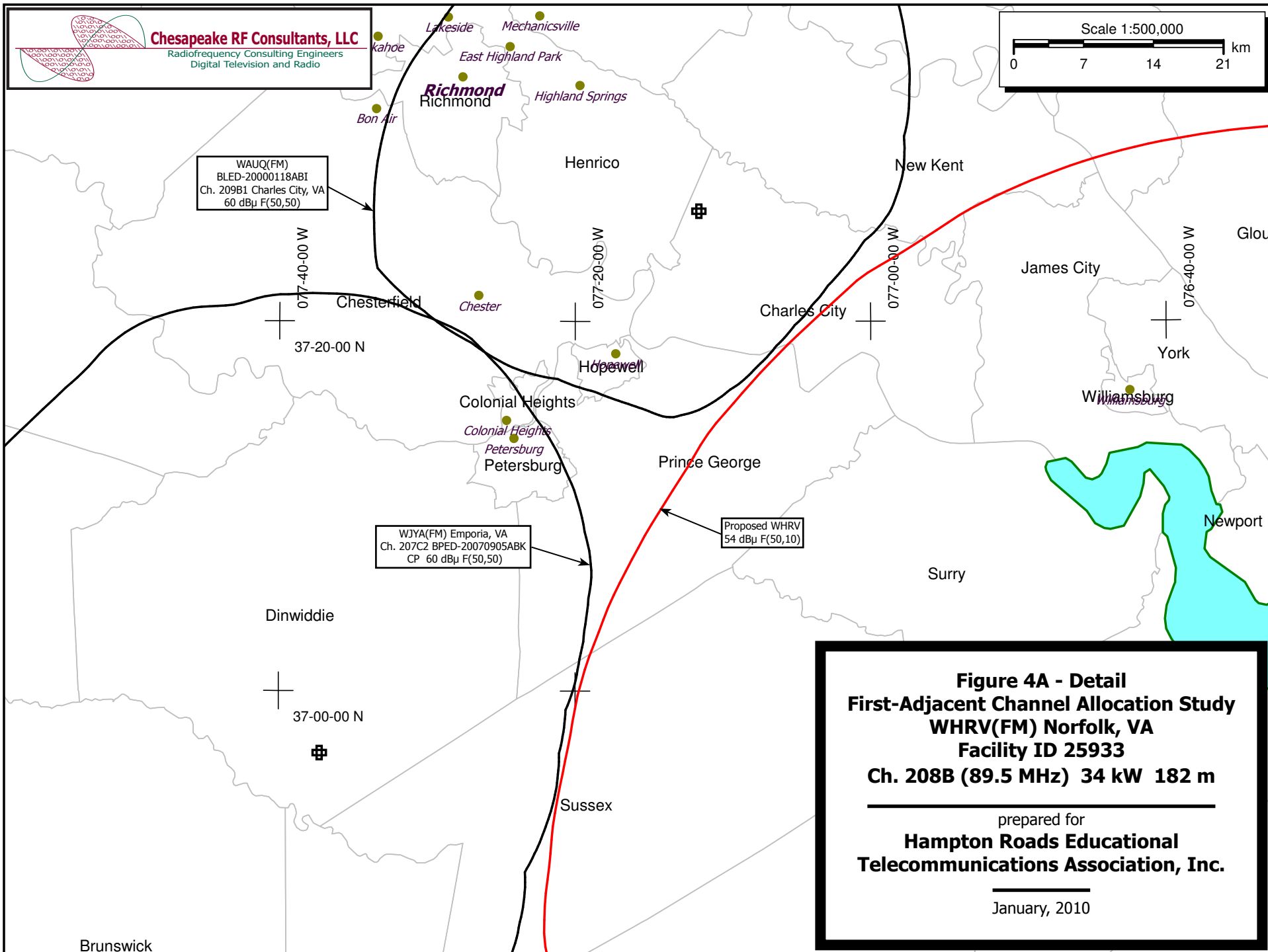
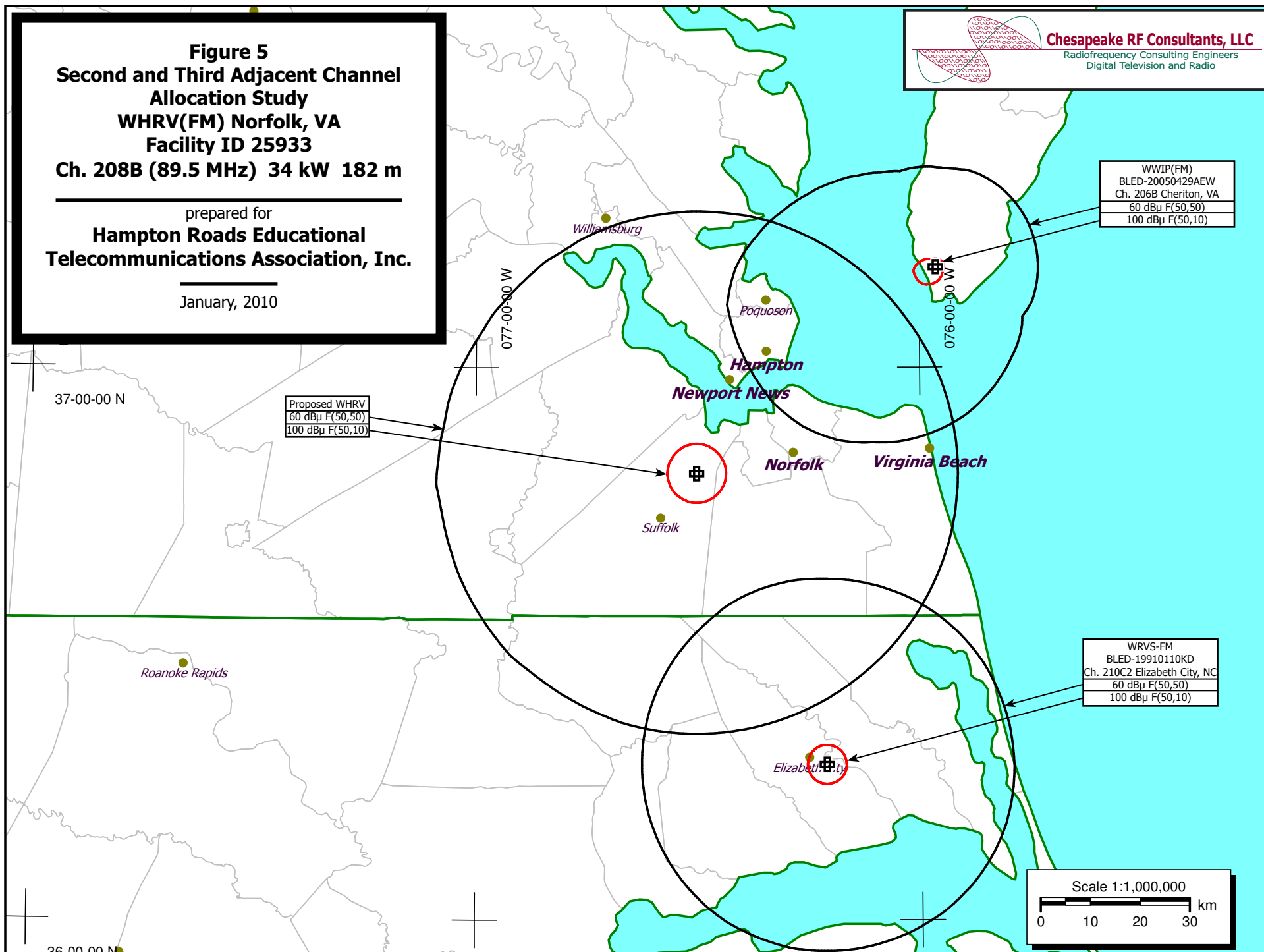
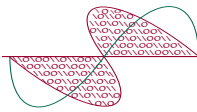


