

**Technical Exhibit**  
**Comprehensive Engineering Statement**

prepared for

**Monticello Media LLC**

W285EF Charlottesville, Virginia

Facility ID 81122

Channel 285D 0.05 kW 464 meters AMSL

Monticello Media LLC (“*MONTICELLO*”), is the licensee of translator W285EF (file no. BLFT-20051003CDY) operating on Channel 285D utilizing a non-directional antenna. W285EF is a fill-in translator for FM broadcast station WHITE-FM, Channel 270A, 101.9 MHz, Charlottesville, VA. *MONTICELLO* herein requests a minor modification to move W285EF to a new transmitter site. In particular, *MONTICELLO* proposes to use an unregistered tower located at 37° 59’ 04.2”N, 78° 28’ 51.1”W (NAD 83). The proposed antenna will be directional, circularly polarized and mounted at 20.1 meters above ground level. An ERP of 50 Watts is being specified.

**Nature of the Proposal**

*MONTICELLO* proposes to combine operation with a common transmitting antenna for the instant proposal along with two other translators (W231AD, Facility ID 11670 and W300DV, Facility ID 202503). All three applications are expected to be filed at approximately the same time, so file numbers are not available for reference. The proposed antenna is a Scala CA5-FM/CP/RM, a broadband directional, circularly polarized antenna, oriented with a rotation to 15 degrees True. After construction of all three facilities, measurements will be taken to confirm that any out-of-band emissions comply with FCC regulations. The antenna pattern is provided in tabular form in the application. **Figure 1** provides a graphical representation of the relative field values after rotation.

**Allocation Considerations**

The location of the 60 dB $\mu$  coverage contour of the proposed translator includes overlap with the original authorization, and lies within the 60 dB $\mu$  contour of WHITE-FM, as shown in the map provided as **Figure 2**, thus complying with §74.1201(g).

The results of a study of nearby FM facilities on co-channel, adjacent-channel, and intermediate frequencies was conducted to identify which stations require further study to demonstrate compliance under §74.1204. The nearest co-channel facilities are WVRX(FM)

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(Ch. 285A, Strasburg, VA) and WSTV(FM) (Ch. 285C2, Roanoke, VA). As demonstrated in **Figure 3**, no prohibited contour overlap will occur with co-channel facilities. The nearest first adjacent stations are WWRE(FM) (Ch. 286A, Bridgewater, VA), WPZZ(FM) (Ch. 284C1, Crewe, VA) and WAVA(FM) (Ch. 286B, Arlington, VA). As shown in **Figure 4**, the 54 dB $\mu$  F(50,10) contour of the proposed facility does not overlap the protected 60 dB $\mu$  F(50,50) contours of the first adjacent facilities<sup>1</sup>. For first adjacent Class B station WAVA-FM, the proposed 48 dB $\mu$  F(50,10) contour does not overlap the protected 54 dB $\mu$  service contour.

Also, as shown in **Figure 5**, the proposed interfering and service contour is well outside the protected contours of WOJL(FM) (Ch. 288A, Louisa, VA) and translator W288ED (Ch. 288D, Charlottesville, VA). As also shown in the figure, the proposed facility is inside the protected 54 dB $\mu$  contour of WKCY-FM (Ch. 282B, Harrisonburg, VA). W285EF was previously used as a fill-in translator for WKCY-FM several years ago. It is believed that the current W285EF License was granted pursuant to §74.1203(d) of the Rules, despite some predicted interference to population in the Charlottesville area. According to an interference study<sup>2</sup> performed based on the current authorization, the predicted interference area is 0.694 square kilometers, and includes a population of 2,606 persons (Census 2020). W285EF has since been purchased by *MONTICELLO*, and the parent station has been changed to WHITE-FM.

The instant application proposes to move the translator such that it is farther away from WKCY-FM, creates a smaller interference area than the current license, and will not create new interference area with other facilities, thus complying with §74.1204(c)(1) through (4) as discussed below.

The calculated area of overlap for the W285EF License is 0.694 sq. km., while the proposed facility will have a smaller overlap area of 0.202 sq. km. As depicted in **Figure 5A** (Detail), the

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<sup>1</sup> Further, studies were performed on co-channel and adjacent channel stations to their 45 dB $\mu$  contour based on the FCC's D/U contour method, and have concluded that no new areas of interference will be created by the instant proposal.

