15. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction V. The map must further clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers.

Exhibit No. Tech.

16. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. Tech.

(a) the proposed transmitter location, and the radials along which profile graphs have been prepared;

(b) the 3.16 mV/m and 1 mV/m predicted contours; and

(c) the legal boundaries of the principal community to be served.

17. Specify area in square kilometers (1 sq. mi. = 2.59 sq. km.) and population (latest census) within the predicted 1 mV/m contour.

Area 2,115 sq. km. Population 582,530

18. For an application involving an auxiliary facility only, attach as an Exhibit a map *(Sectional Aeronautical Chart or equivalent)* that shows clearly, legibly, and accurately, and with latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. N/A

(a) the proposed auxiliary 1 mV/m contour; and

(b) the 1 mV/m contour of the licensed main facility for which the applied-for facility will be auxiliary. Also specify the file number of the license.

19. Terrain and coverage data *(to be calculated in accordance with 47 C.F.R. Section 73.313)*

Source of terrain data: *(check only one box below)*

[X] Linearly interpolated 30-second database [ ] 7.5 minute topographic map

(Source: N.G.D.C.)

[ ] Other *(briefly summarize)*

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 8.16 mV/m contour (kilometers)	To the 1 mV/m contour (kilometers)
* 205	156	18.5	31.5
0	105	10.1	18.2
45	76	12.8	22.9
90	86	13.5	24.2
135	100	14.5	26.0
180	126	16.5	28.7
225	154	18.4	31.3
270	153	18.0	30.7
315	146	12.4	22.3

*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.

If No, explain briefly why not.

Categorically excluded from environmental processing.
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)*	Relationship to Applicant *(e.g., Consulting Engineer)*
Louis Robert du Treil, Jr.	Technical Consultant
Signature Louis Robert du Treil Jr.	Address *(Include ZIP Code)* du Treil, Lundin & Rackley, Inc. 1019 19th Street, N.W., Suite 300 Washington, D.C. 20036
Date December 27, 1991	Telephone No. *(Include Area Code)* (202) 223-6700

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
OHIO RADIO ASSOCIATES
WESTERVILLE, OHIO

December 27, 1991

CH 280A 4.1 KW (MAX-DA) 118 M

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Technical Narrative

This technical exhibit was prepared on behalf of Ohio Radio Associates, in support of an application for construction permit for a new FM broadcast station to serve Westerville, Ohio on channel 280A. The window notice for channel 280A at Westerville was released on November 25, 1991 (see Report No. CF-22). The window period for the filing of applications closes on December 30, 1991.

The proposed facility will operate on channel 280A with maximum effective radiated power (ERP) of 4.1 kW and antenna height above average terrain (HAAT) of 118 m. In accordance with Section 73.211 of the Commission's Rules, the proposed maximum ERP is equivalent to that of maximum class A facility.

Because the proposed transmitter site is within 320 km of the border with Canada (the proposed transmitter site is located 160 km from the closest point on the Canadian border), the proposed facility is also governed

by the Canadian-U.S. Working Arrangement.[1] The equivalent facilities of the proposed station exceed the maximum permitted for a class A station according to Section 2.2.1 the Canadian-U.S. working arrangement. However, according to Commission records, the Westerville allotment was proposed to Canada as a class B1 allotment on April 16, 1990; and, the Westerville allotment was accepted by Canada as a class B1 on March 5, 1991. Accordingly, the application is acceptable for filing under the FCC policy to permit applications proposing maximum facilities for a vacant class A allotment where the table of allotments in the applicable agreement has been changed to the higher class.[2] However, if necessary, a waiver of the Commission's Rules is requested on the basis that the Westerville allotment has been accepted by Canada as a class B1 allotment.

The proposal would not be subject to environmental processing in accordance with Section 1.1306 of the Commission's Rules. Since an existing tower is proposed, notification of the proposal to the FAA is not required. The application complies with all applicable rules and regulations of the Federal Communications Commission. Specifications for the proposed operation are included herein as Figure 1.

---

[1] Working Arrangement for Allotment and Assignment of FM Broadcasting Channels 201-300 under the Canadian-U.S.A. FM Broadcasting Agreement of 1947, September 7, 1984.

