

ENGINEERING EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
FM BROADCAST STATION WYNA
CALABASH, NORTH CAROLINA

February 18, 2003

CH 285C2

50 KW (MAX-DA)

143 M

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Engineering Statement

The engineering exhibit of which this statement is part was prepared on behalf of FM Broadcast Station WYNA Calabash, North Carolina. Station WYNA operates on channel 285C3 with effective radiated power (ERP) of 23.5 kilowatts with antenna height about average terrain (HAAT) of 103 meters. By means of this application, WYNA seeks a one-step upgrade from a Class C3 facility to a Class C2 facility. WYNA will continue operation on channel 285 at a new transmitting location, but with ERP increased to 50 kilowatts and HAAT increased to 143 meters.

Processing of the application employing the provisions of 47 CFR 73.215 is requested.

Notification of the proposed tower construction has been made with the Federal Aviation Administration. After receipt of a "Determination of No Hazard", the tower will be registered with the Commission.

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Allotment of Channel 285C2 at Calabash, NC

Figure 1 is a map showing the reference allotment site for the class C2 operation of WYNA. The geographic coordinates for the site, as scaled from the Shallotte, NC 7-1/2 minute quadrangle map are:

33° 53' 20" North Latitude
78° 25' 57" West Longitude.

From the allotment reference coordinates, all separation requirements are met as is shown on Figure 2. The use of channel 285C2 is mutually exclusive with the current operation of WYNA.

As shown on Figure 3, 70 dBu coverage of Calabash from the reference allotment coordinates is easily obtained with assumed use of maximum class C2 facilities. In fact, with effective radiated power of 50 kilowatts and antenna height above average terrain of only 31 meters, 70 dBu coverage of the city is still achieved.

Transmitting Facility

It is proposed to construct a tower having overall height above ground level of 152.1 meters (499 feet). The site elevation is 9.1 meters (30 feet);

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therefore the overall height of the antenna structure will be 161.2 meters (529 feet) above mean sea level.

A six bay antenna will be side-mounted near the top of the tower. The center of radiation will be 141.7 meters (465 feet) above ground level and 150.9 meters (495 feet) above mean sea level. The tower will be registered upon receipt of FAA notification of no hazard.

Proposed Transmitter Location

Station WYNA proposes to locate the proposed transmitting facility at the site indicated on Figure 4. The site is located on the north side of SC state highway 236 approximately 3 kilometers east of SC highway 9. The NAD27 geographic coordinates of the tower are:

33° 51' 23" North Latitude
78° 36' 02" West Longitude.

From this location, the proposed WYNA facility would be short spaced with two stations: WPDT Johnsonville, SC on channel 286A and WSIM Fair Bluff, NC on channel 287C3. Figure 6 is an allocation study from the proposed site. Due to the short spacing, with WPDT and WSIM, processing of the application employing the provision of 47 CFR 73.215 is requested.

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The proposed location meets the separation requirements of 47 CFR 73.215 with respect to WPDT and WSIM, and the proposed WYNA operation would not result in overlap of contours prohibited by Section 73.215, as shown on the allocation map, Figure 7.

Figure 8 is a map showing the predicted 70 dBu and 60 dBu contours for the proposed operation of WYNA. The community of Calabash is entirely included within the predicted 70 dBu contour.

There are no FM or TV broadcast stations located within 60 meters of the proposed site. There are no AM broadcast stations located within 3.2 kilometers of the proposed site.

Environmental Considerations

The proposed WYNA facilities were evaluated in terms of potential radiofrequency radiation exposure to humans at two meters above ground level in accordance with OST Bulletin No. 65, *"Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation"*.

The proposed WYNA antenna will be side-mounted on a proposed tower, with center of radiation 141.7 meters

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above ground level. The calculated power density two meters above ground level at the base of the tower was determined to be 0.0198 milliwatts per centimeter squared or 9.9 percent of the FCC guideline value for an uncontrolled environment.

Access to the tower will be restricted and appropriately marked with warning signs. In the event workers or other authorized personnel climb the tower, appropriate measures will be taken to assure worker safety with respect to radiofrequency radiation exposure. Such procedures include reducing the average exposure by spreading out the work over a longer period of time or scheduling work with the station is at reduced power or off the air.