<sup>2</sup> The predicted interference area was calculated using the FCC's preferred method of identifying locations where protected and interfering contours intersect, best described in the "*Working Arrangement for the Allotment and Assignment of FM Broadcasting Channels under the Agreement between the Government of Canada and the Government of the United States of America relating to the FM Broadcasting Service*," effective February, 1991 (available at <https://transition.fcc.gov/ib/sand/agree/files/can-bc/can-fm.pdf>).

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proposed interference area is farther away from WKCY-FM, and is significantly smaller, thus complying with §74.1204(c)(1) and (3). Neither the licensed W285EF facility, nor the proposed facility have prohibited overlap with any other stations, thus fulfilling §74.1204(c)(2) and (4). Thus, the proposed facility meets the requirements of §74.1204(c).

In addition, the proposed facility may also be granted pursuant to §74.1204(d) because of a lack of population within the area of interference. Specifically, as demonstrated in **Figure 6**, the interference area is located amid a mountaintop orchard. Public access is restricted; the only access road is private, is controlled by gates and does not provide through access over the mountain; and there are no structures in the area other than tower and translator facilities and a decommissioned civil war-era water reclamation site. Census 2020 data also confirms that there is no fixed population within the proposed interference area. As such, the proposed facility meets the requirements of §74.1204(d).

### Other and International Considerations

There are no IF relationship (53 or 54 channels removed) facilities within 50 km of the proposal. The nearest standard broadcast station is WKAV(AM) (1400 kHz, Charlottesville, VA), at a distance of 3.18 km. §1.30002(a) states that construction within one wavelength of a non-directional station must be examined for potential impact. One wavelength at 1400 kHz is 214.1 meters. Since WKAV is non-directional and the proposal is located 3.18 km (14.85 wavelengths) distant, the operation of WKAV will not be affected. There are no other AM stations within 3.2 km of the proposed facility.

The proposed site is located more than 500 km from the Canadian and Mexican borders, well beyond the 320 km coordination distance required for translators specified in §74.1235(d). The nearest FCC monitoring station is 195.1 km distant at Laurel, MD and the facility is 53.8 km from the Green Bank Quiet Zone. These distances exceed the threshold minimum distance specified in §73.1030 that would suggest consideration.

Therefore, the proposed facility satisfies all of the pertinent Commission Rules and Policies now in effect regarding allocation matters.

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### **Environmental Considerations**

The proposed facility will operate with a circularly-polarized ERP of 50 Watts with a directional antenna at 20.1 meters AGL on an unregistered tower. The use of existing transmitting locations has been characterized as environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. Because no change in structure height is proposed, no change in current structure marking and lighting requirements is anticipated. Therefore, this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

### **Human Exposure to Radiofrequency Radiation**

The proposed operation was evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility meets the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the adopted guidelines.

The general population/uncontrolled maximum permitted exposure ("MPE") limit specified in §1.1310 for the entire FM broadcast band is  $200 \mu\text{W}/\text{cm}^2$ . For the purpose of this study, "public access" will be considered at the base of the tower at a location two-meters above ground. Using the FCC's FM Model program and a worst-case single-bay EPA Type 1 antenna, it was determined that the proposed facility would contribute a worst-case RF power density of  $6.137 \mu\text{W}/\text{cm}^2$  at two meters above ground level near the antenna support structure, or 3.07 percent of the general population/uncontrolled limit.

§1.1307(b)(3) states that facilities at locations with multiple emitters are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent of the pertinent MPE limit. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be

## **Comprehensive Engineering Statement**

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considered independently from this proposal. Accordingly, the impact of the proposed operation should not be considered to be a factor at ground level as defined under §1.1307(b).

