

# Engineers Statement and Exhibits

FCC FORM 340

APPLICATION FOR CONSTRUCTION PERMIT FOR RESERVED CHANNEL  
NONCOMMERCIAL EDUCATIONAL BROADCAST STATION

(For a Minor Change in Licensed facility)

WHDD-FM, Facility ID 173310

## **Introduction:**

This is an application for a minor change by Tri-State Public Communications, Inc. (the Applicant) to WHDD-FM, Facility ID 173310, serving the community of Sharon Connecticut.

This application proposes to change the antenna type, pattern and height.

- The existing treated wooden pole will be replaced with a 21.33 meter self-supporting steel tower.
- The existing Scala CA5-FM/CP antenna will be replaced with an ERI LP-2E-DA-HW.
- The antenna radiation center will be reduced from 21 meters AGL to 17 meters AGL.
- The directional pattern will be changed.

This application proposes to provide 73.215 contour protection to WRNQ (221A) and WWYZ (223B). WRNQ is currently authorized under 73.215. The proposed facility complies with the minimum spacing requirements of Section 73.215.

## Section VII Engineering Data:

### Tech Box Data:

- 1) Channel 220
- 2) Class A
- 3) Antenna Location Coordinates
  - 41° 53' 32" N
  - 73° 27' 16" W
- 4) Proposed Assignment Coordinates, Not Applicable
- 5) Antenna Structure Registration, Not Applicable
- 6) Overall Tower Height, 21 meters AGL
- 7) Radiation Center Height, 279 meters (H)                      279 meters (V) AMSL
- 8) Radiation Center Height, 17 meters (H)   17 meters (V) AGL
- 9) Radiation Center Height, -19 meters (H) -19 meters (V) HAAT
- 10) ERP, 0.65 kW (H)                      0.65 kW (V)
- 11) Maximum ERP if beamtilt used, Not Applicable
- 12) Directional Antenna, Yes, See Exhibit 1, Rotation = 5°
- 13) Main Studio Location, Yes, Inside city limits of community of license.
- 14) Community Coverage, Yes, See Exhibit 13.
- 15) Interference, No.
  - a) Section 73.509, Checked. Protecting WDMY and WBSL-FM, See Exhibits 16.
  - b) Section 73.207, Checked. Short to WRNQ and WWYZ, See Exhibits 16. Clear of all International stations and authorizations.
  - c) Section 73.213, Not Checked. Not Applicable.
  - d) Section 73.215, Checked. Contour Protection applied to WRNQ and WWYZ, See Exhibits 16.
  - e) Section 73.525, Not Checked.
- 16) Reserved Channel above 220, Not Applicable
- 17) International Border, No, Canada, 291 km. See Exhibit 21.
- 18) NEPA, Yes. Operation of this facility will not have a significant environmental impact. To the best knowledge of the Applicant:
  - The structure is not located in an officially designated wilderness area or wildlife preserve.
  - The structure does not threaten the existence or habitat of endangered species.
  - The structure will not involve high intensity white lighting in a residential neighborhood.
  - The structure will not affect districts, sites, buildings, structures or objects significant in American history, architecture, engineering or culture that are listed in the National Register of Historic Places, or are eligible for listing.
  - The structure does not affect Indian religious sites.
  - The site is not located in a flood plain.
  - Nothing is proposed that would require significant changes in surface features such as wetland fill, deforestation or water diversion.
  - This proposal complies with the FCC established guidelines regarding exposure to RF electromagnetic fields, See Exhibit 22.
- 19) Community of License Change, Not Applicable.

