

## MULLANEY ENGINEERING, INC.

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### ENGINEERING STATEMENT IN SUPPORT OF SPECIAL TEMPORARY AUTHORITY (STA) REQUEST

PRESS COMMUNICATIONS, LLC  
RADIO STATION WBHX (FM)  
CH 259A - 99.7 MHZ  
FCC Facility ID: 56233  
TUCKERTON, NEW JERSEY

#### **Engineering Narrative**

This engineering statement supports a request by FM Radio Station WBHX (FM), Tuckerton, New Jersey, to operate from a temporary location with a simple 2-bay full-wave spaced directional antenna system with a maximum power of 2.5 kilowatts (2.5 kW). This STA requests operation using circular polarization.

The technical details of the STA proposal (facility parameters) are as follows; all elevations are rounded to the nearest meter:

Channel:	259A (99.7 MHZ)
NAD27 Latitude:	39-37-53.0 N
NAD27 Longitude:	74-21-11.6 W
Maximum ERP:	2.5 kW - Directional
Polarization:	Circular
Antenna Type:	Shively Labs - Model SLV-2
RCAMSL:	102.1 meters
Antenna AGL:	91.4 meters (300 feet)
HAAT:	94 meters (rounded)
ASR #:	1210613
Site Elevation:	10.7 meters Above Sea Level
Supporting Structure:	304.8 meters Overall Height

WBHX, Tuckerton, New Jersey has been operating from a temporary site due to the lost of its licensed site under authority granted in BESTA-20180524AAR. However, that site must be vacated as soon as possible in preparation of seasonal storms (i.e., coastal thunder storms and possible hurricane force winds) that occur from time to time. A less exposed site, (a developed/established site) is being proposed herein.

The current STA uses a trailer-mounted push-up antenna mast that must be removed or lowered for safety reasons during those times when the importance of broadcasting storm or other safety information to the public is at its highest priority. <sup>1</sup>

The authority requested herein is for an initial period of 180-days, which will allow the licensee to continue to seek and search for a permanent site for the facility in a very difficult restrictive land-use area.

Proposed Supporting Structure, FCC ASR number 1210613:

The supporting structure is an existing communication tower that has been registered and issued FCC ASR number:1210613.

Registration Detail			
Reg Number	1210613	Status	Constructed
File Number	A0854842	Constructed	12/20/2000
EMI	No	Dismantled	
NEPA	No		
Antenna Structure			
Structure Type	TOWER - Free standing or Guyed Structure used for Commu		
Location (in NAD83 Coordinates)			
Lat/Long	39-37-53.4 N 074-21-10.1 W	Address	3.3 KM NORTH OF
City, State	TUCKERTON , NJ		
Zip	08087	County	OCEAN
Center of AM Array		Position of Tower in Array	
Heights (meters)			
Elevation of Site Above Mean Sea Level	10.7	Overall Height Above Ground (AGL)	304.8
Overall Height Above Mean Sea Level	315.5	Overall Height Above Ground w/o Appurtenances	303.6

Proposed Service Contour , Site Details and Channel Study:

Figure 1 demonstrates that the proposed STA facility will not extend the service contour beyond that available to a maximum allowable facility at the current licensed site, i.e., 3-kilowatts at 100 meters HAAT toward any station of concern.

Figure 2 is a polar plot and tabulation of the proposed 2-bay directional antenna as provided by the manufacturer.

Figure 3 is an FM channel study / contour overlap study that shows that this proposal is clear of any prohibitive contour overlap with the exception of 2<sup>nd</sup> adjacent channel WJRZ-FM, Channel 261A, Manahawkin, New Jersey.

WJRZ-FM is located 22.58 kilometers distant from this proposal. The signal level at the STA site from WJRZ-FM is predicted to be 58.7 dBu, the interference contour from this proposal is the 98.7 dBu

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<sup>1</sup> The push-up mast arrangement on a trailer is more closely associated with the wireless industry term “COW” i.e., a cellular site on wheels primarily used to restore cellular phone service during emergencies or increase call-handing capacity during large public events.

contour when a desired to undesired signal ratio of 40 dB is applied. As noted above, the proposed STA site lies beyond the predicted 60 dBu service contour of WJRZ-FM and the signal level at the site is predicted to be below the protected level.

