ENGINEERING EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
TRINITY CHRISTIAN ACADEMY
OXFORD, ALABAMA
CH 217C2 126 W(V) 565 M

Engineering Specifications

Channel	217C2
Frequency	91.3 MHz
Site coordinates	33° 29' 07" North Latitude
	85° 48' 33" West Longitude
Site elevation above mean sea level	734 m
Average elevation above mean sea level of standard eight radials, 3-16 kilometers	290 m
Overall height of proposed antenna structure with obstruction lighting	
Above ground	176 m
Above mean sea level	910 m
Height of FM antenna radiation center	
Above ground	121 m
Above mean sea level	855 m
Above average terrain	565 m
Transmitter	Harris, type FM-300K
Rated power output	300 kW

Transmission line	Andrew, type LDF7-50
Nominal diameter	1-5/8"
Length	137 m
Efficiency (0.99 dB loss)	79.7%
Antenna	Continental Electronics, type 300C
Number of bays	1
Input power rating	6 kW*
Polarization	vertical
Power gain	0.68*

Proposed Operation

Transmitter output power	232 W
Transmission line loss	47 W
Antenna input power	185 W
Effective radiated power (Vertical polarization)	126 W

*Assumed.

FIGURE 2

SHEET 2 OF 2

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CHEAHA MOUNTAIN QUADRANGLE
ALABAMA
7.5 MINUTE SERIES (TOPOGRAPHIC)

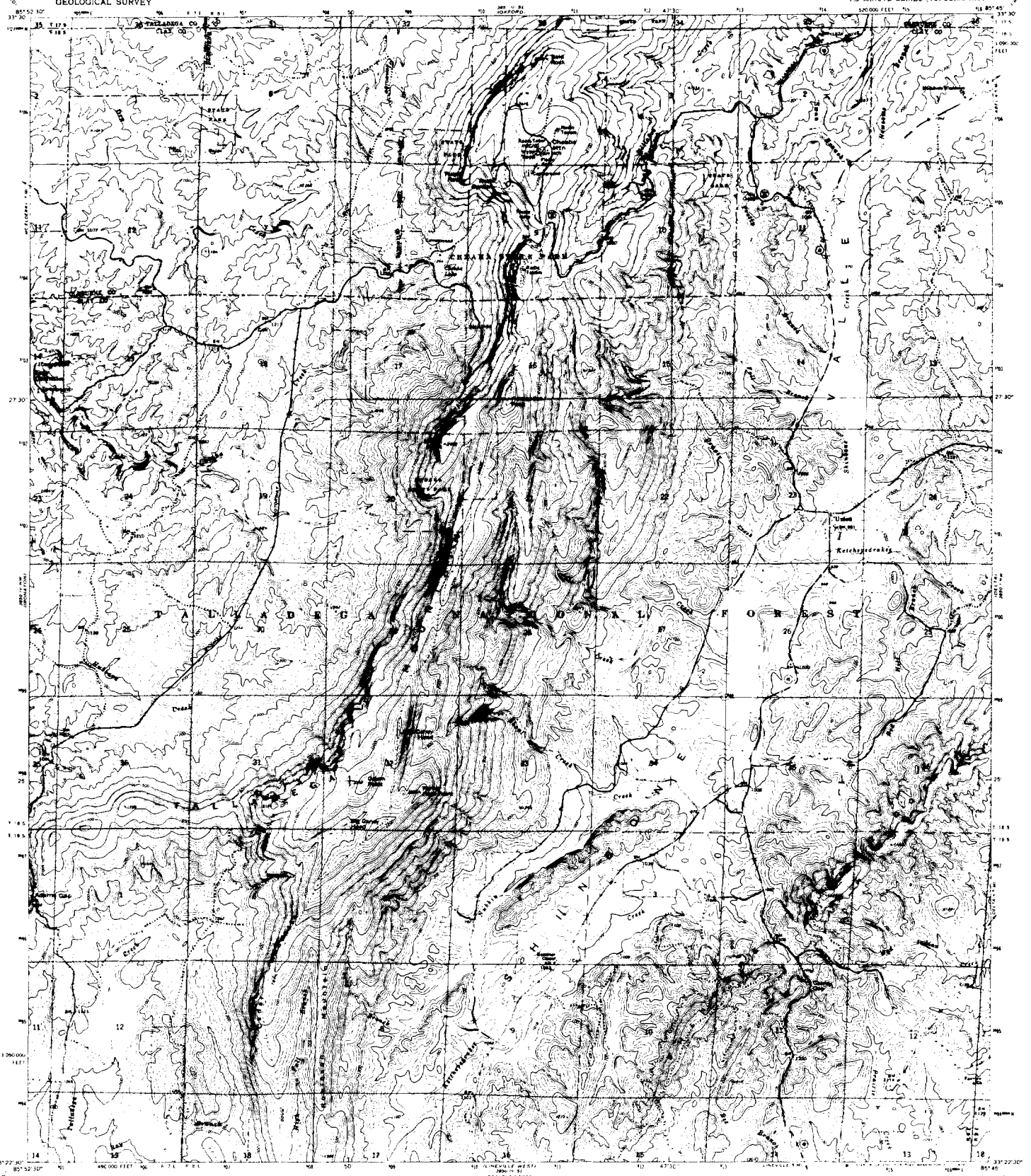
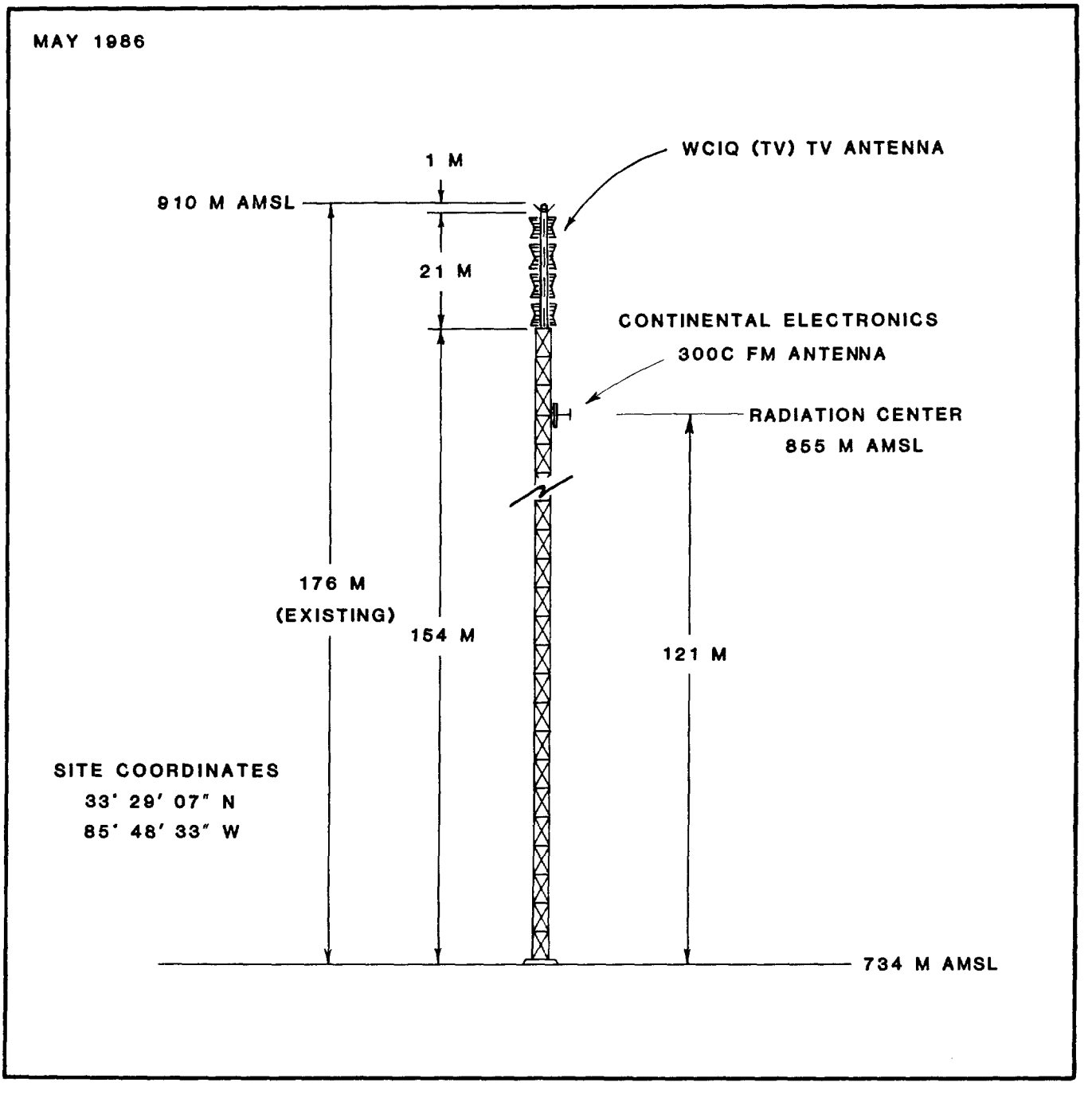