[2] See Memorandum Opinion and Order, MM Docket No. 88-375, Released: May 30, 1991 at paragraph 47.

Proposed Transmitter Location

The proposed transmitting facility will consist of a 3-bay antenna side-mounted on a guyed tower currently located on Route 37, 1.8 km east of Sunbury. The coordinates for the location, which have been obtained from the FCC records for the former licensee of the station using the structure, WBBY(FM), are as follows:

40°14'04" North Latitude
82°50'20" West Longitude.

The Sunbury, Ohio 7.5-minute topographic map is included herein as Figure 2. A diagram of the proposed antenna and supporting structure is included herein as Figure 3. It is noted that there will be no change in the overall height of the existing tower structure.

The following is stated in response to Item 14 of FCC Form 301. The FCC-defined blanketing interference contour extends radially from the transmitter site to a distance of 0.8 km. It is recognized that complaints of blanketing interference for which the applicant is responsible must be satisfied in accordance with Section 73.318 of the Commission's Rules. There are no TV or FM stations located within 10 km of the proposed site. No objectionable interference is anticipated as a result of the proposed operation. However, the applicant is cognizant of its responsibility to correct any interference to existing facilities that may be caused as a result of the proposed operation.

Allocation Study

The proposed transmitter site meets the separation requirements of Section 73.207 of the Commission's Rules with respect to all allotments and assignments with the exception of the following:

WTTF-FM, Tiffin, OH
ch 279B, 50 kW, 131 m

With respect to WTTF-FM the proposed facility is separated by 106.2 km, whereas the required separation is 113 km. Details concerning the allocation study are included herein as Figure 8.

Contour protection in accordance with Section 73.215 of the Commission's Rules is provided with respect to WTTF-FM. Accordingly, it is requested that the Commission process the proposal under provisions of Section 73.215. The proposal meets the 88-km minimum distance separation requirement of Section 73.215(e) and the temporary 8-km short-spacing restriction. As detailed in Sheet 2 of Figure 8, the proposal provides contour protection with respect to WTTF-FM as required by Section 73.215(b) and (c) of the Commission's Rules.[3] In computing contour protection, WTTF-FM was assumed to

[3] In accordance with Commission practice, contour protection has been based on contour calculations with radials spaced every 5 degrees. The antenna HAAT for each of the radials was determined by linear interpolation using the N.G.D.C. 30-second terrain elevation computer database.

operate with an ERP of 50 kW and a center of radiation of 383 m AMSL, which results in an overall 8-radial HAAT of 150 m.

Proposed Directional Antenna

A directional antenna pattern envelope is proposed. A graph of the pattern envelope is included herein as Figure 4 and a tabulation of the directional antenna pattern envelope radiation is included herein as Figure 5.

The directional antenna ultimately constructed will be custom designed to maintain the radiation within the proposed pattern envelope. Details concerning the directional antenna will be supplied with the application for license. The proposed antenna will be side-mounted on the proposed tower in accordance with specific instructions provided by the manufacturer. The proposed antenna supporting structure will not include a top-mounted platform. No other antennas will be mounted on the tower at the same level as the proposed antenna, nor will any antennas be mounted within the distance specified by the manufacturer for proper directional operation.

Coverage Contours

The predicted coverage contours were calculated in accordance with the provisions of Section 73.313 of the

Commission's Rules. In accordance with current FCC practice, terrain roughness correction was not considered.

The average terrain elevations from 3 to 16 km from the proposed site on the standard eight radials were computed using the N.G.D.C. 30-second computer database. The antenna radiation center HAAT in the individual radial directions and the ERP were used in conjunction with the F(50,50) curves of Section 73.333 of the Commission's Rules to determine the distances to the coverage contours. Figure 7 is a map showing the predicted coverage contours.

As depicted in Figure 7, the predicted 70 dBu contour will encompass Westerville in compliance with Section 73.315 of the Commission's Rules regarding coverage of the city of license. The city limits of Westerville were obtained a 1980 Census map.

Population and Area

The population to be served within the predicted 60 dBu contour has been estimated by means of a computer program which sums the population of each 1990 census district having its centroid within the contour. The area within the 60 dBu contour was determined by numerical integration.

