

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 5)

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 8 to 16 km (meters)	Predicted Distances	
		To the 316 mV/m contour (kilometers)	To the 1 mV/m contour (kilometers)
252.9*	231	24.5	41.1
0	68	13.2	23.7
45	169	21.2	36.2
90	159	20.6	35.1
135	84	14.6	26.1
180	-45	8.9	15.8
225	19	8.9	15.8
270	194	22.6	38.4
315	152	20.2	34.3

*Radial through principal community, if not one of the major radials. This radial should NOT be included in the calculation of HAAT.

20. Environmental Statement (See 47 C.F.R. Section 1.1301 et seq.)

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact? Yes No

If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311. Exhibit No.
N/A

If No, explain briefly why not. Categorically excluded per 47 CFR 1.1306. See Technical Narrative.

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name (Typed or Printed) David E. Dickmann	Relationship to Applicant (e.g., Consulting Engineer) Technical Consultant
Signature 	Address (Include ZIP Code) du Treil, Lundin & Rackley, Inc. 1019 19th Street, N.W., 3rd Floor Washington, D.C. 20036
Date March 6, 1991	Telephone No. (Include Area Code) (202) 223-6700

du Treil, Lundin & Rackley, Inc.

A Subsidiary of A. D. Ring, P. C.

TECHNICAL EXHIBIT
APPLICATION FOR FM CONSTRUCTION PERMIT
COPE II BROADCASTING PARTNERS
MARION, VIRGINIA

March 6, 1991

CH 278A 6 KW 100 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared on behalf of Cope II Broadcasting Partners, applicant for a new FM station on channel 278A in Marion, Virginia. The instant application is filed in response to the filing window (closes March 14, 1991) specified in Mass Media Docket No. 90-412 regarding allotment of channel 278A to Marion, Virginia. By means of this application, the applicant proposes to construct a new tower and operate on channel 278A with effective radiated power of 6.0 kilowatts and antenna height above average terrain of 100 meters.

The proposal would not be subject to environmental processing in accordance with 47 CFR 1.1306. The Federal Aviation Administration has been notified of the proposed construction. The proposal conforms with all applicable rules and regulations of the Federal Communications Commission. Specifications for the proposed operation are included herein as Figure 1.

Proposed Transmitter Location

The proposed transmitting facility will consist of a 3-bay FM antenna side-mounted on a uniform cross-section, guyed tower located approximately 14 kilometers

northeast of Marion, approximately 450 meters northwest of the intersection of State Routes 615 and 683 in Smyth County, Virginia. The location is uniquely described by the following geographic coordinates, which were scaled from a 7.5 minute quadrangle map entitled "Cedar Springs, VA.":

36° 52' 18" North Latitude

81° 21' 58" West Longitude.

A map showing the transmitter location is included herein as Figure 2. A sketch showing the proposed antenna and supporting structure is included herein as Figure 3.¹

Allocation Considerations

The proposed site meets the minimum distance separation requirements of 47 CFR 73.207 with respect to all existing and proposed stations and allotments. An allocation study showing the actual and required separations from pertinent stations and allotments is included as Figure 6.

¹It should be noted that the antenna elevation data were computed to the nearest foot and then converted to the nearest tenth of a meter in Figures 1 and 3. The elevation of the top of the supporting structure is reported accurately to the nearest meter as 939 meters in Item 7(a)(3) of FCC Form 301, Section V-B, although due to rounding it appears that the figures reported in items 7(a)(1) and 7(a)(2) (853 meters and 85 meters) do not add to 939 meters.

Coverage Contours

The predicted coverage contours were calculated in accordance with the provisions of 47 CFR 73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers from the proposed site along the standard eight radials evenly spaced at 45-degree intervals, and a ninth radial through Marion, were determined using the National Geophysical Data Center's 30-second terrain database.

The antenna radiation center heights above average terrain in the individual radial directions and the effective radiated power were used in conjunction with the F(50,50) curves of 47 CFR 73.333 (Figure 1) to determine distances to the 70 dBu and 60 dBu contours. Figure 4 is a tabulation of average elevations and distances to coverage contours. Figure 5 is a map showing the predicted coverage contours.

As the map in Figure 5 shows, the 70 dBu contour will encompass all of Marion. The Marion city limits shown were obtained from a map contained in the 1980 census. The proposed facilities, therefore, comply with 47 CFR 73.315.