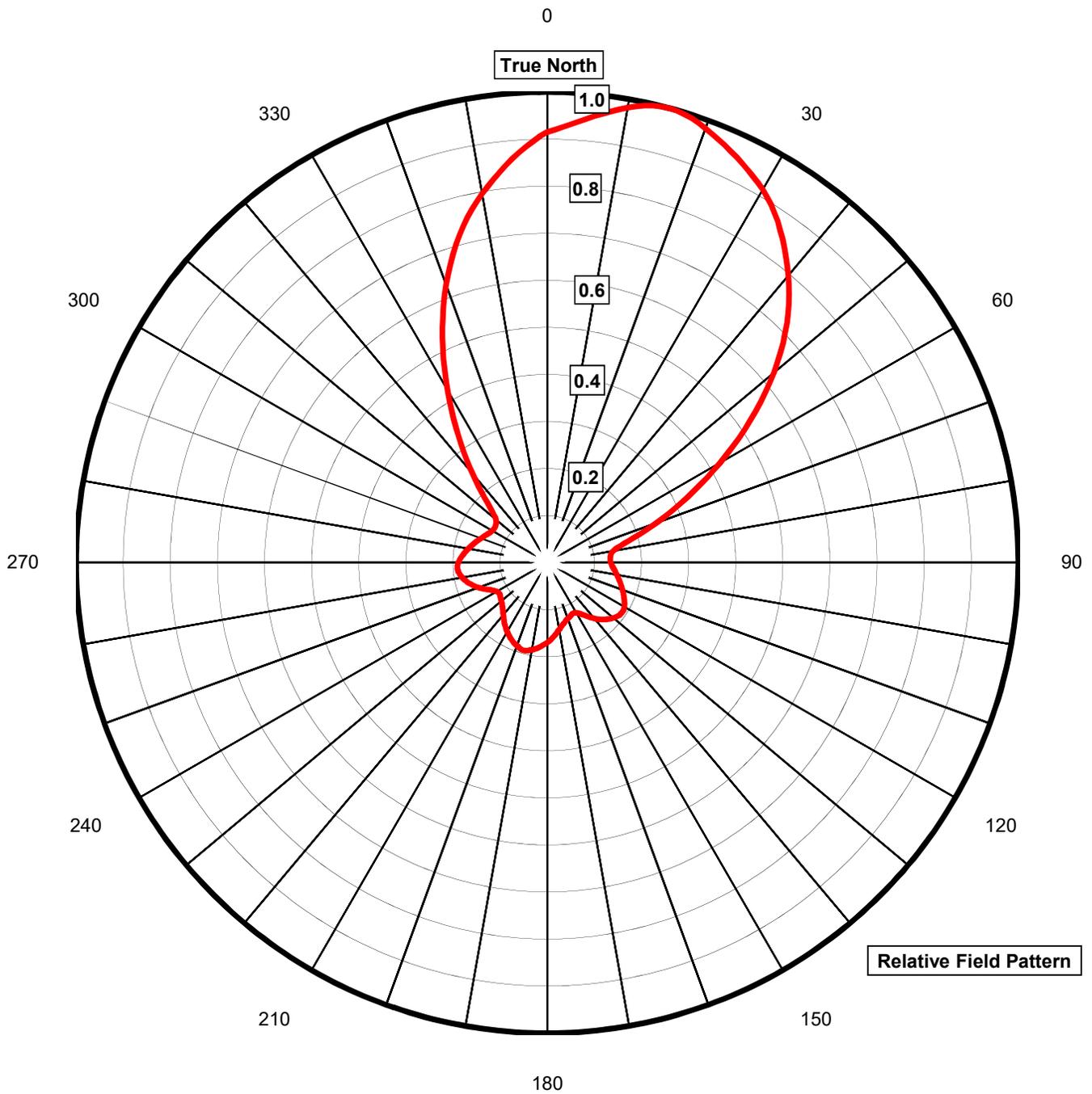
### **Safety of Tower Workers and the General Public**

As demonstrated herein, excessive levels of RF energy will not be caused by the proposal at ground level in publicly accessible areas near the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Nevertheless, tower access will continue to be restricted and controlled through the use of a locked gate. According to information provided by the applicant, appropriate RF exposure warning signs are posted. In the event that maintenance or other workers gain access to the tower, power output of the translator will be decreased or shut off to protect workers.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level. A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines would otherwise be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations. Based on the preceding, the instant proposal may be categorically excluded from environmental processing under §1.1306 of the Rules and preparation of an Environmental Assessment is not required.

### **Conclusion**

Therefore, the proposed facility satisfies all of the pertinent Commission Rules and Policies now in effect.