Due to the proposed antenna height above ground; and the second adjacent channel relationship; and the location of its proposed STA facility in a sparsely populated (if any) area; interference to WJRZ-FM is not expected to be an issue. The immediate area within 1-kilometers (3280 feet) of the site has little or no structures as shown in the satellite photo from Google Earth included herein as Figure 4.

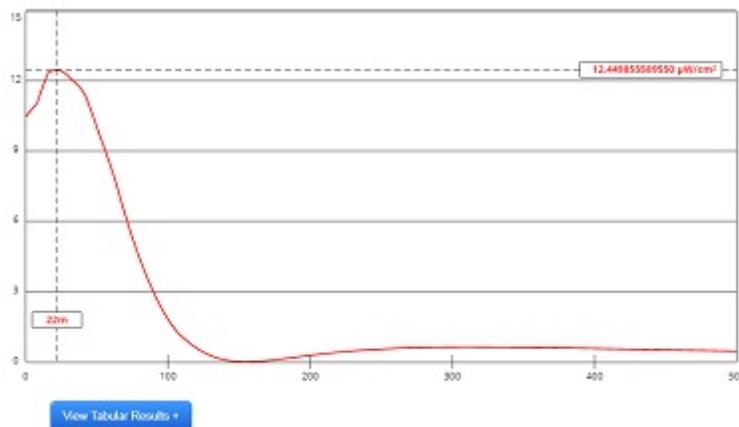
WBHX realizes the very special nature of its STA request and that this request is temporary. WBHX will reduce power or cease operation if objectionable interference complaints are received and are unable to be resolved as a result of its operation. No interference is predicted to occur.

Safety & Other Considerations:

The proposal was evaluated using the antenna parameters outlined herein using the on-line FCC FM Model software program. A “Type 1 EPA (other) antenna,” with 2-bay/elements and 1.0 wave spacing between elements was specified. The maximum power density is predicted to be 0.01215 mW/cm<sup>2</sup> occurring within a horizontal distance of 22 meters from the antenna.

As the predicted worst-case EPA type 1 antenna value is well below the worker limit of 1.0 mW/cm<sup>2</sup> and is 6.1 percent of the 0.2 mW/cm<sup>2</sup> for the general public, this proposal is in compliance with the Commission’s rules and no further study is warranted. Suitable warning sign(s) have been placed on the supporting structure. The public has no access to this tower site.

FCC FM MODEL OUTPUT POWER DENSITY - EPA TYPE 1 ANTENNA  
Shively Labs - Model SLV-2



Channel Selection	Channel 259 (99.7 MHz)		
Antenna Type *	EPA Type 1: Ring-and-Stub or "Other"		
Height (m)	91.4	Distance (m)	500
ERP-H (W)	2500	ERP-V (W)	2500
Num of Elements	2	Element Spacing (λ)	1.0
Num of Points	500	<input type="button" value="Apply"/>	

Public Interest:

WBHX seeks this STA in order to provide a more stable and useable service to its community of license and the surrounding area. One that is especially important during times of severe weather or other natural causes.

The site proposed is a well developed communications facility, located away from the immediate coastal area, with an on-site backup power source (AC generation equipment), as well as fiber optic cable for reliable program source delivery.