TALLADEGA NATIONAL FOREST
CHEAHA STATE PARK
Reichpedrakes
Union Sch.
Mt.
Creek
Branch
Fork
Valley
Ridge
Hollow
Spring
Cemetery
Church
Bridge
Falls
Dam
Gap
Knob
Rock
Cabin
Camp
Trail
Road
Pond
Tank
Mine
Shaft
Adit
Tunnel
Sign
Post
Fence
Gate
Bench
Mark
Spot
Elev.
Water
Well
Pump
Tower
Lookout
Building
Ruins
Cemetery
Church
Bridge
Dam
Falls

FIGURE 3



PROPOSED ANTENNA AND SUPPORTING STRUCTURE

TRINITY CHRISTIAN ACADEMY

OXFORD, ALABAMA

CH 217C2 126 W (V) 565 M

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Figure 4

ENGINEERING EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
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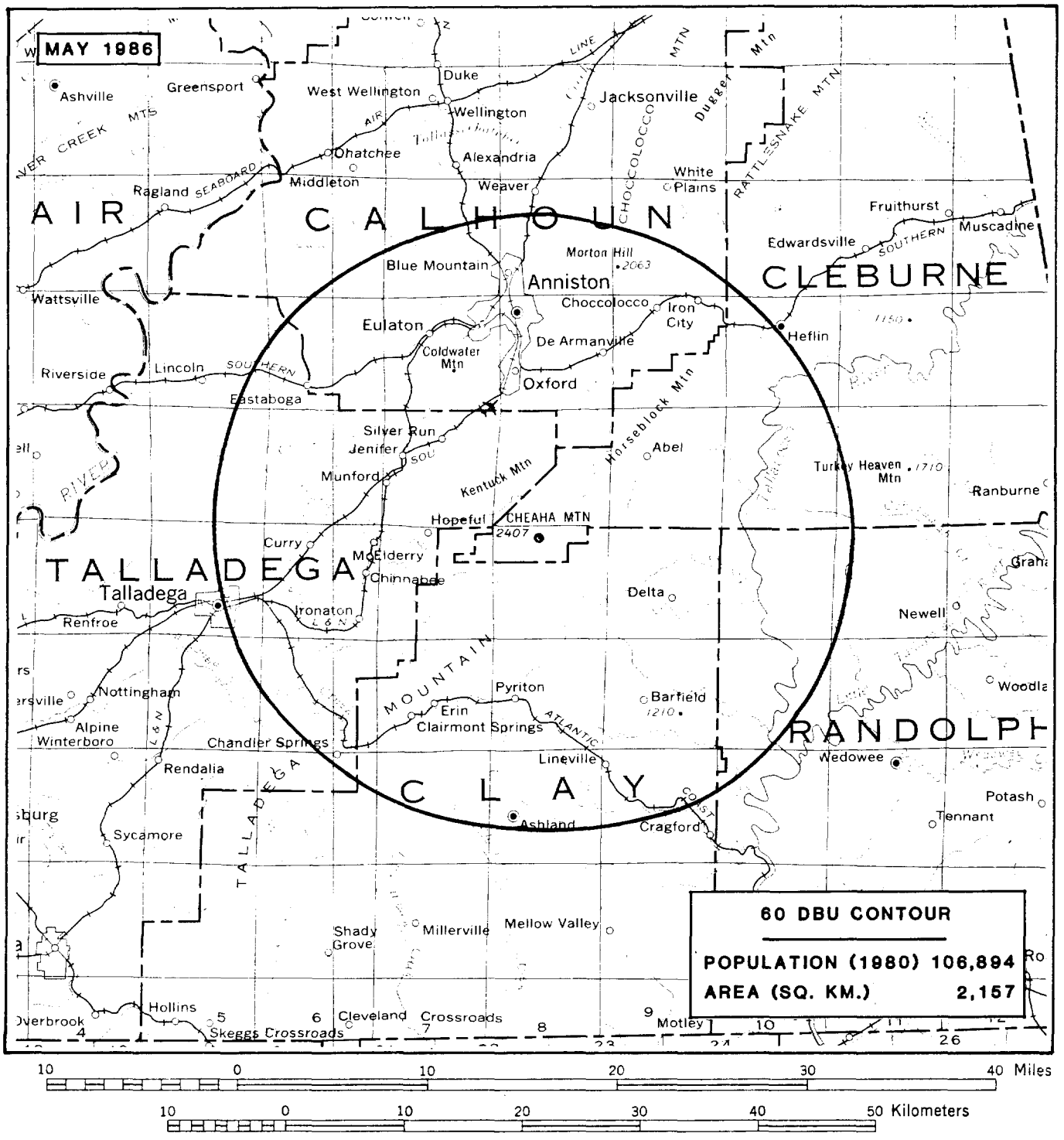
OXFORD, ALABAMA
CH 217C2 126 W(V) 565 M

Tabulation of Average Elevations
and Distances to Coverage Contours

Radial Bearing (deg. T.)	3-16 kilometer Average Elevation (meters)	Antenna Height Above Average Terrain (meters)	Distance to Contour		
			60 dBu F(50,50) kilometers	54 dBu F(50,10) kilometers	40 dBu F(50,10) kilometers
0	248	607	27.4	42.2	83.7
45	294	561	26.4	40.2	80.5
90	302	553	26.2	40.1	80.3
135	313	542	25.9	39.3	79.3
180	371	484	24.5	36.7	75.6
225	322	533	25.7	38.6	78.9
270	243	612	27.5	42.6	83.7
315	230	625	28.0	43.3	84.5
Average	290	565			