Figure 5
Second and Third Adjacent Channel
Allocation Study
WHRV(FM) Norfolk, VA
Facility ID 25933
Ch. 208B (89.5 MHz) 34 kW 182 m

prepared for
Hampton Roads Educational
Telecommunications Association, Inc.

January, 2010



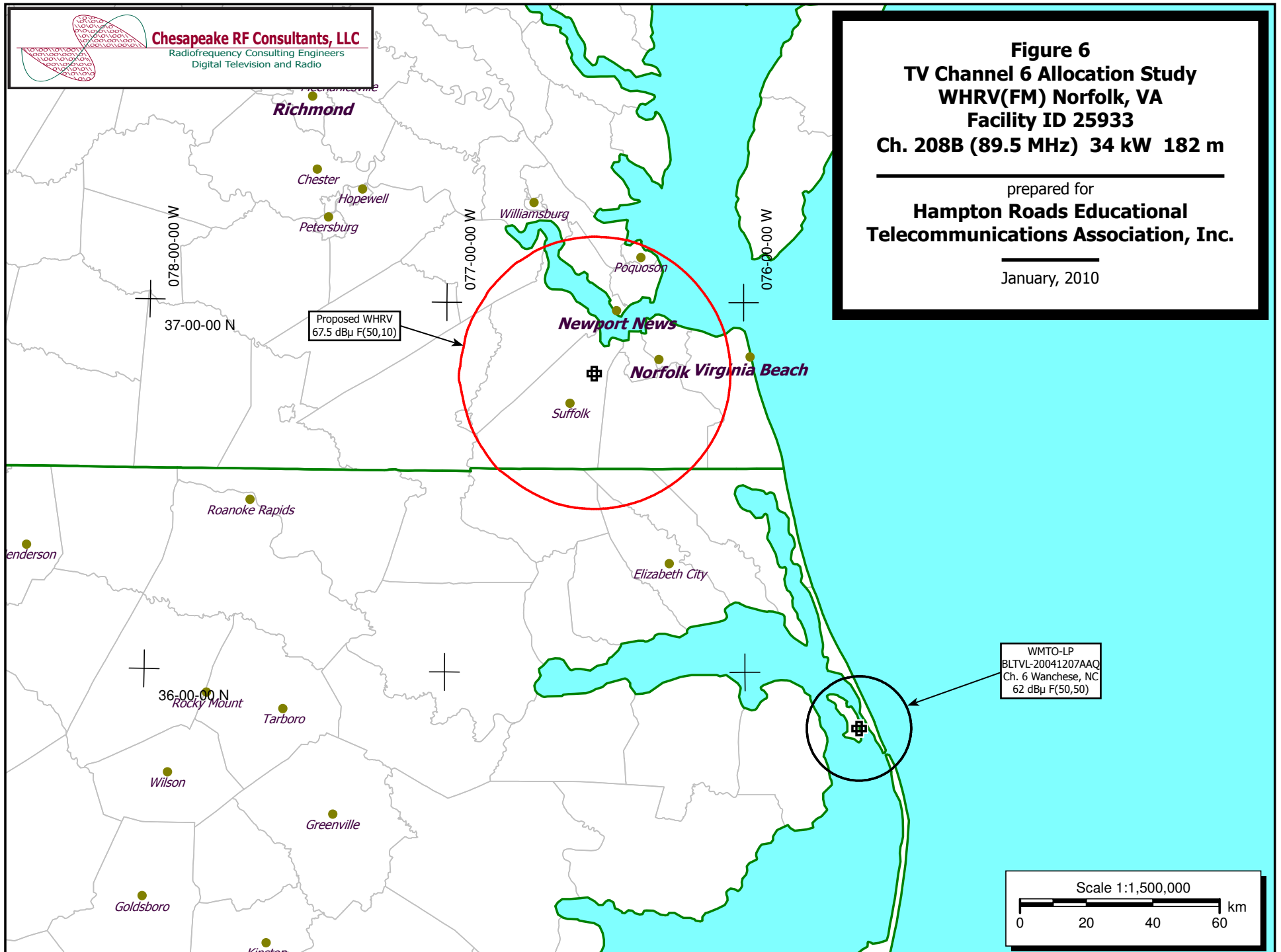


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Figure 6
TV Channel 6 Allocation Study
WHRV(FM) Norfolk, VA
Facility ID 25933
Ch. 208B (89.5 MHz) 34 kW 182 m

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Telecommunications Association, Inc.