Environmental Considerations

The proposed facilities were evaluated in terms of potential radiofrequency (RF) radiation exposure at 2 m

above ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation". According to OST Bulletin No. 65, the worst-case minimum distance

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CH 280A 4.1 KW (MAX-DA) 118 M

Technical Specifications

Channel	280A
Frequency	103.9 MHz

Technical Specifications
Westerville, Ohio

Figure 1
Sheet 2 of 2

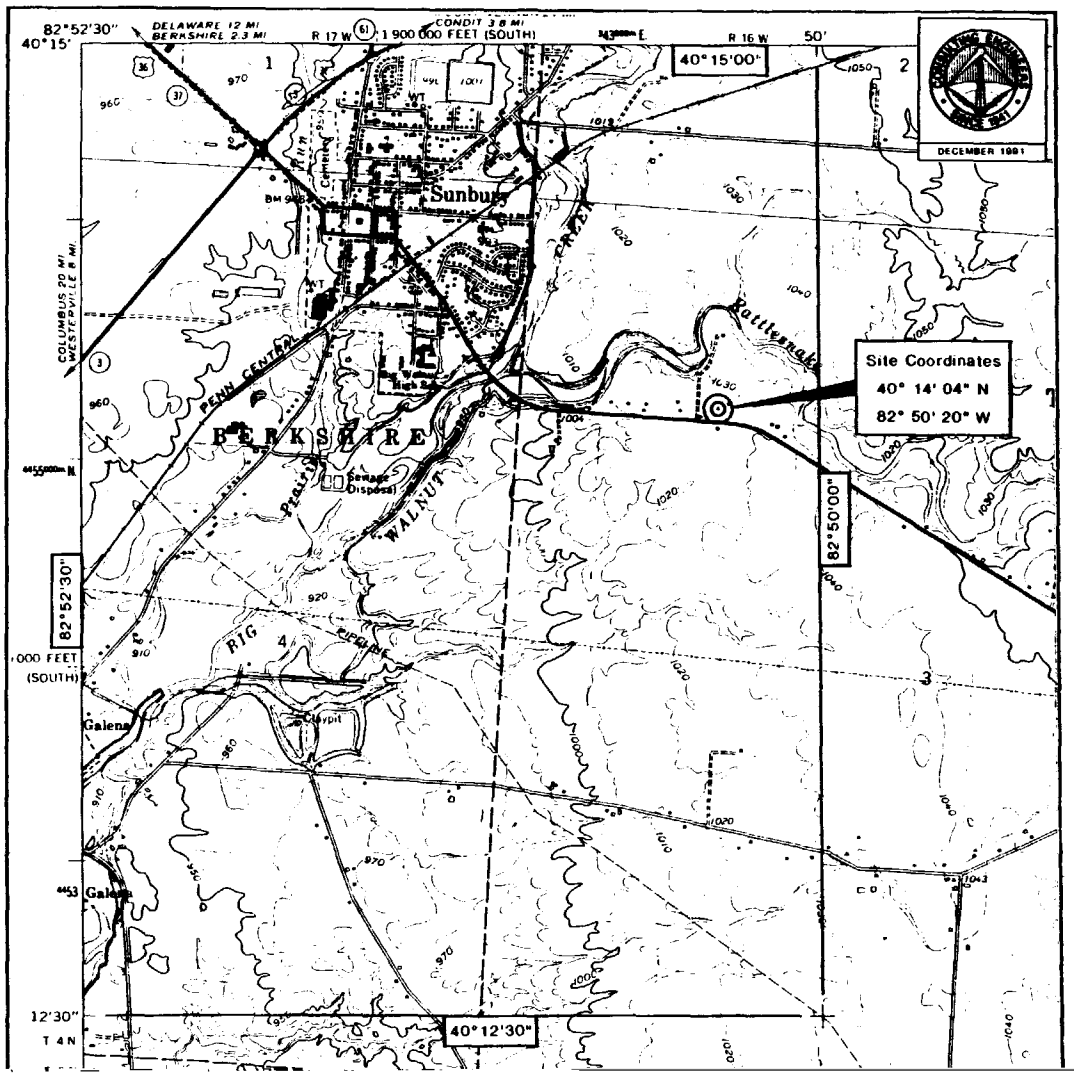
Transmission line	*Andrew, type HJ7-50A
Nominal diameter	4.13 cm
Length	130 m
Efficiency (0.90 dB loss)	81.3%
Directional Antenna	*ERI, 1105
Number of bays	3
Input power rating	7.5 kW
Polarization	Circular
Power gain (maximum)	
Horizontal polarization	2.4**
Vertical polarization	2.4**