There appear to be no other FM or TV transmitters within 10 kilometers of the proposed facility, and no receiver-induced intermodulation interference is expected. There are some houses within

the blanketing contour, which extends approximately 1.0 kilometer from the proposed transmitter. Although no problems are expected, the applicant recognizes its responsibility to remedy complaints of blanketing interference as required by 47 CFR 73.318 and to protect existing facilities in accordance with applicable rules.

Population and Area

The population to be served within the predicted 60 dBu contour was determined by a computer program which adds the populations of census districts having centroids within the contour. The 1980 census was employed. The land area within the 60 dBu contour was determined using a root mean squared method of calculation. The predicted 60 dBu contour encompasses 2,816 square kilometers in which 64,607 persons reside.

Environmental Considerations

The proposed facility was evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation." Using Equation (4) on Page 8 of this Bulletin, the "worst-case" power density at ground level attributable to the proposed FM operation is approximately 6.2 percent of the ANSI standard, well within the ANSI guidelines.

The proposal is categorically excluded from environmental processing, as it appears to meet all of the

criteria for such an exclusion in 47 CFR 1.1306. The proposal does not involve construction at a site location specified under 47 CFR 1.1307(a)(1)-(7), is not expected to require high intensity lighting under 47 CFR 1.1307(a)(8), and the potential for human exposure to radiofrequency radiation is predicted to be within the standards specified in 47 CFR 1.1307(b).



David E. Dickmann

March 6, 1991

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Technical Specifications

Channel	278A
Frequency	103.5 MHz
Site coordinates	36° 52' 18" North Latitude 81° 21' 58" West Longitude
Site elevation above mean sea level	853.4 m (2800 ft)
Average elevation above mean sea level of standard eight radials, 3-16 kilometers	833.9 m (2736 ft)
Overall height of proposed antenna structure with beacon	
Above ground	85.3 m (280 ft)
Above mean sea level	938.8 m (3080 ft)
Height of FM antenna radiation center	
Above ground	80.5 m (264 ft)
Above mean sea level	933.9 m (3064 ft)
Above average terrain	100 m (328 ft)
Transmitter	*Continental, type 814B
Maximum rated power output	5 kW