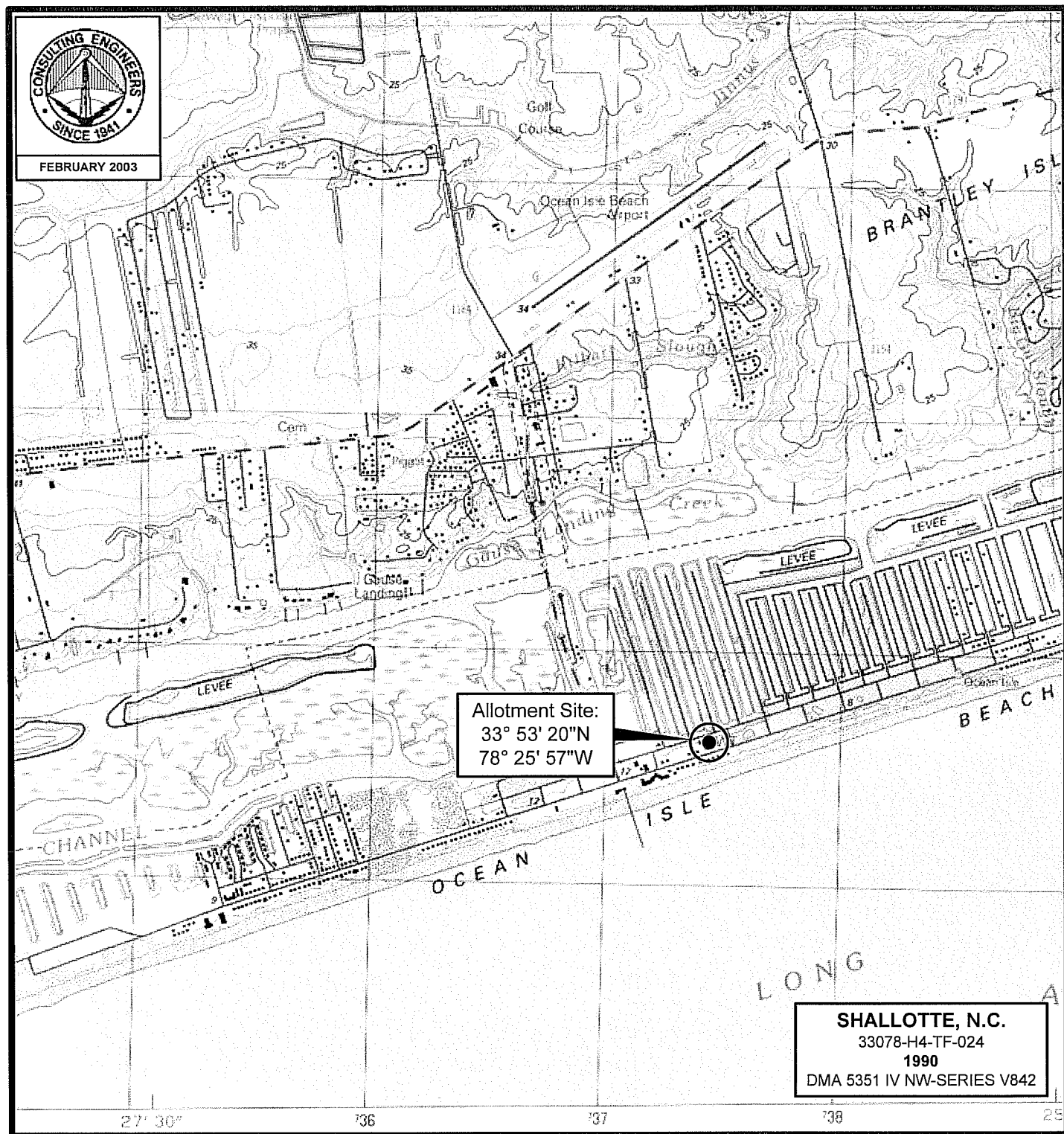
In addition, it appears that the proposed structure is otherwise excluded from environmental processing as it complies with all the criteria for such an exclusion in 47 CFR 1.1306.