FIGURE 5



PREDICTED 60 DBU CONTOUR

TRINITY CHRISTIAN ACADEMY

OXFORD, ALABAMA

CH 217C2 126 W (V) 565 M

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FIGURE 6
SHEET 1 OF 2

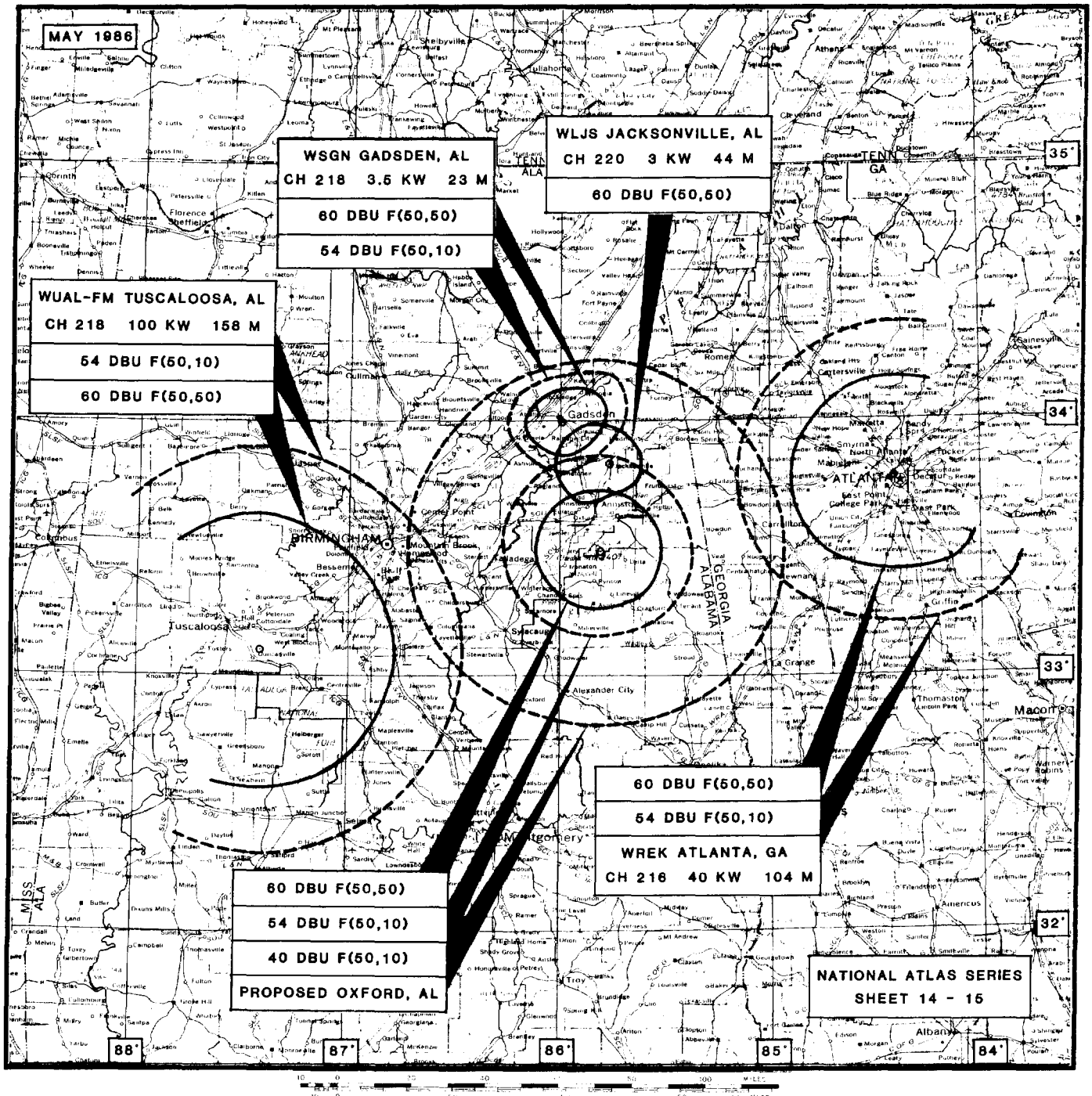
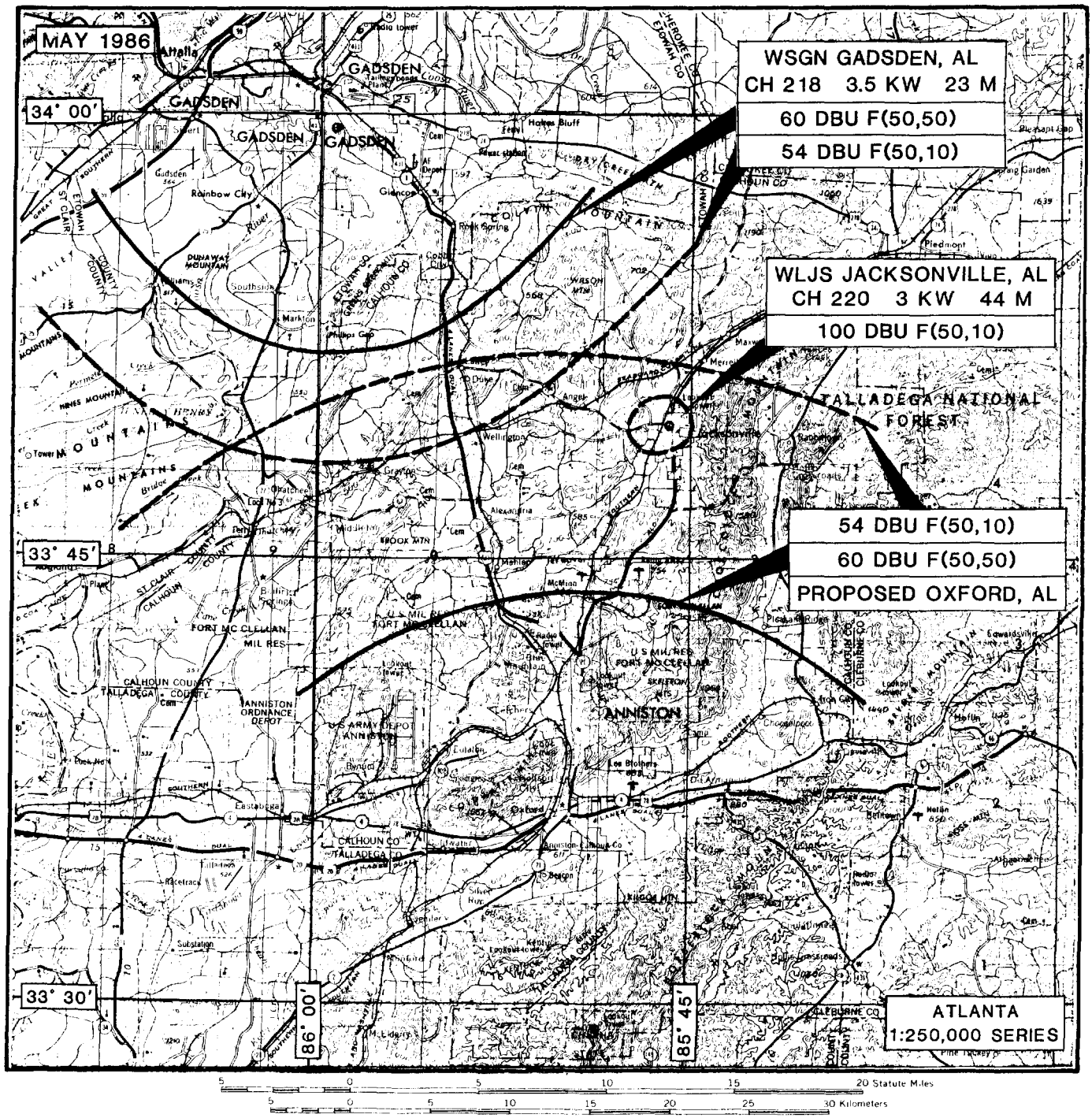