**FIGURE 1**  
**ANTENNA HORIZONTAL PLANE**  
**RADIATION PATTERN (Post-Rotation)**

prepared May 2022 for

**Monticello Media LLC**

W285EF Charlottesville, Virginia

Facility Id 81122

Ch. 285D 0.05 kW 464 m AMSL

Cavell, Mertz & Associates, Inc.  
 Manassas, Virginia

**FIGURE 2**  
**COVERAGE CONTOUR COMPARISON**

*prepared May 2022 for*

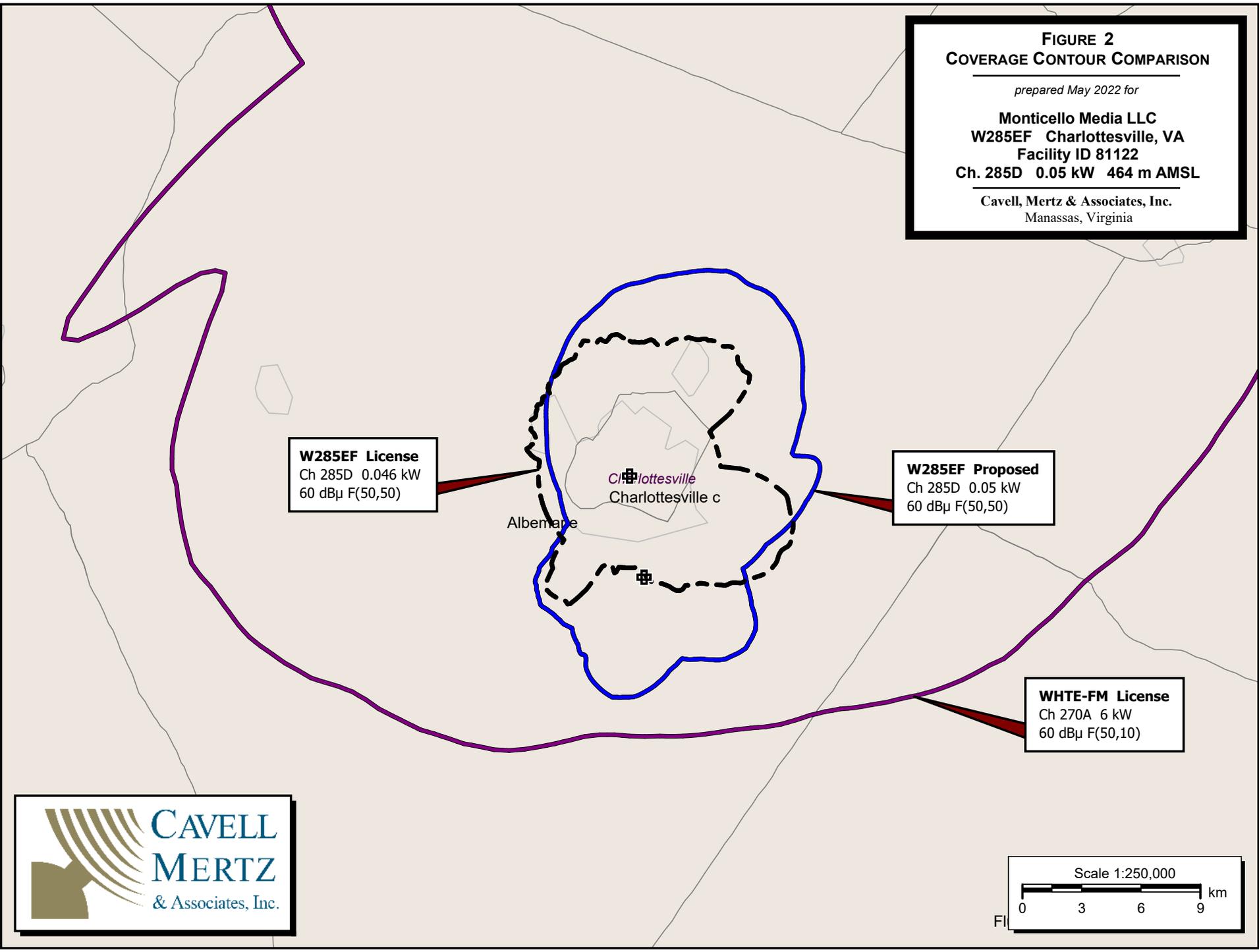
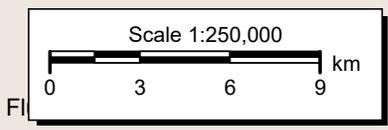
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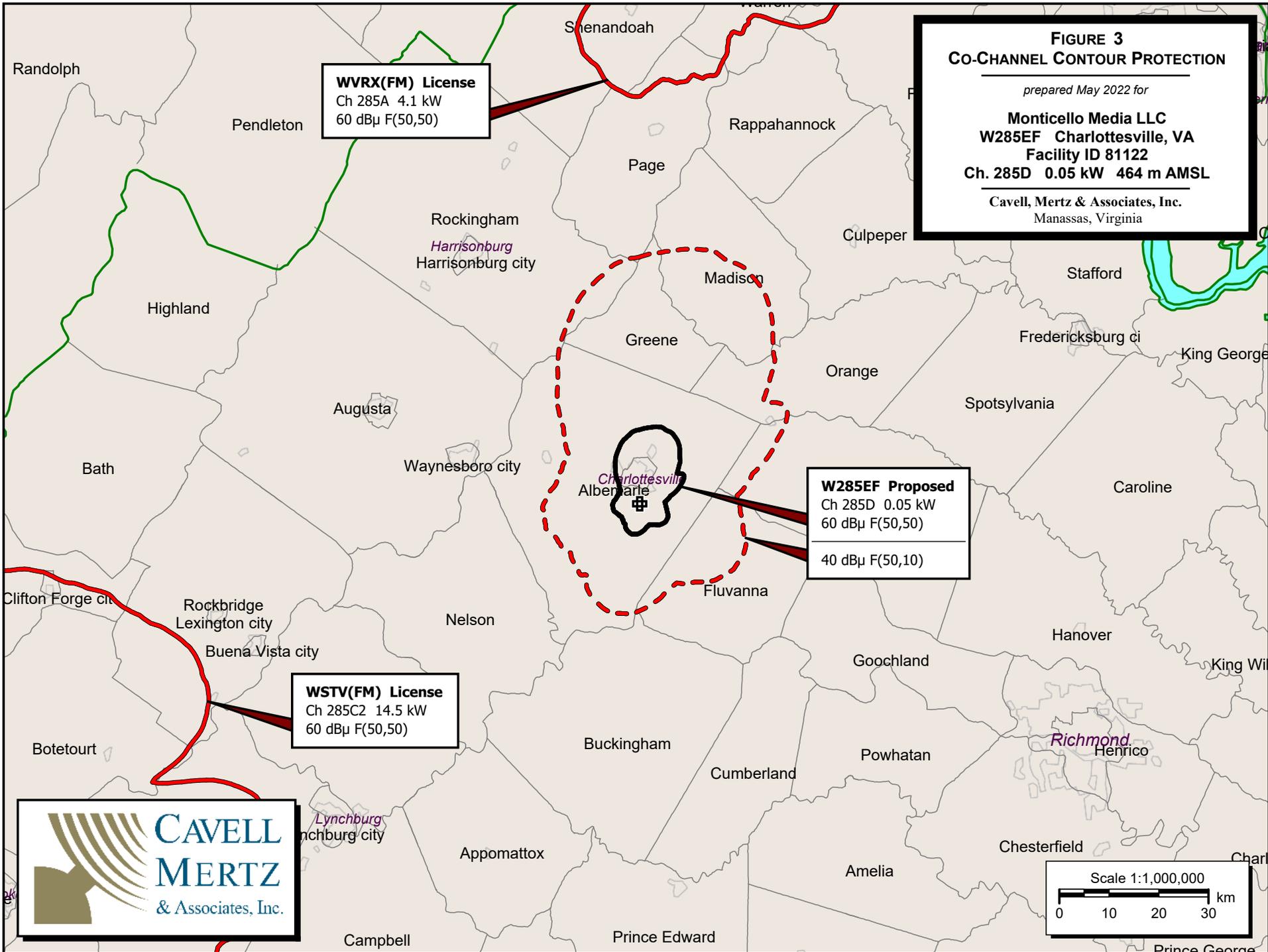
**Cavell, Mertz & Associates, Inc.**  
Manassas, Virginia