Louis R. du Treil, Sr.
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Sarasota, Florida 34237-6019
941 329 6000

February 18, 2003

Figure 1



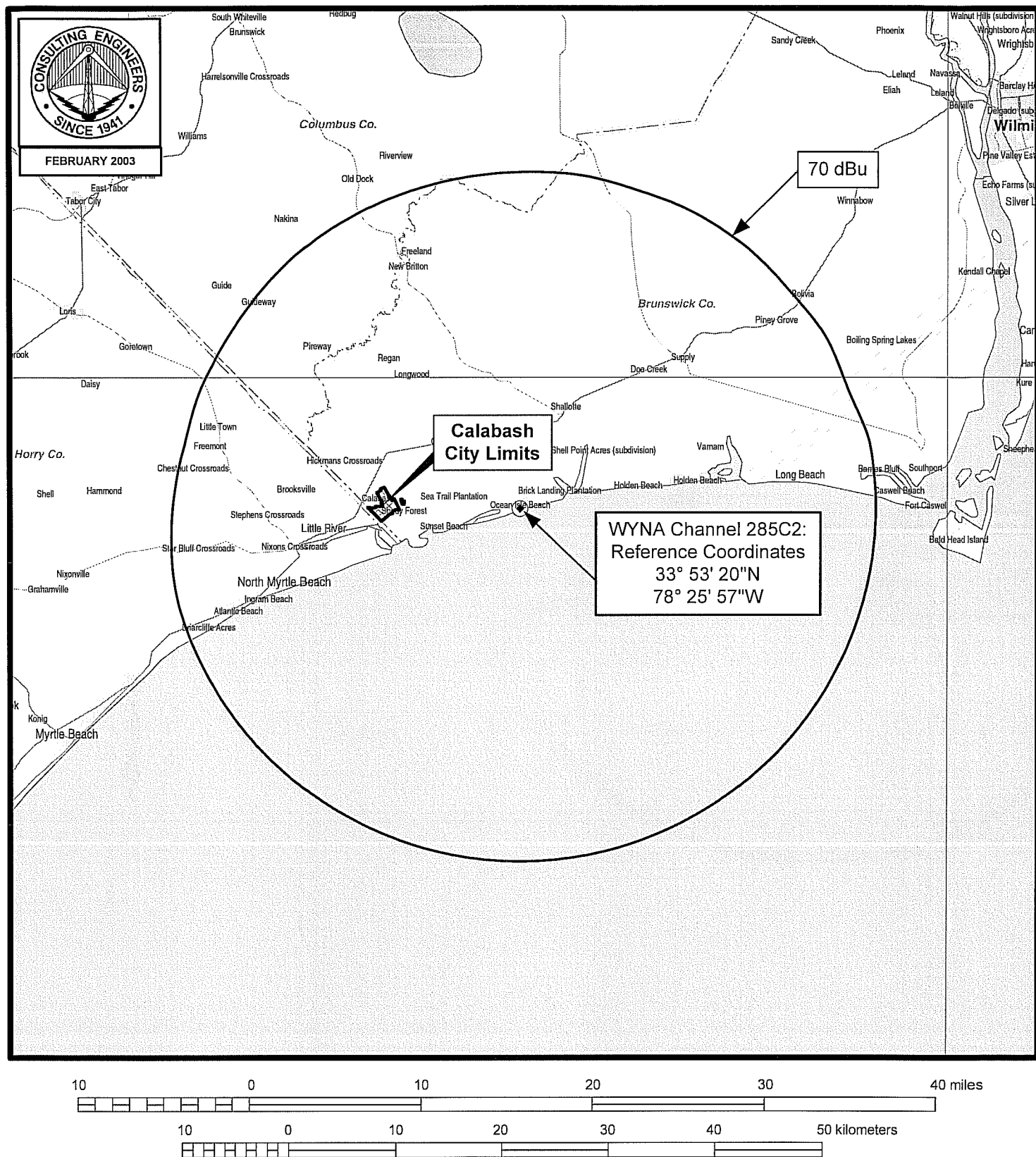
ALLOTMENT SITE

STATION WYNA
CALABASH, NORTH CAROLINA
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Allocation Study from Reference Site
33-53-20 North Latitude
78-25-57 West Longitude