MAY 1986
WSGN GADSDEN, AL
CH 218 3.5 KW 23 M
60 DBU F(50,50)
54 DBU F(50,10)
WLJS JACKSONVILLE, AL
CH 220 3 KW 44 M
60 DBU F(50,50)
WUAL-FM TUSCALOOSA, AL
CH 218 100 KW 158 M
54 DBU F(50,10)
60 DBU F(50,50)
60 DBU F(50,50)
54 DBU F(50,10)
WREK ATLANTA, GA
CH 216 40 KW 104 M
60 DBU F(50,50)
54 DBU F(50,10)
40 DBU F(50,10)
PROPOSED OXFORD, AL
NATIONAL ATLAS SERIES
SHEET 14 - 15
35°
34°
33°
32°
88°
87°
86°
85°
84°
Gadsden
BIRMINGHAM
Tuscaloosa
ATLANTA
GEORGIA
ALABAMA
Alexander City
Montgomery
Syracuse
Rome
Cartersville
Marietta
Smyrna
Decatur
Griffin
La Grange
Thomaston
Macon
Albany
Florence
Sheffield
Cullman
Jasper
Anniston
Talladega
Tuscaloosa
Selma
Troy
Opelika
Auburn
Dothan
Eufaula
Greenville
Luverne
Brewton
Andalusia
Enterprise
Ozark
Fort Rucker
Clanton
Alabama City
Gadsden
Cleveland
Athens
Decatur
Huntsville
Scottsboro
Fort Payne
Gainesville
Cartersville
Rome
Carrollton
Newnan
Fayetteville
Lawrenceville
Dublin
Vidalia
Statesboro
Swainsboro
Waycross
Douglas
Tifton
Moultrie
Valdosta
Thomasville
Bainbridge
Dothan
Ozark
Fort Rucker
Andalusia
Brewton
Enterprise
Clanton
Alabama City
Eufaula
Greenville
Luverne
Troy
Opelika
Auburn
Selma
Tuscaloosa
Talladega
Anniston
Cullman
Jasper
Sheffield
Florence

FIGURE 6
SHEET 2 OF 2



ALLOCATION STUDY

TRINITY CHRISTIAN ACADEMY
OXFORD, ALABAMA
CH 217C2 126 W (V) 565 M

duTreil - Rackley Consulting Engineers

ENGINEERING EXHIBIT
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Tabulation of Data Employed in Allocation Study

WLJS(FM), Jacksonville, AL
CH 220A 3 KW 44 M

33° 49' 29" North Latitude
85° 45' 49" West Longitude

Radial Bearing (deg. T.)	Antenna Height Above Average Terrain (meters)	Distance to Contour 60 dBu F(50,50) (kilometers)	Distance to Contour 100 dBu F(50,10)* (kilometers)
0	49	16.9	1.8
45	27	13.0	1.4
90	-5	13.0	1.4
135	4	13.0	1.4
180	14	13.0	1.4
225	78	21.2	2.1
270	105	24.5	2.4
315	81	21.7	2.1

* F(50,50) curves assumed where distance is below 16 kilometers.

Tabulation of Data Employed in
Allocation Study
Oxford, Alabama

WUAL-FM, Tuscaloosa, AL
CH 218C 100 KW 159 M

33° 05' 40" North Latitude
87° 27' 47" West Longitude

Radial Bearing (deg. T.)	Antenna Height Above Average Terrain (meters)	Distance to Contour 60 dBu F(50,50) (kilometers)	Distance to Contour 54 dBu F(50,10) (kilometers)
0	157	59.2	88.8
45	137	57.0	86.3
90	145	57.9	87.2
135	153	58.7	88.4
180	162	60.0	89.5
225	181	62.0	92.5
270	173	61.0	91.5
315	167	60.3	90.4

Tabulation of Data Employed in
Allocation Study
Oxford, Alabama

WSGN(FM), Gadsden, AL
CH 218C 3.5 KW 23 M

33° 59' 37" North Latitude
85° 59' 30" West Longitude

Radial Bearing (deg. T.)	Antenna Height Above Average Terrain (meters)	Distance to Contour 60 dBu F(50,50) (kilometers)	Distance to Contour 54 dBu F(50,10) (kilometers)
0	-25	14.0	20.9
45	57	19.2	29.0
90	50	17.7	27.2
135	17	14.0	20.9
180	29	14.0	20.9
225	8	14.0	20.9
270	41	16.1	24.1
315	7	14.0	20.9