# Exhibit 1

## Directional Antenna Pattern

Azimuth Field  (deg)		Azimuth Field  (deg)		Azimuth Field  (deg)	
-----		-----		-----	
000  0.972		040  1.000		080  1.000	
010  0.776		050  1.000		090  1.000	
020  0.972		060  1.000		100  1.000	
030  1.000		070  1.000		110  1.000	
120  1.000		160  0.522		200  0.213	
130  1.000		170  0.417		210  0.178	
140  0.818		180  0.333		220  0.223	
150  0.654		190  0.266		230  0.224	
240  0.280		280  0.688		320  1.000	
250  0.351		290  0.861		330  1.000	
260  0.439		300  1.000		340  1.000	
270  0.550		310  1.000		350  1.000	
208  0.178					

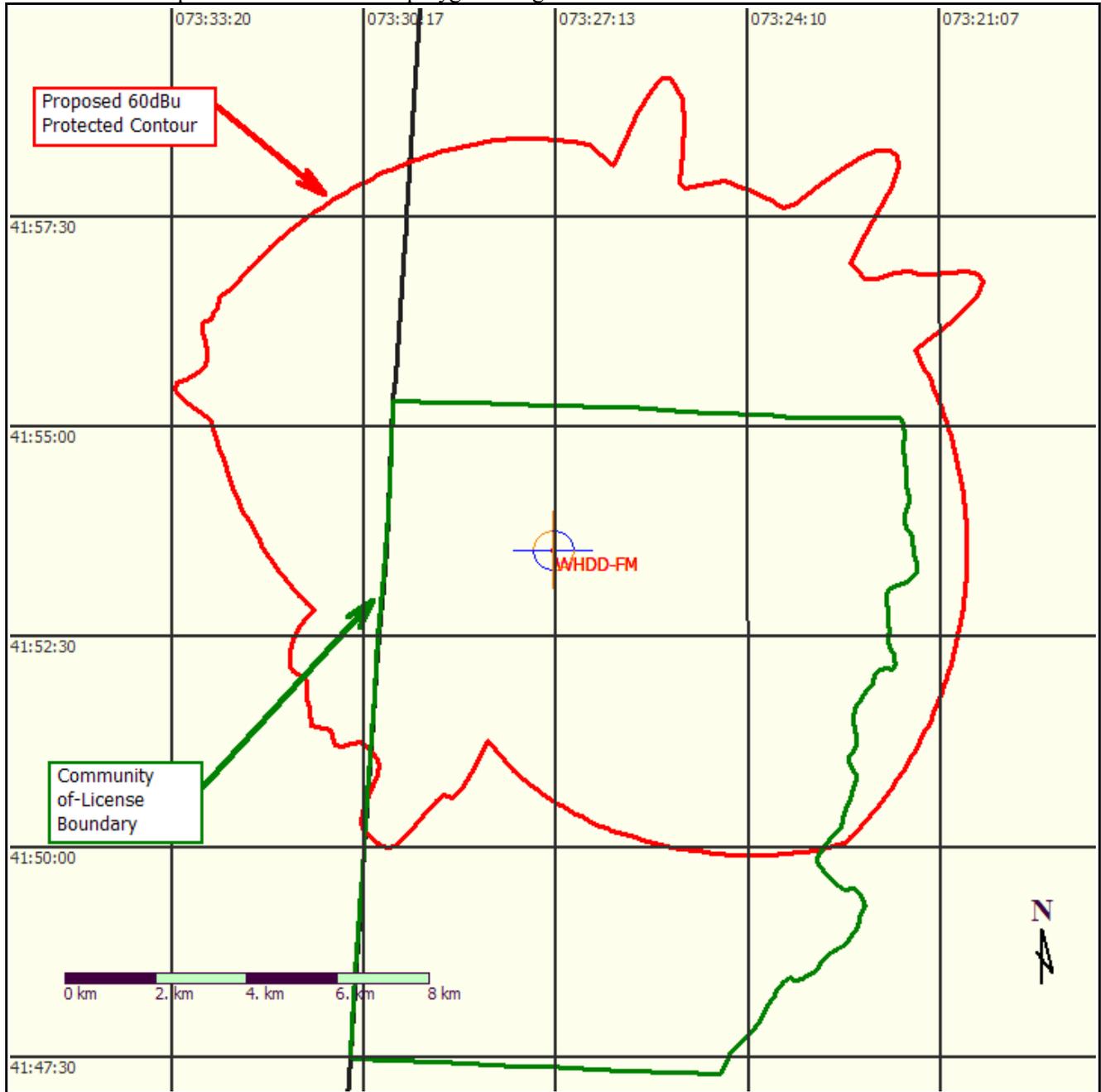
Rotate Pattern + 5 degrees.