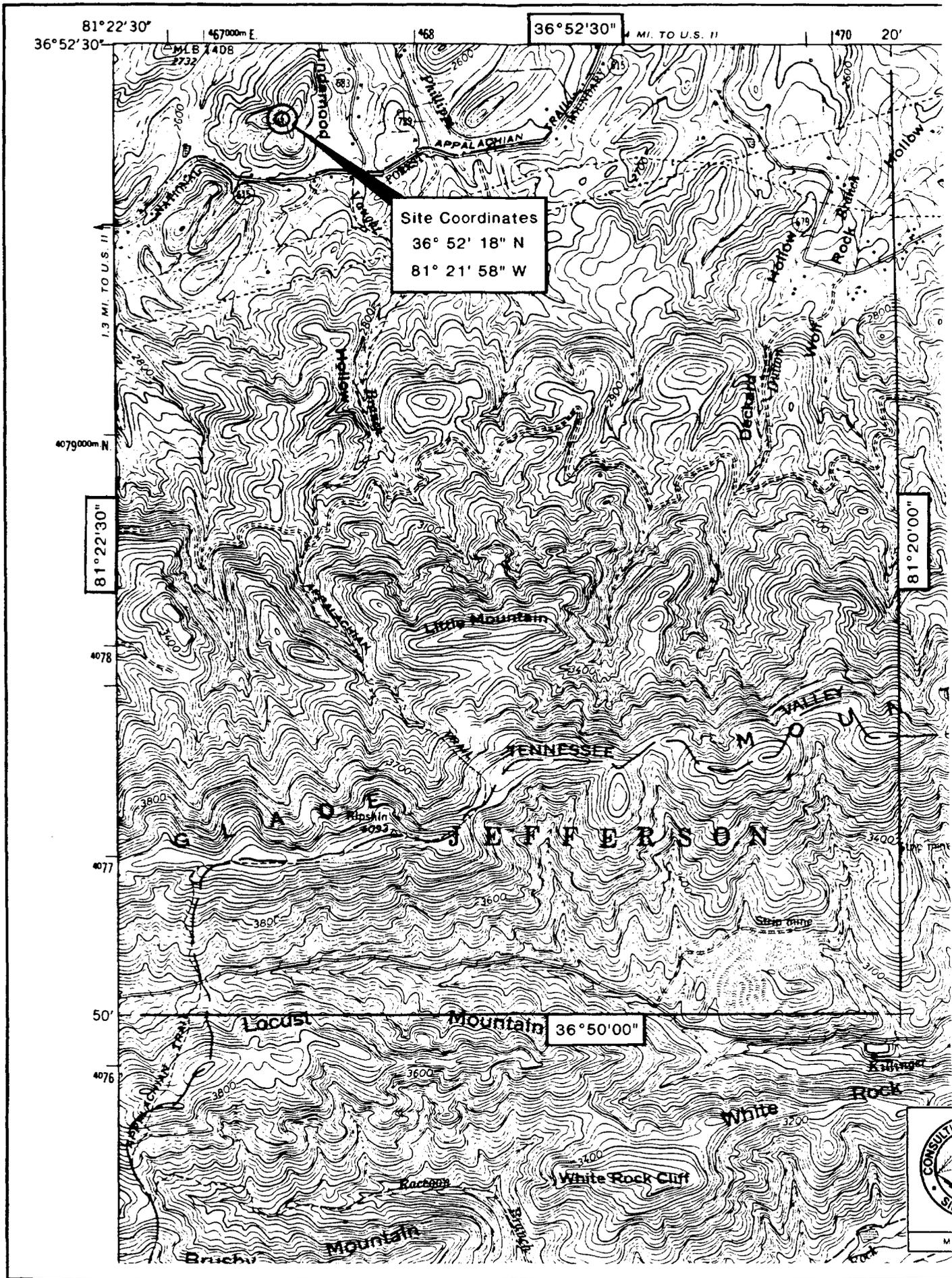
*Or equivalent

Transmission line	*Andrew, type HJ7-50A
Nominal diameter	4.13 cm (1-5/8 in)
Length	91.4 m (300 ft)
Efficiency (0.63 dB loss)	86.5%
Antenna	*Shively, type 6813
Number of bays	3
Input power rating	9 kW
Polarization	Circular
Power gain	
Horizontal polarization	1.55
Vertical polarization	1.55

Proposed Operation

Transmitter output power	4.48 kW
Transmission line loss	0.60 kW
Antenna input power	3.88 kW
Effective radiated power	
Circular polarization	6 kW

*Or equivalent



81° 22' 30"
36° 52' 30"

467000m E

468

36° 52' 30"

MI. TO U.S. II

470 20'

1.3 MI. TO U.S. II

4079000m N

81° 22' 30"

Site Coordinates
36° 52' 18" N
81° 21' 58" W

81° 20' 00"

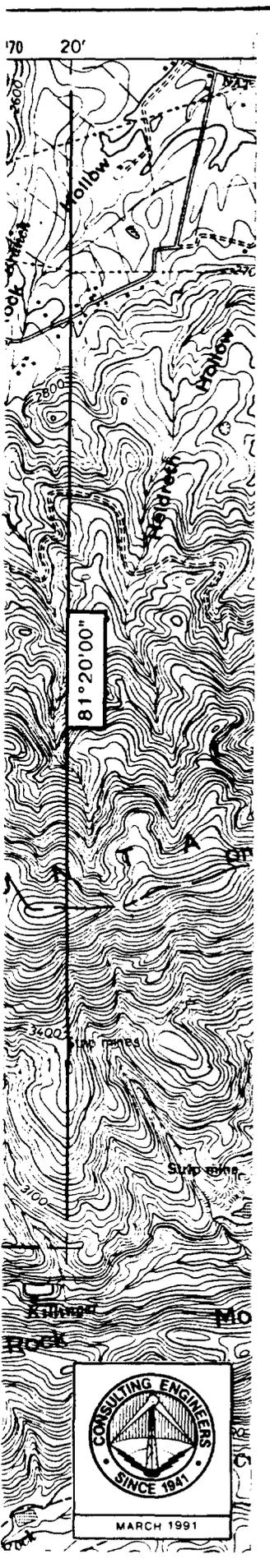
4078

4077

50'

4076

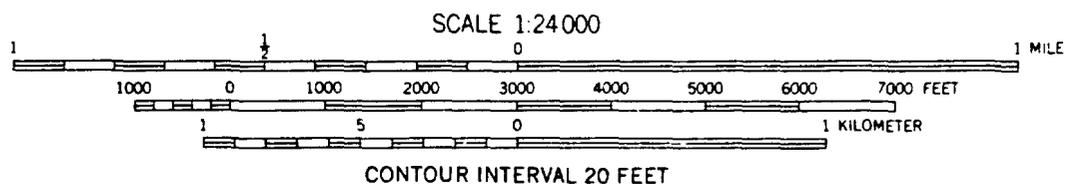




CEDAR SPRINGS, VA.