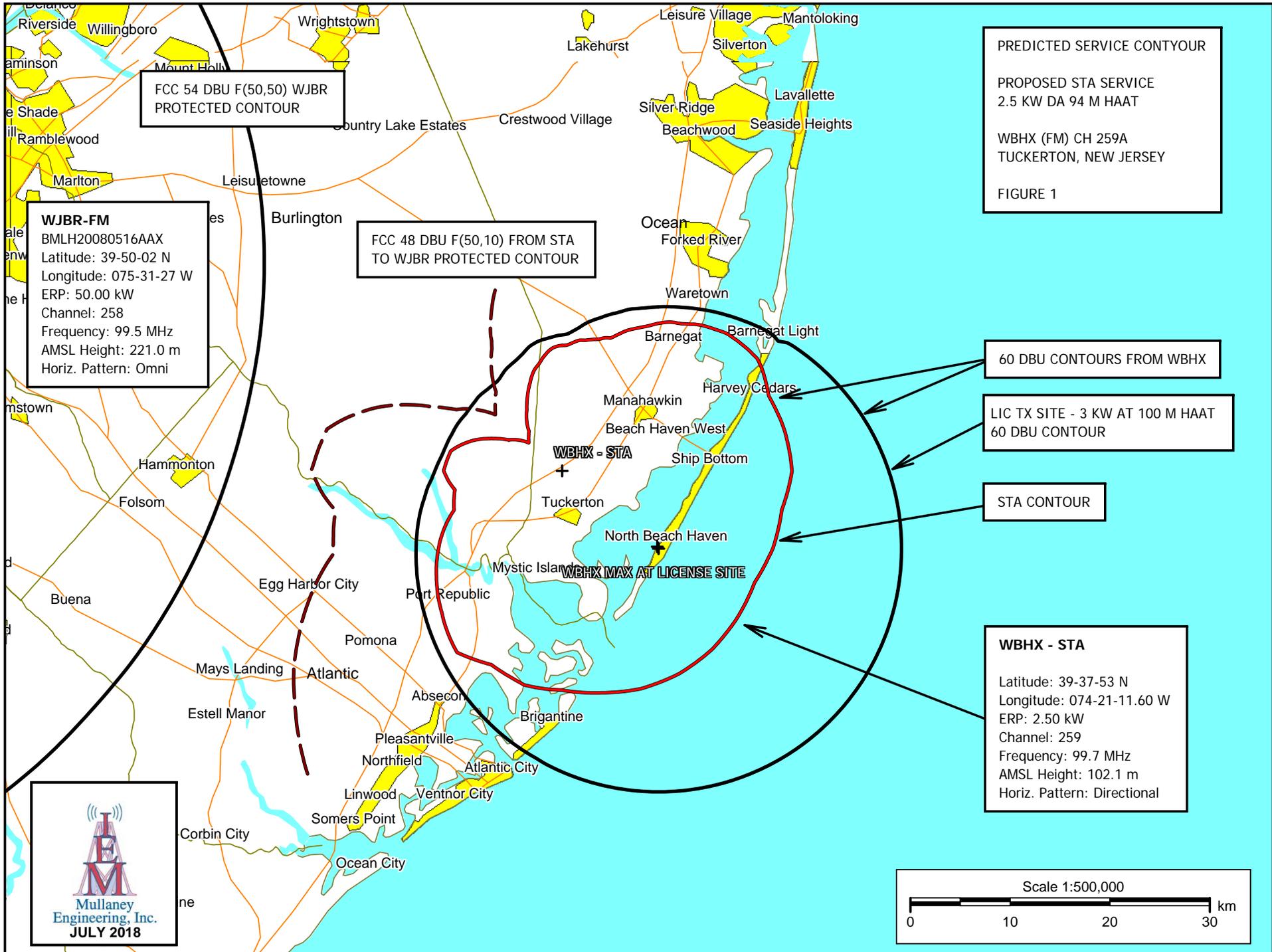
No interference to other facilities is likely to occur as a result of a grant of this request, and should any reported interference occur, WBHX will reduce power or cease operation as necessary.

July 27, 2018

A handwritten signature in blue ink, appearing to read "Timothy Z. Sawyer". The signature is fluid and cursive, with a large initial 'T' and 'S'.