# Exhibit 13

## 60dBu Contour Area and Population. Community of License Coverage.

The proposed facility's 60 dBu service contour encompasses a total land area of 212 km<sup>2</sup> and contains 7,271 persons based on the US Census year 2000 block level data. The service contour contains 2515, or 84.7%, of the 2968 persons in the Community-of-License.

The contour was created using the methods and procedures described in 47 C.F.R. Section 73.313(c). The area was calculated using a spline integration in one-degree increments. The population was calculated by testing each US Census defined population point in the region with a point-in-polygon method. The population was summed for each point within the 60dBu polygon using data from the 2000 US Census.



## Exhibit 16a

### Stations and Authorizations Requiring Investigation

ID	City	St	Chan	CL	Stat	Prefix	ARN	Dist	Min 207	Clear 207	Clear 215
WDMY	STOCKBRIDGE	MA	220	A	CP	BNPED	20071022BGZ	47.12	N/A	N/A	N/A
WBSL-FM	SHEFFIELD	MA	219	A	LIC	BLEDD	19820819AF	25.03	N/A	N/A	N/A
WRNQ	POUGHKEEPSIE	NY	221	A	LIC	BLH	20000501AAA	48.97	72	-23.03	-0.03
WWYZ	WATERBURY	CT	223	B	LIC	BLH	19940916KD	62.52	69	-6.48	-0.48