Proposed Operation

Transmitter output power	2.09 kW
Transmission line loss	0.39 kW
Antenna input power	1.70 kW
Effective radiated power	
Circular polarization	4.1 kW

*Or equivalent
**Assumed, directional antenna

Figure 2



SUNBURY, OHIO

N4007.5—W8245/7.5

1967
PHOTOREVISED 1973
AMS 4464 III NE-SERIES V852

SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

PROPOSED TRANSMITTER LOCATION

OHIO RADIO ASSOCIATES

WESTERVILLE, OHIO

CH 280A 4.1 KW (MAX-DA) 118 M

Figure 3

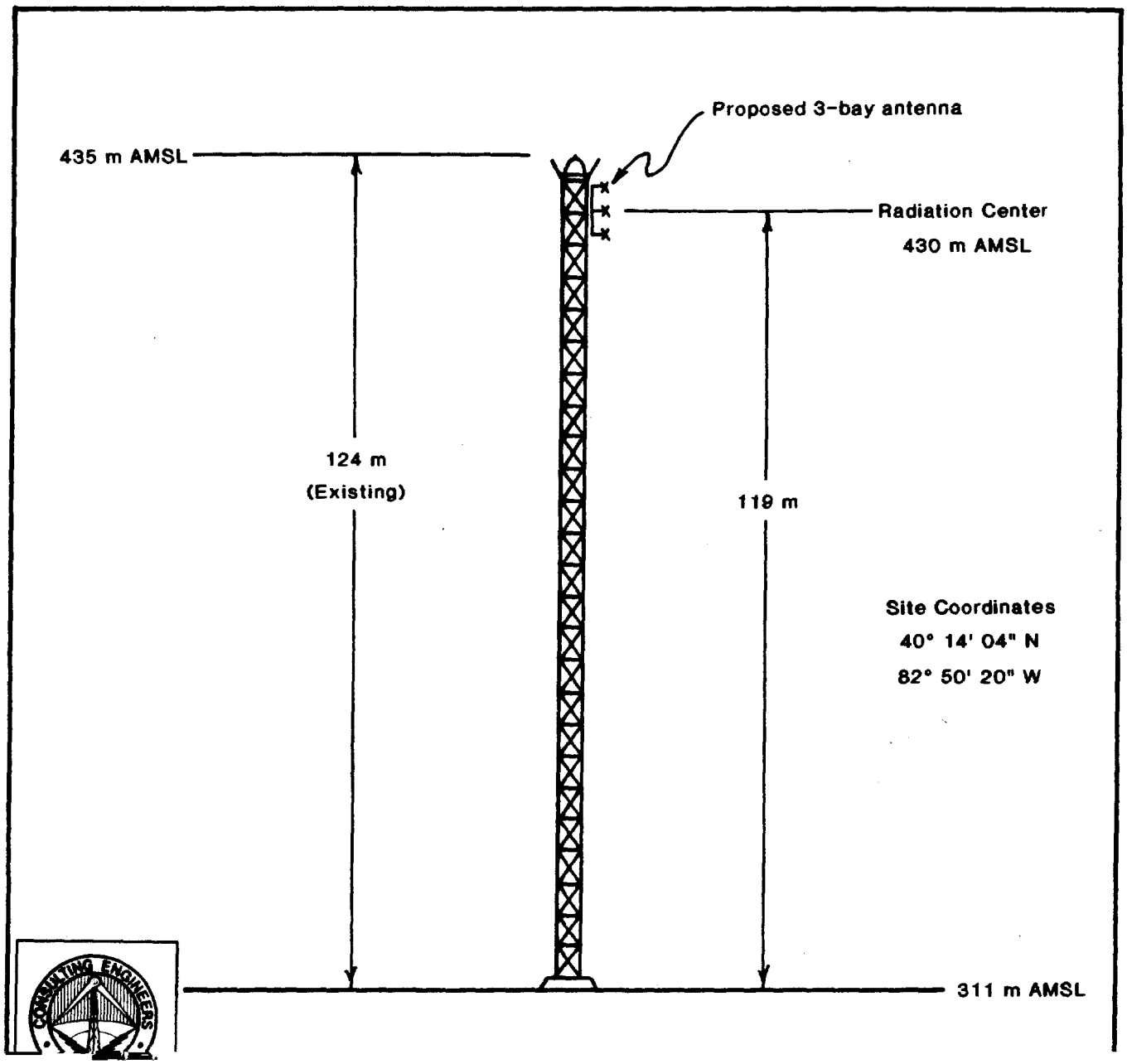
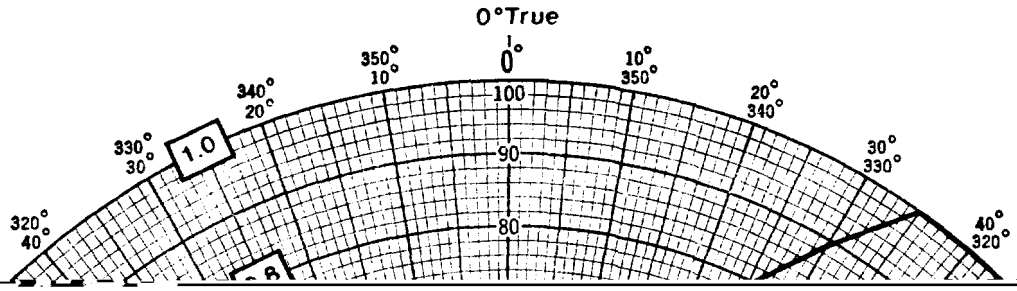

