

ENGINEERING REPORT

MINOR CONSTRUCTION PERMIT APPLICATION

For the NCE-FM Facilities of

**WIAB(FM) – Mackinaw City, MI
CH203C2 – 88.5 MHz
BLED-20030407ACF**

**Engineering Amendment to
Pending Application
BPED-20100707EAA**

November, 2011

COPYRIGHT 2011

TABLE OF CONTENTS

Discussion of Report

Main Studio Location

- Exhibit 15.1 - Copy of USGS Topographic Map of Proposed Site
- Exhibit 15.2 - Vertical Plan of Antenna System and Support Tower
- Exhibit 15.3 - Tabulation of Operating Conditions
- Exhibit 15.4 - Present vs Proposed Contour Study

Interference Requirements

Contour Overlap Requirements

- Exhibit 18.1 - Tabulation of Non-Commercial Allocation
- Exhibit 18.2 - Contour Protection Toward WBLW(FM) - Gaylord, MI
- Exhibit 18.3 - Contour Protection Toward WSFP(FM) - Rust Township, MI
- Exhibit 18.4 - Contour Protection Toward WNLI(FM) - Sturgeon Bay, WI
- Exhibit 18.5 - Contour Protection Toward WIAA(FM) - Interlochen, MI
- Exhibit 18.6 - Contour Protection Toward WTCY.A - Greilickville, MI
- Exhibit 18.7 - Contour Protection Toward WTCY.L - Greilickville, MI
- Exhibit 18.8 - Tabulation of Proposed Directional Antenna

Spacing Requirements	(none)
Grandfathered Short-Spaced Requirements	(none)
Contour Protection Requirements	(none)

TV Channel 6 Protection Requirements

- Exhibit 21.1 - TV6 Protection Study

RF Radiation Study Requirement

- Exhibit 24.1 - RF Study

(Exhibit Numbering is in response to FCC Online Form 340, Section VII)

DISCUSSION OF REPORT

This firm was retained to prepare the required engineering report in support of this minor construction permit application amendment for WIAB(FM) Pending Application BPED-20100707EAA. Presently WIAB(FM) – Mackinaw City, MI is licensed under File No. BLED-20030407ACF to operate with Class C2 operating parameters of 20.0 kW at a COR of 338 meters AMSL. This minor modification application amendment seeks Class C1 operating parameters of 50.0 kW at a COR of 471 meters AMSL from a new tower site location. The proposed operation will continue to serve the community of Mackinaw City, MI. Continued use of a directional antenna pattern will be employed.

The proposed site for the Class C1 operation meets all the contour protection requirements towards other domestic stations in the allocation. A tabulation of the proposed protections to each of the other relevant stations is found in **Exhibit 18.1**. There are five (5) other facilities, WBLW(FM) – Gaylord, MI; WSFP(FM) – Rust Township, MI; WNLI(FM) – Sturgeon Bay, WI; WIAA(FM) – Interlochen, MI; and WTCY.A & WTCY.L - Greilickville, MI which are deemed close enough to require further study. An FMCommander™ map of the relevant protected and interference contours toward each relevant facility has been supplied in **Exhibit(s) 18.1 to 18.7**. The applicant would like to note that while contour overlap does exist with WNLI(FM) – Sturgeon Bay, WI, these portions of contour overlap are contained wholly over Lake Michigan as documented in the attached exhibits. It is believed there is sufficient clearance to preclude the need for further study with respect to the other domestic protected stations shown in the allocation study. Tabulations for each contour employed will be supplied to the FCC upon request.

The transmitter site is located within 320 km of the common border between the United States and Canada. Full protection will be afforded all Canadian facilities as noted in **Exhibit 18.1**.

The Transmitter site is located within the affected radius of Channel 6 television facility CBCE-TV – Little Current, Ontario, Canada. Full protection will be afforded CBCE-TV as noted in **Exhibit 21.1**.

The proposed service contours have been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The plotted service contour is found as **Exhibit 15.4** of this report. This exhibit shows the overall service provided by the 1.0 mV/m contour of the facility. The tabulation of the distances to the respective contours shown in this discussion is based on the use of the standard eight cardinal bearings, which were also used for the computation of the HAAT. However, the plotted contour shown in **Exhibit 15.4** is based on the use of a full 360 terrain radials and the USGS 03 Second Terrain Database.

The antenna will be mounted on a new 146.3 meter AGL tower to be constructed. TOWAIR has been consulted and the proposed tower requires Antenna Structure Registration. The FAA will be notified of the proposed new tower construction and ASR filed after receipt of FAA “Determination of No Hazard”. A copy of USGS topographic mapping of the proposed site has been included in **Exhibit 15.1**. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 15.2**.

DISCUSSION OF REPORT (continued)

The remainder of the information in this report and exhibit numbering is responsive to the Rules of the Commission, and provides the data for FCC Form 340.

The FM Broadcast facility proposed in this application is within the uncontrolled limits as noted in the supplied **Exhibit 24.1** study. The RF radiation will not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1310 of the Commission's rules. The facility will be properly marked with signs, and entry will be restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.

DISTANCES TO CONTOURS: The table below shows the distances to the 1.0 mV/m contour from the proposed facility using an ERP of 50.0 kW at an HAAT of 250 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 453405.0 W. Lng. = 850427.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - USGS 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	189.2	281.8	50.0000	16.99	1.000	63.98
045	239.1	231.9	50.0000	16.99	1.000	60.09
090	258.8	212.2	16.5888	12.20	0.576	48.40
135	308.9	162.1	13.3645	11.26	0.517	42.10
180	237.8	233.2	25.1341	14.00	0.709	53.83
225	182.6	288.4	8.9042	9.50	0.422	48.24
270	176.5	294.5	50.0000	16.99	1.000	64.96
315	176.5	294.5	50.0000	16.99	1.000	64.96
Ave El= 221.18 M HAAT= 249.82 M AMSL= 471 M						