Call Id	City St	File Status	Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km) 215 207
WKXS-F 25998	LELAND NC	LIC C	BMLH 20011012ABC	231 A 94.1	5.000 41	N	34-09-03 078-04-48	N	48.0	43.64 28.64	0.0 Clear
WRQR 74159	WILMINGTON NC	LIC C	BLH 19990629KC	283 A 104.5	3.100 137	29853	34-10-00 077-56-40		55.4	54.60 -0.40	49.0 Short
WZUP 17618	ROSE HILL NC	LIC C	BLH 19930128KB	284 A 104.7	2.800 78	N	34-51-48 078-02-16	Y	18.4	114.03 8.03	89.0 Close
0	LA GRANGE NC	RSV C	RM 10406	284 C3 104.7	0.000		35-16-00 077-58-00		15.4	158.70 41.70	106.0 Clear
WZUP 17618	LA GRANGE NC	APP C	BPH 20030203AFT	284 C3 104.7	25.000 100	N	35-16-02 077-49-09	N	19.9	162.93 45.93	106.0 Clear
WNOK 19472	COLUMBIA SC	LIC C	BLH 19970813KC	284 C 104.7	96.000 315	14020	34-09-03 080-54-36	N	278.0	230.67 42.67	176.0 Clear
WYNA 24932	CALABASH NC	LIC C	BMLH 19990826KZ	285 C3 104.9	23.500 103	15846	33-49-19 078-46-18	Y	256.7	32.25 -144.75	166.0 Short
WPDT 66643	JOHNSONVILL SC	LIC C	BLH 19950620KA	286 A 105.1	4.400 114	N	33-49-00 079-34-35	N	266.0	106.16 0.16	89.0 Close
WPDT 66643	JOHNSONVILL SC	APP C	BPH 20021121AAP	286 A 105.1	2.950 144	N	33-54-36 079-40-09	N	271.5	114.41 8.41	89.0 Close
WDCG 53597	DURHAM NC	APP C	BPH 20020808AAB	286 C1 105.1	78.000 321	N	35-42-50 078-49-04	Y	350.3	205.50 47.50	144.0 Clear
WDCG 53597	DURHAM NC	LIC C	BLH 19880721KD	286 C 105.1	100.000 317	N	35-52-20 079-09-29	N	343.5	229.80 41.80	176.0 Clear
WSIM 78329	FAIR BLUFF NC	CP C	BMPH 20020821AAP	287 C3 105.3	11.000 150	N	34-17-01 078-48-09	Y	322.3	55.53 -0.47	50.0 Short