Timothy Z. Sawyer, Consulting Engineer  
Mullaney Engineering, Inc.  
Tel: (703) 848-2130

- Attachments:
- Figure 1: Proposed STA Service Contour Map
  - Figure 2: Proposed directional antenna pattern and tabulation (Manufacturers Data)
  - Figure 3: FM Channel/Contour Overlap Study
  - Figure 4: Satellite Site Photo to show rural and unpopulated nature of the area within 1-kilometer of the site with regards to 2<sup>nd</sup> adjacent channel interference.



FCC 54 DBU F(50,50) WJBR  
PROTECTED CONTOUR

**WJBR-FM**  
 BMLH20080516AAX  
 Latitude: 39-50-02 N  
 Longitude: 075-31-27 W  
 ERP: 50.00 kW  
 Channel: 258  
 Frequency: 99.5 MHz  
 AMSL Height: 221.0 m  
 Horiz. Pattern: Omni

FCC 48 DBU F(50,10) FROM STA  
TO WJBR PROTECTED CONTOUR

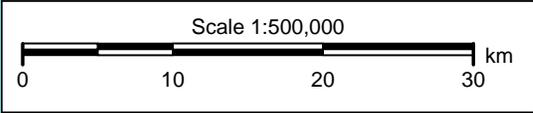
PREDICTED SERVICE CONTOUR  
 PROPOSED STA SERVICE  
 2.5 KW DA 94 M HAAT  
 WBXH (FM) CH 259A  
 TUCKERTON, NEW JERSEY  
 FIGURE 1

60 DBU CONTOURS FROM WBXH

LIC TX SITE - 3 KW AT 100 M HAAT  
60 DBU CONTOUR

STA CONTOUR

**WBXH - STA**  
 Latitude: 39-37-53 N  
 Longitude: 074-21-11.60 W  
 ERP: 2.50 kW  
 Channel: 259  
 Frequency: 99.7 MHz  
 AMSL Height: 102.1 m  
 Horiz. Pattern: Directional



