

BROOKHAVEN NATIONAL LABORATORY  
UPTON, L. I., N. Y.  
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December 27, 1956

MEMO TO: Richard M. Emberson

FROM: Charles F. Dunbar

SUBJECT: Radio Astronomy Project -- Meeting of December 18, 1956

The purpose of this memorandum is to provide a record of our meeting at the National Science Foundation on December 18, 1956. The following persons were present:

National Science Foundation: Messrs. Harwood  
Callender  
Edmondson  
Morgan  
Ruttenberg

Associated Universities, Inc.: Messrs. Emberson  
Dunbar

The first topic discussed was the need for giving instructions to Mr. Porter in regard to future action to be taken by him to secure from FCC and/or IRAC radio noise protection for the Green Bank site and possibly on a nationwide basis. Emberson pointed out that Porter had already filed with the FCC a notice of our intent to continue the case for the protection of Green Bank and indicating a wish to be notified of any hearing with respect to allocation of frequencies in excess of 890 MC. This was filed pursuant to notice published in the Federal Register, and December 17 was the deadline for filing. Porter also understands that there is a tentative proposal for a regulation protecting the hydrogen line, but no notice has yet gone out.

The question of the extent of NSF's interest in this matter was discussed. It was suggested that NSF was under some obligation to secure the maximum protection for radio astronomy as a science. On the other hand, AUI's interest is strictly limited and, in Emberson's judgment, protection at 1400 to 1430 MC would be adequate for Green Bank, as matters now stand. However, the danger that any purely local regulation might prove useless in the near future with the development of high frequency transmission was recognized.

It was finally agreed that Porter should be instructed to proceed on behalf of AUI in the following manner:

1. Porter should work with FCC and IRAC to create a zone of avoidance at Green Bank to be observed in the issuance of future licenses.
2. He should endeavor to work out the best arrangements he can for the protection of Green Bank, by setting up prohibited and restricted zones regulating airplane flights. This would involve action by the Department of Commerce.
3. Porter should encourage FCC to develop a plan for changing the terms of existing licenses, so far as possible, to protect Green Bank.
4. Porter should do nothing which would prejudice any attempt by NSF or some other agency to secure some nationwide system of protection.
5. Porter should keep NSF fully informed.
6. Porter should make every effort to discourage litigation designed to test the constitutionality of the West Virginia Zoning Act.

Emerson telephoned Porter and reported that the latter was going to prepare a presentation on the 890 MG problem and also would try to develop some workable method of protecting Green Bank on a case-by-case basis on applications for all future licenses. He will also prepare a draft of the request, from NSF to the Department of Commerce, to establish for Green Bank a zone of protection against aircraft. In Porter's judgment, the airlines are not particularly disturbed over a limited plan designed to serve the needs of AUI, but are greatly troubled over the much broader requests which have been made by GNR and others.

The next topic discussed was site acquisition, and Callender reported on his meetings with the Corps of Engineers. He pointed out that the figures he received from the Corps of Engineers, which are set out in memorandum dated November 21, 1956, do not differ very much from the option prices. He said that the option prices totaled \$730,000 for 6000 acres, as against the estimate of \$930,000 made by the Corps of Engineers. However, the options left some nine islands which are included in the figures presented by the Corps. These islands are appraised at \$120,000, which brings the option figure up to \$850,000. The Corps estimates acquisition costs at \$600 per tract, and the cost of obtaining restrictive covenants at \$150 for farm property and \$200 for town property.

Callender has also been in communication with the Forest Service and found it highly cooperative. The Service is quite ready to give licenses to use as

much of its property as may be necessary. It also recommends that the plan of reserving life tenancies to existing owners be eliminated. It sees no objection to leaseback arrangements.

Edmondson said that he had polled the Foundation's Advisory Panel as individuals and not in their official capacity. The consensus was that, if necessary, acquisition of the northern part of the tract could be deferred. The area of approximately 2,000 acres to the southwest is regarded as the most important.

Emerson emphasized the importance of limiting the cost of the land to \$600,000. He described the opinions expressed by Dr. Kavanagh, who thinks that in all probability the price of steel will go up another 15 per cent during the next two years. Also, we are almost certain to be confronted with escalator clauses in all purchase arrangements.

Harwood then proposed the following program:

1. Establishment of a ceiling of \$650,000 for site purchase and covenants.
2. The first property to be purchased should be as follows: Starting on the west at the boundary of the Forest Service land, proceeding south from coordinate M to a point below the ridge which lies somewhat to the west of the town site (Green Bank). Proceed then easterly approximately along coordinate G between coordinates 5 and 7 to Route 28, skirting the town site. From coordinate 7, the boundary should follow Route 28, omitting the houses north of the town site and skirting Arbovale, to the road leading to the Hanna place. This road should be followed to coordinate 8, and then north to coordinate M.
3. If any money is left over after purchasing the tract described in 2, site acquisition should proceed in a general northeasterly direction from coordinate M on the north and Route 28 on the east.
4. The third area of purchase should be the property lying to the south and west of Route 28 and to the west of Green Bank, all south of the ridge.
5. The final area for purchase should be the land to the south and east of Route 28 between Green Bank and Arbovale.
6. All property not purchased should be covered by covenants, including the town sites.
7. In every case where property is purchased, the entire title should be acquired.

Callender pointed out that the Corps of Engineers would prefer to proceed slowly with the acquisition program because this will enable them to make better bargains. Values for condemnation purposes will not be affected by the acquisition program itself, provided the program is continuous.

Emberson suggested that the Hanna place itself should be the first property acquired, together with the land near it where the electric power substation will have to be located.

Emberson asked whether AUI could be placed on the list of purchasers of surface electronic equipment. Roberts said that this could be arranged as soon as AUI designated a representative.

Emberson said Ashton was troubled at possible conflict with respect to patentable information between his obligation to AUI and his obligation to the Navy Department. Rutenberg will write to AUI about this.

Emberson reminded the meeting of a plan to establish a radio astronomy museum on the site. It was agreed that NSF will undertake to get physical possession of Reber's original equipment, which is now in the hands of the Bureau of Standards. NSF will also write to Dr. Menzel of Harvard and see if he can obtain the Ewen-Purcell horn.

CFD:VN

cc: REmberson (2-x)  
LRBurchill