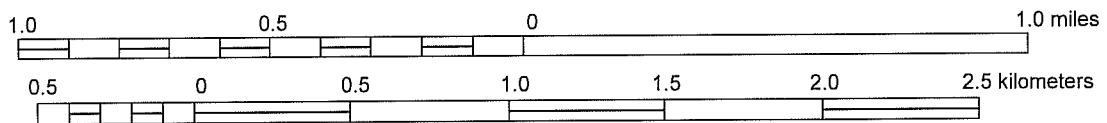
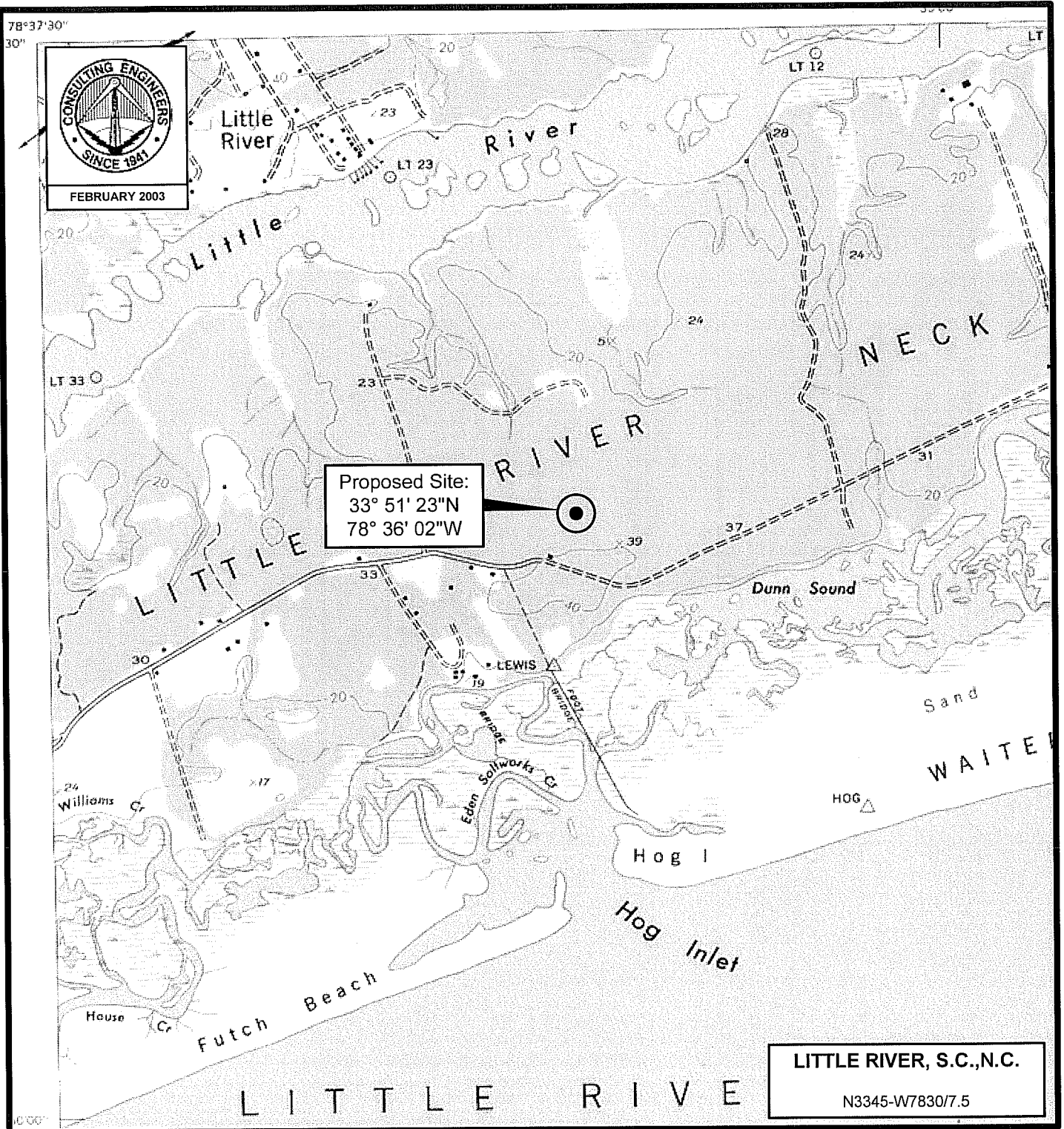