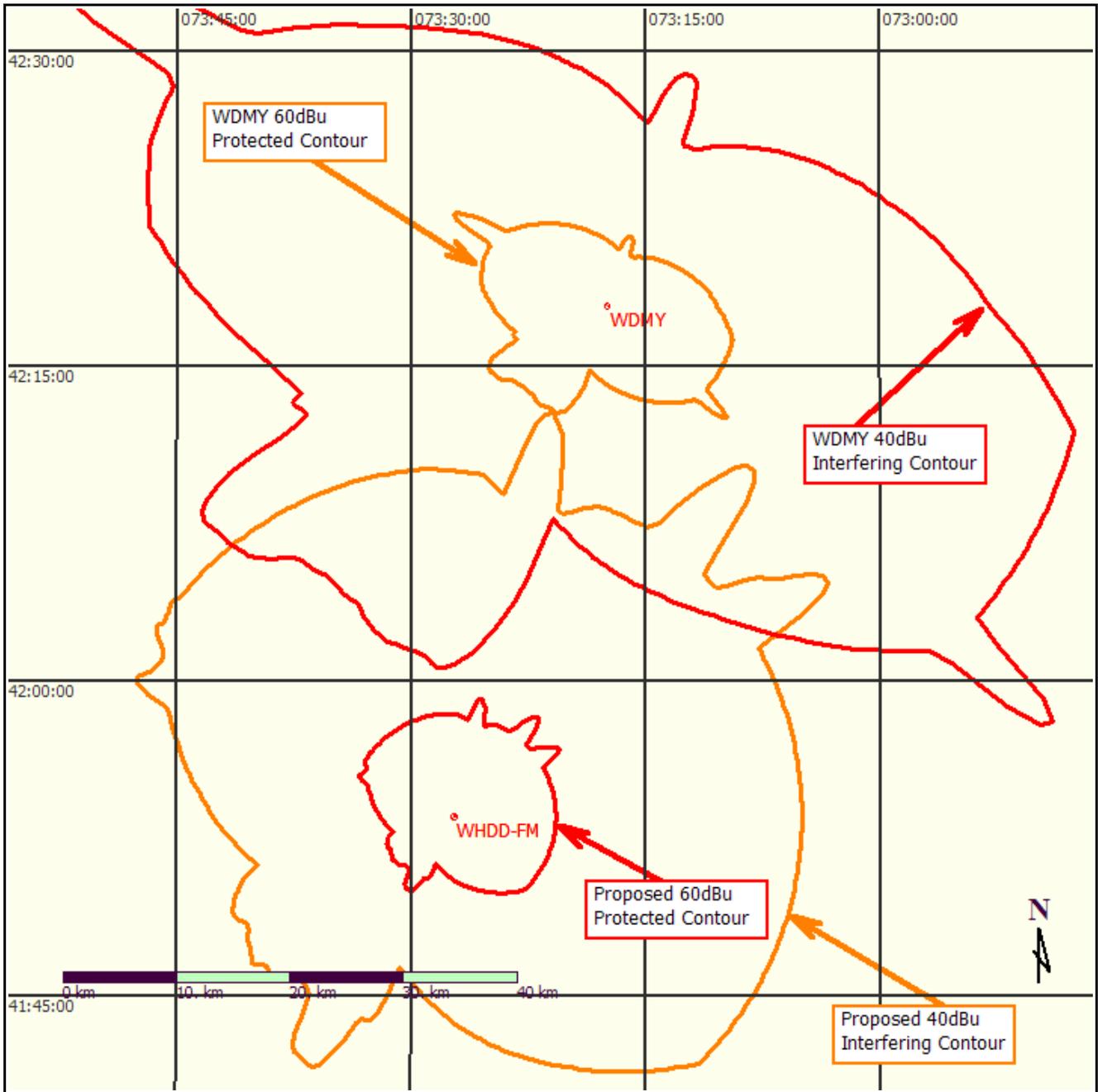
**Note:**

WRNQ is licensed under 73.215 rules. The following exhibits display that station's protected and interfering contours using the authorized height and power.

WWYZ is licensed under 73.207 rules. The following exhibits display that station's protected and interfering contours using class height and power.