Proposed 3-bay antenna
435 m AMSL
Radiation Center
430 m AMSL
124 m
(Existing)
119 m
Site Coordinates
40° 14' 04" N
82° 50' 20" W
311 m AMSL
CONSULTING ENGINEERS

Figure 4



DECEMBER 1991

Figure 5

TECHNICAL EXHIBIT
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Tabulation of Proposed Directional
Antenna Radiation Pattern Envelope

Azimuth (deg. T.)	Relative Field*	Azimuth (deg. T.)	Relative Field*
0	0.447	180	1.000
10	0.562	190	1.000
20	0.708	200	1.000
30	0.891	210	1.000
40	1.000	220	1.000
50	1.000	230	1.000
60	1.000	240	1.000
70	1.000	250	1.000
80	1.000	260	1.000
90	1.000	270	1.000
100	1.000	280	1.000
110	1.000	290	0.891
120	1.000	300	0.708
130	1.000	310	0.562
140	1.000	320	0.447
150	1.000	330	0.355
160	1.000	340	0.355
170	1.000	350	0.355

*Note: Minima occur from 330° true to 350° true. Maxima occur from 35° true to 285° true.

Figure 6

TECHNICAL EXHIBIT
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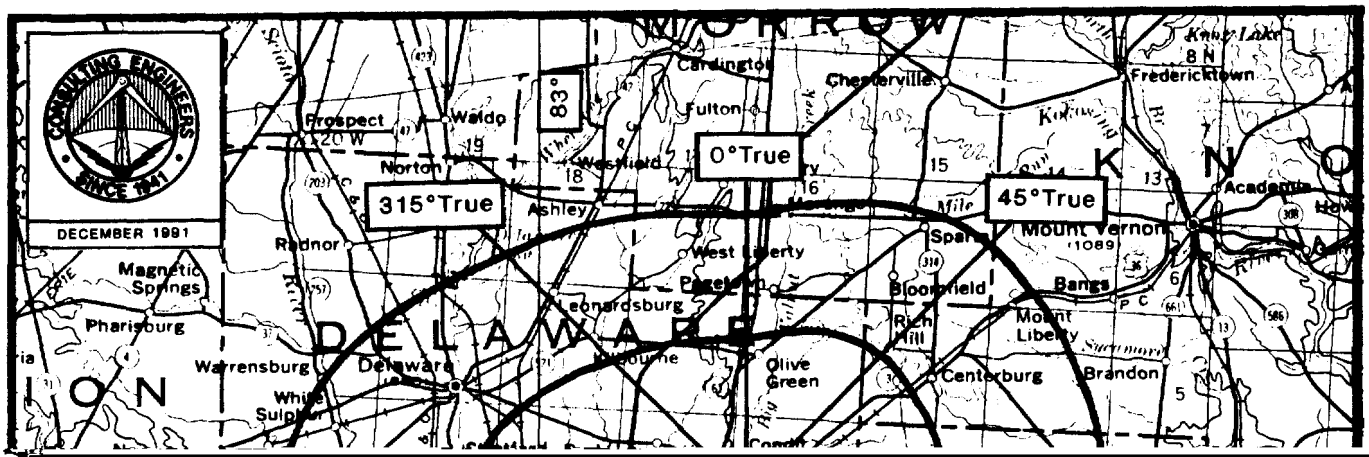
Tabulation of Average Elevations and Distances to Coverage Contours

Radial Bearing (deg. T.)	3-16 Kilometer Average Terrain Elevation (meters AMSL)	Antenna Height Above Average Terrain (meters)	Distance to Contour 70 dBu (km)	Distance to Contour 60 dBu (km)
0	325	105	10.1	18.2
45	354	76	12.8	22.9
90	344	86	13.5	24.2
135	330	100	14.5	26.0
180	304	126	16.5	28.7
205*	274	156	18.5	31.5
225	276	154	18.4	31.3
270	277	153	18.0	30.7
315	284	146	12.4	22.3
Average	312	118		

*Radial through Westerville -- not included in average.

Figure 7


CONSULTING ENGINEERS
SINCE 1941
DECEMBER 1991
315°True
0°True
45°True
83°
Prospect
Waldo
Norton
Ashley
Radnor
Magnetic Springs
Pharisburg
Warrensburg
Delaware
Cardington
Fulton
Chesterville
Fredericktown
Westfield
West Liberty
Leonardsburg
Olive Green
Bloomfield
Rich Hill
Mount Liberty
Centerburg
Brandon
Bangs
Mount Vernon
Sparta
Academia
DELAWARE

