

ERNEST A. BARBEAU  
RADIO STATION CONSULTANT  
84 FURMAN STREET  
SCHENECTADY 4, NEW YORK

February 8, 1947

Mr. Frank L. York  
General Manager  
The Troy Record Company  
Troy, N.Y.

Dear Frank:

Most of today was spent in analyzing and checking your proposed over-all service area coverage from John Barron's engineering data and contour maps.

We are wholly concerned with two contours embracing the over-all coverage as follows:

1000 uv/m contour - Primary high-noise level ( URBAN AREA )

50 uv/m contour - Secondary low-noise level ( RURAL AREA )

These contours represent the vital coverage areas where signal strength is defined by FCC rules and regulations and thus vitally important to our operation. These designations are stated in engineering terms to represent the intensity of signal strength within certain limitations expressed by the areas within the respective circles drawn by John Barron on US geological survey maps.

These are the areas with their respective populations which radio stations sell to advertisers in terms of time. The high-noise level signal is defined as that which covers urban area as primary coverage and will be found on your map designated by Barron as 1 millivolt contour. The low-noise level signal is defined as that which covers rural area and is known as secondary coverage. It is delineated on your map as 0.05 millivolt contour. For your enlightenment, there are 1000 microvolts per one millivolt. Most engineers refer to these values in terms of "microvolts per meter contour", but I notice that Barron uses the millivolt designations. They all mean the same when reduced to microvolts, however. The nomenclatures are expressed as follows:

Millivolts per meter contour - ( mv/m )  
Microvolts per meter contour - ( uv/m )

I am giving you this information now against the time when you will have occasion to refer to these radio broadcast values.

In the course of my checking these contours I made certain coverage calculations based upon Barron's original engineering studies which were embraced in your original FCC-319 application for the 10 KW proposed station. Comparing these values with those represented by the ammendment to cover the new transmitter station site, wide disparities exist. While the contours appear somewhat alike insofar as topographical outlines are concerned, a close inspection indicates some sharp differences.

The new coverage contours suggest to me that Barron did a far better job on his second attempt than he did originally. Using the same relative antenna height and very little difference in elevation above mean sea level plus a 3 KW transmitter, he covers far less area in square miles but his new contours appear to embrace more heavily populated sections of the surrounding country. I may be wrong on propulation figures and it will be interesting to get the actual estimated count from Barron. There are 3830 square miles less within the new coverage than contained in the original application.

These coverage studies are interesting - and quite important. They show clearly the outer boundaries of our proposed service area in terms of cities, towns, villages and so forth. I took it upon myself to get these boundaries for our combined convenience and ready reference and have tabulated them on the attached sheets. However, I have confined these boundaries to those falling within the primary and secondary contours as previously explained, namely, to the 50 uv/m and to the 1000 uv/m contours.

We should know quite accurately from John Barron his estimates of population embraced within the new coverage areas as follows:

1. Estimated population within the 50 uv/m contour.
2. " " " " 1000 " "
3. " " " " 5000 " "
4. " " " the area between the 50 and 1000 uv/m contours.

I am not too keen about the figures for the 5000 uv/m contour because we are not too concerned with this measurement in terms of time sales. If he will give us the figures in 1, 2 and 4, that will be sufficient for the present. Will you kindly write him?

For our mutual convenience and ready reference, we should also

have prepared either by Barron or someone else, a blown up over-all contour map exactly like the reduced map included with Barron's engineering data. Barron no doubt has the original US geographical survey maps from which he prepared your new proposed service area contours. Please ask him to produce two of these maps blown up for wall mounting to the approximate size of four square feet. One of these maps should be retained in your private office for quick reference. The other should be used by various members of your proposed radio staff. When we get them, I suggest having the surfaces glazed for protective reasons and mounted under glass in a frame suitable for wall mounting.

When Barron supplies these maps and the estimated population within the two contours, we can key this information right on the maps. This vital information will tell us at a glance the potential radio listeners and will represent the official figures from which will radiate all commercial and technical calculations.