# SHIVELY LABS

**WBHX (FM) TUCKERTON NJ  
STA ANTENNA SLV-2  
FIGURE 2**

**WBHX (FM) TUCKERTON NJ  
STA ANTENNA SLV-2  
99.7 MHZ MAX ERP 2.5 KW**

**TOWER: CENTRAL 7-FT  
MOUNT: POLE-LEG MT  
MOUNT REMARKS: SEE SKETCH  
A-DIMENSION INCHES: N/A**

**HORIZONTAL PARASITIC: 2-PLCS  
B-DIMENSION: FEED LINE BACK  
C-DIMENSION: 1/4-W/L UP&DOWN  
PARASITIC LENGTH: 11.750**

**VERTICAL PARASITIC: N/A  
D-DIMENSION:  
E-DIMENSION:  
F-DIMENSION  
PARASITIC LENGTH:**

**1st LEG AZIMUTH: 39-DEGREES  
ANTENNA HEADING: 119-DEGREES  
LADDER: N/A**

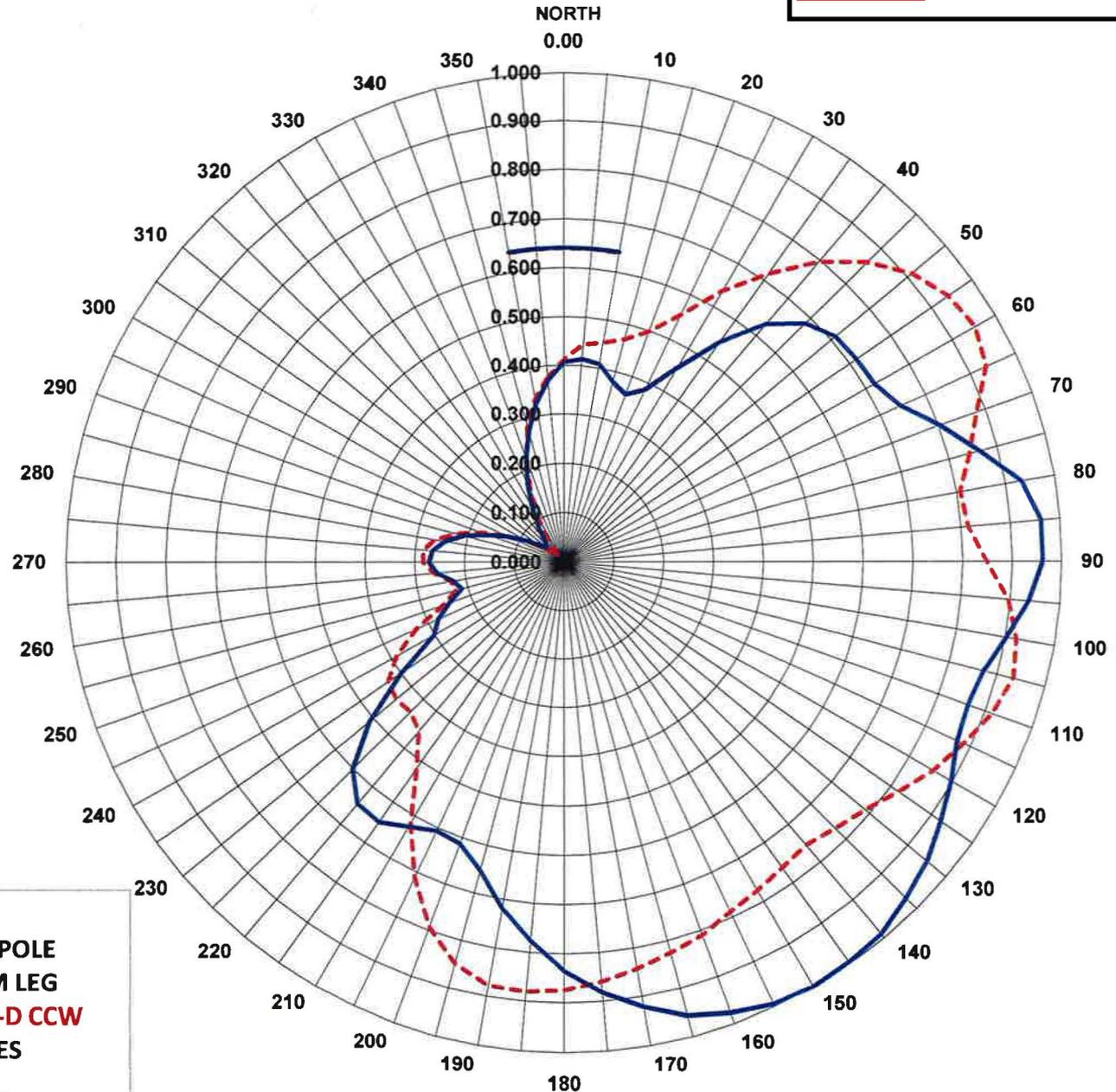
**PATTERN NUMBER: 04-BB**

**VERTICAL RMS: - - - -  
63.96%**

**HORIZONTAL RMS: ————  
64.06%**



**SLV-2 ANTENNA  
MOUNTED ON 2.5-INCH POLE  
OFF SET 27-INCHES FROM LEG  
POLE MOUNT ROTATED 40-D CCW  
AZIMUTH 119-DEGREES**