**W285EF License**  
Ch 285D 0.046 kW  
60 dB $\mu$  F(50,50)

**W285EF Proposed**  
Ch 285D 0.05 kW  
60 dB $\mu$  F(50,50)

**WHTE-FM License**  
Ch 270A 6 kW  
60 dB $\mu$  F(50,10)



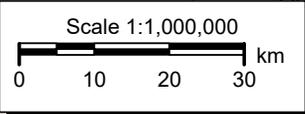


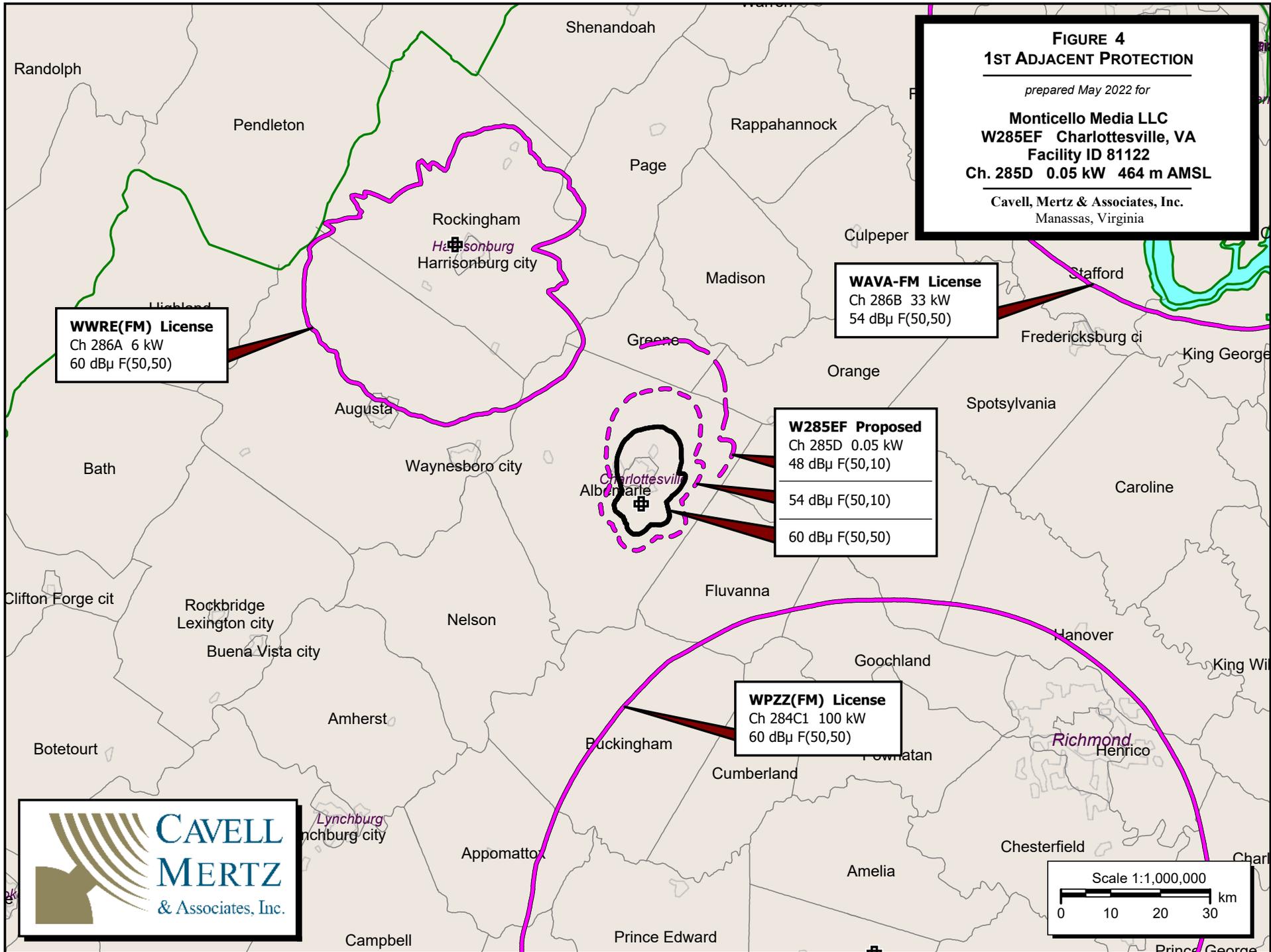
**FIGURE 3**  
**CO-CHANNEL CONTOUR PROTECTION**  
 prepared May 2022 for  
**Monticello Media LLC**  
**W285EF Charlottesville, VA**  
**Facility ID 81122**  
**Ch. 285D 0.05 kW 464 m AMSL**  
 Cavell, Mertz & Associates, Inc.  
 Manassas, Virginia