January, 2010



Antenna Mfg.: Shively Labs
Antenna Type: 6814
Station: WHRV
Frequency: 89.5
Channel #: 208
Figure: 0

Date: 1/27/2010

Beam Tilt	0	
Gain (Max)	3.322	5.214 dB
Gain (Horizon)	3.322	5.214 dB

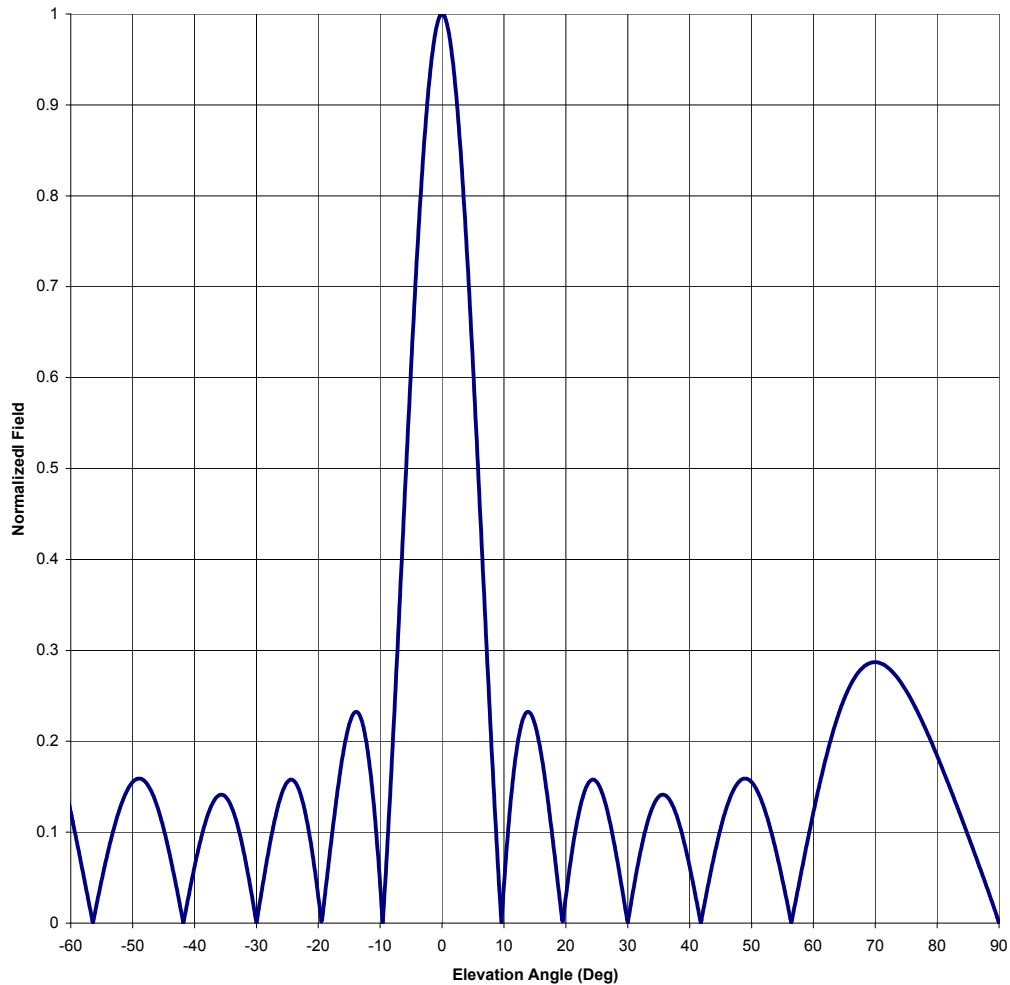


Figure 7
Antenna Elevation Pattern
WHRV(FM) Norfolk, VA
Facility ID 25933
Ch. 208B (89.5 MHz) 34 kW 182 m

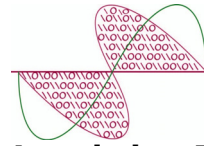
prepared for
Hampton Roads Educational
Telecommunications Association, Inc.

January, 2010

Table 1

Contour Protection "FM Over" Report**RE: WJYA(FM) CP Ch. 207C2 Emporia, VA****Hampton Roads Educational Telecommunications Association, Inc.****WHRV(FM) Norfolk, VA**

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**Chesapeake RF Consultants, LLC**Radiofrequency Consulting Engineers
Digital Television and Radio