**PROPOSED PATTERN WBHX (FM)  
DA PATTERN TABULATION  
MAX COMPOSITE FIELD**

<b>RELATIVE FIELD PATTERN</b>								
MAX				MAX				
AZ	VERT	HORIZ	COMPOSITE	AZ	VERT	HORIZ	COMPOSITE	
0	0.412	0.406	0.412	180	0.875	0.836	0.875	
10	0.452	0.409	0.452	190	0.878	0.718	0.878	
20	0.498	0.361	0.498	200	0.793	0.613	0.793	
30	0.636	0.454	0.636	210	0.817	0.625	0.817	
40	0.795	0.630	0.795	220	0.453	0.646	0.646	
50	0.911	0.711	0.911	230	0.440	0.511	0.511	
60	0.953	0.720	0.953	240	0.388	0.302	0.388	
70	0.882	0.803	0.882	250	0.257	0.246	0.257	
80	0.808	0.933	0.933	260	0.230	0.225	0.230	
90	0.849	0.962	0.962	270	0.283	0.271	0.283	
100	0.823	0.902	0.902	280	0.264	0.244	0.264	
110	0.915	0.864	0.915	290	0.176	0.162	0.176	
120	0.856	0.897	0.897	300	0.082	0.086	0.086	
130	0.789	0.951	0.951	310	0.025	0.046	0.046	
140	0.755	0.991	0.991	320	0.026	0.065	0.065	
150	0.775	1.000	1.000	330	0.104	0.128	0.128	
160	0.811	0.978	0.978	340	0.220	0.223	0.223	
170	0.844	0.922	0.922	350	0.335	0.326	0.335	