**WVRX(FM) License**  
 Ch 285A 4.1 kW  
 60 dBμ F(50,50)

**W285EF Proposed**  
 Ch 285D 0.05 kW  
 60 dBμ F(50,50)  
 40 dBμ F(50,10)

**WSTV(FM) License**  
 Ch 285C2 14.5 kW  
 60 dBμ F(50,50)



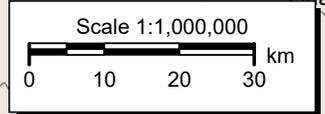
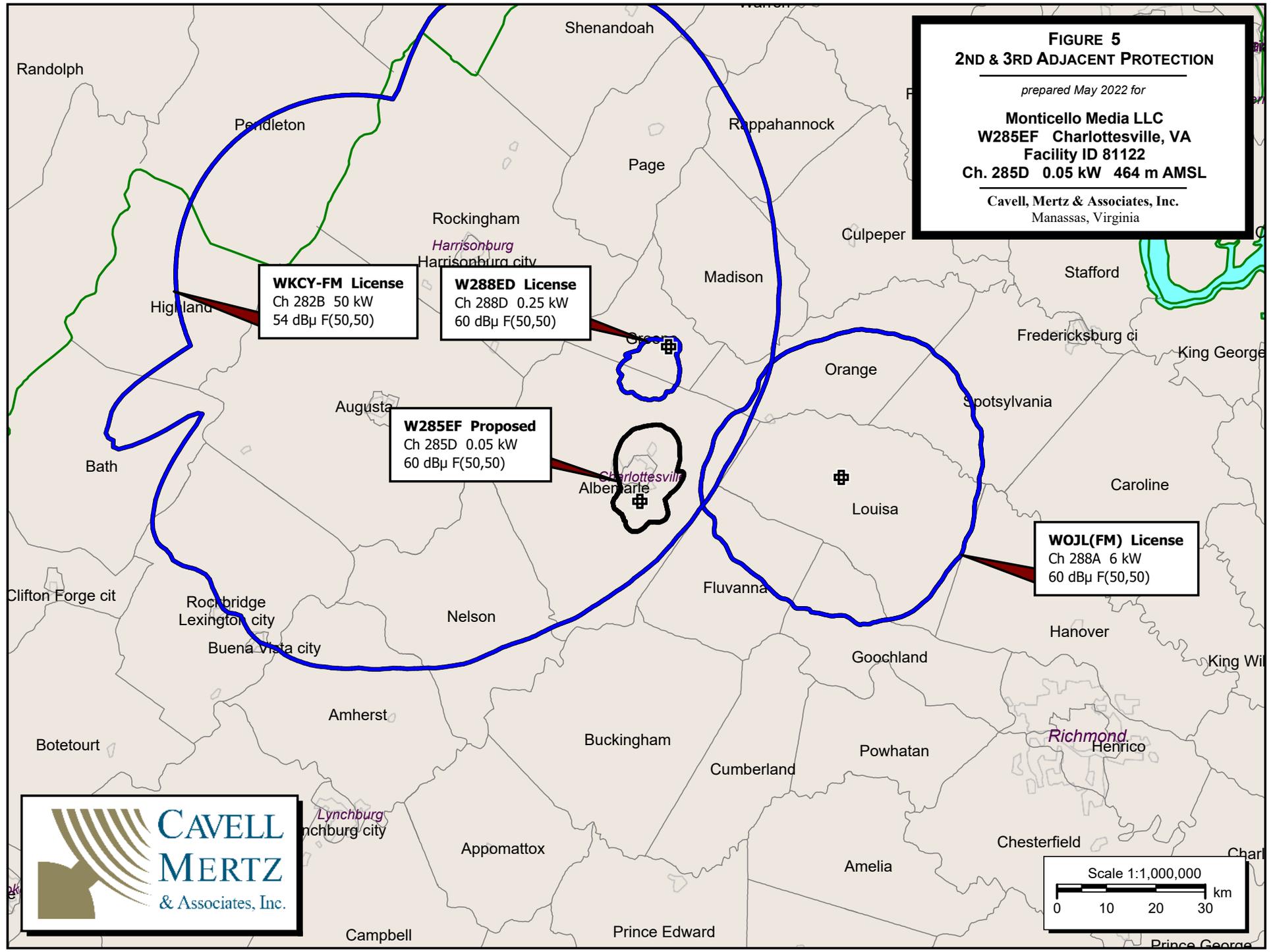


**FIGURE 5**  
**2ND & 3RD ADJACENT PROTECTION**

*prepared May 2022 for*

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**Cavell, Mertz & Associates, Inc.**  
 Manassas, Virginia