# Exhibit 16b

## Contour Protection

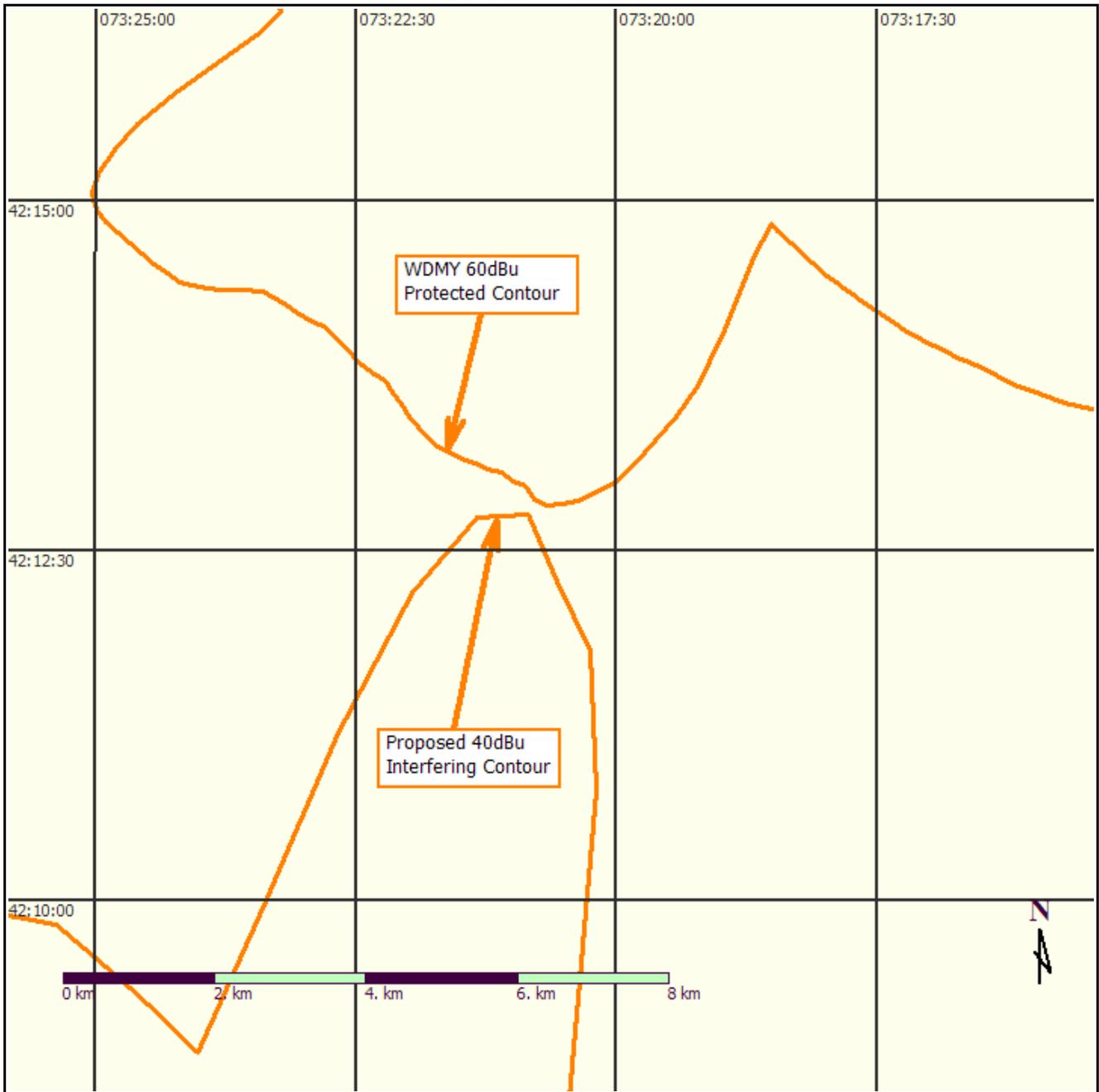


*Co-Channel Protected and Interfering Contours*

Contours are color-coded so that prohibited overlap is indicated by LIKE color contours overlapping.