PREDICTED COVERAGE CONTOUR

FM STATION WYNA
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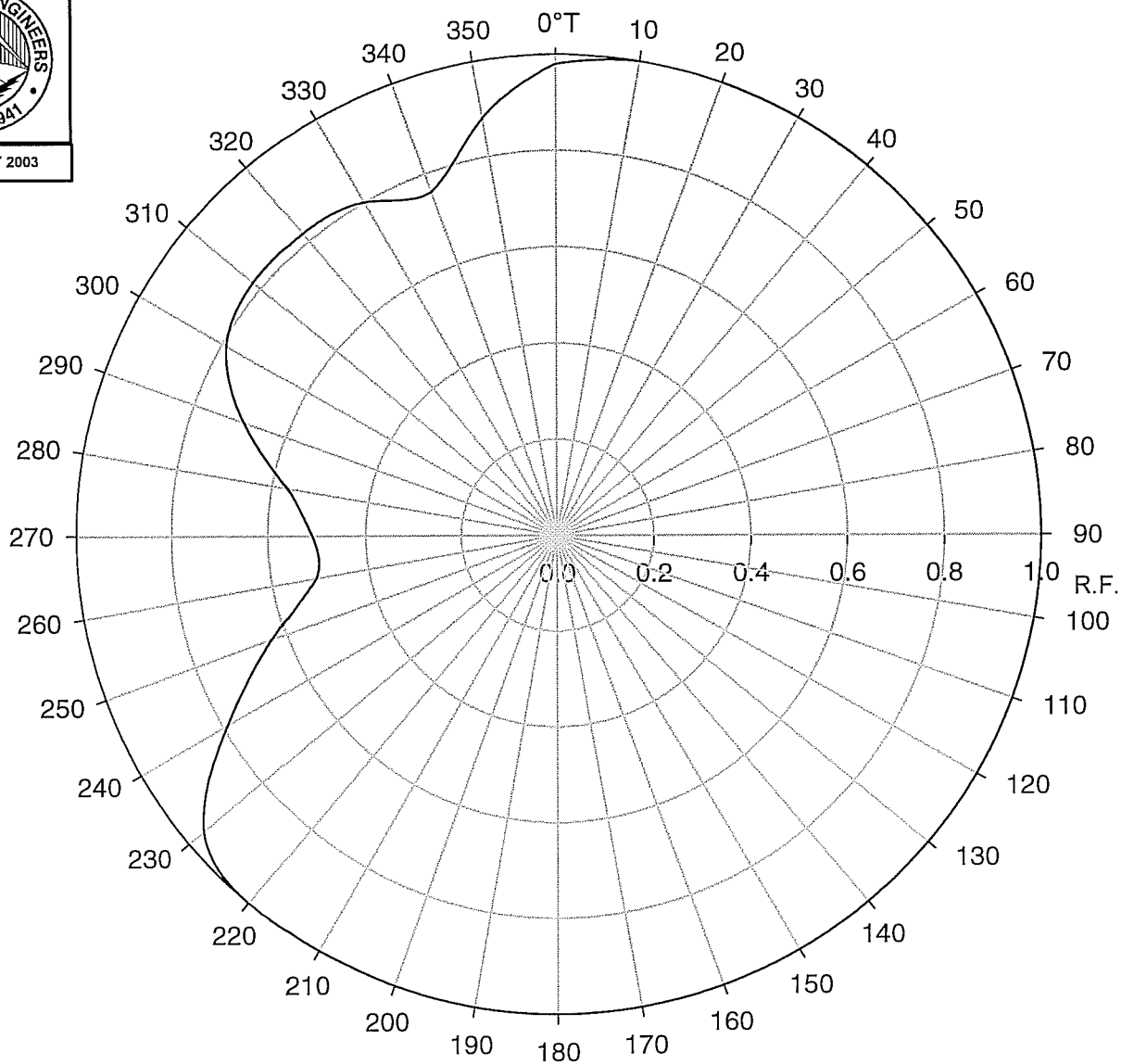
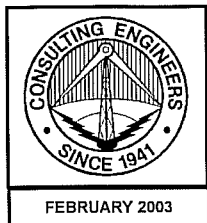
du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 4



PROPOSED TRANSMITTER LOCATION

FM STATION WYNA
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RELATIVE FIELD AZIMUTH PATTERN

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Tabulation of Directional Antenna Pattern

<u>Azimuth</u> <u>(deg. T)</u>	<u>Relative</u> <u>Field</u>	<u>ERP</u> <u>(KW)</u>	<u>Azimuth</u> <u>(deg. T)</u>	<u>Relative</u> <u>Field</u>	<u>ERP</u> <u>(KW)</u>
0	0.980	48	180	1.000	50
10	1.000	50	190	1.000	50
20	1.000	50	200	1.000	50
30	1.000	50	210	1.000	50
40	1.000	50	220	1.000	50
50	1.000	50	230	0.959	46
60	1.000	50	240	0.787	31
70	1.000	50	250	0.632	20
80	1.000	50	260	0.510	13
90	1.000	50	270	0.510	13
100	1.000	50	280	0.566	16
110	1.000	50	290	0.693	24
120	1.000	50	300	0.787	31
130	1.000	50	310	0.819	33.5
140	1.000	50	320	0.819	33.5
150	1.000	50	330	0.800	32
160	1.000	50	340	0.762	29
170	1.000	50	350	0.883	39