If you will examine the tabulation in the attached sheets showing area boundaries, you will observe that there is virtually no coverage along Radials C and D - easterly and southeasterly. By examining the new contour map you will also note particularly that the pattern of the signal is heart-shaped. With proposed power of 3 KW transmitter output augmented by 1580 feet of elevation at the apex of the FM circular antenna plus six bays of antenna radiation, there will be developed a total of 13 KW effective radiated power. This combination will match or better everything within the Capitol District presently projected for FM broadcasting. In my opinion, we should be able to completely blanket the greater part of the vital coverage area of the Schenectady FM station, W B C A, notwithstanding their advantage of elevation in the Heldeberg mountains. They are about 150 to 200 feet higher than our site but they are using a 4-bay antenna as against our 6-bay. The GE Company's FM station, W G F M, is the same power as ours, namely, 3 KW, and I understand they too plan a 4-bay antenna.

An interesting fact of patterns is that W B C A's pattern is likewise heart-shaped but is practically diametrically opposite of our pattern. While we cover more to the north and south, W B C A practically parallels our signal to the west, losing however the entire southwestern part of the coverage. In other words, if you layed their signal pattern on ours, the heart would be reversed east and west. They have eastern coverage on their secondary line to approximately Pittsfield whereas we have none in an easterly direction.

I believe I stated to you and Mr. Marvin the other day that within your proposed coverage there exists already an FM listening audience of some 25,000. However, I am sorry I neglected to tell you that this number of FM sets are of the old band frequency of 40 to 50 megacycles. However, I happen to know that W B C A of Schenectady has been changing over many of their listener's sets at cost. The lower frequency of 40/50 mc can be adapted to the higher 88/108 mc by certain electrical changes for a few dollars. I understand W B C A is doing this work for the public at cost. Eventually most of these 25,000 set owners will change over to the higher band since obviously it would be foolish of them to purchase new FM sets when they already have them and can effect the change-over at nominal cost.

There are three immediate steps which we must consider taking, one of which is the purchase of a 90 foot self-supporting tower husky enough to take the loading of approximately 3000 pounds of 6-bay FM antenna. Another is to explore every situation relative to the use of the proposed ST ( Studio-to-transmitter ) relay link. The third is to get an order placed as quickly as possible with General Electric for some 200 feet of 3 1/8" diameter coaxial transmission line for connecting the 6-bay antenna with the transmitter. This transmission line is very scarce and difficult to obtain. I will check into it within a few days when I go to Syracuse in the interest of reviewing your entire equipment needs.

In connection with the tower, I suggest you get inquiries off immediately to the following twoer manufacturers:

Blaw-Knox Company P.O. Box 1198 Pittsburgh 30, Pa.	International Derrick & Mach'y Co. Columbus, Ohio.
Truscon Steel Company, Youngstown, Ohio.	Lehigh Structural Steel Co. Whitehall Building New York, N.Y.
American Bridge Company, Elmira, N.Y.	Bethlehem Steel Company Bethlehem, Pa.

You should ask for price, delivery, specifications and outline print covering:

90 ft. self-supporting radio broadcast tower  
hot steel dipped, designed to mount a  
General Electric 6-bay FM circular antenna,  
complete with all necessary anchors,

bolts, 300 m/m Beacon Flasher, intermediate obstruction lights and ladder. Tower to be designed to withstand 30# loading.

With your inquiry you should also ask for separate estimate for tower erection by either the tower builders or by erectors whom they recommend, as follows:

Erect 90 ft. self-supporting tower on concrete foundation provided by owner. Mount thereon a 6-bay General Electric Company FM circular type antenna complete with collar, yoke, supports, etc. Paint both tower and antenna as follows: one coat of red over-all and second coat to meet C.A.A. standards. Install 3 1/8" coaxial transmission line from base of tower to and connected with FM antenna. Install beacon flasher and obstruction lights including light line encased in ordinary rigid electrical conduit. Specify time required for erection and approximately when you can commence work after notification that the tower is delivered. Also include full liability insurance during period of erection and for one year thereafter.