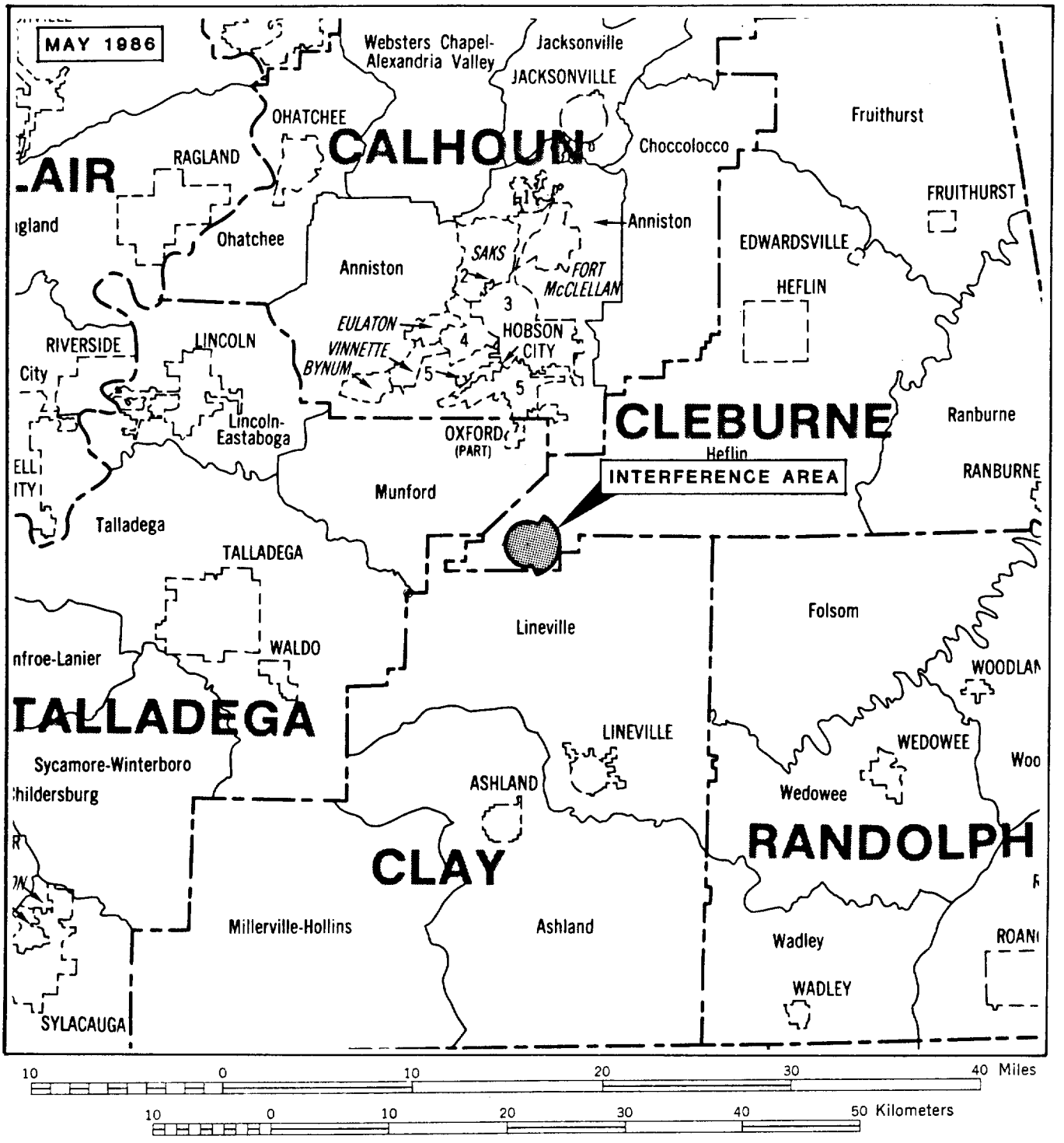
Tabulation of Data Employed in
Allocation Study
Oxford, Alabama

WREK(FM), Atlanta, GA
CH 216C 40 KW 104 M

33° 46' 41" North Latitude
84° 24' 22" West Longitude

Radial Bearing (deg. T.)	Antenna Height Above Average Terrain (meters)	Distance to Contour 60 dBu F(50,50) (kilometers)	Distance to Contour 54 dBu F(50,10) (kilometers)
0	107	44.1	67.6
45	116	45.5	68.9
90	84	40.2	62.9
135	108	44.6	67.6
180	86	40.6	63.6
225	102	43.5	66.5
270	112	45.1	68.4
315	105	43.8	67.3

FIGURE 8



PREDICTED INTERFERENCE TO WBRC(TV)

TRINITY CHRISTIAN ACADEMY

OXFORD, ALABAMA

CH 217C2 126 W (V) 565 M

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Population Count of Predicted Interference to WBRC(TV)

Division	Total Population	Rural Population	Percentage of Area Enclosed	Population Within Area Enclosed
Cleburne Co., AL				
Heflin Div.	7,166	3,945	2.4	95
Edwardsville town	207	---	0.0	---
Heflin city	3,014	---	0.0	---
Clay Co., AL				
Lineville Div.	5,087	2,830	0.0	---
Lineville town	2,257	---	0.0	---
Total population of predicted interference area				95