N3645-W8115/7.5

1959
PHOTOREVISED 1978
AMS 4757 IV SE-SERIES V834



PROPOSED TRANSMITTER LOCATION

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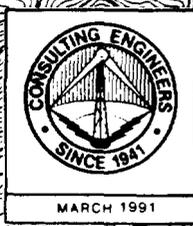
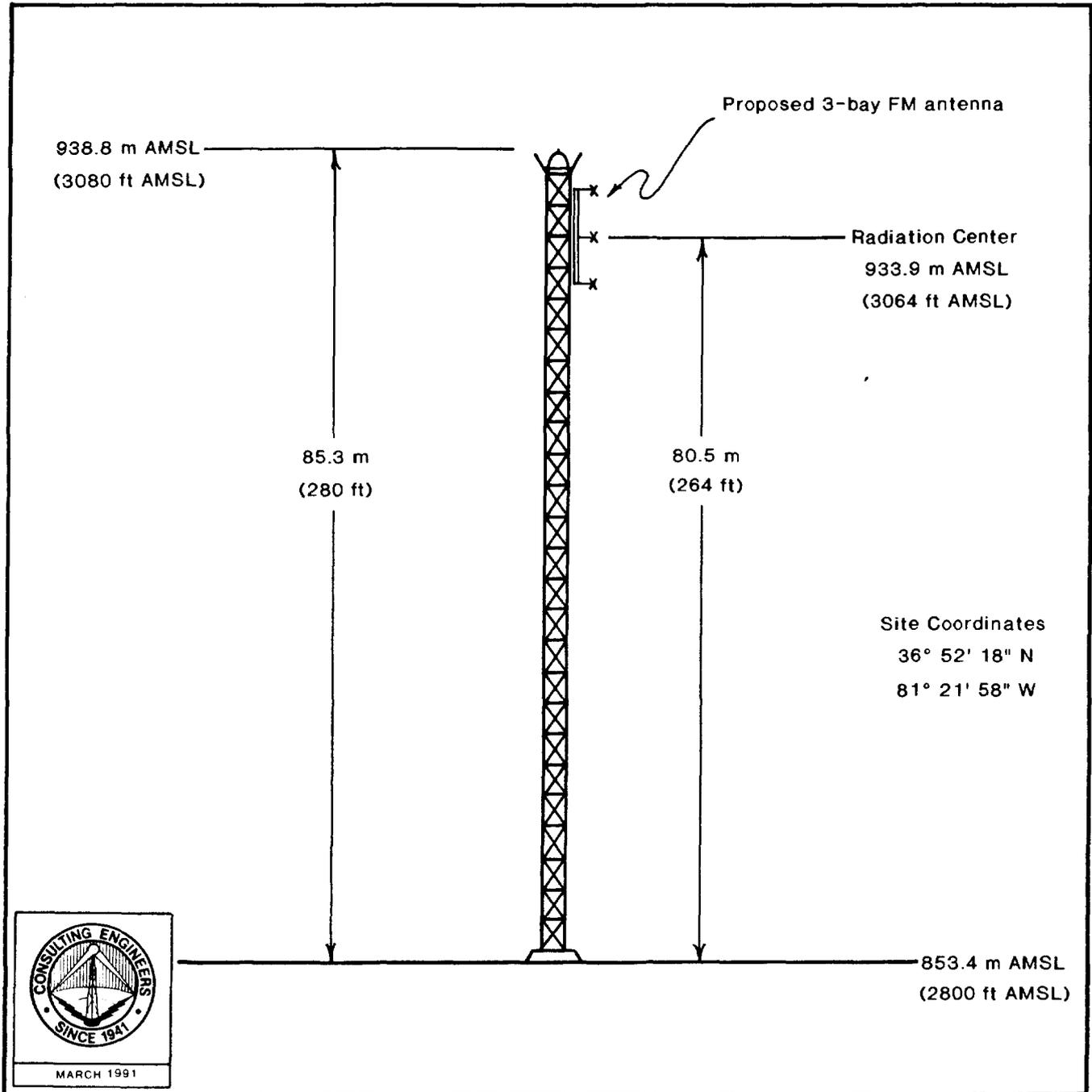


Figure 3



PROPOSED ANTENNA AND SUPPORTING STRUCTURE

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Figure 4

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Tabulation of Average Elevations
 and Distances to Coverage Contours

Radial Bearing (deg. T.)	3-16 Kilometer Average Terrain Elevation (meters AMSL)	Antenna Height Above Average Terrain (meters)	<u>Distance to Contour</u>	
			70 dBu (km)	60 dBu (km)
0	866	68	13.2	23.7
45	765	169	21.2	36.2
90	775	159	20.6	35.1
135	850	84	14.6	26.1
180	979	-45	8.9	15.8
225	915	19	8.9	15.8
252.9*	703	231	24.5	41.1
270	740	194	22.6	38.4
315	<u>782</u>	<u>152</u>	20.2	34.3
Average	834	100		

*Radial through Marion -- not included in average.