**FIGURE 5A (DETAIL)**  
**2ND & 3RD ADJACENT PROTECTION**

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Manassas, Virginia

**W285EF License**  
Ch 285D 0.046 kW  
60 dB $\mu$  F(50,50)  

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Licensed IX Area

**W285EF Proposed**  
Ch 285D 0.05 kW  
60 dB $\mu$  F(50,50)  

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Proposed IX Area

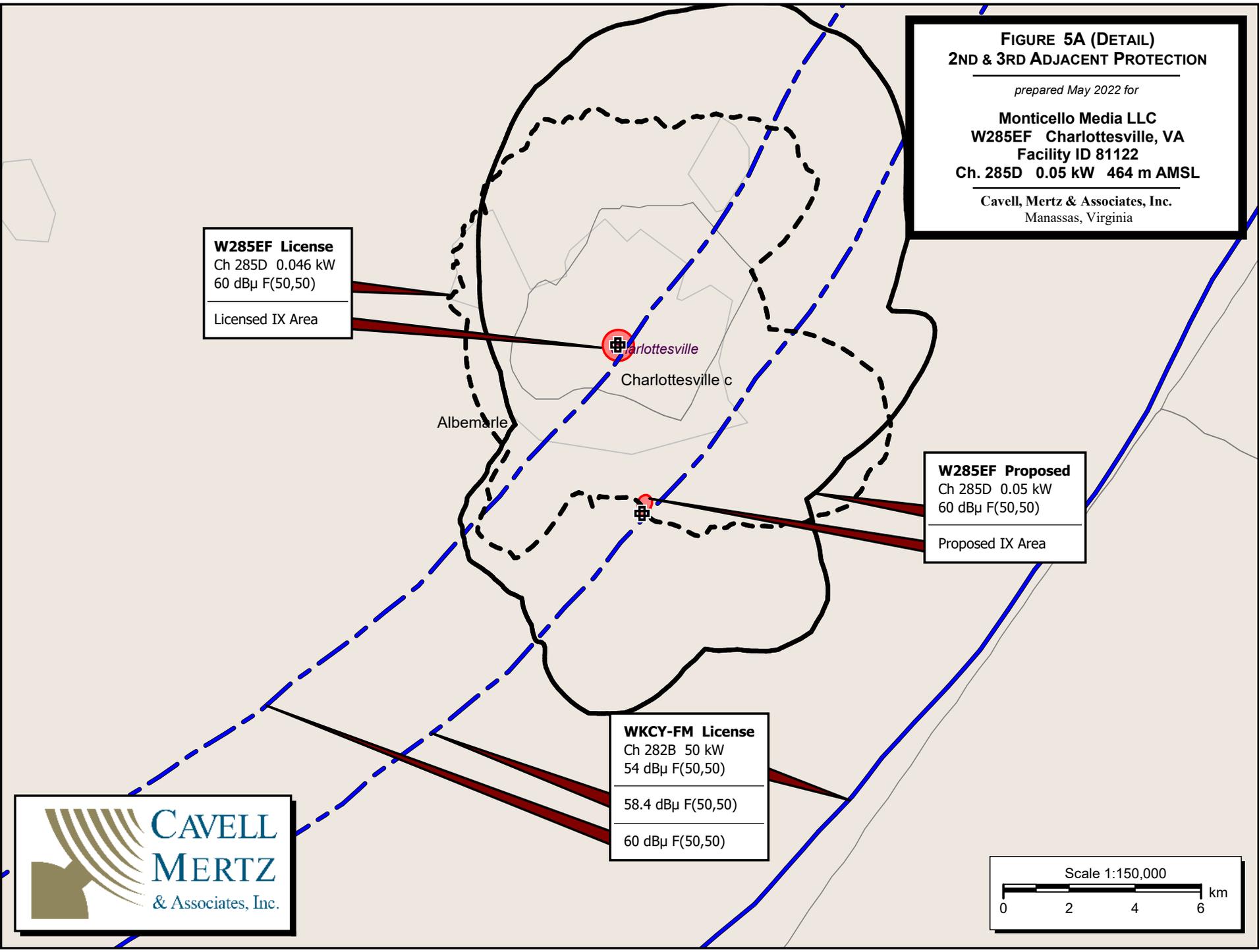
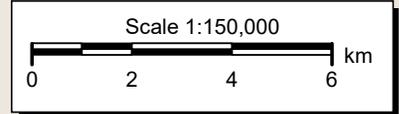
**WKCY-FM License**  
Ch 282B 50 kW  
54 dB $\mu$  F(50,50)  

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58.4 dB $\mu$  F(50,50)  

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60 dB $\mu$  F(50,50)



**FIGURE 6**  
**CALCULATED INTERFERENCE AREA**

*prepared May 2022 for*

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Carters Mountain Trail