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Certification

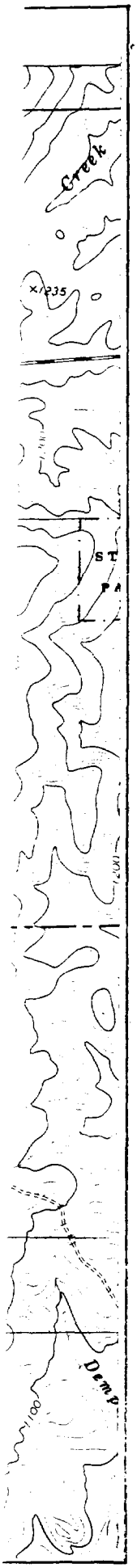
Louis R. du Treil certifies that he is a partner in the firm of du Treil-Rackley, Consulting Engineers, with offices in Washington, D. C.; that he is a graduate electrical engineer and is registered as a professional engineer in the District of Columbia (No. 7048) and the State of Louisiana (No. 7977); that his qualifications as an expert in radio and television engineering are known to the Federal Communications Commission; that the foregoing exhibit was prepared by him or under his direction on behalf of Trinity Christian Academy, Oxford, Alabama; and that the technical information is true and correct to the best of his knowledge and belief.

DISTRICT OF COLUMBIA
LOUIS R. du TREIL
No. 7048
REGISTERED
PROFESSIONAL ENGINEER

Louis R. du Treil, P. E.

May 9, 1986

MAY 1986



CHEAHA MOUNTAIN, ALA.
N3322.5—W8545/7.5

1969

AMS 3850 IV NE—SERIES V844

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

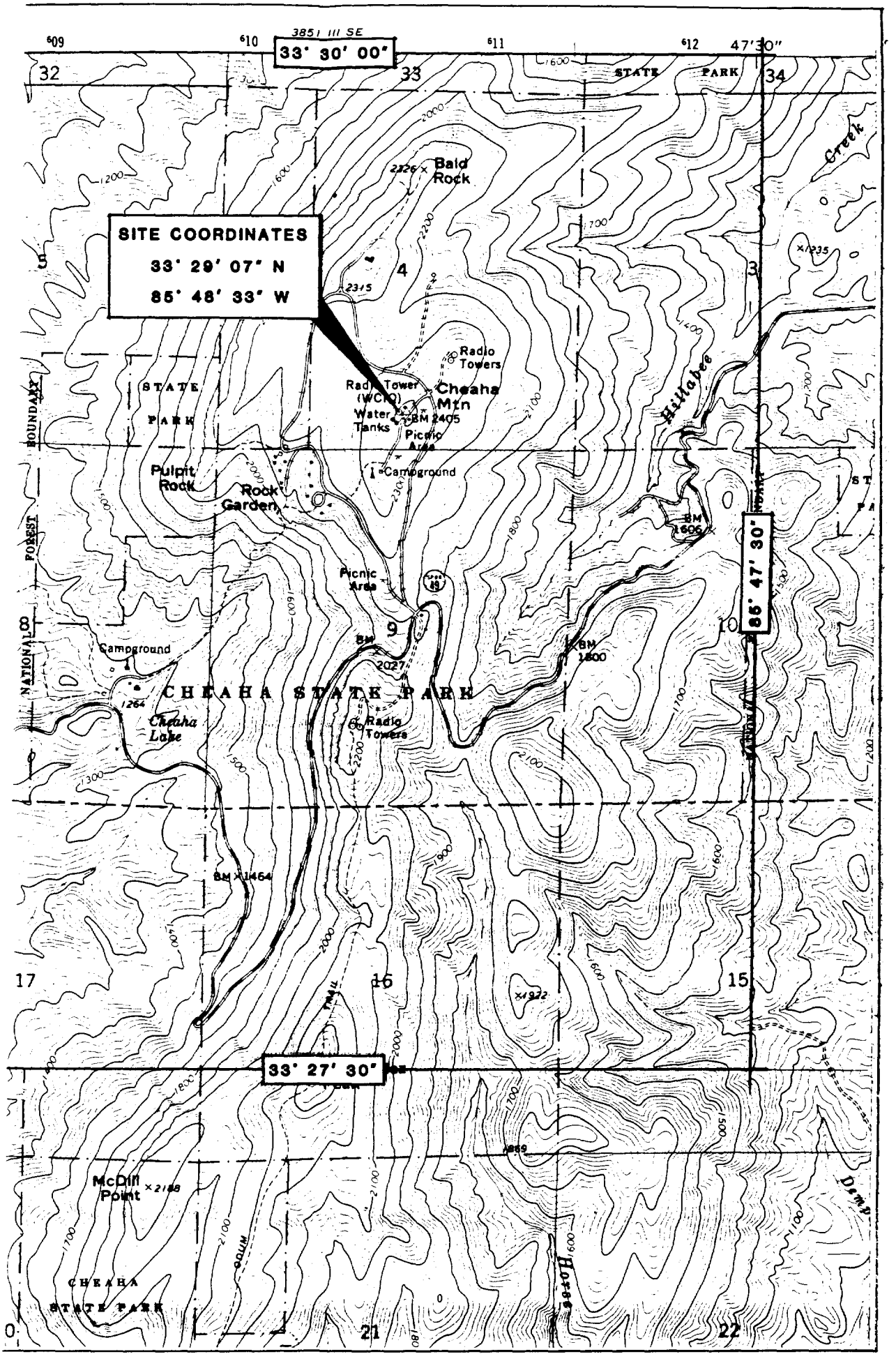
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