60 dBu Contour

Population (1980) 64,607

Area (sq km) 2,816

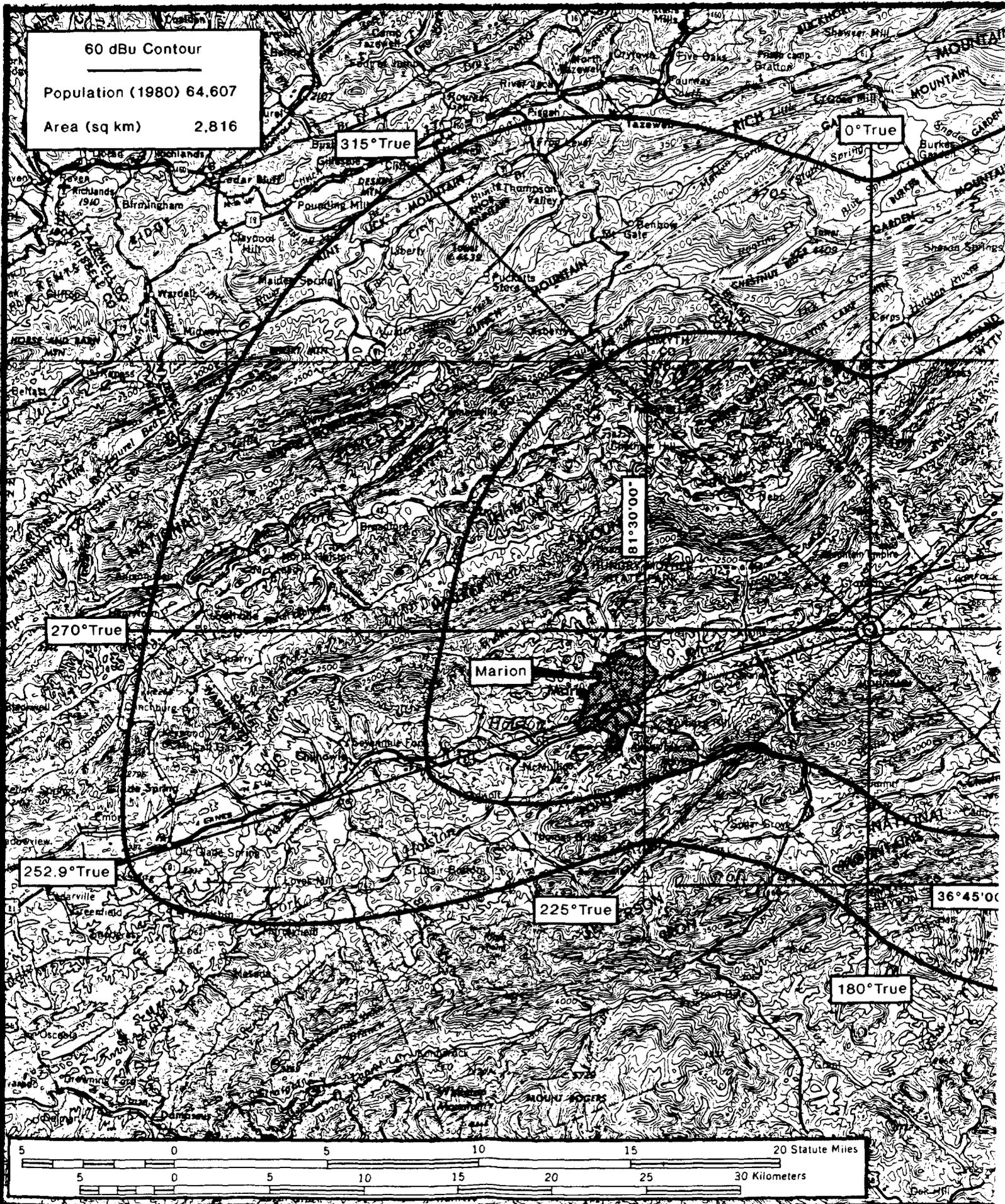


Figure 5