# Exhibit 16c

## Contour Protection

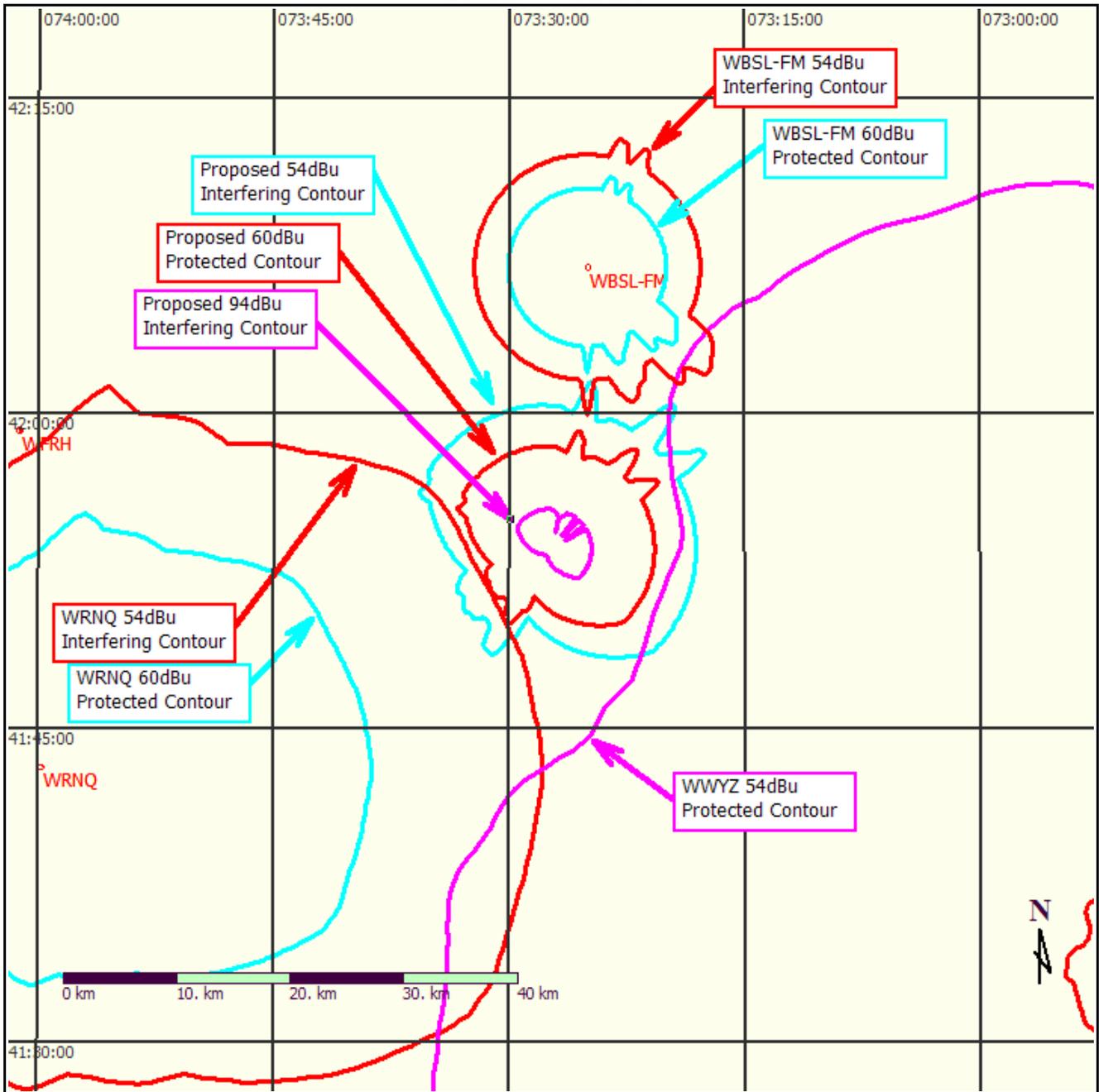


*Co-Channel Closeup.*

Contours are color-coded so that prohibited overlap is indicated by LIKE color contours overlapping.

# Exhibit 16d

## Contour Protection



*Adjacent-Channel Protected and Interfering Contours*

Contours are color-coded so that prohibited overlap is indicated by LIKE color contours overlapping.