01-27-2010

USGS 03 SEC Terrain Data

FMOver Analysis

WJYA CP BPED20070905ABK

Channel = 207C2

Max ERP = 23 kW

RCAMSL = 224.6 M

N. Lat. 36 56 39.0

W. Lng. 77 37 14.0

Protected

60 dBu

WHRV Proposed

Channel = 208B

Max ERP = 34 kW

RCAMSL = 187.3 M

N. Lat. 36 48 32.0

W. Lng. 76 30 13.0

Interfering

54 dBu

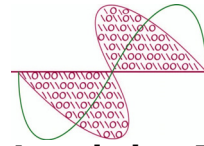
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
038.0	007.6946	0170.7	038.4	301.2	034.0000	0174.4	088.3	50.23	
039.0	007.3214	0171.6	038.1	300.9	034.0000	0174.5	087.6	50.43	
040.0	006.9575	0172.2	037.7	300.6	034.0000	0174.6	087.1	50.62	
041.0	006.6572	0172.5	037.4	300.3	034.0000	0174.7	086.5	50.80	
042.0	006.3635	0173.2	037.1	300.1	034.0000	0174.7	085.9	50.98	
043.0	006.0765	0174.1	036.8	299.8	034.0000	0174.8	085.3	51.15	
044.0	005.7961	0174.8	036.4	299.4	034.0000	0174.8	084.8	51.32	
045.0	005.5223	0175.3	036.1	299.1	034.0000	0174.9	084.3	51.48	
046.0	005.2904	0175.8	035.8	298.8	034.0000	0174.9	083.8	51.64	
047.0	005.0634	0176.4	035.5	298.4	034.0000	0174.9	083.3	51.79	
048.0	004.8414	0177.0	035.2	298.1	034.0000	0175.0	082.8	51.94	
049.0	004.6244	0177.7	034.8	297.7	034.0000	0175.0	082.4	52.09	
050.0	004.4124	0178.3	034.5	297.3	034.0000	0175.1	081.9	52.23	
051.0	004.2329	0179.0	034.2	297.0	034.0000	0175.2	081.5	52.37	
052.0	004.0572	0179.9	034.0	296.6	034.0000	0175.3	081.1	52.50	
053.0	003.8852	0180.7	033.7	296.3	034.0000	0175.4	080.7	52.64	
054.0	003.7169	0181.4	033.4	295.9	034.0000	0175.5	080.3	52.76	
055.0	003.5523	0181.9	033.1	295.5	034.0000	0175.7	080.0	52.87	
056.0	003.3915	0182.4	032.7	295.1	034.0000	0175.9	079.6	52.98	
057.0	003.2344	0182.7	032.4	294.6	034.0000	0176.1	079.4	53.08	
058.0	003.0810	0182.4	031.9	294.1	034.0000	0176.2	079.1	53.16	
059.0	002.9313	0181.5	031.5	293.6	034.0000	0176.3	079.0	53.22	
060.0	002.7854	0180.6	031.0	293.1	034.0000	0176.4	078.8	53.28	
061.0	002.6729	0180.0	030.6	292.7	034.0000	0176.4	078.6	53.34	
062.0	002.5627	0179.4	030.3	292.2	034.0000	0176.3	078.4	53.40	
063.0	002.4549	0178.6	029.9	291.8	034.0000	0176.3	078.3	53.45	
064.0	002.3493	0177.8	029.6	291.3	034.0000	0176.3	078.1	53.49	
065.0	002.2461	0177.2	029.2	290.9	034.0000	0176.3	078.0	53.53	
066.0	002.1452	0177.3	028.9	290.4	034.0000	0176.4	077.9	53.58	
067.0	002.0466	0177.7	028.6	290.0	034.0000	0176.6	077.7	53.63	
068.0	001.9503	0177.6	028.3	289.6	034.0000	0176.7	077.6	53.67	
069.0	001.8564	0177.4	028.0	289.2	034.0000	0176.9	077.6	53.70	
070.0	001.7648	0177.2	027.6	288.7	034.0000	0177.0	077.5	53.72	
071.0	001.6929	0177.1	027.4	288.3	034.0000	0177.1	077.4	53.74	
072.0	001.6225	0177.2	027.1	287.9	034.0000	0177.0	077.4	53.76	
073.0	001.5536	0177.3	026.9	287.5	034.0000	0176.9	077.3	53.78	
074.0	001.4862	0177.6	026.6	287.1	034.0000	0176.9	077.2	53.80	
075.0	001.4203	0177.8	026.4	286.7	034.0000	0176.9	077.2	53.81	
076.0	001.3559	0177.8	026.1	286.4	034.0000	0176.8	077.2	53.80	
077.0	001.2930	0177.8	025.8	286.0	034.0000	0176.7	077.2	53.79	
078.0	001.2316	0177.8	025.6	285.6	034.0000	0176.4	077.3	53.76	

Table 1

Contour Protection "FM Over" Report**RE: WJYA(FM) CP Ch. 207C2 Emporia, VA****Hampton Roads Educational Telecommunications Association, Inc.**

WHRV(FM) Norfolk, VA

(page 2 of 3)