TECHNICAL EXHIBIT
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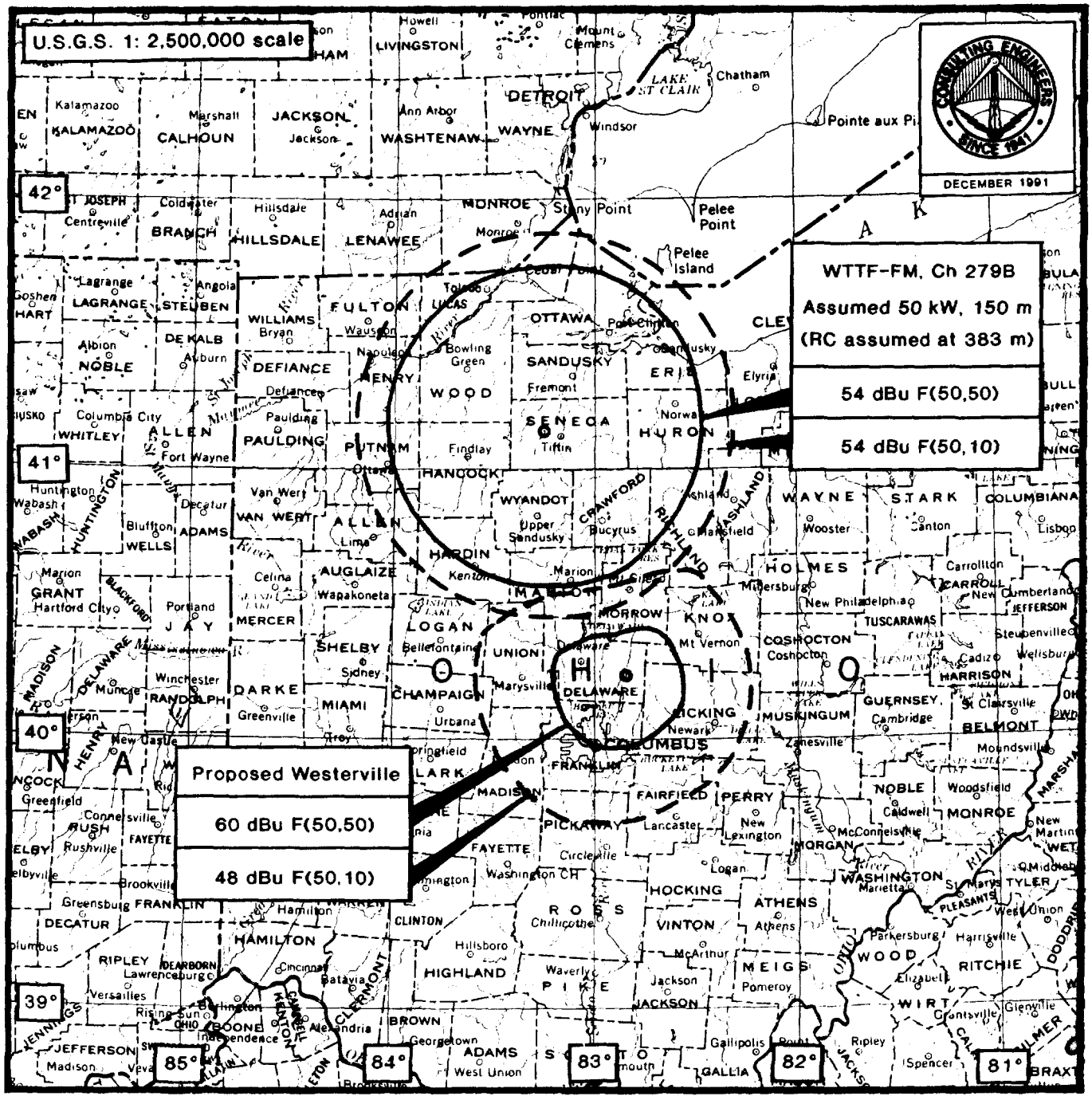
WESTERVILLE, OHIO
CH 280A 4.1 KW 118 M

Allocation Study

Proposed transmitter site: 40° 14' 04" North Latitude
82° 50' 20" West Longitude

Station Considered	Channel	Status	Distance From Proposed CH 280A Required (km)	Actual (km)
WTTF-FM, Tiffin, OH	279B	LIC	113	106.2*
WYMJ-FM, Beavercreek, OH	280A	LIC	115	125.4
WPAY-FM, Portsmouth, OH	281C	LIC	165	168.5
New-FM, Richwood, OH	282A	PRM	31	44.6

*Contour protection pursuant to 47 CFR 73.215 provided. See Sheet 2.



25 0 25 50 75 100 125 150 175 200 MILES

25 0 25 50 75 100 125 150 175 200 KILOMETERS

ALLOCATION STUDY

OHIO RADIO ASSOCIATES
WESTERVILLE, OHIO
CH 280A 4.1 KW (MAX-DA) 118 M

du Treil, Lundin & Rackley, Inc. Washington, D.C.

SECTION VII – CERTIFICATION (Page 5)

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT. U.S. CODE, TITLE 18, SECTION 1001.

I certify that the statements in this application are true and correct to the best of my knowledge and belief, and are made in good faith.

Name of Applicant	Signature
Ohio Radio Associates	J. D. Carney
Date	**Title**
December 30, 1991	Authorized Representative

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The principal purpose for which the information will be used is to determine if the benefit requested is consistent with the public interest. The staff, consisting variously of attorneys, analysts, engineers and applications examiners, will use the information to determine whether the application should be granted, denied, dismissed, or designated for hearing. If all the information is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Accordingly, every effort should be made to provide all necessary information. Your response is required to obtain the requested authority.

Public reporting burden for this collection of information is estimated to vary from 71 hours 45 minutes to 301 hours 30 minutes with an average of 118 hours 28 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Office of Managing Director, Washington, D.C. 20554, and to the Office of Management and Budget, Paperwork Reduction Project (3060-0027), Washington, D.C. 20503.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.