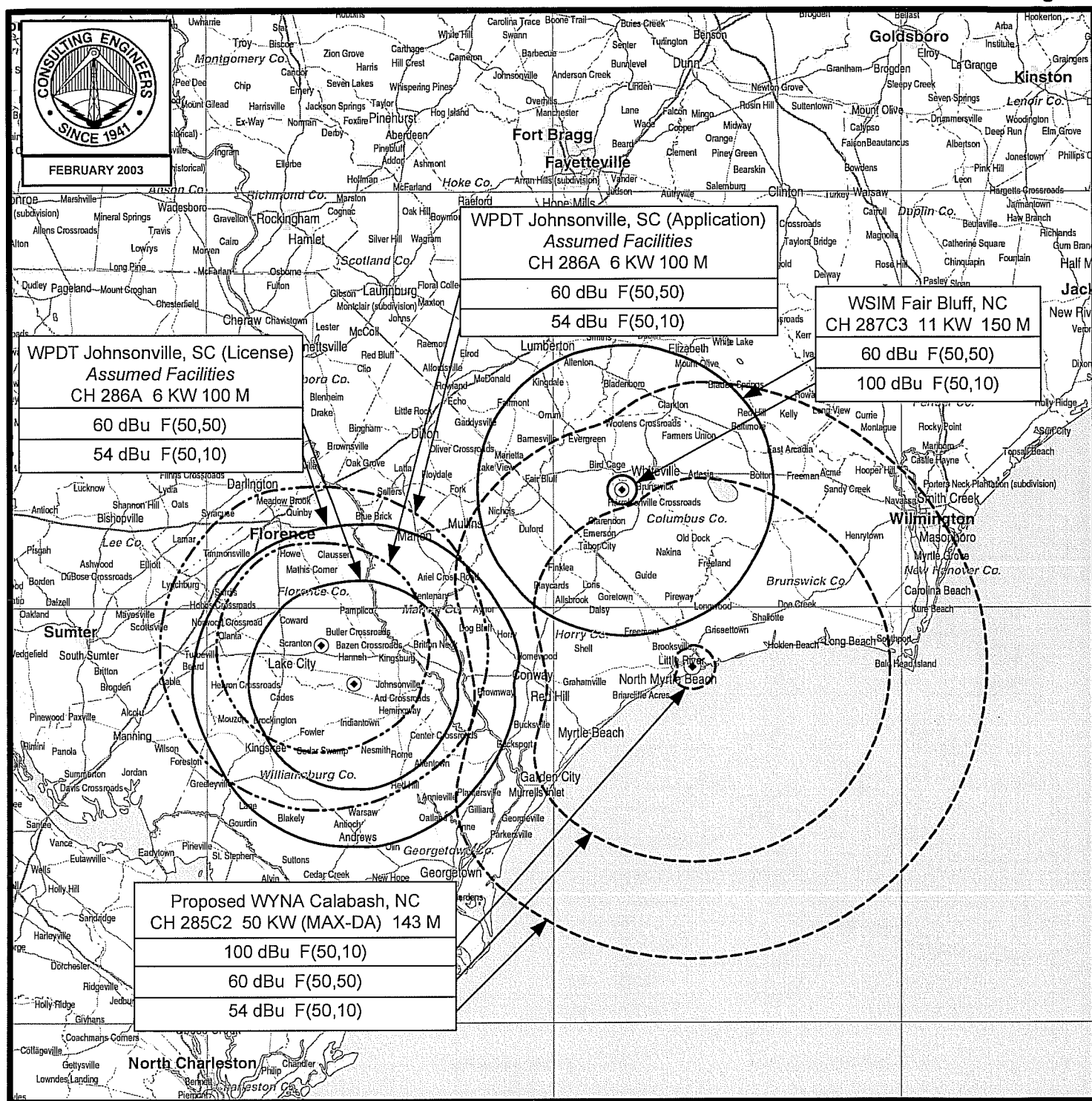
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Allocation Study from Proposed Site