**Chesapeake RF Consultants, LLC**Radiofrequency Consulting Engineers
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Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
079.0	001.1716	0177.8	025.3	285.2	034.0000	0176.1	077.3	53.73	
080.0	001.1132	0177.8	025.0	284.8	034.0000	0175.8	077.4	53.70	
081.0	001.0931	0177.8	024.9	284.5	034.0000	0175.7	077.3	53.72	
082.0	001.0731	0177.8	024.8	284.1	034.0000	0175.5	077.3	53.73	
083.0	001.0533	0177.9	024.7	283.8	034.0000	0175.3	077.2	53.75	
084.0	001.0337	0178.0	024.6	283.5	034.0000	0175.1	077.1	53.75	
085.0	001.0143	0178.0	024.5	283.2	034.0000	0174.8	077.1	53.75	
086.0	000.9951	0178.1	024.4	282.8	034.0000	0174.7	077.1	53.75	
087.0	000.9760	0178.1	024.3	282.5	034.0000	0174.6	077.1	53.75	
088.0	000.9572	0178.2	024.2	282.2	034.0000	0174.6	077.1	53.76	
089.0	000.9385	0178.2	024.1	281.9	034.0000	0174.7	077.1	53.76	
090.0	000.9200	0178.3	024.0	281.5	034.0000	0174.7	077.1	53.75	
091.0	000.9200	0178.3	024.0	281.2	034.0000	0174.8	077.0	53.78	
092.0	000.9200	0178.3	024.0	280.9	034.0000	0174.8	076.9	53.80	
093.0	000.9200	0178.3	024.0	280.6	034.0000	0174.8	076.9	53.82	
094.0	000.9200	0178.2	024.0	280.3	034.0000	0174.8	076.9	53.83	
095.0	000.9200	0178.0	024.0	280.0	034.0000	0174.9	076.8	53.85	
096.0	000.9200	0177.9	023.9	279.7	034.0000	0175.0	076.8	53.86	
097.0	000.9200	0178.0	024.0	279.4	034.0000	0175.1	076.8	53.87	
098.0	000.9200	0178.3	024.0	279.0	034.0000	0175.3	076.8	53.88	
099.0	000.9200	0178.1	024.0	278.7	034.0000	0175.4	076.8	53.89	
100.0	000.9200	0177.7	023.9	278.4	034.0000	0175.6	076.8	53.88	
101.0	000.9200	0177.4	023.9	278.1	034.0000	0175.8	076.8	53.88	
102.0	000.9200	0177.2	023.9	277.8	034.0000	0176.0	076.9	53.88	
103.0	000.9200	0176.9	023.9	277.5	034.0000	0176.2	076.9	53.87	
104.0	000.9200	0176.6	023.9	277.2	034.0000	0176.4	077.0	53.85	
105.0	000.9200	0176.4	023.9	276.9	034.0000	0176.5	077.1	53.83	
106.0	000.9200	0176.0	023.8	276.6	034.0000	0176.7	077.2	53.81	
107.0	000.9200	0175.8	023.8	276.3	034.0000	0176.8	077.3	53.79	
108.0	000.9200	0175.6	023.8	276.0	034.0000	0176.9	077.4	53.76	
109.0	000.9200	0175.4	023.8	275.7	034.0000	0177.0	077.5	53.73	
110.0	000.9200	0175.3	023.8	275.4	034.0000	0177.0	077.6	53.70	
111.0	000.9200	0175.2	023.8	275.1	034.0000	0177.0	077.7	53.66	
112.0	000.9200	0175.2	023.8	274.8	034.0000	0177.1	077.8	53.62	
113.0	000.9200	0175.2	023.8	274.5	034.0000	0177.1	077.9	53.58	
114.0	000.9200	0175.2	023.8	274.2	034.0000	0177.1	078.1	53.53	
115.0	000.9200	0175.0	023.8	273.9	034.0000	0177.2	078.2	53.49	
116.0	000.9200	0174.9	023.8	273.6	034.0000	0177.2	078.4	53.44	
117.0	000.9200	0174.9	023.8	273.4	034.0000	0177.3	078.6	53.39	
118.0	000.9200	0174.9	023.8	273.1	034.0000	0177.4	078.8	53.34	
119.0	000.9200	0174.9	023.8	272.8	034.0000	0177.7	078.9	53.29	
120.0	000.9200	0175.1	023.8	272.5	034.0000	0177.9	079.1	53.24	
121.0	000.9675	0175.1	024.1	272.2	034.0000	0178.3	079.1	53.27	
122.0	001.0162	0175.1	024.3	271.8	034.0000	0178.7	079.1	53.29	
123.0	001.0661	0175.1	024.6	271.4	034.0000	0179.1	079.1	53.31	
124.0	001.1173	0175.1	024.8	271.1	034.0000	0179.4	079.1	53.31	
125.0	001.1696	0175.0	025.1	270.7	034.0000	0179.8	079.1	53.31	
126.0	001.2231	0174.9	025.3	270.4	034.0000	0180.1	079.2	53.31	
127.0	001.2778	0174.7	025.6	270.0	034.0000	0180.3	079.3	53.30	
128.0	001.3336	0174.5	025.8	269.6	034.0000	0180.5	079.3	53.27	
129.0	001.3907	0174.3	026.0	269.3	034.0000	0180.6	079.5	53.24	
130.0	001.4490	0174.0	026.2	268.9	034.0000	0180.8	079.6	53.21	
131.0	001.5168	0173.7	026.5	268.6	034.0000	0181.0	079.7	53.18	

Table 1

Contour Protection "FM Over" Report**RE: WJYA(FM) CP Ch. 207C2 Emporia, VA****Hampton Roads Educational Telecommunications Association, Inc.**

WHRV(FM) Norfolk, VA

(page 3 of 3)

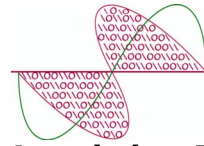


Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
132.0	001.5861	0173.4	026.7	268.2	034.0000	0181.3	079.9	53.14	
133.0	001.6569	0173.2	027.0	267.8	034.0000	0181.4	080.0	53.09	
134.0	001.7293	0172.8	027.2	267.5	034.0000	0181.3	080.2	53.03	
135.0	001.8032	0172.3	027.4	267.1	034.0000	0181.1	080.4	52.96	
136.0	001.8945	0171.6	027.7	266.8	034.0000	0180.7	080.6	52.88	
137.0	001.9880	0170.9	027.9	266.4	034.0000	0180.3	080.8	52.79	
138.0	002.0838	0170.1	028.2	266.1	034.0000	0179.7	081.1	52.69	
139.0	002.1819	0169.0	028.4	265.7	034.0000	0179.1	081.3	52.58	
140.0	002.2822	0168.2	028.6	265.4	034.0000	0178.7	081.6	52.48	
141.0	002.4025	0167.7	028.9	265.0	034.0000	0178.3	081.9	52.39	
142.0	002.5260	0167.3	029.2	264.7	034.0000	0178.1	082.1	52.30	
143.0	002.6525	0166.5	029.5	264.3	034.0000	0177.9	082.4	52.19	
144.0	002.7822	0165.5	029.7	264.0	034.0000	0177.7	082.7	52.08	
145.0	002.9149	0164.6	030.0	263.7	034.0000	0177.4	083.1	51.96	
146.0	003.0508	0164.1	030.3	263.3	034.0000	0177.2	083.4	51.85	
147.0	003.1897	0163.8	030.5	263.0	034.0000	0177.0	083.8	51.73	
148.0	003.3317	0162.6	030.8	262.7	034.0000	0176.8	084.2	51.60	
149.0	003.4768	0161.8	031.0	262.4	034.0000	0176.6	084.6	51.47	
150.0	003.6250	0161.7	031.3	262.1	034.0000	0176.4	085.0	51.34	
151.0	003.8137	0162.0	031.7	261.7	034.0000	0176.3	085.3	51.22	
152.0	004.0071	0162.1	032.1	261.3	034.0000	0176.2	085.7	51.10	
153.0	004.2054	0162.6	032.6	260.9	034.0000	0176.1	086.1	50.97	
154.0	004.4084	0163.2	033.0	260.5	034.0000	0175.9	086.5	50.83	
155.0	004.6162	0163.7	033.4	260.1	034.0000	0175.8	087.0	50.69	
156.0	004.8288	0164.9	033.9	259.7	034.0000	0175.7	087.4	50.55	
157.0	005.0462	0164.9	034.3	259.4	034.0000	0175.6	087.9	50.39	

Table 2

Contour Protection "FM Over" Report**RE: WAUQ(FM) Ch. 209B1 Charles City, VA****Hampton Roads Educational Telecommunications Association, Inc.****WHRV(FM) Norfolk, VA**

(page 1 of 3)