This latter clause is to cover you on liability alone and not protection against the possibility of tower collapse. I suggest you investigate this type of insurance with your own local agent.

In the matter of your proposed station call letters, I am somewhat concerned since I heard that you have reserved the combination W T N Y. In my opinion, these call letters are altogether too close to your competing station W T R Y and would lead to a lot of public confusion, I am afraid. Similarities of this nature should be avoided in any city where broadcast coverage is approximately the same. You will find that the use of W T N Y would eventually prove to be a definite liability in more ways than one and I strongly urge you to consider some other combination. Personally I like W T R O or W R O Y. Both of these combinations suggest the location of the city from where the signal originates - Troy. There are many other combinations to select from and I would like to make the suggestion of a promotion plan in the nature of a public contest to your thousands of newspaper patrons. Get your publicity people busy and work up a real interesting call letter contest and offer as first prize something like one of the General Electric Model 417 AM/FM combination receiver and phonographs.

These contests often prove highly beneficial and interesting to the public during pre-construction periods and tend to make your potential listening audience definitely FM-minded.

Now about the FM receivers I discussed with you and Mr. Marvin. General Electric is making a special offer to all of their new FM customers to sell up to six units per customer their Model 417 FM/AM combination radio-phonograph consoles at a price of \$232.87 each. These consoles are the last word in receiver design and precision and retail for approximately \$350. It is my understanding that most of the FM broadcasters are availing themselves of this attractive offer. If you wish to purchase any of these consoles kindly let me know and I will route the order to the proper people within the GE organization.

I plan to spend at least one full day and maybe two with General Electric engineers at Syracuse next week primarily to make our initial survey of equipment requirements. The check-up will necessarily be preliminary incident to a later checking when our transmitter station and studios have been designed. However, it is important at this time because of critical items. Moreover, there is this urgent matter of ST relay link to consider immediately in the light of our needs and the ability of General Electric to have their designs ready and production started in time to meet our construction plans. The last time I was at Syracuse I heard that their ST equipment is still in the design stage notwithstanding the fact that they have several hundred orders pending for this type of equipment. I am going to make certain that we will not be stymied by ST equipment.

On Monday I will be at my office most of the day but plan to meet with some bankers at Cobleskill Monday night on certain promotion plans under way for a new station in that village. However, I leave on the sleeper for the west Monday night and at this moment do not have my schedule perfected while meantime awaiting some telegrams. Very likely I will not be back in Schenectady prior to next Saturday morning. However, should you wish to contact me before that time, you can reach me at Lockport or Oswego or care of W R David, GE Company, Thomson Road Plant, Syracuse.

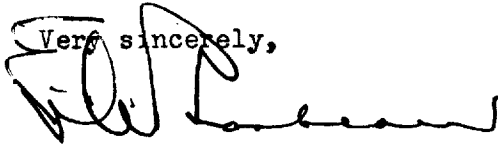
I can see nothing urgent for me to do in Troy next week while awaiting your real estate man's efforts to locate several prospective or potential studio sites for me to inspect. But as near as can be presently determined, I expect to be in your office Monday morning, February 17th.

While at Syracuse next week I plan to check into the availability of their new colored talking-movie film - "The Story of FM" which should soon be ready for use in the promotion of FM by both GE and its many FM customers. If you have never seen the film ( at least the old one ) you have a treat coming to you. It is really something.

Thank you for your telephone call telling me to date our contract agreement. I had not noticed the date was missing but have dated it as of the 7th and used pen and ink to do it.

Best regards.

Very sincerely,

A handwritten signature in cursive script, appearing to read "Ernest A. Barbeau". The signature is written in dark ink and is positioned above a horizontal line.

Ernest A. Barbeau

EAB/MW

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