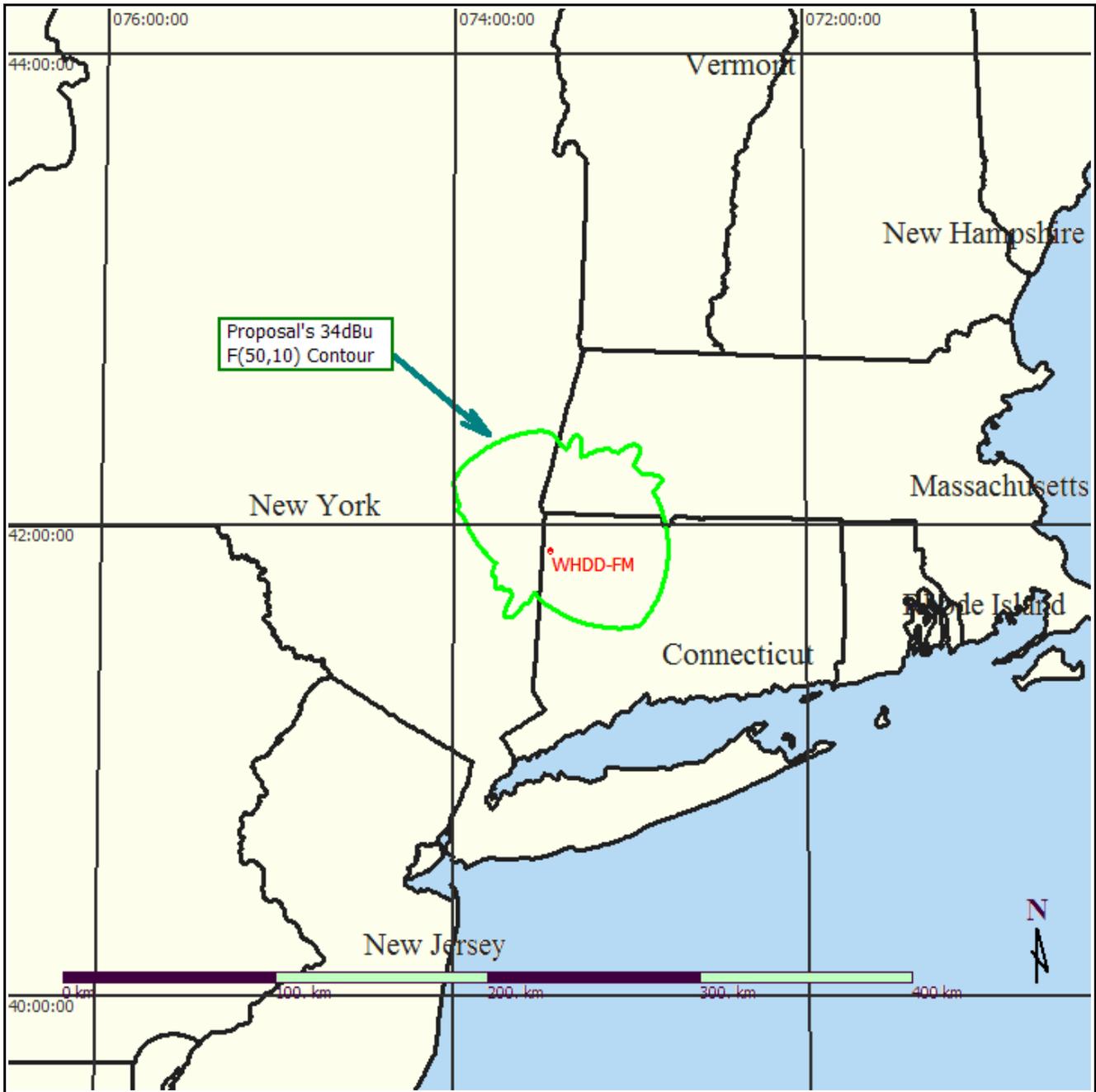
## Exhibit 16e Contour Protection



*Adjacent-Channel Closeup.*

Contours are color-coded so that prohibited overlap is indicated by LIKE color contours overlapping.

**Exhibit 21**  
**International Borders**



There is no interference with Canada, as the proposed site's 34 dB contour does not cross the International Border.

## Exhibit 22

### RF Exposure Statement

The Applicant will cooperate with all site users, managers and owners with regard to the cessation of operation or the reduction of operating power, whenever it is necessary to comply with the FCC Regulations and Guidelines on Human Exposure to Non-Ionizing RF Radiation.

The modeled contribution to the RF environment, 2-meters above the ground, by the proposed facility is less than  $17.2 \text{ uW/cm}^2$ , or 8.6%, of the maximum permitted value for general public exposure. This result was obtained using the FCC's FM Model Program.

The following parameters were used to calculate the exposure level:

Horizontal ERP 0.65 kW  
Vertical ERP 0.65 kW  
Antenna Radiation Center Height AGL 17 meters  
Antenna Type: Rototiller, 2-bay, 1/2 wave spaced.

Based on OET Bulletin 65 and using the parameters listed above, the public exposure level falls below 100% in the beam-center of the antenna at any distance greater than 14.75 meters from the RF source.

There is a 5.5 meter tall garage 3 meters east of the tower. Using an antenna height of 11.5 meters above the roof of the garage the FCC FM Model Program predicts a peak RF level of  $42.8 \text{ uW/cm}^2$ , or 21.4%, of the maximum permitted value for general public exposure.

There is a 7.4 meter tall barn 10 meters west of the tower. Using an antenna height of 9.6 meters above the roof of the barn the FCC FM Model Program predicts a peak RF level of  $66.9 \text{ uW/cm}^2$ , or 33.5%, of the maximum permitted value for general public exposure.

There are no other buildings within 15 meters of the tower.

The ground does not rise around the tower. There are no other significant RF sources within 315 meters of the site.

**Based on this information the proposed facility is in compliance with 47 C.F.R. Section 1.1306 with regards to radio-frequency electromagnetic exposure.**

Joseph DiPietro, P.E.  
April 28, 2010