STA CHANNEL STUDY - CONTOUR STUDY

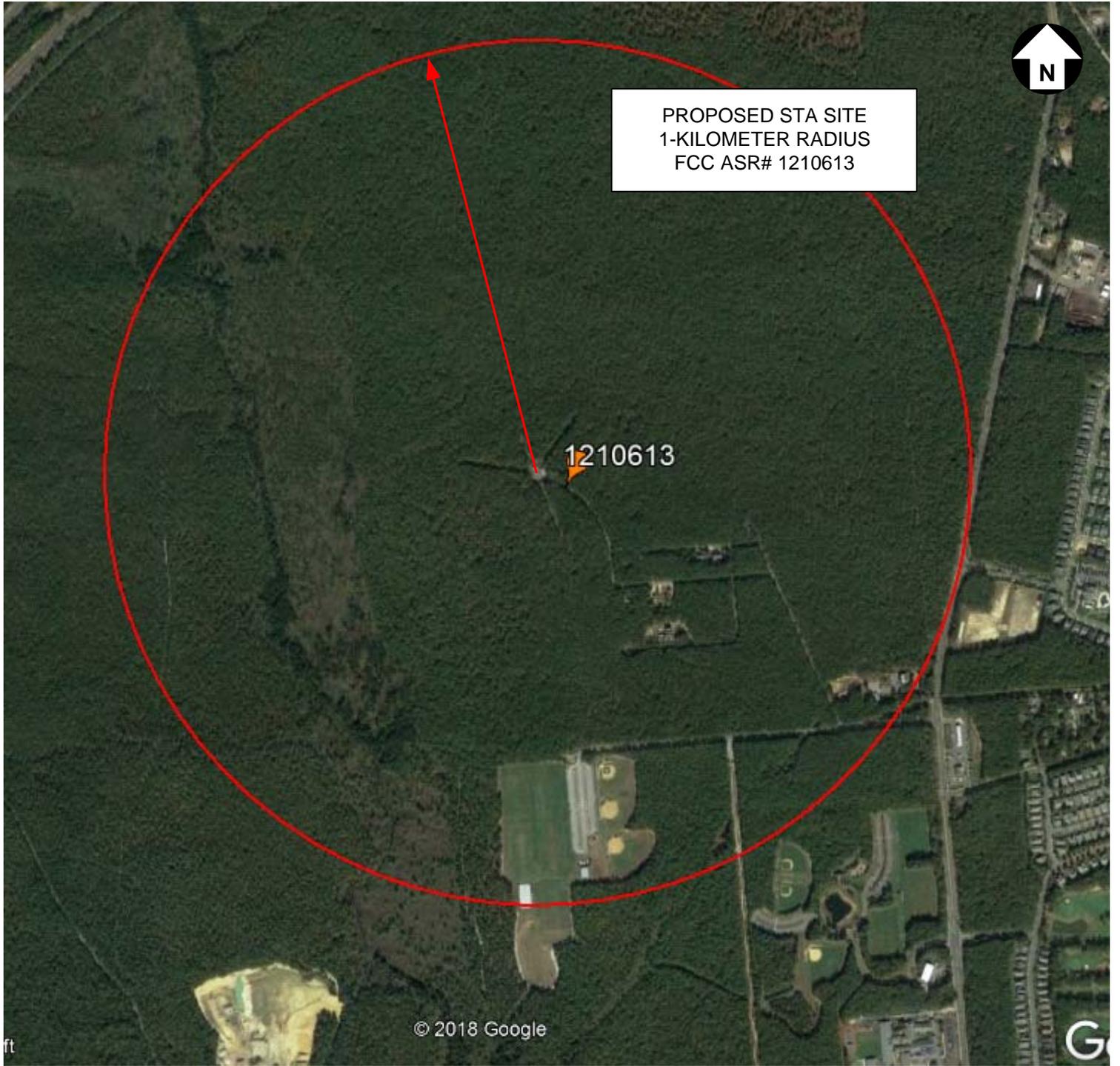
WBHX (FM) TUCKERTON, NJ

REFERENCE CH# 259A - 99.7 MHz, Pwr= 2.5 kW DA, HAAT= 93.9 M, COR= 102 M DISPLAY DATES  
 39 37 53.0 N. Average Protected F(50-50)= 22.5 km DATA 07-23-18  
 74 21 11.6 W. Standard Directional SEARCH 07-26-18

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
261A Manahawkin	WJRZ-FM	LIC	CX NJ	34.7 214.8	22.58 BMLH20070910ACP	39 47 54.0 74 12 10.0	1.700 133	2.1 149	24.0 Beasley Media Group	3.8	-3.0 **
257A Pleasantville	WZBZ	LIC	CX NJ	196.7 16.6	29.56 BMLH20100420ABD	39 22 35.0 74 27 08.0	3.000 100	2.3 104	24.7 Equity Communications, L.p	5.5	2.9
258B Wilmington	WJBR-FM	LIC	CX DE	283.0 102.3	102.86 BMLH20080516AAX	39 50 02.0 75 31 27.0	50.000 152	85.1 221	70.5 Beasley Media Group	5.2	7.5
258B New York	WBAI	LIC	CN NY	14.0 194.2	127.90 BLH19940204KK	40 44 54.0 73 59 10.0	4.300 415	74.1 429	62.9 Pacifica Foundation, Inc.	113.0R	14.9M
258B New York	WBAI	CP	CX NY	13.9 194.1	128.72 BPED20170803ABU	40 45 22.0 73 59 12.0	10.000 282	72.5 297	62.6 Pacifica Foundation, Inc.	113.0R	15.7M

Terrain database is NGDC 30 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM In & Out distances between contours are shown at closest points. Reference Zone= - Zone 1, Co to 3rd adjacent. Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X) "\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

\*\* OVERLAP OF THE 2ND ADJACENT CHANNEL (WJRZ) 60DBU WITH 100 DBU CONTOUR FROM THIS PROPOSAL IS NOT EXPECTED TO CAUSE INTERFERENCE DUE TO THE NATURE OF THE SURROUNDING AREA, THE HEIGHT OF THE PROPOSED 2-BAY ANTENNA AT 91.4 METERS (300 FEET) AGL, AND THE SELECTIVE TUNING OF MODERN RADIOS. SEE SITE PHOTO INCLUDED IN FIGURE 4. APPROPRIATE WAIVER(S) AS NECESSARY ARE REQUESTED DUE TO THE PUBLIC BENEFIT/INTEREST RESULTING IN A GRANT OF THIS STA PROPOSAL, AND THE LACK OF ANY ACTUAL INTERFERENCE TO OTHER FACILITIES. SEE FULL NARRATIVE STATEMENT.



**WBHX (FM) STA SITE PHOTO**

**WBHX (FM) STA  
TUCKERTON, NEW JERSEY**

**FIGURE  
4**

**MONROVIA, MARYLAND U.S.A**

SIZE  
A

FSCM NO  
N/A

DWG NO  
20180727WBHX.F4

REV  
NONE

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SCALE  
N/A

JULY 2018

SHEET