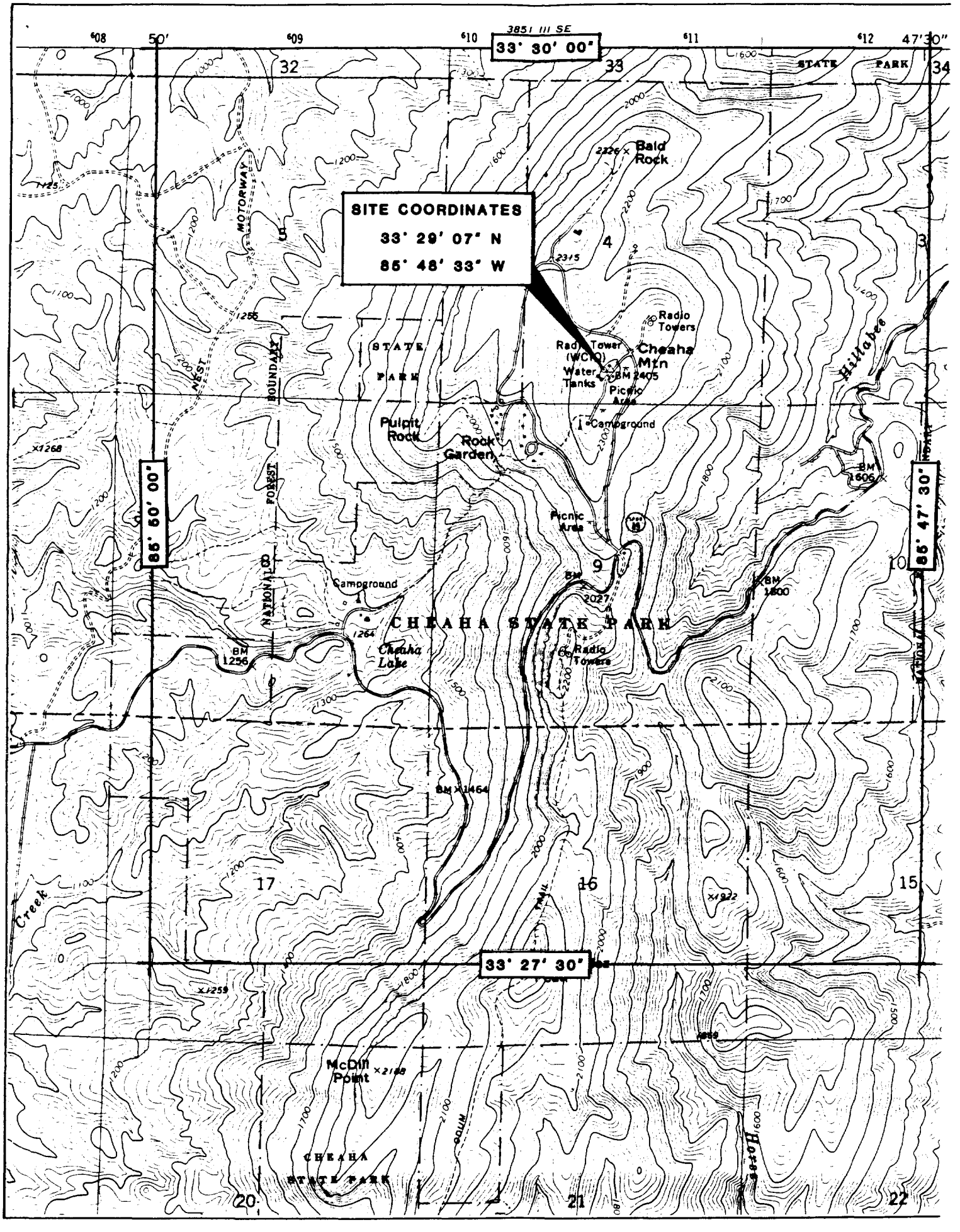
PROPOSED SITE AND VICINITY

TRINITY CHRISTIAN ACADEMY
OXFORD, ALABAMA
CH 217C2 126 W (V) 565 M

duTreil - Rackley Consulting Engineers

MAY 1986


3851 III SE
33° 30' 00"
47'30"
85° 47' 30"
33° 27' 30"
SITE COORDINATES
33° 29' 07" N
85° 48' 33" W
STATE PARK
Bald Rock
Radio Towers
Radio Tower (WCTO)
Cheaha Mtn
Water Tanks
BM 2405
Picnic Area
Campground
Pulpit Rock
Rock Garden
Hillabee
Creek
BM 1606
BM 1800
BM 2027
CHEAHA STATE PARK
Cheaha Lake
BM 1464
McDill Point
Horse
Dump
NATIONAL FOREST BOUNDARY
1
1000



3851 III SE
33° 30' 00"
SITE COORDINATES
33° 29' 07" N
85° 48' 33" W
85° 50' 00"
85° 47' 30"
33° 27' 30"
Bald Rock
Radio Towers
Radio Tower (WCTO)
Cheaha Mtn
Water Tanks
BM 2405
Picnic Area
Campground
Pulpit Rock
Rock Garden
Picnic Area
Campground
CHEAHA STATE PARK
Cheaha Lake
Radio Towers
McDill Point
STATE PARK
NATIONAL FOREST BOUNDARY
NEST MOTORWAY
Hillabee
Creek
Horse
TRAIL
ODUM