**Chesapeake RF Consultants, LLC**Radiofrequency Consulting Engineers
Digital Television and Radio

01-27-2010 USGS 03 SEC Terrain Data FMOver Analysis

WAUQ BLED20000118ABI
 Channel = 209B1
 Max ERP = 10 kW
 RCAMSL = 134 M
 N. Lat. 37 25 58.0
 W. Lng. 77 11 38.0
 Protected
 60 dBu

WHRV Proposed
 Channel = 208B
 Max ERP = 34 kW
 RCAMSL = 187.3 M
 N. Lat. 36 48 32.0
 W. Lng. 76 30 13.0
 Interfering
 54 dBu

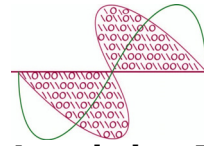
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
078.0	001.4761	0104.1	020.9	331.2	034.0000	0180.2	084.2	51.74	
079.0	001.4410	0104.1	020.8	331.1	034.0000	0180.1	083.9	51.83	
080.0	001.4063	0104.1	020.7	330.9	034.0000	0180.0	083.6	51.92	
081.0	001.3623	0104.1	020.5	330.7	034.0000	0179.9	083.3	52.00	
082.0	001.3191	0104.1	020.4	330.5	034.0000	0179.8	083.0	52.09	
083.0	001.2766	0104.2	020.2	330.3	034.0000	0179.7	082.7	52.17	
084.0	001.2348	0104.4	020.1	330.1	034.0000	0179.6	082.5	52.25	
085.0	001.1937	0104.5	019.9	329.9	034.0000	0179.6	082.2	52.33	
086.0	001.1533	0104.6	019.8	329.7	034.0000	0179.5	082.0	52.40	
087.0	001.1136	0104.9	019.6	329.5	034.0000	0179.4	081.7	52.47	
088.0	001.0745	0105.1	019.5	329.3	034.0000	0179.3	081.5	52.54	
089.0	001.0362	0105.3	019.3	329.1	034.0000	0179.2	081.3	52.60	
090.0	000.9986	0105.4	019.1	328.9	034.0000	0179.2	081.1	52.66	
091.0	000.9579	0105.5	018.9	328.6	034.0000	0179.1	080.9	52.72	
092.0	000.9181	0105.5	018.7	328.4	034.0000	0179.1	080.8	52.77	
093.0	000.8791	0105.5	018.5	328.1	034.0000	0179.1	080.6	52.81	
094.0	000.8410	0105.5	018.3	327.9	034.0000	0179.2	080.5	52.86	
095.0	000.8037	0105.5	018.1	327.6	034.0000	0179.2	080.4	52.90	
096.0	000.7673	0105.5	017.9	327.4	034.0000	0179.2	080.2	52.94	
097.0	000.7317	0105.4	017.6	327.1	034.0000	0179.3	080.2	52.97	
098.0	000.6970	0105.3	017.4	326.8	034.0000	0179.4	080.1	52.99	
099.0	000.6631	0105.1	017.1	326.5	034.0000	0179.6	080.0	53.02	
100.0	000.6300	0104.8	016.9	326.2	034.0000	0179.8	080.0	53.04	
101.0	000.6165	0104.5	016.7	326.0	034.0000	0180.0	079.9	53.08	
102.0	000.6032	0104.3	016.6	325.8	034.0000	0180.1	079.8	53.12	
103.0	000.5900	0104.1	016.5	325.6	034.0000	0180.3	079.7	53.16	
104.0	000.5770	0104.0	016.4	325.4	034.0000	0180.5	079.6	53.20	
105.0	000.5641	0104.0	016.3	325.2	034.0000	0180.6	079.5	53.24	
106.0	000.5513	0104.0	016.1	325.0	034.0000	0180.7	079.4	53.28	
107.0	000.5387	0104.0	016.0	324.8	034.0000	0180.8	079.3	53.31	
108.0	000.5262	0104.0	015.9	324.6	034.0000	0180.8	079.2	53.33	
109.0	000.5139	0104.0	015.8	324.4	034.0000	0180.8	079.1	53.36	
110.0	000.5018	0104.0	015.7	324.2	034.0000	0180.7	079.1	53.38	
111.0	000.4911	0104.0	015.6	324.0	034.0000	0180.7	079.0	53.40	
112.0	000.4805	0104.0	015.5	323.8	034.0000	0180.6	078.9	53.41	
113.0	000.4700	0104.1	015.4	323.6	034.0000	0180.5	078.9	53.43	
114.0	000.4597	0104.3	015.4	323.4	034.0000	0180.3	078.8	53.44	
115.0	000.4494	0104.4	015.3	323.2	034.0000	0180.1	078.7	53.45	
116.0	000.4393	0104.6	015.2	323.0	034.0000	0179.9	078.7	53.46	
117.0	000.4293	0104.9	015.1	322.8	034.0000	0179.6	078.6	53.46	

Table 2

Contour Protection "FM Over" Report**RE: WAUQ(FM) Ch. 209B1 Charles City, VA****Hampton Roads Educational Telecommunications Association, Inc.**

WHRV(FM) Norfolk, VA

(page 2 of 3)