33-51-23 North Latitude

78-36-02 West Longitude

Call Id	City St	Status	File Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km) 215 207
WKXS-F 25998	LELAND NC	LIC C	BMLH 20011012ABC	231 A 94.1	5.000 41	N	34-09-03 078-04-48	N	55.5	58.13 43.13	0.0 15.0 Clear
WRQR 74159	WILMINGTON NC	LIC C	BLH 19990629KC	283 A 104.5	3.100 137	29853	34-10-00 077-56-40		60.1	69.70 14.70	49.0 55.0 Close
WZUP 17618	ROSE HILL NC	LIC C	BLH 19930128KB	284 A 104.7	2.800 78	N	34-51-48 078-02-16	Y	24.6	123.11 17.11	89.0 106.0 Clear
0	LA GRANGE NC	RSV C	RM 10406	284 C3 104.7	0.000		35-16-00 077-58-00		20.1	166.91 49.91	106.0 117.0 Clear
WNOK 19472	COLUMBIA SC	LIC C	BLH 19970813KC	284 C 104.7	96.000 315	Y 14020	34-09-03 080-54-36	N	279.4	215.84 27.84	176.0 188.0 Clear
WYNA 24932	CALABASH NC	LIC C	BMLH 19990826KZ	285 C3 104.9	23.500 103	Y 15846	33-49-19 078-46-18	Y	256.4	16.29 -160.71	166.0 177.0 Short
WPDT 66643	JOHNSONVILL SC	LIC C	BLH 19950620KA	286 A 105.1	4.400 114	N	33-49-00 079-34-35	N	267.5	90.43 -15.57	89.0 106.0 Short
WPDT 66643	JOHNSONVILL SC	APP C	BPH 20021121AAP	286 A 105.1	2.950 144	N	33-54-36 079-40-09	N	273.8	99.04 -6.96	89.0 106.0 Short
WDCG 53597	DURHAM NC	APP C	BPH 20020808AAB	286 C1 105.1	78.000 321	N	35-42-50 078-49-04	Y	354.6	207.02 49.02	144.0 158.0 Clear
WDCG 53597	DURHAM NC	LIC C	BLH 19880721KD	286 C 105.1	100.000 317	N	35-52-20 079-09-29	N	347.4	229.36 41.36	176.0 188.0 Clear
WSIM 78329	FAIR BLUFF NC	CP C	BMPH 20020821AAP	287 C3 105.3	11.000 150	N	34-17-01 078-48-09	Y	338.7	50.92 -5.08	50.0 56.0 Short



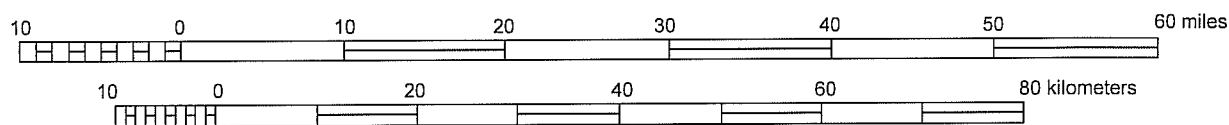
ALLOCATION MAP - CONTOURS OF PERTINENT STATIONS

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du Treil, Lundin & Rackley, Inc. Sarasota, Florida

The map displays the Calabash area in South Carolina, highlighting the proposed WYNA (Wilmington Yacht and Boat Harbor) and the Calabash City Limits. The map includes the following features:

- Proposed WYNA:** Indicated by a box with the coordinates $33^{\circ} 51' 23''\text{N}$ and $78^{\circ} 36' 02''\text{W}$.
- Calabash City Limits:** Indicated by a box with the text "Calabash City Limits".
- Sound Level Contours:** Two concentric circles represent sound level contours for 60 dBu and 70 dBu, with arrows pointing to the respective labels.
- Geographic Labels:** Various locations are labeled, including Whiteville, Brunswick, Columbus Co., Brunswick Co., Horry Co., and Myrtle Beach.
- Map Orientation:** The map is oriented with North at the top.



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