**Chesapeake RF Consultants, LLC**Radiofrequency Consulting Engineers
Digital Television and Radio

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
118.0	000.4194	0105.1	015.1	322.6	034.0000	0179.5	078.6	53.47	
119.0	000.4097	0105.4	015.0	322.4	034.0000	0179.3	078.6	53.48	
120.0	000.4000	0105.8	014.9	322.2	034.0000	0179.2	078.5	53.48	
121.0	000.3952	0106.1	014.9	322.0	034.0000	0179.0	078.4	53.50	
122.0	000.3905	0106.5	014.9	321.8	034.0000	0178.9	078.4	53.52	
123.0	000.3857	0106.9	014.8	321.6	034.0000	0178.8	078.3	53.54	
124.0	000.3810	0107.2	014.8	321.4	034.0000	0178.7	078.3	53.55	
125.0	000.3764	0107.6	014.8	321.3	034.0000	0178.6	078.2	53.56	
126.0	000.3717	0108.0	014.8	321.1	034.0000	0178.5	078.2	53.57	
127.0	000.3671	0108.4	014.8	320.9	034.0000	0178.5	078.1	53.59	
128.0	000.3625	0108.8	014.7	320.7	034.0000	0178.4	078.1	53.60	
129.0	000.3580	0109.2	014.7	320.5	034.0000	0178.3	078.0	53.60	
130.0	000.3534	0109.6	014.7	320.3	034.0000	0178.3	078.0	53.61	
131.0	000.3474	0110.0	014.7	320.1	034.0000	0178.2	078.0	53.60	
132.0	000.3415	0110.4	014.6	319.9	034.0000	0178.1	078.0	53.60	
133.0	000.3356	0110.8	014.6	319.8	034.0000	0178.0	078.0	53.59	
134.0	000.3298	0111.3	014.6	319.6	034.0000	0177.9	078.0	53.59	
135.0	000.3240	0111.6	014.5	319.4	034.0000	0177.9	078.1	53.58	
136.0	000.3298	0111.8	014.6	319.2	034.0000	0177.8	078.0	53.61	
137.0	000.3356	0111.9	014.7	319.0	034.0000	0177.7	077.9	53.63	
138.0	000.3415	0112.0	014.7	318.8	034.0000	0177.7	077.8	53.65	
139.0	000.3474	0112.1	014.8	318.6	034.0000	0177.6	077.7	53.67	
140.0	000.3534	0112.2	014.9	318.4	034.0000	0177.6	077.7	53.69	
141.0	000.3580	0112.4	015.0	318.2	034.0000	0177.5	077.6	53.71	
142.0	000.3625	0112.6	015.0	318.0	034.0000	0177.5	077.6	53.72	
143.0	000.3671	0112.7	015.1	317.9	034.0000	0177.4	077.5	53.73	
144.0	000.3717	0112.9	015.1	317.7	034.0000	0177.4	077.5	53.74	
145.0	000.3764	0113.2	015.2	317.5	034.0000	0177.4	077.4	53.75	
146.0	000.3810	0113.5	015.3	317.2	034.0000	0177.3	077.4	53.76	
147.0	000.3857	0113.7	015.4	317.0	034.0000	0177.3	077.4	53.77	
148.0	000.3905	0113.7	015.4	316.8	034.0000	0177.2	077.4	53.77	
149.0	000.3952	0113.8	015.5	316.6	034.0000	0177.2	077.4	53.76	
150.0	000.4000	0113.9	015.5	316.4	034.0000	0177.1	077.4	53.76	
151.0	000.4097	0113.9	015.6	316.2	034.0000	0177.0	077.3	53.77	
152.0	000.4194	0114.0	015.8	316.0	034.0000	0177.0	077.3	53.78	
153.0	000.4293	0114.1	015.9	315.8	034.0000	0177.0	077.3	53.79	
154.0	000.4393	0114.3	016.0	315.6	034.0000	0177.0	077.3	53.79	
155.0	000.4494	0114.4	016.1	315.3	034.0000	0176.9	077.2	53.80	
156.0	000.4597	0114.6	016.2	315.1	034.0000	0176.9	077.2	53.80	
157.0	000.4700	0114.7	016.3	314.9	034.0000	0176.9	077.2	53.80	
158.0	000.4805	0114.7	016.4	314.7	034.0000	0176.9	077.3	53.79	
159.0	000.4911	0114.9	016.6	314.4	034.0000	0176.9	077.3	53.79	
160.0	000.5018	0115.2	016.7	314.2	034.0000	0176.9	077.3	53.79	
161.0	000.5139	0115.7	016.8	313.9	034.0000	0176.8	077.3	53.79	
162.0	000.5262	0116.2	017.0	313.7	034.0000	0176.8	077.3	53.78	
163.0	000.5387	0116.7	017.1	313.5	034.0000	0176.8	077.3	53.78	
164.0	000.5513	0117.3	017.3	313.2	034.0000	0176.7	077.3	53.77	
165.0	000.5641	0117.7	017.4	313.0	034.0000	0176.7	077.3	53.76	
166.0	000.5770	0118.2	017.6	312.7	034.0000	0176.7	077.4	53.74	
167.0	000.5900	0118.6	017.7	312.5	034.0000	0176.7	077.4	53.72	
168.0	000.6032	0119.0	017.9	312.2	034.0000	0176.6	077.5	53.70	
169.0	000.6165	0119.2	018.0	312.0	034.0000	0176.6	077.6	53.67	
170.0	000.6300	0119.4	018.1	311.7	034.0000	0176.6	077.7	53.63	

Table 2

Contour Protection "FM Over" Report**RE: WAUQ(FM) Ch. 209B1 Charles City, VA****Hampton Roads Educational Telecommunications Association, Inc.**

WHRV(FM) Norfolk, VA

(page 3 of 3)



Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
171.0	000.6538	0119.6	018.3	311.5	034.0000	0176.6	077.8	53.62	
172.0	000.6781	0119.8	018.5	311.2	034.0000	0176.6	077.8	53.60	
173.0	000.7028	0119.9	018.7	310.9	034.0000	0176.6	077.9	53.57	
174.0	000.7279	0120.1	018.8	310.7	034.0000	0176.6	078.0	53.54	
175.0	000.7535	0120.2	019.0	310.4	034.0000	0176.6	078.1	53.51	
176.0	000.7795	0120.4	019.2	310.1	034.0000	0176.7	078.2	53.48	
177.0	000.8060	0120.5	019.4	309.9	034.0000	0176.8	078.3	53.44	
178.0	000.8329	0120.7	019.6	309.6	034.0000	0176.9	078.5	53.40	
179.0	000.8602	0120.8	019.7	309.4	034.0000	0177.0	078.6	53.36	
180.0	000.8880	0121.0	019.9	309.1	034.0000	0177.1	078.8	53.31	
181.0	000.9096	0121.1	020.0	308.9	034.0000	0177.1	079.0	53.25	
182.0	000.9315	0121.1	020.1	308.7	034.0000	0177.1	079.2	53.18	
183.0	000.9536	0121.2	020.3	308.4	034.0000	0177.1	079.4	53.11	
184.0	000.9759	0121.3	020.4	308.2	034.0000	0177.0	079.6	53.04	
185.0	000.9986	0121.3	020.5	308.0	034.0000	0177.0	079.9	52.96	
186.0	001.0214	0121.7	020.6	307.8	034.0000	0176.9	080.1	52.88	
187.0	001.0446	0121.7	020.8	307.6	034.0000	0176.8	080.3	52.80	
188.0	001.0680	0121.0	020.8	307.4	034.0000	0176.7	080.6	52.71	
189.0	001.0916	0120.1	020.9	307.3	034.0000	0176.6	080.9	52.61	
190.0	001.1156	0118.7	020.9	307.2	034.0000	0176.5	081.3	52.50	
191.0	001.1290	0117.4	020.8	307.1	034.0000	0176.4	081.6	52.39	
192.0	001.1424	0116.1	020.8	307.0	034.0000	0176.4	081.9	52.28	
193.0	001.1560	0114.7	020.7	306.9	034.0000	0176.3	082.3	52.16	
194.0	001.1696	0113.4	020.6	306.9	034.0000	0176.2	082.7	52.05	
195.0	001.1834	0112.2	020.6	306.8	034.0000	0176.2	083.0	51.94	
196.0	001.1972	0111.2	020.6	306.7	034.0000	0176.1	083.4	51.83	
197.0	001.2110	0110.4	020.5	306.7	034.0000	0176.0	083.7	51.72	

Section VII Preparer's Certification

I certify that I have prepared Section VII (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.	Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature	Date 1/28/2010	
Mailing Address CHESAPEAKE RF CONSULTANTS LLC 11993 KAHNS ROAD		
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20112-
Telephone Number (include area code) 7036509600	E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Section VII - FM Engineering												
TECHNICAL SPECIFICATIONS												
Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.												
TECH BOX												
1.	Channel Number: 208											
2.	Class (select one): <input type="radio"/> D <input type="radio"/> A <input type="radio"/> B1 <input checked="" type="radio"/> B <input type="radio"/> C3 <input type="radio"/> C2 <input type="radio"/> C1 <input type="radio"/> C0 <input type="radio"/> C											
3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 36 Minutes 48 Seconds 32 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 76 Minutes 30 Seconds 13 <input checked="" type="radio"/> West <input type="radio"/> East											
4.	Proposed Assignment Coordinates: (NAD 27) - RESERVED CHANNELS ABOVE 220 ONLY <input checked="" type="checkbox"/> Not Applicable Latitude: Degrees Minutes Seconds <input type="radio"/> North <input type="radio"/> South Longitude: Degrees Minutes Seconds <input type="radio"/> West <input type="radio"/> East											
5.	Antenna Structure Registration Number: 1027474 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA											
6.	Overall Tower Height Above Ground Level: 193.6 meters											
7.	Height of Radiation Center Above Mean Sea Level: 187.3 meters(H) 187.3 meters(V)											
8.	Height of Radiation Center Above Ground Level: 180.3 meters(H) 180.3 meters(V)											
9.	Height of Radiation Center Above Average Terrain: 181.7 meters(H) 181.7 meters(V)											
10.	Effective Radiated Power: 34.0 kW(H) 34.0 kW(V)											
11.	Maximum Effective Radiated Power: (Beam-Tilt Antenna ONLY) <input checked="" type="checkbox"/> Not Applicable kW(H) kW(V)											
12.	Directional Antenna Relative Field Values: <input checked="" type="checkbox"/> Not applicable (Nondirectional) Rotation (Degrees): <input type="checkbox"/> No Rotation											
	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
	0		10		20		30		40		50	
	60		70		80		90		100		110	
	120		130		140		150		160		170	
	180		190		200		210		220		230	
	240		250		260		270		280		290	
	300		310		320		330		340		350	
	Additional Azimuths											

[Relative Field Polar Plot](#)

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

CERTIFICATION

AUXILIARY ANTENNA APPLICANTS ARE NOT REQUIRED TO RESPOND TO ITEMS 13-17. PROCEED TO ITEM 18.		
13.	Main Studio Location. The proposed main studio location complies with 47 C.F.R. Section 73.1125.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 13]
14.	Community Coverage. The proposed facility complies with 47 C.F.R. Section 73.315. (Channels 221 and above) or 47 C.F.R. Section 73.515 (Channels 220 and below).	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 14]
15.	Interference. The proposed facility complies with all of the following applicable rule sections. Check all that apply: Contour Overlap Requirements. a. <input checked="" type="checkbox"/> 47 C.F.R. Section 73.509 Exhibit Required. [Exhibit 16] Spacing Requirements. b. <input checked="" type="checkbox"/> 47 C.F.R. Section 73.207 with respect to station(s) Grandfathered Short-Spaced. c. <input type="checkbox"/> 47 C.F.R. Section 73.213(a) with respect to station(s) Exhibit Required. [Exhibit 17] Contour Protection. d. <input type="checkbox"/> 47 C.F.R. Section 73.215(a) with respect to station(s) Exhibit Required. [Exhibit 18] Television Channel 6 Protection. e. <input checked="" type="checkbox"/> 47 C.F.R. Section 73.525 with respect to station(s) Exhibit Required. [Exhibit 19]	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 15]
16.	Reserved Channels Above 220. a. Availability of Channels. The proposed facility complies with the assignment requirements of 47 C.F.R. Section 73.203.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 20]
17.	International Borders. The proposed antenna location is not within 320 kilometers of the common border between the United States and Canada or Mexico. If "No," specify the country and provide an exhibit of compliance with all provisions of the relevant International Agreement.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Canada <input type="radio"/> Mexico [Exhibit 21]
18.	Environmental Protection Act. The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Worksheet #7, an Exhibit is required. By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 22]
19.	Community of License Change - Section 307(b). If the application is being submitted to change the facility's community of license, then the applicant certifies that it has attached an exhibit containing information demonstrating that the proposed community of license change comports with the fair distribution of service policies underlying Section 307(b) of the Communications Act of 1934, as amended (47 U.S.C. Section 307(b)). An exhibit is required unless this question is not applicable.	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A [Exhibit 23]